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For Inspection File

D
Supervision-Carson,
(Inspection)

August 18, 1919.

Memorandum for District Forester:

A rough inspection of the Taos District was made from August 8 to August 14 and general administrative affairs for the Forest as a whole were discussed with Mr. DeCamp. I wish to present the following conclusions and recommendations for your approval:

General Personnel:

The present force is as follows:

BARKERS JUST LEFT?

One Supervisor,	$ —
One Deputy, L. F. DeCamp,	1500
One Clerk, J. H. Lackey,	1200
One Stenographer, Katherine J. Lindsay,	900
One Forest Ranger - Canjilon -(To be filled)	1300?
" " " - San Antone- (Ground)	1200
" " " - Taos - (Dwire)	1200
" " " - Questa - (Cottam)	1100
" " " - Servilleta- (Bruhl)	1100
" " " - Jicarilla - (E.S.Perry)	1100
" " " - Asst. San Antone(R.L.Ground) six mos.	1100
" " " - Asst. Taos, yearlong, (Blake)	1100
" " " - Asst.Servilleta, 6 mos.(Scofield)	1100°

°Temporarily in charge of Canjilon District.

One Scaler - W. J. Perry	1400 Misc.
One Forest Ranger - Evan W. Hadley,	1100
One Telephone Operator, Tres Piedras, (Mrs. Perry)	180

The above lineup shows three floating $1100 statutory rangers, part or all of whom could not permanently be spared by this office or could not be efficiently used during the winter.

It seems desirable and Mr. DeCamp agrees, to convert one of these floating positions if possible into a permanent yearlong improvement ranger. Mr. DeCamp states that he could use the improvement man during the winter to much better advantage than he could use the equivalent in a floating ranger position.

The only available material for such an improvement man is E. L. Perry now on the Jicarilla but I understand that Perry is satisfied on the Jicarilla, and after an inspection by Supervisor Barker was pronounced by him to be making good. I therefore very much doubt the advisability of using him.

The alternative would be for this office to look out for an available improvement man and assign him to the Carson in exchange for one of the floating statutory positions.

Reestablishing the Vallecitos District.

The fact that there are three floating assistants also brings up the question of the advisability of reestablishing the Vallecitos District. As long as this District remains divided it necessitates a summer assistant for the Servilleta and possibly also for the Canjilon District, and as long as these summer assistants are statutory it leaves one or two awkward shifts to be made each winter. It is

understood that the Vallecitos District is not a heavy district but it should nevertheless be borne in mind that there is a fairly well equipped ranger station at ~~the~~ Vallecitos and it also seems to be a fact that the business of the Vallecitos Valley is not transacted very satisfactorily. It is possible that the Vallecitos Valley business could be more satisfactorily handled if the ranger would make a regular monthly trip for the purpose of handling this business all at one time. Even if such a plan would satisfactorily handle the small sales, etc., I am inclined to doubt whether the grazing patrol is satisfactory. In any event I strongly recommend that the new Supervisor make a decision as early as possible as to whether he desires this district re-established. This decision should be made before winter and one of the three extra places used if necessary.

San Antone Assistant.

Mr. DeCamp states that a summer assistant on the San Antone is necessary in any event and I am inclined to agree as long as the district stands as at present. In the event that the Vallecitos District should be re-established, it might be well to consider the possibility of enlarging it on the east and enlarging the Servilleta District on the north so as to more evenly balance the work on the ~~two~~ three districts.

Disposal of Extra Statutory Places.

The foregoing proposals will probably result in the disposal before winter of one or two of the extra positions now

assigned to the Carson. The Supervisor should inform this office before winter of how he can use any remaining positions so that this office can consider the possibility of winter transfer to work on the southern Forests.

Forest Clerk.

Subsequent to the recent assignment of Joseph H. Lackey as Forest Clerk at $1200 pending certification, it became known that Mr. Pasqual Martinez of Taos was available for this position. Mr. Martinez would undoubtedly make an exceptionally useful clerk provided he would regard the position as permanent. I recommend that Mr. DeCamp inform this office before September 6 whether Mr. Lackey is making good and whether he thinks that his family will be satisfied in Taos. If Mr. Lackey is making good but the chances are that his family would not be satisfied, Mr. Lackey should be transferred on expense and Mr. Martinez should be asked to take the examination on September 6.

Efficiency of the Present Personnel.

It is my opinion that Mr. DeCamp, considering the handicaps under which he has been working, is doing exceptionally well. I suggested to him that he complete his knowledge of field conditions as far as possible before winter since it will probably be impossible for the new Supervisor to cover the whole Forest before the winter season, and the handling of next spring's grazing business would make it very necessary for one man in the office to be thoroughly in touch with field conditions.

I understand that the present stenographer, Miss Lindsay, is not satisfactory. Her probational period expires in October. If no improvement is shown before that time, steps should be taken toward letting her out.

Ranger Scofield now on the Canjilon District, does not appear to be very promising and does not appear to regard his connection as permanent.

Ranger Ground on the San Antone is evidently the top ranger and is doing excellent work.

I saw considerable of the Taos District and believe that Ranger Dwire is doing very well indeed and merits his recent promotion. There may be some question as to whether he is making full use of his somewhat exceptional education and ability but his present duties are being performed very satisfactorily.

Ranger Cottam on the Questa District, Mr. DeCamp considers a very promising young fellow. It is too early to say what his line of development will be.

Ranger Bruhl on the Servilleta is said to be a very hard worker but as yet lacking in system. This results in his putting forth efforts disproportionate to the results. However, next to Ground, he appears to be the most promising District Ranger.

Ranger Perry on the Jicarilla was pronounced by Supervisor Barker as making good and Mr. DeCamp considers him very satisfactory there.

Ranger Blake, now assistant on the Taos District during Mr. Dwire's assignment to the office, is a very young man of pleasing personality and evidently very much in earnest. He will probably develop into a very good man.

Ranger Robert L. Ground on the San Antone is not yet thoroughly known but appears to be very satisfactory.

Trail Inspection.

I had an opportunity to inspect the new Pueblo Trail and the South Boundary Trail, which are being constructed under Ranger Dwire's supervision, and I consider both to be very good pieces of work. The locations appear to be very satisfactorily made and the trail work itself is excellent with the single exception that it is probably too good in some places due to the excessive width cleared of underbrush and timber. Ranger Dwire is aware of this and is watching his men. I am not yet in a position to pass on the cost of these trails, which ~~are~~ is averaging $150 per mile.

Fall Fire Season.

The indications are that there will be a fire season this fall and Mr. DeCamp has this in mind. As nearly as I could see he is fully prepared to meet the situation with one exception and that is with respect to the Taos Canyon telephone line. This line is at present in dilapidated condition on account of having been moved by the road crew. It will be necessary to have this

Memo...

line in working order before the fall fire season sets in so as to allow dependable connection with the Taos lookout.

Miscellaneous.

Separate memoranda are being submitted as follows: L, Boundaries-Carson, Land Exchange, of with regard to a possible exchange involving the Lereux Grant, and DER, Taos Canyon Road of August 13, regarding the unnecessary clearing of valuable trees along scenic road routes.

Aldo Leopold

Assistant District Forester.

9/4/19.
Noted with interest
and approved -
ALS.

D
Supervision-Carson,
(Inspection)

September 6, 1919.

Acting District Forester,

Taos, New Mexico.

Dear Mr. DeCamp:

Enclosed is a copy of Mr. Leopold's inspection memorandum dated August 18, which meets with my approval.

This office will try to find an available improvement man to be exchanged for one of your floating statutory positions.

Please make a promise card for the new Supervisor to decide in regard to the possible reinstatement of the Vallecitos District.

We will be interested to know about the clerical situation as outlined on page 4 of the memorandum.

I am very much pleased to know of your excellent trail work and wish to congratulate Ranger Dwire.

Very sincerely yours,
Paul G. Redington.

District Forester.

Enclosure-

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
CARSON NATIONAL FOREST

F. S. D-3
SEP 12 1919
Referred to
DISTRICT FORESTER

ADDRESS REPLY TO
FOREST SUPERVISOR
AND REFER TO

D
Supervision-Carson
(Inspection)

TAOS, NEW MEXICO

September 9, 1919

District Forester,

Albuquerque, N. M.

Dear Sir:

Reference is made to your letter of September 6, and Mr. Leopold's memorandum to you of August 18.

The matter of the re-establishment of the Vallecitos District will be taken up with the Supervisor as soon as he arrives on the Forest.

In regard to Mr. Lackey, I wish to state that he is doing very good work and will, I believe, make us an excellent Clerk. Both he and Mrs. Lackey are satisfied at being in Taos, and it is their desire to remain for some time. In order to establish eligibility, it is Mr. Martinez's intention to take the First Grade Examination which will be held here for Mr. Lackey on September 20. In this way Mr. Martinez will be an eligible for a year in case a vacancy does occur.

Several weeks ago I had a personal talk with Miss Lindsay, and pointed out to her just wherein her work was falling short and what would be expected of her if she retained her present position. A decided improvement is noticed in her work since that time, and if this improvement continues, I

doubt if it will be necessary to recommend the termination of her appointment.

Since Mr. Leopold's inspection the Taos Canyon Telephone Line has been repaired and placed in serviceable condition, and is all ready for any fire emergency. In this connection, a recent general rain has removed all danger of fire for a period of at least two weeks.

Very truly yours,

Luck Bellamy

Acting Forest Supervisor.

F. S. D-3
OCT 16 1919
Referred to
DISTRICT FORESTER

O
Improvement, Datil
Baldwin Ranger Station.

Oct. 13, 1919.

MEMO FOR DISTRICT FORESTER:

I stopped at this Station on October 7, and examined the barn which is painted with brown Pabcoat paint. In my opinion the paint in its present condition is far from displeasing. It is neither pink, streaky, nor crumbly, as alleged in some of the complaints from other Forests.

I suggest that all of the Forests which have complained of this paint be asked to send in a 6 x 12 sample, a statement of whether the trouble occurred on rough or smooth lumber, and an explicit statement of whether linseed oil or any other substance was added to the paint; also whether the mixing was thoroughly done.

I am asking Mr. Douglas to send in samples from Baldwin.

The Baldwin Station (adobe) is a very good job. It has been pebble-dashed, after putting two nails in each adobe and picking out toeholds in the cracks. In spite of this the plaster sounds hollow. I do not think that adobe stations can be successfully plastered with anything but adobe.

The grounds and station at Baldwin are very neat and orderly and Ranger Barksdale has also produced a very good crop of oat hay.

Aldofefold
Assistant District Forester.

District Forester.

O
Improvement-Datil
Reserve-Negrito Trail

Oct. 13, 1919.

Referred to DISTRICT FORESTER

MEMO FOR SUPERVISOR:

I looked over this project in company with Ranger Simmons and Supervisor Douglas on Oct. 11.

From Reserve to the Tularosa River (2 miles) this consists of a standard trail, and is a good job both as to location and construction, with the exception of the cross logs, which are in part small, crooked, insufficiently sunk, and poorly anchored. The logs would do if they were let into the ground better.

From the Tularosa River up the Negrito (7 miles constructed to date) the trail really consists of a wagon road. This has naturally run up the cost, which is over $200 per mile to date. I consider the cost as very reasonable, considering the class of work, bad weather, and difficulty in keeping a full crew. I doubt, however, whether the road will continue usable as a road without pretty heavy annual maintenance. I suggest that Mr. Kiehne, who is the chief beneficiary among the permittees, might agree to keep up the maintenance work. It has to be done in some way or the road will soon be gone.

Foreman Musick seems to be very competent and a special effort should be made to develop him into a trail man. There is a lack of qualified foremen on this Forest.

The trail camp was in poor condition. Refuse pits had been dug but were overfilled and a good deal of litter was lying about. Ranger Simmons took steps to correct this.

(Sgd) Aldo Leopold.
Assistant District Forester

1440 INSPECTION
GII - Cibola
Vol. I
FRC 3613

(Expired 1919 - Datil)

OFV

B
Supervision
Datil

October 24, 1919.

Forest Supervisor,

Magdalena, New Mexico.

Dear Mr. Douglas:

Enclosed herewith, is Mr. Leopold's inspection memorandum of October 13. This has been approved by Mr. Redington and is sent you in the hope that the suggestions made will prove of value. This office is highly appreciative of the good points which Mr. Leopold and others have found on the Datil, but we hope that the other matters to which your attention is called will receive your serious study and consideration.

Very sincerely yours,

PAUL G. REDINGTON, District Forester.

Enc.

By Frank E. Andrews Acting.

AL

Mmwk

copy for R. F. files

For Inspection File

Supervision

October 13, 1919.

Inspection Memorandum for District Forester:

I spent September 22-29 at the Ranger meeting and until October 15 on a general inspection of the Datil Forest. With the exception of the San Mateo Division and Chloride District, which will be covered later, I visited each station and spent from one to three days at most of them.

Time prevented anything approaching a thorough examination of each line of work, but the following comments on certain special lines are probably fairly reliable as an index to the general condition of the administration of the Forest:

Newly Constructed Stations: Very good. The new improvements at O-O, Baldwin, Luna, and Reserve, are very creditable both as to planning, location, construction, and appearance, to the improvement men, the Rangers, and the administration in general.

Order and Sanitation at Stations: Fair. Conditions at Water Canyon are exceedingly bad, and the outhouse at Tularosa is bad, but the average of the stations I saw is good.

Boundary Posting: Poor. Should be completed for Forest by spring.

Public Relations: Good. I heard no complaints on my trip, and considerable positive evidence of good will.

Sign Work: Poor. I saw about a dozen signs on my trip. A positive effort is already under way, however, to catch up with

this work this winter.

Selection of Personnel: Good. The Ranger meeting alone was sufficient to demonstrate that there has been no lack of skill in the selection of personnel material. In fact, considerable credit is due Mr. Douglas for having such a promising bunch of men after the difficulties of war time.

The foregoing comments show that the Forest is behind with certain special lines of work, but they are mostly of such a nature as to be easily and quickly remedied.

I have been forced to the conclusion, however, that there is something wrong with the management of the personnel, and that until this defect is located and overcome, no entirely satisfactory progress can be made. I am very much in hopes that my discussions with Mr. Douglas, as summarized in this memorandum, may assist him toward this end.

The following may be cited as "symptoms" of the existence of some deep-rooted defect:

(a) Turk and Salton, when I questioned them, gave me the impression that they were not fully satisfied with their own progress. They do not have the air of men who have been given a definite responsibility, a free hand to find their own ways and means for carrying it, and a word of encouragement for meeting responsibility successfully, or for evolving a new idea. They have the air of men burdened with "chores."

(b) There is a surprising lack of initiative in the Ranger force. Chipman, Simmons, (and possibly Russell) were the only men who gave me evidence of independent thinking or action.

(c) While the entire force is loyal to Mr. Douglas and to the Service, no convincing evidence was given me as to its positive nature. In this connection I might say that with possibly two exceptions, I got well enough acquainted with all the men to give some force to this comment.

If any of these men were poor material for their respective positions, the above "symptoms" would lose significance. I am also constrained to say that this would also be the case if Mr. Douglas lacked a likeable or forceful personality. But neither of these "ifs" will hold water. I am therefore forced to the conclusion that there is something wrong with the personnel management.

I wish to go into a little more detail in regard to the state of mind of the office staff. A synopsis of the diaries for the past field season shows the following:

June to September, 1919.

Name.	Percentage of Time in Office.
T. C. Turk	78%
R. C. Salton	85%
Robert Munro	70%
	170%--nearly two men in office this season.

Of course these figures can be interpreted in various ways, and only in connection with other circumstances. I seemed to notice for instance, a feeling that Salton and Turk were often "held up" because a certain piece of work was not ripe for action. But why was there not plenty of big stuff to do in the meanwhile? The most apparent explanation is that their work has been handed out to them in such a way as to appear as separate "chores", and that they have not been confident as to just how long their rope was. Certainly neither of them are lazy, and I noticed one very positive instance of how Turk brightened up when given a free hand to achieve a certain result that I suggested.

Salton, while very industrious, painstaking, and thorough in the execution of his work, seems to be in a state of mental lethargy as far as imagination and constructive thought is concerned. He is diffident and awkward in receiving permittees at the office. This may be partly the result of his natural disposition, and partly financial worries, but I also feel it is partly the result of unskillful handling. Turk often looks dull and discouraged, but as stated above, brightens up when he has something real to do in his own way. Munro is always alert, affable, and efficient, but has not entirely overcome his handicaps of speech and manner. I understand that when Turk first arrived there was an embarrassing misunderstanding as to the respective authority of himself and Munro. This should have been prevented.

The foregoing indicates why I think the personnel has not been properly handled. The gist of the matter is that Mr. Douglas has picked excellent men but has not put them in a frame of mind to work for him enthusiastically and effectively. Now the question is, just what has he done or left undone to produce this result?

My answers to this question must necessarily be fragmentary, and perhaps in some respects incorrect,---it is a question that he will have to analyze for himself. I will suggest the following points, however, for what they may be worth.

(a) He has in some way failed to make his men feel that they have a free rein within certain limits, and then defined the limits. For instance, when Simmons acted as "Chief Ranger" during the war, I understand he was given no letter of authority defining his relation to the other men, and several disagreeable experiences resulted.

(b) He has not been skillful in giving his men a feeling of pride, confidence, and importance. For instance, at the interforest grazing conference which I attended, he made a decision on a case that Turk had handled and was "primed" on without once calling on Turk for an opinion. In fact, he interrupted Turk several times when he tried to talk. Considering the nu mber of others present, this alone was enough to "rankle" for many months.

(c) He seems to sometimes give inconclusive answers when his men ask him questions, and leaves them with an "up in the air" feeling. For instance, a certain discussion with Simmons on free pastures. The answer was "all there" but it lacked a convincing summary.

(d) I feel also that when the men are at fault, they are not given a concise understanding of where, when, and how, and an explicit statement as to its correction. For instance, I find nothing in the Garst file about the condition of his station, whereas the untidy state of affairs there has evidently been of long standing. Garst was even marked "S" in the last rating. An "S" rating in his case is absolutely unjustifiable. A low rating, coup ed with a friendly explanation of just what was necessary to improve it, might have been effective. Garst seems to have been considered a kind of joke until he himself agrees, and it is going to be a hard job to get him to take himself seriously.

(e) I feel that there has possibly been a tendency on Mr. Douglas' part to "take up with" certain men spasmodically, and give the others the impression of favoritism. I have not the least idea that favoritism exists, but if the impression exists, the harm is done, not only to the other men, but especially to the men temporarily taken into special personal relations.

Some of the foregoing is to be accounted for by a shortage of help. Douglas has virtually three good deputies, four "floating" ranger positions, and several "light" districts. This is high in comparison with other Forests.

In connection with this memo, see also the list of memos attached.

Assistant District Forester.

Sgt OK
PC

DESIGNATION	DATE
O Improvement-Datil Hood Ranger Station	October 11, 1919.
O Improvement-Datil Reserve-Negrito Trail	October 13, 1919.
O Improvement-Datil Luna Ranger Station	October 13, 1919.
O Personnel-Datil, Simmons, J. A.	October 13, 1919.
O Personnel-Datil Chipman, Hugh E.	October 13, 1919.
O Fire-Datil Saddle Mt. Lookout	October 13, 1919.
O Improvement-Datil Baldwin Ranger Station	October 13, 1919.
O Personnel-Datil Garst, S. E.	October 13, 1919.
G Fish & Game-Datil Kill Factor Experiment	October 13, 1919.

Assistant District Forester.

GII - Cibola
Vol. I
FRC 3613

(Scopred 1920 - Manzano)

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~~O~~ - copies to Manzano
OF

For Inspection File

D
Supervision,
(Inspection)

Each office will be furnished with parts relating to its work after which memo has passed around. AC

April 22, 1920.

TAJIQUE DISTRICT

The following is based on a trip over the Tajique District made in company with Acting Forest Supervisor L. J. Putsch, April 12 to 19.

Stations:

The Tajique Station was found to be in very neat and orderly condition, and with the exception of minor maintenance work is very well adapted for the use of an assistant ranger. The station consists of a well constructed log house very attractively placed in Tajique Canyon.

Bath Tub may be moved whenever the new star is built. Bath room just nitrogen removed in Repair. JJM

The Mountainair Station, which I believe has been heretofore considered as good enough to warrant the addition of a bathroom and other improvements, is of board and batten conttuuction with practically no studding and the walls are badly bulged for about five feet above the foundation. Putsch is to make a special examination of the building and submit his opinion as to whether the building is good enough to spend any considerable amounts of additional money upon. The grounds at Mountainair were found in fair condition and doubtless would have been in perfectly satisfactory order but for the recent sickness in Ranger Shartzer's family.

I noticed that the bathtub supplied for the Mountainair Station is of the regular three-quarters length. I think

it would be well to consider whether the extremely short tubs are not better adapted for our use. They would take up less room and are much easier to fill with a satisfactory depth of water and also naturally cost less.

Forage Crops, Pastures, Etc.

A satisfactory stand of alfalfa has been started on the lower parts of the Tajique Station. Putsch will raise grain (either corn or oat hay) on the remaining parts. A very interesting development is taking place in Tajique Canyon - several of the local ranchmen have successfully started alfalfa as a dry farming crop on soils which ordinarily would be considered too dry and rocky for any crop. The reason for the success of the ~~outcome~~ sowing so far is doubtless found in the fact that this is a limestone country especially adapted to alfalfa.

Putsch and Shartzer are considering the possible subdivision of the Mountainair pasture or some other pasture, partially with a view toward facilitating the handling of the ranger's stock, and partly with a view to a practical demonstration of rotation grazing.

The Manzano could have bought grain last year for $2.75 but on account of the delay due to the requirement of bids and the reluctance of local dealers to obligate themselves on paper, the price actually paid was $3.25. I am inclined to believe that the money lost in this way amounts to large amount for the District as a whole and suggest that the Supervisors be authorized in their discretion to reject

high bids and buy on the open market whenever money can be saved by such action.

Land Exchanges:

The Tajique District consists mainly of Gross Kelly (Mora Timber Co.) lands, First National Bank lands (Receiver for Pennsylvania Development Co.) and State lands. Forest lands are very scattering. It is my conclusion that a proper organization of our work is nearly impossible until these alienations have been acquired through land exchange.

For instance: (a) adequate fire administration demands a north and south trail along the crest, but half of the money would have to go on state lands. (b) In the Clack grazing case there is an implied threat that if we do not accede to his demands he will fence his private lands, thus chopping our range into nearly useless pieces. (c) Recreational development demands the use of the Punta de Agua (La Quarai) and Manzano ruins as focal points, but we do not own these features. (d) There are 6 mills, three cutting our timber part of the time. But ~~this~~ there is no way to anticipate what our administrative force should be because the work of supervision varies from nothing to very heavy. (e) Cooperative fire plans are probably not practicable because the alienations are so heavy and a really satisfactory fire organization is impossible while the alienations remain. A fire might run out of these lands any day and destroy all reproduction in the brush fields elsewhere described. (f)

The telephone system is curtailed on account of alienations.

The Gross Kelly lands contain 30 million feet. The annual cut is less than a million. They seem to be following a small mill policy. Moreover, they do not seem to desire to retain their cutover lands for grazing. Everything therefore seems favorable for an exchange, progressively trading our stumpage (on the Santa Fe or elsewhere) for their cutover land, and for stipulations assuring conservative cuttings. (Our local stumpage is nowhere near sufficient for this trade and should, moreover, be reserved for the local agricultural development). A study of the tax policy of Torrance County might bring out some additional arguments for such an exchange.

Fire:

The large proportion of alienations would naturally suggest the advisability of cooperative fire agreements with the owners of private lands. However, after considerable thought on the subject, I concur in Putsch's opinion that the alienations are so heavy and our own holdings so small that the plan of cooperative agreements would hardly be workable without placing a serious additional load on our organization.

Brush Fields and Fire:

Along the crest on the east side is a belt of oak and locust brush a mile wide and ten miles long. T his is the largest and densest continuous brush field I know of. It is plainly a clean burn of the Douglas fir type, probably very

old. Reproduction is coming in from the edges. The oak will undoubtedly support a bad fire. If such a fire occurs it would set back the reproduction indefinitely and also damage the watershed. This is therefore a very important fire problem. The fire hazard in this field is increased because of the belt of alienations adjacent to it from which fires might easily ascend. Wiping out these alienations would increase our chance of successfully reproducing this old burn.

Recreational Uses:

The alienated claims in the Tajique area will some day present a problem involving sanitation and other developments on private lands similar to that presented on Oak Creek on the Coconino. When the time arrives that these private lands come into demand for cottage purposes, an attempt should be made to secure a cooperative agreement from the land owners whereby we will furnish such services as are needed for private lots and the land owner will enforce our minimum requirements on his lots.

Tajique Canyon is one of the very few areas I have seen in the Southwest that has not in any degree been spoiled by erosion. This fact is responsible for a large part of its recreational value. This condition can be perpetuated by careful guarding against overgrazing and by doing everything possible to prevent the elimination of the willows which now protect the stream banks.

Recreational Development:

Very few of our recreational areas are more attractive than Tajique Canyon. Everything considered, it is nearly as good as Las Huertas and larger. The lower parts are badly cut up by patented claims. The most attractive feature is that it has not been overgrazed and eroded. There is as yet no large demand or use. The plan of development should be, in my opinion, to restrict cottages to the lower and more accessible parts and save the upper canyons for camping, picnicking, etc. Cottages should not be allowed higher than the tool box and possibly the limit should be a mile lower. The upper canyons are particularly attractive by reason of the maple and oak groves.

Roads and Trails:

I understand that certain outside parties have made a proposal to build a scenic road over the Albuquerque trail route. Besides being very expensive I think such a road would interfere with the recreational development of the Tajique watershed which can be better handled on a stub road basis. I do not think there is much danger of this project being carried out on account of the expense.

The trail work which has been accomplished along the crest in past years is very creditable but needs to be maintained. Again the alienations constitute the chief obstacle to laying out an intelligent trail plan. I think that the trail plan will have

to be drawn regardless of alienations; the construction of those parts on alienated land simply being postponed pending some sort of an outcome on the exchange proposition. I would very strongly suggest that Kissam assume the principal responsibility for the trail working plan for the Forest.

Signs:

Due largely to handicaps on account of illness, sign work on the Tajique District is pretty far behind. Most of the 1919 signs are still in storage. This has probably been unavoidable on account of personnel changes and sickness. I consider it highly important, however, that both the 1919 and 1920 signs (the latter will doubtless be received within a few weeks) be put up before the end of the present field season and also that next winter's requisitions be planned and made during the course of regular work during the coming field season.

Timber Sales:

We found the local business men at Mountainair considerably disturbed over the retail lumber situation. It appears that the product of the Gross Kelly mills is mostly exported and that recently their orders have been so heavy and their production so low that it has actually been at times impossible to buy lumber at retail at their Mountainair yard. Putsch and I had a conversation with their representative, Mr. Harrison, who stated that he rather regretted the difficulties and that his company recognized a moral obligation to provide

retail service for the local community. This being the case we advised the local business men to get together with Gross Kelly and told them that apparently it was not necessary for the Forest Service to do anything. Both parties desired us to act as intermediary but inasmuch as both parties seemed to take a friendly and reasonable attitude, we saw no obstacles toward getting together on a plan mutually satisfactory. We also informed the local business men that it was our intention to hold the Tajique watershed timber for local consumption purposes and that they need not fear any exhaustion of the local timber supply. Another difficulty has been that the McKinley mill has not been running their planer and accordingly ~~service~~ surfaced lumber has not been available. Mr. Harrison stated that the planer will be run from now on.

I inspected the A. B. McKinely (Iden) sale area in company with Putsch and Shartzer. The marking seemed to be very satisfactory. There were a few high stumps, a few dead snags not felled, and the brush piling was unsatisfactory over most of the area due to the permittee having made an attempt to burn the brush as cut. In doing so he destroyed some reproduction needlessly and did not get a clean burn nor dispose of the tops in the proper manner. The local officers are well aware of these facts and have not yet accepted the area.

Grazing:

The main issue in the Clack case seems to be the

carrying capacity of the Tajique allotment. I understand This is now stocked at about 10 head per section while our figures for carrying capacity are 25 head. While not qualified to express an official opinion, it was my impression that the parts of the allotment which I saw were not understocked.

The danger of poor handling of stock in the crest country is well illustrated at the Bosque ranch, where the vicinity of the ranch has been badly cut up in the past by goats and cattle and erosion has set in. In my opinion this crest country is too steep and the openings too few to allow of more than very light grazing.

Erosion Experiments:

While camping in Priest Canyon, Putsch, Shartzer and myself had a couple of hours on our hands and put in three experimental brush dams in some branch arroyos on the west bank about 100 yds. north of ~~a~~ the spring at the Jacobo Gurule homestead. A diagram of the location is attached.

No. 1 is in the head of a gully 2 ft. deep and consists of cedar brush thrown into the upper 12 ft. of the gully, filling it about half full. The brush is loose, being held down by only a few small rocks. Butts are laid both ways. Construction time: 1 man, 10 minutes.

No. 2 is at the head of a gully 5 ft. deep and consists of cedar brush laid just above the head of the gully with the idea of preventing its recession. The brush is laid butts down

and is weighted with fairly good-sized rocks. The area covered by the brush is 6 ft. by 4 ft. The purpose is to determine whether the gully will eat further back or whether the brush will hold it in its present position. C onstruction time: 1 man, 10 minutes.

No. 3 consists of a dam of cedar brush, butts up, laid in a gully 9 ft. deep and 12 ft. wide, about 20 ft. below the head of the gully. The dam is 5 ft. high and is pressed down with a few large rocks. We found that it is impossible to build a dam of this height out of coarse brush without using rocks to hold it approximately horizontal. The purpose is to determine whether any filling will take place in the head of the gully above this dam or whether the head of the gully will recede in spite of this filling. Construction time: 1 man, three-quarters of an hour.

The general nature of this site is not very favorable for erosion experiments for the reason that erosion seems to have already been checked to a considerable extent as evidenced by slight sod forming in the bottom of the gullies.

Wind Erosion in the Estancia Valley:

One of the most serious conservation problems in this general community is the "blowing" of cultivated lands in the Estancia Valley. The winds this spring on land which has not been properly cultivated have blown away an incalculable amount of very fine soil, thereby not only detracting from the permanent value of the agricultural lands but also destroying roads, fences,

and other improvements. I can not help but think that there is a possibility of partially solving this problem by the use of windbreaks and if such is the case, there is a very large opportunity presented to us for useful community work. I would recommend that the local officers continue to study this problem and that S take the matter up with the Service men who have been studying windbreaks in the middle West with a view to getting their advice.

Local farmers are figuring that by planting rye in the fall for winter pasture, wind erosion can be largely retarded.

Boundaries:

A fairly careful examination was made of part of the ground covered by the recent petition from certain citizens of Abo. This lies west and north of the Priest Canyon spring and is hilly country covered with woodland including a considerable supply of white cedar posts. There would be no more reason for farming this area than for farming any other rough mountain country. The fact that it is absolutely valueless for farming is demonstrated by the fact that there are nine claims in Priest Canyon immediately to the west, everyone of which is far superior to anything that could be found on any of these sections. Of these nine claims only two are occupied and cultivated. In the case of one of these (that of Jacobo Gurule) the claimant himself states that his crops failed two years out of the past five. The nine claims also include one tract which has been listed by the Forest Service but not filed on, showing that

nobody wants it at the present time for agricultural purposes. Two of these nine claims have also been relinquished during the past year. The fact that this part of the land covered by the petition is absolutely valueless for farming and the fact that it lies easily accessible to the main line of the Santa Fe Railway and is covered with valuable cedar posts, points strongly to the conclusion that it is free posts and not farming that the claimants desire.

Public Relations:

On the whole I found the public relations on the Tajique District to be excellent. Putsch has suggested that we could furnish the Mountainair school with half a dozen good pictures of National Forest scenes. I think this will be particularly appropriate since the walls of the main school room are now bare. I would suggest that EC make a tentative selection of pictures and then talk the matter over with Putsch on his return with a view to ordering the necessary prints.

I would suggest that the Manzano officers make it a point to see that both Rangers Shartzer and Cook get acquainted with the County Agent of Torrance County. Our relations with the Estancia Valley are so close that it is advisable for us to keep in touch with all local agricultural and business interests as closely as possible.

Personnel:

See accompanying individual personnel memoranda.

Personnel,
Messer, Asa E.

April 22, 1920.

Memorandum:

In general, Messer may be considered as good ranger material. He is rather immature and to some extent seems to avoid troubles rather than facing and settling them, and he has also not learned to make profitable use of his leisure time. He seems to be very industrious and of very good personal character. Shartzer and Putsch are planning to induce him to spend his evenings in reading and also to undertake more social diversion which I think will improve him very much. He is well liked by the permittees. So far he does not show much mental initiative but might show a marked change in this regard when given greater responsibility. I think the best thing that can be done for him is to place him under some ranger who possesses the qulaities and habits which Messer lacks.

O

Personnel,
Shartzer, L. A.

April 22, 1920.

Memorandum:

It was my impression that Shartzer's transfer has done him a great deal of good. While illness and the necessity for getting acquainted with his district has prevented his accomplishing a great deal to date, he seems to be taking hold in excellent shape. The most gratifying observation that I made on his qualifications was that he is still receptive to new ideas and considering his past isolated assignment, he maintains a very commendable degree of enthusiasm for Forest Service work. He stands very well in the local community and I think should be urged from time to time to take a more active part in unofficial community affairs.

D
Supervision-Prescott,
(Inspection)

May 28, 1920.

Forest Supervisor,

Prescott, Arizona.

Dear Mr. Deering:

I am enclosing two copies of Mr. Leopold's inspection memorandum which I have approved. I am sending this memorandum around to the various offices concerned by sections, and it is possible you may receive further comments on it. Will you see that the memorandum is called to the attention of Supervisor Wales, whom I expect will succeed you in charge of the Prescott and who will be greatly interested in this summary of conditions as reported by Mr. Leopold.

I want at this time to express my appreciation for the very able way in which you have taken hold of the Prescott, and my gratification in your advancement to Assistant District Forester in Operation at San Francisco, which position I feel certain you will fill with credit to yourself and the Service. I regret exceedingly to see you leave the District but openings like this are few and far between, and from a Service-wide standpoint rather than a narrow District one the move is no doubt fully warranted. I want you to convey to Mr. McNelty my appreciation for the able way in which he has assisted you throughout.

Copy sent each office concerned

Your ranger force is to be congratulated, too, on its showing and I wish you would tell the men that this is the case and that I am trying to establish closer relations between the District Office and the ranger force as a means of showing our intimate interest in the work the rangers are doing and in the individual welfare of the men themselves.

With best regards,

Very sincerely yours,

Frank C. W. Pooler.

District Forester.

Enclosures-

Inspection File Copy.

~~JEH~~
~~HGC~~
~~JCK~~
~~FCWP~~ for approval

For Inspection File

D fles.

D
Supervision-Prescott,
(Inspection)

May 15, 1920.

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In my whole inspection, I found no important thing wrong where remedial measures had not already started or planned by the local force.

I covered only the Prescott Division, but from what I saw of the Ranger personnel they rank very high, not only in personal qualifications but in the cooperative spirit and ability to see the objectives of Forest administration.

Public relations, considering the handicaps inherited from the past, are not only satisfactory but improving. The local populations are much more progressive than the average for the District, and many projects involving private cooperation can be carried much further here than would be practicable elsewhere.

2 Cpy Supervisor

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(Inspection)

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is washing, by log work strung on old barbed wire.

4. If above successful

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2. Best locations and intervals for check dams.

3. Best height for check dams (in comparison with depth of gully.

4. Cost of check dams. Each dam should be numbered and cost of construction recorded.

The foregoing projects are simply suggestions to Mr. Deering, to be used to such manner or extent as he deems possible and best. If he needs money I think we should provide a small amount on request.

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Game and Fish.

Fish Stocking:

There are many permanent stock tanks which would support fish.

A special effort should be made to prevent private parties from introducing carp.

All of these permanent tanks will support catfish. Those which are fenced (like New Water and the Mullen Tank above the head of Tonto Wash) would support large-mouth bass if first stocked with minnows.

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Prescott	Nichols	100	0	0	Yes
Crown King	Taliaferro	1000	0	0	?
		1925	100	18	
Verde Division					
Jerome	Oldham	80	10?(1916)	11?	?
Cherry	- -	-,-	- -	- -	- -
Bloody Basin	- -	- -	- -	- -	- -
Cave Creek	Oldham	300	0	0	?
	Total,	2305	110	29	

I would suggest that Mr. Deering request Pradt and Michelson to fill in for Cherry and Bloody Basin, while Linton and Mutz

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(Inspection)

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Telephone Policy.

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A great deal of cooperation can be secured for a King's Ranch - Walnut Creek and an Iron Springs - Skull Valley line, 12 and 7 miles respectively. The Mountain States Co. have offered to sell us the Groom Creek Line for $1.00, and are no longer maintaining it. They have us at a disadvantage, and I have authorized Mr. Deering to make the purchase.

Stations.

The stations on the Prescott Division are in a very neat, orderly, and sanitary condition. On the whole, the showing is very creditable to the local force.

Mr. Calkins has already covered the necessary construc-

tion and maintenance work, except Crown King, of which Mr. Deering and I made the following summary:

Crown King Improvements

Item	Present	Needed	Cost
HOUSE (Purchased in 19__ for $_____)	Sitting room (office with fireplace)		
	Dining room		
Frame, paneled roofing outside, beaverboard covered with muslin and murresco inside. Galv. iron roof. Good stone cellar. All in good condition except correctible roof leaks and cellar damp in winter. Bath tub but not connected. Good stone foundation.	Kitchen - - - - - - - - -	New Floor - - -	$25.00
	2 bedrooms,		
	Bathroom		
	Screened front porch - -	New floor - - -	$25.00
		baseboard - - -	5.00
		Kitchen porch, 8'x10', concrete floor, screened.	$75.00
		Strips for paneling whole interior. - - - - - -	$15.00
			$145.00
BARN, Board & Batten, painted brown, green shingle roof. 20'x20'. Interior is of old rough material and doors are battered.	3 stalls,		
	Grain box, partly lined,		
		More tin work	$0.00
		Pipe corral and gate, - - - - -	5.00
		Complete hay floor, - - - -	0.00
		Roof paint,- -	0.00
			$5.00

Crown King Improvements, (Cont'd)

Item	Present	Needed	Cost
WORKSHOP			
10 x 10, made of old lumber and metal roof.	Tool bench tools.	Batten walls - - - Paint - - - - - - - -	$5.00 0.00 $5.00
FENCES	Yard fence, woven wire, newly erected.		
		Barbed wire fence enclosing whole premises, - - - -	$100.00
WATER SYSTEM	2" pipe line to creek, - - - - - - - -	-renew supports at upper end, - - - -	$0.00
	Tank		
	Pump house, - - - - -	door - - - - - - - -	0.00
	Gas engine		
	Well in pump house- (board curbing)	- better cover - - -	0.00
TOTAL, - - - - - - - -

Crown King as a District Headquarters might some time develop bad handicaps in case the mines slowed down to a point where train service would be discontinued. This, however, is very improbable and in any event can not be foreseen. Therefore the present headquarters should be assumed to be permanent with respect to allotment of improvement money.

Landscape Plan, Crown King.

Ranger and Mrs. Taliaferro are making a very commendable effort to beautify the grounds. I prepared a landscape plan which they will follow.

D
Supervision-Prescott,
(Inspection)

May 15, 1920.

Ranger Personnel.

Nichols ($1300). A very high grade man, and apparently still growing. Rents in Prescott. Present assignment advantageous on account of family handicaps which might be embarrassing in a small community.

Oldham ($1200). Top $1200 man because of actual results achieved. Very energetic, forceful, and seems to have full confidence of public in spite of his habit of talking too strongly. Too anxious to please inspecting officers. I talked his faults over with him. Very fine family. Studies and reads habitually during leisure hours. Capable of large further development.

Higgins ($1200). A deep thinker, consistent student, and hard worker but a little bit shy on actual results. Exceptionally sincere in personal character. Capable of large further development. Some family limitations.

Taliaferro ($1100). Strong personality, plenty of energy and enthusiasm, but poor control of temper and somewhat lacking in tact and ability to do analytical thinking. Talks too strong. Will improve under good supervision. Some family limitations.

Order of Merit for Promotion

(In conference with Mr. Deering)

$1300, M. L. Nichols,

$1200, Oldham, Higgins, Michelson, Linton, Geo. Pradt,

$1100, Mutz, Taliaferro, Menzies, (Jahn), (Wm. Pradt),
(Leon Nichols).

(Names in brackets should not be promoted at present)

Fred Haworth (Resigned September 15, 1919, $1200) will probably apply for reinstatement. Mr. Deering and I agree that he merits reinstatement at $1100. He seems to have good judgment, tact, and poise and of course has had long experience but he seems to be somewhat lacking in energy. He is pretty well along in the forties. S may want to train him as a scaler. He would probably not accept an assignment except in Arizona.

D
Supervision-Prescott,
(Inspection)

May 15, 1920.

Lands & Boundaries.

There are 9 miles of unposted boundary on the south-western corner of the Walnut Creek District and a little on the Crown King. This should undoubtedly be cleaned up before next field season. Recent township surveys south of the Crown King District have also shown the old posting to be about 1/4 mile off. This error should be distributed back for a few miles so as to eliminate any apparent jog which might tangle up some trespass case.

Mr. Deering calls attention to the practical impossibility of doing any graphic uses plan or uses atlas work on large unsurveyed areas such as occur on the Verde Division. Possibly Lands has some suggestions to offer as to cases of this kind.

D
Supervision-Prescott,
(Inspection)

May 15, 1920.

Roads & Trails, Signs, Maps

Policy. I understand that practically no road or trail money has been spent on the Prescott so far. It appears that this condition is partly the result of Supervisor Hinderer's policy, who claimed that the roads built by mining companies made Forest Service roads or trails unnecessary.

Mr. Deering considers this policy to be wrong. I heartily agree - in fact I believe the situation might become exceedingly embarrassing unless we immediately set to work to remedy it. I therefore believe that the local force should give special attention to a road and trail working plan, and our office should make a special effort to dig up the money to meet it.

Walnut Crossing. One project which merits immediate attention is a concrete ford for Walnut Creek. I understand that Kissam's cost estimate was $1500.

Verde Divide Trail. It appears that Mr. Deering did not take exception to this project but rather to the proposal to make it a Class A trail. It will be considered by him in connection with the rest of the trail plan.

Trail Work by Rangers. Little trail work has been done, and a good many trails, especially Class C trails through the brush areas, are badly needed. Mr. Deering has this fully in mind, will

push the work, and ask for the necessary money. Many cowmen seem willing to contribute labor.

Signs. The sign work is very good, especially on the Prescott District.

Last year all new signs were varnished with Valspar over the paint. This will furnish an interesting durability test. Results should be reported to our office.

Mr. Deering is scratching the date on the back of all new signs put up. I consider this an excellent idea, which might be adopted throughout the district.

I saw a good many four year old signs, made locally, which are badly faded and checked. I have suggested that these might be rejuvenated by varnishing. Mr. Deering will try this as an experiment. Some should be left unvarnished as a check, and the results reported about 1922.

The Prescott is so well along on sign work that I believe it should be designated, together with the Santa Fe, as an experimental Forest for trying out ideas.

The mutilation of rocks by advertising signs is especially bad outside the boundaries near Prescott. Mr. Deering is quietly working to get the County to abate this nuisance. If he succeeds, the results should be reported for the Bulletin.

Maps. The lack of a good base map on the unsurveyed areas is a bad handicap, particularly to grazing administration. In a recent instance an allotment fence, built to graze 200 cattle, was found to include only about 4 sections. 50 to the section is

pretty heavy stocking. A good map would have enabled the Ranger to make a better preliminary estimate of the area. It is my impression that the local force has been partly at fault in not gathering and sending in more data on even the surveyed areas when opportunity offered. Mr. Deering has this fully in mind.

D
Supervision-Prescott,
(Inspection)

May 15, 1920.

Forage & Pastures.

The cotton rush in the Salt River Valley, in the opinion of local officers, will make hay increasingly scarce and high. Forage production on stations therefore becomes increasingly important.

I examined some proposed plough land at Skull Valley, but it looked too light to be a safe gamble without irrigation. On the other hand, the sod is exceptionally vigorous and I think it would be entirely practicable to fence off a patch for wild hay.

The following estimates describe the possibilities at Walnut Creek:

	Total Est. Production		Share	
Year	Alfalfa	Corn	Alfalfa	Corn
1919	9 tons	0	4.5 tons	0
1920	9 "	60 bu.	4.5 "	30 bu.
Possible (dry farming)	9 "	300 "	4.5 "	150 "

Pump irrigation would increase the yield indefinitely. There is a corn sheller on the Creek so that shelled corn could be freely exported to other stations.

5/27/20

Inspection File Copy.

D plen.

~~JEM~~
~~HGC~~
~~JCK~~
~~FCWP~~ for approval

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D
Supervision-Prescott,
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HOUSE (Purchased in 19__ for $_____)	Sitting room (office with fireplace)		
	Dining room		
Frame, paneled roofing outside, beaverboard covered with muslin and murresco inside. Galv. iron roof. Good stone cellar. All in good condition except correctible roof leaks and cellar damp in winter. Bath tub but not connected. Good stone foundation.	Kitchen - - - - - - - - -	New Floor - - - -	$25.00
	2 bedrooms,		
	Bathroom		
	Screened front porch - -	New floor - - -	$25.00
		baseboard - - -	5.00
		Kitchen porch, 8'x10', concrete floor, screened,	$75.00
		Strips for paneling whole interior, - - - - - -	$15.00
			$145.00
BARN, Board & Batten, painted brown, green shingle roof. 20'x20'. Interior is of old rough material and doors are battered.	3 stalls,		
	Grain box, partly lined,	More tin work	$0.00
		Pipe corral and gate, - - - - -	5.00
		Complete hay floor, - - - -	0.00
		Roof paint,- -	0.00
			$5.00

Crown King Improvements, (Cont'd)

Item	Present	Needed	Cost
WORKSHOP			
10 x 10, made of old lumber and metal roof.	Tool bench tools.	Batten walls - - -	$5.00
		Paint - - - - - - -	0.00
			$5.00
FENCES	Yard fence, woven wire, newly erected.		
		Barbed wire fence enclosing whole premises, - - - -	$100.00
WATER SYSTEM	2" pipe line to creek, - - - - - - - -	-renew supports at upper end, - - - -	$0.00
	Tank		
	Pump house, - - - - -	door - - - - - - - -	0.00
	Gas engine		
	Well in pump house- (board curbing)	- better cover - - -	0.00
TOTAL, - - - - - - - -

Crown King as a District Headquarters might some time develop bad handicaps in case the mines slowed down to a point where train service would be discontinued. This, however, is very improbable and in any event can not be foreseen. Therefore the present headquarters should be assumed to be permanent with respect to allotment of improvement money.

Landscape Plan, Crown King.

Ranger and Mrs. Taliaferro are making a very commendable effort to beautify the grounds. I prepared a landscape plan which they will follow.

D
Supervision-Prescott,
(Inspection)

May 15, 1920.

Ranger Personnel.

Nichols ($1300). A very high grade man, and apparently still growing. Rents in Prescott. Present assignment advantageous on account of family handicaps which might be embarrassing in a small community.

Oldham ($1200). Top $1200 man because of actual results achieved. Very energetic, forceful, and seems to have full confidence of public in spite of his habit of talking too strongly. Too anxious to please inspecting officers. I talked his faults over with him. Very fine family. Studies and reads habitually during leisure hours. Capable of large further development.

Higgins ($1200). A deep thinker, consistent student, and hard worker but a little bit shy on actual results. Exceptionally sincere in personal character. Capable of large further development. Some family limitations.

Taliaferro ($1100). Strong personality, plenty of energy and enthusiasm, but poor control of temper and somewhat lacking in tact and ability to do analytical thinking. Talks too strong. Will improve under good supervision. Some family limitations.

Order of Merit for Promotion

(In conference with Mr. Deering)

$1300, M. L. Nichols,

$1200, Oldham, Higgins, Michelson, Linton, Geo. Pradt,

$1100, Mutz, Taliaferro, Menzies, (Jahn), (Wm. Pradt),
(Leon Nichols).

(Names in brackets should not be promoted at present)

Fred Haworth (Resigned September 15, 1919, $1200) will probably apply for reinstatement. Mr. Deering and I agree that he merits reinstatement at $1100. He seems to have good judgment, tact, and poise and of course has had long experience but he seems to be somewhat lacking in energy. He is pretty well along in the forties. S may want to train him as a scaler. He would probably not accept an assignment except in Arizona.

D
Supervision-Prescott,
(Inspection)

May 15, 1920.

Lands & Boundaries.

There are 9 miles of unposted boundary on the south-western corner of the Walnut Creek District and a little on the Crown King. This should undoubtedly be cleaned up before next field season. Recent township surveys south of the Crown King District have also shown the old posting to be about 1/4 mile off. This error should be distributed back for a few miles so as to eliminate any apparent jog which might tangle up some trespass case.

Mr. Deering calls attention to the practical impossibility of doing any graphic uses plan or uses atlas work on large unsurveyed areas such as occur on the Verde Division. Possibly Lands has some suggestions to offer as to cases of this kind.

D
Supervision-Prescott, May 15, 1920.
(Inspection)

Roads & Trails, Signs, Maps

Policy. I understand that practically no road or trail money has been spent on the Prescott so far. It appears that this condition is partly the result of Supervisor Hinderer's policy, who claimed that the roads built by mining companies made Forest Service roads or trails unnecessary.

Mr. Deering considers this policy to be wrong. I heartily agree - in fact I believe the situation might become exceedingly embarrassing unless we immediately set to work to remedy it. I therefore believe that the local force should give special attention to a road and trail working plan, and our office should make a special effort to dig up the money to meet it.

Walnut Crossing. One project which merits immediate attention is a concrete ford for Walnut Creek. I understand that Kissam's cost estimate was $1500.

Verde Divide Trail. It appears that Mr. Deering did not take exception to this project but rather to the proposal to make it a Class A trail. It will be considered by him in connection with the rest of the trail plan.

Trail Work by Rangers. Little trail work has been done, and a good many trails, especially Class C trails through the brush areas, are badly needed. Mr. Deering has this fully in mind, will

push the work, and ask for the necessary money. Many cowmen seem willing to contribute labor.

Signs. The sign work is very good, especially on the Prescott District.

Last year all new signs were varnished with Valspar over the paint. This will furnish an interesting durability test. Results should be reported to our office.

Mr. Deering is scratching the date on the back of all new signs put up. I consider this an excellent idea, which might be adopted throughout the district.

I saw a good many four year old signs, made locally, which are badly faded and checked. I have suggested that these might be rejuvenated by varnishing. Mr. Deering will try this as an experiment. Some should be left unvarnished as a check, and the results reported about 1922.

The Prescott is so well along on sign work that I believe it should be designated, together with the Santa Fe, as an experimental Forest for trying out ideas.

The mutilation of rocks by advertising signs is especially bad outside the boundaries near Prescott. Mr. Deering is quietly working to get the County to abate this nuisance. If he succeeds, the results should be reported for the Bulletin.

Maps. The lack of a good base map on the unsurveyed areas is a bad handicap, particularly to grazing administration. In a recent instance an allotment fence, built to graze 200 cattle, was found to include only about 4 sections. 50 to the section is

pretty heavy stocking. A good map would have enabled the Ranger to make a better preliminary estimate of the area. It is my impression that the local force has been partly at fault in not gathering and sending in more data on even the surveyed areas when opportunity offered. Mr. Deering has this fully in mind.

D
Supervision-Prescott,
(Inspection)

May 15, 1920.

Forage & Pastures.

The cotton rush in the Salt River Valley, in the opinion of local officers, will make hay increasingly scarce and high. Forage production on stations therefore becomes increasingly important.

I examined some proposed plough land at Skull Valley, but it looked too light to be a safe gamble without irrigation. On the other hand, the sod is exceptionally vigorous and I think it would be entirely practicable to fence off a patch for wild hay.

The following estimates describe the possibilities at Walnut Creek:

	Total Est. Production		Share	
Year	Alfalfa	Corn	Alfalfa	Corn
1919	9 tons	0	4.5 tons	0
1920	9 "	60 bu.	4.5 "	30 bu.
Possible (dry farming)	9 "	300 "	4.5 "	150 "

Pump irrigation would increase the yield indefinitely. There is a corn sheller on the Creek so that shelled corn could be freely exported to other stations.

5/27/2

D
Supervision-Prescott,
(Inspection)

May 28, 1920.

Forest Supervisor,

Prescott, Arizona.

Dear Mr. Deering:

I am enclosing two copies of Mr. Leopold's inspection memorandum which I have approved. I am sending this memorandum around to the various offices concerned by sections, and it is possible you may receive further comments on it. Will you see that the memorandum is called to the attention of Supervisor Wales, whom I expect will succeed you in charge of the Prescott and who will be greatly interested in this summary of conditions as reported by Mr. Leopold.

I want at this time to express my appreciation for the very able way in which you have taken hold of the Prescott, and my gratification in your advancement to Assistant District Forester in Operation at San Francisco, which position I feel certain you will fill with credit to yourself and the Service. I regret exceedingly to see you leave the District but openings like this are few and far between, and from a Service-wide standpoint rather than a narrow District one the move is no doubt fully warranted. I want you to convey to Mr. McNelty my appreciation for the able way in which he has assisted you throughout.

Copy sent each office concerned

Prescott...

Your ranger force is to be congratulated, too, on its showing and I wish you would tell the men that this is the case and that I am trying to establish closer relations between the District Office and the ranger force as a means of showing our intimate interest in the work the rangers are doing and in the individual welfare of the men themselves.

With best regards,

Very sincerely yours,

Frank C. W. Pooler.

District Forester.

Enclosures-

D Supervisor (Inspection)

For Inspection File

O
Inspection,
Santa Fe.

June 7, 1920.

JEMEZ DIVISION

Deputy Supervisor DeCamp and myself spent May 28 - June 6 on the Santa Clara, Cochiti, and Cuba Districts and the Bandelier Monument.

It was my impression that the general condition of administration on the territory visited is excellent.

Special credit is due for the successful efforts to increase forage production, particularly on the Cuba District.

The matters mentioned in this report have been discussed with Mr. DeCamp and the conclusions reached represent, in general, our joint conclusions.

June 7, 1920.

ORGANIZATION AND FINANCE

Plomteaux Expenses

	To April 22, 1920	Reduce to Yearlong	1921, D-3 Average
Travel	$425.27	$ 510.24	$ 195.00
Forage	275.00	275.00	274.00
		$ 785.24	$ 469.00

It is my conclusion that the heavy travel expense is due to the large proportion of time spent at sawmills on expense, namely, 14 days per month at $29.00 per month (average for July 1919, January 1920, and April 1920). On these trips the horse also must be boarded. Plomteaux has had 3 mills, pretty widely separated, cutting 3½ million per year. He stays from 3 to 6 days at each mill on each trip and scales 500 logs per day. I scaled with him and he does fast work. The rates charged him for meals and horsefeed run from 35¢ to 50¢ which is very reasonable. He had done very little automobile travel this year. He keeps a bed at each mill. The apparent saving in forage due to these long absences from his station is apparently offset by the absence of pastures and grass on his District. Everything considered, I believe he has taken every reasonable precaution to keep down expense, and that the questions raised by the District Office as to expenses on this district may be dismissed as satisfactorily answered.

On the question of horse vs. auto travel for these mill trips, the average trip is 10 days and the round trip 64 miles. Mileage would be $11.00 and horsefeed $10.00. I con-

clude that in the absence of district work necessitating horses, horse travel is 10% cheaper in transportation cost but more expensive in job to job time.

Plomteaux thinks that with more rigid protection in sales contracts, requiring a minimum number of logs skidded up before calling on him for scaling, his sales work could be cut in half. I think his estimate is pretty high.

District Lines

In spite of its small size (76,000 acres) the Santa Clara District, with sales cutting 3½ million per year as in the past, is a heavy district. Pincetl thinks it heavier than the Cochiti. However, several of the mills are nearly cut out and there are only two more sets. As soon as the cut drops to around 2 million feet, or sooner if possible, a reorganization should probably be made. In this connection I consider the Cochiti as pretty light. The Cochiti headquarters at Bland are also unsatisfactory as to location and I doubt the wisdom of constructing a full set of improvements there. (See Improvements).

Division of Forest

Andrews is undertaking primary responsibility for the Pecos and DeCamp for the Jemez. This resembles the D-4 plan. I think it has merit as an experiment, especially if a trade-about is made later.

June 7, 1920.

IMPROVEMENT, ROADS, TRAILS, SIGNS

Stations

The Bland house seems too good to tear down. Half of it is good log construction that could be repaired. There are many abandoned log houses in town which could be had for little or nothing and moved for any new buildings needed. The headquarters question here involves so many unknown factors, such as the possible reopening of the camp, and the later enlargement of the Espanola District, that I do not offer the above as anything but a suggestion.

The quarters rented by Plomteaux in Espanola would make a good headquarters if they could be purchased with some land thrown in. I am inclined to think that Espanola will always be a District headquarters.

I can not see the logic of the large and expensive log barn partially erected at the Pine Spring Station. This was started some years ago. Probably there is nothing to do now but complete it.

The Bluebird and La Jara stations are very satisfactory and the Pabcoat paint put on two years ago is good looking and seems to be weathering better than lead or zinc would. The La Jara barn sets right on the ground and is rotting. It can be raised.

The Bandelier Station is progressing slowly but looks good.

Telephones

There has been a lack of action in handling telephone repairs on the Baca Location this spring. Each Ranger has his line in shape to the Grant boundary but nobody has done anything to force the Grant people to put up their part of the line. Meanwhile we might, but for lucky rains, be in the midst of a serious fire season without communication with Espanola or the Supervisor's office. This has been discussed with Mr. DeCamp but no plan could be arrived at without the papers showing status of right of way, agreements, etc., which are in Santa Fe.

Roads

Expensive delays were encountered on the Frijoles Road due to our borrowing graders. While it might not pay for this office to own and ship our own tools for this kind of project, I think the matter might well receive thorough consideration.

Trails

All the trail work, as elsewhere on the Santa Fe, seems excellent. This year's projects seem well organized.

Signs

There is much lack of uniformity in color in last winter's signs. This is unfortunate.

I saw a large number of split signs. I think next year each sign should have holes bored in the shop, as suggested last fall.

Some sign requisitions were obviously prepared else-

where than on the ground, as shown by the arrows pointing wrong for placement on the proper side of the trail.

Everything considered, however, the sign work as a whole is creditable as elsewhere on the Santa Fe, and posting is fairly well up to date.

I think all signs next year should be stamped with a dye: "1921", in the shop.

All 1920 signs on the Santa Fe were given a coat of Lowe Bros. "Spar". I suggest that promise card be made to report results in about 1923.

Bandelier Signs

I think that all except primary directive signs in the Canyon should be not larger than ½ standard size. Even the standard size is obtrusive, especially for labelling ruins. Care also should be exercised not to put any signs inside of shrines, since this offends the proprieties. The wisdom and good taste of our policy of small signs is nowhere more evident than at the Frijoles.

Trail Plan

I examined the trail plan with much interest. The whole plan is excellent and I think should be adopted as standard, including the legend. The plan does not, however, specify the class of trails, whether A, A-, B, or C. This, I think, should be done in all trail plans, and the plans should also be kept in atlas form instead of on unmounted maps in the files.

June 7, 1920.

PROPOSED BANDELIER REGULATIONS

(To be submitted for promulgation by the Secretary of Agriculture after approval by the Supervisor, Archaeological Society, Mr. Boyd, and DL).

The following acts are prohibited:

1. Mutilating or defacing any ruin or relic.
2. Removing or excavating any ruin or relic without a permit from the Secretary of Agriculture.
3. Leaving any camp fire unextinguished, or wilfully or carelessly setting any fire.
4. Camping in Rito Frijoles Canyon, except above the Ceremonial Cave or below the Hotel fence, without a permit from a Forest officer.
5. Grazing of any saddle, milk, or work animals within the Rito Frijoles Canyon without a permit from a Forest officer.
6. Polluting any stream, or leaving any camp refuse unburied.
7. Shooting or hunting in that part of the National Monument within the Rito Frijoles Canyon.

PERSONNEL

(Confidential)

Pincetl is probably the most successful District Ranger with whose work I am familiar. He merits prompt promotion to Deputy Supervisor.

Plomteaux is a hard worker and a thoroughly experienced Ranger. He needs contact with higher officers who can give him a better understanding of the reasons for Service policies. His greatest fault is intolerance. He should be encouraged to do general reading.

Brown was absent on trail business that could not be postponed. He seems a promising man.

Murk does not look as good to me as while he was helper in the office. He seems to feel his authority and affected a most impressive "air" during our visit. He is too familiar with Boyd and Archaeological Society workers. He is not yet in trouble but needs very careful watching.

Pinson seems to have lots of sound sense but from reports he lacks initiative.

Rodriquez is an especially promising assistant. I consider him first class Ranger material. I think it would be extremely fortunate if the northern New Mexico Forests could develop some really successful Spanish-American Rangers.

June 7, 1920.

LAND EXCHANGES AND SALES

It is my understanding that Col. Breece has bought the San Diego Grant and is negotiating with Frank Bond for the Baca Location timber. The idea is that the San Diego timber, Baca timber, adjacent Forest timber, San Miguel copper, and Cuba district coal could all go out over the same railroad, which would fork at San Isidro.

My guess is that this railroad will not pay without the Forest timber adjacent to the Grants. We therefore hold a strategic position to secure an exchange of our stumpage for the San Diego Grant lands, and possibly also the Baca location. I understand Bond paid $350,000 for the Location and that it does not pay out on that valuation for grazing purposes. If it can not be held for grazing on existing valuations, then the San Diego can not profitably be held for grazing because it is a much poorer grazing proposition.

With this idea in mind I called on Charles E. Pope of Pittsburgh, at his San Miguel mine, and broached an exchange. He seemed favorably impressed. I think we should also see Col. Breece. This project is so important that it might pay to detail a man to push it.

June 7, 1920.

GRAZING & EROSION

The region around the string of ranches on the Rio Las Bacas is starting serious erosion. The range does not appear to be over-stocked. Here again is an example to prove that erosion is inevitable on many ranges, and can not be checked except by artificial works. Many valuable cienegas are being drained by these gullies and the bottom land is being torn out.

It might be advisable to refuse to build roads and bridges for these stockmen until they take steps to protect the neighborhood of their ranches.

The deep clay country near Cuba has also cut badly but on the Forest the process seems to be partially arrested by revegetation. It probably started during some of the old mining booms.

D
Inspection
Sitgreaves

Report on General Inspection

Sitgreaves National Forest

May 6-14, June 28--July 6, 1921

Aldo Leopold

Asst. District Forester.

Copies as follows:
1 District Forester
1 For subdivision, D.O. files
1 Supervisor
1 For subdivision, Sup. Files.
1 Extra copy for Supervisor
1 Inspector E. W. Kelley

Approved July 27, 1921
Subject to
Frank W. Pooler
District Forester.
(See letter of transmittal July 27)

OUTLINE OF REPORT

A. Fire.
   1. Fire Plan.
   2. Fire Personnel.
   3. Fire Equipment and Improvements; phone lines.
   4. Reports and records.
   5. Use of Guard Labor.
   6. Law Enforcement.
   7. Educational Work.
   8. Lookout Errors, Reorganization of Lookout System.
   9. Farm Smokes.
   10. Fire Standards.

B. Improvements, Quarters, Forage, etc.
   1. Forage & Pastures.
   2. Condition of Quarters.
   3. Property.

C. Roads & Trails, Signs.

D. Finance.
   1. Wage Scales.
   2. Maintenance Money.
   3. Analysis of Forage & Travel.
   4. Use of F. F. F.

E. Personnel.
   1. Ratings.
   2. Development and Training.
   3. Clerical Problem.
   4. Individuals.

F. Grazing.
   1. Exempt Stock & Fire.
   2. Modern Grazing Ideas.
   3. Sheep Driveways.

G. Forest Management.
   1. Grass vs. Reproduction.

H. Lands.
   1. Erosion.
   2. Boundary Posting.

I. Organization.
   1. Work Units.
   2. Diary Analyses & Travel Maps.
   3. Work Plans.
   4. Districting.
   5. Inspection Methods.

A. Fire

1. 1921 Fire Plan: Date of issue was May 26, practically a month after the opening of the normal season, forty days after the issuance of Circular 53-0-22 fully explaining the new outline on p. 208 of the Administative Guide, and over a month after actual fires had begun over the Forest at large.

Theoretically, it is inadvisable to designate Rangers to act as Fire Chief, but without a deputy, it is the only recourse during Hall's absence, because they might have a fire of their own. It is also inadvisable to mention inter-ranger trades in fire jurisdiction. Responsibility should be clearly divided by district lines. Instructions as to who is to have Kyaxes ready should be definite. There is no list of Per Diem Guards.

Telephone Lines. The plan should set a definite hour, uniform for the Forest, for morning and evening test calls, and state who is to make them, and keep the record.

Tool Box Equipment. I doubt whether a uniform list of standard equipment is the right thing. A box like Lakeside should have a bigger supply than one like Wilbur's.

Emergencies. The instruction to fight on defensive lines until the arrival of an adequate crew is, I am afraid, misleading. Except in a pure grass fire which can be directly w whipped out, there is no clear distinction between offensive and defensive tactics. Foremen, cooks, etc. should be sized up long before the season opens, rather than after a fire is burning.

It is confusing to call any F. F. F. fire an emergency. The word is not generally used in this sense, and is liable to detract clearness from the important project of framing our Emergency Plans (See p. 210).

I doubt if the Supervisor should promise that he or his assistant will go to all F. F. F. fires.

Individual Stations. The instructions on pp. 6-13 are not in good form, because they reiterate many items applicable to the whole force, and thus detract clearness and emphasis from the special instructions applicable only to the individual person or station.

Omissions. Instructions for the orientation of protractors, for taking food and water to all fires, for furnishing each member of the force with a letter of instructions and a map, are entirely omitted.

Style. It is didficult to be brief and concise with the exhortatory style used in the plan.

(Note: for execution of plan, see Fire Standards).

2. Fire Personnel: The guards selected this year seem competent. There is a gratifying consciousness among the Rangers of the necessity of developing a guard personnel who are re-employed on a merit basis, who thus acquire expertness, and who will be willing to serve even during a year when outside wages are higher than the wages we offer. This idea should be further promoted and developed. I urge consideration of a differential salary scale as a means for rewarding efficient men who are re-employed, instead of the present flat scale. The present year was a rare opportunity to stat such a scale.

3. Fire Equipment and Improvements: Fire Tools. 13 Fire Tool Boxes and other Fire Tool and equipment repositories were inspected. Their condition was very poor, as brought out in the following classification:

Item.	OK.	Not OK.
Axes and Saws, Sharp	3	10
Handles, tight and sound	4	9
Sharpening facilities in box or at hand	8	5
Tools and depository clean and orderly	6	7
Tools fairly well assorted as to number and kind	7	6
Check list of contents up to date and in place	7	6
Tools segregated for fire use	2	2
Food and utensils packed, ready to go	1	5
	38	50

(For detail as to above classification see table in field notes p. 7)

Kyaxes packed for Fire Use. Where it is hard to tell in advance whether an automobile or a pack horse will be used to go to a fire, I suggest that food and utensils be packed in a pair of home-made wooden Kyaxes which can be used in either event.

Inventory and Re-distribution of Tools. The Showlow District claims to be very short of tools, in spite of requisitions made in January. On the other hand there was a double outfit at Willow Wash, and excesses and shortages in individual items are general. I advise an immediate inventory of the whole Forest, followed by re-distribution on some definite plan. At the same time the check list system, now obsolete, should be revived and kept up as a means of keeping the distribution logical and stable.

The Sitgreaves has discarded the old tool box doctrine to a lesser extent than most other Forests, and in spite of thefts and demonstrated uselessness of isolated tool boxes, has not fully come around to the present idea of keeping tools only at the points from which crews are started to fires. This new idea is now becoming current however, and I believe should be followed in making the redistribution.

Supervisor Hoyt is inclined to believe that the quantity of tools should vary, in general, inversely with the number of fire-fighters available. A certain reliance is still placed on tools brought to the fire by the fire-fighters. While I do not wish to prescribe the details of the Sitgreaves tool policy, I disagree in general with both of these propositions.

Tools on Apache Sale Area. After long study, I cannot agree with Kelley's suggestion that timber operators be required to furnish ordinary fire tools to combat risks induced by their operations. It could be required, but (a) it would not work smoothly with small mills; (b) responsibility for maintenance would likely become tangled; (c) the cost, at least in theory, would come out of the stumpage; (d) we are in the fire tool business, and know, or should know, all about type, conditioning, assortment, etd. while the operators are not in the business and do not know these things; (e) we carry reserve stocks into which tools can be liquidated when the operation ceases. The operator does not. When tank cars, hose, or other extraordinary equipment is required the same reasoning dictates that the operator furnish them.

Lookout Towers and Equipment. All were inspected except Chevalon. When first inspected, all had loose alidades, making serious errors possible through tipping of the vanes; one had no vanes; most had loose boards and shaky posts; none had permanent designated orientationspoints; none had been oriented except by the very faulty method of setting a compass on the plate and sighting on the edge of the railing. All the towers need new protractor posts sunk through the floor and braced against the legs. All should be replaced by steel, beginning with Promontory Butte, which is beginning to get shaky. The rate of replacement should probably be about one per year.

Since first inspected, a part of the above defective conditions have been remedied. While the present protractors are of course not as good as we eventually need, the condition of the lookouts as found was keenly disappointing, and entirely inconsistent with the money we invest in their operation.

Telephone Lines. The Showlow-Lakeside line has never been brushed out, and must of necessity ground whenever the leaves are wet. The virtual destruction of the Welch stub line wire by loggers when Ranger Shumway knew that the area was to be logged, was not very creditable. Otherwise, I noticed no substantial substandard practices in connection with the telephone system, except the general failure to specify what action, if any, was expected of the fire force in the event of a break.

4. Reports and Records: The reports tend to be blank or incomplete under "Damage to Reproduction". I am afraid this is due to the ambiguity in the Damage table to the Guide and the footnote on the form, which however is cleared up in Bulletin note of May 6. As to performance indicated by the reports, see A-6 and A-10.

At Pinedale I tried to use the Daily Record to check out the accuracy of lookouts on actual fires whose location was subsequently determined. I found the entries too confused to use. The trouble is that preliminary reports from the lookouts are put down just as they come, without being identified with any fires resulting. More care to make these daily records permanently self explanatory is probably advisable.

5. Use of Guard Labor: Kelley's suggestions for utilizing fireman labor by temporary phone connections have been actually applied on Heber and Chevalon Districts, but not yet at Willow Wash. On the whole, good use has been made of rainy spells, but the Rangers are not fully conscious of how far ingenuity can go in this line. I find no plans to utilize guard labor to get cabins on top,. Hoyt having planned to take this up with the Rangers in person. I think they should plan it out first for themselves.

6. Law Enforcement: The records for last year and the early part of this year show a lamentable weakness. On my return from the Apache, however, I found a very noticeable change. Ranger Shumway, for instance, who seemed, from the records, to have at first simply gone through the motions of investigating cases, has suddenly mastered the underlying principles, applied them, and is

getting results. Four successful prosecutions have been obtained, more are under way, and the action of the organization seems vigorous and intelligent. I therefore consider it unnecessary to criticize in detail the previous failures.

There was an unfortunate lack of understanding, between Shumway and the office as to who was to direct the work of the special law enforcement man, W. W. Freeman, who was employed to catch incendiaries at Pinetop. As a result his work was apparently undirected, Shumway simply supplying him with information. Hoyt states that he made this perfectly clear, but the habit of all parties to any action agreeing in advance as to the placement of responsibility is not yet firmly fixed or automatic in its workings.

I urge very careful attention to the question of paying fire-fighters. In the case given under F-4, Shumway paid men whom he found working on the Pinetop #3 fire, two of them suspected incendiaries, because he feared that if he did not pay them the two suspects would be sore and possibly set more fires. This is extremely dangerous reasoning. (As a matter of fact, the men had to be paid, but for other reasons). Also, Shumway is spreading the word that he does not want volunteers to precede him to fires. He says they gum up tracks and incendiaries can thus at once draw wages and an alibi. This is true, but his remedy is a very radical one which should be resorted to only in dire extremity. Shumway's incendiary problem is such a delicate one that no outsider can dictate the exact method of solution, but his policy in the above particulars is full of dynamite.

7. Educational Work: The Flag Contest was initiated in the schools by the Rangers with creditable promptness and energy, but then with equal promptness dropped and left to run on its own steam. Hoyt states he warned the men to start only where the teacher, or a member of the School Board, or an older pupil, would be available to work through after the school vacation started, but this seems to have been disregarded.

8. Loodout Errors and Reorganization of the Lookout System: It is perfectly obvious that fire locations obtained from the present Lookouts are extremely inaccurate. The source of this inaccuracy must be among one or more of the following;

(a) Instrumental Errors. While these must have been very bad at the beginning of the season (See A-3) they are presumably now corrected up to the limit inherent in the present equipment (probably about 1°).

(b) Error in Map Location of Lookout Points. Sheet No.1 attached to this report, showing a rough test, indicate that Blue Ridge may be too far north on the map. (None of these tests are exhaustive. They illustrate possible methods of investigation, rather than prove the source of the error).

(c) Map Errors through Paper Shrinkage or Warped Protractors. Sheet No. 2 proves that large errors of the nature exist somewhere in the one or more of the three maps tested. (Next year

we will try to eliminate prints of any kind involving water-baths, and rubber-stamp protractors).

(d) Magnification of Errors due to Alignment of Look-outs. The following table is self-explanatory:

Error	5 mi.	10 mi.	15 mi.	20 mi.
1°	,08	.17	.25	.34
2°	.17	.34	.51	.68
3°	.26	.52	.78	1.04
4°	.34	.69	1.03	1.38
5°	.43	.87	1.30	1.74
10°	.88	1.76	2.64	3.52

These are the direct errors in single readings. Through combination, two readings at 15 miles, each in error 4°, might give a location error of 3 miles if the angle between the shots were 110°. The towers are so aligned that on the east end, the angle between the shots is seldom as good as 110°, and generally closer to 150°, thus vastly increasing the possible error. There have been actual instances where checked shots failed to cross at all.

This alignment of lookouts I regard as by far the weakest point in the whole fire machine. It should be corrected by next year by abandoning one of the rim lookouts and installing in its stead a primary lookout somewhere along the north boundary which will serve the east end the same as Chevalon Butte serves the west end. Ranger Rowley and I made certain preliminary examinations and visibility maps of Porter Mt. and Dry Lake (see attached). Of these, I favor the latter because further north. I also examined Schoems Butte but a low ridge cuts off the west view. It seems worthless. Ortega Peak may be worth examining.

The thorough study of this whole situation, including actual mathematical comparison of visibility, shot angles, command of hazard areas, and distance from hazard areas, is to my mind the most important fire move to be made this year on the Sitgreaves.

9. Farm Smokes: The cost of identifying farm smokes, both in time of the men, and in risk of delayed action on fires (as in the Potato Patch case) is very large. I believe an advance census of burnable brush by each ranger, actually plotted on the fire maps, and a strong campaign to persuade farmers to report the date and place of burning in advance (such as Kartchner has successfully conducted) are called for.

10. Fire Standards: The following is a summary of compliance with the new standards:

No.	Subject Matter	Performance
1	Written instructions	All late.
2	Personal instruction of guards	Done
3	Inspection guards by Supervisor	OK
4	" " " Ranger	OK
7	Fire Reports within 1 week	16 OK, 8 late.
8	Review and follow-up by Supervisor	OK
9	20 minute getaway	15 OK, 3 late.
10	Protractors Oriented before season	All defective; 2 had tried
11 &12	Investigating causes & prosecuting	Now OK
13	Phone lines	Some poor
14	Permittee obligation enforced	Not investigated
15	Per Diem Guards	" "
16	Carrying saddle tool	OK
17	Publicity for law enforcement cases	One given, 3 not given publicity.
18	Tool boxes in order	38 OK, 50 not OK

B. Improvements, Quarters, Forage, etc.

1. Forage and Pastures: All pastures were in fairly good shape except the Welch R. S. wherehthe logging operation broke down the fence and overgrazed the area. The company has since replaced the fence.

Forage production in 1920 was as follows:

Lakeside, (100 acres bluestem mostly) Now OK. (Badly overgrazed during Owens' time according to Shumway).

Welch, (160 acres) Not successful because broken fences and lack of reliable sharemen. Shumway says it is a good meadow. Now eaten out, but company has restored fence.

Las Burros, (160 acres) Good shape. 15 acres used as meadow. Got 2.7 tons x 4 - 10.8 tons or 3/4 ton per acre.

Showlow, (160 acres) Mostly bluestem, with a little ticklegrass and gramma and white clover on creek bed. OK shape.

Pinedale, (320 acres) Looked OK from distance.

	GRAIN							
Station	Kind	Amt. in lbs.	Worth per lb.	Value	Share	Wt.	Acres	Bu. per acre
Las Burros: Willow Wash: Pinedale	corn	1400#	3¢	42	½	?	8	700#
	oats	2200#	3¢	66		40#	18	
	wheat						5	
	corn							
Showlow							20	(not yet used)

Continued p. 7

HAY

Station	Kind	Tons	Worth per Ton	Value	Share	Total value	Value Adm. time	Profit
Las Burros	Wild	2.7	25	67.50	1	67.50	25	42.50
Pinedale	Wild	.5	15	7.50	1			
	fodder			9.00				
						82.50	48	34.50

The grain land shows signs of exhaustion. I was somewhat disappointed that no legume rotations have been tried, especially since the County Agent has been preaching this and we should help take the lead in progressive agricultural practices.

Apparently, a good bet is being overlooked at the Showlow Station, and the Pinedale crop will be a failure this year.

2. Condition of Quarters:

Date	Place	Outhouse	Toolhouse	Stations	Grounds	Remarks
5/11	Waters R. S.	OK	Bad	OK	OK	Planes and draw knife in box with rasps & heavy iron. Axe handles on damp ground and warped.
5/11	Gentry R. S.	?	?	OK	OK	
5/12	Heber R. S.	OK		Fair	OK	Maps stored in damp caved-in root cellar.
5/12	Willow Wash	OK	X	Poor	Fair	Fair. House pretty bad but old and in poor condition.
5/13	Lakeside R.S.	OK	Bad	OK	OK	Toolhouse in very bad order-tools being injured. Screens badly needed.
5/13	Welch R. S.	None	None	Aban.		½ mile #9 wire being wasted by logging operations.
5/14	Las Burros	?	None	OK	OK	
6/30	Showlow R.S.	OK	OK	OK	OK	
5/12	Deer Springs	None	None	OK	OK	
7/3	Pinedale R.S.	OK	Bad	OK	OK	Station not used at present. Large

continued p8

Continued.

Date	Place	Outhouse	Toolhouse	Station	Grounds	Remarks
7/3	Pinedale R.S.					amount of Misc. carpenter tools signs & posters office supplies etc. in rather disorderly shape.
7/5	Supvs. Office	OK	OK	None	None	Property room in very orderly shape.

Summary

	Outhouse	Toolhouse	Station	Grounds	
OK	7	2	8	9	Total 26
Not OK	0	3	1	0	4

According to old reports, sanitary conditions at the Sitgreaves stations were once very poor. All outhouses are now OK and the progress in this line is very creditable.

3. Property: The property room at the Supervisor's office is in fine shape. The Rangers' toolhouses however are in general bad. Valuable carpenter tools are being ruined by being thrown into a box with heavy blacksmith tools. There is a large amount of idle property and supplies at the unused Pinedale Station, which should be removed from chance of theft and used. There seems to be some absence of system in handling requests for minor articles, such as stove parts, screen, etc. from Rangers. Thus at Showlow the Ranger's wife earnestly desires a hot water box and has asked for it, and the surplus in G.E. turned in indicates that the money was not lacking. Again at Lakeside flies are almost a menace to health, and there is unused screen in the Supervisor's office store room.

C. Roads & Trails, Signs.

Wiggins Crossing, Good showing for $1000 - 15% - but no drainage at all - first heavy rain will wash it out and expose rocks. Culverts and inside ditches will be costly and bed is not wide enough but trail drainage can be cheaply installed.

Chevalon Crossing. Unnecessary reverse grade at bottom which saves only ½ mile. Too wide. Absolutely unmaintained.(Construction under Jennings).

Mogollon - Waters Trail. Averages at least twice too wide. Mogollon end washing badly; no drainage. No blocks on outer edge so travel all on fill. Too expensive work account width. Baldwin, who built south end, never sent Trail Manual or referred to it, got a copy by accidentally seeing it on Rowley's desk. Water bars small but fairly good where present.

Lake Mt. Trail. Entirely too easy a grade making distance so great that trail is not used.

Vernon Cooley Road Project. This would cut the Las Burros Pasture, so Hoyt proposes to contribute $100.00 from his misc. Roads Maintenance fund to throw it around the pasture. This seems good business.

Trail Specifications. Hoyt is not yet convinced that the Kelley type of inslope trail will not become a "ditch", even if properly drained. He suggested the need for actual experimentation. I told him Operation was just looking for a chance to get some actual experimentation on inslope vs. outslope trails, and on methods of building and draining the latter, under way on some trail Forest, and that I would like to place this experiment on the Sitgreaves. What we need is actual research; not mere superficial experiment. The Sitgreaves should submit an outline of the proposed experiment by Sept. 1, or a refusal of the job so it can be placed elsewhere.

Signs. A tally of 19 routes, showing signs up as compared with signs needed (see field notes, p. 15) shows 91 up and 118 needed, which indicates that the Sitgreaves is 77% signed to date. The signs are well composed and well erected, and in general the showing is good. The unposted 1920 signs are as follows, the figures being as of the date of inspection: Waters 6, Marquette 12, Heber 2, Gentry 1, Willow Wash 46, Lakeside 8 (obsolete), Pinedale 2, Pinedale R. S. 6 (plus a pile of obsolete signs), total 83. This is not so good, and the showing at Willow Wash is very bad. I see evidences that Slosser has taken himself in hand on this point, however.

There are too many obsolete signs. More care in requisitioning is needed.

In posting Fire Signs, the Cooley--Lakeside road shows poor judgment, large numbers being placed just beyond the range of legibility on the trees at the edge of the cleared right-of-way.

D. Finance.

1. Wage Scales: The fire wage of 30¢ and 40¢ is 5¢ lower than 1920, and OK. The trail wage of $2.50 for hands and $3.33 for foreman, with board, for actual days worked only, is higher than Hughes, who is paying $2.00 on the Apache for days worked, and Mulder who is paying the same on the Coconino. Hoyt says he could not underpay the B.P.R. contractors without brining in Mexicans, which would have a bad effect on local public opinion. I am not prepared to weigh this argument, but I have some doubts about it, though admitting the delicacy of the situation. The County is paying $3.00 (single) and $3.50 (married) for hands without board, which is $2.00 and $2.50 with board.

2. Maintenance Money: $67.00 of the $471.00 Improvement Maintenance money went into construction of the Heber Water System and construction of the Pinetop Phone stub. The rest was actually used for maintenance.

3. Analysis of Forage & Travel:

Analysis of Forage & Travel F. Y. 1921

Name	Date	Travel				Hay Used			Strawy Used		
		Orig. Allot.	Spent to 6/30	Field* Days	Cost per Field Day	Tons	Per Ton	Value	Tons	Price	Value
Shumway	6/30	170	135	164	0.82	2.7	25	67.50	0		
Rowley	7/1	170	134	126	1.00	3.0	15	45.00	0		
	(Had to cut to a 6# ration all winter and spent about $25.00 personal funds)										
Slosser		105	68	176	0.38						
	(Has also supplied $166.00 worth of hay, straw, and oats, running 4 head)										
Baldwin		45	231								
[illegible]tchner		65	56				None				
Hall		230	251								
Hoyt		430	631								

*Incl. field time plus time in Sup. office.

Continued p 10b

He had 10 horses and an auto besides
11/15/22 [illegible]

Analysis of Forage & Travel F. Y. 1921, (Continued)

Name	Grain Used Pounds	Price	Val.	Total Value	Horses	Feed Days	Cost per feed day
Shumway	5900	2.7	159	226.50	3	585	0.40
Rowley	700 chop 3600 oats	2.75 3.00	127	227.61	2	320	0.70
Slosser				160.00	3	535	0.30
F ldwin	3000	2.5	150	223.00	3	475	0.46
Kartchner	6000	2.9	174	174.00	3	570	0.30
.11				201.00	3	360	0.60
Hoyt				120.00	1	220	0.55

x From Forage estimates. Figure is the mean of Grain days

and since June adjustments were made

The Supervisors and Rangers figures on forage did not agree. This indicates a lack of a proper and conscious development of financial responsibility among the field force.

There also seemed to be a lack of agreement between the Supervisor and Rangers as to just how travel allotments were handled over the phone, the actual facts are obscure, except that (a) Hoyt came through without a deficit, or a late surplus as last year, which is creditable; (b) the underlying principle of his system, both in forage and travel, is not to force his men to handle financial matters, but do it himself, which is a losing game in the long run.

Hoyt handled the reins on all forage in 1921 "to determine the actual need on the several districts by actual test". I do not see any obscurity or mystery about determining the actual need by calculation without a test, and I believe that his course involved a sacrifice in the weakest feature of the Administration--delegation of authority and responsibility. While Hoyt was successful in getting through on his allotment, the "Cost per Feed Day" figures do not indicate a very equitable distribution, and it is notable that the Ranger with the highest cost had to piece out from his personal funds.

The travel cost per field day also shows a wider spread than seems clearly justified. Possibly Slosser is not paying for meals quite as he ought to.

This does not mean, Dave, that we need 10 horses until May 2 - Steve

4. Use of F. F. F.: An error was made in paying the special law enforcement man sent to Pinetop out of this fund.

E. Personnel.

X 1. Ratings ~~on~~ to date are as follows:

	Name	7-20	1-21	Years	Salary
(Lakeside)	Shumway	72	66	1	1220
(Showlow)	Rowley	69	68	3	1320
(Park-Pinedale)	Slosser	77	63	7	1320
(Heber)	Kartchner	62	66	5	1320
(Chevalon)	Baldwin (W.E,)		75	2 mos.	1220
(Asst. Heber)	Hunt		67	2 mos.	1220
	Hall	77	72	6	1320

I cannot agree with such a high rating for Hunt, since I doubt if he is even acceptable material under present standards. My contact with him was slight, and I have told Hoyt not to let my impression sway his judgment, but that Hunt should not go beyond the probational stage, or go on furlough and possibly get appointment elsewhere, without definite decision and action by the Supervisor. I reminded him that we can now pick and choose Ranger material, and should utilize the opportunity to raise standards.

X See letter 7/22/21.

2. Development & Training: A fundamental defect of the administration is that good men, even those in for as high as 7 years, have not been developed in the first essential of any Forest Officer, namely, the theory and practice of authority and responsibility. Some have possibly even relapsed until very recently. This whole matter is commented on elsewhere. (There are now signs of improvement.) Examples: Merkle complaining of Dewitt without a definite analysis of and plan for handling Dewitt; Hoyt's plan for helping the Rangers study the "cabin-on-top" policy; Hoyt's plan for helping the Rangers start their work plans; forage policy,; travel policy; Pinetop Law Enforcement man; Flag Contest; Shumway hanging up Vernon Stockgrowers' Assoc. waiting for Hoyt; Hoyt promising to show up at all large fires.

3. Clerical Problem: Hoyt states, and I agree, that except for a chance exceptional individual like McCloskey, that the clerical force must be drawn from local people. This should be made a definite objective, possibly with "reserves" under way at all times for use if necessary.

4. Individuals: The following are the members of the force with whom I came in contact sufficiently to justify special comment:

McCloskey. I can add to the existing data the fact that the Rangers go out of their way to praise his willingness to accommodate at all times. Hoyt has served the special letter stating what is expected of him. He seems "on the job" compared with my impression of previous reports. He seems to have handled Chernals well, with due regard for giving him training.

Slosser's biggest asset is an entire willingness, if rightly approached, to frankly and honestly consider his own shortcomings, and a healthy pride against "falling down". He is very thin-skinned, and remembers a call-down to an inordinate degree. He is a case for reins rather than quirts. He is probably stubborn, opinionated and moody, with an hallucination about his health, but now that he has given up quitting the Service, I believe it entirely possible to make a strong ranger of him. He has fallen down on some cases, such as the Potato Patch Fire and the Willow Wash signs, Handling will either make or break him, with an excellent chance for the former.

Kartchner seems not quite on the job. He did not know the fire-fighter's wage, that Gentry was a secondary lookout, and what was the division line between him and Gentry if any,. He had a lot of valuable maps stored in a caved vegetable cellar. His hatchet was dull. These are small matters, but indicate that he needs the doctrine of responsibility, to which Hoyt agrees. I saw him only overnight. He has good personality and physique, and seems in earnest.

Rowley has the maturity, experience, personality, and enthusiasm of a top Ranger. He reads, works hard in spite of having a very small district, and catches new ideas. He questioned Kelley intelligently. Hoyt says he is so anxious to avoid offence that he lets permittees impose on his time, and takes such strong personal likings that his official judgment is not always impartial. My impression is that in spite of his maturity, he is workable material and should be developed into a top man.

Hall says that his debt to ~~Putneys~~ is not his own; that he has a few others, but is making progress on all of them. He wants a district when a Deputy is assigned to the Sitgreaves. I did not get to work with him, but he looks like a good Ranger.

Baldwin is a corner. He hits his job hard, has initiative and originality, and a likeable personality. He would like a transfer to the Apache, and claims his relatives are all on the Datil. I think he should first get the Chevalon in good shape, there having been rather frequent changes there in the past. He should be encouraged to read.

Shumway is a noteworthy case. He has developed very remarkably on law enforcement during the past year. He started acting on Kelley's suggestions the day after Kelley left. He is undoubtedly progressing, and will make an excellent man at his present pace.

He lets his children bother him in the office, which defeats the purpose for which we build them.

Merkle is doing well, but needs handling on the doctrine of responsibility outside his special timber work. He hints that Dewitt is not satisfactory, but it was only with difficulty that he could be persuaded to come out with any kind of analysis and plan of action.

F. Grazing

1. Exempt Stock & Fire: At present, the lack of a permit or other contract with owners of exempt stock who own no paid stock, leaves us without any hold on them as to fire. We can do nothing with them except prosecute under the state and federal laws. In the case of Pinetop Fire #3, Shumway had to pay 4 Pinetop men, 2 of them suspected incendiaries, whom he found fighting the fire. These were exempt owners on their own allotment. Shumway suggests that exempt stuff be covered by an allowance for the exempt in each permit, rather than left uncovered, as at present.

2. Modern Grazing Ideas:

Name	Date	Bedding Out System for sheep	Driving Lambs only to shipping point	Ridge Salting	Stock Associations	Rotation Grazing
~~Shumway~~						
Shumway:	6/30:	Merely had heard the term. No understanding:	Had not heard of this.	Understood fairly well: Has done independent thinking on salting question.	Good.	Never heard of it.

Continued p14

Continued.

Name	Date	Bedding Out System for Sheep	Driving Lambs only to shipping point.	Ridge Salting	Stock Associations.	Rotation Grazing.
Rowley	7/1	Persuaded Sawyer, Otondo & Wolf to practice it.	Says lambs will not drive thru timber. Ewes taken to open country.	Does not favor this and cites experience	Good. Organized Linden reorganized Showlow.	Good, but apparently does not need it. Spring, Summer & winter rang separate.
Slosser	7/3	Had very dim idea of what it meant. A few sheepmen practice it in dry time.	Done by Scott last year. Worked	Not practiced. Has not definite opinion of whether it would work	Has 2 of which he organized one. Understanding OK.	Same as Showlow

3. Sheep Driveways: It appears that we have always handled Indian Reservation Sheep on our driveways, and whenever the Indian Service was asked to make a driveway to the desert, it could not be done because of outstanding range contracts with cattlemen. I understand that these contracts are about to expire; in fact that the new contracts are already advertised. We have bewailed our misfortune for years in this matter; we should now not let the only opportunity in five years pass by for want of somebody taking the initiative. I would consider this a calamity, considering the process of gradual ruin of forest interests on the driveways as they are.

G. Forest Management.

1. Grass vs. Reproduction: It is a plain fact that many stockmen on the Sitgreaves are making an issue of this problem. What is our proper attitude?

I do not think we can expect or should try to make the average stockman favor the general public interest on an abstract matter like the National timber supply when his own immediate interests must to some degree be sacrificed in order to do so. We should quietly stand our ground, assert the priority of the general public interest frankly when called upon, and enforce the fire law as absolutely as we can, and expect the stockmen to respect the law and regulations if he cannot agree with them. The proper attitude on this matter is important.

H. Lands.

1. Erosion: Chevalon. All canyons except a few of the headwaters (which still are cienegas with willows) are tearing out or torn. Main canyons can hardly be handled, but ranches in small canyons can be easily handled by rolling in logs and brush, as has been done with excellent success by Waters Cattle Co. at Waters Station.

Heber. Black Canyon rapidly going out, also Buckskin. Control work should be done at Heber and Gentry R.S.'s. Showed Kartchner how to use tree tops.

Park Pinedale. Willow Wash and similar washes going.

2. Boundary Posting: I am afraid that the existence of boundary fences has caused boundary posting to be regarded as no longer necessary. Signs on main roads and trails, or elsewhere if needed to strengthen trespass cases, should not be forgotten.

I Organization.

1. Work Units: The Photostat sheet issued Juneel, 1921 gives the work units by districts, but recent pending re-districting indicates the following approximate readjustments:

District	Units	Add			Subtract			Readjustment.	% Av. D-3 (2420)	% Av. Sites (1980)
		Area	Kind	Units	Area	Kind	Units			
Showlow	904	3 M	(S.G.P)	28	4 M	(G.P)	25	940	-61	-52
		11 M	(G.P)	10						
		3 M	(G.P)	20						
Lakeside	1360	4 M	(G.P)	25	3 M	(S.G.P)	28	1360	-44	-31
Park Pine	1984				3 M	(G.P)	20	1964	-19	0
Heber	2614							2614	+8	+31
Chevalon	2083							2083	-13	+51
Apache Sale	2925							2925 @	+21	+47
	11170							6 11880		
								1980		

2. Diary Analysis & Travel Maps: (See map attached).

Name	Period From	Period To	Date	Non-Field Time Office	Mail Sup.	Hdq.	Hdq. Imp.	Forage	Meets Court	Sup. Office	Total
Shumway	Oct 20 Apr 4	Dec 20 June 4	6/29	60	6	32	32	10	2	8	150
	Total field time may be higher than actual because of practice of doing office work in morning before starting for field.										
Rowley	Nov. Apr.	Dec. June	6/30	72	9	48	40	9	7	9	194
Slosser	Sept. Apr.	Nov 20 June 21	7/3	66	16	24	2	12	8	4	132
Average				66	10	35	25	10	6	7	~~154~~ 159
Percent				18	3	10	7	3	2	2	44

(Percent, men, Apache)

→ continued p 17b

Discussed profits of diary analysis with Hoyt 9/7/21

Diary Analysis, (continued)

Name	Field Time			Time Off			Days	Remarks
	Ret. Hdq.	Not Ret.	Total	Sun. Hol.	Leave	Total	Acc. for	
Shumway	120	36	156	40	14	54	360	Low mail time due to post-office and store close by.
Rowley	108	18	126	31	0	31	351	
Slowser	106	70	176	30	18	48	356	Hdq. Imp. low because not living at Station.
Average	111	41	152	34	11	44	355	
Percent	31	11	43	10	3	13	100	

Shumway. Diary shows remarkable progress since last year in mastering law enforcement methods. No criticism of distribution of time except that I am inclined to believe that too small proportion spent on east end, and interviewing of permittees not systematized. Diary well written. Should camp more at Burros and other eastern points.

Rowley. A little low on field time, probably due to (1) much time consumed by callers at office, (2) much time on defective gas engine used for pumping water. Low time off shows lots of hard work in spite of small district. Diary well written and map shows district closely covered.

Slosser. Distribution of time OK; nothing to criticize. Diary satisfactorily written. Travel map shows woodland uncovered but says this is done in winter months not covered by analysis period.

Rowley too much time on roads on auto Hdq + correcting HMP 9/7

3. Status of Ranger Work Plans:

Name	Date	Old Monthly Schedule		2 New Standard Plan					
		Submits Regularly?	Makes Out Intelligently?	Knows Of it	Read Sample?	Posted Sample?	Has Read It?	Understood it?	Opinion of it & action taken.
Shumway	6/30	Yes	Very	Yes	Yes	Yes	Yes	No	Thoroughly explained to him. Is favorable to trying it.
Rowley	7/2	No	X	Yes	Yes	Yes	Yes	Yes	Favorable except as to time estimates but now convinced these are worth trying.
Slosser	V 7/3	No.	X	No	Yes	Yes	No	No	Explained to him. Is favorable.

All rangers have standard plan now & Dist & Forest objective accordingly [illegible] 9/7/21

4. Distircting: According to work units, Showlow is the lightest district in D-3, and Lakeside is very light by the same criterion. The diary analyses, however, do not showthe usual earmarks of a light job. This I believe is because the disorganized state of doing business with the numerous permittees and settlers actually temporarily make these districts actually nearly normal in present load of work. It follows that one of Rawley's and Shumway's chief objectives should be to so organize and systematize doing business with the public as to gradually work themselves out of a jub, and make the east end a one man proposition.

Rawley, for instance, has 83 families (on his district, I mean) and thinks he spends 7 days per month talking to them on business. He is considering an "office day" each week and we discussed various means of advertising and promoting this project. It is a very worth while one and definite progress should be asked of him. I suggest this be made a study, and real records kept of methods, their success, time savings, etc. We should not keep a man like Rawley on such a light district without expecting something more than normal or ordinary performance.

The results of this project will affect improvement, fire, and other policies. I cannot predict these effects, but the Supervisor should take them into account before investing improvement funds.

5. Inspection Methods: The District Office has probably improved their Inspection Methods 50% in one year; Supervisors have, I believe, a cimilar opportunity. This ties in very strongly with E-2, which is the most pressing problem on the Sitgreaves. Hoyt's notebook system is probably bettern than average, Rawley has a very ingenious and practical promise card-work plan. These practices should be promoted throughout the force. There are signs of progress in this line.

Copy of this sent to Hoyt & was discussed with him on 9/7/21 [illegible]

Confidential.
(Accompanying Inspection
Report approved July, 1921)

O
Personnel
Hoyt, T. W.

July 5, 1921

Memorandum for Mr. Pooler:

In a conference today, I told Mr. Hoyt that I had come to the Sitgreaves with three fundamental propositions in mind: (1) the Sitgreaves administration had been rated for some years by many inspectors as substandard; (2) I was to find out whether this were true as to operation matters, and so far as I could, as to other lines; (3) If so, it was my function to find out the reason why and whether it could be corrected, and how.

I told him I now concurred that his administration was substandard, but that I was willing to dismiss from consideration two of the points I had previously surmised to be possible reasons. First, that his rangers might be poor material. They are not. Second, that he himself might not be throwing himself into his job. He is,--probably more than average.

Since all the parts for an efficient machine are on hand, the lack of results proportionate to Hoyt's efforts I ascribe to the following:

(1) Failure to cultivate the habit, in himself, of defining and assigning responsibility, and in his men, of assuming and discharging responsibility. This failure is probably exaggerated and encouraged by the close daily contact he maintains with his force, and the resulting opportunity for leaning on the Supervisor. This contact is good, and should not be abandoned; its dangers however, should be avoided. I see indications of Hoyt's improving on this point, but its existence is proven by great numbers of instances.

(2) Certain personal habits, including the following, have acted as drags on Hoyt's prestige and possibly on his judgment:

(a) The habit of seizing every opportunity for rehearsing and magnifying his personal exploits. This was very noticeable when Kelley was with us, but not when I was with him alone.

(b) The habit of inferentially discrediting the personalities and performances of other Forest Officers. This happened with respect to three district officers.

I asked Hoyt whether he was normally conscious of any animosity or resentment toward the District Office or Officers. I told him that if he carried such feelings with him at all times, it might be absorbing an important fraction of his energies and warping his judgment. He said he did not harbor any

such feelings, but that he did carry the conviction, and had been told by other officers, that there was such a prejudice against him in the District Office that no results he could ever obtain would ever receive the same credit as if obtained by other Supervisors. I told him that it was my observation that there had been an actual revolution in the District and Washington offices in recent years, and that it was becoming increasingly difficult for anything but results to get by, or for mere prejudices to cloud the recognition of results. He admitted that this was the tendency, but I think he may still harbor the idea that the office cannot see his good points. I cited him several preconceived hypotheses about the Sitgreaves or its men that actual observation of results had caused me to abandon.

I told Hoyt that since he was working hard, possessed enthusiasm, experience, education, physical fitness, and a good mind, and had good material under him, that no explanation of substandard results was conceivable except that there was something wrong with his methods, attitude or personality. That my diagnosis was laid before him not as the ruling of an infallible authority, but as suggestions which he should weigh and adopt insofar as he was conscious of their truth. That if you approved my findings, that you would expect him to apply them, possibly within a set time, and that if he failed to accomplish this, he would be asked to make way for somebody who could do better.

Assistant District Forester.

Experiment to Test Accuracy Lookouts

7/2/21

DAILY FIRE RECORD

FOR

SUPERVISOR AND DISTRICT RANGER OFFICE

Sil greaves National Forest

From Tower

By Pinedale map. 191

NO.	REPORTED BY	TIME	FROM				LOCATION		REPORTED TO FOR ACTION		APPROX. AREA	APPROX. COST
McKay Pk		Porter	Ortega Mt	Monnon Lake	Shoems Butte		Ortega Mt.	Porter Mt.	NAME Monnon Lake	TIME	Schoems Butte	
120½	Deer Springs	104½	90½	?			91	105		(cant see)		67
	Blue Ridge	339	18	cant see	cant see		20 (2°)	334 (5°)		340		327
	Lake Mt.	287	330	305	cant see		335	287		309		312

Tentative Conclusion: If error is in tower location, above figures would indicate that Blue Ridge is too far north on the map.

Since the above errors are in opposite directions, it is not likely that the error is in Pinedale map.

Deer Springs to Rattlesnake 71 – map 74

Additional Remarks:

(Signature)

(Title)

2 Experiment to test accuracy of Maps. 7/2/21

DAILY FIRE RECORD

FOR

SUPERVISOR AND DISTRICT RANGER OFFICE

Gilgreaves National Forest

191__

NO.	REPORTED BY	TIME	FROM				LOCATION		REPORTED TO FOR ACTION		APPROX. AREA	APPROX. COST
			Pinedale	Actual	Showlow	(Coff)	Lakeside	(Coff)	NAME	TIME		
1	Lake Mt		304	Centre Sec 12	NW/4 Sec 17 T12-20	1.0 SE	SW/4 Sec 27 T12-20	4.0 SE				
	Blue Ridge		314	T12-19			Lake Mt DSP Sec 13 T12-19	0.0	OK			
	Deer Springs		40		NW/4 Sec 13 "		Blue R. " Sec 12 T12-19	0.0				
2	Lake Mt		311	Centre Sec 12	NE/4 Sec 26 T12-21	6.0N	NW/4 Sec 12 T11-21	0.0	OK			
	Blue Ridge		328	T11-21								
	Deer Spgs.		80		NE/4 Sec 13 "		NW/4 Sec 12 T11-21	0.0				
3	Lake Mt		306	Centre Sec 12	SE/4 Sec 12 T10-22 OK	0.5 E	SE/4 Sec 12 T10-22	0.0	OK			
	Blue Ridge		341	T10-22								
	Deer Springs		95				SW/4 Sec 12 T10-22	0.0				
4	Lake Mt		329	Centre Sec 12	SE/4 Sec 12 T10-23 OK	0.5 E	SW/4 SE/4 Sec 12 T10-23	0.0	OK			
	Blue Ridge		21	T10-23								
	Deer Spgs		94				Centre Sec 12 T10-23	0.0				
5	Lake Mt		7	Centre Sec 12	NE/4 Sec 13 T10-24	0.7 E	E on NW/4 Sec 13 T10-24	1.0 W				
	Blue Ridge		48	T10-24								
	Deer Springs		94									

Kind of Map. Brown-line print, sections pasted together on board. (Tricolor, protraction stumped on with stump)

Additional Remarks: Protraction drafted on tracing.

Conclusion: Not knowing just how Showlow & Lakeside read their intersections, the above only proves that fixed errors exist somewhere. The figures lead to the conjecture that the Showlow map protractions are off.

(Signature)

(Title)

3

Tests on Past Fires

7/2/21

DAILY FIRE RECORD
FOR
SUPERVISOR AND DISTRICT RANGER OFFICE

Silgreaves National Forest

191

NO.	REPORTED BY	TIME	Pinedale Showlow FROM						LOCATION Actual Location	REPORTED TO FOR ACTION NAME	TIME	APPROX. AREA Error	APPROX. COST
6/4	Deer Sprg		95	95					Where road crosses 11, 14			2 1/2 mi. NW of fire	
Willis fire	Blue Ridge		309	308									
	Lake Mt		290	309									
Remarks: Blue Ridge exactly on line; Deer Springs read too far north													
	Deer Sprg			104					SW/4 Sec 25			1/4 mi. N. of fire	
Inchel fire													
Remarks: Deer Springs slightly north													
6/20	Deer Spr.		278										
Phoenix	Chevalon		145						Centre Sec 28			1 1/2 mi. E. of fire	
Park Fire	Deer Springs on line, Chevalon Butte too far East												
5/29	Deer Sprgs		?						?			?	
Potato	Prom.		93						Centr 13			9 mi. W. of fire	
Patch	Lake Mt.		284										
	Chevalon		140										

Additional Remarks: Conclusion: Report Record is not clear enough to serve as a reference.

(Signature)

(Title)

Digest of Leopold's Gen'l. Inspection, Sitgreaves-1921.

Fire.1.Fire Plan.Late. Omissions & changes listed p.1

2.Guards. Flat scale abolished? . . . .

Equipment.Tools inventoried & redistributed?Tools in poor condition.Now OK? Apache Sale equip? 2

Towers.Instruments poor. Now OK? . . . 3

Phones.Showlow Lakeside not brushed. . 3

4.Reports Lookout Records poor.Now OK? 3

5.Guard Labor. Rangers planning?. . . . 3

6.Law Enforcement.Progress on Incendiary problem? 4

8.Lookout Errors.New lookout on Lakeside replacing one of those on rim?Situation diagnosed?. 5

9.Farm Smokes. In hand? 5

Improvements. 1.Forage. Legume Rotations?. . 7

2.Quarters.Tools at Pinedale & Lakeside? Willow Wash cleaned up?. 8

3.Property.Small requisitions systemitized?8

R.&T. Wiggins Crossing drained? Chevelon Crossing maintained?Mogollon-Waters drained?8

Unposted signs at Willow Wash put up? 9

Finance.3.Forage & travel. Responsibility delegated to Rangers? 11

Personnel.1.Ratings.More carefully done? . . 12

3.Individuals.McCloskey penned out? Slosser,Kartchner in hand?Rowley not letting friends impose on his time? Hall paid his debts?Shumway exclude children from office?Merkle handling his assistants?

Lands. Fenced boundaries posted?

Organization.Supervisor making diary analyses? 17

Ranger Work Plans & Forest Objectives used? 18

Rowley organizing his office visits?

Any progress toward consolidating Showlow & Lakeside? 19

(Over)

Inspection Methods. Rangers & Supervisor? 19

D
Supervision-Sitgreaves,
Inspection.

July 27, 1921.

Forest Supervisor,

Snowflake, Arizona.

Dear Hoyt:

Enclosed are three copies of Mr. Leopold's inspection report - one set to be kept together for continued reference as a promise card of things requiring attention. Copies of Mr. Marsh's inspection report covering matters pertaining to his office were left with you by him. Both reports have my approval subject in the case of the first mentioned to such supplemental comments and instructions as may possibly be sent out by the other offices concerned and with special reservation as to page 13, "Exempt Stock and Fire", and page 14, "Sheep Driveways", which Mr. Kerr will specially cover by letter when he returns from Arizona. Unavoidable interruptions so cut into Mr. Leopold's time that his inspection falls short of the full "general" inspection originally intended and while touching on Lands and Grazing, deals almost entirely with general administration and Operation matters. I am keeping in mind the fact that the two reports under discussion do not furnish a cross section but only part of your Forest activities.

Action Taken 8/15

It would be unfair, both to you and myself alike, to withhold an expression of disappointment in certain conditions reported to exist on your Forest, particularly in connection with the absence of ranger work plans of the new variety, and your preparations for the fire season which threatened to be so abnormally serious. In the light of persistent warnings I had a right to expect a more complete compliance with outstanding instructions. At the same time I think that I see in your personal industry and energy and your apparent efforts to improve conditions between Mr. Leopold's trips ground for the hope of much more efficient administration of the Sitgreaves in the future. I am mindful, too, of certain organization handicaps that you have labored under in the past, in the removal of which I can perhaps be of prac-

tical assistance. There is also the undeniable fact that some of the shortcomings of your past administration assume a larger significance today than formerly with a growing recognition of the possibilities of a need for increased efficiency throughout the District as we settle down to a post-war administrative footing.

The more thorough-going inspections we are making on all Forests are being undertaken in the fullest spirit of helpfulness. What we are trying to do is through more critical analysis of conditions on each Forest to bring into the limelight the improvements needed to place Forest administration on a fully efficient basis. With this in mind I am planning to get in personal touch with you as soon as possible after returning from an essential California trip about mid August. At that time I want to go over the report with you in detail, discuss the various points raised pro and con, and arrive at a common understanding of what can fairly be expected in the way of improvement by another season. We can discuss your present system of supervision and wherein it should be modified to yield larger returns - just as in a District-wide sense I am trying by a different inspection system to bring actual accomplishment on the ground abreast of paper standards.

In the meantime I wish you would take full advantage of the inspection reports as submitted, reserving any comments you care to make until they can be presented to me in person. Above all else, do not approach the solution of your problems with any feeling of discouragement for I will have signally failed in my purpose if you do not get out of this brief letter, the reports themselves, and the conferences that preceded them an inspiration to tackle the job of doing the things that should and must be done, together with the assurance that the results secured will be accepted at their face value. In this you will at all times find me willing and anxious to help in whatever way I can.

Very sincerely yours,

Frank C. W. Peeler.

District Forester.

Enclosures-

For Inspection File

G
Supervision-Sitgreaves. August 11, 1921.

Forest Supervisor,

Snowflake, Arizona.

Dear Mr. Hoyt:

With reference to the question of "exempt stock and fires" and "sheep driveways" mentioned in the District Forester's "D, Supervision-Sitgreaves, Inspection" letter of July 27 and in Mr. Leopold's inspection report.

Regarding the question of whether settlers grazing exempt stock may be required to assist in the suppression of Forest fires in lieu of the privilege which they are now enjoying under the provision of Reg. G-5 it seems to be generally accepted that persons who graze exempt stock are in no way obligated to assist in the suppression of fires. The basis for this line of reasoning is that the settlers are not required to make an application and secure a permit for the stock and there is no provision in Reg. G-5 requiring this class of users to assist in the suppression of Forest fires. While I am not in a position to give you definite information on this point at the present time I am enclosing herewith for your information copy of our letter of even date to the Forester suggesting that Reg. G-5 be amended so as to require this class of users to assist in the suppression of fires that occur on the range occupied by their stock.

Regarding the suggestion on page 14 of Mr. Leopold's report relative to taking up the question of the Indian Service providing driveways for sheep using the Indian Reservation to reach their winter range on the desert: The establishment of the driveway across the Indian Reservation on the basis of the application presented by the sheepmen in 1917 is one for which the sheepmen have constantly worked and one which met with the approval of the Forest Service. The sheepmen who have constantly worked for the establishment of the driveway are still, no doubt, strongly in favor of it. They are, of course, familiar with the fact that the Indian Service now contemplates issuing new five year permits and no doubt they have again taken this matter of securing the driveway up with the office of Indian Affairs.

As you know, it is up to the sheepmen to take the initiative in taking up this driveway question with the Indian Service. We are interested in the matter to the extent that a driveway across the Indian Reservation will take care of some of the sheep which are now crossing the Heber-Reno and Mud Tanks driveways and in this way lighten the demand for these driveways. For this reason we would appreciate any information you may be able to furnish with regard to whether in view of the new Indian Service permits the sheepmen have taken the question of establishing a driveway up with the Indian Service. If I remember correctly, the sheepmen appointed a special committee a few years ago to handle this driveway matter for them. No doubt you can find out from the special committee just what they are doing on the question. If the committee is no longer working on the matter it is presumed that you could secure this information from either George or Jim Scott or some of the other sheepmen who use the Indian Reservation for grazing.

Very sincerely yours,

FRANK C.W.POOLER, District Forester,

By *John Kerr.*

Enclosure-

For Inspection File

G
Supervision. August 11, 1921.

The Forester,

Washington, D. C.

Dear Sir:

The question of whether the Forest Service can require settlers who are grazing exempt stock on the Forests under the provisions of Reg. G-5 to assist in the suppression of Forest fires that may occur on the range used by their stock, without compensation, has been raised in this District.

It has been suggested that as a means of securing the assistance of this class of Forest users for fire protection that all exempt stock be placed under free permits. By so doing this class of users could by reason of the stipulations in the application and permit be required to fight fires. The main objection to placing this stock under permit is, of course, the great cost that would naturally result from handling such a large volume of work.

The suggestion has also been made that Reg. G-5 be amended so as to require some assistance from this class of users in fire suppression. While this suggestion would not, of course, be as good as placing the exempt stock under permit, I believe it would give us a hold on these users that would result in securing some assistance from them. The amendment suggested for the Regulations and submitted for your consideration is as follows:

> The grazing of stock on National Forests under the provisions of this Regulation and not under permit binds the owner of said stock to render aid in extinguishing Forest fires on the range used by his stock up to the value of $2.00 per head for cattle and horses and 50¢ per head for sheep, goats or hogs without compensation therefor.

Very truly yours,

FRANK C.W.POOLER, District Forester,

By *John D. Jones* , Acting.

For Inspection File

G
Supervision,
Exempt Stock.

August 19, 1921.

District Forester,

Albuquerque, New Mexico.

Dear Sir:

Your letter of August 11 is received.

The question of issuing permits for exempt stock under the provisions of Regulation G-5 is a matter which was thrashed over in the early days so many times that I had supposed the subject was about worn out. The main, and in my opinion the unsurmountable objection to such a plan, is the tremendous amount of work it would take to issue permits to all these people, many of whom would never dream of submitting applications and the possession of a permit to them would be a perfunctory matter which would hardly impress them with the nature of their obligations to the Service in fighting fire. According to our records in your district alone the number of persons availing themselves of the provisions of Regulation G-5 was 5924, with a total of 25,000 in all the districts, almost two-thirds of the total number of paid permits we are now issuing. I don't believe the results would be worth the cost to the Service in issuing so large a number of deadhead permits.

Your suggestion that the regulation be amended so as to make fire fighting an obligation on the part of such users is worth further consideration and will be taken up with the Forester and decision arrived at before the time for making public the next changes in the Manual which will be in October.

Very truly yours,

Will C. Barnes

Assistant Forester.

D

Supervision-Sitgreaves, Inspection.

September 10, 1921.

Memorandum:

September 7 and 8 were spent by me in the Sitgreaves office, largely in the detailed discussion of Mr. Leopold's inspection report which went to Hoyt with my letter of July 27. The report was discussed section by section and a number of marginal notes have been made on it as to progress in various lines since the report was written. In one or two cases, supplemental data was supplied in the same way.

There is no disagreement as to statements of fact and Hoyt accepts the critical analysis of his methods of work in a spirit that promises well for future improvement. In this conference it was agreed that it is entirely reasonable for me to expect a marked improvement in the general administration of the Sitgreaves by another year. Particularly is this true as to (1) the exercise of individual judgment and responsibility by the rangers themselves which, of course, carries with it instruction and direction by the Supervisor and a strict accountability on his part to me for the performance of his Rangers, and (2) better fire prevention arrangements which, of course, involve a considerably revised fire plan and the taking of numerous additional steps on time.

and on their part to him for such performance

The desirability of getting across to the rangers a sense of individual personal responsibility for the proper management of their districts and the proper condition of the Forest property - timber, range, etc. - was emphasized as well as the fact that the Supervisor's accountability for the work of his rangers was, within reasonable bounds, very direct, he to secure a fair measure of credit for work well performed by them as well as a fair share of discredit for their failures. I made it plain that I am looking to Supervisor Hoyt himself, not to the rangers or anyone else, for the condition of things on the Forest, that I am looking to him to handle his own personnel situations as they arise, properly instruct and direct his men, maintain adequate discipline, etc., in view of the personal reflection the failure of the rangers anywhere along the line will have on his own record as a Forest administrator.

Copy sent Mr. Hoyt under confidential cover

In other words, I made it very plain that he as Supervisor of the Sitgreaves Forest is charged with the administration of valuable Forest property and with the obligation of making the best use possible of the personnel, finances, and any other Government resources placed at his disposal.

We agreed that it would be desirable to have a complete grazing inspection made of the Forest, either this fall or next year and I have promised to arrange for one. I have also promised that Mr. Leopold preferably or some District officer ~~as~~ any event, will follow up this year's general inspection around about August 1922; that such inspection will not only deal with the specific points brought out by Leopold but will, in every sense as nearly as possible, be a thoroughgoing general inspection. As previously stated, I expect that such inspection will show very marked progress and improvement along specific lines and ~~am fully confident~~ from what I know of Hoyt's ability, energy, and attitude, I have no slightest doubt that very material progress will be made. In fact, it is apparent that the Forest is already profiting by Leopold's inspection which has now been further emphasized by my own personal representations.

Copy of this memorandum is being sent Mr. Hoyt for his confidential files.

D

Supervision-Sitgreaves, Inspection.

September 10, 1921.

Memorandum for Supervisor Hoyt:

In order that no misunderstanding may grow out of our conference on September 7 and 8 with respect to grazing cuts, etc., I want to record the following:

1 - Despite the existence of the lightly used bunch grass range west of Chevalon, which you stated would approximate a township in extent, the cut on that district will go through as scheduled. You suggested that it would be preferable to give the permittees affected the alternative of holding sheep on this bunch grass area or standing a cut. That I definitely disposed of at the time. A cut is necessary to bring the number of stock on that district down to the estimated carrying capacity of the range, including the bunch grass area. You should, accordingly, in addition to making the cuts, see to it that the permittees on whose ranges the bunch grass area is found, are required to utilize such bunch grass area to a reasonable extent and I shall look to you to see that this is done.

2 - With respect to the discussion of the earlier confidential correspondence in March and April, 1921 bearing on your disapproved recommendation that Bazan's sheep be moved from the east end of your Forest to one of the western districts. Our discussion did not change outstanding instructions. For the reasons given in earlier correspondence, the move can not be approved and you will have to provide for protecting the Apache Lumber Company's area from sheep grazing at the expense of the eastern grazing permittees. You mention the move of the J. C. Jamison and Thomas Brothers' sheep from the east side of the Forest to the Chevalon District as a precedent. Mr. Kerr informs me that these moves were made before the agreement with the grazing permittees, that in the future the matter of reductions, etc., would be handled by districts rather than the Forest as a whole. It seems that on most of the Forests this is the outstanding system; the Coconino and Tusayan being merely exceptions to the rule in that the whole Forest sheep range is there considered a unit and adjustments made with this in mind.

3 - As to a grazing inspection of the Forest, I find that it will be impossible to arrange for one this fall but you can count on an inspection, probably by Mr. Kerr, next season

and in all likelihood fairly early in the spring.

This memorandum is being sent you in triplicate as an inspection memorandum and I wish you would keep one copy in your inspection file for ready reference.

Frank C. W. Pooler.

District Forester.

O Files

GENERAL INSPECTION REPORT

APACHE NATIONAL FOREST

May & June, 1921

By Aldo Leopold

D.F.

O

PR

~~S~~ D.M.S. [illegible] 2R.

G

~~L~~ M.M.C., J.D.J.

DE

DL

OM

July 5, 1921

O
Personnel
Selkirk, R. J.

Memo for Mr. Pooler:

On June 26, Mr. Selkirk and I had a long conversation about my general impressions of the Apache administration, and about how that administration stood in comparison with present district standards.

I told him that in the handling of personnel, my impressions were as follows:

1. That he knew how to let good men alone but that he was not successfully developing and expanding his newer material.

2. That there was an apparent lack of adequate personal contact with the force; that this was due, as nearly as I could see, to his personal reticence in freely talking "shop"; that without well directed "shop talk" it was impossible for a Supervisor to get across new ideas to his force, or for them to convey to him the benefit of their own thoughts and experience.

3. That he let good performance go without appropriate expression of his approval: that he let bad performance go without prompt expression of disapproval. Frank comment not being habitual in small matters, it becomes difficult or embarrassing to make any comment at all in larger matters.

Selkirk was not, I think, fully convinced that there was anything [redacted] seriously wrong with his methods of handling personnel.

I also told Selkirk that in his handling of the public he was often unduly "short" and hard to get acquainted with. In all the above matters, I am confident that my suggestions are somewhere near the truth but that Selkirk, through long habit, is quite unconscious of the faults in question, or of the fact that they have acted as a drag on his efforts.

In his attitude toward the work, I am forced to the conclusion that there is something wrong, but I can not accurately lay my finger on it. Inspection shows that many of the new ideas advanced in fire, organization, etc., have not been put into effect on the Apache. That would not be serious if Selkirk freely recognized the fact. He, of course, does not claim that everything is right, but he fails to identify the principle from the detail; he will

not admit that he disapproves of these new ideas, but, at the same time, he does not display a healthy curiosity or a normal enthusiasm about them. For instance, in the three days that we rode with Major Kelley, he only asked one or two questions. Major Kelley had to initiate all the discussions, and even when Major Kelley went to the trouble of summarizing in detail his suggestions as to the local fire situation, Selkirk took no notes. It seemed only natural for anybody to seize upon these opportunities for getting Kelley's views and advice. Everybody in the District Office did, several of the Rangers did, but the Apache staff did not. In short, I am impressed with the lack on Selkirk's part of any adequate, skillful, systematic, method for handling or developing people and promoting ideas. I also have the impression that he is not clearly conscious of the need for and possible nature of such methods. While methods will differ and can not be standardized, it seems axiomatic that something of the kind must underlie and color every official and personal act of every forest officer and expecially of every Supervisor.

In dealing with material, as opposed to people and ideas, Selkirk is at home, and even skillful. His natural leaning is toward improvement work. While this is an excellent point, it, alone, can not make a permanently successful supervisor.

I also can not help thinking that the Barnes Guy Wire Case (See Swapp personnel B-2), the Slaughter & Thompson Roundup (See H), the Bear Wallow Fire (See A-7), the Heifer Branch Fire (See A-7), Swapp's behavior on Bear Mt. (See B-3), and the Rose Peak phone case (See A-3), show a lack of promptness and decisiveness in follow-up which must greatly handicap Selkirk's administration. I do not imply that Selkirk is negligent of all these matters; his action is simply too slow to be effective.

Selkirk wants a transfer to a better town, and asked me to transmit his request. I told him I would do so, but that I did not believe you would feel justified in arranging a transfer until any doubt as to his ability to meet the growing requirement of a supervisorship had been resolved in his favor. He seemed unaware that there were any doubts about about the general satisfactory nature of his administration of the Apache, so I told him that there were such doubts; that it was not rated as one of the Forests which the District office felt confident was forging ahead; that my inspection had not removed such doubts from my own mind; that my function was to lay before him the best diagnosis I could make of the weak points of his administrative methods; that the next step was for you to discuss my conclusions and your own with him; that it was then up to him

with the benefit of such of the advice received as he deemed useable and sound to demonstrate his ability to grow up to his job and to develop with the times. I told him I thought it would be unjust both to himself and to the service for him to undertake a new Forest before he could leave this Forest in satisfactory shape and with this he agreed.



Assistant District Forester.

July 5, 1921

O
Personnel
Voigt, A. W.

Memo for Mr. Pooler:

There can be no question about Voigt's general efficiency and ability as a deputy. The only question is as to whether he is ready for a Supervisorship, and, if not, what should be done. Selkirk is highly pleased with him and says he could swing a Supervisorship whenever the chance comes. I was somewhat disappointed that he did not seize the chance to question Kelley. It is also very noticeable that he is reticent with outside officers until well acquainted. This was noticeable with Kelley, Ancona, Slonaker, and myself and puzzled me until he finally thawed out at the end of my long stay. He is not so, however, with the Rangers and the local public and I was repeatedly impressed with his high repute locally.

I can not help thinking that Selkirk's faults have affected Voigt and at the same time their effects on the force have been in part offset by Voigt. More of a joint level has tended to establish itself than I would like to see. Ideally, Voigt should supplement the faults more or less natural to Selkirk's age, experience, and personality, while Selkirk should offset the faults, more or less natural to Voigt's youth and comparatively short experience. As to the degree to which this "joint level" exists, I speak with caution because Voigt naturally and properly supported his Supervisor in the various arguments that we had together.

In conclusion, I can not say that Voigt is unprepared for a supervisorship. Neither can I say that he is prepared until I see his reaction to the new ideas set forth during recent inspections, to the hoped for changes in Selkirk's viewpoint and methods and to his new job on Grazing Appraisal. I will be prepared with my recommendation on this point, without a further visit to the Apache, within six months.

I strongly advise Selkirk to urge Voigt to keep up his readings and to use him more fully in offsetting and correcting his own faults. It is for this purpose that we try to give the older supervisors young deputies and try to pair off technical and non-technical men.

Assistant District Forester.

D
Supervision-Apache,
Inspection.

July 27, 1921.

CONFIDENTIAL

Forest Supervisor,

Springerville, Arizona.

Dear Selkirk:

Enclosed are three copies of Mr. Leopold's inspection report - one set to be kept together for continued reference as a promise card of things requiring attention. Because of unavoidable interruptions, Mr. Leopold's time was so cut into that his inspection falls somewhat short of the full general inspection originally intended and so does not represent a cross section of all your work. I am approving the report subject to such supplemental comments and observations as may possibly be sent out by the other offices concerned. His observations on grazing conditions, among others, are decidedly to the point and deserve your best thought and attention.

It is not my purpose to comment on this report in great detail but it would be unfair to both you and myself alike to withhold an expression of disappointment in certain conditions reported to exist on your Forest, particularly in connection with the delay in getting the present-standard ranger work plans at work, and in connection with your preparations for the fire season which threatened to be abnormally serious. In the light of persistent warnings, I had a right to expect more complete compliance with the outstanding instructions. At the same time I believe that the specific attention called to your various administrative shortcomings will not be lost on a man of your long experience as Supervisor and this will be reflected in improved conditions on your Forest. I am also mindful of the undeniable fact that some of these shortcomings assume a larger significance today than formerly with a growing recognition of the possibilities and need for increased efficiency throughout the District as we settle down to a post-war admin-

istrative footing.

The more thorough-going inspections we are making on all Forests are being undertaken in the fullest spirit of helpfulness. What we are trying to do through more critical analysis of conditions on each Forest is to bring into the limelight the improvements needed to place Forest administration on a fully efficient basis. With this in mind I am trying to get in touch with you as soon as possible upon my return from an essential California trip about mid August. At that time I want to go over the report with you in detail, discussing the various points and arriving at a common understanding as to what can fairly be expected in the way of improvement by another fire season. We can discuss your present system of supervision and wherein it should be modified to yield larger returns in order to bring actual accomplishment on the ground fully abreast of paper standards.

In the meantime I wish you would take full advantage of the inspection report as submitted, reserving any comments you care to make until they can be presented to me in person.

And in approaching the solution of your problem, do not do so with any sense of discouragement for that would defeat the entire purpose of inspection. I want you instead to get out of the report, the conferences that preceded it, and out of this brief letter not only the conviction that there are things to be done in the way of improvement that should and must be done but also the inspiration to tackle the problem of doing them with a renewed determination and the assurance that results will be accepted at their face value. In such an effort you will at all times find me willing and anxious to help in whatever way I can.

Very sincerely yours,

Frank C. W. Pooler.

District Forester.

Enclosures-

S
Sales, Apache

August 3, 1921

Forest Supervisor,

Springerville, Arizona

Dear Mr. Selkirk:

Reference is made to page 23 of Mr. Leopold's inspection report. The points mentioned by Mr. Leopold are taken up in regular order.

Insects and Blazes.

We shall be glad to receive comments based on field examinations on other parts of your Forest. If it develops that this is a general condition then a district wide policy of avoidance of blazes on supppressed yellow pine should be initiated. Inspectors from this office are also asked to keep this in mind when on inspection work.

Clifton Sales.

The selling of green cordwood would appear to be in direct conflict with the policy statement for the Apache. See page 2 of the statement "Confine cordwood sales to dead material until accessible supply is gone". Unless the accessible supply of dead wood is exhausted or unless you desire to recommend a revision of the Policy Statement the practice of selling green wood should be discontinued. If the supply of dead wood is exhausted at this early date then the provision that sales be confined to dead wood was a useless one and should not have been placed in the policy statement.

Juniper and Oak Lumber.

The Office of Forest Management has no authentic figures on stumpage paid for oak or for pencil wood. Oak in the East is bringing all the way from $1.00 to $10.00 depending upon the species of oak and its location. Since this is a sale of special products the stumpage to be charged should be based on the value of the material obtained. It is suggested that, as this is in the nature of an experiment a nominal price be placed on the material, taking into consideration the use it is to be put to and the cost of handling the sale.

Greer Areas and Sheep.

Sheep damage on the Apache should be handled in accordance with Circular 11-RS-1 of July 29, 1921.

Very sincerely yours,

FRANK C. W. POOLER, District Forester,
By M. M. Cheney, Acting

For Inspection File

S
Sales - Apache.

August 13, 1921.

District Forester,

Albuquerque, New Mexico.

Dear Sir:

Reference is made to your letter of August 3 referring to page 28 of Mr. Leopold's inspection report.

I believe that there has been some misunderstanding as to what is now being started in the Clifton cordwood sales. No sales of strictly green cordwood have been made. In the past it has been the practice to make sales of dead wood by amount in the vicinity of a certain canyon or mountain as the case might be, but no attempt has been made to lay out specific areas and require all of the dead wood to be taken from such areas, with the result that the best and more accessible dead wood has been removed. It is now our intention in the larger sales, to lay out on the ground specific areas from which dead wood can be taken and to require the purchaser to take all of the dead wood from these areas, progressing over them in some orderly manner. Naturally in the cordwood type there are certain trees which might be termed "half dead" that is, they still have a small percentage of green wood but are substantially on the decline. This is especially true of old juniper trees. Our intention was, therefore, to mark any such trees occurring on an area, which might be taken in addition to the purely dead wood.

I do not believe that this policy is in conflict with the Policy Statement. It is simply a liberal interpretation of "dead" wood and the responsibility for keeping it within bounds lies with the officer doing the marking. The only question in my mind is the matter of the correct charge. Naturally the purchaser procures some green wood which takes a different rate from the dead, but it seems to me that this can be handled by estimating the percentage of green wood as against the dead, on any given area, and making the charge accordingly. That is, if the officer marking estimates that 1/5 of all the wood which may be taken is green, then if a sale of 25 cords is made within the area 20 cords will be sold at the 50¢ rate and 5 cords will be sold at the rate of $1.00 per cord.

D.F.

This method of handling the cordwood business naturally requires more time and supervision on the part of forest officers but I believe that the growing scarcity of dead wood, the volume of the business, and the substantial revenue lost each year thru stolen wood, together with the fact that a much needed plan of management will be put into effect, will many times repay the efforts and time of forest officers and, in reality, delay the time when sales of green wood will have to be made to supply the demand.

Very truly yours,

R. J. SELKIRK,

Forest Supervisor

For Inspection File

S
Sales, Apache

August 18, 1921

Forest Supervisor,

Springerville, Arizona

Dear Mr. Selkirk:

Your letter of August 13 is received.

This letter clears up our misunderstanding of the sale of greenwood for the Clifton market. I believe that you are putting into practice an excellent plan for handling this situation. It would appear that your practice of marking old, over-mature, half-dead trees is not in conflict with the policy statement. We were under the impression that you were making sales of green material in the usual meaning of the term. If the work is carefully done, a distinct benefit should result.

If the value of dead and green wood is correctly arrived at, I see no objection to using one stumpage price in these sales based on the percentage of dead and green material to be cut.

Very sincerely yours,

FRANK C. W. POOLER, District Forester,

By John D. Jones, Acting

0
Inspection
Apache

REPORT ON GENERAL INSPECTION

of the

APACHE NATIONAL FOREST

May 3-5, May 14-June 2, June 15-27, 1921

by

Aldo Leopold, Assistant District Forester.

(May 14-May 23 in company with
Inspector Evan W. Kelley.)

Copies sent as follows:

1 District Forester Inspection Files.
1 In sections to each officer concerned.
1 Supervisor's Inspection Files.
1 To Apache for subdivision to officers concerned.
1 To Apache for subdivision to folders in files.
1 To Inspector Kelley.

6

Approved July 27 1921

Subject to Frank C. W. Pooler
District Forester.

(Letter of transmittal July 27 1921.

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-A- FIRE

1. Fire Plan: The 1921 plan was mailed to the Rangers May 6. The new standard outline (Guide Amendment, 47, p. 208) was received January 3 and the full explanation of what was expected this year (Circ. 53-O-22) was received April 22. I think that even considering the confusion as to just what part of the new outline was expected to be completed this year, that the issuance of the normal plan was late.

In the transition to a new form of plan, it was natural to expect some necessary points covered in the old plan to be lost.

The following weak points in the plan have come to my attention: (1) No wage scale for fire fighters, and scale set (30¢ labor, 40¢ foreman) not correlated with Gila scale (35¢ and 45¢). (2) No provision for always taking food to fires. (3) Under the proceedure prescribed for appointing per diem guards, supervisor does not know who or where they are. (4) Possibility of confusion between District Rangers over working phone lines in case of break. This happened as between Blue and Alpine. A note-box at the district line, and exchange of notice before leaving communication, are probably the solution. (5) Lack of an outline of points to be covered by Rangers in their letters of instruction to guards. (6) Zones of action of smoke-chaser lookouts defined in too general terms. Zones should either be definitely delineated in plan and on map, or else the definite statement made that the Ranger will decide on zone at time of report.

2. Letters of Instruction: None of these prescribed what, if anything, the guard should do in case of a phone break, nor were tools provided to do anything. The Bear Mt. instructions were not delivered until May 22, ~~after being on duty ____ days~~. This was a serious breach of Fire Standard No. 1 on Swapp's part. Neither the Escudilla instructions nor the Plan are clear as to reporting a fire before going to it. ~~Instructions to smoke-chasers as to methods of gathering~~

3. Fire Improvements: (a) Phone Lines. All seen were in satisfactory shape except Hotair Canyon-Rose Peak stub which, apparently, has not been thoroughly brushed out for years and which would ground whenever leaves are wet. The burro method used in working phones on Blue Range is a very creditable experiment, the results of which (in comparative costs) should be reported to the District Forester for possible use elsewhere. There was confusion and delay in fixing responsibility for maintenance of the Pat Knoll-Big Lake line, Boyer claiming he found out from Marks on May 6 that this was his job. The plan covers this but was not mailed till May 6. He worked the line beginning May 13, and the Pumpkin Spgs. -C- fire occurred during his absence. This line is on the Greer Administrative District, Boyer's

fire district, and was worked by Patterson last year. Boyer thus has some reason for being confused but should doubtless have inquired if in doubt. The whole occurrence illustrates the difficulties engendered by crossed lines of responsibility and delinquent plans.

The failure of the Rose Peak guard to obey the Supervisor's instructions and take the phone set from Blue R. S. when he went after his supplies, left Rose Peak out of communication May 1-14. Swapp, who considered that he did not have authority to order him to take this set, should have called the office and obtained authority. The guard's excuse was that he did not know the set was for his tower. The guard has now quit. No action has been taken. My judgement would be that Swapp should have been told that he used poor judgement in not phoning the office before letting the guard get away without the phone, but, inasmuch as it was supper time, the supervisor's office probably empty, and no special arrangement made for calling the office force out of hours, the office is probably not in a strong enough position to hold Swapp accountable.

On the Bear Mt. Tower, Swapp was using a wall set which was out in the weather without even a box or tarp to protect it. A mine set, out of order, was also on the tower. I am forced to consider this gross negligence with government property.

A phone line to Eagle R. S. from Clifton (40 miles) is badly needed, and can be built, as the ground is not excessively expensive and poles are available without excessive hauls. Five to ten families on Eagle would take phones and the Circles and Drags would be interested. Possibly the Mountain States, in connection with the new road and recreational developments, could be interested. Here is a chance for Nave to do some promotion work. Our Rose Peak line, connecting with the north end would also then be extended, probably along the new road.

(b) Towers: These are all good jobs but Reno is shaky, should be stubbed at once and replaced, if possible, by steel 1923. An accident, due to bad towers, might easily cost the Service thousands of dollars in higher guard wages. All of the towers need Crow's Nests as it is physically impossible for lookouts to stay on top sufficiently to give service during the cold May winds. The Escudilla tower needs clearing of timber on the east side.

(c) Cabins: Successful execution of the new policy of having cabins on top is going to require more study than I find evidence of so far. This policy was formally laid down 3/28/21 in Guide Amendment 65 but I found practically no preparations to carry it into effect. There are three special considerations which must be taken into account: (1) Most of the lookouts are also smokechasers with horses, and, therefore, require pastures; (2) Water; (3) Fear of lightning by guards. Bear Mt. is a typical case as to grass and water. Here there is lots of bull grass on top

and a good location for fencing. A cabin and a dry pasture on top is evidently the solution. The lookout can then ride his horse to water, which should be developed at the foot of the peak, and the horse can pack his camp water back. (This year furnishes an exceptional opportunity for water exploration and should be taken advantage of.) Escudilla is a typical case as to lightning. Here it may be necessary to place the cabin a few yards down the hill from the tower, but near enough to enable the guard to use the tower phone by means of an extension bell in the cabin. The lightning prejudice, however, should not be accepted blindly; actual evidence, such as an examination of the trees and a canvas of men suitable for guards, should be the guide.

In many cases it may be feasible to move the present cabins and fences to the top. This should be studied and decided and the plans for ~~general~~ guard labor laid accordingly.

(d) Alidades and Protractors: At Green's Peak and Rose Peak the best use had been made of the available equipment. At Big Lake, Reno, Bear Mt. and Escudilla the pivots were loose. Loose pivots allow the vanes to tip, thus making large errors possible should the guard not be sufficiently skilled in the use of instruments to read the bottom of the hair and slop. We can not assume such skill to exist. Any of these pivots could have been easily fixed in a few minutes by using a properly fitting screw. At Reno, the post was loose and anchor nails split out. A jolt could throw this post out 3° which is an error of one mile at twenty miles distance. At Bear Mt. the protractor board was shaky and loose, and there was no lightning protection. With wooden towers, the protractor post can not be kept solid unless let down below the floor and braced to the legs of the tower.

At Bear Mt., orientation had not been checked and at Escudilla orientation was checked but not finally corrected until 6/19. Permanent orientation, such as bearings on known points, or blazes on trees at a distance, located by backsighted compass lines, are needed at such towers.

All of the protractors are warped but this can not be avoided with the present style of instruments. A standard protractor outfit will probably be adopted before next year by the District.

In general, the condition of towers/ instruments was poor.

4. Fire Equipment: No cumulative check lists of tools, with blanks for entry of inspections, are used on the Apache. I am inclined to believe such lists should be revived for use in all fire tool caches. The following tally shows the condition of tools and equipment. The places "not OK" can be obtained from page 1 of my original field notes if desired.

SUMMARY OF CONDITION OF FIRE TOOLS & EQUIPMENT

No. tool caches and tool outfits inspected during trip: 14.

Condition with respect to	OK	Not OK	
Kyaxes ready to go	3	4	
Tools segregated for fire use	7	3	
Tools stored in orderly fashion	8	6	
Tools fairly well assorted as to kind and number	10	4	
Tools sharp	5	9	
Sharpening facilities on hand	10	4	
Saws sharp	2	2	
Handles tight and sound	10	4	
Horses up, ready to go	11	2	
Saddle tools carried on regular work	7	2	
	73	40	64% OK

Above figures are, in some cases, approximate and the total is only the number to which the items applies.

An inventory of all existing toolsstocks to be used as a basis for re-distribution has been started. This is badly needed.

In general, the condition of fire equipment was poor.

5. Fire Personnel: The selection of guards for this year has been very good. Last year the whole machine was often crippled through inability to get good men.

I strongly advise the inauguration of a definite and continuing plan for enlisting the right kind of men year after year. This can only be done by a skillful and well correlated practice of giving recognition to good service, promptly disciplining failures, and causing good guards to feel their status as forest officers. I also urge consideration of differential wage scales and contracts of employment. At present a flat wage is paid, and the force as a whole is not conscious of the development of a permanent guard force as one of its important objectives. Without this kind of preparation, there will again be times when our protection funds are insufficient to command the right kind of services, and a poor guard personnel might easily render the best kind of a fire organization quite ineffective.

This job can not be accomplished by the staff alone. The idea must be "sold" to the Rangers, and be promoted by them by thought and action throughout the year.

6. Publicity and Educational Work: During fire prevention week, May 22-28, Nave gave a talk before the Morenci High School. This is the only instance of any positive or material activity. Wilson and Haynes did nothing; Boyer, Marks, and the staff talked to a few individuals or distributed buttons or proclamations. Up to May 29, Wilson received no buttons;

Haynes received his proclamations May 25, after the week was nearly over. I should consider this as a satisfactory showing by one man and an unsatisfactory showing by seven. Considering the amount of advertising and material received from our office, the excellent showing made on most other forests, and the fact that 60% of 1920 Apache fires were man-caused --as against 53% for the District-- I can not avoid considering the above performance as disappointing.

In the posting of pasteboard fire signs, my observations are as follows:

Blue: good on Bear Mt., poor on Blue Range.
Greer: fair
Clifton: fair
Eagle: none (Only received 5/23)
Alpine: good
Nutrioso: good

Summary: OK 3, Not OK 3.

No newspaper publicity attempted, as far as I could learn. I believe the St. Johns, Clifton, and Holbrook papers would use Apache material.

7. Law Enforcement; Permit Clauses: There was a lack of positive understanding by the force that the district had definitely adopted a policy of enforcing permit clauses.

No fire law enforcement cases have been attempted but I believe some good chances have been lost. For instance, in the Heifer Branch fire on March 15, Boyer knew of three men who were on the area at about the time of the fire, but to date has not questioned them to try to fix responsibility. In the case of the Divide Fire along the Alpine Road, Marks could have had the road watched both ways by using the phone and possibly spending a few dollars. I told him that where small amounts were judiciously expended for law enforcement the Supervisor or this office would probably always be glad to foot the bill.

The Bear Wallow fire (May 31-June 7) was probably man-caused and one of the most important opportunities of the year in D. 3 to obtain big results in law enforcement. This fire was so widely advertised that a conviction would have exceptional value. The obstacles to obtaining evidence do not appear unusual since this is uninhabited and untraveled country and only two camps (Hicks and Wilson) were in the region. The date of establishment, location, purpose, and members of each camp are known, and the movements of each person on the day of the fire could, I think, be obtained by asking all to describe and prove them. By asking this of all impartially, offence to innocent persons would be avoided. My memo of June 4, in connection with an inventory of their saddle stock, might throw additional light on the matter. When Selkirk left the fire on June 7, Ranger Wilson was asked to work up the case but to date no report has been received from him. My memo has not been sent him. Selkirk, I think, now intends to go into the matter further and I advised him

strongly to do so. The Apache should, I think, on account of the importance of the case, report further action and results.

8. Fire Studies: Voigt, Selkirk, and myself have discussed the recently raised question of a revival of the Annual Technical Report and agree that this might profitably take the direction of charging suitable members of the field force, technical or otherwise, with the execution of certain badly needed research projects in the field of fire equipment and suppression methods. Some examples are: Study of what is the best fire tool, and where and when; Study of packing equipment, methods, loads, animals, rations, etc., to determine the most economical practice under given conditions. Voigt is considering undertaking a research project on the first named subject, and will notify the District Office within a month or so whether it is practicable for him to undertake it.

9. Emergency Plan: It is clear to me that at least on the Apache and probably elsewhere, there can be no single set emergency plan because the nature of the expansion in the force and the methods of using the expanded force, will depend largely on the nature of the emergency. For instance, smoke from Indian reservation fires, during an exceptionally dry period with lightning or human risk, might call for more firemen and fewer or lower lookouts, while mere dryness and risk without the smoke might call for exactly the opposite. I have told Selkirk that, in my opinion, his emergency plan should start, for one thing, with systematic observations of the actual behavior of Reservation smoke, and on where, how, and when it crippled his normal machinery. Meanwhile, such unused improvements as Baldy, Pat Knoll, and East Point of Escudilla should be kept in revivable condition, since the plan might demand their use during emergency periods.

10/ Indian Fires: I told Selkirk his proper policy was to continue to co-operate as to Indian Fires, and that proven failures in performance on the part of the Indian Service, which resulted in menace or damage to the Forest, should be promptly and fully reported for the use of the Forester.

11. Planning Use of Guards: None of the Rangers except Patterson had a real conception of the need for and possibilities of planning guard labor at the time when first seen. Since Kelley's visit to the Greer District, however, Haynes has absorbed and promptly acted on Kelley's ideas in a very creditable manner. More temporary phone equipment and more instruction in what constitutes real advance study and ingenuity on the part of the field will be necessary

before the full possibilities of guard labor are utilized. I understand, however, that a big improvement over last year's utilization has been effected.

12. Fire Standards: The foregoing, of course, covers many instances of the degree to which the new fire standards have been complied with. The following is a brief summary of the status of such compliance.

Standard number	Covering	Status	OK	Not OK
1.	Letters of instruction	None complete, 1 late	x(?)	
2.	1 day instruction		x	
3.	Sup. Inspection Lookouts	All except Green's Peak and Escudilla	x	
4.	Ranger Inspection Lookouts		x	
5.	Ranger Inspection Fire Areas	Too early to judge		
6.	Insp. C fires	Too early to judge		
7.	Fire Reports 1 week	On time 4, late 5, late and not yet received 10		x
8.	Action on fire reports	A little late in some cases	x(?)	
9.	20 minute getaway	Standard 7. Substandard 1 (excl. reports not received.	x	
10.	Orientation Protractors	2 failures, see A-3-d		x
11.	Investigation of causes	1 failure, 1 delay, 1 chance missed		x
12.	Prosecution	Depends on No. 11, no cases		
13.	Maint. Phones	Isolated failures, but in general, good. (See A-3-a)	x	
14.	Permittee Obligations	Depends on No. 11, no cases		
15.	Per diem guards	See A-1	x(?)	
16.	Saddle tools	See A-4, 2 failures		x
17.	Publicity on cases	Depends on No. 11, no cases		
18.	Fire tool caches	See A-4, 75 points OK? 40 points not OK		x
		Total	8	5

13. Fire and Trail Organization: The usual principles of good organization are compromised in two instances: (a) Blue Range Fire District, (b) The strip of the Greer District on which fire is handled by Alpine and Nutrioso. Both of these cases were discussed very thoroughly with the entire force at various times.

Since the Blue Range District is the site of most of the special trail work, the supervisory, supply, and transport systems created for fire are quite naturally also used for trails, so that the District Rangers are relieved of both fire and trail responsibility, except as called upon to bring in special suppression crews.

In order to make perfectly clear my understanding of the District Office on the general question, I desire to make of record the following:

REASONS AGAINST RELIEVING DISTRICT RANGERS OF RESPONSIBILITY FOR FIRE AND TRAILS

1. The fire machine must operate yearlong and the District Ranger is the only man on the ground yearlong. The following fire jobs must in part be done during other than the fire season:
   (a) Conditioning and distributing equipment.
   (b) Telephone maintenance.
   (c) Educational and publicity work to reduce risk.
   (d) Grazing control to reduce hazard.
   (e) Trail work and planning.
   (f) Preparation fire plans.
   (g) Construction fire improvements.

AL NOT QUESTIONING THIS AS YET

2. The District Ranger loses part of the incentive toward education of users, correct grazing control, etc., if the full burden of the fire problem is not on his shoulders.

3. The District Ranger loses part of the prestige which he needs in dealing with his public unless the fire problem is his personally, both in experience and responsibility.

4. There arise illogical situations with respect to equipment and property when an imported Fire Chief uses what the District Ranger is charged with.

5. If the District Ranger is present at a fire, he is either
   (a) Not the boss on a job of which he is the logical and natural boss, or
   (b) He is responsible for getting a result out of personnel and equipment which he has had no part in selecting, conditioning or preparing.

6. The duplication of personnel makes for more expensive administration and duplication of effort.

7. Valuable opportunity for training and experience needed by the District Rangers are concentrated on one man.

(a) Blue Range Fire District: Selkirk and I are, I believe, now in agreement on the following points:

1. The present scheme is objectionable on principle, and is a compromise induced by accidents of personnel.
2. It would be risky to change it until the personnel is adjusted to fit a better plan.
3. Such adjustment should become an immediate objective, and should be effected, if possible, by 1922.
4. The Blue Ranger will be Fire Chief, and the adjustment will consist in finding and placing at Blue a man competent to discharge this function.
5. Ranger Swapp, now at Blue, is not sufficiently competent.
6. The Blue Ranger will either summer at Hannagan, with an assistant at Blue under his direction for administrative

work and fire in the Bear Mountain country, or, if the proper assistant is available, the Ranger will headquarter at Blue and his assistant will be his foreman at Hannagan. The latter case will not prevent his being on top a good deal of the time. The former plan is preferable, because it does not weaken Bear Mt. and is better for the Blue Range.

7. The assistant above mentioned will probably be Nave's Clifton assistant who can be spared during the fire season since Nave's need for him is heaviest in winter.

8. The Bear Wallow country (now Eagle) will have to remain as an overlap, being under the Blue Ranger as to fire and Eagle (Clifton) as to administration, unless it can be added to Blue. This would be awkward, however, as the permittees are from Eagle.

9. Under the above arrangement, Rose Peak might be handled by Eagle, but should, preferably, remain in the Blue Range unit. This also will remain overlap with Clifton as to ~~Pro-~~ de-tection, and also as to suppression within the 10 mile zo zone where Rose Peak goes to fires.

10. An unmaterial overlap with Alpine will also remain south of Black River Box.

(b) Greer-Alpine-Nutrioso Fire Strip: The reason for this overlap is the heavy peak load on Greer in spring, the lightness of the load on Nutrioso, the fact that the Big Lake Phone Line stubs out from Nutrioso, and the fact that the Big Lake Lookout is more for the eastern than for the western territory. These are sound reasons, but while they convince me that the fire line can not be moved east, they do not convince me that the administrative line can not be moved west to fit the fire line.

The reason given is that the administrative line follows a drift fence approved for construction. However, the strip also includes parts of several sheep allotments, thus being a fixed point only from the C&H standpoint. On principle, I would rather see an overlap of responsibility on these C&H permits than an overlap on fire. Selkirk and Voigt, however, contend that an adjustment to the fire boundary, or a revision of both boundaries to some new line, is impossible and unnecessary. I do not believe the matter warrants any action at this time except a request that they further study the matter and report before next spring whether the overlap has been or can be removed.

-B- PERSONNEL

1. Ratings and Promotions: The following is my rating as compared with the 1-18-21 rating by Selkirk:

(Next Page)

Qualities	Check List (Leopold)				
	15	12	9	6	3
1:Physical Qualities	Johnson	Ewing	Cottam	Woodrow	Garst
2:Intelligence	Warner	Hiler	Shartzer	Swapp	Pinson
3:Leadership	Pincetl	Painter	Marks	Rogers	Wilson
4:Personal Qualities	Marks	Painter	Beall	McClure	Cook
5:Knowledge	McKenzie	Johnson	Blodgett	Ketcham	Shumway
	25	20	15	10	5
6:General value to Service and ability to get results	Nave	Pincetl	Sherman	Boyer	Quinlan

	Boyer		Haynes L		Marks		Nave		Patterson		Swapp		Wilson	
	L	S	L	S	L	S	L	S	L	S	L	S	L	S
1	9		12		9		12		9		9		6	
X		6		9		9		15		12		6		3
2	9		9		12		12		12		6		6	
		6		9		12		15		12		6		3
3	6		9		9		12		9		3		3	
		6		12		9		15		9		6		3
4	6		9		15		9		12		6		9	
		6		9		12		12		15		3		3
5	9		9		12		15		12		6		9	
		6		9		12		15		12		6		3
6	10		10		15		25		15		5		5	
		10		15		12		25		20		10		5
Totals														
Leopold:	49		58		72		85		69		35		38	
Se[illegible]rk:		40		63		66		97		80		37		20

The Apache rating gives too big a spread because only 5 men, all of the 7 to be rated, are used as a check list. To confine the check list so narrowly eliminates one of the two essential elements in the rating plan.

All agree that Haynes is a better man than Boyer, but Boyer is getting $1320 and Haynes $1220. Boyer has one year the advantage in seniority. This situation arose through Boyer being a District Ranger from the start, and at the time of his promotion, Haynes was Nave's assistant. Boyer has since not grown particularly but Haynes has. Under the circumstances, there is no clear reason for holding the Apache accountable for what is now an error.

2. Individuals: (See also Diary Analysis and travel maps, 1-2.)

O

Personnel
Patterson, Ernest R.

(Extract from Inspection, Apache Inspection Report by Leopold, June 1921.)

Patterson (F. R. $1320, 10 yrs.) is alive to his job of Fire Chief and Trail Boss and showed a gratifying desire to question Major Kelley and to learn from him. His trail work is the best I have seen recently and I believe he absorbed most of the new ideas on trails and will carry them out. He seems to have caught the new ideas in fire also and to be working hard to put them into effect.

He disproves any supposition that a good ranger can not learn the trail game in a short time, since he only began trail work last year.

He was taken off of district work because he said he wanted work with immediate and tangible results. The supposition is that being on government subsistence or expense most of the year also appeals to him financially, he having bought the Hiram Thompson Ranch on Beaver Creek. Should he go back into district work, this ranch, presumably bought as a speculation in connection with the proposed Clifton-Springerville Road, might require some action under Rule for Conduct No. 3. This should be watched.

Patterson is often untidy about his personal appearance. At some suitable occasion, this should be called to his attention.

He did not get his time slips for the Bear Wallow fire in until June 28. This is a serious infraction of good policy and he should be asked to explain.

O

Personnel
Marks, David Scott

(Extract from Inspection,
Apache Inspection Report
by Leopold, June 1921.)

Marks' (F. R. $1320, 4 yrs) outstanding characteristic is the habit of study, especially of agricultural subjects. He is now taking the I. C. S. course in Civil Engineering, is an habitual reader, and absorbs what he reads. He is apparently a good ranger, but his ability to execute ideas is probably behind his ability to pick them up, and the objective in handling him should be to round out the former without destroying the latter trait.

As an example of his habit of getting information, he bumped into Miller on his way to Court in Tucson, and absorbed a working knowledge of woodland studies. He is posted on official matters not directly connected with his own work.

He has a concrete idea of where he wants to go in grazing work on his district. Selkirk's reason for putting him on such a light district is that the work was behind and he expects Marks to make a clean-up and bring the district up into extra good shape. Marks has not been told this, but should be.

Marks is interested in Grazing Assistant or Range Reserve work, provided it does not involve high living costs in a town.

Selkirk says his work has improved since he came back into the Service.

He has bought a ranch in Luna Valley but has no immediate intention of leaving.

O
Personnel
Haynes, Geo. L.

(Extract from Inspection.
Apache Inspection Report
by Leopold, June 1921.)

According to a rough statement given me, Haynes (F. R. $1220, 3 yrs.) has reduced his debts one third since entering the service. (For detail see field notes.) I told him that the Service expected a definite plan and reasonable progress in clearing himself financially.

Haynes has the makings of a really able officer. He not only picked up Kelley's ideas, but questioned him intelligently and , on my return to his district, had several of Kelley's suggestions already in execution.

He needs work plans to better correlate his energies. With proper handling, he might go a long way.

He failed to support Nave on the Slaughter and Thompson roundup but Selkirk says he has since regretted this course. See H.

His premises were disorderly when first visited, and outhouse very bad. The former has since been corrected. The latter should be followed up within 30 days.

666

O
Personnel
Wilson, Peter J.

(Extract from Inspection.
Apache Inspection Report
by Leopold, June 1921.)

I admit my inability to figure out Wilson (F. R. $1220, 2 yrs.) in the short time I had with him. Theoretically, it should be impossible to rate a man 20 and not at the same time initiate personnel proceedings or probation. His diary does not show his defects. He reads and studies, has a notebook system and works long hours. I suspect that he does not carry adequate weight with the public, who call him by his first name but say "Mr." to Nave. I can not confidently diagnose his case, but the Apache should tell Nave under whom Wilson has now been placed, that it is up to him to make or break him.

Wilson's quarters were in very bad order. He has some excuse because of his absence and the illness of his wife, but a prompt request for clean-up should be made, and Nave should see that it is carried out.

O
Personnel
Swapp, Roy

(Extract from Inspection.
Apache Inspection Report
by Leopold, June 1921.)

Swapp failed to support Nave in the Slaughter & Thompson Roundup but apparently has not regretted his action like Haynes and was not used as a witness for fear of his views. (See H.)

In the Barnes Guy Wire Theft, there is a serious question as to his good judgement and good faith. The latter, however, should not be given any weight until more conclusively established. Judge Laine says he did not think Swapp wanted Barnes bound over. There is an unsettled question as to whether Swapp did not intentionally dispense with Nave's presence and aid at the hearing.

Swapp did not question Kelley, and absented himself from most of the discussions among Kelley, Selkirk, and myself.

The Bear Mt. phone case shows negligence of government property on Swapp's part, and the Rose Peak phone case shows either very slow or very poor judgement. (See A-3)

Swapp did not climb Bear Mt. tower to watch Slonaker fix his phone until told to by Selkirk at my suggestion. He afterward told me that an instrument was Greek to him and he had no hope of ever learning how to repair one.

He was late in delivering his letter of instruction to the Bear Mt. guard. (See A-2) The letter was good.

His diary analysis brings out his good points. (See L-3)

If I felt sure that Swapp had received adequate handling and training, I would be inclined to say that the above failures warranted at least immediate probation, and proved unfitness for a Ranger job. I can not say conclusively, however, that he is unfit, and I have the strong impression, several instances being cited above, that he has not been reasonably well handled and trained.

He should immediately be taken in hand, however, and after the unsettled cases cited have been threshed out, the proper personnel letter should be served. If bad faith is established, he should, of course, be dismissed, or given a chance to resign in preference to answering charges. If not established, his defects and good points should, nevertheless, be pointed out, a period set, and ample instruction and inspection given at the outset of the period with follow-up at its conclusion.

O
Personnel
Nave, Jacob C.

(Extract from Inspection.
Apache Inspection Report
by Leopold, June 1921.)

Nave's (D. F. S. $1780, 9 yrs.) work and ability can only be mentioned with praise. He has mastered the art of running a heavy district to an exceptional degree, and the excellence of his performance together with long service raises the question of promotion for decision.

I have only one doubt as to his ultimate qualifications for a Supervisorship, and that is a certain element of bitterness which occasionally crops out. For instance, (a) In the Slaughter and Thompson Roundup, there is some (but not conclusive) reason for believing that he displayed an undue personal animosity toward the trespasser, although the dissension in his own force and the obstacles and difficulties of the case, furnished, it must be admitted, exceptional provocation. (b) He harbors a rather bitter impression that other and younger men have passed him in promotion and rank. (This is not the case and I told him so.) I have never seen a staff man who possessed this particular trait of bitterness who did not eventually fail. It should be carefully remembered, however, that Nave has borne heavy burdens alone, which, naturally, accentuate this trait. My conclusion is that there is not sufficient evidence to hold this as a bar to the advancement which Nave's work amply merits, but that he should be plainly informed of his tendency by his Supervisor. (I have already done so.) and should be advanced when opportunity arises. Meanwhile, Selkirk has added the Eagle District to his territory and, with two assistants, he will have a chance to further demonstrate his ability to work out of men and to train and develop them.

To fully qualify himself for advancement, Nave should also read more and broaden his viewpoint. With better assistance, he should have better opportunity for this than in the past.

Nave has two children whom he wants to send to college in the fall of 1922. He wants either a salary or a location which will enable him to do this.

O

Personnal
Boyer, Wm. H.

(Extract from Inspection.
Apache Inspection Report
by Leopold, June 1921.)

Boyer (F. R. $1320, 3 yrs.) is not growing as he should. He has the education, experience, culture, and personality to advance. There are no glaring deficiencies in his work, but he seems to lack the spark and ambition to make his qualifications effective. I have the impression that his sights are too low. I find no evidence that he has been positively worked on to overcome this. Unless he is worked on, there is danger of his going backwards; if it is done right, there is a good chance of making him into an excellent man.

His previous training was indoors, and I find some evidence of this in his familiarity with his district, but also some evidence that his skill in field work is increasing. None of the new ideas in fire, organization, etc., have been "sold" to him as nearly as I could see. He needs shop talk, and close contact with the qualities which he lacks.

He has neglected the west end of his district (See L-3) and has not followed up the Heifer Branch fire (See A-7) although he decided to do so when I pointed the matter out. Neither his desk-calendar, promise card box, or notebook show up well, considering his office training.

Selkirk says he holds down the office effectively when called in. I doubt if he should be used for this to the exclusion of Marks.

1. Analysis of Forage & Travel: The following table shows the use of these funds for the F. Y. 1921:

	Travel (G.E.)				Travel other than (G.E.)		Forage							
							Cash		Produced					
District	Orig. Allot.	Will spend to 6/30	#Field days.	Travel per day.	Improvement	Roads & Trails	Orig. Allot.	Will spend to 6/30.	Hay tons.	Grain cwt.	Value.	Total Forage in Cash.	No. Horses for which Forage applied.	Per horse.
Greer	175	311	140	$ 2.22			135	63	1	39	142	205	2	102
Nutrioso	135	224	150	1.50	47			66	2	22	121	187	2	93
Alpine	175	132	144	.92	4				7½	70	211 c	161	2	80
Blue	175	89	128	.62				139	3		105 c	229	2	114
Eagle	175	163	192	.85			215	244	¾	3	40 c	264	2	132
Clifton	175	370	146	2.67			340	295	2		60	355	2	177
Patterson		3	?		150		135	109				109	1	109
Guards								17				17		
Casto	135	232			4									
Caffal	225						170							
Total	(1370 (1524				205		995	933	(16.2	=	=(1527		13	
Average		262	150	1.46									xxx	117

(Reference notes on next page.)

Maintenance Government Animals: Original allotment, $700.00; will spend to 6/30, $550.00. The three amounts of "produced forage" marked (c) include values of $50.00, $15.00, and $20.00, a total of $85.00 applied to maintenance of Government Animals which makes total maintenance of Government Animals (11 mules and 9 burros) $635.00 or an average of $31.00 per head.

(Reference notes to table on page 17)

#Does not include Supervisor's office details, meetings, court, etc., but travel expense does.

=Supervisor's figures. May include some straw. My figures (D-4) were obtained in field and were partly 1919.

Comment: The flat allotments made in travel at the beginning of the year are undesireable, because, if not very closely watched, they tend toward overruns. Actual experience, corrected for changed conditions, should form the basis of the initial allotments and be used as a check on money spent.

I am not sure but what Casto and Caffal received too much gross compensation in comparison with the $1220 Rangers, who are doing much more responsible work. To be sure, they receive no quarters, and Casto has to maintain his family at points distant from himself, which is expensive, but Casto received expenses and Caffal government subsistence to about the same amount as the $1220 Rangers received expenses, and free quarters for the latter represents the main difference in personal outlay. Casto's headquarters were shifted to Blue when he worked there for a long period and this action was correct. Of course, we can not command packing, teaming, or labor for less than the market price, regardless of whether it is just or unjust to the Rangers but we should not pay more than the market price of equally good service. This market price is a matter which the local officers can best judge. This matter should be watched.

The high cost of travel per day for Greer needs a search for the reason. Possibly, some of the other men are accepting too much free board.

2. Wage Scales: The Apache wage scalesas set are O. K., and the Apache's success in getting good guards for less than the alloted wage is creditable and in accordance with District policy. There was a mutual failure, however, to consult with the Gila as to fire fighters wages, and a resulting discrepancy of 5¢ per hour. I recommend thorough study of a differential wage scale for guards (See A-5). I did not have the impression that the District wage policy, that is, its underlying principle, was thoroughly understood. This was explained. (For wage scales, see field notes.)

3. Statutory Labor:

	Blue House	Blue Barn.
Cash allotment (materials)	1000.00	471.81
Hauling	461.81	60.44
Statutory Labor	1404.11	119.12
Total cost	2865.92	651.37
Per cent labor to total	52%	18%
Per cent labor to total (excl.hauling)	58%	20%

The above figures do not show any excessive amount of labor, remembering that most of the labor was unskilled. (See O Improvement letter of July 19, 1921 as to policy in [illegible])

4. Purchase Subsistence Supplies: I think that Kelley has given the District an entirely new conception of the economies attainable through real study of the purchasing system, and the application of his suggestions is especially necessary on the Apache because of the large amount of supplies purchased. The 1921 outlay for supplies will be:

Subs. Sup. Allot. (?)	$575.00
10 trail men, 12 mos. at $25.00	3000.00
5 trail men, 2.5 mos. at $25.00	112.50
F. F. F. on large fires	300000
	$3987.50

In other words a saving of say 10% would build several miles of new trail each year.

When the Clifton road opens up, direct competition with Clifton will be obtainable, and should be fully utilized.

-D-

ADMINISTRATIVE IMPROVEMENTS, QUARTERS, PASTURES, FORAGE, ETC.

1. Condition of Quarters: In general, I consider the condition of quarters as satisfactory. The Riverside and Blue outhouses, the C. C. stovepipe and Nutrioso stove backing should receive immediate attention.

(Table showing Condition of Quarters, next page.)

Date	Place	Outhouse	Toolhouse	Station	Grounds	Remarks
5/15	C. C.	?	None	O. K.	O. K.	Stovepipe in danger of setting fire.
5/15	Riverside	Very bad	Bad	Poor	Bad	Tools, paint, tel. supplies, etc, jumbled. Cans in yard. Rock underpinning of porch knocked down. Corral fence broken and tangled. Loose pig in yard. Leak in water pipe, making yard muddy. Outhouse needs moving immediately. Pasture OK; same as 1910.)
5/17	Office	No lime	Fair	O.K.	O.K.	
5/17	Phelps	None	None	O.K.	O.K.	Cabin belongs to Phelps.
5/18	Big Lake	None	None	Excellent	O.K.	Pasture badly eaten out.
5/19	Hannagan	(closed. Stockmen should not use except for saddle horses.		Excellent	O.K.	Pasture very short. more might be ensaddle horses.
5/20	Reno	None	None	O.K.	O.K.	Grounds very neat.
5/21	Blue R.S.	Bad	O.K.	O.K.	Fair	Grounds necessarily upset due to recent building.
5/23	Baseline R.S.	(Building was open. Weather instruments, fire tools, jacobstaff and aerial were liable to be stolen.				
5/25	Clifton	(Rented corral and office O. K.)				
5/27	Metcalf R.S.	(Not used. Board shack, no value. Good Spring, small pasture. No phone.)				
5/29	Rose Peak	None	None	O.K.	O.K.	Needs either tight outhouse or extension
		(pits. Camp very neat but a few cans thrown into draw.				
6/29	Honeymoon	O.K.	Bad	Bad	Bad	Whole quarters in very disorderly shape
		(Cellar caved. Partly excusable acct. illness of wife.				
6/18	Alpine	O.K.	Fair	Excellent	Excellent	Whole quarters very good.
6/18	Lookout	None	None	O.K.	O.K.	Not used this year.
6/20	Escudilla	None	None	O.K.	O.K.	
6/20	Nutrioso	O.K.	O.K.	O.K.	O.K.	Whole quarters very (good.
		(Fire danger account lack of stove backing)				
		S U M M A R Y				
O.K.		4	3	12	12	Total 31, percent 80
Not O.K.		3	2	1	2	Total 8, percent 20
Total	17	7	5	13	14	Total 39, percent 100

2 2. Construction of Quarters: The new Blue R. S. is a good job. (See C-3) The Eagle Station is badly needed.

3. Pastures are as follows:

Overgrazed	Not Overgrazed	Need Additions
Honeymoon	Riverside	Hannagan
Hannagan	Nutrioso	Riverside
Big Lake	Alpine	
Blue	Phelps	
Rose Peak	Escudilla	
Reno	C. C. Flat	
	Lookout	

Eroding or draining, need special work.

Nutrioso	(gullied, needs willows)	
Alpine	(gullied, needs willows)	
Blue	(bank protection)	
Eagle	(bank protection)	(done)

The bad moral effect, as well as financial loss in moving fences and reduced efficiency of horseflesh, which follows the overgrazing of Forest Service pastures or their erosion can not be too strongly emphasized. Small subdivisions for night pastures, even if dry, are badly and generally needed.

Too many of the Apache pastures are overgrazed.

Erosion control is covered in I-2.

4. Forage Crops: (Account of insufficient room, forage table is ~~xxxxxx~~ placed on next page.)

The actual showing in forage production is very creditable Recent progress in better shares at Greer is also gratifying. The net loss shown at Blue is partly due to a failure in seeding alfalfa on a new patch. I am somewhat disappointed that legume rotations above the alfalfa belt, urged and explained by me about five years ago, is not yet practiced. I learn that the County Agent has also been urging this in recent years, and, if we can do so without a loss, we should set the example for the community in this matter. Selkirk has had it in mind, but says that ban on term contracts with sharemen acts as a bar to interesting them in improving the land. This is, no doubt, true, and we should correct it if possible.

A review of forage prices paid shows no errors in purchasing.

See also C-1.

SUMMARY OF FORAGE RAISED, APACHE

Station	Grain					Straw				Hay					Total value.	Value administrative time.	Value of profit.
	Share	Tons	Value cwt.	$ value.	Bu. yield per acre.	Share	Tons	Value ton.	$ value.	Share	Tons	Value ton.	$ value.	Ton yield per acre.			
Nutrioso (1920)	¼	2.1	2.85	64	20	¼	2.0	8?	16	½	2	25	50	1.3	130	50	80
	(Barley 42# to bu. App. 12 A.)									(Threshing cost 15% grain					Plus value stubble		
Alpine (1920)	¼	3.5	2.40	168	29	¼	5.0	8?	40	½ (½ fallow.)	7.5	15	112	.8	320	65	265
	(Barley 35# to bu. 25 acres used.									(Vega hay 8 acres)							
Riverside (1919)	1/5	125	3.25	82	23					½		25	Not cut		82	50	32
	(Oats 12 acres. Seed used 100# per acre. Broadcast by hand. Yield was 46# per bu. Vega hay 4 acres.																
Blue (1920)	None					None					3	30	90	1.0	90	[a]150	-60
										(3 acres alfalfa not on shares.)							
Baseline (1920)	None					None					3	27	81	1.2?	81	5	76
										(Alfalfa 5 acres)							
Total		6.8		314			7.0		56		15.5		333		703	320	383
Average					24			0.7 ton A.						1.1			

Note: Total of 33 acres in hay, 49 acres in grain, 82 acres used. (Excl. fallow, pasture, etc.)

[a] Includes $75.00 on permanent improvements.

Maximum local yield 40 bu., average 20-30 bu.

Riverside now gets 1/3 grain, ½ straw, ½ hay, and the pasture.

-E- TRANSPORT.

1. Motors: The motors plan calls for a one-half ton Ford truck for the Apache, F. Y. 1923. Selkirk favored a dual-purpose ton truck, but in my opinion, the experience of past years shows that such trucks are either overloaded or overspeeded or both, and hence excessively costly. I still think the motors plan is correct. A motor will be necessary when the Clifton Road is completed.

2. Transport Fire Supplies: When the Clifton road gets to the Blue Range, the question of a heavy truck for supplies will arise. I am confident that commercial trucks will carry our stuff more cheaply than we can, especially with a dual-purpose machine. A rough calculation shows the present cost of hauling our supplies to Beaver Creek by mule team is $1.80 per cwt., while a one ton truck would cost $1.90. (See field notes, p 25.)

-F- ROADS AND TRAILS

1. Construction Standards: Pending issuance of the proposed new Trail Manual, Kelley's new trail specifications may be considered as those of the present trail manual, with emphasis on the fact that the manual width maxima are strictly maxima only rarely to be used; the manual working grade of 10% should be 15%; the manual fails to emphasis obstructions on the fill, special cleaning of the heel; and flat or reverse grades planned in advance for drainage. I have fully explained the new trail doctrine to all the Apache Rangers, and it should be possible to follow it from now on.

2. Maintenance Methods: I am anxious to see the Apache try the burro method for the thorough maintenance work which will become necessary every three or four years. A rotation system might work well.

Selkirk has called attention to a conflict between the proposal to use a V-drag and the proposal to lay rocks on the fill. Of the two, I would advise giving up the drag, unless it can be made narrow enough to go inside of the rocks.

3. Training in Trail Work: As one of the evil effects of present fire organization, valuable opportunities to train the district rangers in location surveys and supervision of construction are being lost. Thus, Wilson is headquartering at Rose Peak, but Patterson is charged with supervision of the trail crew living and working at Wilson's camp. Similarly, Swapp has been given no part in the Blue Range trails on his district. Neither Swapp nor Wilson know trail work, but, to my mind, they can not run their districts especially their present districts, until they do.

Selkirk's contention is that only long experience can make a trail man, but this is disproven by Patterson. Any district ranger who can not by studying the trail manual and by observing some good trails already built, and by instruction from the supervisor, supervise a trail crew effectively without previous experience, raises a serious doubt as to whether he is a ranger. While specialization may pay better results in the immediate present, it is bound to be a losing game in the long run as trail work spreads to all districts.

Selkirk's second contention is that the Ranger does not have time to visit his crew often enough, since good foremen are not to be had. The District Office has been advertising for two years the necessity for each Forest developing a number of good foremen, and this only after several Forests had successfully done so, under more difficult conditions than the Apache, for years past. The Apache was not conscious of this as an objective. Of course, this can not be done over night, but it should be started. As for the present cases in point, I am not persuaded that Eagle and Blue, handling only 1273 and 1612 units respectively, could not visit a trail crew once a week or oftener, and with a good foreman, this ought to be sufficient.

4. Individual Trails:

5/15 Greer's Peak Trail: Made with a plow in cinders. Very good but unnecessarily wide.

5/18 Baldy Trail: Very good type of trail. Not cleared out this year and quite a few snags.

5/19 Willow Creek Trail: Never has been made ~~in~~ a regular trail. Unadvisable to do so now because of Clifton-Springerville Road.

5/20 Jaybird Trail: A very good job both as to costs ($150 per mile) location and construction. (Men paid $2.50 and board). Only points that could be criticized are: Not enough obstacles to keep traffic off of fill, water bars too light(but well located), ditches not clean enough of rocks, trees occasionably blown out of lower side that could just as well have been felled with stump to form obstruction. Result is that fill is breaking down in places.

5/20 Reno Trail: (Under construction) A very good job but tread excavated on some slopes of less than 20% and some trees blown out that could have been gone around without harm. Camp very clean.

5/21 Red Hill Trail Project: Does not justify a Class A trail. A few reverse grades which can be easily overcome. Mainly a problem in loose rock. Doubt if it needs $200.00 per mile as alloted.

5/22 Bear Lookout Trail: Good enough if some of the reverse grades were taken out, repairs made, and last steep ~~grad~~ climb reduced in grade. Swapp has made no location survey of this last climb on which guard could work in case of rainy spell.

5/28 Rose Peak Lookout Trail: Location work good, 15% and 16% grades. Swamping a bit too liberal. Work so far done a little too wide and deep in most places and drainage poor due to not being considered until water-logs ready to put in. Needs obstructions on the fill and cleaning out of heel also. Some places unnecessary work has been done on tread on slopes of less than 20%. Wilson told Ehrhart to build out-slopes, which was caught up only by Ehrhart phoning Patterson.

6/20 Escudilla Trail from Nutrioso: Not a built trail but well brushed out and no excessive grades. Believe this is OK if some of the rock were taken out and drainage installed in washy places.

On the whole, the work inspected was creditable to the Apache and its personnel.

5. Signs: The following tally shows the status of this work:

(Table on following page.)

OM
E&S
Signs, Apache

STANDARD SIGNS

From	To	Up	Needed	Remarks	Date
Line	C. C.	3	5		5/14
C.C.	Riverside	10	12	Via Greer's Peak	5/15
Springer-ville	Phelps	3	10	Via Pool Corral	5/17
Phelps	Big Lake R.S.	0	4	Via S.U.Knolls	5/18
Big Lake	Hannagan	2	15	Via P S	5/19
Hannagan	Reno	7	10	Via Double Cienega	5/20
Blue River	Bear Mt.	3	4	Via Lamphier Cn.	5/22
Blue R. S.	Baseline	4	10	Down Blue River	5/23
Baseline	Clifton	7	8	Via Pat Mesa	5/24
Clifton	Drag Ranch	12	12	Via Double Circles	5/27
Drag Ranch	Rose Peak	0	1	Via Bear Cn.	5/28
Rose Peak	Honeymoon	4	5	Via Hot Air Cn.	5/29
Honeymoon	Black R.	2	5	Malay Gap	5/30
Black River	Phelps	0	4	Via Res. Ranch	6/2
Phelps	Riverside	3	5	Via Amberian Pt.	6/2
Springerville	Riverside	6	8	Fish Creek Road	6/16
Springerville	Nutrioso	3	6		6/17
Nutrioso	Alpine	5	6		6/17
Alpine	Luna Hill	9	9		6/17
Alpine	Diamond Rock	0	5	Via Lookout R. S.	6/19
Alpine Road	Escudilla RS	5	8	Via Escudilla Tower	6/20
Total		91	164		

Per cent posted -------55% (On basis of est. number needed on routes covered by me.)
Signs per M acres, Apache---------.51
Average for D-3, beginning 1921---.66
Percent Apache below average------23%
Number of old signs not posted, (Excl. 1921)---- 12.

This would indicate that the Apache is about half signed and while the Apache is 23% below average in number of signs, it indicates the necessity for an annual sign shop for the present at least.

The recent sign work on the Apache is very creditable and indicates a big improvement over reports of previous inspectors.

6. Minor Roads: Engineer Hughes' performance and standing on the Apache is worthy of special note. The criticisms made of the following projects are wholly due to lack of adequate equipment, ~~on his part.~~

Water Canyon: 5/17. Unnecessarily wide in many places. Last year's ditches not deep or clean enough even allowing for wear by stock. Extra good cost showing and commendable lack of slashing trees. Voigh says up to us to maintain -- no county obligation. Hughes camp very clean.

Lee Valley: 5/15. Extraordinary cost showing but too wide and elaborate for purpose. Lack of grader compels wide construction because unable to turn around with Fresno in lesser width.

7. Clifton-Springerville Road: In places two slope, in places one slope. Especially on one slope places, slope is insufficient and a ridge has been left between road and ditch, which will catch hill water all right but will cause road water to run down the tracks. One mile near Metcalf, climbing out of canyon, reported to have cost $32,000.

There is a rumor in Clifton that Greenlee County, because of financial difficulties and the mining slump, will not complete her section. There may be a delay, but permanent stoppage is hardly conceivable.

8. Road Maintenance: Selkirk wants a Martin Grader and steel drag for maintenance of the following Forest Service projects: Water Canyon, 6 mi., Lee Valley, 1.5 mi., Cinder Road, 5 mi., total 12.5 miles. Maintenance money this year $200.00; will need more next year. This will cost $ 190 for grader, $ 85 for drag, total $ 350 .(See D E)

Road plow $55

XX Insects and Blazes: It is noticeable in the Beaver Creek and Bear Mt. country that trail blazes placed on any pines except blackjack or dominant thrifty yellow pines almost invariably resulted in the death of the tree by insects. Further study might show that this necessitates avoidance of semi-suppressed or suppressed yellow pines for trail blazes in order to avoid risk starting epidemic conditions.

Clifton Sales: (See field notes p 30 for detail) Nave has been authorized to sell overmature cypress for cordwood. I believe this is O. K. if sale areas are kept away from the road; are confined to reproduced stands; are carefully marked and bunched; and adequately supervised. These sales might be used a a kind of a "reward" to well behaved wood merchants.

There is no small cypress reproduction. The cause for this should some day be determined.

I had a good impression of what little I learned of Nave's sale work. His new winter assistant will make possible more thorough trespass patrol.

Juniper and Oak Lumber: Will Burk of Nutrioso wants to buy some selected stumpage for hand made furniture. This will involve culling the best trees over widely spread areas, so that marking will be expensive. Defect will be heavy. Marks does not believe that the inferior stumpage rate (75¢ per M) is sufficient and I agree. He says $5.00. I suggest that "S" send the Apache recent figures on oak stumpage, and the pencilwood cedar studies ought to throw some light on what the Juniper is worth.

Greer Areas and Sheep: Isolated sheep damage to yellow pine can be seen, even on the Apache. I am not competent to venture a positive opinion, but I believe that prompt sheep exclusion on the small sale areas on the Greer district should receive more attention. I understand the mill water is also the only sheep water, but probably the sheepmen should be requested to develop their own water.

Circular 11-45 1

-H- GRAZING CONDITIONS

1. Condition of the Range: With the exception of the area south of Double Circles, Rose Peak, and Baseline Station, I was familiar enough with range conditions in 1909 and 1910 to make a direct comparison between the condition now and condition then. In all of these comparisons, it should be understood that I refer to the amount of sod, not the amount of grass. It is quite natural, of course, that there should be little grass this spring on used range.

The White Mountain: meaning the high country from C C to Phelps, Big Lake, Coyote, and Pat Knoll, has deteriorated badly, and has certainly been severely overgrazed. Many of the draws show signs of washing. The old bed grounds on the edges of the timbered knolls, which were merely short in 1910, are now bare. The old stockmen with whom I talked all said the mountain was going down hill.

The South Slope between P S and Conklin Springs is unutilized. This always was hard to use in spring because of flies and the lack of parks. By and east and west fence under the rim, Selkirk hopes to throw the P S stuff up and the Springerville stuff down against the fence in fall, thus relieving two over grazed areas.

The Reservation Ranch country is very short but good sod.

The Beaver Creek Flats and lower mesas were over grazed before the Forest and remain so. It is rather disappointing to note that no restoration of the natural gramma type has been accomplished except in fenced homesteads and to find the force not even aware that the present six weeks grass type is a temporary type due to overgrazing.

The Escudilla is in good shape. I did not see any but the west side and top.

The Williamson Valley Country is short but O K along the Diamond Rock Road.

The Blue Range west to Double Cienega has run down badly. Willow and Hannagan have begun to wash out, all the open draws and parks which were grass in 1910 are now mostly weeds, and even the burns are nearly bare, where as they used to have quite a lot of grass and wild oats. West of Double Cienega and on Bear Wallow, the grass is largely unutilized. This country should be stocked, but in doing so, it would be well to consider a theory advanced by the stockmen, and borne out by the east end; namely, that the Blue Range forage

is of an expecially non-resistant nature, easily destroyed.

The Breaks of the Blue: (Seen only along Red Hill and Bear Mt. trails) are no worse than 1910, and, if anything, a little better.

The Clifton District looks badly overgrazed, but I did not know this country well when here before. Apparently, the stocking has increased in the last four years, and over half of the number permitted is short season and temporary.

The Rose Peak-Strayhorse Divide country is heavy bull grass, largely unutilized.

The Eagle Creek Mesas and lower hills have deteriorated from a nearly full gramma stand to about one half pure weeds and the rest an enfeebled stand of gramma, one-fourth density, and mixed with weeds. I understand the Circles gave up their preference because of lack of feed.

The Malay Corral Country is overgrazed. The contrast along the Indian Reservation fence is painful and humiliating.

The Apache is properly counting on drift fences, salting, and better conditions for removing short season stuff as the main remedies. I would suggest caution in not leaning too heavily on redistribution alone. Radical measures are in my opinion justified in many of the above localities.

2. Modern Grazing Methods: I, of course, did not have time to go into administrative details and cases, but as a test of whether the Apache force were mentally prepared to cope with this extremely serious situation, I questioned some of the men on the following ideas, which may serve as indicators of the degree to which modern grazing has been sold to and promoted by the force: These figures are incomplete and approximate, a part being from memory.

Idea	Understood by	Not understood by	Promotion among users. Attempts	Partial Successes
Drift fences	6		6	6
Ridge Salting	5	1	2	?
Livestock Associations	?	?	4	3
Bedding Out System	?	3	0	0
Driving lambs alone to shipping point	?	?	0	0

3. Fish and Game: Largely through the activity of Ranger Haynes and the Apache Staff, Mr. J. E. Thompson of Greer has been interested in the game question. A barbecue, to which wide publicity has been given, will be held July 1 at Sheep Crossing to discuss a local and a state association and the

local problem of a fish hatchery and the game supply. This will lay the foundation for a meeting in one of the southern cities this fall, at which Mr. Burnham of the American G.P.A. may be present and further steps taken. The Service does not appear in these proceedings except as a co-operator.

-I- LANDS

1. Land Classification: Some of the listings on the south end, notably the Harold Wilson, June 11 Claim, above Honeymoon, illustrates the tragedy of listing lands in an eroding creek bottom. The fine hardwood timber has been all felled or girdled, the surface has washed off, and there is not enough land left on the whole place for a kitchen garden.

The Marion Lee application for an additional entry of 20 acres brings out an interesting question. Most of the area is good, and a part actually used under cultivation permit, and there is no timber, but a small fraction which would have to be included unless the lines were made too crooked, is steep and starting to erode. The question is: would this steep part be an argument for or against listing? If the area were off in the hills and covered with sod, it is obvious that cultivation would tend toward erosion. Being almost within the town of Mutrioso, however, there is little sod and the area is open to every milk cow. I therefore, conclude that it is less liable to erode if fenced and farmed than if unfenced and overgrazed.

2. Recreational Area: Nave has done some very commendable work on the Granville area in co-operating with the local people and Chamber of Commerce in piping water to this area, and some good planning in separating the cottage lots from the picnic grounds. The cottages are costing about $125.00 each. I doubt if we are justified in covering this kind of structure with term permits. Haynes has neither plats or prices of the Lee Valley area and business is hung up waiting for them. (The plats have just arrived at Springerville, but no prices as yet.)

3. Bank Protection: The Eagle Rip-rap is a good job; if anything, too good. I fear it may be too impervious and offer too much resistance.

Kelley, Selkirk, and myself have planned out a cheaper lighter type of works (See Field Notes p 24) which Selkirk has decided to use at Blue.

The Apache force as a whole is taking a very intelligent interest in the development of bank control methods. All down the Blue, land owners are beginning to experiment on their own accord with bank protection, and several said they would immediately adopt any cheap effective plan demonstrated to be a success on the Ranger Stations. (A year ago it was said in the District that Ranchers would never follow our lead in this matter.)

ESTIMATED AMOUNT AND VALUE OF LAND LOST TO DATE
BY BANK EROSION OF BLUE RIVER.

Size of Valley	Original	Present	Section
Average width	12 Chains.		Casper Box-
Length	2000 " (20 mi.)		Bobcat R. S.
Area	2400.0 acres	2400 acres	
Per cent cultivable	90%	15%	
Am't. cultivable	2160 acres	360 acres	
Value as ranch property now per acre	$100	$150	
Total value	$216,000 minus	$54,000 = Cash Loss	$162,000

Average width	8 Chains		Casper Box-
Length	2800 " (35 mi.)		Frisco River
Area	2240.0 Acres	2240 Acres	
Per cent cultivable	80%	5%	
Am't. cultivable	1792 Acres	112 Acres	
Value as ranch property now per acre	$100	$150	
Total value	$179,200 minus	$16,800 = Cash loss	$162,400

Total loss in present cash value ---------- $324,400
Assuming a cost of $25.00 per acre would have saved land
3952 acres x $25.00 = 98,800

Theoretical cash saving by bank protection ---------- $ 225,600

4. Erosion Control: Sec. O-3 shows that Nutrioso and Alpine pastures are gullying. The gully is draining the cienega, changing the forage type to one probably only 1/5 as productive as pasture, and quite worthless as hay meadow. The gully is probably 6' deep. What we want is to fill this so that it is about 2' deep, with just enough of a channel to prevent the pastures from being too boggy.

This can be accomplished, I think, cheaply and permanently, by sticking the base of each bank with willow cuttings about 15" long, 3" out of the ground, cuttings 4'-6' apart. The base of the bank is always wet, so growth is assured if the cuttings are made during

the dormant season and promptly put in so they do not dry out. I explained the whole method to Marks and Boyer on the ground. Within a few years the entire channel will be matted and obstructed and will gradually fill up. Fall will be the best time, as the men are busy in spring. It is especially requested that cost figures be kept and copies submitted to the District Office.

-J- ORGANIZATION

1. Districting, Work Units: The present distribution of work is indicated by the following table:

District	Men	Grazing M head x 92.0=units		Timber M ft x 1.4 = units		Prot.,Lands: Imps. M acres x 6.6=units		Total: Units: Units x .52 = cost 1921	Total: Cost
Greer	1	16:	1472:	525:	735:	210:	1386:	3593:	$1868:
Nutrioso	1	6:	552:	13:	18:	155:	1023:	1593:	828:
Alpine	1	7:	644:	8:	12:	207:	1366:	2022:	1051:
Blue	1	8:	736:	42:	59:	192:	1267:	2062:	1072:
Eagle	1	& 5:	460:	52:	73:	150:	990:	1523:	791:
Clifton-Baseline	°2	12:	1104:	750:	1022:	362:	2389:	4515:	2347:
Total		54:	4968:	1370:	1919:	1276:	8421:	15308:	7960:

D-3 average 2400?

° 1 man handling since April 1920.
Timber figures are for F. Y. 1920.
Cost per unit is .52, 1921, .48, 1920; special .60, 1921, .52, 1920.
Sheep on 4:1 basis.

The discrepencies in load are too high. The Clifton-Eagle-Baseline district will hereafter have 2½ men, with an average of 2300 units per man, which is normal. The possibility of adjusting Alpine, Nutrioso, and Greer is discussed under A-13-b.

2. Diary Analysis and Travel Maps: A travel map for all districts is attached hereto. The following Diary Analysis and criticism is self explanatory:

DIARY ANALYSIS - APACHE

(Figures converted to yearlong)

Name and Date	Period From	Period To	Non-field Time: Office	Mail - Hdq.	Hdq. Imp/	Forage	Contrib. to other units.	Meetings Court, etc.	Total	Field Time: Returned to Hdq.	Not returned to Hdq.	Contrib. to other units.	Total	Time off: Sundays not worked.	Leave, Holidays	Total	Total: Accounted for.
Swapp 5/23/21	3/16/20	12/1/20	50	24	42	42	2	9	169	48	80	0	128	34	28	62	359
Nave	5/ 1/20	4/30/21	123	15	1	1	14	14	168	46	90	10	146	20	21	41	355
Wilson	4/ 1/20	9/30/20	44	70	20	28	0	2	164	54	124	14	192	6	4	10	366
Haynes	8/ 1/20	7/ 1/20															
6/15/21	10/ 1/20	1/ 1/21	92	44	12	16		6	170	74	60	6	140	30	26	56	366
Boyer	5/ 1/20	7/31/20					14		142								
6/18/21	10/ 1/20	12/31/20	44	34	38	10	2	2	164	62	70	12	144	38	18	56	342
Marks	9/ 1/20	12/ 1/20															
6/19/21	3/ 1/21	5/31/21	76	60	16	10	2	2	166	74	70	6	150	26	10	36	352
Average No. of days			71	41	21	17	8	5	163	59	82	9	150	25	17	43	356
Per cent of year			20	12	5	5	2	2	46	16	23	3	42	7	5	12	

CRITICISM OF DIARY ANALYSIS:

SWAPP: Too much time on forage and ditches. Too much time spent on deadhead travel; for instance, sign trips made on routes just covered on other business, and long distances covered to return to station, soonafter returning over the same route to the same country to transact additional business. Diary carelessly written and quite a few days with no entry of any kind. In general, diary indicates willingness to work and to endure inconvenience to keep dates and to protect interest of service but serious lack of planning and knowledge of objectives. Travel map shows too little travel off of regular routes.

NAVE: High per cent of office time but much of this is spent in transaction of business with public rather than office work. Time spent on headquarters work exceptionally low and time contributed to other units probably higher than figures show. No time lost in deadhead travel and exceptionally low figure for time off. Travel map shows district very well covered. Diary well written and indicates good planning. In general, evidence indicates exceptional skill in the art of running a Ranger District.

WILSON: Very creditable proportion of time in the field and remarkably low figure for time off. Diary well written and indicates that he understands how to group his work and clean up a country while in it. Diary shows some evidence of lack of imagination and consciousness of definite objectives. but also shows willingness to do any amount of hard work and to stay away from headquarters for any necessary period. Travel map indicates too little attention to northwest end of district. In general, however, the diagnosis of Wilsons's weak points must be sought elsewhere than in his diary.

HAYNES: Diary indicates a very strenous peak load of field work in spring and corresponding slack period in fall, and raises the question of possibility of reducing the peak by better planning of distribution of work. Travel map shows a very thorough covering of district; possibly the south end is a little slighted. Considering location of headquarters, the per centage of non-return field days is creditable. Diary well written and indicates comparatively high standard of planning.

BOYER: No criticism of distribution of time shown in tabulation. Diary well written. Travel map, however, shows neglect of west end of district which he admits is the case.

MARKS: No criticism of distribution of time shown in the tabulation. Diary well written. Travel map shows country north of Escudilla to be poorly covered but this is only a six months map and Marks says he has already planned to ride with the roundup on this section.

5. Work Plans: The following shows the status of Ranger Work Plans:

Name	Knew of standard plans.	Familiar with same.	Opinion of standard plan	Plan in use	Date
Haynes	no	no	Had not received it.		5/17
do	yes	no	Had not received it or could not find it.	Monthly schedule fairly well drawn.	6/16
Swapp	no	no	Favorable after explained	None made for June, Previous ones in office	
Nave	no	no	Had not received it.	Monthly schedule, well drawn, regularly submitted.	5/25
Wilson	no	no	Had not received it.	Uses monthly schedule fairly drawn.	5/29
Boyer	yes	no	Favorable but had not received Guide Amendment.	Uses monthly schedule but not regularly submitted.	6/19
Marks	yes	no	Favorable but had not received Guide Amendment. Showed better understanding of subject than any other ranger on Forest.	Monthly schedule, well drawn and regularly submitted.	6/21

6/3 Seem to have been delayed by clerk until about May 25.
6/24 Still in clerk's basket, not yet mailed.

Two clerical failures caused the new standard Ranger work plan, outlined in Administrative Guide Amendment number 66, dated April 6, 1921, to hang in the Apache office until June 24. The general status of this whole subject is, naturally, keenly disappointing.

4. Inspection: The distribution of inspection during 1920 was as follows:

Greer	66	days	Haynes (high a/c sales)
Nutrioso	14		Swapp, Marks, 3 mos. vacant.
Alpine	27		
Blue	33		Boyer, Swapp.
Eagle	38		Wilson, Marks.
Clifton-Baseline	29		Nave, Wilson, vacant.

207 = 79 Selkirk + 128 Voigt.

5. Interforest Boundaries: I have found nothing new to lead me to believe that any reorganization of the Datil-Apache-Crook boundaries is worth going into. The new road clinches the soundness of the present organization.

All of the main points in this report have been discussed with the Apache officers affected.

04

GENERAL INSPECTION REPORT
LINCOLN NATIONAL FOREST

By

Aldo Leopold

Aug. 15 - Sept. 13,1921

D.F.	DIST. FORESTER
O	OPERATIONS
~~PR~~	PUBLIC RELATIONS
S	SALES
L - [illegible]	LANDS
DE	?
DL	?
~~G P.R.~~	GRAZING
OM	?

October 17, 1921.

D
Supervision-Lincoln,
Inspection.

Forest Supervisor,

Alamogordo, New Mexico.

Dear Arthur:

Enclosed are three copies of inspection reports by Inspectors Leopold and Marsh. One set should be kept intact for ready reference and follow-up purposes. The reports are approved as submitted.

You have gone so far in the big job of putting the Lincoln Forest on a very efficient basis that I know it is unnecessary for me to comment at length on either of these reports with the idea of impressing on you the desirability of following out the specific suggestions made. I am taking it for granted that you will give them your earnest consideration. There are, though, a number of points raised that I wish to comment on as well as a number of points on which I think you deserve special commendation. These will be taken up in order.

In your fire work another year I wish you would make a special effort to bring parties responsible for fires into court. In approaching this matter with your Forest personnel, the best angle is to bear down on the fact that law enforcement means less man-caused fires to fight, and that therefore enforcement action is not sought merely as punishment for the offender but as a distinctly constructive, forward-looking fire prevention measure. ~~Another year I am counting that it will be possible to get out the fire instructions at an earlier date.~~

Depite the progress you are making in your timber work and the credit that is due both you and Mr. Strickland on this account, Mr. Marsh's report, particularly the section on S-Supervision contains many constructive suggestions that I hope

Copy in Arthur and Brubaker personnel files

L. N.

you will find an opportunity to follow up and act upon even under the handicap occasioned by taking Deputy Supervisor Kartchner for the supervisorship of the Manzano. I am very anxious to have you tighten up on fire clauses under timber sale contracts and another year am sure you will see that timber operators go the limit in providing satisfactory fire protection appliannes such as spark arresters, fire hose, etc., for loaders and skidders and observe every reasonable precaution in their operations. I hope too that some progress can be made on the desired "Graphic Sales Record" and on "Trespass" and on my part I shall try to secure funds for needed investigative work in the Douglas Fire type. I am looking ahead confidently to the time your S work will be on an absolutely sound procedural and technical basis.

Mr. Leopold's observations corroborate my own as to the relatively excellent condition of the station improvements on your Forest and you and your Forest personnel are to be congratulated on your neat, well-kept administrative buildings, quarters and grounds, the condition of your tools, equipment and supplies, and the business-like tone such conditions give to your Forest administration.

In the matter of trails you seem to have gotten very good results although as on most other Forests, the tendency has been to hug the maximum standard in specifications with resultant excessive widths and heavier than necessary costs. Our problem in trail work is primarily that of making our money serve to construct the greatest mileage possible of satisfactory needed trails. This means of necessity that we limit work on trails to those sections actually requiring work; that we use existing trails, wide or narrow, just so far as they will fit in with our trails plans; that we cut out excessive widths and get along with as narrow a tread as will serve our purpose and finally, that we watch labor prices and use all economies in the organization and supervision of trail crews. The District has been pretty severely criticised for leaning to maximum standards under a higher set of specifications than those we will be guided by in the future. It is not going to be an easy matter to hold the standard of construction down and it is a job that will require the closest kind of supervision on your part and on the part of your deputies, none of whom should forget that our trail task is not only going to be one of getting money's worth for every dollar spent but includes also making certain that we buy the cheapest article in the trail line that will satisfactorily serve our purpose.

Your Public Relations work has come to my attention

again and again and is high class. You have in your recreational resources a great asset and I am sure through the relations you have established with Chambers of Commerce and other business agencies you are going to bring home to the people of Southeastern New Mexico and Western Texas some realization of what the National Forests mean to them individually and collectively and the part, aside from recreation, that they play in State and community development in their widest sense.

I am more than ever pleased with the record of your personnel. Individually and as a group, they are a credit to any organization and I am not so thoughtless as to overlook the important part you have had in making your Forest force the effective team it is through personal direction, leadership, encouragement and inspection. Even on the Lincoln I believe if you will critically analyze the diaries of your men for a full 12-months' period, tabulating the results as you go along, you will find where time has been lost through lack of planning and through lack of organization of the work. Perhaps there have been too many office days, too many trips to timber sales, too many nights returned to headquarters, and too few trips into remote sections of the District. I know you will make it a point to get to the bottom of how efficiently your rangers are using their time with a view to making all possible savings here and there so that these can be used in tightening up on administration where you find need for improvement. In the training of new men I am fully aware of the assistance rendered by Ranger Brubaker and I wish you would let him know from me that in satisfactorily functioning as a trainer of new rangers, he is accomplishing a mighty important task - a job requiring among other things lots of ability, patience, character and loyalty to the organization - and that I am very appreciative of his work.

All in all, while there is plenty of room for improvement on the Lincoln and probably on every district of the Lincoln, I am greatly pleased with the results you are securing. I want to get a better line on your grazing work although grazing is not of such paramount importance on your Forest as on some others in the District. Another year I expect to be able to have the Lincoln given a thorough-going grazing inspection that may, as all good inspections do, open up new opportunities for improvement.

In conclusion, I want you to know that Mr. Headley was also well pleased with what he saw on the Lincoln and left with only the most pleasant recollections of his trip with you on your Forest.

With best regards,

3 Enclosures-

Very sincerely yours,

Frank C. W. Pooler

District Forester.

D
Supervision
Inspection

GENERAL INSPECTION REPORT

LINCOLN NATIONAL FOREST

August 15 - September 13,
1921.

Aldo Leopold,
Assistant District Forester.

Copies furnished to:

Supervisor,
Supervisor's files, for splitting,
Supervisor, for splitting and reference to force.
District Forester.
District Office files, for splitting by subjects.

10/14/21

OUTLINE.

A. FIRE.
   1. 1921 Fire Plan.
   2. Equipment and Improvement.
      (a) Lookouts & Triangulation System.
      (b) Condition of Fire Tools.
      (c) Telephone Lines.
      (d) Fire Tool Policy.
      (e) 1921 Fires.
      (f) Guard Employment Policy.
      (g) Fire Coöperation.
      (h) Standards.
      (i) Publicity.
      (j) Law Enforcement.

B. IMPROVEMENTS, QUARTERS, FORAGE CROPS, PASTURE, ETC.
   1. Quarters. Planning Layouts of Quarters.
   2. Pasture System.
   3. Forage Crops.
   4. Self-Pitching of Telephone Poles.

C. ROADS, TRAILS, SIGNS.
   1. Roads.
   2. Trails.
   3. Sign Work.

D. TRANSPORT, MOTORS, MOUNTS, ETC.

E. FINANCE.
   1. Wage Scales.
   2. Forage & Travel.

F. PERSONNEL & TRAINING.

G. FOREST MANAGEMENT.

H. GRAZING, FISH & GAME.

I. LANDS.

J. ORGANIZATION.
   1. Staff.
   2. Rangers.
   3. White Mt.-Ruidoso Line.
   4. Diary Analyses & Travel Maps.
   5. Work Plans.
   6. Promise Card System.
   7. Time Economies.

A. FIRE.

1. 1921 FIRE PLANS. Dated April 1, mailed April 8, earliest guards are regularly scheduled to go on April 10. Earliest guards actually went on in January, but this was abnormal.

The plan is good. The following suggestions are offered for its revision and improvement:

Omissions: Per Diem Guards - policy, names, locations, functions. Wage scale for fire fighters. Fire maps not part of equipment required to be carried. Training of guards. Orientation of protractors. Which lookouts are without phone communication.

Possibly some of these points were omitted because covered by standards. In the future, standards should probably be embodied in all fire plans for handy reference.

Hours of Work: Some of the hours prescribed run up to a fourteen-hour day. This was thoroughly discussed. It did not appear to result in dissatisfaction among the guards this year. My general impression is that the degree of enforcement of these hours and the proportion of time actually required on the tower were not as uniform among the different rangers as they might have been. In general, I would lean toward more moderate hours, more rigidly and uniformly enforced. However, since the guards were off, I am not in a position to say how the present scheme actually worked. Better protection from weather on towers, and moving cabins on top, will probably result in a readjustment of all these requirements anyhow.

Keeping up Horses: Smith says he requires horses to be kept up and saddled, no matter how small the pasture. My impression is that less rigid requirements are made on some of the other districts. The plan should specify what constitutes standard practice.

2. EQUIPMENT AND IMPROVEMENTS.

(a) Lookouts and Triangulation System. As I see it, there are three problems up for solution. The last two are difficult and will take time:

First: Eliminating fixed errors in the location and orientation of lookouts. There is evidence that these exist, especially at Wofford and Baca Ranch.

Second: Determining the best possible number and location of lookouts in spite of the unfavorable topography of the Sacramento Division.

Third: Devising an economical and efficient system in spite of the complications due to mixed land ownership.

The first problem was discussed a good deal on the ground and is analyzed in the Fire Review. I advise that an effort be made to roughly determine the location and kind of errors before undertaking field work, so as to avoid unnecessary labor, and so as to determine what parts have to be done by a staff man and what parts can be done by the rangers.

Good progress has been made on the other two. I merely desire to emphasize that the present layout, as approved by Kircher, is not necessarily the final one, and that improvements or economies can be figured out only by the local force.

The following lookouts were inspected, and were O. K. except as noted:

Alamo Lookout needs guy wires. The protractor post is on the ground, where the view is somewhat obscured. I would suggest it be installed in the tower.

Weed Lookout. Readings on Potato Pk. and Bluewater tower check with Weed R. S. map.

Mayhill Lookout. Phone was switched on. The alidade was loose and the plate was fastened with nails. Readings on Weed Tower and 1/4 cor. Secs. 3-4, checked with Mayhill R. S. map. Addison says this location is tied to a Twp. corner. There is a U. S. G. S. benchmark within 1/4 mile, which presumably would make a better tie, or at least check the present one.

Wofford Lookout. Alidade loose. Protractor post toe - nailed to floor. One of the two guy wires tied to dead bush; should have at least three guys due to narrow tower base; wire for third guy on the ground. Needs lightning wires. Phone line between cabin and tower not brushed. Following checks against Fresnal R. S. map indicate tower is too far east on map or else either the map

or the tower is turned clockwise:

Bearing on	Tower	Fresnal R.S. Map.
Nogal Pk.	351	352
Capitan Pk.	30.5	32
White Mt.	344(?)	347

Gavilan Lookout needs hinges on phone box, lightning wires, and sunk-through protractor post to save the room occupied by the present diagonal braces. No switch to disconnect phone; this is badly needed at once to avoid damage to the instrument.

Baca Ranch Lookout needs guys and completion of window-sash. In order to sight around the corner posts, it will be advisable to install the new style of map protractor. The following checks against the Baca R. S. map would indicate an error in orientation of either the tower or the map protractor:

Bearing on	Tower	Baca R.S. Map.
Capitan	49.5	51.5
Nogal	260.5	265.0

There may also be a location error. It is tied to an interior section corner and the map location has been moved in the past.

Gallinas Lookout. No instrument and probably does not need one.

All Lookouts need completion of a tight breastwork as weather protection. All need the selection of some permanent orientation point, and the posting in the tower of a card giving its bearing. Some rangers left their protractors out in the weather (Wofford, Gavilan). These were worse warped than those which had been removed or covered, and I would suggest it be made standard practice to remove or cover instruments during the off season. All guards not provided with toilets should also be asked to use the extension pit sanitary system at cabins and camps.

(b) Condition of Fire Tools is excellent. The points still needing correction are apparent from the attached photostat copy of the scoring table used in the field, which gives an average score of 80%. It should not be overlooked that the Lincoln tools were scored on several points not yet prescribed as standard practice. The scoring was as severe as possible, one defective tool disqualifying as to the point in question.

Summary of Condition of Fire Tools and Equipment — Lincoln

Place, Date, District	Usability: Axes sharp	Saws sharp	Handles tight & sound	Sharpening Facilities	Worn out tools Elim.	Availability: Tools segregated for fire	Orderly	Depository clean	Place well chosen	Selection: Proper number	Proper Kinds	Standard Type	Tie wire (if on phone)	Protection & Maint.: From weather	Expanded & oiled	From theft: Painted	Sealed or locked	Check list	Sign on door	Saddle Tools carried (Kind & whether OK)	Packs ready to go	Horses up, ready to go	TOTAL O.K.	TOTAL NOT O.K.	PERCENT O.K.
Ward Ranch Box	No	No	yes	yes		Yes	Yes	Yes		Yes	Yes	No		No	No			Yes	Yes				9	5	64
8/18 Cloudcroft	one broken rake handle. Axe dull.					Box on ground				Brackets not up.				Tent in bottom, wet											
Alamo L. Cabin 8/19	no	no	no			yes	yes	yes		yes	yes	yes		yes	yes			yes					9	3	75
8/19 S.W. Lbr. Co. Box	yes	yes	yes	yes		yes	yes	yes		yes	yes	yes		yes	yes			yes	yes				14	0	100
8/19 Sacramento R Box	yes	yes	yes	no	yes	yes	yes	yes		yes	yes	yes		no	yes			yes ?		(Box flat on ground)			12	2	85
8/20 Sc[illegible]el	yes	yes	no	yes		yes	yes	yes		yes	yes	no		yes	yes			yes	yes				12	2	85
8/20 Monument Box	yes	yes	yes	yes	yes	yes	yes	yes		yes	yes	no	yes	yes	yes			yes	yes	(excess dutch ovens)			15	1	93
8/20 S Fork Cñ	yes	yes	yes	yes		yes	yes	yes		yes	yes	yes	yes	yes				yes	yes				14	0	100
8/21 Weed R.S.	yes	no	yes	no		yes	yes	yes		yes	yes	no		yes									8	3	75
8/22 [illegible] hill R.S.	yes	yes	yes	no		yes	yes	yes		yes	yes	yes		yes	yes								11	1	92
8/23 Mayhill Lookout	yes	yes	yes	no	yes	yes	yes	yes		yes	yes	no		yes	yes								11	2	84
8/23 James Cñ Box	yes	yes	yes	no	yes	yes	yes	yes		yes	yes	yes		no	no			no	yes	(Box on ground)			11	4	73
8/23 Jergens Box	yes	yes	yes	yes	yes	yes	yes	yes		yes	yes	yes		yes	yes			no	no				13	2	86
8/24 Wolford Cabin	no	yes	yes			yes	yes	yes	no	yes	yes	yes		yes	yes			yes					11	2	84
8/24 Barrett	no	yes	no	no	yes		yes	no	yes	yes	yes	no		yes	yes			yes	yes				10	5	66
8/24 Mt. Park	no	no	yes	yes		yes	yes	yes		yes	yes	yes	no	no	yes			yes	yes	(Box too long flooded)			11	4	73
8/25 Fresnal RS	no	yes	yes	yes	yes	yes	yes	yes		no	yes	yes		yes	yes								11	2	84
8/27 Ruidoso RS	yes	yes	no	yes	no	yes	no	no		yes	no	yes		yes	no			no	no	(Tools not on racks)			7	8	46
8/29 White Mill						yes	yes	yes		no	no	yes		yes	yes			yes	no	(no axes shovels hoes or saws)			7	3	70
8/30 Alto	yes	no	yes	yes	no		yes	yes	yes	no	yes	yes		no	yes			yes	no	no (Box on ground ex cess axes & mattocks)			10	6	62
9/1 Baca RS	yes	yes	yes	yes		yes	yes	yes		yes	no	yes		yes	yes					(excess of saws)			11	1	92
9/4 Pepper Ranch	yes	yes	no	yes		yes	yes	yes	yes	yes	yes	yes		no	no			yes	yes	yes (new box needed			13	3	81
9/15 [illegible]ection	no	yes	no	yes	no		yes	yes		yes	no	yes		yes	yes			yes	yes	yes			11	4	73
9/6 Meow RS	yes	yes	yes		yes	yes	yes	yes	yes	yes	yes	yes		yes	yes			yes	yes	yes			15	0	100
9/7 Rodmakan B.	yes	yes	yes	no	yes		yes	yes		yes	yes	yes	no	yes	yes			yes	yes	no			13	3	80
9/7 Reddy Box	yes	yes	yes	no	yes		yes	yes	?	yes	?	yes		yes	yes			yes	yes	no (no hose. Too close to Rodmakan?)			11	2	84
9/4 Red cloud Box	yes	no	no	yes	yes		yes	yes	yes	yes	yes	yes		yes	yes			yes	yes	no			13	3	81
OK	17	15	16	15	16	10	23	24	17	23	21	20	2	20	20			18	14	3	294				
Not OK	6	2	10	8	5	0	1	1	1	3	4	6	2	6	4			3	3	5	70				
% OK	74	88	62	65	76	100	96	96	94	90	84	77	50	77	83			85	82	37	80				

(c) Telephone Lines. (Field Notes p. 17) Only four lines were inspected with sufficient care to warrant criticism, - Monument Canyon - Weed Ranger Station, and the Mayhill, Wofford and Gavilan lookout lines. All these were poorly brushed. Diary analyses and my general impressions indicate a great deal of phone trouble on the Lincoln. Until brushing is brought up to standard, this phone trouble cannot be regarded as necessary or unavoidable. The line support on the last two named was only fair. Good progress is being made in relocation of lines to follow travelled routes and thus facilitate maintenance.

Private phone lines used as links in our system cost a great deal of time and trouble, especially on the Ruidoso. I suggest that this proposition be put up to the owners, who are as much annoyed as we are: We to furnish an expert (probably Smith) to go over the line (and possibly the local ranger each year thereafter), diagnose the trouble and figure out the standard equipment needed. (Odd equipment might be traded in to local commercial companies.) They to furnish the equipment and provide a small crew, to rework the entire line and all installations under the direction of our man.

(See Improvement for self-pitching of telephone poles.)

(d) Fire Tool Policy. It is my general impression that the Lincoln is abundantly supplied with tools, with a high percentage of standard types. In the placement of caches, there has been a strong leaning toward locations in the woods, because crews are often recruited from scattered ranches rather than towns and do not generally assemble at stations or towns before starting. There will therefore be frequent exceptions to the new policy on location of caches. There are now, however, too many boxes in the woods, as compared with inhabited assembly points.

There is now too much uniformity in number of tools, i. e.: too little variation to fit the man power available or likely to be used. There are also excesses and shortages of certain kinds in the various caches.

To iron out the above defects, Supervisor Arthur is already planning an inventory and redistribution. With the additional tools obtained this summer, the Lincoln ought to be fully stocked. If net excesses or shortages appear in any kind of tool as a result of the inventory, they should be reported, so that an exchange can be arranged with some other Forest.

Supervisor Arthur and I worked out a tentative set of standard outfits. We found that nearly every box serves such a variety of conditions as to forest type and ground cover (rocky, bushy, grassy, etc.) that the variation in outfits will come altogether in number rather than kind of tools. The following are the standard outfits:

Ranger Station Outfit (20 Men).

10 Rakes	1 Grinder
10 Shovels	1 Rasp
5 Axes	3 Files
1 Saw	4 2½-gal. Bags
5 Hoes	4 5-gal. Bags
5 Mattocks	Cooking Outfit
36	Lantern

10 Man Outfit.

5 Rakes	1 Rasp
2 Shovels	2 Files
2 Axes	2 2½-gal. Bags
1 Saw	2 5-gal. Bags
2 Hoes	Emergency Ration
1 Mattock	Lantern
13	

5 Man Outfit.

3 Rakes	1 File
2 Shovels	2 2½-gal. Bags
1 Axe	Emergency Ration
1 Saw	Lantern
1 Hoe	
1 Mattock	
9	

Ranch Outfit.

1 Shovel) or McLeod Tool.
1 Rake)

(e) 1921 Fires. There were only 16 fires, including four Class C's. Three were in February, en entirely abnormal season. Only three were lightning, with a correspondingly high percentage of man-caused (56%), which plus unknown 26% gives a total probably man-caused of 82%. Only two were first reported by lookouts, but accidental matters probably contributed to this.

Four were discovered and handled by per diem guards. There was only one conviction. The cost and size of crews was excessive (eleven men per fire, one man per acre burned, $3.60 total cost of suppression per acre). This is largely due to the habit of volunteers flocking to fires, and it would certainly not be advisable to discourage this. It will be safe, though, to discourage all those who do not come with the intention of actually working, such as groups of boys coming merely out of curiosity.

The figures given above are of course not a safe basis for conclusions as to policy or plans, because based on only one year. They are suggested as questions, meriting analysis on the basis of five-year or ten-year figures, rather than as answers. Thorough analysis of man-caused fires is especially called for.

Great pains were taken to correct and explain Fire Reports.

One specific 1921 failure calls for formal criticism, - namely failure to inspect the condition of spark arresters on the South-Western Lumber Company operation. Mr. Pooler warned about this about May 1. Up to the time of the fire on May 31, the Company had been logging on private land, which somewhat affects the case. Good arresters are now installed. The local officers do not need to be reminded to profit by this experience.

No special study had been given to the advisability of asking the Company to equip tanks with hose and to carry buckets and tools on the skidder, loader and engines. Noon guards are provided on skidder and loader, but the guard fell down the second time this fire broke out. Letter of 8/5 shows that the contract omits authority to require these things, but I believe a reasonable plan should be proposed to the Company for voluntary execution by them.

(f) Guard Employment Policy. I was gratified to learn that a flat wage scale was not being used, but believe that the jump from $80 to $100 the second year is too big. Wingo showed a particularly good understanding of employment policy. Not all the rangers, though, understand fully the importance of their work in recommending and handling guards. It should not be possible for a ranger to mention priority in application (as Messer did) as having anything to do with selections.

I am not sure that the Wofford and Gavilan men were satisfactory. The latter should have been fired for neglect of duty but for the accident of the phone line being down.

(g) Fire Coöperation on the Lincoln is such an intricate subject that I do not feel qualified to speak in other than general principles. My impression is that Supervisor Arthur has the subject well in hand and should work it out in his own way.

It is possible that a switch to a lump cööperative fund policy, based on acreage, would be better than the present system of private landowners furnishing individual guards. It would give us a freer hand in adjusting the organization, but is complicated by certain guards (such as Hay Canyon) having special functions, such as keeping off campers. The whole question is also affected by possible future changes in policy by the State Land Office; also by the prospective growth of recreational associations, who will employ men having both protective and administrative functions. There is one safe rule; that the private land owner should bear the cost of protection, including improvements, insofar as he can be induced to do so. If it costs money to maintain his lands, he will be the more ready to exchange them or turn over their administration under some workable form of agreement.

The prospects for Indian Service coöperation are encouraging. Ranger Geo. Nyce is now installing a lookout system and wants to tie it in with ours.

(For suggestions on Agreement with State, see Lands.)

(h) Fire Standards. (Field Notes p. 10) Most of these are of course susceptible of precise inspection only during the fire season. As nearly as known, all were complied with on the districts visited except as follows:

#2. One guard went on without instruction on Mayhill District. In part due to a change in guard personnel.

#7. All had late reports except Ruidoso, Mayhill and Weed.

#11. Dry Canyon fire believed not to have been sufficiently investigated.

#13. Cannot O. K. compliance with this, considering condition of brushing on phone lines.

#14. One slip on White Mt. where two permittees were paid, due to confusion in instructions.

(i) Fire Publicity and Education. Very good work has been done. The flag contest idea was originated and is being followed through with more persistence than is ordinarily found. Newspaper work has been good. A series of special signs, for use on the Alto and Bonito No. 2 burns, were worked out with Messer and Brubaker, and will be requisitioned for this winter's sign shop. The showing in fire signs is not so good. Old rusty tin signs are especially common on the Ruidoso, and no cardboard signs were put up there in 1921. There has been a tendency toward too many tin fire signs.

(j) Law Enforcement. Smith (excusable account illness), Wingo, Woods, White and Addison had not read, or read only in part, the "Illustrative Cases of Law Enforcement."

There was a little too much laxity about interviewing Justices of the Peace and United States Commissioners in advance of the fire season. The rangers did not seem to fully understand that it is advisable not only to know these officials, but to know as far as possible their attitude toward the fire laws.

There is still a noticeable pro-fire sentiment on the Weed District. Wingo has shown real initiative in planning out what to do in case of an outbreak of incendiarism. There may be a little pro-fire sentiment in the heavy reproduction area on the Bonito.

B. IMPROVEMENTS, QUARTERS, FORAGE CROPS, PASTURES, ETC.

1. Quarters. Planning Layouts.

Date	Place	Condition of Quarters. Station	Barn	Office	Tool-house	Out-house	Grounds
8/19	Fairchild R. S.	O. K.	O. K.			O. K.	O. K.
Quarters are very old, but in as good shape as possible.							
8/20	Weed R. S.	O. K.	O. K.			O. K.	O. K.
Barn and yards need better drainage.							
8/22	Mayhill R.S.	O. K.	O. K.		O. K.	O. K.	O. K.
Barn and shed badly in need of replacement.							
8/25	Fresnal R. S.	O. K.	O. K.		O. K.		Fair
Not yet been full opportunity to clean up since construction of station.							
8/27	Ruidoso R. S.	O. K.	Poor			Poor	Poor
Outhouse not fly proof. No lime. Barn and grounds not in good order.							
8/31	Baca Rch. R. S.	Excellent	O. K.	Excellent	O. K.	Excellent	Excellent
One of the best kept stations in the district. Outhouse pit is caved, needs patch.							
9/6	Mesa R.S.	Excellent	O. K.	O. K.	O. K.	Excellent	Excellent
One of the best kept stations in the district.							
9/12	Gallinas R. S.	O. K.	O. K.	O. K.	O. K.	O. K.	O. K.

A suggested layout for Fresnal Ranger Station is attached to the Supervisor's copy of this report.

A landscaping sketch was made at Gallinas and left with Ranger Woods. The use of this will help break up the rectangular planting of conifers without moving all of them.

Waste at Ruidoso. The sink waste at Ruidoso Ranger Station formerly emptied into irrigation ditch. When replaced, the outlet should be in the field, not in the garden, orchard or ditch.

Fresnal Station (new). This is siding, finished with beaded ceiling inside. I understand that no paper was used to windproof it. This seems to have been poor judgment.

Baca Ranger Station gates. Three new gates are needed for corral and where road goes through pasture. Present gates are about gone.

Gallinas barn, built 1920. Four-horse standard plan No. 1 modified to allow staircase instead of ladder to loft. This resulted in quite a cost for space for stairway, but local officers claim the convenience of the stairway offsets this. Ceiling seems too high, resulting in waste of loft space.

In general, the Lincoln quarters are in excellent condition and reflect credit on the Service and on the Lincoln force. Baca Ranger Station and Mesa Ranger station are especially noteworthy.

2. Pasture System.

Condition of Pastures.

Date	Place	Acres	Horses on Forage	Head of Stock Run	Night Lot	Max. Catch Time	Condition	~~Grass~~
8/21	Weed R. S.	240	2	6	Yes	1 hr.	O. K.	
Very brushy. Bell should always be used, as at present.								
8/21	Weed Lookout	8		1		5 min.	O. K.	
8/22	Mayhill R. S.	250	2	3	Yes	3/4 hr.	Excellent	
Night lot is grazed now and rather weak. Should be saved for winter and spring.								
8/23	Mayhill Lookout	30		1	Yes	1/4 hr.	O. K.	
8/24	Wofford Cabin						O. K.	
Very poor construction in fence.								
8/25	Fresnal R. S.	320	4¼	9	Yes	2 hrs.	Poor	
Night lot overgrazed.								
8/28	Ruidoso R. S.	80	2	6	Yes	1/2 hr.	Fair	
Now changing and enlarging pasture into three parts.								
9/3	Baca Ranch	180	2	8	No	1/2 hr.	Excellent	
Night lot needed. Could be divided for rotation.								
/6	Mesa R. S.	240	4	8	No	20 min.	Excellent	
9/12	Gallinas R. S.	140	2	3	No	20 min.	Good	

Improvement of Pasture System. In pastures like Fresnal and Weed, with long wrangling time, the question of possible subdivision, cutting off water except at corral, belling at all times, timber sales to open up the cover, etc., should be considered. Subdivision and opening the brush might also be made the means of restoring the feed in pastures like Fresnal. There is a tendency toward the abuse of night lots, which should be avoided if possible.

Pasture at Pine Lodge is badly needed for forest officers. Pine Lodge Association is figuring to put in a pasture. If this is done, we should arrange to get the use of it.

3. Forage Crops, (Field Notes p. 18) are not a big factor in the forage situation. Negligible net profits were made at Weed and Mesa, while net losses occurred at Baca and Gallinas. Mayhill will probably net $200.00 this year. I suspect that the soil is exhausted at Mesa, - if so, peas or vetch are the solution. Peas make excellent hay if cut early, and can be mixed with oats. Vetch makes fine winter pasture, but I cannot state positively that it stands up well enough to be cut for hay. Hauling of manure to the smaller agricultural patches would probably pay.

4. Self-Pitching of Telephone Poles. (Field notes p. 14). The Lincoln deserves much credit, not only for conceiving the idea, but for actually carrying through the initial demonstration of it. Cross sections of poles left standing for six months and twelve months, respectively, indicate that in the latter case enough pitching occurs to probably double the life of the pole. If further experiments show that this pitching can be counted on, a great economy in upkeep of our lines, and possibly in commercial practice also, will immediately become possible.

Further experiments to establish definitely the interplay of the following factors should now be undertaken, preferably by the Lincoln: (1) Length of time left peeled; (2) Season of peeling; (3) Effect of dominant or suppressed condition; (4) Possible improvement of pitching by collaring or "beavering"; (5) Safe limit before insect attacks begin (possibly depends on (2) as well as (1); (6) Throwing the zone of maximum pitching nearer the weak point of proposed ground level of pole by raising the peeled collar higher.

The cross sections have been polished and will be held for inspection by Mr. Pearson and the District Investigative Committee. Mr. Pearson and the Committee will be asked to outline an experimental project which will bring out the points that we need to know about the six factors above named. Later the specimens will be returned to the Lincoln.

C. ROADS, TRAILS, SIGNS.

1. ROADS.

Weed Cloudcroft. Wingo said this had gone all to pieces in the recent rains. I went over most of the road and find that while the surface has washed a good deal on most of the grades, the road itself is perfectly sound. The drains are open but need to be connected more thoroughly with the inside ditch. At one place on the upper Penasco the failure to do this has caused the ditch to spill across the road, partially washing out the abuttment of a bridge. On the washed slopes there is not enough material left on the top of the rock base to fill the washes, even were the road dragged. The ditches have too many toe rocks to be the source of surfacing material by dragging. Probably the road should be dragged and then surfacing material hauled where necessary and then dragged again. We should ask the County to do this as per their agreement.

Cloudcroft-Highrolls. Washed very badly by recent heavy rains. No way to have avoided this as rain was practically a cloudburst. Most of the drains stood up well. Unless the washed places are promptly repaired, permanent damage will result. The County should be asked to do this as per their agreement.

Alto-Eagle Creek Road. Messer says he had trouble holding his width down to ten feet on steep slopes with only Fresno to work with. About 950 spent, 150 misc., on lower reaches, and 800 on two miles to Lodge = 400 per mile. The job is a fair showing for the money spent. Practically no drainage was provided and on the long grades some washing has started. Wet weather seeps in other places are bogging the road. Either board culverts or turnouts should be provided to prevent partial loss of the money invested. The regular maintenance fund should suffice for this. But for the rocky soil the drainage would have been much worse. It was poor judgment not to drain at time of construction. According to Messer, the Superintendent's office directed him and Anderson to be in charge of this project during alternate weeks. This was a very bad arrangement because it split responsibility and authority.

Salazar Canyon Project (Lincoln-Baca R. S.) Settlers and Tittsworth Co. have a petition pledging $750. County Road Supt. Barleson says the County has appropriated $500. This money is apparently to be spent for patch work. If we could raise enough 10% to piece out a mile or two of actual standard construction, it would prevent the waste of these funds on patch work.

There are now no minor funds available. Should some become available, this project will be considered. It should appear on next year's proposed program, to be weighed against other projects submitted.

Lincoln Canyon Road (Lincoln-Baca R. S.). As a substitute for the Salazar Canyon route, this route seems impracticable because of the necessity of working through two miles of limestone ledge rock and the expensive works which would be necessary to prevent bank erosion in several places. The grade would also be heavier - it would probably not be possible to get through with less than an 8% maximum grade. (This is just an estimate.) The route would however be about 3 - 4 miles shorter than Salazar Canyon. All side hill work, whereas Salazar Canyon would have no side hill work. The County is simply wasting money patching the present Lincoln Canyon road, since the grade is too steep, there is no drainage, and nearly two miles is directly in the bed of the wash.

2. TRAILS.

Alamo Canyon. This trail, except the branch to the tower was built by Kissam & Strickland, 1920, Inslope Type. Good job but about 6" to 1' too wide, as per the then standard. No drainage. It is already developing a furrow and will have to be drained as the furrowing develops.

The stub to Alamo tower does not center the brushing, which is too wide.

Mayhill Lookout. Guard put in twelve days repairing this trail, but no location survey made in advance and no drainage installed. Now washed out.

Gavillan Lookout. No money. Five man days. Two miles. Very fair trail. Can be gradually improved by guard labor. Grade up to 14%. Need not be relocated.

Baca Lookout. Built by guard this year, 1/3 mile, one week, @ $3.00 per day, 21 x 3 = $63.00 per mile. Inslope, rock fill, good job when the rocks are blasted out. 14% grade.

Pine Lodge - 7 Cabins. Reworked with $100 maintenance money this year and relocated in places. Work done on outslope plan to match old work. Good results obtained for the money.

7 Cabins - Pierce Canyon. Very substantially built on north slope and in good shape. Near summit and on south slope tread washing a good deal. Maintenance money used this year to cover these washed places but not much new drainage installed. Money should be spent first on drainage and afterward on filling.

Gallinas Lookout. Built June, 1920. Three miles costing $300. Outslope type. Lower end about 30" wide over all, upper part a little narrower. Drainage ditch 2" - 6" deep built in heel of trail. This was done as per p. 29 of the Trail Manual, which shows a side hill grade while the text refers to swamp. Total quantity of work done for the money O. K., but investment too high for the circumstances. Drainage logs good and heavy and well installed.

This office and the Lincoln office crossed wires in instructing Woods about this trail, and he cannot be criticized for following the Trail Manual, and it is not his fault that the Manual has a discrepancy between the illustrations and the text.

3. SIGN WORK.(Field Notes p. 23). A tally kept of signs up (168) and signs needed (187) on 23 routes travelled indicate that the Forest is 89% signed. This is very good. The figure is a little higher than the rangers' estimates, which run from 60% to 75%.

82 signs of the 1921 crop and 9 of previous crops were unposted. About half of these were Smiths, who had been ill. This is exclusive of culls, of which 19 were found.

Requisitions for 1922 prepared to date were a little disappointing except in the case of Woods, who had 45 ready. Evidently requisitions are not habitually made on the ground during regular trips.

D. TRANSPORT, MOTORS, MOUNTS, ETC.

The old L. C. Ford now on the Lincoln is running well. The money to maintain it is to be taken from staff travel, but a suballotment should be set up as a "Maintenance of Trucks" suballotment so as not to confuse the District Office motor cost records.

The mounts seen were satisfactory, except Messer's and Hendricks. I doubt if Messer's team are good under saddle, but may be mistaken. Hendrick's horses are not good enough. Efficient mounts should be required by the Supervisor.

E. FINANCE.

1. Wage Scales paid this summer were: Road and trail labor $2.00 and chuck, or $3.00 without; foremen $2.50 and chuck; teams $7.00 without chuck or feed; fire fighters 35¢; fire foremen 45¢. Labor in some places would now be obtainable for $1.75 and chuck. Chuck on Gallinas Trail cost 80¢. Guards got $80 new, $100 old. Coöperative guards got $85 and $95.

All the above are satisfactory, except that the raise for second year guards was too quick, to which the Supervisor agrees. An error was made in not using the bonus on all guards. But for the early rains, this would have resulted in a deficit. It destroyed a saving that might have been used to good purpose.

2. Forage and Travel. The following rough analysis brings up several questions:

District	1921 Travel	Field Days	Cost Per Field Day	1921 Forage	Cost per Horse
Gallinas	250			183	91
Capitan	182	194	.94	155	77
White Mt.	322	164	2.00	250	82
Ruidoso	100	172	.62	180	90
Mayhill	125			160	80
Weed	102	166	.62	239	119

Probably Weed gets too much forage. The travel figure for White Mountain reflects the large amount of mileage, and indicates that motor work is expensive. In this case it is nevertheless justified.

F. PERSONNEL.

(See also Diary Analyses)

BRUBAKER, J. A. The question of whether the Brubaker type of Ranger can go up is one of the most serious questions facing the Service. He represents the very finest of his kind and I am not at all sure that the question is correctly answered in the negative, even though all the superficial evidence points in that direction. He brings up again the unsolved problem of how to give some appropriate recognition to men of his class. Supervisor Arthur possibly could give some special study to this problem and suggest some means of handling it.

Brubaker has rendered valuable service in training recruits. All his former apprentices go out of their way to mention the pains he takes with his assistants.

From what I saw, I would say that he has brought about exactly the right combination of friendliness and respect among his permittees and the business men of Carrizozo.

It is worth mentioning that Mr. and Mrs. Brubaker have been supplying large quantities of flowers, raised at the station, for the sick at Fort Stanton.

SMITH, H. G. Smith has a real mind and real ability, coupled with a very practical viewpoint. He will go up some day if properly handled, as is the case at present.

White says he has brought about a revolution among his grazing permittees during the past year through the medium of an Association. White claims to have observed conditions before and after and is tremendously impressed with the change in sentiment and in coöperation afforded. He is very highly regarded on the Mayhill District also, where he was previously assigned.

Smith has the rather rare quality of disinterested frankness in viewing his own defects. He discussed and helped work up the "Points for Increasing Effectiveness of Ranger Work" with the same detachment and intelligence as one would expect from a high grade Supervisor or District Officer. It will bear repeating that this trait is very uncommon.

There is no question about the absolute sincerity of his attitude - in fact he is the kind who deliberately expose their own weakest performance for the sake of getting the benefit of having it scrutinized and discussed.

WINGO, A. S. is a wholly extraordinary combination of New England Yankee, Texan, and studious Forest Officer.

He absorbs the significance of written ideas to a degree that one seldom finds, even in higher positions. He knew why "Sign Posting Week" was inconsistent with District policy. He based his "A" list on a diary tally. He knew how the Lincoln compared with other Forests in number of signs per M. acres. He discussed the self-pitching of telephone poles with a real researcher's point of view.

At the same time, he absorbs points of law, trail specifications, telephone manual, time keeping rules, and the like with equal facility.

With these qualities of mind he combines the "do-it-now" habit of the practical foreman. His diary shows that he is a very early starter. Has a good promise card system, but no notebook to amount to anything.

He had it all planned out and his helpers picked in the event of an outbreak of incendiarism.

He is a little inclined to "swell up" when praised.

WOODS, W. H. Jr. Although raised in the cow business, Woods' general make-up and appearance is that of a well balanced, clean-cut college man. He hopes eventually to work up and there is no reason why he should not be able to do so.

We discussed a good many abstract principles in his office in connection with winding up the Lincoln trip, and Headley said he repeatedly feared that the discussions were going over Woods' head, but in each case was surprised to see that he had gotten the point.

I believe it would be a good idea to give Woods a heavier district with more lines of work when opportunity offers. He is a man who would appear to advantage in any city.

HENDRICKS, B. H. is a man who stands out for his utter honesty, dogged ambition and faithful hard work, coupled with a modesty and diffidence so extreme as to be almost irritating.

His outstanding good points have won for him the hearty respect and friendship of his permittees and even the Roswell business men, inspite of his youth and superficial showing of clumsy shyness.

It was a gratifying surprise to also find in Hendricks the rudiments of good taste in aesthetic questions. This cropped out in connection with a landscaping question at Pine Lodge.

Hendricks needs decisive handling along certain lines. The skillful handling he has so far received is attested, among other things, by his faithfulness to Arthur and desire to remain under him, his hard work for Arthur (see Diary Analysis), and the progress he is making in overcoming his objectionable traits, which, bad as they are, have evidently been worse. My suggestions are: Move him away from his home ranch, make him read (for pleasure, rather than shop-reading), and make him mix more with people socially, as well as in a business way. Hendricks' industry, faithfulness, ambition, good taste and sense of humor, together with the capacity for changing his ways attendant upon his youth, may take him a long way under proper guidance.

MESSER, GEO. W. In personality, manner of speech, code of ethics, prejudices, tastes and mental habits, Messer is the Texas sheriff of the early nineties. To this he adds a mental and physical youth remarkable in a man of his years, and a modern viewpoint on community questions. He takes an active interest and is accorded leadership in many local questions of community benefit quite removed from his official duties. In spite of an extreme volubility of speech, and a certain conceit and egoism, he commands weight with his people.

Officially, his outstanding point is skill in law enforcement work. I do not know of a more effective man in gathering and piecing out evidence and deducing motives.

He is also doing excellent work in organizing his grazing permittees.

He is a little careless about giving the impression of "knocking" predecessors and former associates, although a more thorough study shows up no real malice. I advised him to watch himself on this.

He is "outs" with William John Anderson, and the two should not be on the same Forest.

He wants to transfer to some point with a good high-school in a mild climate - is thinking about southern Arizona or California. I would not advise throwing him into other than ex-Texan communities, but may be mistaken in this. It will be a good thing to in some manner increase his load of work.

WHITE, W. C. To all appearances, White is a very earnest young Texan of good intelligence, and has received enough training under Brubaker and Smith to be a safe try as a District Ranger.

He is a little too Texan on the subject of "Mexicans" and should be steered right by the Supervisor.

I could not help noticing a lack of eagerness to meet people and pick up points from Hendricks, whose district he is taking over; also a tendency not to carry his load in camp. Brubaker, however, had not noticed anything like this, his only criticism being a lack of initiative during the early stages of his training. He ought to know, if anybody.

DEPUTIES.

KARTCHNER, K. C. Promoted to Supervisorship Manzano. No comment necessary.

STRICKLAND, S. Is future Supervisor material in my opinion. He has a valuable skill in teaching, and the industry and enthusiasm to exercise it. Although not "brought up" in the Service, he seems to have the right attitude toward technical matters. The Rangers go out of their way to speak well of him. He is entirely versatile, throwing all his energy into learning new lines whenever opportunity offers. Arthur says his persistency in "joshing" does not detract from his weight with the Rangers or the public. He is quite reckless in risking his health when the work so dictates, and I gather that it would be risky to move him into a very cold or high location. His health is however improving, and does not seem to bar his future development or usefulness.

There are two main questions in arranging his future assignments and duties:

(1) Shall he become a lumber man or a Supervisor? Considering the shortage in really sure material, I recommend the latter.

(2) If the latter, shall he be given a term on a district? This is for Arthur to decide (within the limits of choice temporarily set by the recent reduction in staff). My impression is that this will not be necessary if the radical process of rounding out his deputy experience, now proposed, is carried out.

BURRALL, H. D. Arthur says it will be two years before Burrall can be rounded out as a fully useful staff man. If Arthur can do it in two years, my belief is that this office should be well pleased.

On his arrival, Burrall asked for experience in all lines, but there is, I am afraid, no evidence as yet of his reaching out to realize his desire. He is quite happy plodding through Lands jobs. Has started no notebook or other device, that Arthur knows of, to gather information on other lines.

I favor Arthur's radical proposal to throw him entirely into new work, such as timber or grazing, or both. A Ranger District detail would also help, but would be difficult to arrange just at present.

Burrall's temper and health are possible handicaps. He seems aware of the need for controlling his tendency to become irritated over small matters.

Training and Development of Personnel. Arthur has made arrangements to make the Alamogordo Public Library available to the field force. This is an excellent move.

I did not find much evidence of reading in the field - not as much as one might expect in so good a bunch of men. I think that we ought in some way to make the District library more accessible and useable, and the Supervisor should then do more to encourage its use.

G. FOREST MANAGEMENT.

(Field Notes p. 43)

Policy Statement. Arthur has instructed Strickland to carry Forest Policy statement with him and to discuss with and explain to all Rangers. This is good.

S-22 Sales. The Supervisor is aware that there is a lack of uniformity in practice among the Rangers as to marking and scaling S-22 material, especially inferior species. Straightening out these discrepancies has been held in abeyance, pending Mr. Marsh's trip.

Fire Clauses for Mills on Private Land. The Lincoln has raised the question of our authority to require, by timber sale contract clauses, the furnishing of fire equipment or devices, if the mill is on private land.

If the devices or equipment apply to or are to be in regular use on the National Forest cutting area, there is of course no question about our authority. For instance: Arresters on loader, skidder, engines; buckets or hose on the same.

If the device or equipment is at the mill on private land, then Sec. 3 of the new New Mexico law would obtain, and no contract clause would be necessary. Sawdust disposal might be handled under Sec. (b), barring a difference of opinion by the operator as to whether the precaution proposed were "reasonable and proper".

In general, as to the applicability of the State law, each proposed requirement of the latter class would have to be figured out by itself on its own merits.

Mescalero Timber. Along Hondo Mescalero Road, and according to Nyce over most of Reservation, the stand is even, aged, thrifty blackjacks about one hundred years old. No reproduction seen, and only one old snag of previous stand. Must have been result of a clean-up by insects, because fire would not have destroyed so uniformly. Possibly Ranger Nyce could dig out some old Indian tradition explaining cause, since new stand is hardly over one hundred and twenty-five years old.

Kiefer Sale. Area in excellent shape. Timber a little better than at Hardcastle; log run probably fifteen. Stumps very low, marking good, advance reproduction abundant and thrifty, brush good. Area in shape up to fellers except for a few snags, and brush on a few trees.

Hardcastle Mill. Defective and very scrubby timber, running twenty-one logs per M. $3.00 per M., appraisal by Strickland. Heavy advance reproduction. Contract does not call for felling snags. Marking and brush O. K. Scaling done at mill and also as felled in woods. 2½ hrs. 2 men scaling 127 logs; 2.4 M per hr. and 50 logs per hr. On sale as a whole Hendricks says log run will be 15 per M. No fire tools at mill.

(For additional suggestions as to time economies in handling this mill, see Hendricks diary analysis and criticism of it.)

White & Lucas Mills. Diary analysis shows seven visits in six months when there were no logs to scale either at one or both mills. No telephone connection; only 1/2 mile gap but community line wont let mills have connection. Occasionally mills have gone to nearest phone and notified Messer there was nothing to scale. Messer agrees that future sale contracts should specify two regular dates per month and require purchaser to give three days' advance notice by phone or mail in case no scaling or marking necessary.

White Sale Area. Dense reproduction already on ground over most of area, so marking problem not difficult. Well marked, however, and brush piling and stumps both exceptionally good. Much better than an old cutting not under Messer's administration. Stumps are not over 8" high on average and brush piles small and compact. Also very little loss and breakage in felling.

Grafton Mill. Part of the piles at this mill were on top of stumps and old logs. The stumps were good and marking O. K. Probably mill has been running too little to keep logging crew in practice as to compliance with contract requirements.

H. GRAZING, FISH & GAME.

Condition of the Range. The range, of course, appeared at its best. There was a local spot of light rainfall around Jacks Peak, where the 1921 growth was not very good. It appeared to me that Pancho Canyon country was overgrazed. The gramma sod was weak and the mahogany stubbed off. The lower parts of the Aqua Chiquita above Weed seemed abnormally denuded of sod along the Canyon bottom.

Bunch Grass is apparently absent from the Sacramento Division. This may account for the ease with which the valleys cut and gully.

Blue Grass has taken all the moist bottoms in the Sacramentos and on the Ruidoso. Through its resistance to overgrazing, this is probably a big improvement.

Associations. Smith and Messer have made excellent progress in working up live organizations. I am not fully convinced that the Capitans, White Mts., and Gallinas have such unfavorable conditions for organizing as the field force seems to believe.

Goat Ranges. The allowance letter says in effect that notice should be served on goatmen to practice methods which will not injure the range, or get off. There seems to be an impression on the Lincoln that we must establish the feasibility of specific improved methods before we serve such notice. This impression seems to me to be wrong. We have already gone further than we had to in assigning Chapline to work up improved methods, and the burden of proof to establish the feasibility of his suggestions is not on us.

Checking Numbers of Stock. Shipping records and calf tallies are not systematically gathered or used, it being claimed, probably correctly, that outside holdings and petty trading make it useless. The counting method described in the allowance letter (i. e. ordering a roundup) is also not used. Winter counts on water, or range counts by Forest Officers, are the accepted method.

Salting . My general impression is that enforcing salting as one of the means of grazing control has not received much attention. The time may not be ripe for action.

All I know is that when the subject was broached, the Rangers were always in a defensive position and did not seem to have a clearly thought-out method, or even proposed method. Alienations, small permits, home-corral salting, etc., of course complicate the problem.

Allowance letter. All of the instructions in the letter of January 5, 1921, were checked over, and no failure or delay was found, for which apparently good reason was not advanced.

Game and Fish. I assisted Ranger Hendricks in reorganizing the Roswell Game Protective Association. These sportsmen can, I think, be made useful in refuges, law enforcement, fish stocking, etc.

Arthur suggests that posted Ranger Station pastures might be made legal refuges by some blanket action of the State Game Commission. This is a good idea and is recommended to be tried by this office.

I have written the American Game Protective Association about wild Ringneck stock for the Ward Ranch country and the Ruidoso.

I recommend to Grazing and the Lincoln the following special game stocking work: (1) Ringnecks (as above); (2) Blue Grouse for the Sacramento and White Mountain country; (3) European Brown Trout for the lower Ruidoso, Bonito, Sacramento, Chiquita and similar waters; (4) Native trout for the empty small waters along the crest of the Capitans; (5) Turkey for reintroduction in the Guadalupes and Gallinas.

I. LANDS.

Bureau of Crop Estimates. (Field Notes p. 50.) Reports are apparently being called for in too promiscuous a fashion. I suggest that L. see Dr. Hare at Las Cruces and try to arrive at an understanding.

Interior Boundary Signs. Both Hendricks and Messer say they need badly a tin poster for labelling interior private holdings. I believe such a sign would also be useful in the heavily alienated districts of the Sacramento. The following wordings are suggested as possibilities:

BOUNDARY OF PRIVATE LANDS

The Land Behind This Sign Is
NATIONAL FOREST.

(Badge)

BOUNDARY (Badge)

Private Land	National Forest
<----	---->

Erosion Control. Excellent opportunities to try out willows as a means of checking the gullying of canyon bottoms exist at Fairchild, Weed and Mesa stations. I explained the method to the men on the ground and suggest that costs be kept track of and reported.

Unless some method is found, many of the roads, houses, farm lands and some phone lines on bottom lands in the Sacramentos will eventually be destroyed through lateral gullies, if not by direct cutting of banks.

Pine Lodge Area. Excellent work has been done here. I suggest that the Association be warned about their scheme for installing a sewer system. I personally do not think it feasible, - in fact I would consider cesspools all over the area as dangerous, especially in the solid granite of the upper lots.

Pine Lodge Camp Ground was in bad shape. It is impossible for the Ranger to ride herd on it, as daily attention is the only solution. The solution is for the City of Roswell to pay part of the salary of some employee of the Association, who would patrol the camp ground daily.

Ruidoso Association. The promotion work done on this is highly creditable and promises to be successful. Before we agree to supervise or give the title of Ranger to the coöperative field officer, however, the private owners would have to abandon their camping charge. The "chores", such as wood hauling, sanitary service, winter caretaker, etc., would also have to be delegated to a lower-paid employee.

Sanitation on the Ruidoso. Most of the ranchers as well as cottagers get water direct from the creek. Regardless of how much precaution, this is unsafe, especially considering the irrigation ditches. A system of wells, plus the best possible precautions as to the creek itself, is, I think, the only safe solution and should be agreed upon as the ultimate objective with any Recreational Association that may be organized.

J. ORGANIZATION.

1. STAFF. I think it is agreed all around that two competent Deputies will be sufficient for the Lincoln. Arthur's plan for rounding out the experience of his staff men by deliberate changes in lines of work assigned is excellent and in accord with District policy.

2. RANGERS. The assistant assigned in the past to the Weed District is not justified. An assistant on the White Mt. district is needed, at least until an adjustment of the Ruidoso-White Mt. line. After that an assistant may not be needed on the White Mt., but will be advisable as a training and replacement proposition, to be assigned as the need justifies. Brubaker estimates that with the loss due to breaking in, the man-power actually delivered on his district has been about 1½.

3. WHITE MT.-RUIDOSO LINE. Ruidoso is too light and will become more so after the proper organization of the grazing permittees has been effected. The only practical adjustment of the line will be to go away up to the Carrizozo-Roswell highway, or possibly some range allotment line near Loma Grande.

Regardless of adjustment in lines, Ruidoso needs two quarters, one at the lower end (present station), and one at the upper end. A site with fine pasture exists on Cedar Creek, but possibly some site on the highway would be preferable. One or the other end should be the permanent station and the other simply a working center. The advantages for permanent station are about equally divided. (Field notes p. 55-a.)

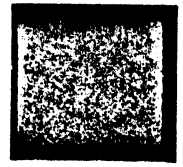
If the line is adjusted, the Mesa station will be on the extreme south end of the White Mt. District, and the question will arise as to whether quarters in or near Capitan would not be better. Arthur thinks not, - in fact he weighs heavily the "visiting time" handicap of town locations. I am not fully persuaded and advise caution in weighing this argument too heavily.

In any event the situation involves one or both of two present impossibilities: (1) A new station at Capitan; (2) A new station at the upper end of the Ruidoso. Moreover, the outcome of the Ruidoso Recreational Association is a factor which cannot be weighed as yet.

My advice is, and I think Arthur agrees, that the time is not ripe for a final decision. The Recreational Association should be pushed to an issue as rapidly as possible, the Capitan question studied, and the possibility of cabins and pastures for work centers studied, both for the north end of the White Mt. and the West end of the Ruidoso, especially the latter. Both Rangers now stop with permittees. It would be possible to put in a small cabin on the upper Ruidoso, so located and built that it could later be used for an office, should the permanent quarters later be moved.

4. DIARY ANALYSES & TRAVEL MA

Name	Period		Non-Field Time					
Date	From	To	Office	Mail	Hdq.	Hdq. Imps.	Forage	Meets
A. S. Wingo 8/20/21	7/1 20	6/30 21 (Alt. months)	76	12	32	26	10	
Geo. Messer	8/1 20	6/30 21 (Alt. months)	68	22	30	18	4	
B. H. Hendricks	10/1 20	8/31 21 (Alt Months)	82	24	12	0	6	
J. A. Brubaker	10/1 20	8/31 21 (Alt. months)	118	12	20	14	2	



Field Time					Time Off				Days	Transport						Remarks
Supv. Office	Total	Contrib. To Other Units	Ret. To Hdq.	Not Ret. To Hdq.	Total	Sundays and Holidays		Leave	Total	Acc. For	Auto	%	Horses	%	Pack	%	
10	168	8	98	60	166	26			26	360							
2	144		112	60	172	48	2		50	366							Seven visits to mill in six mos. with no logs to scale.
0	124		68	126	194	24	4	14	42	360							Twelve trips Hardcastle Mill, Six trips Walworth, 6 mos.
8	174		90	74	164	14	2	10	26	364	42		122		0		Six visits Hogland Mill, One visit Brown Mill.

Criticism of Diary Analysis.

WINGO. Too much time on telephone repairs. This will in time be corrected by rebuilding now under way. Non-field time pretty high, but this is offset by low time off, so that field time is O. K. Car only used on trips to Cloudcroft and to fires, which is proper. Forage time possibly a little high, also Headquarter Improvement. In general, diary shows hard work, early starts, and good judgment, and is well written. Travel map is O. K.

MESSER. Office and headquarter time, in fact total non-field time is creditably low, considering small size of district. The field time, and proportion of field time on pack trips, is gratifyingly high, considering size of district and absence of cabins, pastures and other facilities for staying out. This is in comparison with northern Arizona forests, and it should be remembered that field season is shorter there. Time off is higher than average, but O. K. and in part offset by long days put in while working. Diary well written. Travel map O. K. Diary shows need of better phone system, closer supervision of guards, which will become possible with better phone system, and cabin and pasture at far end of district, whichever end is later decided on for headquarter location. Diary shows lots of promotion work on getting range improvements.

HENDRICKS. Best record for field time so far discovered; also, together with Wilson of Apache, highest number of days not returned to headquarters. Thirty-six visits to two saw-mills per year, handling cut during same period of 93 MBM or 2.6 M per trip. 738 hours devoted to timber, of which 400 are estimated to have been devoted to these two saw-mills. Cost 4.2 hours per M, which with a 10-hour day means $1.78 per M bringing in $2.75 per M. Both the number of trips and cost of handling are too high and if possible should be reduced. (See Forest Management.) Diary well written. Travel map good considering topography. Many days long. Time off very low. Trips seem planned and no seasonal peak noticeable. Having his family at the station with practically no household chores probably is a factor in his heavy field time.

BRUBAKER. Office time 78 days at Mesa Ranger Station, 40 days at Capitan office, total 118 days. Field

days not returned to headquarters were 14 quartered at towns, 30 quartered in field, total 74. Attends to a good deal of freight and supply business at Capitan for Messer and Hendricks, and this increases his time there somewhat.

I got the impression from the diary, and Brubaker corroborates, that for the first six months White simply "went along". In other words, this tends to be just a training position rather than an assistant.

The diary is very fully written -- much more detailed than average. The travel map shows four large blanks, explanations of which appear on the map.

The office time is high, but conditions are somewhat like Clifton District on the Apache in that a great deal of interviewing of permittees is done in the office. This is probably a more economical arrangement than trying to do all this in the field. Auto time is high, but probably necessary under the circumstances.

5. WORK PLANS. (Field Notes p. 59.) The excellent progress made to date is highly creditable. The Forest objectives are the best so far submitted. The Ranger plans average very good, but the following questions are raised: (a) Don't let the B. list get so heavy as to be impossible as a program actually to be accomplished, (if necessary use the method of designating the B. projects actually to be performed); (b) Avoid so far as possible the cost activity label for designating jobs listed in the plan; (c) Consider the possible abolishment of the requirement for submitting the checked monthly schedule to the office. It was the District Forester's idea that jobs done should be checked over by the Supervisor in the field, rather than in the office.

6. PROMISE CARD SYSTEM. Arthur has a highly developed promise card system for follow-up of field men. When he sends a letter calling for a job, a date is set, a card set up for such date, and a carbon copy of the card goes with the letter for the Ranger's use. Separate colors of cards are used for lands, sales, grazing, etc.

The system is excellent. If itis open to any criticism at all, it is that the application of it to new and old men is too uniform. There is a possible objection to setting too many fixed dates on an old hand who is planning his work

and working hard. Theoretically he should set his own dates, after arranging his jobs for progressive riding of his district. Of course there will always be some dates which must be set by the Supervisor, such as reports due at a certain time in the District Office, or needed at a certain time for compilation.

Messer suggests that Supervisor's promise cards for Ranger reports be made to fit the almost universal practice of Ranger's being in office for a day or two at the end of each month. Then the card would be made for about the 5th, leaving time enough for mailing.

7. TIME ECONOMIES. The following tentative list of points for increasing effectiveness of Ranger work was drawn by Smith and myself and subsequently discussed with others. I am certain that some of the points apply to the Lincoln. For instance, even good men like Messer and Hendricks did not have their pack outfits so organized as to be able to make better than a nine o'clock getaway.

This list is a rough attempt, and criticism and additional material would be welcomed, especially from the Rangers themselves. Of course it is highly condensed and needs verbal explanation.

1. Self-Analysis by means of:
   - (a) Diary Analysis.
   - (b) Special time tallies.
   - (c) Comparison with other officers.
   - (d) Distribution of time by cost keeping activities.

2. Mechanical Aids to reduce labor, save time, conserve information, systematize travel:
   - (a) Regional classification of jobs to assemble pending work in each locality, so that complete inventory of work is available before starting on a trip. Usually known as "progressive riding".
   - (b) Perfecting Outfit and Equipment.

Mount	Camp Bed	Instruments
Pack Outfit	Shelter	Motors
Chuck	Clothing	Saddle Tools
Mess Kit	Hobbles, Bells, etc.	

(c) Check lists of equipment to avoid forgetting necessary articles.

(d) Note-book system. Must be easy to use, cumulative, classified and prepared in advance.

Tabs.
Tabulations.
Summaries of instructions.
Analyses of problems.
Statistics.
Rough notes.
Field maps.

3. Reducing Time Wastes.

(a) Reducing job to job time by:
More pack trips.
Better outfit (See 2b).
Planning trips (See 2a).

(b) Reducing office visiting by permittees by:
Office days.

(c) Pasture methods to cut wrangling time.
Night lots.
Belling.
Division of pastures.
Cutting off water except in corral.
Eliminating broncs.

4. Delegating Work to Others.

(a) Permittees.
(b) Permittee Associations.
(c) Guard labor.
(d) Planning time of assistants.

5. Work Plans. Embodying any of the foregoing in the actual planning of jobs. Also consider:

(a) Economies through finishing jobs, cutting off indefinite continuance of liabilities on time.

(b) Flattening out Peak loads, especially in fire season.

O

Finance-Lincoln
Travel Allotments.

Alamogordo, N. M.
August 16, 1921.

Memorandum for Mr. Leopold:

The following will give the status of the travel allotments and expenditures during the Fiscal Year 1921 by members of the Lincoln National Forest.:

	Allotment	Expenditures.
White	99.95	106.47
Messer	100.00	99.42
Brubaker	240.00	322.91
F. Felts	110.00	10.05
Hendricks	100.00	182.65
Hussey	92.25	148.03
Addison	50.50	47.50
Lee Beall	44.05	178.36
Strickland	405.00	454.69
Reserve *	105.00	105.00
Arthur	450.00	519.75
Kartchner **	212.08	212.08
	80.07	64.44
Kellogg	54.98	29.98
Robert Bell	125.00	80.95
McClure	75.00	24.50
Wingo	80.00	102.27
Woods	160.00	250.04
Dan Felts	40.00	23.70
Walls	17.67	17.67
Anderson	220.00	207.91

* Used to make up deficits in allotments of members.
** $212.08 was Improvement money left here by Mr. Anderson.

N. D. M.

Chief Clerk.

	Non Field									Field			Time Off				
	Meals	Office	Mail	Hdq	Hdq Imp.	Forage	Trans Contrib ~~meets~~	Sup O	Total	Ret Hdq	Not Ret	Total	Sundays	Holidays	Leave	Total	Mill trips no scaling
Wings	1 2	38 76	6 12	16 32	13 26	5 10	4 8	5 10	176	49 98	30 60	158	13 26			26	360
Messer		34 68	11 22	15 30	9 18	2 4		1 2	56 144	112	30 60	172	24 48	1 2		50	Mill trips 6 mos
Hendricks alt. mos Oct 1920 Aug 1921		41 82	12 24	6 12		3 6			124	34 68	63 126	194	12 24	2 4	7 14	42	H: Mill trips W:
Brubaker		A 39 78 C 30 40	6 12	10 20	7 14	1 2		4 8	174	45 90	Town other 7 14 30 60	164	7 14	1 2	5 10	26	364

Hoagland Mill
Brown Mill
Auto days field: 42

164
42

0

Special-Lincoln
Ranger District Study.

Factors	Gallinas	White Mtn.	Capitan	Ruidoso	Cloud C.	Mayhill	Weed	Guadalupe
Area in M. Acres	174	220	128	100	200	150	200	300
Per cent Alienated	5%	9%	13%	.14%	71%	29%	44%	1.59%
Character Alienations	H.E's.	H.E.'s.	H.E.'s	H.E.'s	State, P.&HE	H.E's.	State, P.&HE	H.E's
Population Inside For.	200	600	300	450	1000	1000	700	86
Character Settlement	Amer.& Sp.Amer.	Amer. & Sp.Amer.	Amer.& Sp.Amer	Amer.& Sp.Amer	Amer.& Sp.Amer	Amer.& Sp.Amer	Amer & Sp.Amer	Amer & Sp.Amer
Fire Hazard	Small	Medium	Medium	Medium	Large	Medium	Large	Medium
Guards employed	1	2	1	1	4	2	4	1
No.S-22 Sales, An.	55	98	35	24	10	5	5	16
No.Com'l. Sales, An.	5	57	30	11	33	1	6	25
M.Ft.B.M. Cut an.	190	545	261	206	625	17	54	90
No. C&H Permits	26	98	38	52	46	68	37	39
No. C&H Permitted	2857	5166	2545	2606	2407	5088	3093	10692
No. S&G Permits	13	0	7	0	0	4	7	5
No. S&G Permitted	7738	0	3799	0	0	1602	2197	5014
No.Special Uses	68	135	92	77	57	104	103	135
Recreational Use	Light	Light	Medium	Heavy	Heavy	Light	Light	Light
No.Claims Cases	12	28	9	15	5	9	11	9
Mi.F.S. Tel.Line	0	24	10	2¼	24½	10	51	15
Imp.Allot. F.Y.1920	70.00	371.88	230.00	377.19	250.00	200.00	318.00	56.00
Days in Field	121	155	157	151	190	Unknown	157	120
Days on Outside Wk.	38	50	41	29	45	do	86	15
Days in Office	95	122	98	70	90	do	65	48
No.Sundays Worked	26	30	10	7	25	do	34	18
No.Holidays Worked	1	4	0	5	2	do	5	1
Annual Leave Taken	0	15	15	15	15	do	15	0
Period Covered by Above	2/1/20-10/31/20	11/1/19-10/31/20	12/1/19-11/30/20	11/1/19-10/31/20	11/1/19-10/31/20	do	1/1/19-10/31/20	4/25/20-10/31/20

over

°° Covers time of Assistant on White Mountain District.

Gallinas District, entire yearlong figures not available, figures shown in red, circled, represent estimate for yearlong based on nine month's period known and indicated.

Ruidoso District, period from 11/30 to 2/1 not covered by regular figures, data not available for this period, figures shown in red, circled, represent estimate for yearlong based on 10 month's period known.

Guadalupe District: Entire yearlong figures not available, figures shown in red, circuled, represent estimate for yearlong based on six months period known and indicated.

O

October 8, 1921.

Personnel
Arthur, O. Fred

Memorandum for Mr. Pooler:

As to Arthur's accomplishment and prospects in handling the Lincoln, special comment in this report would be superfluous. Both his record and his future plans speak for themselves. The following points, however, may be of use to him in guiding his own future development. They have already been discussed with him.

Arthur's strong points are the force, personality and enthusiasm which give him special aptitude in handling men, and a faculty of absorbing and teaching new ideas.

His weak point is a limited ability for analytical thinking. This does not appreciably affect his success as a Supervisor, but would become a possibly decisive factor, should the time come for him to be considered for a higher position demanding the ability to originate and apply broader policies on a larger scale.

His open mindedness and discrimination in absorbing the analytical thinking of others, and his ability to put ideas across, are of course a powerful offset to this weak point, but I believe him quite capable of cultivating and strengthening the point mentioned, if you agree with me that it exists.

Reading and arguing policies with men like Shepard, Headley and Marsh, with whom analytical thinking is a pronounced attribute, are about as close as I could come to practical suggestions.

Arthur's success in remaking the domestic economy of Ranger Wingo, by a single suggestion that he provide his family with recreation, is about as striking an example of success in handling personnel as I have seen for some time, and deserves special mention in this report. Reviving or stimulating the capacity to grow in older men like Brubaker, Smith, Messer and Wingo, and the general high tone of the Lincoln personnel, are also accomplishments deserving specific mention.

AL

pub Nov 1925
BTC
copied

For Outdoor Life

A PLEA FOR WILDERNESS HUNTING GROUNDS

By
Aldo Leopold

This article is a plea for establishing in each of the Rocky Mountain states at least one area in which there shall be a permanent closed season on roads.

It would, of course, be an absurdity to ask whether we need more and better roads in any state. Obviously we do. But where we need them is another question. We need them almost but not quite everywhere. I believe that every state needs at least one roadless hunting ground, just as every city needs a factoryless park, every community a clubless fishing water, and every summer playground a cottageless camping ground. Factories, fishing clubs, and summer cottages are good things - to those that profit by ~~or enjoy~~ them- but that is no reason why they should be allowed to exclude other good things incompatible with them.

The practical point is that good roads are being pushed into the western mountains so rapidly that in some states at least there will soon be no place left for the wilderness hunter whose recreation comes from getting out into a wild roadless area. It seems to me just as important, (and infinitely less expensive), to provide the wilderness hunter with his roadless playground, as it is to provide

the motor tourist with his surfaced highways and free public camps.

As long as there remained a roadless frontier, the wilderness hunter was of course "well heeled." But the roadless frontier is just about gone. The well-to-do sportsman is already going to British Columbia, Alaska, Africa, and Siberia instead of to the Mogollons or Jackson's Hole. But the expense of such trips puts them out of the question for the citizen of moderate means, and he is the man I am talking about. I am trying to make it clear that a wilderness hunting trip is by way of becoming a rich man's privilege, whereas it has always been a poor man's right. Are we prepared to accept the consequences of the change? Do we really realize its possible effect on the nation's character and happiness?

Now if our remaining frontier consisted of $200 corn land there would not be much except theory to argue about. The point is that it consists mostly of the National Forests - rough mountain lands embracing here and there particular areas of such crumpled topography and high altitude as to make the customary development of roads, Fords, and summer boarders of very questionable practicability. One would think that the ordinary laws of economics would automatically tend to exclude roads from such areas. But mark this well:- the laws of economics are the last thing

the roads booster is thinking about. Roads are going to continue to be built into such areas, unless the public at large thinks it is best not to, and unless the public says what it thinks.

To illustrate: ten years ago there were six big areas of exclusively "pack" country in the two states of Arizona and New Mexico. Let us see what has happened.

First, there was the White Mountain and Blue Range Country of Arizona, - the cream of the Southwest. The Forest Service, in cooperation with the local counties, is about to complete the Clifton-Springerville road right through the heart of this magnificent region. Stub roads to develop the various recreational facilities will undoubtedly follow. There is a good deal of logic in "sacrificing" this area, since the big copper-mining centers in the hot valleys to the southward need the timber and the opportunity to escape from the summer heat for week-ends in the cool mountains.

Second, there was the Jemez division of the Santa Fe National Forest of northern New Mexico, - a splendid wilderness, but with too much valuable timber and range and of too smooth topography to justify exclusion of roads. A railroad is now tapping the timber, and the Forest Service - wisely I think - is building the trans-Jemez road which will open it to motor recreationists.

Third, there was the Pecos division of the same National Forest. Its foothills contain many Spanish-American

villages which make very intensive use of the higher mountains for grazing. It would have been impracticable to avoid the road which the Forest Service has recently built up the Pecos River. Moreover, the surrounding cities needed summer home facilities on the Pecos, and the only way to provide them was to build a road up the Pecos River.

Fourth, there was the Tonto Basin of Arizona, famous in cowboy song and story. Into the crumpled hills of the Tonto are set many little green valleys, which filled up with settlers away back in covered-wagon days. Obviously these existing settlements could not be kept locked up by lack of roads, which the several counties and the Forest Service are trying to build as rapidly and as well as the crumpled hills will let them.

Fifth, there was - and is - the Kaibab. Obviously the Kaibab contains two predominant values, the scenery of the north rim of the Grand Canyon and the Kaibab Deer Herd. It so happens that both need at least a limited amount of roads. In the case of the scenic values of the Canyon, the reason is plain. In the case of the deer herd, the reason is this: the Kaibab is a country of limited water-holes. Apparently it will require somewhere around 2000 hunters each year to utilize the natural increase of the deer (would this were true elsewhere!) To camp 2000 hunters on a couple of dozen water-holes would entirely destroy the recreational value of the hunting. These hunters will have to camp dry; dry camps are practicable on such a scale only with motors; and motor camps mean at least some

roads. Hence the Kaibab is not adapted by nature to be a roadless hunting ground.

Sixth, there was - and is - the head of the Gila, in the Gila National Forest. The Creator must have foreseen the present plight of the wilderness hunter, for in this precious remnant of the old frontier he piled up the hills "high, wide, and handsome". At every point where roads might enter is set a rugged mountain. Wherever a foaming trout-stream has cut its way through the mountain wall a jagged box canyon says "They shall not pass". Agricultural valleys are few, and these the merest shoe-strings, from which prescient floods have torn out the little fields as if to say "This is the last stand - these hills are meant to play, not to live in". There are three or four frontier cow-ranches tucked away in the Gila hills - but somehow they decorate the wilderness, rather than detract from it. The dedication of the Gila headwaters as a wilderness hunting ground need in no wise interfere with the continuance of their grazing privileges.

To sum up: Our six big wilderness areas of a decade ago have been, for good and sufficient reasons, reduced to one. Are those reasons good and sufficient to "develop" that one also? I say no reason is good enough to justify opening up the Gila. I say that to open up the Gila wilderness is not development, but blindness. The very fact that it is

the last wilderness is in itself proof that its highest use is to remain so.

What I am trying to make clear is that if in a city we had six vacant lots available to the youngsters of a certain neighborhood for playing ball, it might be "development" to build houses on the first, and the second, and the third, and the fourth, and even the fifth, but when we build houses on the last one, we forget what houses are for. The sixth house would not be development at all, but rather it would be mere short-sighted stupidity. "Development" is like Shakespeare's virtue, "which grown into a pleurisy, dies of its own too-much".

In objection to the dedication of the Gila as a permanent wilderness hunting ground, it has been truly said that a part of area which would be "locked up" bears valuable stands of timber. I admit that this is true. Likewise might our sixth lot be a corner lot, and hence very valuable for a grocery store or a filling station. I still insist it is the last lot for a needed playground, and this being the case, I am not interested in grocery stores or filling stations, of which we have a fair to middling supply elsewhere.

It has been likewise objected that to keep roads out of the Gila would cripple the fire control system. The Gila fire fighting organization was put to a pretty severe test in the big fires of 1922, and the result would seem to indicate

that the present system of Forest Service trails, telephone-lines, and lookout towers will handle the fire situation, even in a bad year. In fact to build roads into this kind of country might introduce quite as much new fire risk as they would help combat.

Now the question is this: Why should not the Gila area, and other similar areas, if possible one in each western state, be declared permanently roadless, and dedicated to that particular form of public recreation beloved by the wilderness hunter? The necessary authority would seem to already exist, the Forest Service already having discretionary power to determine what constitutes the highest use of each resource in the National Forest, and if any area has its highest use in wilderness hunting, the Service should dedicate it to that purpose, just as it dedicates particular areas for millsites, summer-home sites, and public camping grounds. It certainly would require no additional appropriations, the wilderness is the one thing on earth which was furnished us complete and perfect. The one thing required is a sufficient expression of public sentiment to assure the Forest Service that the thinking citizens of the country would back up such a policy when subjected to the acid test. The acid test would surely come, even on an area of as low economic value as the Gila. Some day somebody will promote a railroad into the Gila timber, and the tangible benefits of exploiting it will have to be weighed

against the intangible benefits of keeping it. For unnumbered centuries of human history the wilderness has given way. The priority of industry has become dogma. Are we as yet sufficiently enlightened to realize that we must now challenge that dogma, or do without our wilderness? Do we realize that industry, which has been our good servant, might make a poor master? Let no man expect that one lone government Bureau is able - even though it be willing - to thrash out this question alone.

It so happens that an agency suitable for expressing public opinion on such questions has now been established, namely the President's Commission on Outdoor Recreation. If the public wants wilderness areas established in the rougher, less valuable parts of the National Forests, the Commission is the agency through which to express the want.

It should require no explanation that this proposal of wilderness areas is not, primarily, a game conservation measure. Certainly ninety-nine per cent, figuratively speaking, of our country should and must have roads. We must learn to raise game and build roads on the same ground, or go gameless. It so happens, however, that the establishment of wilderness areas would provide an opportunity to produce and hunt certain kinds of game, such as elk, sheep, and bear, which do not always "mix well" with settlement, but the majority of game species can and must be produced on all the grounds suitable for them.

Wilderness areas are primarily a proposal to conserve at least a sample of a certain kind of recreational environment, of which, game and hunting is an essential part, but nevertheless only a part. Who shall say that the diamond hitch and the tumpline are not as much worth conserving as the blacktail buck or the moose? Who shall say that the opportunity to disappear into the trackless wild is not as valuable as the opportunity to hang up a trophy? Who shall say that we have not room enough in this huge country to earn a living without destroying the opportunity to enjoy it after it is earned, each after his own taste?

Some centuries ago that conqueror of the wilderness, Sir Humphrey Gilbert, naively remarked: "The countries lying north of Florida God hath reserved to be reduced into Christian civility by the English Nation". But even old Sir Humphrey might turn uneasily in his grave if he could know at what rate they have been "reduced", and with what profligate waste of their beauty and their resources. The question now is not whether they will be "reduced", but what constitutes that 'Christian Civility' for which 'God hath reserved' them. There are some of us who challenge the prevalent assumption that Christian civility is to be measured wholly by the roar of industry, and the assumption that the destruction of the wild places is the objective of civilization, rather than merely a means providing it with a livelihood. Our remnants of wilderness

will yield bigger values to the nation's character and health than they will to its pocketbook, and to destroy them will be to admit that the latter are the only values that interest us.

Fig. 1.

Every state needs at least one roadless Hunting Ground.

Fig. 2.

Roads are being pushed into the western mountains so rapidly that in some States at least there will soon be no place left for the wilderness hunter.

Fig. 3.

At every point where roads might
enter is set a rugged mountain.

Fig. 4.

Wherever a foaming trout stream has cut its way through the mountain wall, a jagged box canyon says, "They shall not pass."

Fig. 5.

Who shall say that the diamond hitch and the tumpline are not worth conserving?

O
Improvement,
Comprehensive Road
& Trail Plan.

L
Recreation. V

September 21, 1922.

Memorandum for the District Forester:

The purpose of this memorandum is to record the informal endorsement of the Wilderness Area idea on the head waters of the Gila by the Executive Committee of the Silver City Game Protective Association.

The proposal was also formally and unanimously endorsed by the New Mexico Game Protective Association convention at Albuquerque, September 16.

AL

Copy sent Gila and Datil

L
Recreation-Gila,
(Wilderness Area)

October 2, 1922.

Report on Proposed Wilderness Area

Name. Gila Wilderness Area or Gila National Hunting Ground.

Object. To preserve at least one place in the Southwest where pack trips shall be the "dominant play". See article attached: "The Wilderness and Its Place in Forest Recreational Policy".

Need. During the past five years the following areas which might have been suitable for the same purpose have been opened to auto travel and are no longer available: (1) Blue Range and South slope of White Mts., Apache, (2) Interior of Jemez Division, Santa Fe, (3) Breaks of the Tonto Basin.

Only two other areas remain in the Southwest that might be used, but neither is as attractive as the Gila: (1) Kaibab Plateau, (2) Breaks of the Verde from New River Mts. to Matazals.

Function. A "National Hunting Ground" is the one form of recreation which has not been provided for or recognized by the federal government. National Parks supply the same need for those who wish only a wilderness trip, without the hunting. Our own summer colonies, camp grounds, etc., and the "National Game Refuge-Shooting Ground Bill" recognize several additional forms. But there is no provision for pack-trip hunters. Unless provision is made, there may arise a demand for hunting in the Parks. This would bring a disastrous confusion in public land policy.

Suitability of the Gila Area. The area is non-mineral, non-agricultural, and I know of no power possibilities of any consequence. The surrounding areas amply provide for summer homes and the usual forms of recreation. The area has, in my opinion, been cut down to allow for all necessary through routes of travel. After a personal examination of the fire situation, I believe that more roads would add as much or more fire risk than they would help combat. The only question is the timber. It can not come out without very expensive investments. Some timber will probably have to be sacrificed wherever this policy is carried out. Is it not possible that an untouched reserve of stumpage for a possible National emergency might be a good thing?

Public Opinion. Hodge is entirely favorable. I did not

see Culberson but believe he will be. Perrine is for it if recognized in the grazing appraisal. This would automatically be done. No citizen to whom the matter has been broached has failed to approve it. I expect some opposition, however.

Policy for Administration. (Gila Report, p. 12).

1. Roads: Road & Trail Plan to omit any further extensions of the existing road system.

2. Trails & Phones: Continue development same as on any other area. Necessary for fire protection.

3. Uses: No additional permits for any but grazing uses to be given. This excludes permanent improvements like summer homes, hunting lodges, hotels, etc. Existing permits within the area not to be renewed if relinquished.

4. Grazing: Close to Class A applicants. Take in slack or reduce to a very conservative stocking. Make special effort to avoid further erosion of watercourses by

   (a) Free Pastures on bottoms not needed for water gaps or travel, conditional on very light use and construction of control works.
   (b) Water Developments for better distribution.
   (c) Ridge Salting.
   (d) Grazing appraisal: give full allowance for costs of operation due to inaccessibility.

5. Lands: Acquisition by exchange of East Fork and all other patented lands.

6. Game & Fish: (In active cooperation with State Game Department and Biological Survey).

   (a) Fish: stock East Fork with brown trout, State to establish a small local hatchery.
   (b) Resident Yeadong Deputy Game Warden to be stationed somewhere near forks of Gila.

   (c) Predatory Animals to be given special attention by Biological Survey, with help of Deputy Warden.

(d) Beaver to be kept cleaned out below West Fork Falls and Montoya place, as erosion control measure.

(e) Big Game to be possibly put under regulated kill.

(f) Game Refuges - already established.

Boundaries. See attached map.

Aldo Leopold

Assistant District Forester.

L
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(Wilderness Area)

October 2, 1922.

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THIS A CHANGE. WHY?

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DOVETAILING OF EROSION/WILDERNESS

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Boundaries. See attached map.

Aldo Leopold

Assistant District Forester.

OF
F

GENERAL INSPECTION REPORT

of the

GILA NATIONAL FOREST

May 21 - June 27, 1922.

Aldo Leopold, Assistant District Forester

Approved: Aug 3 1922

Frank C. Pooler

District Forester.

July 31, 1922.

D
Supervision,
Inspection.

Forest Supervisor,

Magdalena, New Mexico.

Dear Mr. Douglas:

Enclosed is a copy of a section of Mr. Leopold's general inspection report for the Gila relating to the tentative proposal for the recognition of an area into which no additional road projects will be projected.

Attached is a map showing roughly the present limits of automobile travel - the red line simply indicates the existing limits. It is possible that the area overlaps somewhat on to the Datil. In order to complete my information in considering the tentative proposal as to this area, would you kindly at your convenience piece out the line for the Datil and be prepared to discuss the proposition, probably at next winter's meetings?

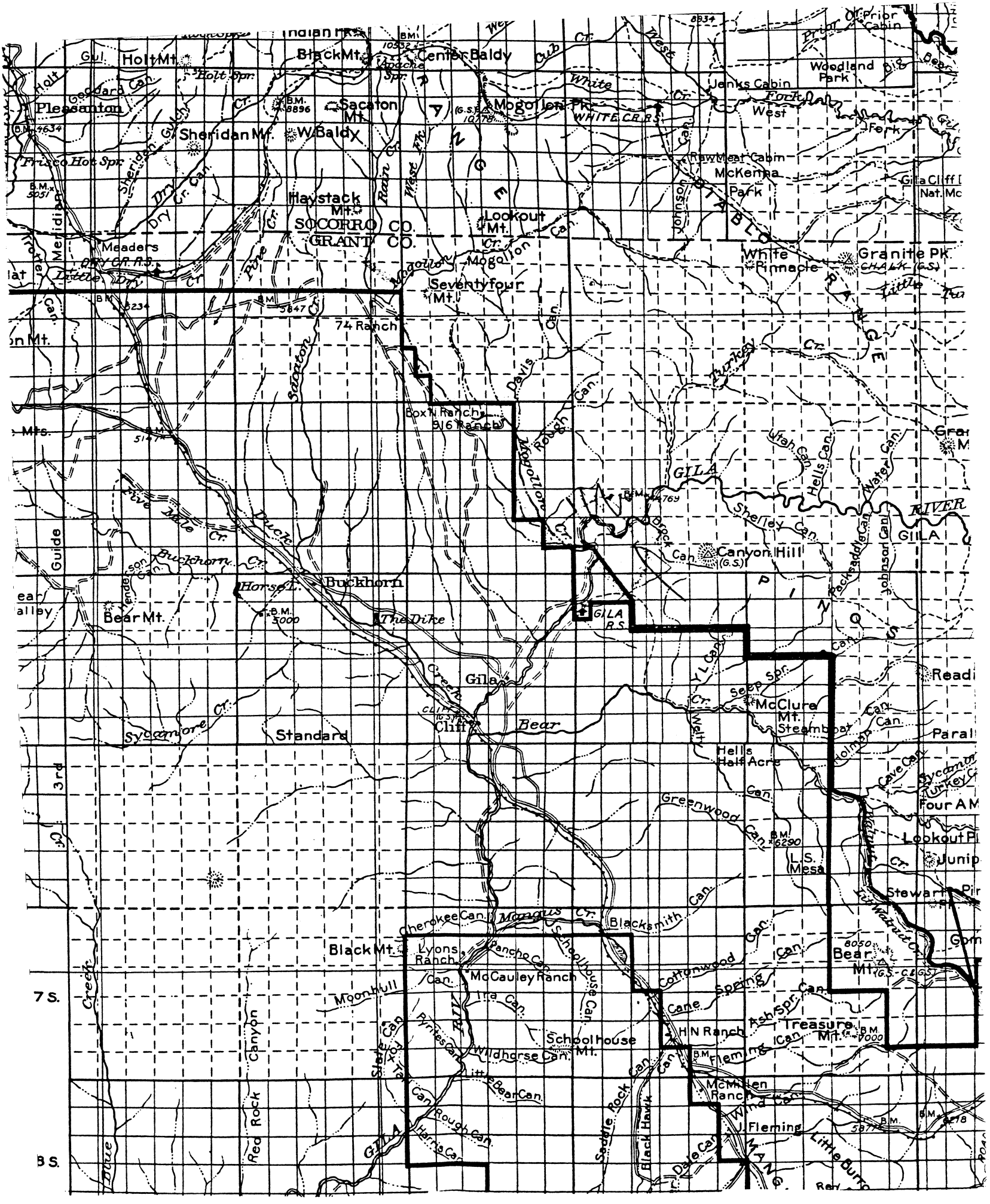
Very sincerely yours,

Frank C. W. Pooler.

District Forester.

Enclosures-

Copy sent Gila


Indian Mts.
Holt Mt.
Black Mt.
Center Baldy
Apache Spr.
Holt Spr.
Geddara Can.
Pleasanton
Sacaton Mt.
Sheridan Mt.
W. Baldy
Frisco Hot Spr.
Sheridan Gulch
Dry Cr. Can.
Haystack Mt.
Rain Cr.
West Mt.
Lookout Mt.
Cr.
SOCORRO CO.
GRANT CO.
Meaders
Dry Cr. R.S.
Little Dry Cr.
Pine Cr.
Seventy four Mt.
74 Ranch
Saloton Cr.
Box N Ranch
916 Ranch
Davis Can.
Rocky Can.
Mogollon Cr.
Mogollon
Buckhorn Cr.
Buckhorn
Horse L.
Bear Mt.
The Dike
Guide
Yenden Spr.
Sycamore Cr.
Standard
Gila
Cliff
Bear
Creek
Cherokee Can.
Mangus Cr.
Blacksmith Can.
Black Mt.
Lyons Ranch
McCauley Ranch
Ranch Can.
Schoolhouse Can.
Moonhull Can.
Ira Can.
Pinnacle Can.
Wildhorse Can.
Schoolhouse Mt.
Box Tank Can.
Little Bear Can.
Rough Can.
Canyon
Red Rock
Blue
Creek
Saddle Rock Can.
Black Hawk
Dale Can.
Wind Can.
McMillen Ranch
J. Fleming
Fleming Can.
H N Ranch
Ash Spr. Can.
Treasure Mt.
Cottonwood Spring Can.
Cane Can.
Bear Mt.
Walnut Can.
Stewart Mt.
L.S. Mesa
Greenwood Can.
Hells Half Acre
McClure Mt.
Steamboat Can.
Seep Spr.
Welty Cr.
Holman Can.
Cave Can.
Sycamore Can.
Turkey Can.
Four A M
Lookout Pt.
Junip
Gom
Read
Paral
Canyon Hill
Shelley Can.
Utah Can.
Hells Can.
Water Can.
Johnson Can.
Packsaddle Can.
Brock Can.
GILA RIVER
GILA PINOS
GILA R.S.
Prior Cr.
Prior Cabin
Woodland Park
Jenks Cabin
West Fork
White Cr.
Mogollon Pk.
WHITE CR. R.S.
Raw Meat Cabin
McKenna Park
Johnson Cr.
Gila Cliff D.
Nat. Mc
White Pinnacle
Granite Pk.
CHALK (G.S.)
Little Turkey Cr.
Mogollon Cr.
Seventy four Mt.
Davis Can.
Rocky Can.
Turkey Cr.
Utah Can.
Hells Can.
Water Can.
Shelley Can.
Brock Can.
Canyon Hill
Packsaddle Can.
Johnson Can.
GILA RIVER
GILA PINOS
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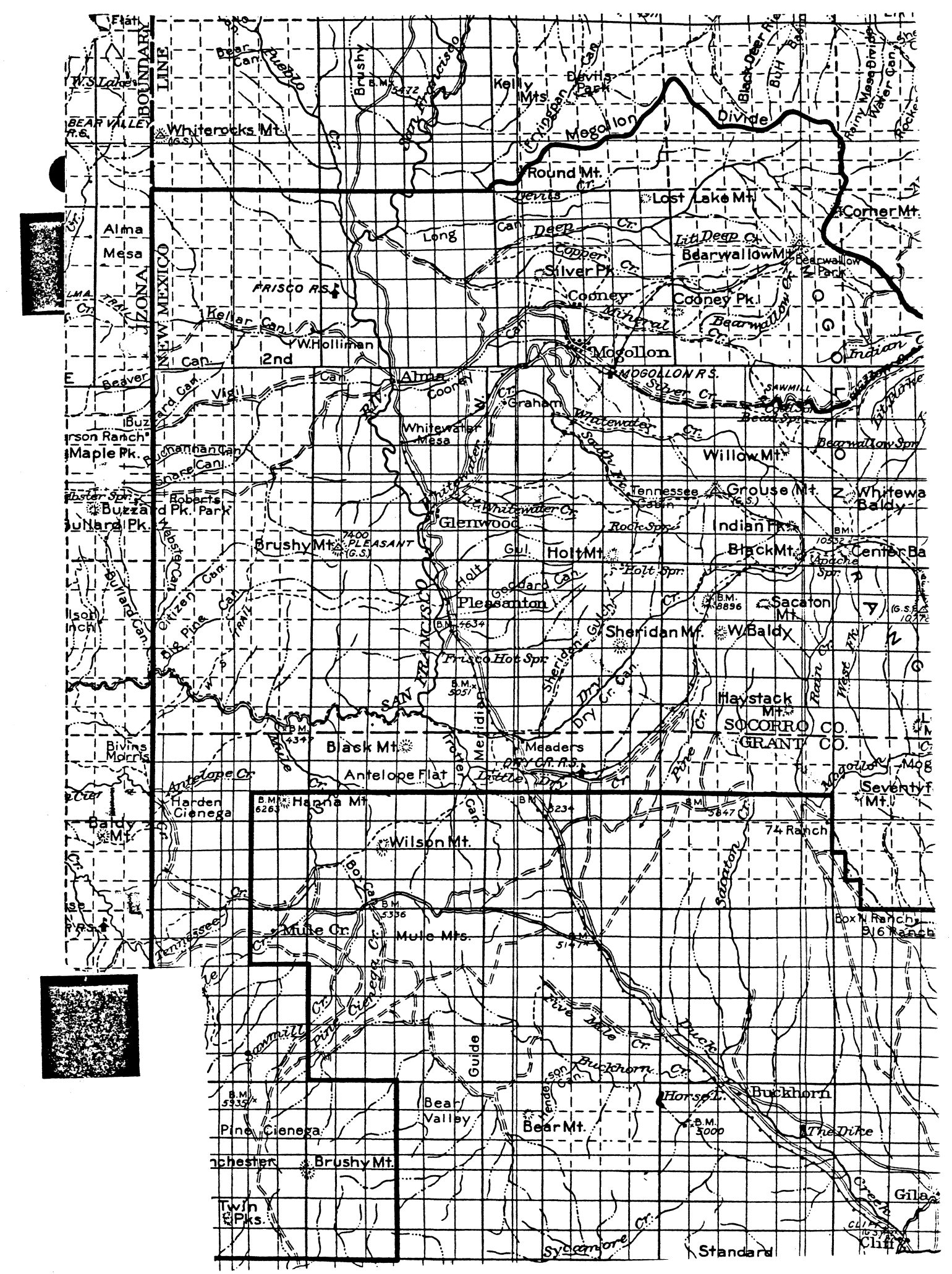
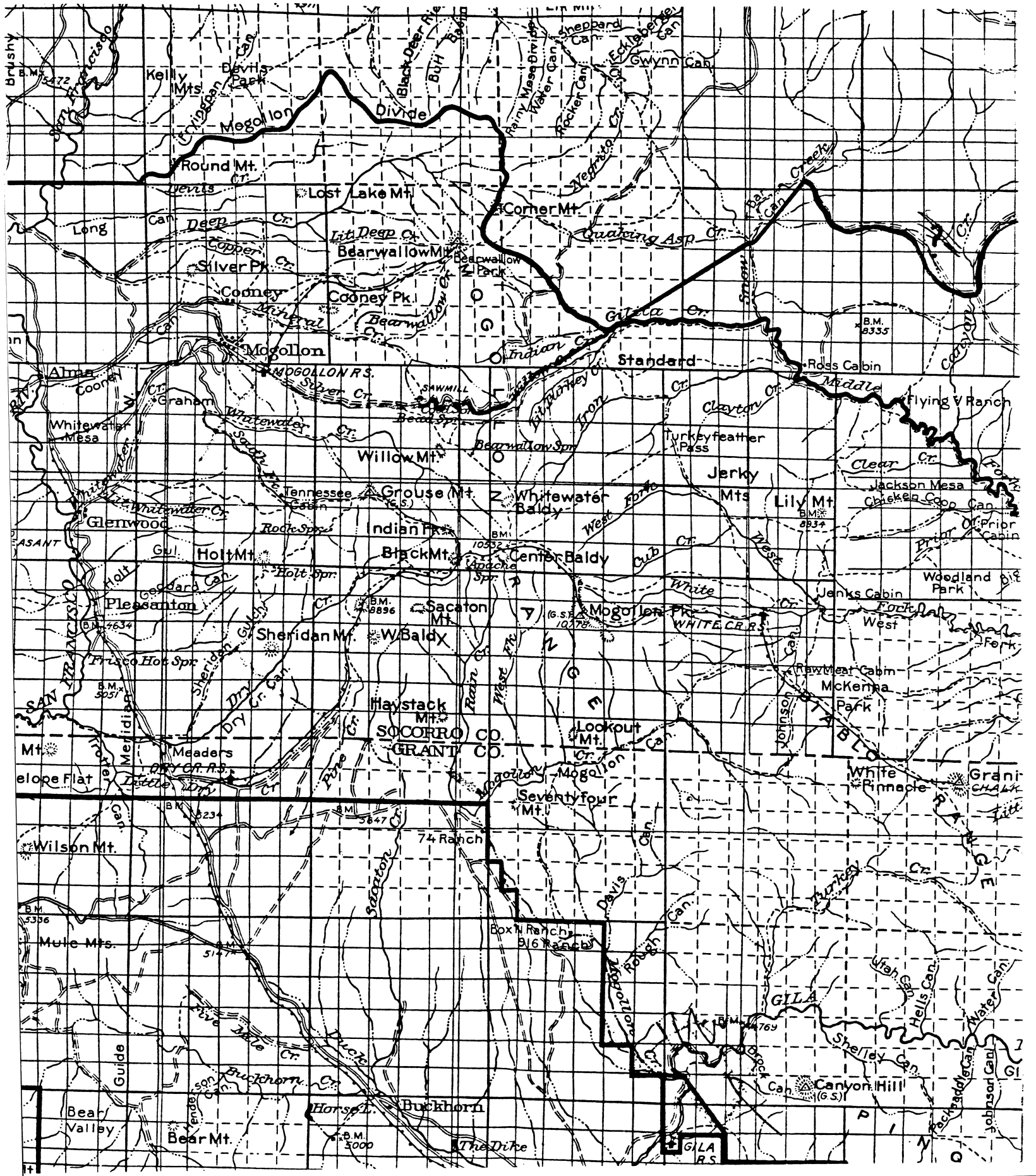
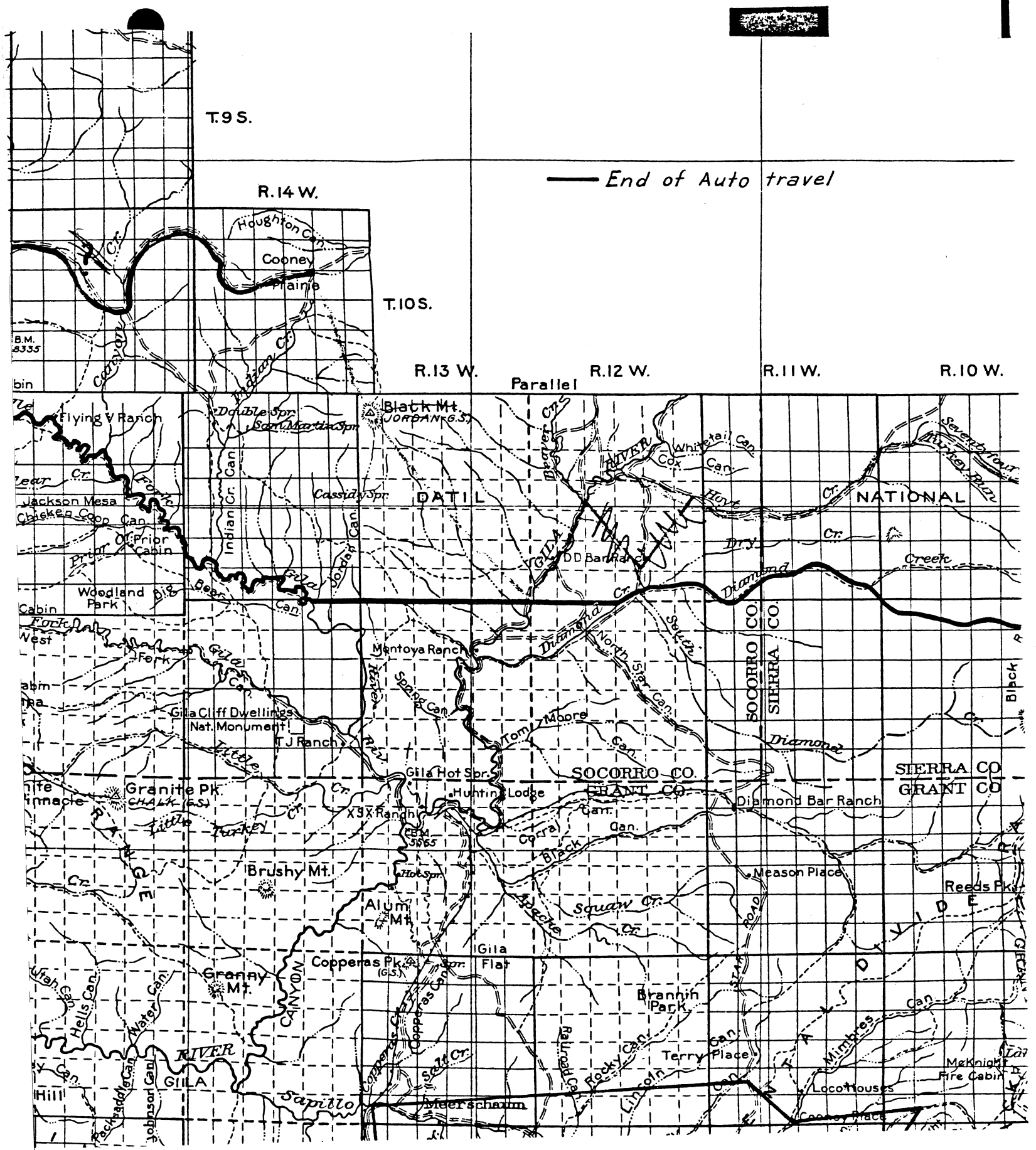
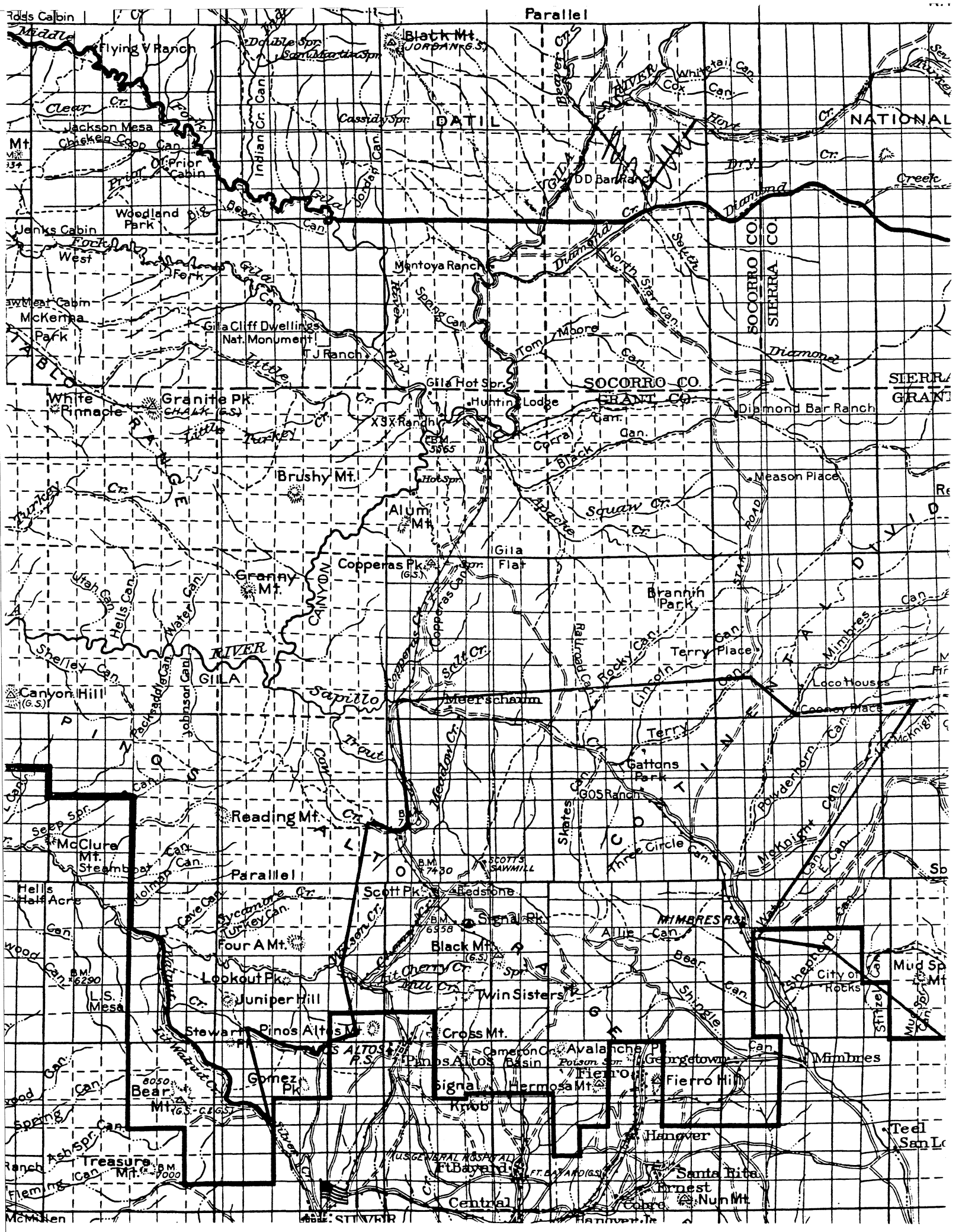
Sycamore Can.
Turkey Can.
Four A M
Lookout Pt.
Junip
Stewart Mt.
Walnut Can.
Bear Mt.
Cottonwood Spring Can.
Cane Can.
Ash Spr. Can.
Treasure Mt.
H N Ranch
Fleming Can.
McMillen Ranch
Wind Can.
J. Fleming
Dale Can.
Little Burro
Saddle Rock Can.
Black Hawk
Schoolhouse Mt.
Wildhorse Can.
Little Bear Can.
Rough Can.
Box Tank Can.
Pinnacle Can.
Ira Can.
Moonhull Can.
Schoolhouse Can.
Ranch Can.
McCauley Ranch
Lyons Ranch
Cherokee Can.
Mangus Cr.
Blacksmith Can.
Black Mt.
Creek
Canyon
Red Rock
Blue
Sycamore Cr.
Standard
Gila
Cliff
Bear
Creek
Buckhorn Cr.
Buckhorn
Horse L.
Bear Mt.
The Dike
Guide
Yenden Spr.
Pine Cr.
Dry Cr. R.S.
Little Dry Cr.
Meaders
Pleasanton
Holt Mt.
Holt Spr.
Geddara Can.
Sheridan Gulch
Dry Cr. Can.
Frisco Hot Spr.
Haystack Mt.
Rain Cr.
West Mt.
Lookout Mt.
Cr.
SOCORRO CO.
GRANT CO.
Sacaton Mt.
Sheridan Mt.
W. Baldy
Mogollon Pk.
WHITE CR. R.S.
Raw Meat Cabin
McKenna Park
Johnson Cr.
Gila Cliff D.
Nat. Mc
White Pinnacle
Granite Pk.
CHALK (G.S.)
Little Turkey Cr.
Mogollon Cr.
Seventy four Mt.
74 Ranch
Saloton Cr.
Box N Ranch
916 Ranch
Davis Can.
Rocky Can.
Turkey Cr.
Utah Can.
Hells Can.
Water Can.
Shelley Can.
Brock Can.
Canyon Hill
Packsaddle Can.
Johnson


Flat
W.S. Lakes
BEAR VALLEY R.S.
BOUNDARY LINE
Whitetocks Mt. (G.S.)
Bear Can.
Pueblo
Brushy
B.M. 5472
San Francisco
Kelly Mts
Devils Park
Chiquito Can.
Black Deer Creek
Bush Basin
Rainy Mesa Divide
Water Can.
Rocke
Mogollon Divide
Round Mt.
Devils Cr.
Lost Lake Mt.
Corner Mt.
Alma
Mesa
NEW MEXICO
ARIZONA
Long Can.
Deep Cr.
Lit. Deep Cr.
Copper Cr.
Bearwallow Mt.
Bearwallow Park
Silver Pk.
FRISCO R.S.
Cooney
Cooney Pk.
Mineral Cr.
Bearwallow Cr.
Keller Can.
Y.W. Holliman
2nd Can.
Mogollon
Indian C
MOGOLLON R.S.
Alma
Cooney
Graham
Silver Cr.
SAWMILL
Whitewater Mesa
Whitewater Cr.
South Fk.
Bearwallow Spr.
Willow Mt.
Maple Pk.
Buzzard Pk. Park
Tennessee Cabin
Grouse Mt. (G.S.)
Whitewa
Baldy
Glenwood
Whitewater Cr.
Rock Spr.
Indian Pk.
Brushy Mt.
7400 PLEASANT (G.S.)
Gul.
Holt Mt.
Black Mt.
Center Ba
Holt Spr.
Apache Spr.
Pleasanton
B.M. 4634
B.M. 9896
Sacaton Mt.
Sheridan Mt.
W. Baldy
Frisco Hot Spr.
B.M. 5051
Sheridan Gulch
Dry Cr. Can.
Haystack Mt.
SOCORRO CO.
GRANT CO.
Meaders
DRY CR. R.S.
Black Mt.
Antelope Flat
Antelope Cr.
Harden Cienega
Hanna Mt.
B.M. 6263
B.M. 5234
B.M. 5847
Wilson Mt.
74 Ranch
Seventyf
Mt.
Box N Ranch
Mule Cr.
Mule Mts.
B.M. 5336
B.M. 5147
Cienega Cr.
Pine Cienega Cr.
Five Mile Cr.
Guide
Bear Valley
Bear Mt.
Buckhorn
Horse Cr.
B.M. 5000
The Dike
Pine Cienega
Brushy Mt.
Twin Pks.
Sycamore Cr.
Standard
Gila
Cliff
Bivins Morris
Baldy Mt.
Big Pine Can.
Bullard Can.
Citizen Can.
Pleasant Can.
Trail
Geddard Can.
Holt
Ruin Cr.
West Fk.
Pine Cr.
Saxton Cr.
Box Can.
Tennessee Cr.
Corral Cr.
Guide
Buckhorn Cr.
Henderson Can.
Duck
Vigil
Buzzard Can.
Richardson Can.
Share Can.
Roberts Park
Lobster Spr.

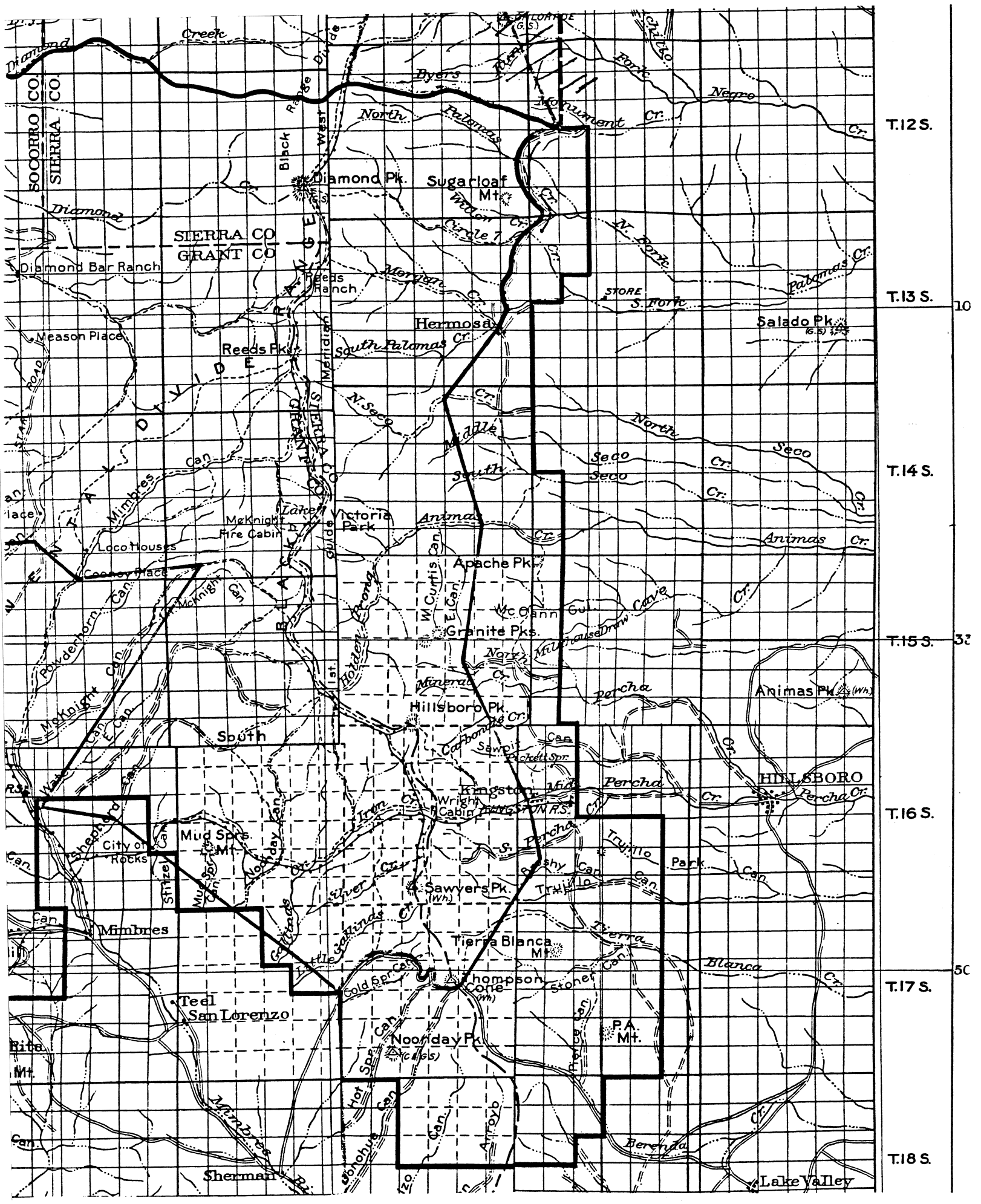

Kelly Mts.
Devils Park
Mogollon Divide
Round Mt.
Lost Lake Mt.
Corner Mt.
Bearwallow Mt.
Bearwallow Park
Silver Pk.
Cooney
Cooney Pk.
Mogollon
MOGOLLON R.S.
Almas
Graham
Whitewater Mesa
Willow Mt.
Tennessee Cabin
Grouse Mt. (G.S.)
Whitewater Baldy
Glenwood
Indian Pk.
Black Mt.
Center Baldy
Holt Mt.
Pleasanton
Sacaton Mt.
Sheridan Mt.
W. Baldy
Mogollon Pk.
WHITE CR. R.S.
Jerky Mts
Lily Mt.
Jackson Mesa
Flying V Ranch
Turkeyfeather Pass
Standard
Ross Cabin
Jenks Cabin
Woodland Park
Prior Cabin
Chicken Coop Can.
Haystack Mt.
SOCORRO CO.
GRANT CO.
Lookout Mt.
Meaders
DRY CR. R.S.
Mogollon
Seventyfour Mt.
74 Ranch
White Pinnacle
McKenna Park
Wilson Mt.
Box N Ranch
B/6 Ranch
Mule Mts.
GILA
Canyon Hill (G.S.)
GILA R.S.
Bear Valley
Bear Mt.
Buckhorn
The Dike
Horse L.
Meridian
Guide
Davis Can.
Rough Can.
Johnson Can.
Hells Can.
Shelley Can.
Water Can.
Utah Can.
Rocky Can.
Johnson Can.
Cedar Cr.
Middle Fork
West Fork
Clear Cr.
Clayton Cr.
Iron Cr.
Turkey Cr.
Gilita Cr.
Indian Cr.
Deep Cr.
Copper Cr.
Cooney Cr.
Bearwallow Cr.
Whitewater Cr.
Silver Cr.
Graham Cr.
Holt Spr.
Rock Spr.
Apache Spr.
Bearwallow Spr.
Sawmill Spr.
Frisco Hot Spr.
Sheridan Gulch
Dry Cr. Can.
Dry Cr.
Pine Cr.
Rain Cr.
West Fork
Saddle Mt.
Stanton Cr.
Pine Flat
Turkey Cr.
Pine Flat Cr.
Buckhorn Cr.
Spring Cr.
Cub Cr.
Prior Cr.
Snow Cr.
Bar Can.
Quaking Asp Cr.
Vegrito Cr.
Rocker Can.
Rainy Mesa Water Can.
Sheppard Can.
Echlaberge Can.
Gwynn Can.
Black Deer Ck.
Buh Basin
Long Can.
Devils Cr.
Mogollon
Gul.
Geddard Can.
Holt
Whitewater
Cooney
Mogollon
Indian
Bearwallow
Mexican
Long
Deep
Copper
Silver
Cooney
Bearwallow
Whitewater
Graham
Tennessee
Rock
Apache
Bearwallow
Sawmill
Iron
Clayton
Turkey
Gilita
Indian
Standard
Ross Cabin
Middle
Flying V Ranch
Clear
Jackson Mesa
Chicken Coop Can.
Prior
Prior Cabin
Woodland Park
Jenks Cabin
White
West
Fork
Cub
Rain
West Fork
Saddle
Stanton
Pine Flat
Turkey
Pine Flat
Buckhorn
Spring
Cub
Prior
Snow
Bar Can.
Quaking Asp
Vegrito
Rocker Can.
Rainy Mesa Water Can.
Sheppard Can.
Echlaberge Can.
Gwynn Can.
Black Deer Ck.
Buh Basin
Long Can.
Devils



End of Auto travel
T.9 S.
R.14 W.
T.10 S.
R.13 W.
R.12 W.
R.11 W.
R.10 W.
Parallel
Houghton Can.
Cooney Prairie
Flying V Ranch
Double Spr.
San Martin Spr.
Black Mt.
JORDAN (G.S.)
Jackson Mesa
Chicken Coop Can.
Prior Cabin
Woodland Park
Indian Cr. Can.
Cassidy Spr.
Jordan Can.
DATIL
NATIONAL
Whitetail Can.
Cox Can.
Hoyt Cr.
Dry Cr.
Diamond Creek
Seventyfour
Turkey Run
DD Bar Ranch
Montoya Ranch
North Star Can.
South
Diamond Cr.
Gila Cliff Dwellings Nat. Monument
T J Ranch
Tom Moore Can.
Gila Hot Spr.
Huntin Lodge
SOCORRO CO.
GRANT CO.
SIERRA CO.
Diamond Bar Ranch
Granite Pk.
CHALK (G.S.)
X S X Ranch
Corral Can.
Black Can.
Brushy Mt.
Hot Spr.
Alum Mt.
Meason Place
Reeds Pk.
Squaw Cr.
Apache Cr.
Gila Flat
Copperas Pk.
(G.S.)
Granny Mt.
CANYON
Brannin Park
Terry Place
Mimbres Can.
McKnight Fire Cabin
Loco Houses
Cooney Place
Rocky Can.
Lincoln Can.
Railroad Can.
Salt Cr.
Copperas Can.
Sapillo
Meerschaum
GILA
RIVER
Hill
Packsaddle Can.
Johnson Can.
Water Can.
Hells Can.
Utah Can.
Little Turkey Cr.
Little Cr.
Gila Can.
Spring Can.
Black R.

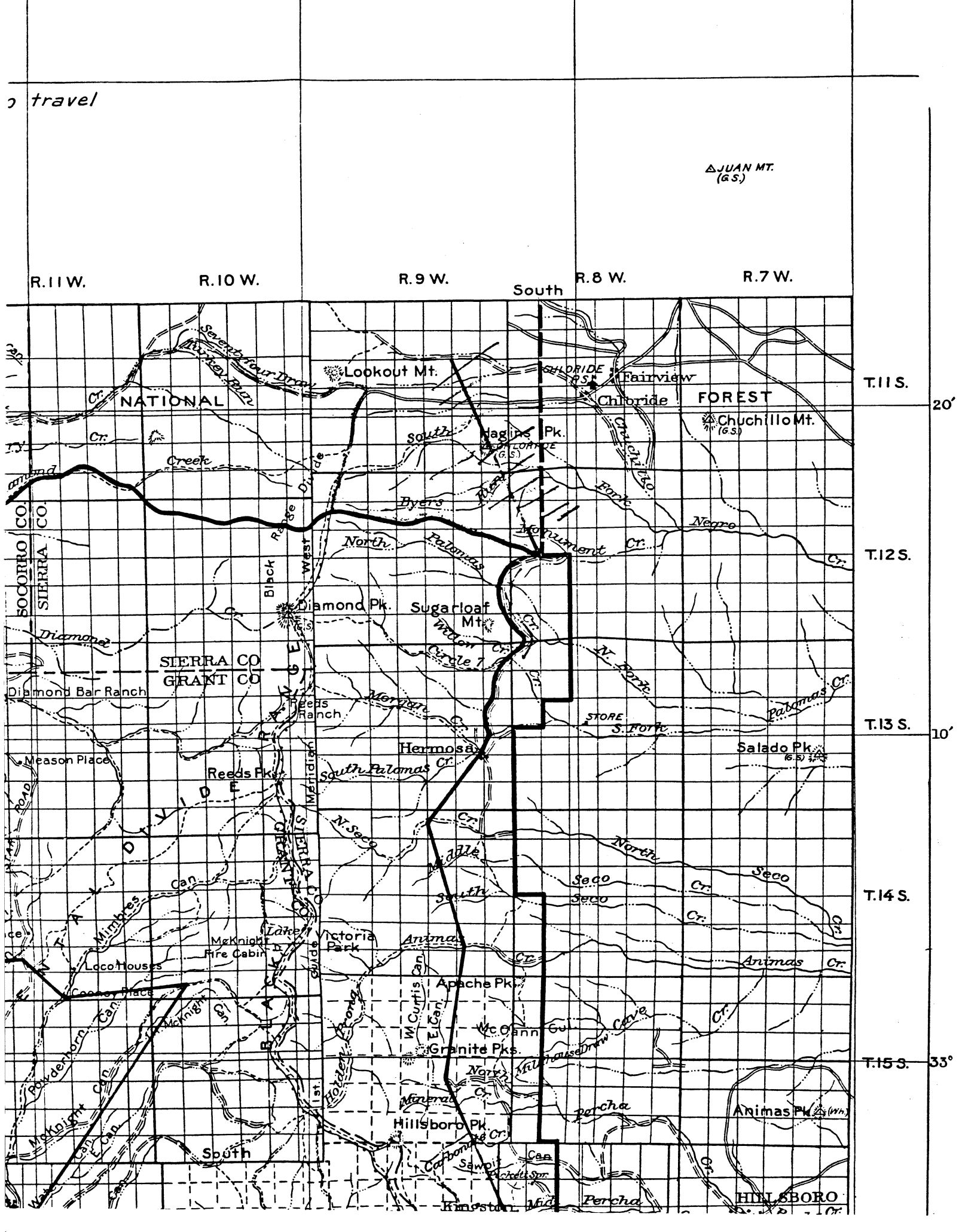


Parallel
Ross Cabin
Middle
Flying V Ranch
Double Spr.
San Martin Spr.
Black Mt.
JORDAN (G.S.)
Clear Cr.
Jackson Mesa
Chicken Coop Can.
Prior Cabin
Indian Cr. Can.
Cassidy Spr.
DATIL
NATIONAL
Whitetail Can.
Cox Can.
Hoyt Cr.
Dry Cr.
Creek
Diamond Cr.
DD Bar Ranch
Woodland Park
Big Bear Can.
Jenks Cabin
West Fork
Montoya Ranch
North Star Can.
South
SOCORRO CO.
SIERRA CO.
McKenna Park
Gila Cliff Dwellings Nat. Monument
T J Ranch
Spring Can.
Tom Moore Can.
Diamond
Gila Hot Spr.
SOCORRO CO.
GRANT CO.
SIERRA
GRANT
White Pinnacle
Granite Pk.
CHALK (G.S.)
Little Turkey Cr.
Huntin Lodge
Diamond Bar Ranch
X S X Ranch
Corral Can.
Black Can.
Brushy Mt.
Hot Spr.
Meason Place
Alum Mt.
Squaw Cr.
Apache Cr.
Gila Flat
Copperas Pk. (G.S.)
Granny Mt.
CANYON
Utah Can.
Hells Can.
Water Can.
Brannin Park
Copperas Can.
Salt Cr.
Rauroad Can.
Rocky Can.
Terry Place
Mimbres Can.
Shelley Can.
RIVER
GILA
Canyon Hill (G.S.)
Packsaddle Can.
Johnson Can.
Sapillo
Meerschaum
Lincoln Can.
Loco Houses
Cooney Place
Terry
Trout
Meadow Cr.
Gattons Park
GOS Ranch
Skates Can.
Powderhorn Can.
McKnight Can.
Reading Mt.
Seep Spr.
McClure Mt.
Steamboat Can.
Holman Can.
Parallel
Three Circle Can.
SCOTTS SAWMILL
Hells Half Acre
Scott Pk.
Redstone
Cave Can.
Sycamore Cr.
Turkey Can.
Signal Pk.
MIMBRES R.S.
Allie Can.
Four A Mt.
Black Mt. (G.S.)
Bear Can.
Shepherd Can.
City of Rocks
Mud Spr.
Lookout Pk.
Mill Cr.
Twin Sisters
Shingle Can.
L.S. Mesa
Juniper Hill
Stewart Pk.
Pinos Altos Mt.
Cross Mt.
Cameron Cr. Basin
Avalanche Pk.
Georgetown
Mimbres
Pinos Altos
Poison Spr.
Fierro
Fierro Hill
Gomez Pk.
Bear Mt. (G.S.-C.&G.S.)
Signal Knob
Hermosa Mt.
Hanover
Teel
San Lo
Treasure Mt.
Ft. Bayard
Santa Rita
Ernest
Nun Mt.
Central
Cobre
McMillen
SILVER



SOCORRO CO.
SIERRA CO.
SIERRA CO
GRANT CO
Diamond Creek
Diamond Pk.
Sugarloaf Mt.
Diamond Bar Ranch
Reeds Ranch
Reeds Pk.
Meason Place
Hermosa
Salado Pk.
Victoria Park
McKnight Fire Cabin
Loco Houses
Cooney Place
Apache Pk.
Granite Pks.
Hillsboro Pk.
Animas Pk.
HILLSBORO
Kingston
Wright Cabin
Mud Sprs. Mt.
City of Rocks
Sawyers Pk.
Mimbres
Tierra Blanca Mt.
Thompson Cone
Teel
San Lorenzo
Noonday Pk.
P.A. Mt.
Sherman
Lake Valley
T.12 S.
T.13 S.
T.14 S.
T.15 S.
T.16 S.
T.17 S.
T.18 S.

travel


R.11W.
R.10 W.
R.9 W.
R.8 W.
R.7 W.
South
T.11 S.
T.12 S.
T.13 S.
T.14 S.
T.15 S.
20'
10'
33°
Lookout Mt.
Fairview
Chloride
FOREST
Chuchillo Mt.
Hagins Pk.
Monument Cr.
Diamond Pk.
Sugarloaf Mt.
Hermosa
Salado Pk.
Reeds Pk.
Victoria Park
Apache Pk.
Granite Pks.
Animas Pk.
Hillsboro Pk.
HILLSBORO
SOCORRO CO.
SIERRA CO.
GRANT CO.
SIERRA CO
GRANT CO
Diamond Bar Ranch
Meason Place
Reeds Ranch
STORE
Seventeen Mile Draw
Black Range
West Fork
Middle Fork
South Fork
North Fork
Negro Cr.
Diamond Cr.
Circle 7
Meridian
Guide
1st
Lake
McKnight Fire Cabin
Loco Houses
Cooper Place
Powderhorn Can.
McKnight Can.
Mimbres
Animas Cr.
Seco Cr.
Percha
Kingston
Sawpit
Pickett Spr.
Carbonate
Mineral
Holden Prong
W. Curtis Can.
E. Can.
Mc Cann Gu.
Corie
Hillhouse Draw
Chloride
Fairview
Chuchillo
Hagins Pk.
Monument Cr.
Negro Cr.
Palomas Cr.
South Palomas Cr.
North Seco
Middle Seco
South Seco
Animas Cr.
Percha Cr.
Mineral Cr.
Carbonate Cr.
Sawpit Can.
Pickett Spr.
Kingston
Mid
Can
Cr.
Creek
Road
Divide
Ridge
Range
Mountain
Fork
Draw
Gu.
Spr.
Pk.
Mt.
Ranch
Place
Houses
Cabin
Fire
Lake
Park
Prong
Meridian
Guide
1st
Seco
Palomas
Negro
Monument
Hagins
Chuchillo
Fairview
Chloride
Lookout
Seventeen Mile Draw
Black Range
West Fork
Middle Fork
South Fork
North Fork

July 18, 1922.

D
Supervision-Gila,
Inspection.

Forest Supervisor,

Silver City, New Mexico.

Dear Mr. Winn:

Mr. Pooler's intention was for me to submit my inspection report to your office so that he might read it at Silver City and then discuss it with you in the field. This scheme, however, did not work out because Mr. Pooler's arrival was sooner than anticipated and my completion of the report was later than anticipated.

The report is now being sent you subject to later comment by the District Forester and the other officers concerned.

The field note-book can not be sent you at this time because I will need it in discussing the report with the District Forester but I hope to loan it to you for the month of August.

The fire diaries are being typed and copies will be sent you within a few days.

Very sincerely yours,

FRANK C.W.POOLER, District Forester,

By Aldo Leopold., Acting.

Enclosures-

Sec. A - FIRE

(Notes, p.8a)

While the severe test of 1922 showed many defects, the fire organization did not break down, and it is plain that much progress has been made, especially in equipment and improvements. The guard personnel and the status of public sentiment also deserves special commendation. The biggest field for future effort is in the organization of suppression work, the identification of emergencies, and the adaptation of the organization to meet them and to prevent large fires without too heavy a fixed cost.

Most of my suggestions are embodied in the Sample Fire Plan, and in the diaries of large fires visited. The following additional points may be worth mentioning:

1. Fire Plan.

The Gila Plan has the big merit of brevity.

In considering the Sample Plan compiled in cooperation with the Gila officers, it should be remembered that:

(a) It is incomplete, and in part only a skeleton.

(b) The facts and judgments are tentative, and in no sense binding on the Supervisor in framing his own plan.

(c) It illustrates principally method of presentation and selection of subject matter.

(d) It does not imply approval or disapproval of present distribution of guards.

2. Guards.

The time spent at fires prevented my making any study sufficiently detailed to warrant very positive suggestions as to distribution of guards. I believe the limit of refinement obtainable from ordinary methods has been reached. Further perfecting of distribution must be based on

(a) Hour control maps. 3-hour standard for hazard areas. Per Diem Guards to fill in the gaps where possible.

(b) Hazard maps, showing country that will burn, i.e., support fires of a section or more. (a and b might be combined).

(c) Determining the possibility of Lookout-Firemen with Trail Crew or Per Diem replacement, as against Lookouts and Lookout-Firemen, at least in normal seasons.

(d) In general more elasticity - more difference between normal and emergency, between mere dryness and dryness plus lightning.

I believe it may be found that Terry Peak or some nearby point may be worked into the Black Range organization to advantage.

3. Fire Districts.

I believe that the organization scheme for division of Ranger responsibility worked out for the Black Range will prove satisfactory, and I see no reason why the remaining overlap in the Mogollons should not likewise be abolished.

4. Lookouts-on-top.

This policy may be waived in the case of Granite Peak.

5. Phone Lines are in better shape than average, but there is room for improvement in standard brushing and correcting the tension and height of the wire. (Notes, p.30).

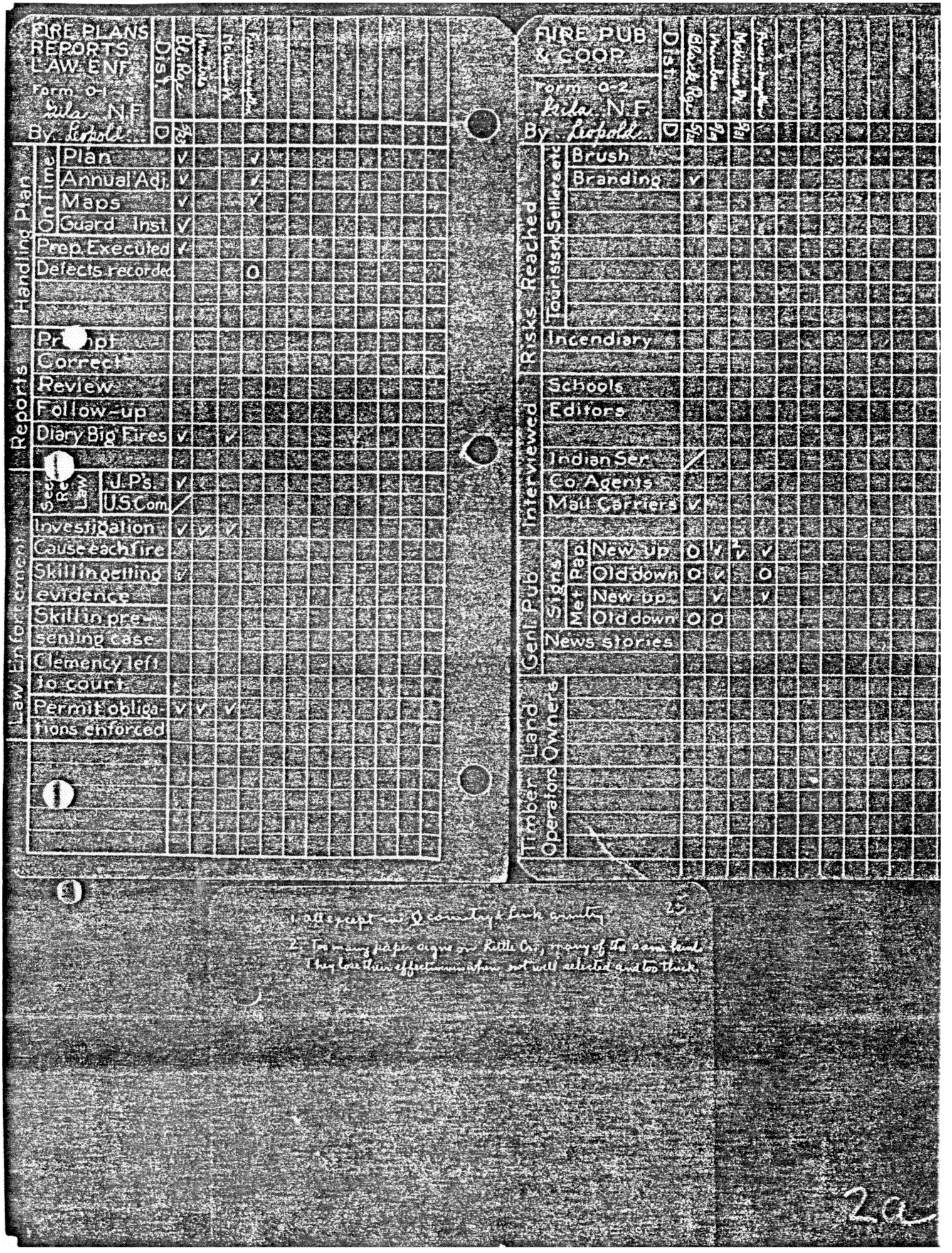
6. Handling of Big Fires. (Notes, p.34a).

The diaries contain my criticism as to detail, and the Suppression Check List my suggestions for meeting them. The biggest faults are: (a) not formally organizing quick enough and completely enough, (b) overworking good men and underworking poor ones through insufficient organization and supervision.

7. Equipment & Supplies. (Notes, pp. 38, 32)

In general in fine shape. Criticisms: Tendency toward too many tools in isolated boxes such as Lookouts and too few at sources of labor.

8. Warner Alidade. So far we believe the Warner alidade is about equal to the Kelley type as far as its main purpose is concerned but we are impressed by the fact that it saves a great deal of foot room in towers. In order that it may be put before the Improvement Board, please ask Warner to submit a sketch of the entire installation.



FIRE PLANS REPORTS LAW ENF.

Form 0-1 Gila N.F.

By Leopold

		Dist. D	Bl. Rg. 5/33	Mambres	Mexican Pk.	Fresh Dry Mtn.
Handling Plan	On Time: Plan		✓			✓
	On Time: Annual Adj.		✓			✓
	On Time: Maps		✓			✓
	On Time: Guard Inst.		✓			
	Prep. Executed		✓			
	Defects recorded					O
Reports	Prompt					
	Correct					
	Review					
	Follow-up					
	Diary Big Fires		✓		✓	
Law Enforcement	Sec. Re. Law: J.P's.		✓			
	Sec. Re. Law: U.S. Com.		/			
	Investigation		✓	✓	✓	
	Cause each fire					
	Skill in getting evidence		✓			
	Skill in presenting case					
	Clemency left to court					
	Permit obligations enforced		✓	✓	✓	

FIRE PUB & COOP.

Form 0-2 Gila N.F.

By Leopold

		Dist. D	Black Rg. 5/32	Mambres 5/31	Mexican Pk. 5/31	Fresh Dry Mtn.
Risks Reached	Settlers etc.: Brush					
	Settlers etc.: Branding		✓			
	Tourists etc.					
	Incendiary					
Interviewed	Schools					
	Editors					
	Indian Ser.		/			
	Co. Agents					
	Mail Carriers		✓			
Genl. Pub.	Signs: Pap. New up		O	1 ✓	2 ✓	✓
	Signs: Pap. Old down		O	✓		O
	Signs: Met. New up			✓		✓
	Signs: Met. Old down		O	O		
	News stories					
Land Owners						
Timber Operators						

1. all except in ☉ country & Link country

2. Too many paper signs on Little Cr., many of the same kind. They lose their effectiveness when not well selected and too thick.

2a

FIRE GUARDS

Form 9-3
U.S.D.A. N.F.

By Campbell

Name	Job	D	4/7	7/7	8/15	9/1	9/15	10/1
Abbott	Lookout	9/5						
Adams	Assistant	9/5						
Allen	Lookout	9/5						
Baker	Assistant	9/5						
Brown	Lookout	9/5						
Clark	Assistant	9/5						
Davis	Lookout	9/5						
Evans	Assistant	9/5						
Fisher	Lookout	9/5						
Green	Assistant	9/5						
Hall	Lookout	9/5						
Irwin	Assistant	9/5						
Jones	Lookout	9/5						
King	Assistant	9/5						
Lewis	Lookout	9/5						
Miller	Assistant	9/5						
Nelson	Lookout	9/5						
Owens	Assistant	9/5						
Parker	Lookout	9/5						
Quinn	Assistant	9/5						
Reed	Lookout	9/5						
Smith	Assistant	9/5						
Taylor	Lookout	9/5						
Upton	Assistant	9/5						
Vance	Lookout	9/5						
Wells	Assistant	9/5						
Young	Lookout	9/5						
Zeller	Assistant	9/5						

Qual
- Eyesight
- Physique
- Character

Instr
- Has them
- Knows them
- Map

Training
- Country & R'ds
- Law enforcement
- False smokes
- Instruments
- Phone repts.
- Suppression

Discipline
- Test calls
- Hours
- Industry

Use of time
- Imp'd
- Planned
- Water
- Supplies
- Equipped

Camp
- Order
- Sanitation
- Quarters

Outfit
- Tools
- Fire pack
- Ration, Canteen
- Horses
- Watch, Key

Records
- Livestock on top
- Supplies
- Water
- Planned
- Equipped

Work Cond
- Subsistence
- Ready mark

Insp
- Ranger
- Supervisor

1. Use the 2 marks to show the 2 most outstanding points in each man's work. Start the month with a clean slate.
2. Show the man's standing at the end of each month.
3. Point out the good points and the bad points.
4. Try to show him how he can improve his work and his standing.
5. Make definite plans to help him improve. Agree to check up on him at a certain time. Then do it. Remember, a promise not kept is worse than no promise at all.
6. Encourage him to talk about his work. Ask questions. Get his ideas. Perhaps you can get some good suggestions.
7. Remember that the man's work is your responsibility.
8. Commend good work. Criticize poor work constructively.
9. Encourage him to study and prepare himself for promotion.
10. Be sure that you are not overlooking any of the good points of the man's work.
11. Be sure that you are not overemphasizing any of the bad points.
12. Be sure that you are not allowing personal likes or dislikes to influence your judgment.
13. Be sure that you are not allowing your judgment of the man's work to be influenced by his personality.
14. Be sure that you are not allowing your judgment of the man's work to be influenced by his appearance.
15. Be sure that you are not allowing your judgment of the man's work to be influenced by his attitude toward you.
16. Be sure that you are not allowing your judgment of the man's work to be influenced by his attitude toward his job.
17. Be sure that you are not allowing your judgment of the man's work to be influenced by his attitude toward his fellow workers.
18. Be sure that you are not allowing your judgment of the man's work to be influenced by his attitude toward his family.
19. Be sure that you are not allowing your judgment of the man's work to be influenced by his attitude toward his health.
20. Be sure that you are not allowing your judgment of the man's work to be influenced by his attitude toward his finances.
21. Be sure that you are not allowing your judgment of the man's work to be influenced by his attitude toward his future.
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99. Be sure that you are not allowing your judgment of the man's work to be influenced by his attitude toward his future.
100. Be sure that you are not allowing your judgment of the man's work to be influenced by his attitude toward his past.

FIRE IMPROVEMENTS

Form O-4

Fredericton N.B.

By Leopold

		Place: Dist. ID	Hartland B/R 5/4	Packwood B/R 5/4	Cond'n 5/4	Spencer B/R 5/4	Black Rs 5/4	Chapmans Mem. 5/4
Instruments	Orientation	①	✓	✓		✓	✓	✓
	Installation	2	✓	✓		✓	✓	✓
	Condition	✓	✓	✓		✓	✓	✓
	Protection	✓	✓	✓		✓	✓	✓
	Orientation Pt	✓	✓	✓		✓	✓	✓
Towers	Shelter	✓	✓	✓		✓	✓	✓
	Ladder soundness	✓	✓	✓		✓	✓	✓
	Lightning wires	O	✓	✓		✓	✓	✓
	Guys	✓	✓	✓		✓	✓	✓
	Gen'l repair	✓	✓	✓		✓	✓	✓
Cabins	Location	✓	✓	✓	11	✓		✓
	Design	✓	✓	✓		✓		15
	Repair	✓	✓	✓		✓		16
	Furnishings	✓	✓	9		✓		15
	Orderly						O	✓
Pastures	Wrangling time	30	30	20	✓	10	20	90
					✓			
	Condition	✓	6	✓	✓	10	✓	14
	Repair	✓	✓	✓	✓	10	13	✓
	Use	✓	7	✓	✓	10	✓	✓

① Primitive. Lookout on rock 100 yds from tower. Lookout can't be seen from tower. Bearings N 80° W. beyond N 55° W by way Brimstone and the 730-50' dead. Corke Pk bears S. 40° E. Hillsdown 101 - one foot 10 1/2 cords green.

2. Protractor post told onto floor. A little weak. Better to work it through.

3. Weather vane on C. 65 points, no need for any other orientation points. They are better than any readily made.

4. Map out 12 x 14. $50 plus contrib. time. Using good.

5. Lumber 8' 2" squares inside. Wood blown out of sash. Advisable to provide wooden shutters for season of non-use. Good job.

① Declination 34 7 1/2 on both map & board. Members Pk 208 #4 acres.

6. Reseeding to timothy being tried. There is an excellent idea, since there is little natural grass.

7. I believe the NE part of the pasture could be fenced off with 2 wires, serving as a night lot and also to protect the proposed sowing of timothy.

8. If bearings to 1365 point and triangulation readings would be better than the blazed tree, which is unnecessary in such case.

9. As many as practicable should be signposted.

10. Old pasture on Diamond Pass is useless. No feed and too far from tower. Area should be used to build a small pasture on top. It now extends to some glade above, sowing to oats and timothy. There are excellent sites. Blue grass also.

11. Camps with fireplaces at Little Ck. Don't see how living on top would be practicable here.

12. This tower is very especially good job, and is excellently equipped and stabled.

13. Cattle getting in.

14. Overgrazed in past years. grass on outside but little but weeds inside except in recent addition.

15. New cabin to be built.

16. On account of age & brush this is a bad pasture to lose time. Woodrow has built a small trap but this is not sufficient. Pasture should be divided if possible into a small dry section, and a larger section connecting with the creek. It might be well to also make a corral

TELEPHONES

Form 0-5

Lines N.F.

By ...

		From															
		To															
		D		5½	7½	5½	5½	5½	5½								
Lines		% Seen		30	50	25	100	5 min	75								
		Route		2	✓	✓	✓	✓	✓								
	Support	Poles		/	/	/	/	/	/								
		Insulators		✓	✓	✓	12		✓								
		Ties		3	3	✓	✓	✓	✓								
	Tension			4	✓	9	12	✓	✓								
	Brushing			5	5 ✓	⑧	⑫	10	✓								
	Lightning wires								13								
	Place		Rockford	Hillsdale	Mendon	Kalamazoo											
Instrument & Installation	Attachment			✓	⑦	✓											
	Weather Prot.			✓	✓	✓											
	Batteries Re.			✓	✓	✓											
	Wiring				✓	✓											
	Ground				✓	11											
	Protector, Bl.			⑥	✓	✓											
	Service		①	✓		✓											
Repairs	Tools			✓		✓											
	Extra Parts			○		✓											

3

① Could not hear Cooper at Silver Hands to reperate through Mckenright.

2. Needs to be shifted to position of present track on Top

3. many makeshift ties were badly spiked.

4. Tight and loose on a few places. Possibly along level grade will make it looser to keep proper tension.

5. Most of the line was very thoroughly brushed years ago in few places. Some require brushing and clearance from trees of less.

⑥ No protector.

⑦ Nearest to wall

⑧ No porcelain Tubes. Were go lines cracks between legs

9. Too loose in one place

⑩ Brushing made quate. Liable to grounding by storms

11. Joint for. and unsoldered. made for now and should be kept wet.

⑫ Too tight in places — cross brackets split. Brushing inadequate.

13. All of the lines on the Mckenna & Dr. Lisle at are jointly high. Satisfactory but might be brought down a little in course of repair work.

FIRE EQUIPMENT

Form 0-6 U.S. N.F.

By Asbuild

Place	Dist	Cache	D
Hillcrest	RK	Tent	6/14
Trail Creek	Meadow	Tent	6/15
Mountain RS	Meadow	Tent	6/16
Bluewood Elk	Meadow	Tent	6/17
Eagle Elk	Meadow	Tent	6/18
33 Ranch	Mdk F	Tent	6/19
Moosehead Elk		Tent	6/20
Jaybird RS		Tent	6/21
Big Bowman RS		Tent	6/22
Power RS		Tent	6/23

| Usability | | |

4

2

FIRE ACTION ORGAN. & FIN.
Form 0-7
Ft. Klamath N.F.
By Leopold

			Ft. Klamath	Cuddy Cr.	Cattle Cr.	Ground Rock	Turkey Run Ridge	Johnson Cr.	Rough Cr.	Whitewater
			D	5/17		5/17	5/15	5/16	5/17	
Detection	Lookouts	Discover		1.	✓	✓		✓	✓	✓
		Report		✓	✓	✓		✓	✓	✓
		Tri-accurate			✓	✓				✓
Suppression	Getaway			✓	✓	3				9
	Travel	Rate		✓	✓	✓				9
		Night		✓	✓	✓				9
	Fighters	Number		✓	✓	/		✓	✓	11
		Organ.		✓	✓	/		✓	✓	10
		Foremen		✓	✓	/		✓	✓	✓
		Shifts		✓	6	/		✓	✓	10
	Supplies	Lists		✓	✓	/		✓	✓	✓
		Tools		✓		/		✓	✓	✓
		Meals		✓	✓	/		✓	✓	✓
		Water		✓	✓	/		✓	✓	✓
	Strategy			✓	✓	✓		✓	✓	✓
	Patrol			✓		✓				✓
Coop other Forests							⑤			/
Finance	Wage Scale	Set		✓	✓	✓				✓
		Used		✓	✓	✓				12
		Correl.		✓		/				
	Time	Rules				✓				12
		Sweetening				✓				✓
	Rules for FFF			✓	✓	✓				✓
Per diem Guards	Selection			✓	✓	✓				
	Function			✓	✓	✓				
	Action			✓	✓	✓				
Communication	Guard				✓	✓	⑤			9
	Ranger		2	✓	✓	⑤	7	7		
	Supervisor				✓	✓		7	7	13
Special Notes page			10	11			13	13	15	

1. Apparently warned a day before being seen.
2. Plan should provide if possible for messenger to make connections between two fires and nearest phone.
3. Delayed about 7 hr. at one suggestion because lines hogged and follow-up reports. Travel time from nearest side 6 hrs.
4. Not enough confining guylift dead attached to fire.
5. Poor coordination with Dist. Both sent crews to fire each without knowledge that other was going. This should be straightened out.
6. Believe there was a tendency to work crews as long as they were willing to work. This is a difficult matter to weigh, but I would urge more regular shifts and enforced rest, especially after supply of men as ample and work can be organized.
7. Shortage portable phones — have 2 but one was out of order and other at trail camp. Had to go each night to Whitney to phone F.S.
8. See note on emergency supplies W.R. Cr. fire.
9. Grasscock said it was getting away immediately but was never seen on the fire.
10. Believe organization should have been affected a little more quickly.
11. About 40 men for many days due to wide removals.
12. Confusion about travel and camp time.
13. Camp portable phones very defective.

Sec. B - FINANCE

(Notes pp.36-38a)

I wish to commend the attitude of the Gila in financial dealings with the District Office. Entire frankness and a district instead of provincial viewpoint characterize the Gila attitude.

Forage Holdovers. I wish to correct any assumption that it is improper to hold over forage for the purpose of taking advantage of seasonal price fluctuations.

Unit Bids have not been used. Their use will, I believe, make possible more direct Ranger responsibility, less routine work, more flexible selection of subsistence orders, and less difficulty in allocation of orders among merchants. This is a field where a Forest Clerk of Mr. Cox's experience might well be asked to take the initiative and work out a plan for the Supervisor's consideration. Mr. Hammond will visit the Gila before winter and will be glad to go over whatever plan is worked out in the meanwhile.

30

FINANCE

Form D-11

Gila N.F.

By Leopold

		Unit	Black R. Dist.	Minches Dist.	McKenna Ark	Fairchild Fellow	Big Burro	Pine Alto
		D	7/20	7/10			7/20	7/25
Wage Scales	Guards		✓	✓				
	Roads		/	/				
	Trails		✓					
	Imp.							
Forage	Amount							
	Purchase						2	3
	Use							
	Crop profit		/	/			/	/
Travel	Amount							
	Use							
	Use of motor							
	Mileage							
Statutory	Cont. time: Sacrifice							
	Cont. time: regular wk.							
	Cont. time: Hired for							
	Cont. time: regular wk.							
	Lapses							

1. Winn says pretty rough to work trail crew for $2.00 per day straight on fire when Mexican fire fighters who have not worked as long or as hard are drawing 12 hrs. @ 30 ¢ = $3.60 per day. I told him there was nothing to prevent his giving the trail crew a good rest, on pay, after the fire was over, thus evening the matter out. Winn & Painter still think, however, that rule does not fit this country.
5/27 - Winn withdraws his objection to the above.

2. See note under forage. Believe money is being lost here unnecessarily.

3. Hulbert says rented pasture 40 acres saves half an hay (4 tons at $30) = $60. Rent on pasture is $10 plus 1/5 of 1/2 mile fence @ $200 = $20 per year. 60 - 30 = $30 profit. Suggest getting a lease on pasture.

Sec. C - IMPROVEMENT, PASTURES, FORAGE CROPS, etc.

(Notes, pp. 42-46)

Stations are in very good order. A new one at Pinos Altos is one of the most urgent cases in the district, and there is a strong probability of financing this in F.Y. 1924.

I did not see enough of the Dry Creek District to have an opinion on the location of headquarters there.

Planting Plan for Mimbres is embodied in this report.

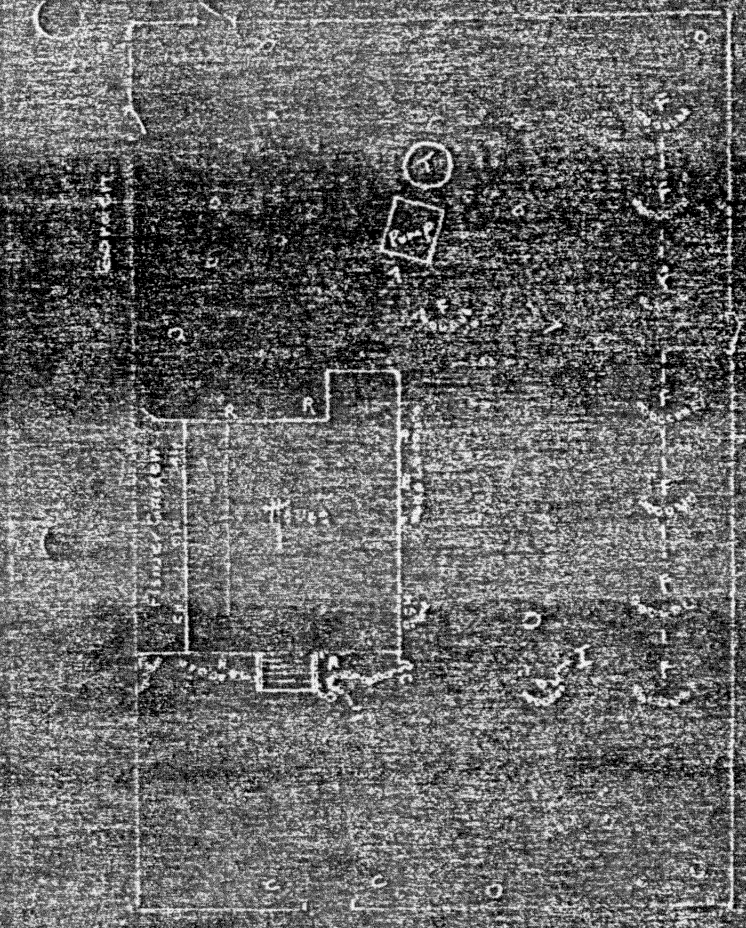
A new station in the Burros is much needed, but in my opinion not as badly as Pinos Altos.

Pastures. It is possible that past abuse of Gila pastures may have been overemphasized. Abuse has taken place, but all the recent evidence indicates careful handling. There is a good opportunity for cutting wrangling time and increasing sod vigor by division and rotation. See Notes, p. 45. Some erosion control is also needed.

I think there is an excellent chance to seed the Black Range pastures to Kentucky Blue Grass, which is thriving on ordinary hillside at the Reed Ranch; also in the Burros pasture along the draw.

4a

PLANTING PLAN
Mumbyes Ranger Station


Entrance
Pump
R
R
F
F
F

PASTURES

Form 0-9 Gila N.F.

By Leopold

		Place	Bl. R.R.S.	Mimbres RS	Dry Cr RS	Big Burros RS	Pinos Altos RS
		D	9/4	9/6	9/11	9/25	9/25
Condition	Pas.	Grass	1	✓	✓	✓	9
		Sod	✓	✓	✓	✓	
	N.L.	Grass	/				
		Sod	/				
			/		5	7	
Rotation Grazing		Possible	3	no		✓	
		Used				6	
Organization	Wrangle Time	Average		60	60	45	
		Max.					
	Night lot		3	✓			
	Stock gentle			✓	✓	✓	
	Handled O.K.			✓	✓	✓	
	Bells			✓	✓		
	Water control			/	✓		
	Div. fences		3	/	5	6	
Stocking	Ranger	Horses	4	2		3	
		Cows	2	1		2	
		Other	2	1		1	
	Other animals			10		0	
	Total		8	14		6	
Cervision			2	✓		8	

1. No grass but considering drouth and also considering condition in 1920 an improvement has been made.
2. See note on Form 0-8.
3. I believe this pasture should either be divided and rotated, or else a good big night lot fenced off for fire season use or other times when quick wrangling is desireable.
4. Best condition of any grass I have seen in a long while.
5. Needs a night lot or else division into 2 parts - 1 wet & one dry.
6. Intends to try it. Good scheme.
7. Needs a night lot because of brushy wrangling.
8. Heavily overgrazed years ago, and considerably washed. Very good opportunity to do control work with willows and brush dams.
9. None available except rented mining claims, but these are available at a fair rate. Probably this is the best scheme.

| STATIONS & HEADQT'S. Form 0-8 Revised N.F. By: Forsyth | Place | Ranger's Res. | Ranger's Office | Ranger's Garage | Ranger's Shop | Ranger's Tool House | Ranger's Barn | Ranger's Corral | Ranger's Pasture | Ranger's Pump House | Ranger's Windmill | Ranger's Cistern | Ranger's Tank | Ranger's Spring | Ranger's Well | Ranger's Reservoir | Ranger's Pipe Line | Ranger's Flume | Ranger's Ditch | Ranger's Dam | Ranger's Bridge | Ranger's Trail | Ranger's Telephone Line | Ranger's Fence | Ranger's Cattle Guard | Ranger's Corrals

Sec. D - PERSONNEL

1. Use of Staff. (Notes p.81)

I gathered that there has been some tendency to have the Gila deputies do difficult ranger jobs for the rangers. A clear line should be drawn between teaching rangers by doing (which is generally good policy) and doing the rangers' work for them (which is generally bad).

2. Division of Work.

Cope seems to have been relieved of all inspection work while on appraisal. This was wasteful. The appraisal man should do all the inspection that can be worked in without affecting appraisal.

3. Staff Relations. Excellent.

Individual comment (Notes pp. 49-60).

Cope is high grade Supervisor material, ready to take a Forest as soon as his sale experience is amplified on the Tusayan.

Putsch is clearly in the class meriting a try-out as Supervisor, but not clearly in the class whose success as a Supervisor can be confidently predicted. I had some reason to doubt whether he is as much of a student and thinker as one might expect in a man of his disposition. There were some policies (trails, personnel) of which he had not absorbed the essentials of current thought. There is also the question of force of personality on which, however, predictions are always hazardous. On the other hand, I encountered positive evidence of very good standing with the Rangers.

Warner will correct his remaining faults more quickly as a deputy than as a ranger. In addition to his already known capabilities in official work, I think it is worth mentioning that he has given himself many of the elements of a liberal education by systematic reading. I think he is better qualified for promotion to deputy than the average material now available.

Bowen has not yet proved out as District Ranger, although I think he is well worth additional efforts to develop him. It is at least doubtful if he can manage subordinates and the Supervisor states he is weak on planning. He needs a move to better living conditions badly. His habit of outfitting himself exceptionally well is worthy of commendation.

In general, he deserves praise for handling of the Whitewater fire. He made mistakes but there can be no question that he gave the best there was in him.

Hulbert is said to be doing better, but I think it only fair to the Service and himself that he decide whether he is going to stay or leave. If he is to stay, he should either be transferred to another district or else to sales work. I think he would make a very good sales man. I think there is much truth in his statement that living for years in a down-at-the-heels station has affected his mental initiative. In spite of his abnormal state of mind it must be admitted that Hulbert is a student and gets along well with his users.

Meigs is now under investigation by the Supervisor. The indications are that he is not a profitable trainee.

Painter's native shrewdness, ability to get things done, and pleasing personality might carry him a long way if he could broaden his viewpoint. He is a very good man, deserves promotion, and merits commendation for his able handling of the Curtis Canyon Fire and the Latham case.

Wood is one of the surest prospects I have seen. He is a man who will profit to an exceptional degree from good training and guidance. His failing the examination will delay his eligibility to promotion until the spring of 1923, but if he continues his present rate of progress he should be handled as soon as possible at that time.

Woodrow needs no repetition. It would be hard to exaggerate the importance, not only of his knowledge of his district and ability in fire work, which have been often recognized, but also of his standing with the settlers on whom we depend for fire work. I have the impression that he would not be as hard to "round out" in all lines of work as has been commonly supposed.

Cox is very conscientious, able in accounts, but a poor general assistant to the Supervisor. He is decidedly not an "Executive Assistant".

Mrs. Fleming has all the makings of a very high grade Forest Clerk, and is worth several times her salary. She should take the examination, but can not be moved from Silver City.

Miss Kellogg's very able services as Deputy Fiscal Agent on the Whitewater fire deserve mention in this report.

6a

PERSONNEL
Form 0-12
Gila N.F.
By Leopold

		Wiener	Cope	Rotch	Bonnes	Hulbert	Meigs	Painter	Warner	Wood	Woodrow	Cox	Fleming
	D												
Title		S.	S.	S.	R.	R.	R.	R.	R.	R.	R.	C.	C. (st)
		F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	F.	
Salary		60	80	80	20	20	20	20	20	20	20	60	60
		25	19	19	13	13	12	13	14	12	13	18	12
Date last		7/1/20	1/1/22	7/1/20	9/2/18	1/1/15		10/2/20	1/16/22		3/1/17	7/1/20	
Promotion													
Year's service		15	3½	3½	13	11		4	6½	11 mos	12½	13	1½
Rating Order	Supervisor				3	5		2	1	6	4		7
	Inspector												
Poor Work	Date letter												
Reading & study		✓	✓	?	○	✓		✓	✓	✓	?	?	✓
Debts		✓	✓	✓	①	✓	✓	✓	✓	✓	✓	✓	
Jardine & Anderson		✓								✓		✓	✓
Mather Field		✓		○									
Fire Review		✓											
Sup. Meeting		✓											
Gila Flood Control		✓	✓	✓									
Spaniels		none	none	fair	none	yes	fair	yes	fair	yes	fair	none	

① Has not replied to Wiener's letter. Over $300 on Buckhorn but now paying cash.

FIELD OUTFIT

Form 0-13

Gila N.F.

By Leopold

		Name	Painter	Wood	Wrim	Putch	Brown	Woodrow	Warner	Hulbert				
		D	5/24	5/27	5/29	5/29	5/31	6/11	6/19	6/25				
Mount	Saddle animals		✓	✓	✓	/	✓	✓	✓					
	Pack animals		✓	✓	✓	/	✓	✓						
Camp Equip. & Saddlery	riding		✓	✓	✓	✓	✓	✓	✓	✓				
	pack		✓	✓	✓	✓	✓	✓		✓				
	Bed		✓	✓	✓	✓	✓	✓						
	Mess kit			✓	✓									
Surveys	Compass													
	Declination													
	Chain													
	Pins													
Misc.	Marking tool			✓										
	Scale stick													
	Note book			✓	✓	3	✓		✓					
	Equipment list													
Motor	Tools			/		/								
	Jack			/		/								
	Pump			/		/								
	Light			/		/								
	Patching outfit			/		/								
	Extra parts			/		/								
Personal	Knife		✓	✓	✓	✓		✓	✓	✓				
	Matches		✓	✓	✓	✓		✓	✓	✓				
	Watch		✓	✓	✓	✓			✓	✓				
	Clothing		✓	✓	✓	✓	✓	✓	✓	✓				
	Uniform		✓	O	✓	O	O	✓	✓	O				
Getaway			✓	✓	✓			✓						
Key			✓	✓		✓								

1. Borrow his vest pack outfit I have seen in years.
2. Carries a great weight of misc. stuff on his saddle, even when has a pack. Rented horses poor.
3. Carries only a shirtpocket book on saddle trips.

Sec. E - ROADS & TRAILS

1. Signs. (Notes p.63) The Gila has made good progress in signs, but varnishing of old signs has been slow. Conflicting distances also need to be straightened out.

I am a little uneasy about the signs prohibiting use of our pastures by private parties. What do the stockmen whose pastures we use think of them? Would it not be better to say the grass is needed for fire protection than to merely prohibit? Should there be a special understanding with the parties to whom we are obligated? Of course, regular remudas must be excluded in any event.

2. Maps. (Notes, p.64) The rangers do not seem to have or use the Reconnaissance plats. These are an expensive and valuable piece of work that should be in constant use, and that will save a great deal of time for such purposes as platting fires. Possibly a mounted assembled set for each district hanging on the wall would correct this situation.

The basemap is out of date, and Winn says there is not much interest shown in the annual corrections. See list of omissions, notes p.64. See Admin. Guide, p. 210 for map policy.

ROADS
(Notes p.63-a)

Dam to Dam Highway. I have never been in the country south of the Black Range, but it looks about as difficult to go around as to go over. If this is true, and if the recreational plan shows need of summer home areas on the east side of the Forest for the Rio Grande Valley population, the proposed road through Wright's saddle will eventually have to be built. This will sacrifice a part of the Wilderness Area, so that the two assumptions above mentioned should be carefully established as facts before we go ahead. It should also be remembered that the summer home capacity will be very limited due to scarcity of water. I examined the crest as to a possible branch road along it. It is too rough and out of the question.

A cost estimate should, I think, be made by DE.

Bursum Road should be opened through as soon as possible. This will provide another summer home area, and while it too cuts down the Wilderness Area, it is necessary to connect the Mogollon with ~~the~~ Reserve.

Redrock-Tyrone Road. (Notes, p.63-a) The pivotal point is whether this is a legitimate FDF project. I did not see the

area, but Warner says it would open large amounts of dead wood. If this is true, why the agitation for a management plan to guide green cuttings? The question whether Tyrone will open up again also enters.

If the project does not open Forest resources, then it becomes 10% with heavier cooperation as a necessary condition to approval.

This looks to me like a typical problem in road planning which the Supervisor should untangle.

TRAILS
(Notes, p.64-a, 65)

I did not see any of the new work except on the Black Range. This work indicated that the trail specifications were not understood until explained on the ground.

I am convinced that by reason of the geological formation and soil, the Gila has an easier trail-erosion problem than any other Forest I have seen.

The importance of teaching the rangers not only the trail policy but the reasons for it was forcibly proven in at least one instance.

A solution of the obligations of stockmen in maintaining trails damaged by their stock is badly needed, and is receiving attention. I incline to think that in most instances labor rather than cash should be contributed, and that the obligation should be tied in with a definite section of trail rather than with a fixed amount of cooperation.

8a

ROADS & TRAILS													
Form 0-10 Gila NF	Project	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
By Leopold	Yr	1920		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]
(Roads only)	D	5/[illegible]	5/[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Cost per mile				3200									
Route									✓		✓	✓	
Grade: Working	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	24
Grade: Max	✓	✓	✓	✓	✓	✓	✓	✓	✓	20	✓	✓	12%
Cross Sec: Slope			✓	✓	✓	✓	✓	✓		✓			
Cross Sec: Width			✓	4	13	✓	✓	✓		21		✓	
Cross Sec: Backslope			✓	✓	✓	✓	✓	✓					
Cross Sec: Fill			✓	✓	✓	✓	17			✓			
Cross Sec: Fill protection		6	5	5	5	✓							
Cross Sec: No excav. on gentle slopes			6	6	✓	✓	/	✓		✓			
Drainage: Flats			✓	✓	✓	15				✓			
Drainage: Spillways			7	7		15				✓			
Drainage: Culverts													15
Drainage: Ditches													
Drainage: Prot. ditches													
Drainage: Logs: Size	✓	9	✓	✓	✓	15		15		✓			
Drainage: Logs: Angle	✓	✓	8	8	✓					✓			
Drainage: Logs: Imbedded	2	9	✓	✓	✓					✓			
Drainage: Logs: Location			9	9	9	17				✓			
Clearing	✓			10	14	16	✓	✓	✓	✓	3		
Blazing	✓		✓	✓	✓		✓	✓	✓	✓	✓		
Signing	✓		✓	✓		✓	✓	✓	✓	✓	✓		
Maint: Down timber	✓	✓	✓	/	/	✓	✓		22	✓	3		
Maint: Erosion	✓	✓	11	11		✓	✓		✓	✓	✓		
Maint: Fill	✓	9	12			✓	17						
Maint: Heel & tread	1	9	12			✓	17	9	20	✓			

17. Breaking in places due to rocks a[illegible] stuffing in heel, needs obstructions in fill and breaking out of solid rock in a few places.
18. No special drainage, but has held up well. When heel is cleaned it will be advisable to put in lug on [illegible] of the longer grades.
(19) Several rocky places needed picking out badly.
20. This is not a built trail and does not need anything except a built grade around the box, together with clearing out of fallen timber and larger rocks.
21. Average 4' built under old policy. Traffic showed is using the outer side and starting to break down the fill in places.
22. Some of the water logs are kicked out in the section between Rawmeat and White Cr.
23. Full of down logs. Could not get a horse thru by night. Trail on east said to be also full of logs.
24. Warner says Mulder used a transit for a few hundred yards and then used no instrument at all, so far as he knows.
25. Wiers used for drains but insufficient dips to prevent water from going on down road.

(1) Part [illegible] Reed and Armer Goat Ranges filled with rubbish by goats. Painter says did not want to ask them to clean it out this hard year. They have been asked to keep away from trail as far as possible. In my opinion they should be required to clean out the sections on their allotments periodically. $450 spent for maint. last year but most of this was for washouts.
(2) Some of the logs put in last year are not well imbedded on upper end.
(3) Hill generally sloughed in, mostly by goats, on section to w rights. If this could be prevented or kept clean it would keep traffic in and prevent a lot of breaking of fill, especially on such a wide trail. Some of the new water logs well imbedded - others poorly.
(4) Averages 36"-42" wide. Some as 1920's previous.
(5) A few places only where obstructions have been laid. Mostly rocks rolled off down the hill.
(6) Only near Mcknight has no excavation been made on gentle slopes.
(7) Nothing done to strengthen spillway.
(8) Many logs nearly straight across.
(9) In 1921 work logs mostly lacking. In 1922 work logs above rather than below flats.
(10) 10'-12' in aspen. Elsewhere O.K.
11. Will erode unless drainage fixed.
12. Dry year is forcing cattle up and they are breaking the fill badly, especially near Millsboro. Last years work badly sluffed.
13. Width much better 36" and under.
14. Clearing more moderate but still a little too wide in aspen.
15. Apparently no drainage ever installed, but the outslope, wavy grade, and favorable formation have prevented any erosion.
16. A little more pack de[illegible] is needed in a few places.

PK p9

PK

Hillsboro Rivers Should not be dug by F.O. Small sign on tower not to dig is needed.

History of Gila N.F. Wiens has considerable data on frontier days. Told him he ought to collect it systematically and write a history of the Forest.

6/3 Cost of Fire Control Overheard some conversation among the fire fighters to the effect that the Granite Mt fire was not worth the cost of suppression. It would be a good thing to post the Rangers on the total cost per acre of protection work and tell them to set these men right.

6/10 Girl Scouts camped near Numbers when asked where they were camped explained they were "not on the Forest". Possibly some educational work needed.

Public Relations The excellent personal standing of the Gila force in their respective communities is worth mentioning, especially Woodrows standing with the Gila River settlers and the standing of the staff with Silver City people.

Sec. G - GRAZING

(Notes, p.69)

Erosion in relation to grazing. See Lands.

Wilderness Area in relation to grazing and appraisal. See Lands.

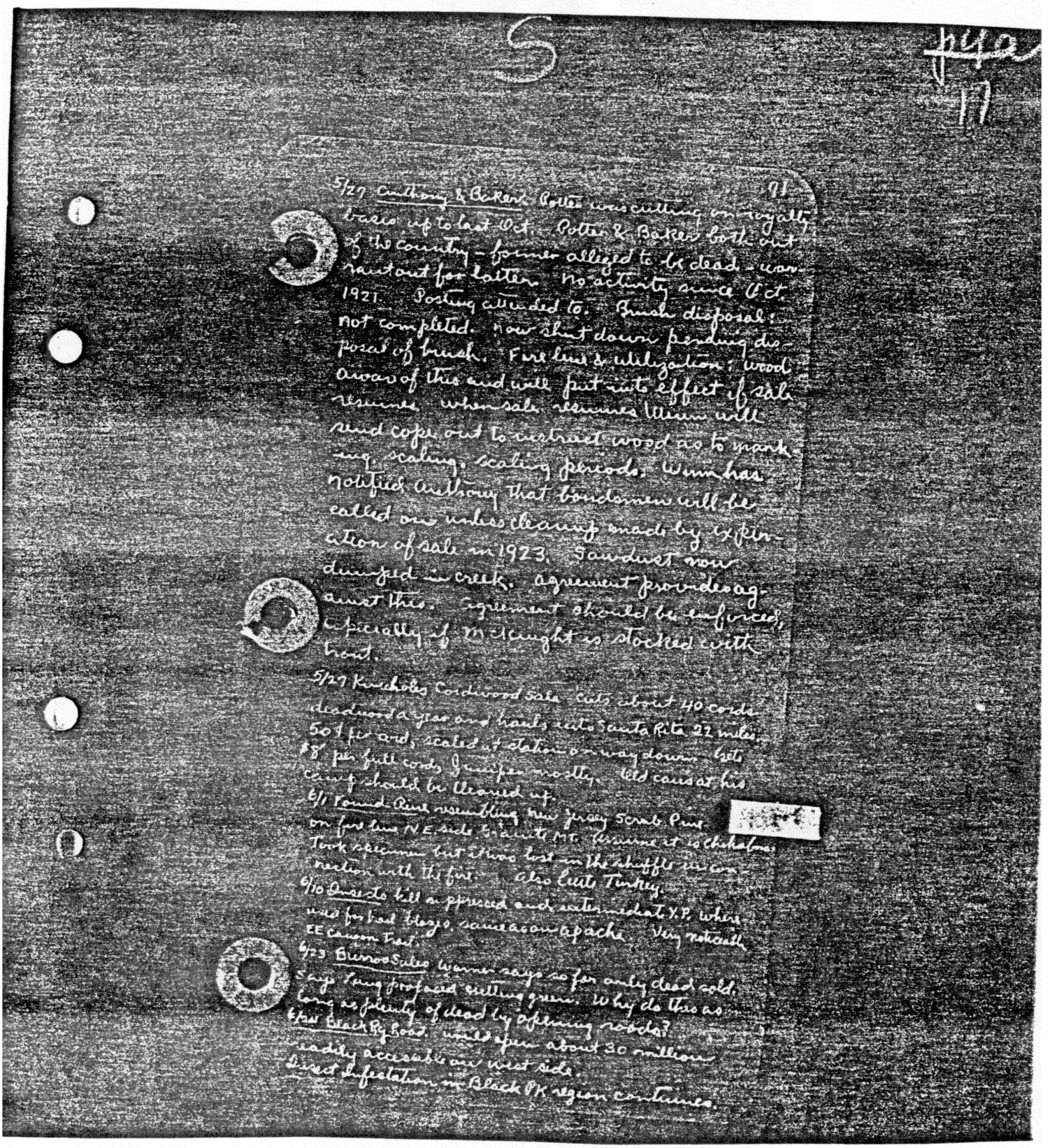
1. Scabies Area. Stockmen seem to differ as to whether the infected area on Mogollon Creek has been actually cleaned up or not, some believing that weak stuff was held out and not dipped. All agree that the spread of scabies to the rough mountain country would be a permanent handicap to the industry almost calamitous in extent. Certainly eradication would be next to impossible, a heavy cost would be saddled on the stockmen, the value of the range would be decreased, and continual working and driving to dips would accentuate overgrazing of the already unevenly grazed range. Perrine is proposing a special appropriation for a drift fence to isolate the suspected area. I think we should help in every way possible to get it. Possibly the danger is great enough to warrant expenditure of some of the range improvement money that we are apparently to get in the future. I think Grazing should carefully decide this point.

2. Early Muhlenbergia constitutes 90% of the grass of the pine type. I wonder if the extreme susceptibility of this species to overgrazing is recognized in our grazing plans. The Gila pastures bear abundant evidence of this, and anyone can observe how horses tear it out by the roots. Possibly the very loose gravelly soil accentuates this tearing out. I think it raises the question of whether extremely steep country bearing this grass can be utilized at all without permanent damage to watershed. To my mind we are in some places going to be forced to choose between a high fire hazard through not grazing and a certain watershed damage through grazing at all. Trying to take the evidence on the ground, I have been forced to conclude that the former is the lesser evil.

3. Rotation Grazing, Ridge Salting. I suggest that certain ideas of Warner's as to the effect of habit and acclimatization as obstacles to these practices, and the feasibility of overcoming them by gradual "education" of cattle, be picked up by Grazing unless they have already done so.

4. Fish & Game. See Notes, pp. 76-78.

5. Goat Grazing. I would like to but can not see any difference in the condition of the range where the Forest Service methods of running goats have been followed. All the evidence I can see points to permanent damage wherever goats are run.



S

pg 2
17

91

5/27 Anthony & Baker. Potter was cutting on royalty basis up to last Oct. Potter & Baker both out of the country - former alleged to be dead - warrant out for latter. No activity since Oct. 1921. Posting attended to. Brush disposal: not completed. Now shut down pending disposal of brush. Fire line & utilization: wood aware of this and will put into effect if sale resumes. When sale resumes Wimm will send cope out to instruct wood as to marking, scaling, scaling periods. Wimm has notified Anthony that bondsmen will be called on unless cleanup made by expiration of sale in 1923. Sawdust now dumped in creek. Agreement provides against this. Agreement should be enforced, especially if McKnight is stocked with trout.

5/27 Knieholes Cordwood Sale - cuts about 40 cords deadwood a year and hauls into Santa Rita 22 miles. 50¢ per cord, scaled at station on way down. Gets $8 per full cords Juniper mostly. Old cans at his camp should be cleaned up.

6/1 Found Pine resembling New Jersey Scrub Pine on fire line N.E. side Granite Mt. Assume it is Chihuahua. Took specimen but it was lost in the shuffle in connection with the fire. Also Little Turkey.

6/10 Insects kill suppressed and intermediate Y.P. where used for heel blazes, same as on apache. Very noticeable EE Canyon Trail.

6/23 Burros Sales Warner says so far only dead sold. Says Lang proposed cutting green. Why do this as long as plenty of dead by opening roads?

6/24 Black Ry Road. Would open about 30 million readily accessible on west side.

Insect Infestation in Black PK region continues.

Sec. I - LANDS

1. Reed Place, Diamond Cr. This place lies just above the Montoya place at the mouth of Diamond Creek. Abandoned for four years. Was partly a dense grove of cottonwood but these have been felled and left lying on the ground. The place has no timber-producing value but its cultivation would result in the first flood taking all the soil off and leaving bare rocks. Soil very thin, light and sandy. Since all the Gila creek bottoms are at the critical stage where preventive measures must be taken to prevent their tearing out entirely, thus destroying their recreational value and nullifying watershed protective effects, I strongly recommend that this list be recalled.

2.* Wilderness Area. The Supervisor and I have worked out and hereby recommend the following policy to govern the area within the red line, which marks the limits of automobile accessibility.

(The line is incomplete for the Datil. Copy to be sent Datil and line completed at next opportunity for conference. Also incomplete for the Mogollons, Gila to fill out).

POLICY

Roads: Road & Trail Plan to omit any further extensions of the existing road system.

Trails & Phones: Continue development same as on any other area. Necessary for fire protection.

Uses: No additional permits for any but grazing uses to be given. This excludes permanent improvements like summer homes, hunting lodges, hotels, etc. Existing permits within the area not to be renewed if relinquished.

Grazing: Close to Class A applicants. Take in slack or reduce to a very conservative stocking. Make special effort to avoid further erosion of watercourses by

1. Free Pastures on bottoms not needed for water gaps or travel, conditional on very light use and construction of control works.
2. Water Developments for better distribution.
3. Ridge Salting.

Grazing Appraisal: Give full allowance for costs of operation due to inaccessibility.

Game & Fish Plan:

Fish - Stock East Fork with Brown Trout,
State to establish a small local hatchery.

*The executive committee of the local G.P.A. strongly endorsed this proposed policy.

Resident Yearlong Deputy Game Warden to be stationed somewhere near forks of Gila.

Predatory Animals to be given special attention by Biological Survey, with help of Deputy Warden.

Beaver to be kept cleaned out below West Fork Falls and Montoya place, as erosion control measure.

Land Exchange Acquisition by F.S. of East Fork and other patented lands by exchange.

3. Recreational Plan. The above, if approved, simply decides the location and nature of the "Dominant Play" to be recognized in the recreational plan. The development of that plan may show the need of some modifications in the area, for instance:

a. Road to Trout Creek, for picnics and summer homes.
b. Wright's Saddle Road, opening summer homes. See p.7
c. Summer home sites within the area along Bursum Road, if necessary.

4. Erosion Problem & Possible Action. For some years I have been trying to reconcile the generally accepted theories as to causes and remedies of erosion with the evidence visible on the ground. I have especially been trying to see a relation of cause and effect between burning or overgrazing of the general watershed and tearing out of watercourses.

I an now convinced that while tearing out of watercourses is undoubtedly made worse by burning or overgrazing of the general watershed, neither of these is nearly so potent or universal a cause as the overgrazing of the watercourse or canyon bottom itself.

For example, the Sapello and Mimbres watersheds as a whole are in splendid condition. The whole GOS range is often cited as an ideal example of Forest range conservation. Fires burned over great areas in the old days, as may be seen from the old stumps, but no erosion took place, although floods must have occurred much as they do now. The Sapello is known to have been a trout stream, lined with willows. Today both watercourses, except for the extreme Mimbres headqaters, are piles of boulders. The old ranch buildings show that the watercourses were overgrazed, and tore out in spite of the good condition of the watershed and the checking of fires.

In short, any grazing, no matter how moderate, usually overgrazes the canyons, and this alone causes the canyons to tear out, even though the watershed area as a whole is in good condition.

Continued acceptance of the current theory that only overgrazing damages the country constitutes glossing over an unpleasant but to my mind now undeniable fact, and it is not the tradition of the Forest Service to gloss over unpleasant facts.

Aside from the obvious remedies of lighter stocking, more water development, and ridge salting, I suggest free pastures to revegetate the canyon bottoms, leaving proper water gaps and travel routes, and granted free on condition of very light use and construction of simple control works. I think that on canyons like lower West Fork this would work.

In connection with erosion damage, the following is quoted from a recent report by A. A. Leach, a geologist interested in mines near the Big Burros:

> "The range was overstocked with cattle - - the resulting disaster can scarcely be overestimated. All true soil has been destroyed - - the Mangas has destroyed the best soil in its valley -- all in the last forty years. This damage can not be repaired."

5. Silver City Watershed. The thinking citizens are disturbed over the shortage of water in the wells which form the source of the municipal supply, and the destruction of streets by "The Ditch" or arroyo which bisects the town.

I examined the arroyo with R. H. Kellogg of the city council and told him how I thought the ox-bowing could be checked by blasting critical points to straighten the channel, and using woven wire fences, backed by willow plantings and supplemented by dumping, to clog up the ox-bows.

The city officials were a bit disturbed to learn about the Pinos Altos elimination. They seems to be leaning on the Service for advice and to be willing to adopt any reasonable program we may recommend. This may prove to be a long-needed opportunity to actually renovate a watershed, at the city's expense, and demonstrate in a striking way what grazing control, supplemented by artificial plantings and works, can accomplish.

A heavy responsibility rests on the Supervisor in making the most of this opportunity. In meeting it he should be given any backing from this office that he asks for.

It possibly presents a chance to see whether those of us who have agitated the erosion question are capable of formulating a practical program.

ORGANIZATION
Form O-14
...Isla....N.F.
By Leopold

		Name	Painter	Wood	Woodrow	Bowers	Warner	Hulbert					
		D	5/26	5/28			6/23	6/25					
Supervisory Inspection	Year Days	Supervisor											
		Cope											
		Putsch											
		Total											
		Dairy analysis		✓			✓						
		Travel map											
		Record											
Work plan	A.W.P.	Prepared		✓			✓						
		Well drawn		✓			✓						
	M.W.S.	Prepared		✓			✓						
		Well drawn		✓			✓						
		Progressive riding											
		Seasonal distrib.											
Office & H'dqtr System		Fire season											
		H dqtr's work											
		H dqtrs imp. wk.					✓						
		Mail & supplies											
		Files					✓						
		Maps											
		% System					✓						
		Desk system					✓						
		Notebook system					✓						
		Office seclusion	✓				2						
		Handling callers					3 ✓						

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1. Both annual plan and monthly schedules are a very good job. Warner rearranged Woods plan to fit cost activities. While this emphasis on cost activities is entirely logical, I fear it may divert attention from the real object of work plans and emphasize activities rather than jobs. A circular of 1-27-22 directs rangers to send in their checked off schedules at the end of the month. I fear this is apt to create the impression that the actual check is in the office rather than the field. I advise that no schedules come into the office except possibly a carbon at the beginning of the month.

"Posting fire warnings" is a very good job to list, but it should ordinarily not have a time estimate, because it should be done incidentally to other jobs, such as interviewing permittees on fire prevention, or other regular work.

2. Office in living room. Office building needed.

3. Warner says he has practically no callers any more - beats them to it by regular sale days and seeing other permittees often in woods.

OF 1

Notes on Gila Fires

A.L. - 1922

(3 copies sent Gila)

Curtis Canyon Fire.

5/21. No smoke visible driving in from Nutt. Hillsboro people said best day so far - glow & flames visible nights May 19 & 20.
Interview with Winn on arrival Kingston R.S. 2 P.M. Has skeleton of a fire diary. Briefly described action to date.
5/22 Mrs. Bob Reed. Asked her if there had been any lightning as yet. She said there was a little thunder one day but it seemed to be southeast from the Reed Ranch, not north. Said that 2 prospectors, Moffat & McGowland, on foot leading 1 packed burro, had passed through ReedRanch going "up in that country" to prospect, she thinks the 17th, or the day before the fire. Said they came back through she thinks the 19th, or the day after the fire were seen by her goat herder. Mr. Reed was not at the ranch as they went up. They started from Kingston for the prospecting trip.
5/22 Walking Time. Walked in with crew 5 men over rough country, 1/2 on built trail, 1/2 up a divide. Made the 4 miles in 2 hrs, 2 miles per hr. Trail crew walked to fire 4 A.M. arr. 11:30 A.M. 8 hrs. 15 miles = 2 miles per hr.
5/23 Time Records. Used 874-15A red slips instead of time book. 3 changes of timekeeper were made. These slips are bothersome, especially for non-forest officers who have no notebook.
5/23 Wages 30¢ for labor, $2.00 cook, cook's helper $2.00, foremen 40¢. Cook later changed to $2.50. Reed, left in charge, given 40¢. Trail cook given $2.00 on fire when his helper was getting the same.
5/25 Avant. Arr. at fire at 4:10 (see Diary). Next morning 9 A.M. Latham met him and said

F.O. Woodrow, Firemah,

Permittees Perrine.

Supplies Meigs ordered to send list 2 & 500# grain from Mogollon. Should arr. June 1. (Left 6 A.M. 31st.)

Cook Davis, going up with us | Came up with us

Boom XBX, timekeeper, offered $2.00 | arr. 10:30

Cook Outfit 1 at Wh.Cr. probably brought today.

5/31 6:30 A.M. Left ♡ with 2 men. At EE corral met part of P.A.crew. Arr. L.C.cabin 10:30 A.M. Perrine & Bowen there. Woodrow left word for P.A.btnch to camp below, but Winn decided to let them come on up and eat. Shy on cook outfit-trail crew has part of Wh.Cr.outfit. Woodrow left word to turn horses not used in pasture without feed-P.A.men sore at this. Perrine says fire 4 or 5 sections now.

Winn decided to get tools from Wh.Cr. but guard there was subs. run in by Woodrow & had no key. Winn told him to break lock. 4 hoes, 3 bags, 5 rakes, 4 axes.

12:00 A.M. Winn told Bowen to hold down Mogollon transport: Kelley's wagons to mill; Mogollon burros to Wh.Cr.; our burros to Little Cr.

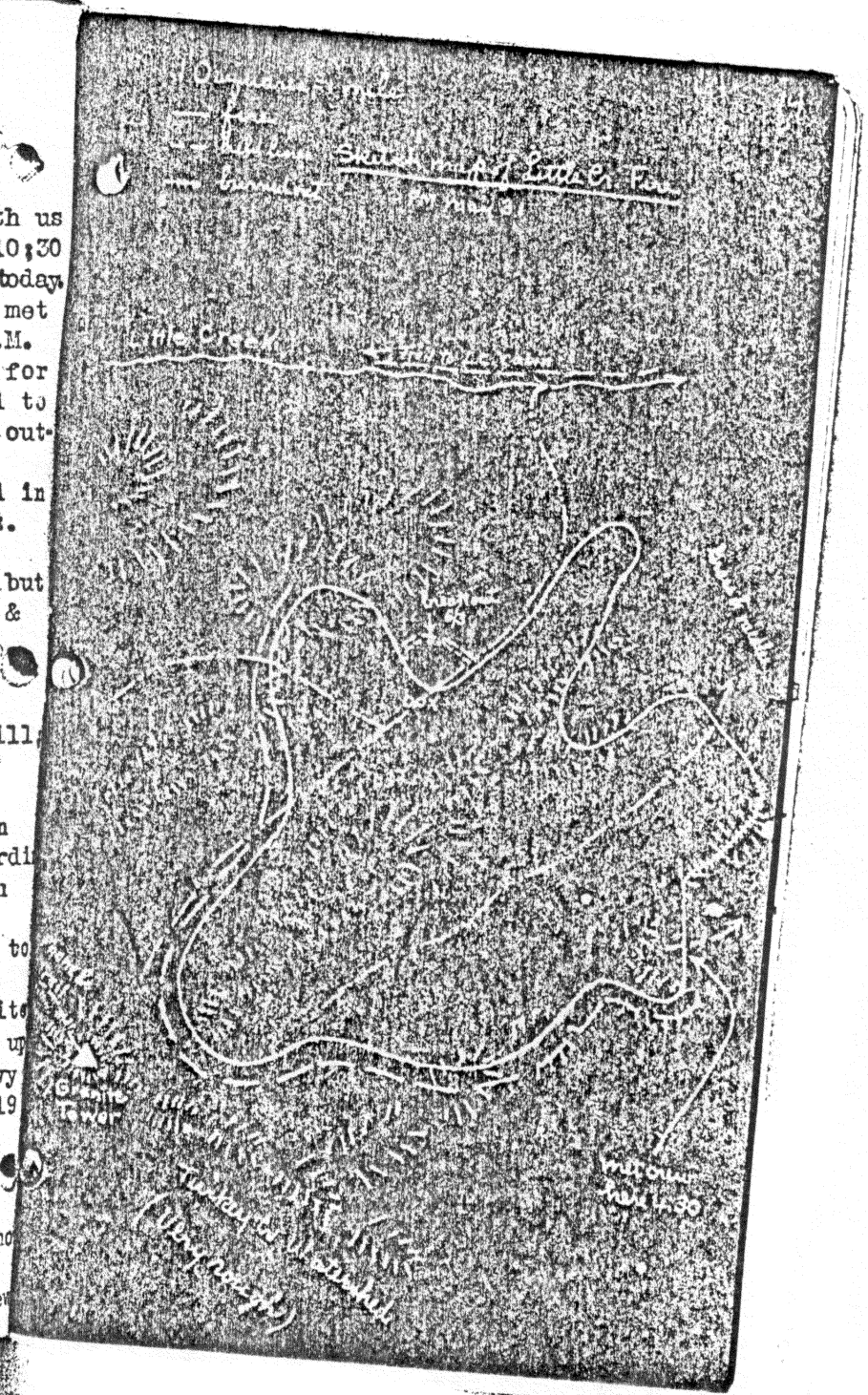
P.A.men said Watson would not let them take their beds, and gave them only 1 sardi & cracker lunch. Had not eaten since noon 30th,

At Winn's request, instructed Boom how to keep time in time book

12:30 At Winn's suggestion, rode to Granite Tower. Arr. 1:30 soon after Woodrow came up. Started sketch of area. Slight rain, heavy lightning, and SW gale started. W. says 19 men on line now.

2:45 Storm over. New fire 265°, head Mogollon Cr. Woodrow to send 5 men off line and replace by green hands from PA, no in camp.

Another fire at Snow Park. 2 members' tr.crew to it.



4:30 After inspecting line NE from peak with Woodrow & Perrine caught up with crew 5 men and gave them chuck & water. They had built (est) 1½ miles tight line along ridge in extremely rough country. Second storm with lightning & a few drops of rain about 4:00-4:15. Parts of the line burned out and parts put out by rain in spots. Not out in needles under trees. Rain affects grass fire first. Hit Cr. 5 miles below camp. Arr. camp 8 P.M.

6/1 6:30 A.M. Soule and mill crew went to relieve crew on E. side. Winn & Woodrow started around fire. Perrine after a beef. I stayed in camp. 7:00 Bowen called from Wh.Cr. that he was off for Mogollon; said Grouse Mt. & Snow Pk. appeared to be out, Mogollon Cr. not spread much. 7:00 A.M. Chas. Eaton arr. & said PA burros played out on Turkey Cr. Said grain packed without covers - sacks torn and 100# lost. Watson tended to it - Hulbert not there.

11:45 A.M. 2 of the Mogollon Cr. fire crews came in for chuck & water. Left 3 on line. Said 65 acres under control. Grants called and said was smoking up and wind bad.

1:00 P.M. Ellis phoned Mogollon Cr. fire must have escaped. Sent back the 2 men with chuck and water and told them would try and get relief to them by morning, also 1 PA man from top. Left with Perrine's pack mule 2:15 P.M.

2:45 P.M. Eaton arr. with PA pack train. Perrine arr. with beef. No thunder so far today.

5:00 P.M. Winn & Woodrow back. Say line all the way around now, but break occurred about 4:15 on NE corner. Winn estimates cost will be up to $2,000. 2 outfits with list 2 on way from Mogollon, one at Willow Cr. tonight

and 1 at White Cr. Now have 27 men, 7 at Mogollon. 5 men left Cliff with supplies & outfit last night for Mogollon.

Winn's Plan Soule to take charge Little Cr. tomorrow, Woodrow to go to Mogollon tomorrow to size up. No. 1 outfit to come here from Wh. Cr. No. 2 with tools & cook outfit to proceed to Wh. Cr. from Willow.

6:45 P.M. PA crew came in for night. Only Ellis' crew 5 men left on line. Came in without orders and Woodrow says will probably stay in for night.

6/2 5:30 A.M. 2 of Mogollon crew are here again and say wind at sun down caused fire to break - now about 1 section. They left there about 12. Cliff outfit had not arrived. They got 1 hr. rest here.

7:30 A.M. Left with Woodrow & 7 men for Mogollon. Perrine after another beef. Soule to stay with L.C. fire for patrol. Message from Bowen now shows that Cliffs' outfit went to a fire at Shelley Park, not Mogollon. Woodrow told Bowen to line up another outfit at Cliffs' and await instructions. Arr. head L.C. 8:20. At fire 8:45. Looks good. 12 A.M. Been around fire-corralled but many bad places needing watching. Not over 200 acres. Old crew resting. New crew patroling and falling snags. Woodrow will come back tomorrow. No more men or supplies needed. Left 1 P.M. for L.C. Arr. 3 P.M.

3:30 P.M. Granite reported flarewp in Rocky Canyon. Connor & I went up to tower on foot 2 mi. arr. 5:00. Located fire, dropped down Rocky, arr. at fire 6:30 P.M. 7:30 P.M. completed line, sent Connor in to camp while I stayed with the fire over night. OK

6/3 in A.M. Left 4:30 AM. arr. camp 6:30 A.M. Soon after Mogollon outfit No. 1 left for home. Heart Bar men went home.

8:45 A.M. Woodrow and all but 3 men arrived. from Manzanita, which they say is in good shape.

9:00 A.M. Rest of Soule's crew came in from L.C. fire.

9:45 A.M. Mogollon outfit No. 2 arrived.

11:30 A.M. Soule's crew went home.

2:30 P.M. Another breakout reported on Rocky Can. Winn & Woodrow went to it.

2:45 P.M. Black Pk. reported smokes on Little Cr. at 328 & 333. Former is Rocky Can.-latter Granite says is inside the burned area.

2:45 P.M. Centre Baldy, thru Wh. Cr., reported smoke on Grouse Mt. some place as several days ago. Despatched Apache Cabin fireman and told him to call from Mt. as to progress.

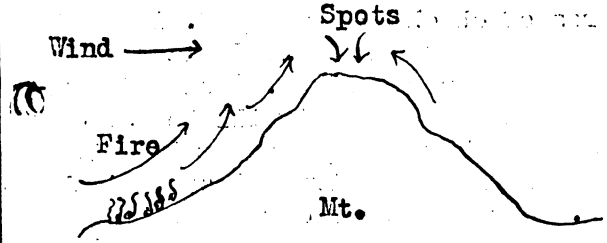
5:30 P.M. Centre Baldy says Smoke on Grouse Mt. worse-no word from Apache man-sent 2 trail crew men to reinforce him with food & water.

6/4 Breakout on Rocky Can. Winn & Woodrow went. Also an interior fire on SE side.

6/5 Winn & I left, leaving Woodrow & 5 men for patrol.

6/4 Soule came in and said that Hicks, Per Diem Guard, was making an agitation among crew over his pay. Says was paid only 30¢, should get 40¢, and received less than the other men in his crew. Said to have F.S. key to fire tool box at mill.

places. No active smoke on S. shoulder; Examined water-is O.K.
9:00 Ford.arr. with outfit at saddle. Short coffee pot, bread pan, beans, bean pot. Only 1 water bag. No big knife or spoon.
Genl. Notes Bowen says he is not sure caused by lightning-start was near trail. Lightning previous day. Crowned and ran a mile within an hour after report.
Spotfires have occurred up to a mile uphill from the edge of the fire. One near camp, one on top Willow.
Meat cooked and packed hot in tin cans soured before they got to Whitewater with it.
Many blistered feet-all with cotton socks.
2 Foremen disobeyed orders and left their crews on E. end-Wyles & Ford. Bowen did not jump them out-needing all the men possible.
Bowen says he sent Woodrow many of his best men from Mogollon, like Burrall, This was after Whitewater had started and was very commendable in him.
I don't see where the 6,000 acres is. Looks to me about 3,000.
Horseflies are so bad they would kill a tied animal in a day if sun out.
Cloudy and cool today.
1:00 P.M. After dinner at Willow Saddle camp rode to top Mt. and found Ross and 4 men (3 Mexicans) working spot fires of which he said there were 12, one an acre in size and all in very dangerous duff & rocks and far from safe in case of wind. Ross says Mexicans won't stay out. I suggested a lookout detailed to climb trees, an extra man on Grouse Mt. to stay all night, and 3 lines around each of these spots. The main fire line is probably nearly a mile from here.



Probable origin of spots
(Parched spruce scales & aspen leaves all over top.)
Ross says his axes have loose handles and were not sharp.
Patrolling the Coffee Pot Only one way to prevent, and that is to have fixed crews and foremen who keep their time, with line bosses mounted keeping track of several foremen. This is also the way to prevent good men overworking themselves.
The axe in Ross' camp is apparently new, black, made in Lewistown, and as nearly as I can see never has been sharpened. Why shouldn't line bosses carry files to sharpen dulled stuff?
New triangular toothed rake is fine for duff and brush but dulls in the rocks and doesn't get between them.
Ross knew he was a foreman but said he didn't know he had authority to give orders to the crew with him. Did not know either about the saddle camp or that he could eat there.
2:30 Thunder east of here. Returned to saddle camp and left word for Baugh that I would either meet him here at 8 A.M. or go down to River camp and look him up. Cook says relief crew of 14 that slept at mill just went down to join Baugh.

	Line Men	Camp Men	Total
(Brot. forward)	15	5	20
Line 2. Baugh	4		4
Crew Ross	6		6
(Baugh) Simmons	6		6
Line 3. Darwin	4	1	5
	31	10	41

Warner says Mule Cr. bunch were erroneously paid full time night and day in spite of being off shift part of time and time in travel. Silver bunch now demands same. They were given slips after I had given Bowen the Time Rules. Were off shift night of 18th par of day of 19th. Simmons says Cox promised full time from leaving to return. Bowen called-office said agreement was signed as per rules. Asked Simmons to see if agreeable to his bunch to take time by the rules with understanding that if any agreement to contrary was made by any F.O. additional time will be vouchered. Conferred with men and said this was O.K.

Phoning about this matter was very awkward in public camp. Phone and F.O. camp should be off to one side if possible.

Notes: Hdq. camp less orderly and more poorly fixed up than Baugh's or Darwin's. Chuck good in all. Believe more beef would have saved money. (Bowen says only bacon in stock.)

Putsch is in Mogollon. Believe this is a mistake..

10:00 A.M. Went over notes briefly with Bowen, stating main faults and strong point as to this fire.

10:15 A.M. Mrs. Bowen says fire in Sheridan Gulch-i.e., looks full of smoke but no lookout reports. Direct visibility from Grouse Mt. - Woodrow's test call.

11:00 Mrs. Bowen says Glasscock claims to have left Grouse Mt. 1:35 P.M. and returned to Apache Cabin 4:20. Reported at 12:41. Admits he never got to fire.

Bowen says he was 8 hrs. getting to East Fork Fire last year. Reemployed by Woodrow.

Sheridan Gulch Glasscock says clearing-thinks it's smoke from other fires.

Baugh in, brought in men. Has 10 left altogether. Darwin sent in all but 4.

12:00 Wagon arr. from Mogollon with chuck. Bowen says ordered yesterday, partly to cover shortages but now not needed. Seems probable that order could have been countermanded after yesterday's rain.

Mix-up in charging of shoes.

Simmons left for Mimbres with my horse and Warner's. Account for this to be settled after he gets to Silver.

Bustamente says lost $11.50 tarp, quilt, navajo, & pillow when burro outfit burned. Was cooking for Darwin. Total claim, $30.50.

Warner has looked up on map and says that only a small corner of this fire was actually on Woodrow's fire district.

Lbft 1 P.M. for Mogollon by wagon. Two boys of Darwin's crew said one had been axeman but had raked line with his axe and had a hard time. Said Darwin was "Everywhere at once".. Claimed mistake in their time but said would have come out without pay "to do their part."

Warner suggests that big fires in certain localities may require certain fixed numbers of men to control. Suggests looking up Calkins 1916 fire & 1904 fire in Whitewater.

Also suggests blank cardboard signs for organizing camps & directions along trails.

Arr. 3:00 P.M. in Mogollon. Cope & Miss Kellogg in rented quarters and paying off, evidently running very efficiently & smoothly. Asked them to act as a committee in recommending improvements in fiscal system. 92 men paid to date. Following forms being made out, on presentation time slip.

Check
Receipt for Cash Payment, Form 526
Requisition for Purchase under Reg. GA13, Form 414
Receipt for Purchase under Reg. GA-13, Form 414a.
Receipt for personal supplies under Reg. A-7, 414b.

I think the last is for commissary bills and not applicable to this case. Miss K. brought these forms with her. Also check book with her name printed at head of check.

Darwin Rumor: Cope says Baugh himself phoned that he had seen fire jump Whitewater and on Baldy. Bowen had not phoned that evening and Meigs had not got thru with Bowen's message that he would phone in an hour. I heard Bowen tell Meigs to do this and my recollection is that Bowen said Meigs said he did. May have been poor phone..

Timeslips: Warner has impression that first discharges were merely kept in time book and not given slips-hence could not be pai at Mogollon till Lipsey came in.

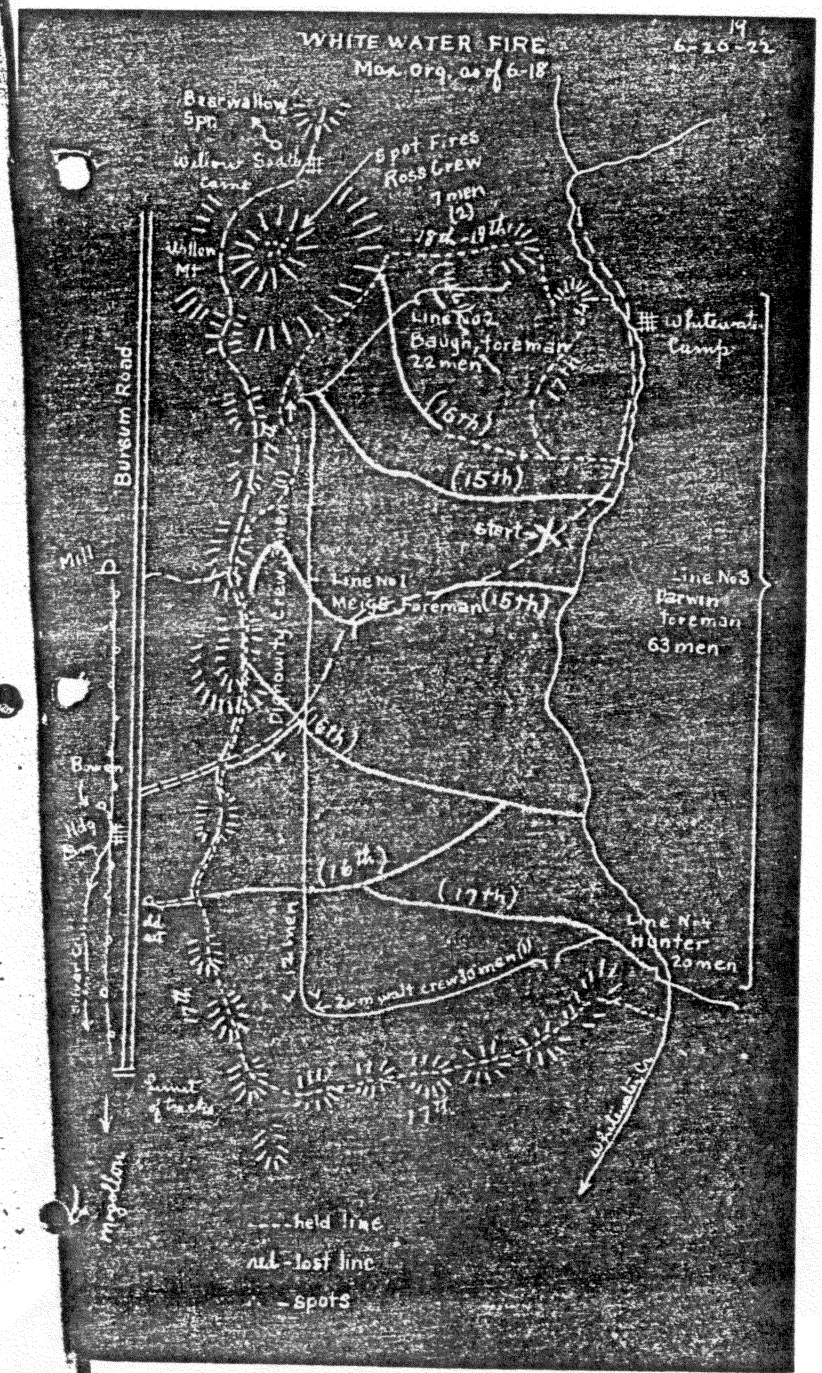
Instructions to Special Dep. Fiscal Agents issued 1921.

1. Prohibits payments to local residents. This is impracticable as men are mixed and expect pay.
2. Prohibits payment for subs.& equipment, with small merchant this may exhaust credit and interrupt service.
3. Transportation not mentioned but says so in circ. Many small pack outfits of same class as fighters. Results in imposing on merchants to carry these accounts.

Patronage: All but one order of chuck and a few odds & ends were given MacKintosh. Put up 30 min. for list 2 while Coates took 1½ hrs. List not filed with Coates-this was a mistake in Fire Plan.

4/21 Mrs. Bowen Took 24 hrs. to get started. In charge of Deems. Told to go to Grouse Mt. and instead went to Apache Spring, where they stayed 2 night on govt. subsistence although told to go home the evening they arrived. Claimed to have lost their horses there. I doubt if these men should be paid-at least should be barred from future employment.

21 Silver City Crew: Agreement in office as per phone message. Two claimants turned down for extra time. I approve of this decision.


WHITE WATER FIRE
Max. Org. as of 6-18
19
6-20-22
Bearwallow Spr.
Willow Saddle Camp
Spot Fires
Ross Crew
7 men
(2)
18th-19th
Willow Mt
Line No 2
Baugh, foreman
22 men
(16th)
(15th)
Whitewater Camp
Bursum Road
Start
Mill
Line No 1
Meigs Foreman
(15th)
Line No 3
Darwin
foreman
63 men
Dignowity Crew
(16th)
Bowen
(16th)
(17th)
Line No 4
Hunter
20 men
12 men
2 m walt crew 30 men (1)
17th
Limit of tracks
17th
Whitewater
Magollon
---held line
red-lost line
-spots

6/18/22

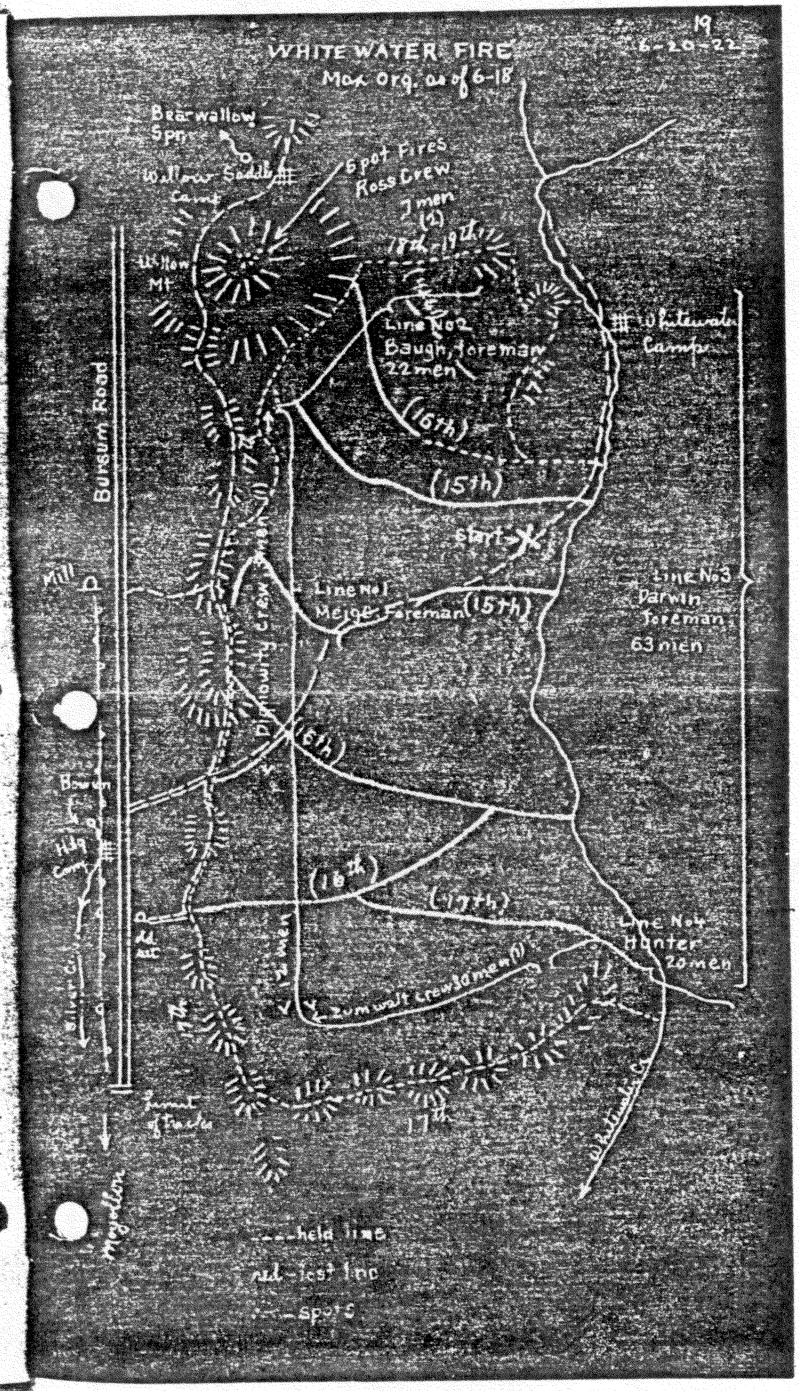
Cost Estimate, Whitewater Fire

Date Wages	No. men	Hrs.	Rate	Amt.	Burros	Rate	Amt.
14	30	12	32	$115	Days		
15	80	14		168			
16	90	18		358			
17	110	15		518			
18	150	20		960			
19	125	15		580			
20	30	15		135			$2699
20-30	15	15		700			
				$3535			

Harris from Silver: $20 Autos & 3 Silver @ 40 = $120. 2 Bennet trucks $50.00, County $50, Mix. $50	290
Horses; estimated (on fire line only)	100
Chuck, & transport of it	1500
Wagons; mostly in chuck. Kelley extra team trip	20
Grain;	
Equipment; at Mogollon $40, Silver City $	100
*Claims; Bustamente $30.50 Hobbs (Ford) $300. Harris (Ford rep.) Palomas burro & packs $100	430
Wages:	3500
Mill service Cooks, 3 for 3 days $20) Chuck, est. $50)	70
Travel Miss K., Warner, Cope, etc.	100
	$6110
Unforeseen	390
	$6500

6/20 4:00 P.M. wages to date $2648.50

*injuries not out of our allotments.


19
6-20-22
WHITE WATER FIRE
Max Org. as of 6-18
Bearwallow Spr.
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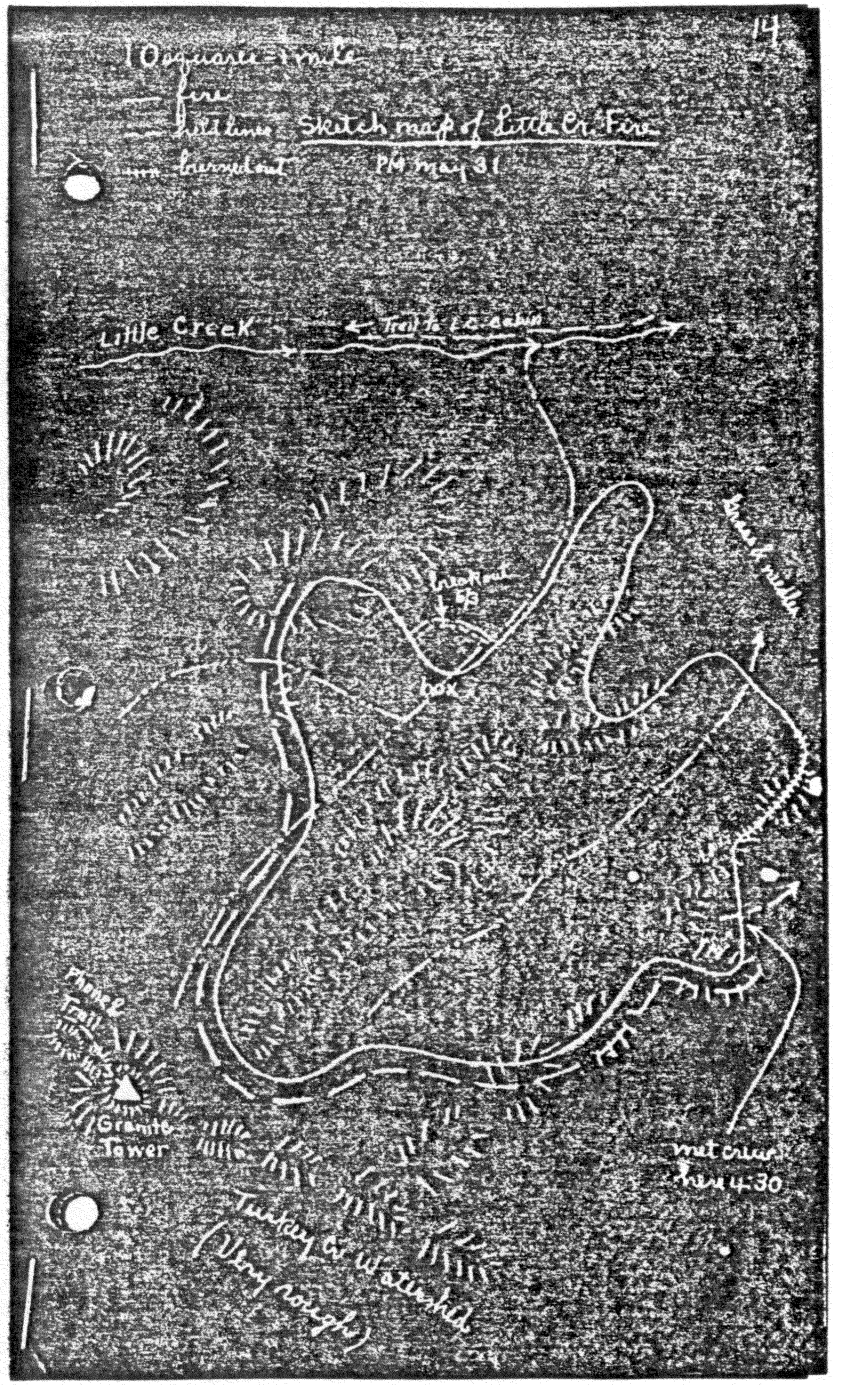
Bowen
Hdq Camp
(16th)
(17th)
Line No 4
Hunter
20 men
Zumwalt crew 30 men (1)
Silver Cr.
Limit of Tracks
17th
Whitewater Cr.
Mogollon
held line
red-lost line
spots


14
10 squares = 1 mile
fire
held lines
burned out
Sketch map of Little Cr. Fire
PM May 31
Little Creek
Trail to L.C. cabin
breakout 5/3
box
Phone & Trail
Granite Tower
Turkey Cr. Watershed
(Very rough)
met crew here 4:30

OF

D

Supervision-Inspection,
Prescott.

June 29, 1922.

Memorandum for Mr. Leopold:

There are a number of things I would like to have you look particularly into while on the Prescott on general inspection this fall.

Mickelson case: Prescott notes p. 48. Would not move him from Prescott but rather favors Wales plan to get him off BB district

Mickelson is doing good work according to Wales, but his wife is afraid to be left alone and while he was away on roundup work has been staying in settlements which, of course, is an expensive proposition. Wales fears that he will lose Mickelson on this account. I would like particularly to have you size up the situation and determine whether we could save Mickelson to the Service by some sort of transfer and if so, see what can be done towards bringing the particular kind of transfer about.

Fire Protection System:

The impression I got is that the Prescott, through a lack of telephone communication, is not as much on its toes in the fire game or as well prepared to act quickly as most of the D-3 Forests. There is no communication between look-outs for cross-readings and there is no chance for the esprit de corps among the fire personnel that is developed through the repeated check-call system now practiced on so many of our Forests. The men are more on their own, so to speak, and the individualistic side of the fire protection game rather than a team side is developed. Wales is planning to put up a small tower and cabin on Mt. Union this year. I understand he expects to get up another tower also. I asked him to have prepared for you at the time of your arrival a summary of the protection improvements he believes he needs. He will also have ready a summary of the needed telephone constructions As I understand it, there is no telephone connection with the Walnut Creek, Johnson Wash and New River Ranger Stations. There may be other stations not tied in by phone. He was planning to make a Walnut Creek connection and New River connection in 1923 if funds were available. My guess is that the Prescott needs protection, including telephone improvement money, about as badly as any Forest in the District.

Yes, notes p28. Think they have along call on our money. Talked over general need of supp plan but did not go into details of each project - he can handle that

Memo....

There is an area of pretty high hazard - but fatality. Absence of phone greatest difficulty.

Camp Wood Lookout:

Wales wants a fire lookout at Camp Wood. Am counting that your trip on the Prescott will give you an opportunity to go into this among other matters.

Grazing:

Roberts' very complete grazing report is going to relieve you of the necessity of going into grazing work unless you should happen on some individual cases that seem to deserve comment as to handling or policy or unless you develop decided views as to Wales' methods in handling his grazing permittees. In respect to the latter, I intend to have a discussion with him and Mr. Kerr at Prescott in early July. My off-hand opinion is that Wales has relied a little too much on implied threats and too little on diplomacy in bringing about much needed reforms. He is getting reforms all right but with an ~~unnecessary~~ unfortunate amount of friction. I think I can help him a little by a discussion of ways and means at the Prescott conference.

I found nothing wrong from what I saw of his methods. There are scattered individuals who are against him, but this may be the result of propaganda by certain leaders

although not much opportunity to see him deal with many.

October 6, 1922.

D
Supervision-Prescott,
Inspection.

Forest Supervisor,

Prescott, Arizona.

Dear Wales:

The enclosed copies of Inspector Leopold's report proved intensely interesting to me and will, I am sure, prove helpful to you. Please keep one set intact in your D-Supervision files which leaves one set for distribution among your files and another for such use as you see fit.

The tally sheets show in detail errors of omission to be corrected and the notes and typewritten sections, particularly the introductory portion, supply food for much thoughtful consideration. I am not going to comment on this report - I think it speaks for itself. What I do want to say in transmitting it is that I believe you have made very exceptional progress as Supervisor and that under your administration, the Prescott is going to develop along sound lines. The earlier inspection of Mr. Roberts shows distinct progress in grazing work and while it showed that only a start had been made, I have every confidence that as rapidly as it is wise and practicable to do so, you will bring about the needed adjustments in that very important use of your Forest.

Aside from your own efforts, I am not unmindful of the efforts of Deputy Munro, and the ranger, clerical and protective force. All of which combined under your leadership, are delivering the goods.

With best regards,

Copy in Wales' personnel file

Very sincerely yours,

Frank C. [illegible] Foster

Enclosures - 5

District Forester.

D
ervision-Prescott,
pection.

OF

REPORT OF GENERAL INSPECTION

of

PRESCOTT NATIONAL FOREST,

Aldo Leopold

Asst. District Forester

July 31 - Sept. 1, 1922

Copies as follows:
√1 - D.O. Inspection file
1 - D.O. Case files
1 - F.S. Inspection file
1 - F.S. Case files
1 - F.S. for division

GENERAL APPRAISAL OF PRESCOTT FOREST

1. CONDITION OF THE FOREST PROPERTY.

(a) Range & Watershed. A large part of the range and watershed resources have been badly damaged. The responsibility for this goes back a long way, but does not lie with the present Supervisor. He has made notable progress in laying foundations for range conservation, and in my opinion the completion of this work is the most important job confronting him. Hand in hand with the restoration of the range there must be still further inculcated in the local force the idea that watershed conservation is a concrete, measurable, feasible job of prime importance, for which we are definitely responsible, and in the stockmen the idea that their tenure hinges on their ability to demonstrate that the watershed can be grazed without serious damage - a matter not yet demonstrated on the Prescott.

(b) Timber Resources are in good condition. I refer here to the fine pine reproduction and widespread encroachment of woodland. Of course, this can not be credited to the present administration, although the survival of the young pine can be credited to keeping out fires since the creation of the Forest.

(c) Fire & Insect Protection. The whole fire record of the Prescott, as measured by damage, is good, and the present administration can be credited with an appreciable start toward the improvement of the fire machine. This ought to be reflected, in time, in the damage record. The record on insects is clear of outbreaks of damage, but the lack of local knowledge of them involves an unnecessary risk of valuable resources.

(d) Agricultural land is rapidly disappearing. While we do not own it, I can not emphasize too strongly that its conservation is essential to the success of watershed conservation and to the welfare of all Forest industries and uses, including grazing, timber, and recreation, as well as to the development of roads and trails. While technically we are not responsible for it, we are forced to secure its conservation. It can at least be said that the Supervisor knows this, although nothing has been done, on the Prescott or elsewhere.

2. IMPROVEMENT, DEVELOPMENT, & EXTENSION OF FOREST PROPERTY.

(a) Range. A good start has been made under Wales toward range improvements, of which not the least important point is the explicit recognition of the fact that range conservation without range improvement is impossible.

I think we all have our sights too low as to the potential productiveness of the Prescott ranges, and conversely, we

do not realize the degree to which they have deteriorated.

(b) Watershed. While little can be said in extenuation of present conditions, it can be said that the present administration is the first one to admit the existence of a problem, and to admit that effort and ingenuity may solve it.

(c) Timber. A start has been made toward better sales practice. If I am right as to the possibilities of extension of timber areas, it is a lamentable reflection on our past administration that we have not known, studied, or acted on them.

(d) Recreation. The development of this use has been entirely satisfactory, both under the present and past administrations.

(e) Improvements. Wales has made fine progress toward perfecting stations and has the plans for handling telephone money when it is obtained. His road and trail work is good and steadily improving.

3. BUSINESS EFFICIENCY OF ADMINISTRATION.

(a) Handling personnel and funds. Very good.

(b) Planning work. Fair but improving.

(c) Inspection methods. Good and improving.

(d) Public Relations. Good as far as I could see, and improving. Not a "popular" administration but "wears well".

(e) Organization. Staff overloaded and must recognize that better methods rather than bigger staff is the remedy. Better methods and avoidance of overwork are vital. The field is taking on increasing load but can and should carry more.

(f) Management of office, equipment, and property. Good.

4. GENERAL SUMMARY OF WALES' ADMINISTRATION.

Wales has the forester's attitude toward fundamental conservation problems, and is organizing to solve them. This is his strongest point. He knows where the defects are in his machinery, and has shown good skill and made reasonable progress in correcting them. All he needs is time to make a success of his job.

C O N T E N T S

Sec.	Subject	Page	Notebook Pages
A	Fire	1	2-20
B	Finance	9	21-27
C	Improvements, Pastures, Forage, etc.	13	28-35
D	Transport	18	57
E	Roads, Trails, Maps, Surveys	20	58-68
F	Public Relations	25	69
G	Forest Management	26	70-75
H	Grazing	30	76-78
I	Lands, Erosion, etc.	32	79-88
J	Game & Fish	36	89-91
K	Organization	37	93-105
L	Personnel (separate section)	46	37-56

A - FIRE

Aside from conditions covered in the tally sheets, the following are to my mind the points of outstanding interest and importance in the Prescott fire situation:

1. Brush Hazards. There is no consensus of opinion, or other reliable guide for framing a fire organization, on the question of when, how, why, and what kinds of brush constitute a fire hazard.

For instance, everybody "knows" that manzanita is bad. But when an analysis is attempted, there are great differences of opinion. Sometimes it burns clean, sometimes there is only a slow duff fire killing the tops. Some say it takes a heavy wind and an uphill run. Some say it burns only in spring. Only this is certain: that sometimes it makes a very bad fire. I suspect that its combustibility depends on a certain combination of Season (vegetative state) and Dead limbs (See Manzanita Disease, p. 4, (N.B.#5), as well as the usual factors like wind, duff, mixture, dryness, slope, temperature, etc.

I believe that careful tallying of behavior of fires will reveal the main factors for weighing manzanita hazard. Until then, we can only assume it is a hazard whenever dry, although I believe this assumption is untrue and conducive to waste of time, money, effort and safety.

Broadly speaking, we know equally little about other brush types.

The point is that inflammability of timber happens to be a comparatively simple matter, solved years ago by ordinary observation (save for certain refinements like evaporimeter work). But inflammability of the Prescott (and probably other) brush fields happens to be complex, and requires more refined methods for successul solution. The "cumulative tally" will, I believe, be found to be refined enough for practical purposes. The Supervisor is fully acquainted with this method.

2. Ecology of Brush Type. After much discussion with the local officers, I suspect that a part or all of the Prescott brush field will some day be found to be a temporary type, which scientific administration can alter if desired.

AN ODD STATEMENT

Evidence	Reference
Brush has grown in thickness and height.	Most old timers claim this.
Pinon below brush fields.	P. 4 (N.B.#4) 3?
Woodland species killed by old grass fires.	P. 3 (N.B.#2) See also "S" p. 26
Manzanita reproduced by fire.	P. 4 (N.B.#4, 5)
Brush coming in to Juniper.	P. 28 (N.B.#71)
Burned juniper stumps in brush.	P. 28 (N.B.#72)

Fire and grazing have probably brought about these changes, and will also be the main agencies through which the future can be controlled. See discussion under "S", p. 26 .

3. Applicability of Fire Atlas Requirements. I am convinced that on the Prescott the solution of such problems as (1) is more urgent than the literal execution of all the standard Fire Atlas requirements. See bottom of N.B. #3. I therefore propose that the Atlas requirements be not mandatory on the Prescott, leaving the whole matter to the discretion of the Supervisor.

4. Fire Organization. Very satisfactory progress has been made in improving the whole fire machine, the outstanding need now being telephones. In his letter of September 6, Wales has submitted a good summary of fire improvement needs.

The request for a guard at Camp Wood I can not finally answer. A phone line is more necessary than a paid guard. I am convinced that the phone should be built first, and that at least a per diem, paid during emergency, is necessary. Since we are having no fires, I advise going ahead on this basis till we see how it works and learn some more about brush hazards. How soon the Camp Wood road can be improved will also enter into the question.

8/5 Brush of the type formed in Copper Basin, with only a small proportion of manzanita, will only burn in hot dry weather, according to Munns & Haggins.

8/6 Fuel of Brush Fire Hazards

1. Manzanita. Green bushes burn down to stubs when started by the dead leaves underneath. Makes a large with a wind there is no stopping it. Often burns in midwinter rain.
2. Silver Bush. Practically same principle except does not burn as clean.
3. Bumbal Bush. Dead leaves only.
4. Q. undulata. Sometimes supports a fire uphill on with a heavy wind but never burns as big area unless supported by grass, manzanita, needles, etc.

5. Black Ceanothus - bad

8/7 Past Fires on Brush Ranges 1½ miles E of Perkins Spring along trail in an area burning 5 Aug. 1924. Oak brush, 4' density grammar and side oats, and 3 Junipers, 2' DBH, per acre, killed by an old top fire. The area now would not burn at all. What combined fire severe enough to kill the Junipers outright?

Ring count of an average oak bush 2½" on stump 6' high showed an age of 35 to 40 years. Presumably this grew since the fire.

Wales theory somewhat however grass and a good deal of pinon now commanded by clearing and possibly subsequent light fires.

My theory extremely heavy grass since destroyed by overgrazing.

The two theories would be carry with them two widely different objectives for grazing management and re-established protection. The first theory must [illegible] the present vegetation are measurably close to satisfactory. The second theory must regard the present vegetation as a state of denudation.

Granted such are important bearing on practical present problems, as it not important to get the best available skill to diagnose such indicators - areas, and recommend, for administrative approval, pretty definite objectives or ultimate standards of conservation?

Chamise Hazard Area as about 1 Twp. Pinon, manzanita, Ceanothus are the hazard plants.

Points for Suppression Outline manzanita can be broken out by pulling up and back better than it can be chopped. Where possible, a brush fire is usually put out by running at right flame where the line can be raked. Burning lines difficult & unsuccessful.

Inflammability Box pt 4/8 by HBW, EHO, AL

Species	Brush	Litter	Burned	Remarks
Ceanothus	7'	4" Bumbal leaves	7 min	nearly clean
Calif Oak	8'	4" leaves & needles	23 "	not clean
Manzanita	6'	would not burn		
"	12'	"	"	

8/9 Hazard Maps will I think be necessary for a proper size-up of the fire situations. Might be advisable to show burnable areas as timber, timber & brush, and brush, and to define burnable areas as that capable of running as ½ sec fire. The hazards are no on the old wall chart are so wrong as to be worthless. A better type map has been prepared for the Atlas, but this is distinct from the hazard map.

8/10 Fire Atlas See above, also enlargement of fire plans, Next p. II, III, IV, VII, IX, X, XII lacking as well as all entry of the new decade.

PRESCRIBED BURNING!

13

8/17 Smoking Rules in areas can effect stay past fire areas.

8/16 Fire on brushes Areas should provide place for accumulating information on:
(a) Which species sprout after fire? What seasons?
(b) How soon do fire scars disappear?
Observations made:

Manzanita	Bottom	2"	20 yrs	5500'
"	Ridge rock knoll	1"	31 yrs	7400'
"		1 1/2"	18 yrs	5500'

(c) To what extent is hazard dependent on
Elevation
Slope
Grass
Species. Determine inflammability by species & seasons
Presence of dead material

(d) Types relations of fire. Is manzanita or brush an general after types?

8/17 Ceanothus sprouts 6" long on Hell's Hole Fire Area burned June 7, 1922. Also Sawbuck Oak.

8/17 Horsethief Basin Fire 1916 2500 acres Jeffrey ?
Manzanita stems not consumed, even small twigs.
Much young stuff but partly away from vicinity of old bushes with every appearance of being all dead rather than root sprouts. About 2' high and 1/2" diam. Count 8 yrs - 1 pint evidently false. Ceanothus root sprouts 2' high, 1/3"; count 8 yrs - 1 pint of ales.
Scrub 1" - 2" diam. root sprouts 3' - 5' Douglas. Count 6. 5" pine saplings rotten inside of all dead.
Juniper 7 rings 2 - 2 1/2' high 1" diam evidently old dead.

8/18 Brush & Prescott Fire is an immense body of timber on road between Prescott & Dewey entirely below the brush types.

8/20 Track data Wadhams agreed to work up special data on tracks for use in forest enforcement work. Records talked over with Mr. Brian.

Name of Fire	Year	Mo.	Reproduction Ht.	Density	Area	Original Ht.	Density	Area
Horsethief	1921	6/9	30'	10"	.3	60'	up to 4"	.6
(Live oak burned W.Y.P. saplings up to 4" diam.)								
Horsethief	1916	6/	1.50"		.5			.1
(Live oak burned W.Y.P. poles up to 6" diam.)								
Grizzly Wine	1920	6/20	.5'	.20'	.9	6'	up to 2"	.5
(Live W.Y.P. & Ponderosa Oak, all killed except big pines)								
Horsethief	1916	6/	2.0'	.50"	.8	10.0'	up to 6"	.4
(Live W.Y.P. which killed the saplings but left mature trees)								

Only isolated single plants of reproduction seen off of fire areas. The heavier the burn the more abundant the reproduction. On burn killed pine areas there was no manzanita reproduction, indicating that it is the fire and not merely the opening that induces reproduction. Frequent cases of big manzanita crowded out and dead under full stands of pine saplings. Manzanita is attacked by fungus or insect which kills limbs but no instances seen of killing the whole plant. Thus re localized and attacks plants from 1' height up. It may account for the large amount of dead wood seen in some patches, which probably greatly augments inflammability.

Nothing dates manzanita except twigs, which are moist to retain the tender rootlets.

8/28 Manzanita diseases also noticeable on Prescott Rest.

Route 8th trip

…ion effect this past fire

…o should provide place for
…n above one
…ent after fire? What reasons?
…cone disappear?

…de:
Bottom. 2" 20 yrs 5500'
Ridge 1" 91 yrs 7400'
Rock bull 1 1/2" 18 yrs. 5600'
…azard dependent on
…6 species. Determine influence
…ability by species & seasons
…Presence of dead material
…. No mangzanita or buckbrush

…on Hell's Hole Fire Area formed
…el Oak.
2500 acres [illegible]?
…removed, even smaller twigs.
…t partly away from recently
…y appearance of hence seedlings
…. About 2' high and 1/2" diam.
…ently false. Ceanothus root
…ount 8 yrs - front false.
…oot sprouts 3'-5' high.
…plings within ends of stems
…s 2-2 1/2' high 1" diam randomly

…annual body of pinon via
…ssway entirely between the branches

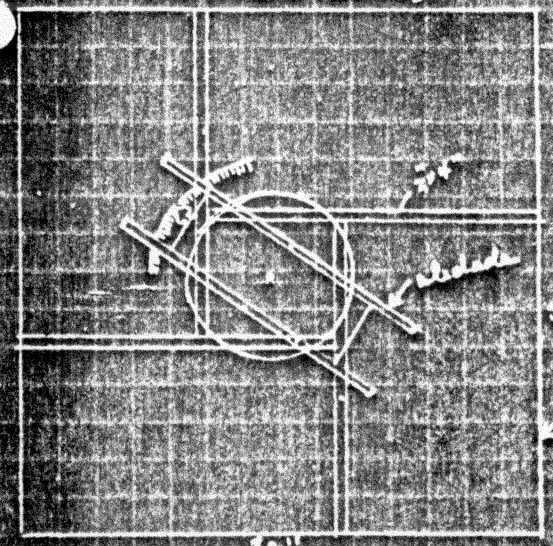
…e agreed to work up special
…e on lower enforcement work.
…the trees.

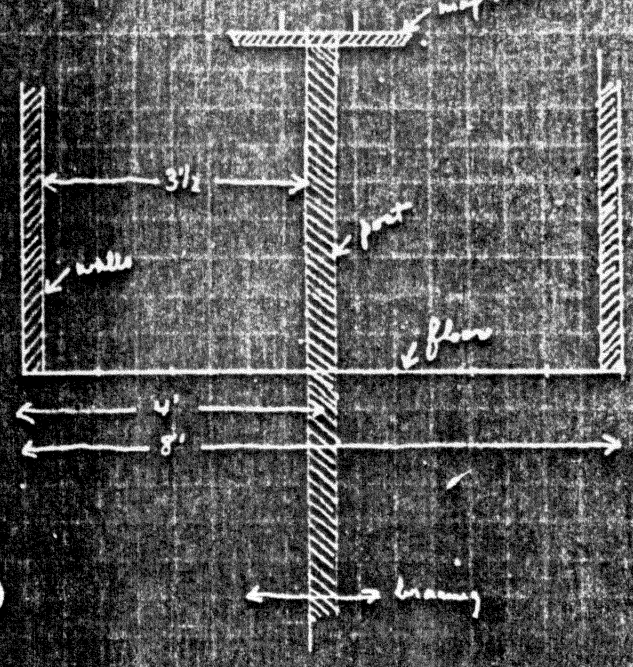
Name of Fire	Year	Mo.	Reproduction Ht.	Diam.	Ages	Original Ht.	Diam.	Ages
Jobs Peak	1921	6/9	80"	1.10"	3	6.0'	up to 4"	6
(Live Oak burns W.Y.P. saplings up to 4" diam.)								
Horsethief	1916	6/	1.50"		5			?
(Live Oak burns W.Y.P. poles up to 6" diam.)								
Bunny Wms	1920	6/20	.5'	.20"	9	6'	up to 2"	8
(Live W.Y.P. & Canyon Oak, all killed but big trees)								
Horsethief	1916	6/	2.0'	1.50"	8	10.0'	up to 6"	14
(Live W.Y.P. which killed the saplings but left mature trees)								

Rarely isolated single plants of reproduction seen off of fire areas. The heavier the burn the more abundant the reproduction. On burn killed pine areas there was no mangzanita reproduction, indicating that it is the fire and not merely the opening that induces reproduction. Frequent cases of big mangzanita crowded out and killed under full stands of pine saplings. Mangzanita is attacked by engravers or root rot which kills bunches but no instances seen of killing the isolated plants. Thus isolated ones attacked plants freeze 1' height up. It may account for the larger amount of dead wood seen in ravine patches, which probably greatly overgrown with flammable vegetation.

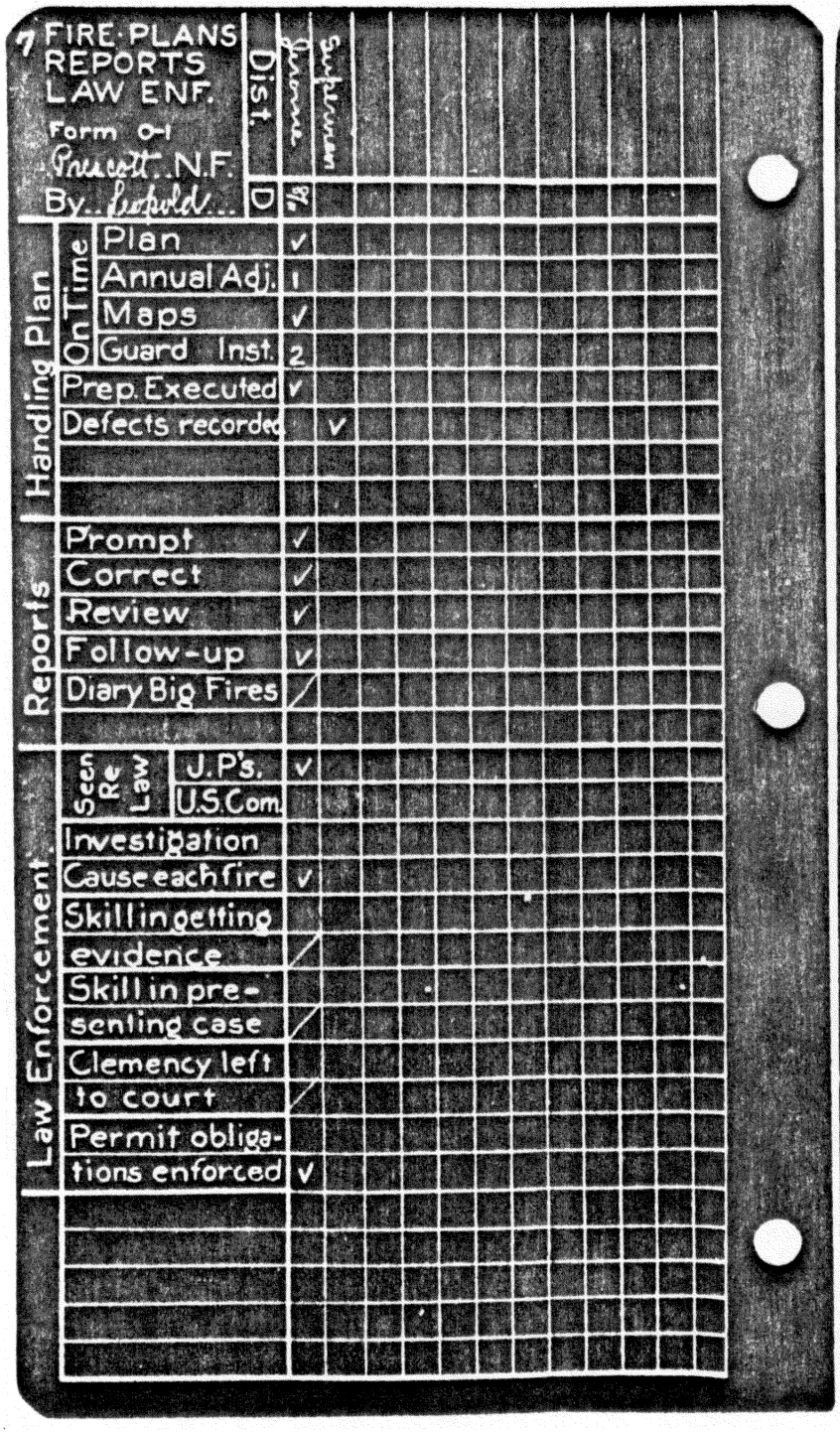
Nothing to date many canker except twigs, which are easily to reach the tender shoots.

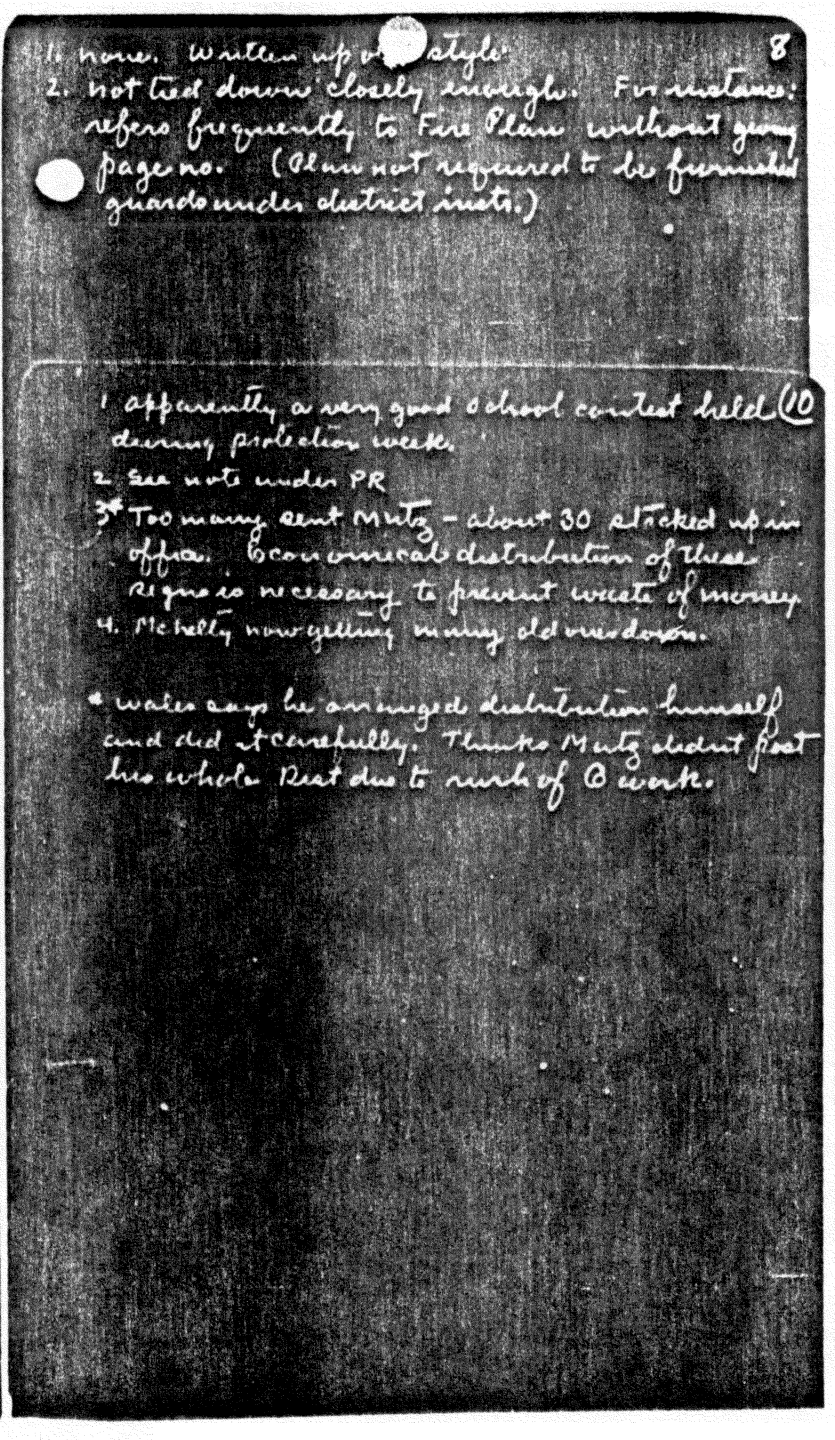
8/28 Mangzanita disease also noticeable on Prescott Rest.





Warner Alidade Installation. 8-29-22
Proposed for Mt Union Tower - Prescott







7 FIRE PLANS REPORTS LAW ENF.

Form 0-1

Prescott N.F.

By Leopold

		Dist.	Grome	Supervisor
		D	%	
Handling Plan	On Time: Plan		✓	
	On Time: Annual Adj.		1	
	On Time: Maps		✓	
	On Time: Guard Inst.		2	
	Prep. Executed		✓	
	Defects recorded			✓
Reports	Prompt		✓	
	Correct		✓	
	Review		✓	
	Follow-up		✓	
	Diary Big Fires		/	
Law Enforcement	Seen Re Law: J.P's.		✓	
	Seen Re Law: U.S.Com.			
	Investigation			
	Cause each fire		✓	
	Skill in getting evidence		/	
	Skill in presenting case		/	
	Clemency left to court		/	
	Permit obligations enforced		✓	

8

1. none. Written up o[illegible] style
2. not tied down closely enough. For instance: refers frequently to Fire Plan without giving page no. (Plan not required to be furnished guards under district insts.)

10

1 apparently a very good school contest held during protection week.
2 See note under PR
3* Too many sent Mutz - about 30 stacked up in office. Economical distribution of these signs is necessary to prevent waste of money.
4. McNelty now getting many old ones down.

* wales says he arranged distribution himself and did it carefully. Thinks Mutz didn't post his whole Dist due to rush of B work.

9 Fi[illegible] & [illegible]

Form [illegible]

By [illegible]

Risks Reached: Settlers etc; Touristsek; Ince[illegible]

Interviewed: Sch[illegible]; Edi[illegible]; Ind[illegible]; Co[illegible]; Mai[illegible]; Posti[illegible]

Genl. Pub: Signs; Met; Pap[illegible]; News

Land Owners: [illegible]

Timber Operators: [illegible]

8

1. none. Written up o[illegible] style.
2. not tied down closely enough. For instance: refers frequently to Fire Plan without giving page no. (Plan not required to be furnished guards under district insts.)

1 apparently a very good school contest held during protection week. (10)
2 See note under PR
3* Too many sent Mutz - about 30 stacked up in office. Economical distribution of these signs is necessary to prevent waste of money
4. McNelly now getting many old ones down.

* Wales says he arranged distribution himself and did it carefully. Thinks Mutz didn't post his whole Dist due to rush of C work.

9 FIRE PUB. & COOP.

Form 0-2
...Prescott N.F.
By Leopold...

			Dist.	Skull Cr.	Walnut Co	Supervisor	Prescott	Jerome	Crown King	Cave Cr
			D		9/8	9/10		9/8	9/10	
Risks Reached	Settlers etc	Brush						/	✓	
		Branding						✓		
	Tourists etc	Picnicers						✓		
		Incendiary						/		
Interviewed		Schools				1✓		○		
		Editors				✓		✓		
		Indian Ser		/	/	/	/	/		
		Co Agents						✓		
		Mail Carriers					✓			
		Postmasters				✓				
Genl Pub	Signs Pap	New up			✓		✓	3✓	✓	✓
		Old down					✓	✓	✓	✓
	Signs Met	New up			✓		✓	✓		
		Old down			✓		4	✓	○	
		News stories				2✓				
Land Owners		Stage drivers						✓		
		Highway Crews						✓		
		Rodeo						✓		
Timber Operators										

FIRE GUARDS
Form 0-3
....Siskiyou N.F.
By. Leopold.

| | | Name | | |

13 FIRE IMPROVEMENTS

Form 0-4

....Prescott....N.F.

By...Leopold....

		Place	Dist. D	Mingus Mt Lookout	Towers Mt CK Pkg	Mt Union Basic Hdqs	Prescr Hdqs	Prescr Hdqs
Instruments	Orientation			/	/	•	✓	
	Installation			/	/	✓	✓	
	Condition			/	/			
	Protection			/	/	⑧	✓	
	Orientation Pt			/	/	⑨		
				2				
Towers	Shelter			/	/			
	Ladder sound			/	/			
	Lightning wires			/	/			
	Guys			/	/			
	Gen'l repair			/	/			
				1		9	10	
Cabins	Location			3	✓	✓		
	Design			/	✓	✓		
	Repair			/	/	✓		
	Furnishings			/	/	✓		
					4			
Pastures	Wrangling time			/	/	/	/	
				3	6			
	Condition			/	/	/	/	
	Repair			/	/	/	/	
	Use			/	/	/	/	
	Equipment				5			
	Corrals				✓	✓		

1. Tower; use as fire tree. Trouble to get for a 40' tower, gin poles available. Some doubt as to location - * I think the only sure way to resolve this doubt is to draw a big circle on map and then get visibility areas from the various possible locations. USGS map will help.
2. Pocket compass used.
3. No good pasture locations, owner has fixed fall grazing reasons. Matz advocates just a little trap at tower and feeding hay. Sounds OK to me. Cabin should also be at tower.
4. Suggest fine block floor, chinked with rock and sand topped with clay in concrete. ° Drainage should be provided before floor is put in, to insure dryness. New cabin very good - $150 ($25 packing, $25 labor, misc $15, lumber [illegible] feet @ $57 $85)
5. Good thing to eventually brush all the trails dropping off the Mt, such as the one to the Smuckle Mining Claim.
6. Intend to put in 20 acre pasture.
7. Out in weather. Danger of swamping.
8. No grant. Recreation area on map. Never taken out.
9. Just built. Very substantial job. 32'
10. Trail is ungraded, pretty up. Originally intended 30' but this is not necessary - 20' will be plenty with a little clearing.

* Wilkes does not agree that a ranger could take this job sentiment helps.

° Use eye hook guide and protection ditch as suggested.

17

FIRE EQUIPMENT

Form 0-6

.....Klamath..... N.F.

By.....Enfield.....

	Place	Summit	Tent Rs	Camp Ground	Campground	Wigwam Rs	Ennaville Ranger Station	Ennaville Ranger Station	Mineral Hot Springs	Campground	Mandalay	Fish Creek	Mt Union
	Dist	Ranger	SV	Ranger	Ranger	Ranger	Ranger	Ranger	Ranger	Ranger	CK	CK	Ranger
	Cache	Box	Saw	Box	Box	Box	Box	Box	Box	Shed	Box	Box	Box
	Date	8/1	8/3	8/4	8/5	8/6	8/7	8/8	8/9	8/11	8/12	8/13	8/14
Useability	Axes sharp	○	○	✓	✓	✓	✓	11	✓	(1)	✓	○	✓
	Saws sharp	/	/	/	/	/	/	/	/	/	/	/	/
	Handles	✓		/	✓	✓	(9)	(12)	✓	✓	✓	○	✓
	Worn out tools eliminated?	✓	○	✓	✓	✓	✓	12	✓	○	✓	✓	✓
Availability	Segregated	✓		✓	✓	5	✓	✓	✓	16	✓	✓	✓
	Orderly	○	○	✓	✓	✓	✓	✓	✓	(17)	✓	✓	✓
	Depository clean	○		○	✓	✓	○	✓	✓	✓	✓	✓	✓
	Place well chosen	✓	2		✓	✓	✓	✓	✓	✓	✓	✓	✓
	Grouped	/	/	/	/	/	/	/	/	/	/	/	/
Selection	Proper number	⊖	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	20
	Proper kinds	✓	✓	3	✓	✓	9	9	✓	9	9	9	21
	Standard type	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Phone material	/	/	/	/	/	/	/	/	/	/	/	✓
	Ration, bags, etc	✓		✓	✓	✓	✓	✓	✓	✓	○	✓	✓
	Light	/	/	/	✓		✓	✓	14	✓	✓	/	(22)
Protection & Maintenance	From weather	✓	✓	✓	✓	✓	✓	13	✓	(17)	(18)	✓	(21)
	Branded or dried	○		✓	✓	✓	○	✓	○	✓	✓	✓	✓
	Oiled or greased	✓	○	✓	✓		10	10	10	10	10	10	10
	Sealed or locked	✓		○	✓		✓	✓	✓	✓	✓	✓	✓
	Sign on door	✓		✓	✓		✓	✓	✓	○	○	✓	✓
	Sharp. facilities	○		✓	4	7	○	○	✓		○	○	○
	Check list	○		✓	✓	○	✓	✓	✓	○	✓	✓	23
Ranger	Saddle tool									(3)			
	Fire pack												
	Ration, canteen												
	Horse up												

	Place	Mandalay	Mandalay	Mandalay	Mandalay	Mandalay	Mandalay	Mandalay	Mandalay	Mandalay	Mandalay	Mandalay	Mandalay
	Dist	CK	CK	CK	CK	CK	CK	CK	CK	CK	CK	CK	CK
	Cache	Box	Box	Box	Box	Box	Box	Box	Box	Box	Box	Box	Box
	Date	8/15	8/16	8/17	8/18	8/19	8/20	8/21	8/22	8/23	8/24	8/25	8/26
Useability	Axes sharp	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Saws sharp	/	/	/	/	/	/	/	/	/	/	/	/
	Handles	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Worn out tools eliminated?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Availability	Segregated	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Orderly	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Depository clean	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Place well chosen	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Grouped	/	/	/	/	/	/	/	/	/	/	/	/
Selection	Proper number	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Proper kinds	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Standard type	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Phone material	/	/	/	/	/	/	/	/	/	/	/	/
	Ration, bags, etc	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Light	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Protection & Maintenance	From weather	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Branded or dried	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Oiled or greased	10	10	10	10	10	10	10	10	10	10	10	10
	Sealed or locked	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Sign on door	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Sharp. facilities	○	○	○	○	○	○	○	○	○	○	○	○
	Check list	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ranger	Saddle tool												
	Fire pack												
	Ration, canteen												
	Horse up												

18

(1) Cutting axe, shovel & rake. Suppressed to be 2 of each. Inspection useful work deferred as pointed out.

2. Tools kept in saddle room. Believe they should not be placed with packs, owing to hinges and does not justify use of special depository.

3. 2 rakes not in box - on transit cache.

4. Folding hand cream.

5. Pick and bar and point in shovel, but no recent shaping. Tool box eventually should be provided.

6. 1 double Mattocks double.

7. No grindstone. A grindstone - coal edge is necessary to prevent chipping of hard steel edges.

(8) Axe and shovel handles split & weak

9. Balance edge here might be necessary on account finish of new handles.

10. Painted

11. Cutting edge, handles good enough for now

12. Shovel handle split & weak by moisture

13. Shovels rust. Metal bands eventually necessary

14. Lantern but no oil.

(15) Only two mattocks in area, fairly strong. Other dull

16. A number of tool houses. Box should be provided.

(17) Part of tools set on ground. Should be racked up. Axe and shovel handle set on ground.

(18) Set on ground. Shovel not sealed closed enough.

(19) Pick head without handle.

20. Tool boxes Big Flat tools also.

21. Rake 1 missing. Should be 2.

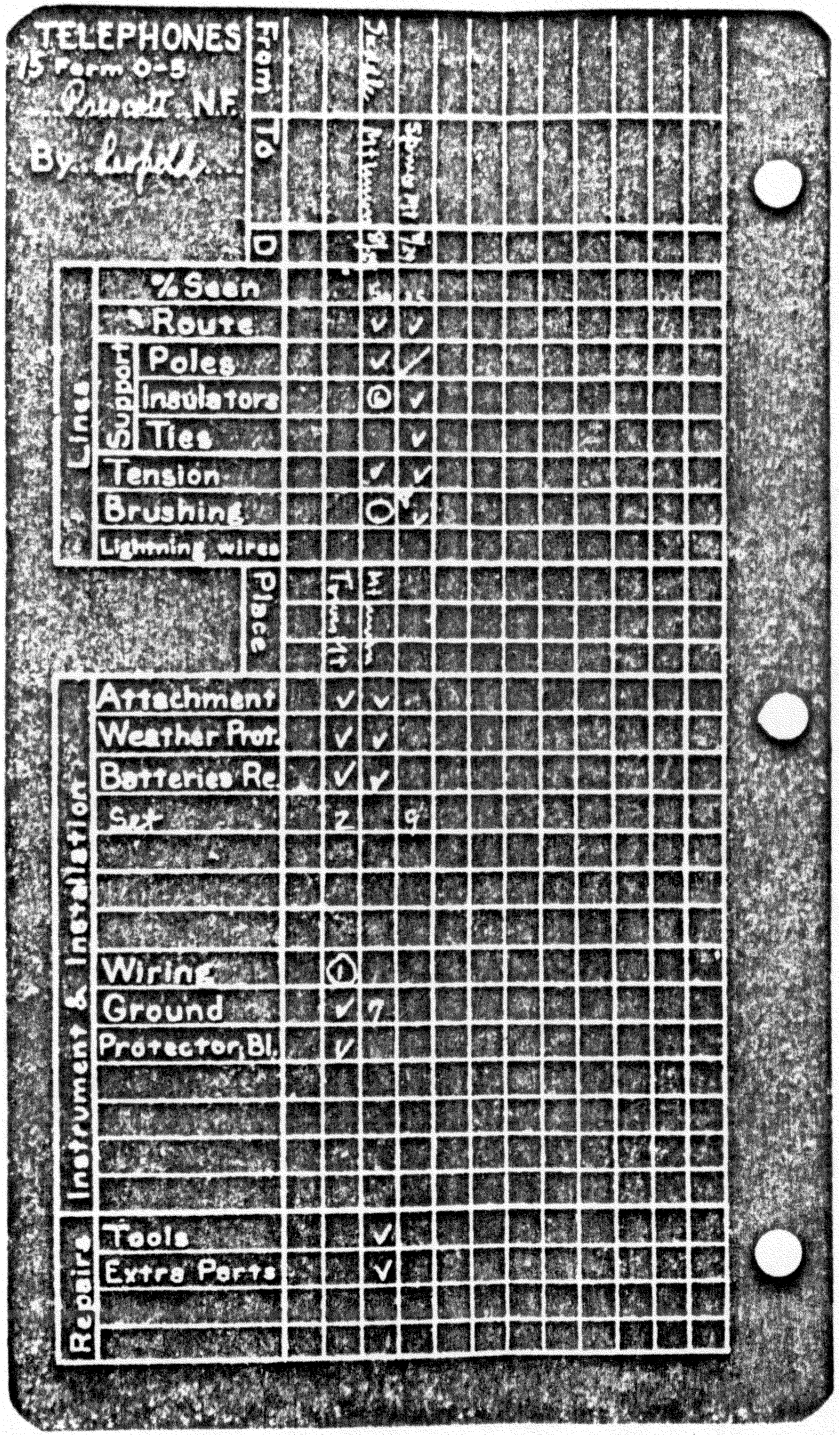
22. Lantern but no oil.

23. Axe but not sharp.

(24) Tools on ground

25. Tools moved to 3 spruce MT

8/31 Conclusion 2-3 troops via Prescott Rest as directed to 8 these years. Caution re distribution necessary. No sharpening facilities on Forest where water scarce.



TELEPHONES

15 Form O-5

Prescott N.F.

By: Leopold

		From	To	D	Seattle	Whitmore	Stone Pit	Tyler
Lines	% Seen					5	5	
	Route					✓	✓	
	Support: Poles					✓	✓	
	Support: Insulators					⊙	✓	
	Support: Ties						✓	
	Tension					✓	✓	
	Brushing					⊙	✓	
	Lightning wires							
	Place				Trans Pit	Whitmore		
Instrument & Installation	Attachment				✓	✓		
	Weather Prot.				✓	✓		
	Batteries Re.				✓	✓		
	Set				2		9	
	Wiring				⊙			
	Ground				✓	7		
	Protector Bl.				✓			
Repairs	Tools					✓		
	Extra Parts					✓		

16

① No switch to disconnect phone. This is an unnecessary risk of damage to set.

② No 13 instead standard. 3 bar generator.

⑥ Some brackets broken.

7. Not very deep. Would pay to make a pool for waste water.

8. Greatly improved this year. Still without full clearance in a few places.

9. One wall set and one wire set (without receiver or cord) in camp.

20

1. Wales brought list #2 (10 men 6 days) from Jerome. List not as heavy as Gila list. A careful comparison with Gila list is recommended.

2. Hidden by run - ranger phoned guard first.

3. See Finance for account of wage scale argument on this fire.

FIRE AG...
ORGAN...
Form O-...
Prescott
By: Leopold

Detection
Lookouts
Di...
R...
Tr...
Suppression
Getaw...
Travel
R...
N...
Fighters
N...
O...
F...
S...
Supply
L...
T...
N...
V...
Str...
Pat...
Finance
Wage
Time
Ru...
Per diem Guards
Comm-unication

16

(1) no conflicts to do connect phones. This is an unnecessary risk of damage to set.

(2) No 13 mallard stirrup and 3 bar gaiter.

(5) Screen brackets broken.

7. Lot of rainy days. Would pay to make an effort for "wreats waters."

8. Breathy man proved this upon. Still walkout fault. Sometimes can't get to see.

9. Have walk set and one mine set (without receiver or cord) on 6 mine p.

20

1. Water brought least # 2 (10 mins to 1 hr ago) favorable. Least not and has any and heater least. Is counted conscientiously with Rules least so recommended.

2. Hard clay mine - screen planned yet and forest.

3. See Finances for account of wage scales engagement and this force.

FIRE ACTION ORGAN. & FIN.
Form 0-7
Prescott, N.F.
By: Ranger

			Date			
			Hours			
			Manday			
			Manpower			
			d	5/9	6/9	7/9
Detection	Lookouts	Discover		/	2	✓
		Report		/		✓
		Tri-accurate		/		✓
Suppression		Getaway		✓	✓	✓
	Travel	Rate		✓	✓	✓
		Night		/	✓	/
	Fighters	Number		✓	✓	✓
		Organ.		✓	✓	/
		Foremen		✓	✓	/
		Shifts		/	/	/
	Supply	Lists		✓	/	/
		Tools		✓	/	✓
		Meals		/	/	/
		Water		✓	✓	✓
	Strategy					
	Patrol					
Finance	Wage scale	Set		✓	✓	✓
		Used		✓	✓	✓
		Correl.			3	✓
	Time	Rules		✓	3	✓
		Sweetening				
	Rules for FFF				✓	✓
Per diem	Guards	Selection		✓	✓	✓
		Function		✓	✓	✓
		Action			✓	✓
Communication		Guard		/	✓	✓
		Ranger		/	✓	✓
		Supervisor		✓	✓	/

B - FINANCE

1. Trail Crews on Fire. See p. 10 (N.B.#23). I am now convinced that the rule at the bottom of Form D-3-0-18, on fires of any length, works out unjustly and that cases of injustice are in danger of offsetting and nullifying the purpose of the rule, namely: to remove incentive for letting fires burn. This will be discussed with Mr. Headley.

2. Linton's Form for checking status of ranger allotments has been sent to all D-3 Supervisors.

3. General Conclusion. See N.B.#21.

8/11 Travel Allotment System. As amounts cannot be deducted for contingent and the remainder allotted to Rangers, who are then held responsible. Under present there has never been an actual curtailment of travel due to short funds. FY 1923 letters not yet gone out, but will soon.

8/11 Costs mileage. Under limits to Mail & Supplies and especially unchanged trips. McNally knows more at all but most can own knowledge.

8/12 Many travel Eagle Canyon on Verde Valley would have to stop at hotels and pay 1.50 per night for horses. Also detail to officers & Asst. Meeting. Also exp. panel at Roundup.

8/22 Corrals. Got under 40 passed and by commander corrals. Most other will get $50 and 60.

8/31 Expenses on Roundups. See p. 76, Columns work, also note 6, p. 27, as to policy of paying on roundups.

8/31 Conclusion. I have no criticism of any part of financial management in the Prescott except the $100 over-run on the 10% allotment caused by Mrs. Campbell carrying forward the whole allotment instead of the usual pooled balances from FY 1921 to 1922. Monica straightened this out. I am general I have a very good impression of the financial system.

M

9/1 Motive. Wales wants to rent 2 tractors. Wants to rent barn garage (if he builds) to greet at no more or less than at Bonanza. Don't let.

Ford } Wales will submit statement
Wedge } for financing each of these alternatives
Ford Motorcycle }

Travel Crews on Fire

Comparison of fire & trail labor on an 11 day fire, as now

Day	Items	FF	Trail
1	10 hrs riding @ 10 fighting 20 @ 35¢	7.00	
	5 hrs trail; 2 riding, 13 fighting		2.50
2	12 hrs fighting @ 35¢	4.20	2.50
3	" " "	4.20	2.50
4	10 hrs riding @ 35¢	3.50	
	10 hrs patrol		2.50
5	Light duty around camp		2.50
	For the job	18.90	12.50
	Steady vs temporary job		25%
	Difference in quality of labor		+25%
	Total hrs. of labor	54 hrs	55 hrs.
	Percent underpay to trail men	100 = 12.50 / 18.90	33%

Comparison, same fire; time added rule

2	Overtime 4 hrs @ 31¢	1.24	1.24
3	" " "	1.24	1.24
4	" 2 hrs @ 31¢	.62	.62
	add		3.10
Comparison		18.90	15.60

Conclusion (subject to approval by D.F. and discussion with Forester): Add to last 9 Forms D-3-0-18 "This rule will be enforced up to reasonable limits, beyond which the officers in charge may use his discretion in correcting any material injustice."

In addition to the difference in pay, not all of the crews may be sent to the fire, but the mere offering and camp would get the same pay.

10-1

OK
AL

May 15, 1922. 24

WAGE SCALES - PRESCOTT

Sheep Guards: $80.00 per month plus compensation if allowed. Forage if authorized.

Lookout fireman: Maximum, $80.00 per month plus compensation if satisfactory. Forage for two horses on Mingus Mt. For one horse on Mt. Union and Tower Mt.

Trail Laborers: $3.50 per day for ordinary labor, or $2.50 per day plus chuck if a crew. Any personal supplies will be paid for if used on fires.
Foreman: $3.50 per da. & chuck
Powdermen (if needed): $3.00 per day and chuck.
Cook - Trail crew: $3.00 per day and chuck.

Fire Fighters: Foremen, 45¢ per hr. and chuck
Ordinary labor, 35¢ per hour and chuck.
Cook: 40¢ per hour and chuck.
Asst. Cook: 35¢ per hr. & chuck

Per Diem Guards: Paid at rate of foreman for time actually employed.

Exception to the above rates is made on the Crown King and Jerome Districts where it is necessary to employ men for fire fighting who ordinarily receive miners' wages. On these districts the rates will be 55¢ and 45¢ per hour for foremen and ordinary labor.

Forage 25

8/2 Van Dickson sold Higgins 2 tons in July for $15.00 per ton, baled, at his ranch. Delivered Tonto $21.00 Forest bought 17 tons Phoenix Aug 1921 $12.00 plus $6.20 freight = fob Prescott $18.20. Expect to get it for $11.00 this year.

8/11

Forage Purchase	Quantity	Prescott	Phoenix	RR Fort
Alfalfa No 1	26 tons (2 cars)	21.00	13.00	+ 5.70
Barley	29,260#	2.03	1.52½	+ 28½

Reshipment
To Case Cr $1.00 per cwt. (maybe County Truck)
" Wal Cr. 1.00 " "
" Willow 20¢ " "
" Yaeger (" " ")
Mayer-Syc. 70¢ " "
Newey-Cherry 45¢ " " (?)

8/31 Conclusion. The centralized purchase system is working satisfactorily and I have no suggestion as to how it could be improved.

-11-

FINANCE

26 Form 0-11

...Prescott N.F.

By. Leopold....

		District	Strell V.	Wathen Cr.	Chromo	Cascade Hwy	Canon Cr.	Prescott	Stevenson						
		D			8½	8½	8½	8½							
Wage Scales	Guards		/	/	✓	✓	✓	✓							
	Roads		/	/	2	/									
	Trails			✓	✓	a ✓	✓								
	Imp.														
	Packing					4 ✓									
Forage	Amount				✓										
	Purchase				✓		5								
	Use														
	Crop profit		/	✓	/										
Travel	Amount		✓	✓	1		6	✓	✓						
	Use														
	Use of motor														
	Mileage		✓	✓	/	/	/	7	✓	(See 8)					
Statutory	Cont. time Sacrifice														
	regular wk.														
	Hired for					✓	✓								
	regular wk.					.									
	Lapses				.										
Use of Motorcycle - Miles			/	/	/	/	/	✓	✓						

(27)

1. See note under finances
2. See R&T Mangus Roads
3. Cascade Hwy. Wagoner Creek: labor 2.60, foreman $3.50 per day, cook $3.00, all plus board.
4. Paid $1 per horse load to log Tower Mt (4½ miles 1 way) for 4 horses or more. Carry 2 bales hay plus 1 sack grain, 2×40 = 80 + 70 = 150#
5. Hay will be $13 + 15 or 20 freight = $30. If ditch is put in will probably cost as much $15 an acre. continued
6. Allotted 140 used 200 last year. Transhumance feed will be insufficient, especially if early snowstorms occur as happened early in spring. Many forest rangers enjoy playing nursemaid at kindergarten, rather than figuring to "make a hand", because in latter case a man does not feel at liberty to go where his pleasure and keep check of the work. I think I agree with this viewer. Regional policy has been to pay but exceptions made. See note under 8, 8/10 p 76.
7. Have none but need car a great deal.
8. All Rangers with cars are restricted to mail & supply trips twice a month or some appropriate number.

° Water rights may be difficult due to absence of monuments, invisible existing boundaries, etc.

9. No differential wage for guards on Forest. Two never knew, but one had been a sheep guard (Wilmuth) and the other was a carpenter (Brady). Both Rangers material. Under these circumstances no change needed O.K.

C - IMPROVEMENTS, PASTURE, FORAGE, ETC.

1. Station Improvements. Good progress has been made in fixing up quarters. For general conclusion on construction program see N.B.#28.

2. Station Lands. Considering the general importance of watershed problems on the Prescott, and the urgent need of a positive erosion-control policy, I do not think we are justified risking loss of land at stations without an effort at bank control. The moral effect on other landowners, aside from the value of station lands, requires that we take action, even in cases like Sycamore, where the immediate chance of loss may not be very great. Waiting until cutting begins is poor policy and poor example.

3. Pastures are in general in creditable condition, but needless heavy stocking as at Tonto and Sycamore should be regulated before the damage occurs.

Night lots or division fences, both as a time-economy and conservation measure, are needed at Yaeger and Sycamore.

29 STATIONS & HEADQT'S.

Form 0-8

.....Prescott. N.F.

By... Fairbanks...

		Place	Tonte R.S.	Wahnuta	Safeguard	Prescott Town	Yellow Cab	Granite Knoll	Esperance	Salmon Cr.	Ash Lake	Brown Cr.	Wallace		
		D	8/24	8/26	8/10	8/10	8/12	8/14	8/16	8/18	8/20	8/22			
Maintenance	Orderly Clean.	House	✓	✓	/		✓	✓	✓	✓	✓	✓			
		Office	✓	✓	✓	(7)	✓	✓	✓	/	✓	✓	26		
		Barn & c—	✓	✓	/		✓	✓	✓	✓	24	✓			
		Toolhouse	/	✓	/		✓	12		/	/				
		Outhouse	✓	✓	/		✓	✓	✓	20	✓	✓			
		Grounds	✓	✓	/		✓	13 ✓	✓	✓	✓	✓			
		Storeroom	✓		✓				✓	/	✓				
				3											
Protection	Fire	Flues	✓	✓			✓			✓	✓	✓			
		Extinguisher	✓	✓	✓		(9)		(2)	/	22				
		Ladder	✓	✓	/		✓	-		✓	✓				
Sanitation		Water supply	✓	✓	/		✓	✓		✓	23	✓			
		Sewage		✓	/		✓				✓	✓			
		Garbage		✓	/		✓		16						
		Manure		✓	/		✓	✓							
		Flies	(2)	✓	/					/		2			
Land		Maint. fertility	/		/				/	/					
		Erosion	1	5	/		8	13	17		(25)	✓	1		
Tools Equip & Supplies		Excess	✓		6		10	(14)		✓					
		Condemn		✓			11	(10)		19					
		Repairs		✓	✓		11	(14)			✓				
		Shelter	✓	✓	✓		✓	✓	✓	✓					
		Arrangement	✓	✓	✓		✓	12	✓	✓					
		Use	✓	✓	✓		✓								
Misc.		Meridian	no	no	/		no		no	/	no				
		Sta. map & plan			/		no			/					
		Landscape plan			/		✓			/					
		•													

(30)

1. See Bunk Control Plan (1) and record of checks dams ex pto.
2. Bunk in station due to lacks of springs and screen doors.
3. Cleanest and most orderly station I have seen so far this year.
4. Should be fixing up and on corner.
5. On straight wire fences, strung on cottonwood posts, boards (orchards) firewings throughout in between, and on open end ends running to protect it at the head, the whole to be then planted to willows, will I think remove many dangers of further losses.
6. 12 Tornahawks, 1 Hammond Stove (unless needed on Senator Road) & 16 square L.H. shovels in case be caused sent by D.O. without requisition. C.M. advised.
7. Not very orderly. Partly due to Cramping.
8. One old summer set, once badly torn up. Ranger has put in some very good dams & filled gullies, but more are needed.
9. Not recharged since 1920.
10. One extra chain
11. 2 worn out Canteens, should be repaired or condemned.
12. Fairly orderly but much old worthless material.
13. Yard washing a good deal. At least the gutter should be leveled off & water shed drains.
14. Large amount of worn unusable unclassed, a little considerable but mostly needing repairs.
15. Suggest that old tape lines be discontinued.
16. A few cans thrown in CREEK. Not a good way of disposal.
17. Bunks should be willowed, with either mirrors, hooks, or nails.
18. Bannister hinges. Should be reduced when moved.
19. One axe to be condemned. Used without any handle.
20. Names. Should be provided when moved.
21. Been working for ones.
22. Feb 6 1921. Have letter sent this.

ontrol Pl[illegible] and record of check
to,
tion due to lack of springs on
ors.
d most orderly station I have seen
year.
hing up in a corner.
wire fence, string on cottonwood posts,
chard prunings thrown in behind,
cial crib or wing to protect it at the
whole to be then planted to willows,
nk remove any danger of further

awks, 1 Kimmel Stove (unless needed
Road) & 16 square LH shovels
ise sent by P.O. without requisition.
l.
orderly. Partly due to Cramping.
mill set, once badly torn up. Mutz
some very good dams & filled
ut more are needed.
ged since 1920.
chain
out cantinas, should be repaired or con-
terly but much old worthless material
ting a good deal. At least the paths
leveled off with check dams.
unt of non-useable material, a little
ble but mostly needing repairs.
t old pipe lines be dismantled
thrown in creek. Not a good way of disposal.
ld be willowed, with either wings, treetops, or wire.
urge. Should be reduced when moved.
be condemned. Used without an oil edge.
hould be provided when moved.
ing for one.
new filler sent for.

23. [illegible]ater carried from creek several hundred yards.
No reason why a well should be expensive. Badly needed.
24. Barn poorly framed, shaky, corral very poor.
Neatly kept but new corral and strengthening of
barn frame badly needed.
(25) 7/8 of the agricultural lands (3½ acres) have
washed away. No control work so far. See map &
plan, Imp., p 36
26. Wales thinking of moving McNeltys office
& Willow Sta. I think this is a good idea.
A good many of his callers "drop in" on the
staff, his mail and papers get mixed around,
and his office is invaded more or less by clerks
etc.

8/31 Conclusion No general criticism - quarters
are in good shape, in so far as possible in
absence of funds.
The wire corrals are poor and should be
done away with, unless made very stout
and raised as at Sycamore.
Much of the effectiveness of screens is lost
due to lack of springs on screen doors. This
should be attended to.

32

PASTURES

Form 0-9
....Prescott..N.F.
By..Leopold...

		Place	Tonto RS	Walnut Ck RS	Cp Verde RS	Younger Cw	Sycamore	Cross Cw	Williams Ck
		D	1/2	1/4	1/2	1/2	1/2	1/2	all
Condition	Pas. Grass		✓	✓	(5)	7	✓	✓	
	Pas. Sod		✓	✓	(5)	7	✓	✓	
	Pas. Francisc.						12	(13)	
	N.L. Grass							✓	
	N.L. Sod							✓	
							9		
Rotation	Possible						9		
Grazing	Used						9		
Organization	Wrangle Time Average		15'				30'	20' 30'	
	Wrangle Time Max.		30'				2 hr 45'		
							9		
	Night lot		1	6			8	9 ✓	
	Stock gentle		✓	✓			✓		
	Handled O.K		✓	✓			✓		
	Bells								
	Water control						✓	10	
	Div. fences							9	
	Corrals		3				3	✓ (14)	
Stocking Ranger	Horses		2				2	5	6
	Cows		1	3				1	0 5
	Other						1	3	1
	Other animals		13				0	(9) 4	
	Total		16				3	13	7

1. None. Have needed to reduce during lambing times when ewes are feeding. Must not to be needed.
2. Neighbors stock not let on use and accommodation. This OK on matured forage as in case of needs, but poor scheme during growing season when palatability of forage so lowered by grazing. There were no feeds ever consumed least wanted, but 3 years ago ate a great deal.
3. Corrosive sublimate corrals dangerous to horses.
4. Sod seems to lack vigor. Unable to say whether this is due to two lambings or to drouth.
5. Sheep not made which 80 acres but one part of acre there were no perennial grass except on the wet places, where Kentucky Blue Grass has become established. Seems to use badly overgrazed. Under 6 percent use to Hildreth. (Weeds will close pasture)
6. Yearlings used on night lot.
7. Sheep used before pasture moved last year.
8. Cannot dot would be handy in fire seasons
9. Mistletoe is pleasuring to invade this pasture. This should be by axe, when be done, as on time & conveniences.
10. Some seeps could be left dry if cleaned.
11. 4 burros brought by Bennett for camp work, because in pasture even seasons. No market values. This was a needless drain on the forage; should be completely destroyed.
12. Upper gate broken - should be replaced.
13. Fences are fair shape
14. Very poor corral. See sheet 0-8

Cross clearing: No evidences except fencing burros & worthless horses. See (11). Also (2). Cattle & sheep use in Spring after ex reserve. Cross also, safe cattle cut Willow.

* Wales ranch some already sent.

Allotment FY 1923

Maintenance		715.00
Construction		
Fencing Mt + Pasture Towers	100	
Towers Mt Pasture, 20 ea	75	
Towers Mt Cabin	200	
Grapple Sycamore Water System	70	
" Woodshed & Cellar, Walnut Cr	125	
Woodshed, Cellar, Trench Towers, Younger	60	
Excavate Conrad, Walnut Cr	150	
Culvert Cr Cabin	125	905.00
		1620.00

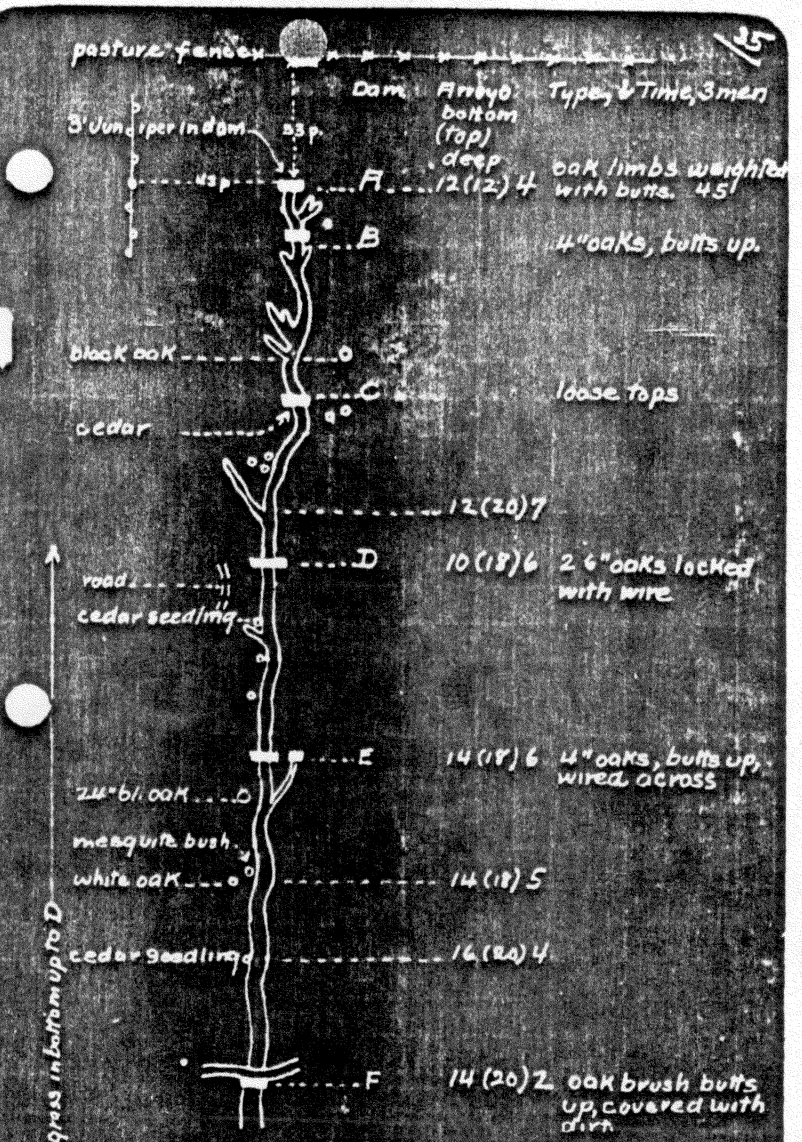
8/4 Walnut Cr Phone from Kings reminds me Chino Valley 15 miles @ [illegible] per mile $3000. Wales figures 4"x6" redwood poles, 16' long, 3' in ground. Line to Kings as nearly like present toll line of Mt States no. 12 wire.

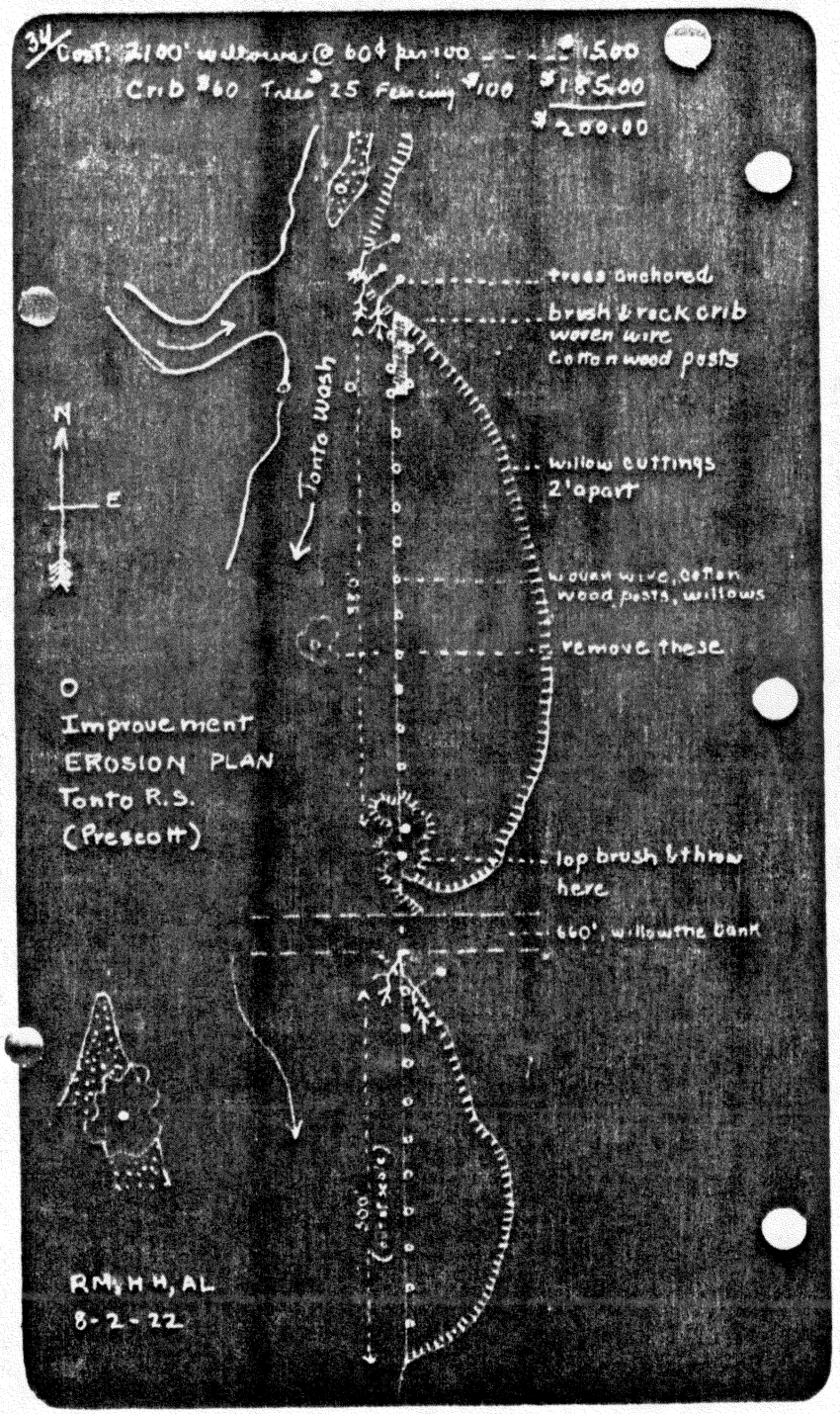
9/21 Fruit Trees none have been brought so far. Prescott conditions very favorable conditions. Suggest that a few trees chosen for seasonal succession be put on next year.

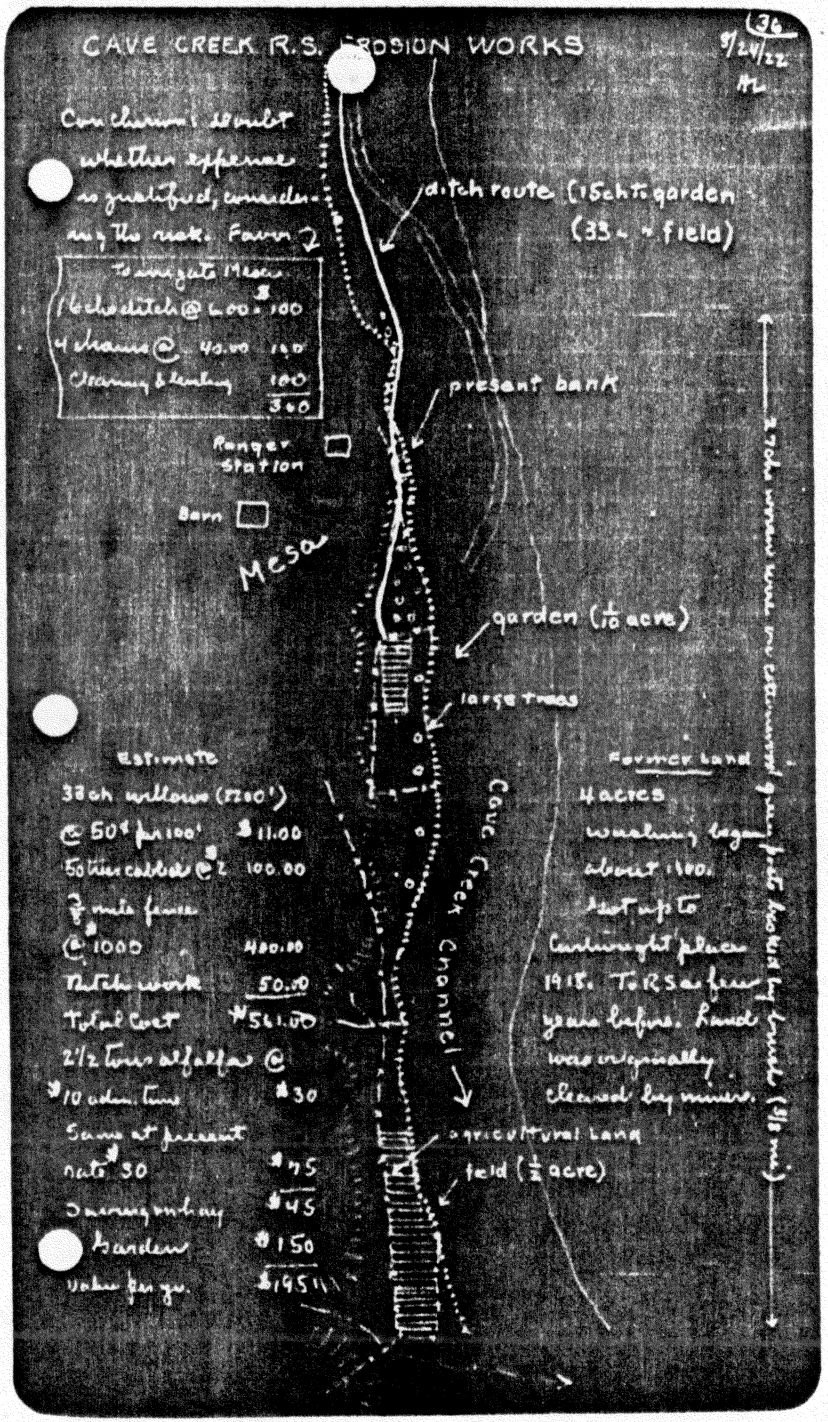
9/29 Stumbled O. Ponto: Corrals built of Hardwood posts log. Long one Wolf Creek run 1913; unpeeled:
Stumbled O: Sap gone but heart solid
Walnut: Only a weak core of heart left
Ash: Off at Collars
Mesquite O.: Off at collar

9/31 Structures Cashdale ~~and Grossman Corrals~~ Generally in need of replacement. Simmons Cr. & Cherry depend on distributing plans. The remainder I am chine to believe will pay to repair. Walnut Cr & Sycamore pretty good shape.

9/31 Report on Check Dams Exp. (p. 35). Please submit yearly as long as there is anything interesting to be reported.




34
Cost: 2100' willows @ 60¢ per 100 ..... $15.00
Crib $60 Trees $25 Fencing $100 $185.00
$200.00
trees anchored
brush & rock crib
woven wire
Cottonwood posts
willow cuttings
2' apart
woven wire, cotton
wood posts, willows
remove these
lop brush & throw
here
660', willow the bank
Tonto Wash
N
E
Improvement
EROSION PLAN
Tonto R.S.
(Prescott)
RM, HH, AL
8-2-22


CAVE CREEK R.S. EROSION WORKS
36
8/24/22
Conclusion: doubt whether expense is justified, considering the risk. Favor
To irrigate Mesa
16 ch ditch @ 6.00 = $100
4 chains @ 40.00 160
Clearing & leveling 100
360
ditch route (15 ch to garden
(33 " " field)
present bank
Ranger Station
Barn
Mesa
garden (1/10 acre)
large trees
Estimate
33 ch willows (2200')
@ 50¢ per 100' $11.00
50 trees cabbed @ $2 100.00
3/8 mile fence
@ $1000 400.00
Ditch work 50.00
Total Cost $561.00
2 1/2 tons alfalfa @
$10 adm. time $30
Same at present
rate $30 $75
Saving on hay $45
Garden $150
Value per yr. $195
Cave Creek Channel
agricultural land
field (1/2 acre)
Former land
4 acres
washing began
about 1900.
Got up to
Cartwright place
1918. To RS a few
years before. Land
was originally
cleared by miners.
27 chs woven wire on cottonwood green posts hooked by brush (3/8 mi)

D - TRANSPORT

1. Motors. Wales considers two motors necessary, for the Supervisor and Deputy respectively. Under present conditions, however, with several Forests without any, this could not be justified. I am not convinced that two motors would pay.

2. Gov't Animals. The four burros at Sycamore should have been used or disposed of. The three horses now below standard (Buck), Doughboy, Wallie) should be traded off or otherwise disposed of.

3. Mounts for Roundups. See N.B.#57, 27, 76. It seems to me important both to avoid being under obligations to permittees and to avoid leaving the Ranger "afoot" after wearing out his own mount on a roundup. If necessary for these ends, an increase in travel to cover rent of mounts may be included in future estimates.

4. Pack Equipment is inadequate. We can not demand best use of Ranger time unless we furnish needed pack equipment. Standardization of pack equipment, and purchase of additional outfits, will be undertaken by Operation this winter.

(57)

8/1 Motor Cycles Munro says a new one will run for 4¢ without side car but with side car 7¢. This makes it practically as costly as a ford. Munro gets 35 miles per gal and says a new motor would be about the same. This is max. — heavy going reduces this.

8/2 Higgins says he thinks he gets by on 7¢ with Ford. Does all repair work himself.

8/5 Old Worm-Drive Ford. Told Prescott to condemn & sell it in accordance with the regular procedure.

8/6 5 Boot Horses on Prescott, all on Verde except 1 Crown King. ° 3 no good. These should have been traded off before this.

Wallie, Sorrel, Jerome. Good but old & stove.

8/14 Roundup Horses Hard on Rangers to ride their horses down. Believe good horses should be hired so that they will be adequately mounted.

8/15 Packing Burros $2.50 for packer plus 1.00 per day full or 50¢ part day plus govt feed. (Crown King)

8/20 Pack Equipment Michelson has canvas leather-ended panniers 21" long 9" wide at top 6" wide at bottom 15" deep, with brace sticks, short sling straps for muley saddle.

Fraser unskirted rawhide covered pack saddle 15½" outside 12" inside tree, centrifuge rig. In hot country skirts scald a horses back, but tree should be lined to prevent slipping. Elsewhere the skirts are advisable.

The poor saddle recently bought is 15" outside 12" inside tree, double rig, 2 canvas cinches. It should be impossible for the District office to issue any rig so obviously ruinous as 2 canvas cinches.

° Buck & Doughboy (Syc) Wallie (Jerome)

% Conclusion. See Finance p. 21

E - ROADS & TRAILS

The salient points bearing on the road and trail situation are as follows:

Natural conditions are exceptionally favorable in granite regions and exceptionally difficult in the malpais regions.

Methods of construction and maintenance have here and there been faulty but are receiving lots of study and are being rapidly improved.

Plan. Wales has started actual work on a comprehensive plan and I think it will develop without any urging from this office.

Relations with other agencies are good, but southern Arizona is spending money on a reckless scale. The time may come when our policy of modest economical construction may be criticized. The following are the more important special points to be considered in connection with the accompanying notebook sheets:

1. Mining Roads. Our comprehensive plan must naturally embody many roads and trails built by mining interests or other private parties. I think it is important that the plan should designate those necessary to the Forest R. & T. system. Of those so designated, we must assume the maintenance if nobody else can be persuaded to assume it.

The point is to clearly delineate what it will pay us to maintain, and then to perform that maintenance before the capital value invested in construction is lost.

2. Maintenance Ratio. The research frame of mind which exists on the Prescott with respect to R. & T. work should enable it to contribute from time to time to the question of how much maintenance money is justified and necessary. A very rough and somewhat defective form for accumulating this information is given on N.B.#66. Operation would like to be kept informed of the Prescott's findings.

3. Senator Highway. I did not get to this country until the end of my trip, but with the almost inevitable abandonment of the Crown King Railway, will there be any such place as Crown King? If not, is the expense of a road to it justified? I do not know enough to answer this question, but would like to request that Mr. Wales keep us informed of any additional study that he may be able to give it. See N.B.#64.

(61)

ROADS & TRAILS

Form 0-10
....Prescott...N.F.
By...Leefold.....
(Roads only)

		Project	Yr.	D	Hell-Hole Camp	Walnut Grove-Yarnell	KS-Bandit P-S	Bandit P-S	M-Flagstaff Rec	Mingus-Mt Rec	Mingus-Mt Rec	Prescott-Chino	Prescott-Prescott	Prescott-Prescott	Prescott-Prescott	Prescott-Forest	Prescott-Forest	Prescott-Forest
					Hell-Hole Camp	Walnut Grove-Yarnell	KS-Bandit P-S	Bandit P-S	M-Flagstaff Rec	Mingus-Mt Rec	Mingus-Mt Rec	Prescott-Chino	Prescott-Prescott	Prescott-Prescott	Prescott-Prescott	Prescott-Forest	Prescott-Forest	Prescott-Forest
					1922	1922	1921	1922	1922	1922	1922	1922	1922	1922	1922	1922	1922	1922
					8/6	5/7	5/11	9/12	8/12	8/12	8/12	8/12	8/13	8/13	8/13	8/12	8/12	8/12
Cost per mile					-		9	10	✓	✓	✓		✓	✓	✓	✓		
$ " "					31		270	100	200	600	165		66	160	450	200		
Route					✓	✓	✓	11	✓	✓	✓	✓	✓	✓	✓	✓		
Switchbacks							(8)		(12)		(12)			✓		✓		
Grade	Working				✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		
	Max.				✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		
	%						15		20	8	20		20	10	14			
Cross Sec.	Slope				/	✓	✓		✓		✓	✓	✓	✓	✓	✓		
	Width				✓	✓	4		13	4	(15)	✓	✓	(22)	24	✓		
	Backslope				/		5		✓		✓	✓	✓	✓	26	✓		
	Fill				/		✓		13		(15)	✓	✓	✓	24	✓		
	Fill protection				/		✓		13		✓	/	✓	✓	/	✓		
	No excav. on gentle slopes				✓	✓	✓	✓	✓		16							
Drainage	Flats				/		6		14		✓	19	(16)	23	/	(17)		
	Spillways				/		(18)				✓		✓	22	(25)	(19)		
	°Culverts				/						/	/	/	/	(25)	/		
	°Ditches				/						/	/	/	/	(26)	/		
	°Prot. ditches				/						/	/	/	/	/	/		
	Logs Size				/		6		✓		✓	19	/	✓	/	✓		
	Logs Angle				/		6		✓		✓	19	/	✓	/	✓		
	Logs Imbedded				/		6		✓		✓	19	/	✓	/	✓		
	Logs Cour Orig.					2			14		(19)					/		
Clearing					✓	✓	✓	✓	✓	✓	✓	✓	21	✓	✓	(21)		
Blazing					✓	3	11		/	/	7	/	✓	/	/	/		
Signing					✓	✓	✓					✓	✓	✓	✓	✓		
Maint.	Down timber						✓				/	/	/	/	/	/		
	Erosion						✓				/		19	(22)	23	26		
	Fill						✓		13		/				✓			
	Heel & tread						(5)				/				22			
	Camp											✓	✓			(24)		

| | | Project | Yr. | D | Prescott-Forest | Prescott-Forest | Prescott-Forest

...ind Springs ... ceiling, $60 per mile.
... $3.50 (foreman $4.50) board saves avoid
... tools. Good sensible work.
... installing regular drainage where
... see above Parker Springs.
... too large.
... up. Chelgarde keen for 1921 work.
... up in places; has sluffed off badly
... age consists of 3 wires double water-
... are indiscretions are that it will work
... were loops are big enough, and where
... no loss and lower one high in the
... and where cleaned out annually,
... where dead leaves and needles

... urged. Mutz says not necessary, even
... ter. I inclined to agree,
... steep and no rails.
... cost probably due to excessive width than
... see all this. Mutz says cost run up
... of short duration & packing.
... worked in places.
... to.
... enough attention to clean well, and
... full where too rocks had to be left.
... to pecking instead of undercutting
... Too wide where old trail reworked.
... may have been difficult to avoid.
... oop needed.
... to. 40-50" and 60-70% slopes. Largely clear
... at Lagunas full wall carefully enough.
... last one place just above M immediately.
... Wyatt has no watch. Estimates OK
... section cost up to $50. Lesser width would
... cost, but good cost showing at that.
... to logs too small and not enough flat above.
... work over with crew after labor thru year.

(20) ... drainage not sufficient. No logs used - could have been used to advantage in many places now lacking. Erosion shows where more drains needed.
21. Too wide in some places.
(22) 40" wide on the main grade west of Tenemile ... wheels is nearly a foot wider than necessary on the flatter moderate slopes. A foot of waste width occurs due to brush not being cleared in course of maintenance. The mileage of this 40" width is however not enough to greatly affect the average cost.
23. Tenemile dumps some of the humps are too deep, and are hard on pack animals. I think they would be greatly obviated by the addition of aprons or spillways to prevent the drains from excavating out too deep. Also some steep pitches where flats are practicable additional drainage could be secured by pushing in water logs at a sharp angle so they will recover themselves without a flat.
(24) Several miles of T.P. section now divided runs 14' to 18' wide. Part of this widening must pay grubbing and must have been expensive. All out of proportion to the 9' SH width, and too little crown to drain well. One SH some of the fills have only brush support and will wash out. Drain maintenance these should be replaced by rubble walls.
26. Nearly vertical on Cave Creek section. Will sluff.
(26) Now no drainage except at few culverts. Very favorable for waterways. Will try to reduce county to use balance of funds for cross drainages.
27. Unburned cuts at 7 springs.
28. Brush stumps down gentle swale pass slope like west of Arcadia. I think we would be better off by not grubbing anything, simply throwing out sandstone rocks.
19. Humps built instead of left; too short & deep; hard on animals. Approach should be raised & lower side levelled. 30. Too wide - 10-12 feet in places.

Roads & Trails

8/5 County Work on [illegible] Co & Walnut Co. handled by reimbursement method... mingus MT being handled by submitting time slips. (See note 8/28)

8/10 Campwoods Road Wales will probably recommend this. Recently repaired by County but no drainage installed. Now about 10' S.H. and needs only drainage and elimination of bad grades. Use slopes, granite formation except lower end on E side. Believe will qualify as protection, forest products (timber), and forest industries (hauling ranch supplies). Recreation plan should reserve timber along roads & waters before a sale is made, and sale men should think of some part of maintenance liability. Wales figures timber will cut 500M per year for 100 yrs. Is conservative, dusty, and needs gravel advance reproduction.

8/10 Comprehensive Plans data being obtained from Rangers but no special scheme for assembling it as yet, except in Wales' mind. Good have an outline of points for proposed projects (about as it will come out on circular) and urged that the field reason be utilized to gather all the necessary detail.

8/14 Fossil Cr. Road McCarthy and Pooler had assented to building County & Forest sections separately so that work could start this fall. Wanted to know if additional survey (2 already made) could not be dispensed with. I told him to ask the B.P.R.

8/16 Running Gears found very good for hauling trails Clyde Ceilley Mfg Co; Clyde Ohio, #5403 gear 2" front 28"

Rangers Surveys. The 2 chains (tapes) were commonly used here, one extra link or more (blank space) on each end. Mackeldon however was reading the end of the tape instead of zero, introducing a cumulative 1% error. Actual inspection of survey practice, and time saving equipment such as a thong to move around must for emergency, would be of help to a ranger in many instances.

8/21 Bloody Basin Trail Location. Mackeldon has picked a route according 5 miles of useful as compared with Deuel survey. Map and pressure on Mr. Deuel does a very good work on this.

8/28 County Construction. Where County is furnishing up part of funds, expense method (see note 8/5) works OK because over share can be billed in labor, time recording and assignments about basis. But where we put up all the money, the expense method will not work smoothly without an FS man on the job to watch the accounts.

9/30 R&T Plans Wales have already started for this Coconino County Dist on thorough siege up of R&T needs, with estimates. I told him we would look to the Prescott for whatever they had time to develop on the lines of

(a) Supplementary form of Comprehensive Plans
(b) Study of Maint/Const Ratio (see p. for suggestions due to form of record)

9/30 Splicing Tapes Mackeldon brings K&E part unit on sleeves that can be welded one with an match. This would solve wrestling in many ways of surveying these broken tapes. OM should comment DE and look up.

9/1 Fundulcers 2 trails and 1 road under them instructions in effect where built. Some defects in drainage, brush, and fill. The work on the whole, however, is creditable and with the close study being given it will improve hereafter. RL

Specifications for Camp Verde-Fossil Creek Road, (See letter of July 14 to Chairman, Highway Commission, Prescott)

"Ruling grade 6%, with the inclusion of not to exceed 3,000 ft. in one stretch of sustained 7% grade, and not to exceed 2,000 ft. of 8%, the maximum to be used only where it will effect a material saving in the cost of construction; general minimum radius of curvature of not less than 100 ft., but which in order to save cost may be reduced to 50 ft. We will also ask the Bureau of Public Roads to prepare estimates on the basis of 12, 14 and 16 ft. roadways, which will enable us to select the type that will come within the amount of money available for the project. Our request will specify that metal culverts, steel and concrete bridges for a 16 ft. road will be used in the estimate. It is our opinion that dry rubble stone retaining walls will be satisfactory."

9/1 Senator Highsaw. That A.R.G. Co. owns Clarkdale will have to be abandoned or rebuilt in a very few years. In the absence of a decided change in the mining situation, the former seems probable. This might affect the strength of the Sedona project, but I am not well enough posted to move it one way or the other.

Dana S. Hawkes (C of C) says Phoenix wants to agitate the Tonto road from Globe to Roosevelt. I told him we could not help on the duplicate of the new highway already [illegible]

A. Maricopa Mt. Road.

9/14 Mr. Jno. M. Carthy, Co. Engineer, and Commissioners Morris & Wagner on ground. Also W.B. Piper, project foreman. Munro & Metz present.

$89000 [illegible] + $3000 pledged subscriptions = $12000 + $1200 preliminary subscription spent on trail = $13,200 ÷ 2 miles to top of rim = $6000 per mile. Several miles of additional road on top necessary to open up lots. We told them if we got any new road approp. we would be glad to consider further allotment

Crew Foreman, 2 plows, 6 fresnos, 1 stoneboat 1-2 powdermen, Total men 30.

* Wages using Jerome scale $3.00 labor, $3.50 drillers, $4.00 teamsters, $6.00 blacksmiths & powdermen, $1.75 team hire + feed, $1.00 per day plow rental, $.50 per day fresnos. Spending $5000 per mo.

Construction As a "demonstration" for Col. Insley first built on $1200 fund, inside rubble wall and 5' wide. This however were not accurately on grade and wall is vertical instead of sloped, so that this work is being lost, except the breathing. Cars can go up in 3 weeks, Piper says.

Specifications I did not get to look. (Rose up)

Camp Cr. Road.

$3000 Coop money were obtained at instigation of local office - a very creditable piece of work. I think that in the usual case however, there should be a definite understanding on maintenance & salvability, construction & specifications, & inspection before acceptance; also who will be your representative in negotiations during construction. These teachings are the reason

* Fire boards @ 600 per day

Prescott

4th yr

3rd yr

2nd yr

1st yr

Miscellaneous

Roster

Trouble. D-3

Construction Crew

Equipment

Name	Number	Signs Around House	Mailbox on Highway	Year	Cabin	Comfort	Total	Plan M	Total	Poor M	Total	Plan M	Total	Gen M	Total	Plan M
Yaeger-Smith	1/4 > 15°	✓	✓	'21				100								
Mingus-Bar	1/2 > 15°	✓		'22				200								
Mingus-Lodge	3/4 > 15°	✓	✓	'22				145								
Cameron-Blasingame		✓	✓	'22				66								
Cameron-Casa Co		✓	✓	'20 '22				160								
Hamilton		✓	✓	'21 '22				200								
Cameron-Spruce		✓	✓	'21				180								

Sieger

8/1 3 yr. old S ex pasture pretty badly faded even after varnishing. Out 31 Bull Valley.

8/6 Some Walnut Cr signs very brown and dirty after varnishing. Wales says this was D.O. muddy that thickened. Looks poor. All of Oldhams signs seem to be varnished, but many were already too old and will have to be replaced. In general, the 1917-18 signs must be replaced by the 1923-4 shops. Thus as a life of 6 years without varnish, up to the end of legibility. 5 years as a safe figure without varnish.

8/16 most of the signs are Cremona Ivory seem fast up last 2 years.

8/20 Form 985 "Closed to Sheep Grazing" Turns from red to rust in 2 years. Still legible at a short distance however. Mr Wilcox says when painted on centre on windy places they cupp & undercut and drean off.

8/23 Some no varnish on Cameron signs except new ones that Cameron varnished.

9/29 Some signs on Mt Trestle country not varnished.

9/29 Wales suggest copper inside for signs pointing as to avoid rusting to screws. This would not work, however for wooden signs.

9/29 McNally suggest that if tin fence signs were funneled the needs need not be driven on tight and growth of trees would not work them off.

9/1 Conclusions Work OK except some delay on varnishing.

Common Black Sp.	✓	✓	'22	66				
Common Red Sp.	✓	✓	'20 '22	160				
Incense	✓	✓	'21 '22	200				
Common Spruce	✓	✓	'21	180				

Signs

8/ 3 yr. old S. ex posure pretty badly faded even after varnishing at Skull Valley.

8/6 Some Walnut Cr. signs very brown and dark after varnishing. Wales says this was D.O. stuff that thickened. Looks poor. All of Oldhams signs seem to be varnished, but many were already two old and will have to be replaced. In general, the 1917-18 signs must be replaced by the 1923-4 ships. Thus as a life of 6 years without varnish, up to the end of legibility. 5 years as a safe figure without varnish.

8/16 most of the signs on Crown King seem put up last 2 years.

8/21 From 985 "Closed to Sheep Trespass" seems faded and must run 2 years. Still legible at 25 ft. about distance between. Many Wales signs where parallel on Centre are windy places they crack letters and break off.

8/23 Some no varnish on Camp Co signs except new ones that cannot be varnished.

9/29 Some signs on Mt Trestle country not varnished.

9/29 Wales suggest copper needle for signs painting so as to avoid tipping to acids. This would not work, however, for wooden signs.

9/29 McNeely suggests that if ten foot signs were furnished the needs need not be known as tight and growth of trees would not work them off.

9/1 Conclusions Work OK except some delay on varnishing.

Maps - Prescott -

	Skull V.	Walnut	Prescott	Crown K.	Jerome	Cherry	Bl. B.	Camp Co.
Tagging or tying U.S.G.S. pts alone?	3		4		⊙		✓	
Last atlas Corrections?	None submitted by Rangers for years.							
Data for new atlas corrections?					/		✓	

1. Check of trees in Verde strip, & G appraisal work, will be used for base map corrections.
2. not done, but think no discrepancy. (Munro camps there so on the Cherry country).
3. Sprouts PK flagged by FS; Tagging have arranged to do the rest.
4. Sprouts PK flagged. no acc. cor. to tie PK known.

Maps Work - S. Verde -

9/20 Wales says work will take 2 mos, Munro 1 winter, Machalson 2 yrs. A definite plan should be agreed upon before recommended actions for funds are made to D.O. This will involve personal calls on decisions as to the interrelation of the control necessary to enable the Rangers to proceed with filling in the detail.

9/1 Conclusions no progress on maps as far but improvement of maps now receiving attention

Mz

F - PUBLIC RELATIONS

(69)

Genl notes on PR

5/10 Arizona Industrial Congress P. G. Spillsbury Pres., Phoenix. Wales suggests that PR get in touch with this organization. T. A. Riordan, Secty. Consists of a State Chamber of Commerce, in the better sense of the word. I should judge that Rundles scheme of getting westbound fruit empties to carry box shooks made from mill waste would be exactly the kind of a project they might get behind.

8/10 Wales Assignment to handle Prescott Fair tentatively broached and OK with him. Has already arranged with Co. Agent and Prof Thornber to put on a special exhibit of range grasses and browse, later to be pressed by hot sand method. If this method pans out it will be of value to PR.

8/10 News Stories Examined. Office scrap book and believe both the quality and volume of the publicity obtained, as well as the apparent relations with reporters and editors, are very good.

8/28 County Agent C V Pickerel. Very close relations with him in grazing matters but as yet no attempt to interest him in erosion problem. Urge that bank control methods be worked on there him.

8/31 Suggested Studies for Articles.

Subject	By	Publish In
"The Fire Relations of Manzanita"	Wales	Journal of Forestry
"The Brush Fields of the Prescott Forest, their History & Future"	Wales	" " "
"Studies in Tracking"	Oldham	Fire Review or Guide

9/1 Bulletins Wales digests bulletins like 1631 and publishes in local papers. This is an excellent idea.

G - FOREST MANAGEMENT

1. Marking Policy. Wales had laid down a policy of marking all green material but is having to feel his way around obstacles from time to time. My impression is that he is improving sales practice, in spite of very bad spots like the •Morris Sale(N.B.#70).

Note 2, Form S-2, also brings up an important question which Mr. Marsh may wish to consider.

2. Insects. Since the Prescott has for years been known to have an insect question, I was disappointed in the knowledge of insects shown by the local force. I did not have the knowledge myself to give any instruction. For safety I think competent instruction should be offered, and that subsequent inspections should record whether the field men are using it. See N.B.#72.

3. Brush Type. See synopsis under Fire, P. 2.

It is probably not advisable to outline in detail the various hypotheses discussed during my trip as to the interpretation of present conditions in this type. My examination was necessarily too superficial to give much basis to any of these. The following general sequence of changes is suggested, however, for what it may be worth: In its virgin state, large parts of the brush type were probably thinner than now, with much more grass. Grass fires and grass root-competition kept the brush down, and the grass probably checked the wholesale spread of manzanita through fire.

This virgin state was in itself temporary, the soil or at least large areas of it, being a forest soil, tending to come back to woodland whenever fires allowed. This accounts for the widespread occurrence of scattering Juniper stumps. The immense age of these is probably not appreciated. If a fire-killed Juniper retains its smallest twigs for 40 years (N.B.#2), may not some of these old stumps, burned off flush with the ground, be three or four centuries old?

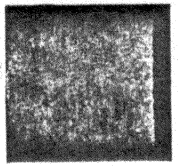
The re-appearance of woodland on a large scale, after removal of sod and grass fires, as on the Walnut Creek foothills and Silver Creek, and the survival of remnants like the Pinon Patch northwest of Dewey, dovetails into this hypothesis. So do the other phenomena listed on p. 2. So do the various phenomena of erosion. This hypothesis, as well as the evidence on the ground, directly refutes the assumption that the granite soils of the Prescott did not bear grass. The present absence of grass on most granite areas may be accounted for by the greater ease of trampling, and the ease with which humus is lost on such soils by sheet erosion.

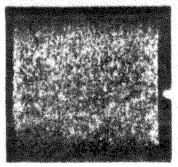
•I did not criticize this area to Higgins because I saw it after leaving his station.

If the hypothesis is correct, it follows that skillful administration can determine and control the future of the brush type. If the prime objective is wood products, we may continue to overgraze, letting in the woodland and sacrificing watershed values. If on the other hand the prime objective is watersheds, we should restore the grass, which all the evidence indicates is better watershed cover than either brush or woodland. It does not follow that this course would keep out the woodland, since fire would be excluded, and grass without fire would be a wholly new condition, the effect of which on woodland can not be predicted with certainty.

OPTIONS IN MANAGEMENT

Such authoritative designation of the prime objective of administration, wherever there are conflicting alternatives, together with the quantitative and qualitative definition of the virgin, present, and desired condition of forest, range, and watershed, is what I have called "standards of conservation". This proposal will not be discussed in this report; I merely point out this brush type question as an example of its workings.





8/4 Angora Cypress found on Wrasses Mtn, on north slope in deep canyons, 10 miles SW of Kirkland. Higgins over at there now 1920. Only a few trees seen.

8/5 Cost of Cordwood 3.75 load up on the rack on cuttings on private land 5 miles N of Prescott. mostly cedar & juniper. Hauled on log bunks to Prescott where it sells retail around $10.00. Figures by Oldham.

8/5 T L Morris Sale area on Tonto Wash was very level shape. Binary Oak. No sign formed of any mistletoe growing been done. Clean-cut operations altogether too longer, and banks of wash clean cut in several places elsewhere no cutting should have been allowed. In one place brush that could have been thrown at least feet into bed side wash were left piled on the bank. Sale right was driveway and probably no chance for reproduction along wash.

8/5 Cedar Posts of which old fence at Simons is built Oldham says have been in ground 40 years and still good except a good many weak because of only alum core of heart left.

8/6 Canyon Cypress on Cypress Mt SW Camp Verde.

8/7 Ash Sprouts from adventitious buds seem to have mostly larger simple instead of the ordinary compound leaves.

8/9 Sale Supervision Wales says he has come across sales made before the arrival where there was no marking, scaling, or supervision of any kind, the entire transaction being by mail and the Ranger unable to found the sale area.

8/10 Angiosperm Industrial Congress See note under PR.

8/10 Camp Wood Chance see RET

8/11 Black Hills reproduction S. of Flagstaff 2 to 3 g stump Current 35-40 years. Mutz suppose Cuttings about 35 yrs ago. Some place show very decided blanks around a and others very decided proximity of to stumps. I gather the cutting was gra and reproduction both advance and

8/14 Smelter Smoke Damage at Jerome from Consumed with aluminum Cottrell plant

No damage	Slight	Bad
Holly Juniper	Spruce	Cotton
Calif. Privet	Cypress	Locust
Canyon Live Oak	Mock Orange	Chinese
Aster	Celtis	Ivy ca
	Clover	
	Tamarix	
	Chrysanthemum	

Have terminal leaves are walnut, purple possibly others often unnoticed where th mature leaves were pulled.

8/14 Handling Cash Mutz reports having lien for wo purchasers who pursue are loosing $61.5 delaying payments. I think the off should devise means for avoiding altogether. For instance: Ranger co carry and make out M.O. apple and addressed unstamped envelope to re correct mailing.

8/20 A list of cedar reproduction running are Cover of brush on Silver Cr country where very occasional alder trees. Close to Camp and droppage grass fires?

8/22 Post Cuttings on monosperma, Lindley forms, more distinct all have one stem left most of made before inverting enforced. Very good, pro

(70)

…leaves Mts, one north slope
…of Kirkland. Higgins
…a few trees seen.
…ed up in the rock on
…nd 5th under N of Prescott.
…a. Hauled on log
…ut sells retail around
…ms.
…n Tonto Wash near
…ing Wash. No regard
…g burning been
…beginning of allotment
…of waste clearing
…where no clearing
…owed. Owners
…d burn heaps.
…en bad slash wash
…ank. Sale
…d probably no
…n alive waste.
…nce at Simmons
…e been in grounds
…a good many weak
…hs left left.
…Jus Cienega Wood.
…ious kinds seem to
…nstead of the ordinary
…
…he two Cienega Creeks
…where there was no
…asons of any kind, the
…ent and the Ranger
…
…ees See note under
…
RET

(71)

9/11 Black Hills reproduction S. of Yeagers Sta. gives stumps current 35-40 years, Mutz says cuttings about 35 yrs ago. Some places show very decided blanks around stumps and others very decided proximity of saplings to stumps. I gather the cutting was gradual and reproduction both advance and after.

9/14 Smelter Smoke Damage at Jerome from wet days combined with shut down Colwell plant as follows:

No damage	Slight	Bad
Holly's Mountain Cedar	Spruce	Cottonwood
Calif. Privet	Cypress	Lombardy Poplar
Eucalyptus Drop	Much Evergreen	Chinese Poplar
Aster	Celtis	Soy cannons
	Clover	
	Tamarix	
	Chrysanthemum	

Near terminal leaves on walnut, poplar, and possibly others often unimpaired where the mature leaves were killed.

9/14 Handling Cash Mutz is doing this for wood Rangers who persist are loosing $61's on delaying payments. I think the office should devise means for avoiding this altogether. For instance: Ranger could carry and make out M.O. appl and furnish addressed unstamped envelope to measure correct mailing.

9/20 A Plot of cedar reproduction running 100 under Cover of Juniper on Selden Cr country where now only very occasional older trees. Effect of thinning of grass and dropping grazing fires?

9/22 Lost Cattle on monosperma, Bradley Forest, via Sugar Mose district all hands over alone left. Most of these made before interfering enforced. Very good practice.

(72)

9/23 J. monosperma one near Rover goes down to 2500'. Machalaena days many old stumps are found nearly to Agua Fria in homhoe range T. 11 N. 3 E up to 6 miles from Forest boundary. Says one sheep country. Collars show general reduction in level of 6" through erosion.

9/28 Insects Remarks on Peridermium on beetles severum on May and only cuttings that as damage are those freshest at that time. Belief is that of burned before next many bugs are destroyed. Thus should be verified by consultation of experts elsewhere, and supplemented by comparative tally of observations (See break aphorisms already for suggestions as to form) There is some doubt as to whether local insect or Dipteron Sirex etc.

9/31 Pinnacle Oak Pinto See "Drafts" p 28

9/31 Thinnings in W.Y.P. Reproduction. Wadhams heads new inquiry from Verde Cr to supplying large quantities 5' pine poles for some special purpose in mines. A representative made a trip in the Camp Wood Country, but of course found no material. Wales now suggests that the reproduction thickets near Prescott East would supply any quantity. There are fine chances to make some remunerative and beneficial thinnings and should I think be pushed. I think there stands will never average 1000 saplings 4"–8" on the stump, of which 500 could probably be removed with benefit to the stand.

(73)

RANGER DIST INSPECTION
Form S-6
Prescott N.F
By Leopold

		Dist. D.	Skully 4/15	Walnut Cr. 6/9	Sycamore 6/24	Lane Co. 8/13	Prescott 4/4
Sales	Policy						
	Files						
	Contracts						
	Reports						
	Closure						
	System						
	Marking policy		①			5	
	Brush D. policy		①		✓		
	Scaling man.						
S-22	Policy			✓			
	Records						
Free Use	Policy				3		
	Records						
Admin. Use	Policy					✓	
	Records						
Field	Organization						
	of work						✓
	Location of-						
	cutting		①	✓	✓	4	
	Marking		①	✓	✓	5	
	Brush		①	✓	✓	✓	
	Utilization			✓	✓	✓	
	Insects						
	Trespass			•			•
	Wood Camps		•				6

(74)

① See special note re 4 Mormon cordwood sale
2. Jumper sale to Brooks on mine on S. fork Bishop Cr.
3. Machetoon says sheepherders sometimes cut green cedar for fuel. Both cedar and other fuel wiring occurs in places. This practice may be one watching.
4. Two sheets Cumpo Cr Road
5. Admin use posts Sec 11 K 29 for forest boundary, not marked because lack of time. I think there is a question about marking drowning cedars, where it is good practice to locate one or more stems on each tree, and accordingly where each stem would have to be marked to accomplish any good. Some of these cedars have up to six dozen stems. I think the Supervisor might well consider this different question. The instructions are at present to mark all green stuff.
6. Noticed some wood camps are pretty bad inside.

(75)

| | | | | | | |

Print Plot

(74)

1. See special note on T L Morris cordwood sale
2. Junction sale to Brookings mine on S. Fork Bishop Cr.
3. Michelson says sheepherders sometimes cut green cedar for fuel. Both cedar and other fuel used occasionally placed. This practice may be worth watching.
4. Two close to Camp Cr Road
5. Advised Forest Ranger for forest burning. Not marked because lack of time. I think there is an opinion about marking boundary cedars, where at is good practice to leave one or more stems on each tree, cruise accordingly where such stems would have to be marked to accomplish any good. Some of these cedars have trees up to 20 degree stems. I think the Supervisor might well consider this difficult question. The restrictions are at present to merchantable green stuff.
6. Watson's name misspelled. Camps are pretty bad order.

(75) FIELD Designation Pg. 1.

F[illegible] n S-2

[illegible]ecott N.F. In charge

By Penfield J E Norcross

Date 8-27-22 M c Nally

4 Type rims 1 cent per M Lumber

Class	C	Utilization (122cd)	Stumps	✓	
Amt.	180M		Tops	½	
Rate	$4.00		Breaks	✓	
Cut to date	100M		Long butts	✓	
Admin. Ins.	Has them	✓		Def. trees	✓
	Uses them			Trees left	2
	Satisfactory			Log damage	✓
Prog Map	Keeps up to date	✓	Scaling	Records	
				Has manual	✓
Cost Record	Admin.			Uses manual	✓
	Logging 5.00 per M			Economy	✓
	Milling 3.00 per M			Check made	0
Stum Rate	Satisfactory	✓	Brush disposal	Lop-scatter	
	Payments	✓		Pile-burn	✓
Sale Bdry	Logical			Pulled	
	Natural			Fire lines	
	Posted	✓		Kept up	③
Contract	Final date			Instructions	
	Periodic cuts		Camp sanitation	Garbage	
	Modifications			Refuse	
Marking By local force	Sample	½		Outhouse	
	Satisfactory	2		Pigs	
	Instructions	1		Water supply	✓
	Use	1		Barns	
Marking By insp.	Plots marked	1		Flies	
	Calipered	1		Screens	
Logging	Plans			Streams	✓
	Cooperation			Sawdust	✓
	③ Cut wood contains [illegible] has not kept up			2 W by leave mature trees	
				1 Bunks, no mattresses needed	
				0 plans of cuts	

(Cutting heavy 4-6" right)

H - GRAZING

Mr. Roberts' recent grazing inspection made it unnecessary for me to attempt any detailed grazing inspection.

It is, however, impossible for any forester to see the Prescott without being vitally interested in the effects of grazing. Attention is called to the following points bearing on the general question of conserving the Forest:

1. Degree of Overgrazing. Roberts says 10% is overgrazed and 15% overstocked. Without attempting to recommend any change in these officially recognized estimates, I would say that all the country I saw is damaged, with the exception of under the Verde rim on the Jerome District, the Caveness Allotment, and the Sycamore country. I suspect that the difference in opinion may lie in the "standard of conservation" and the diagnosis of such questions as that of grass on granite. My statement is based on the assumption that this being a watershed Forest, we desire to restore a sod and vigor somewhere near as good as the virgin.

2. Roberts' Follow-up. I was disappointed in not finding Roberts' specific proposals embodied in Work Plans and Schedules, or noted on them for the next revision.

3. Value of Agricultural Land to Stock Ranches. See p.33 N.B.#81.

4. Grazing Down Fire Hazards. Caution should be used to not mis-apply this policy. Example: McNelty's remark that he would like to graze down the Ceanothus (Snowbush) in the Groom Creek country. To graze down a non-palatable species like this would cause damage to palatable forage and watersheds far in excess of any possible benefit to the fire hazard.

AL MORE DEFINITE THIS TIME

Division of Range Appraisal

Munro	Cave Cr, Skull V, Bloody B, Cherry
Mutz	Jerome
Oldham	Walnut Cr
Wales	Crown King
McNelty	Prescott

8/5 Tonto Cooperation Munro feels that the Tonto fell down on Prescott badly in not furnishing men for the Coburn roundups. Says they had promised to do so.

8/5 Receipt for cattle Oldham after FS roundup asks employees receiving cattle to receipt for them as in good condition, thus heading off any later claims of damage in handling.

8/10 Relation to Permittee on Roundups Warren says on Coburn roundup F.O. furnished horses, but not enough. They had to borrow horses occasionally and the outfit furnished chuck, cook, & wrangler. No payment made, FO's making a hand. F.O. packed their own grain, but outfit did not feed grain to their mounts, which were of course larger. (See Finance p. 21)

8/10 See note 3 Form L-4 in relation to G work.

8/14 Young & Wilkins sheep allotment on Mingus Mt and west slope seems to me too steep and brushy. Sheep are bound to do damage if they use the higher slopes, but they are not using these. Besides they should not be on the recreation area. Also considerable young reproduction subject to damage.

8/31 Degree of Deterioration of Range See p. 2 note 8/7

Digest of Roberts Report 6/1/22
4/7 - 29, 1922

P.

2 Changes: Verde Valley 100% better shape
Stephens S&G S.V. more closely used
Eastern part Shultz & Mullen better, still bad

Overgrazed areas
Open areas E. part Shultz & Mullen
N & E parts Williamson Valley
T.G. Walter & Ainsworth Allotments
Camp Wood Community Allotment
Cellar Spr Basin, Shields Ranch
Around L L Harmon Rch & W. of Congo Water
Cartwright Allotment, especially parts of
N of Sears Kay Camp Cr Ranch
Squaw Cr S&G Allotment S of Cr.

3 Estimates 10% overgrazed
10-15% overstocked
75-80% properly used or poor dist.

4 • Salt plans poor. Not drawn to get distribution

5 • Salting both at & away from water urged as a starter.
Do not overlook dev. temp waters, especially for winter sheep.

6 Boundary fences will average $225 per mile
needed now 128½ miles $28,912 Govt $10,000

9 Drift fences - Wal. Cr. should not be further subdivided pending adjustments
• Excess stock Coburn Bros (Michelson)
Walter & Ainsworth (Oldham) Stephens (Higgins)
Above not yet covered, should be in Work Plans.

10 Wild horse & burro Problem, Mayes & Turkey Allotments

27 • Trails for brush ranges: Long range, Prescott
• Salt, water, fence, & allotment maps inadequate
(Oldham & Mutz have made a start)

• See if in Work Plans

Digest of [illegible] Report 6/1/22 (77)
4/7-[illegible]29, 1922

[illegible]ranges: Verde Valley 100% better shape
Stephens S&G S.V. more closely used
Eastern part Shultz & Mullen better, still bad
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10-15% overstocked
75-80% properly used or poor dist.
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[illegible]alter & Ainsworth (Oldham) Stephens (Higgins)
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[illegible]ld horse & burro Problem, Mayer & Turkey
[illegible]llotments
[illegible]ails for brush ranges: Long range, Prescott
[illegible]lt, water, fence, & allotment maps inadequate
[illegible]ldham & Mutz have made a start)

[illegible] in Work Plans

(78)

11 Driveways
- Remainder Grief Hill posted?
- Tonto reposted? • Round Valley reposted?

14 Seasonal use
- noting when growth starts Juniper & Mingus Mt

16 Carrying Capacity Min 20 acres per cow for Forest. not enough margin of safety in local estimates.

17 Associations needed
- Walnut Cr.
- Mayer & Turkey

Ranger Rounds notes

9/6 399 Reports handled last year by sending Ranger a complete list of cases and has Asst. make itinerary from check off whether O.K. or marking not special memo. on cases not O.K. or requiring closing. Letter or printed sheet was made out by Supervisor beginning closing. and stating Ranger had made enquiries and found O.K. - Rangers supplied with copy to file in case. Pretty good system.

9/12 Irrigue Recreation Area Rook to me that an association will be the only satisfactory means of handling water supply, pasture facilities, sanitary service & patrol, fuel service, caretaker, etc. The upper flat E of Pageau springs would make a fine pasture if fenced and gullies planted. Now without grass and badly washed. Spoke to U.V. people about Assoc. and they agreed to.

9/14 Laying out Areas Agreed with McCarthy, Moore, & Wagner, subject to Wades approval that they should organize an Assoc. to which lots would be leased under term permit at prices specified for each lot. They would then sublet to their members, adding a charge for caretaker and other services. Also that removable receptacle toilets as a temporary and water system with central septic tank as ultimate method of sanitation would be O.K. with Service. Also that lots would be laid out by time road opened.

McCarthy says as to Young & Wilkins Ranch, latter wants $35,000 for his undivided half. Young says he owns the ranch and is ready to sell at moderate price.

Points to be considered 9/16/32

Laying out Irrigue Mt. Recreation Area

1. Location of roads before layout can be planned.
2. If possible, get a decision on whether Young & Wilkins Ranch property (123 acres) will be acquired.
3. Location with respect to Fire Tower & Cabin.
4. Items to be on Layout
   a. Leaving room for ring road
   b. Provision for public camp grounds
      Sanitation Segregation
      Water supply
   c. Provision for Non-Assoc. Cottages
      Water supply Base of supply
      Road access. Sanitation
   d. Community facilities Pasture, hay
      Water System Caretaker
      Central playground Camp fire grounds
      Parking grounds vs individual
      Telephone Service Baseball area
      Mail Tennis Courts
      Supplies Lake site?
      Receiving pavilion Milk, eggs, vegetables
      Wood
      Sanitation garbage.
      Temporary:
      Removable Receptacle - Incinerator
      Permanent
      " Septic tank. Grades. Sets.
5. Misc. Points on Regulation
   Campfires. Permits? Traffic on roads.
   Firearms. Range stock
   Fauna Refuges? Patrol - ranger & caretaker

PRESCOTT ?

(81)

Notes on Forest.

8/5 The Tonto wash never has its head quite below the Thad Mullen ranch fields. This might be an excellent chance to get Forest cooperation in checking its going higher. Of course it is only a mile or so to the head of the watershed. Side cutting from this wash will eventually destroy the Skull Valley road which will then have to be built on the side hills at not less than $2500 per mile. This might more than pay for plugging the side gullies and preserving the site of the present road.

8/6 Willow Cuttings should have the top slanting down stream so as to prevent litter being torn out by driftwood and trash. This is Oldhams idea and is very excellent one, obviously applicable everywhere.

8/6 Effect of Grazing on Stock Industry (Tonny Walton)
$ 6.00 per ton, cost freight to Walnut Cr from Prescott
$150 Tons grass used 10 @ $15.00
Hay equivalent 4 miles fence, depreciation $50
$75 640 acres @ 44 $25
$150 Depreciation & interest on extra horses
$300 Extra food supplies because lack of grazing first
$2000 40 head per year extra loss, due to lack of feed @ $50
$2675 ÷ $12000 = 22% tax on increase of land cost
2675 ÷ 430 head sold = $6.20 per head (by months)
(Adjoins outlet under yearlong permit 862 head)
(640 acres hand in alfalfa, corn, cane, or chard, gar.

8/8 Stopping Gullies Oldham seems to attend to this habitually in the course of ordinary work, and in two years has accomplished a great deal in plugging at strategic points.

8/10 Pole Willow Tahuforo will test to use of cuttings will grower and report to D.F. by 7-1-23 (P/c)

(82)

7/17 Slips of Young Bushy Willow As nearly as I know this species is found only at Burnt Ranch. It might be a good scheme to grow on good stock at some station so that permittees or Rangers could be told where plenty of cuttings available. Stock on each Unit?

8/21 Cracks & Gullies Our mulpais commonly gullies in many often start through cracks caused by drouth. At the present time rains running down these cracks frequently leave holes 2 feet deep.

8/23 Cumip Cr Road Old road down Cedar Cr destroyed by erosion in 1896 - now have to cross divide and go down Cedar Cr, which in turn is washing out. Cedar Cr is nearly all gone and into new Cedar Cr. Bradley claims good (see recreation) Freight to RS reduced from $25 to about $15 per ton by new road.

It is certain that a part of Cumip Cr will be destroyed without special bench protection. It is possible that the gravels could be fenced, leaving water gaps between for cattle. This would make possible the willowing of the benches, with wagons now at the most important and valuable points. I did not have time to work out a plan, or to make sure that any preservation work is practicable. It is however a tremendously attractive thing that we are entitled to solely for watershed protection, and administered for 14 years as a watershed, we should today without helplessly the destruction of a highly valuable recreation ground by floods.

8/25 Desert Willows Mackelson will test as to growth from cuttings and will report.

8/25 Cutting Checks Rains Munro says Olmsteads told him the moon point about north dams was to arch up streams.

-33-

8/28 Grazing & Willows. Any doubt about the original existence of willows in the canyons of the pine type may be elucidated by examining the heavy growth of bush willows in the City Ranch & Poley place, which have been fenced. The willows cease sharply at the fence; also the erosion begins.

8/28 Specifications for erosion control plant needed to supplant willows:

Size - shrub, not tree. Fairly raped growth
Root - fibrous
Propagation - cuttings
Non-palatable or thorny; resistant to grazing
Temperature - must stand -15° F
Moisture - must resist drouth as well as willows

8/28 Cal. Privet. Grows from cuttings, stands -10 F, and wales says he has never seen stock eat it. McNelty will try it out. Main doubt will be drouth-resistance. Possibly some of the mongolian species would be better. This will be taken up with B.P. Exploration. McNelty will also try Alder.

For Erosion works at Ranger Stations see Imp. pp. 34-36

Creek Erosion - Prescott NF

Creek & Section	Original	Present	Loss
Nassy Camp (8/3/38)			
Boundary - Middle water (torn out, 1 small patch left)			
Length	200 chains	200 chains	
Aver. width	5 "		
Area	100 acres	100 acres	
% cultivable	50%	5%	
Amt "	50 acres	5 acres	45 acres
Middle water - Orofino (covered by side washes)			
Length	250 ch		
Aver width	8 "		
Area	400 acres	400 acres	
% cultivable	10%	2%	
Amt "	40 acres	8 acres	32 acres
			77 acres
Value now as Ranch Property			$100
Loss from erosion			$7700
Cave Creek (8/24/38)			
Length	160 ch	160 ch	
Aver width	6 "	6 "	
Area	96 acres	96 acres	
% cultivable	75%	0	
Amt "	72 acres	0	72 acres
Value now as Ranch Property			$100
Loss from erosion			$7200

AL

-34-

86

RECREATION

Form L-3

--Prescott-- N.F.

By...Leopold...

	Proj's-rangers	Camp Cr	Pleasant Cr
	D.	7/8	8/4
Working plan m'd.			
No. lots surveyed		31	12
No. lots occupied		8	0
No. visitors			
Publicity meas'			
Condition & adequacy of			
Monumentation			
Posting		✓	
Sanitation		3 ✓	5
Water supply		✓	
Camp gr'ds			
Hotel sites		/	
Prolec. meas.			6
Roads & trails		2	✓
Fire places			
Garb. pits		✓	
Shelters		/	
Privies		✓	5
Fencing		4	

1 Coverage applied here

2 See R&T

3 Data on chemical closets

4 See Engineer

5 Use only watershed. Explain removable receptacles system with incinerator would be best

6 Use burned ground

7 Add Pleasant Pt to all except of taking all of these.

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RANGER DISTRICT CONDITIONS AND PRACTICE

Form L-4

-----Prescott----- N.F

By...Leopold.....

			District	Trail Valley	Walnut Gr	Jerome	Prescott	Bloody Basin	Cave Creek		
			D.	3/4		9/13	3/30	5/10			
Bdry. Posted		Condition		✓		✓	✓	✓	✓		
		Tr. Surv needed						5	3		
Illegal Occupy								✓			
Uses conditions	Cultiv ation	Soil									
		% Slope									
		Cover									
		Area									
	Pastures	Reprod						7			
		Forage				②		⑥			
	Others										
Ranger practice	Uses Fr 399	Made on ground		See special note p.							
		Special trips									
		Avoided									
	Claims Crop & res. forms	Made on Ground									
	Evidence Coll'd										
Field status		Current				3	3	4	4	✓	
		Carried				4	3	4	4		
Does it show		Claims					/				
		Stations					/				
		Uses					/	·	·		

(87)

RANGER DISTRICT CONDITIONS AND PRACTICE

Form L-4

Prescott N.F

By Reupelohl

			District	Skull Valley	Walnut	Prescott	Bloody Basin	Cave Creek
			D	8/4	8/14	8/30	8/29	
Bdry. Posted		Condition		✓	✓	✓	✓	✓
		Tr. Surv needed					5	
								⑧
Illegal Occupy							✓	
Uses conditions	Cultiv ation	Soil						
		% Slope						
		Cover						
		Area						
	Pastures	Reprod					7	
		Forage			②		⑥	
	Others							
Ranger practice	Uses Fr. 399	Made on ground		See special note ⑥				
		Special trips						
		Avoided						
	Claims Crop & res. forms	Made on Ground						
	Evidence Coll'd							
Field status		Current			3	3	4	4 ✓
		Carried			4	3	4	4
Does it show		Claims				/		
		Stations				/		
		Uses				/	.	.

(88)

1. Boundary of S. part Skull Valley Dist. posted on main driving creek ridges but posters are hard to see o/c boundary. Taller posts at more frequent intervals, with wooden segno on trails, should ultimately be provided.
2. See note on Camp Wood RS pasture Forms 0-9
3. Stations never received. Suggest that carrying stations is pretty important in ranger appraisal and allotment work is more prevalent on Prescott.
4. Prepared but not yet checked & sent out.
5. Boundary in Copper Cr country 7 chs. too far west and posts not yet moved. Sheep guards labor might be a practicable way to get this corrected
6. Mulford Munro & Michelson survey Stewart Bros. pasture about 640 acres. Is overgrazed due to holding yearling heifers fall 7/1 on 1921 & 1922. Queen Creek recently bulldozed, snakeweed coming on mesa, Cane cholla & mahogany grazed close. This damage was probably hard to avoid. Closed survey with no claims. 5 chs, 3 mon.
7. Cedar coming in, evidently due to stoppage of fire due to thinning of grass. Some old burned off stumps.
8. Munro camps Prescott policy on fencing boundary is to give ground where rimrock or other savings are possible, and to take ground if necessary, but only with rimrock, never with fences. Sounds OK.

8/4 Vern Dickson says blacktail noted on Skull Valley alley above home in April & May and fawns seen late in June or early July.

8/4 Jaguar killed on Sycamore Cr 5 miles W. Skull Valley by Pete Wilcots about 1900, according to Vern Dickson & Grant Carter of Skull Valley & Kirkland resp. Hide seen by Dickson.

8/4 Jaguar seen by R. Morton, ex forest guard, on head of Little Ash one Feb in 1912, according to Munro.

8/3 7 antelope on Tank Cr. Mesas W. of Skull Valley according to Grant Carter.

8/3 Mt Sheep on Santa Maria Mts, according to Carter. Nearest other occurrence, past or present, at Walnut Grove where an adult ram was once seen. (See note 8/10)

8/3 Bunched Quail apparently breeding 3 miles from water on hills W of Kirkland Junction Hassayampa.

8/5 40 Antelope near Weaver Creek; 10 Walnut Cr Herds are connected by Waldheim.

8/6 Waldheim Palatability list of deer browse

1. Manzanita (Acorns, pinons)
2. Juniper berries
3. Mahogany
4. Quinine bush
5. Cercocarpus (buckbrush)
6. Oak
7. Apache Plume

8/6 Jaguar 2 killed by W R Moseley near Date PO around 25 or 30 years ago (Waldheim)

8/6 Killing Habits Vern Dickson says he knew bull & dog colt. Jumped at them from forest, grabbing dog by the back of the throat and raking the neck and chest with the hind claws, tearing the jugular vein. Dragged them 60 yards and later returned to feed, eating the heart.

Waldheim says alleged leopards in Matazala Hills were killed by pulling the head

down and breaking the neck. Feeds over carrion and never returns for a second feed.

Hardy Schell says he was in Matazala mountains riding with shoulder holster – probably to get at the lights.

8/5 Jaguar killed by Mackell in Peeples Valley country on Tonto 20 years ago. Schell says John Ellis told him this.

8/5 Hunting Permits similar to camp fires permits advocated by Waldheim as a general restraint on hunters. Might be first practical step toward regulation of kills.

8/12 Harris Quail none on Prescott

8/12 Turkeys Mintz have never heard of any on Verde, none in past. Will look up feathers.

8/12 Bear Killing habits Mintz says beg bear obtains carcass but cows are never, claiming meat entrails. One instance and olds are killed as cubs getting to pull at out of traps.

8/15 Coyotes eating mangle winter berries, pine kernels, as per sign seen on road SW Mayer. Trees are the brown rope berries, evenly gathered as they fall up on the grounds.

8/16 Turkey on Cherry Creek Rest none noted. Last killed near Palace Bar long ago. 5 mile claim formerly found thereabout the Bradshaws.

8/16 Mt Sheep One killed by Jim Carter about 1900 at the mouth near Walnut Grove.

Horns found by Taliaferro on Minnehaha Cr. near Thompson Pk.

Horns found by Hi Culkins on Blind Indian Cr.

8/16 Jaguar Wyatt says one killed 12 miles N. of Wickenburg by Leonard White in 1905, on the Hassayampa, and another 3½ miles N. Congress Junction on head of Bear Cr. by Jno. Hickox in about 1900.

8/18 Antelope were in near Lockwood Spring in 1919 but none now. (Tillotson) See 8/20

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ne

J- Game + Fish

noted S Kuhl's Valley
14 wks and [illegible] ins
uly.
e in 5 miles W. S Kuhl
1900, according to Vom
Kuhl Valley & Markland
n.
in, as fine guards, in
nce 1912, according to

Mesas W. of S Kuhl Valley
.
MT, according to Canter.
past or present, at
bney ranch was once

ley breeding 3 miles from
kland toward Hassay-

ards, 10 Walnut Cr Herd
n.
of deer browze
. Cercocarpus (Mountain mahogany)
. Oak
. Apache Plume

[redacted]

Mowday" near Dale's PO
o ages (Waddleman)
ve seen a lion hold as
own front, quite long
throat and taking his
hind claws, tearing
gged him 60 yards and d
ating the heart.
ger leopard was
y pulling the head

downward and tore at the [redacted] with his claws. Feeds on Cougar used never returns for a second feed.

Hardy Schell says he once saw a Mountain lion deliberately tear entire shoulder blades - probably to get at the lights.

8/8 Jaguar killed by Mackell on Jerseyville Creek, County on Texas 20 years ago. Schell says. John Illens killed him then.

8/8 Hunting Permits similar to Assumption permits advocated by Waddleman as a general restraint on hunters. Might be also instituted as help toward regulation of kills.

8/12 Near no Quail none on Prescott

8/12 Turkeys Mintz have never heard of any from Verde, none in past. Will locate info further.

8/12 Bears Killing habits Mintz says big bear eats carcass but coyotes, ravens, vultures, flies are instrumental in getting it out of traps.

8/15 Coyotes scaling measurements between ears, lengths, as per sign seen on road SW margin. These are the heaviest ripe berries, scarcely gathered as they fall off on the ground.

8/16 Turkey on Crooning list. None now. Last killed near Palace Sta. long ago. Some claims formerly found throughout the Bradshaws.

8/16 Mt Sheep One killed by Jim Canton about 1900 at his ranch near Walnut Grove.

Horns formerly by Talieferro on Minnehaha Cr. near Thompson Pk.

Horns formerly by Hi Cullins on Blind Indian Cr.

8/16 Jaguars Wyatt says one killed 12 miles N. of Weckenberg by Leonard White in 1905, one the Hassayampa, and another 3½ miles N. Crown King on head of Bear Cr. by Jno. Steckes in about 1900.

8/18 Antelope were in near Kirkland Junction in 1919 last [redacted] None now. (Talieferro)

See 8/20

8/18 Mt Sheep never found in Jarquillalas Mts or Sierra Estrella, according to Talieferro.

8/20 Turkey formerly found on Prune & Mingus Mts according to Alex Sanders brothers 40 yrs ago.

Reintroduction of turkey with proper game refuges to get them started, would be a very practicable and profitable matter. Turkey hens on eggs allowed could doubtless be obtained from the Apaches.

8/21 Pool Quail Prince Mt., Peeples Cyn. Prescott Mt also on Huckleberry Mt Cross Cut Mt Mahalasas says. McNally also near Prince Mt Granite.

8/24 Mt Sheep Some lambing in cedars 2 miles west of upper ± 4 months, old. Doggett says. Thinks there may be a few sheep left on the Eagle Eye peaks. Doubt of any left.

8/24 Gambel Q. Roost on huckleberry trees 15' high along side canyon above ± 4 inches over heavier. Must have been 50 birds.

8/24 Mt Sheep Joe Connelley, herder for Campbell Bros, Francis, killed Mt sheep on in 1920 that there were sheep around Signal Mt. He did not take any. Sheep must at that time. I think this is worth investigation, even if there is only a remote chance of it's being true. If true the wild goats should be killed out and new explored Area established for them.

8/24 Jaguar killed by W H Smith near Wellmans Springs, Smith Canyon, about 1895. Waddleman got this record.

8/30 Turkey formerly on Groom Cr Connelley, McNally says.

J - Game & Fish

K - ORGANIZATION

1. Second Deputy. See Wales' O-Supervision memo of September 9 and previous conversations and correspondence.

Wales' request, in brief form, is for the temporary assignment of a second deputy to enable him to catch up with the work.

I am convinced of the following points:

(1) Wales inherited (because of too rapid personnel changes in the past) a heavy load of tedious detailed work that had to be caught up.

(2) Wales has more work lined up than two men can promptly execute.

(3) The present staff is already doing a greater quantity of work than in the long run can or should be expected.

(4) The present staff is making progress in training rangers for more responsibility, but there is still much work being carried by the staff which should eventually be passed to the field (N.B.#94).

The foregoing points constitute a summary of the Prescott problem, viewed by itself.

Viewed in comparison with conditions elsewhere, the following is an indicator:

(a) Work Units per staff man indicate a heavier load on three Forests. The Prescott is fourth heaviest in load per staff man, and sixth in load per man, counting the total force, (N.B.#95). I have no impressions or evidence to indicate that the comparison afforded by work units is radically incorrect.

Discussion and Recommendation: I have a basic doubt whether augmenting the staff even temporarily is a sound method for handling an overload. In the past it has often operated to delay rather than hasten decentralization. Even granting that a third man would be handled to prevent this, I do not see how the Prescott's request can be granted without augmenting four or five other staffs. My solution is simply to give the Prescott time to catch up.

2. Staff Methods. See the following:

Possible Time Economies,	p. 40, N.B.#94	
Teaching ability,	p. 51, N.B.#43,	note 8/29
Field time,	p. 44, N.B.#102	
Knowledge and study.	p. 49, N.B.#39	

3. Work Plans. As on other Forests, the present form of work plan does not show evidence of being a live, used, day-by-day guide to use of time. Like a watch that has no dents, no tarnish, and is kept in the safe - one suspects that it is not really an effective watch.

Wales is fully aware of this, and is working on a new form of plan. Briefly, his proposal is a cumulative notebook "Job List", which the ranger builds up as jobs come into sight. It may go as far ahead as the Ranger can see. From this list the Ranger selects monthly a schedule of jobs for performance during that month, this also to be in notebook form. In both list and schedule are to be appropriate marginal spaces for marking when a job is scheduled, covered by appointment, or performed.

Strictly routine jobs are to be printed like a calendar of reports.

The whole system would be controlled by annual Objectives stating broadly what he intends to accomplish during the year. Time estimates would be dropped. Diary Analyses give probably sufficient control of this.

There are weaknesses in Wales' plan, but I am beginning to believe that any annual plan or schedule with days balanced among jobs inevitably results in a mere list of activities. I hope Wales will keep us posted on his further development of this form of plan.

4. Diary Analyses. There will be furnished Supervisors this winter tabulated results of Diary Analyses to date, by which they may check their own results. See N.B.#99 and 100. Good progress is being made on the Prescott, and defective methods such as absentee analyses are being dropped. See also p. 40 N.B.#93 note of 8/9; p. 41 N.B.#98, note (1); p. 53 N.B. #48, note of 8/26.

5. Notebook Systems show healthy individual development in the staff, but nothing new in the field. I had hoped to gather material for a "Sample Ranger Notebook" but found very little. There are signs of interest among a few of the Rangers. We

can not push this too hard. Any notebook system that does not grow of its own accord will never survive or improve.

Grand Notes on Reg.

8/4 Mr Frank Leupp St Cuddle Valley Rest as far as under Wales Admin. Wales o closed for Sept. See O-14

8/7 Calving & Pastures would I believe be a great help to field work on a district like Walnut. Ones on Camp Wood Country and was on north end. Oldham agrees, especially as to pastures.

8/9 Oldham Ranger Analyses Wales disagrees of diverse field obstacles as:

1. Ranger boarding at stations by permittees. Remedy: visiting allotments with permittees to clean up questions on ground.
2. Lack of an separate office building.
3. Writes out reports before typing. Remedy: practices direct typing. Too good maps.
4. Planning longer office periods for promptly clearing up pending office work.

8/22 Bloody Basin Trail Locations Memo to please to do these with Nicholson + accounting has arrived. Doubt of these necessary. See note, R&T

8/28 Conduction of Supv. Office There are lots in many old papers, maps, drawing equipment, binders etc are neglect. These tends to have an undesirable moral effect on ability to concentrate, formulating habit, etc.

8/31 Handling Letters See Sheet O-14

8/31 Shuffle Work Schedules " " O-14

8/31 Office Standards for clerical forces (copy sent DA Aug 1921) as a very thorough job that might well be used in other Forests. Prepared by Wales.

Possible Trips Concerning Forest Staff
(Summary of Discussions 8/30 and 8/31)

1. Avoiding "going stale" and getting quality rather than quantity thinking. Three more systematic recreation.
2. After teaching Rangers by demonstration, turn over to Rangers more circle jobs as:
   (a) Recreational Surveys (layout by staffs, recovery by Rangers)
   (b) Ranger Deputies
   (c) Trail Locations
3. Shortening report work by better notebook systems Examples
   (a) Direct notebook expenses accounts
   (b) Adaptations of Tally Sheets to shorten inspection memos. Have sheet each district putting notes into same pages.
4. Fewer short trips. (Heretofore prevented by clerical troubles, appeals, range appraisals, D.O. Inspectors).
5. Fewer Forest-wide trips by Inspectors. More thorough inspection of fewer districts. (Heretofore prevented by lack of acquaintance with Forest, appeals, old inspection system)
6. Miscellaneous
   (a) Rangers files inspections by Clerk instead staff
   (b) Manny McKelligo office to Willow KS
   (c) Possible transfer Cave Cr Rest to Tonto

(93)

...ad for an insider
...ger Dept. See 0-14
...deserve be a great
...uct like Walnut.
...and was ...
...especially as to
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...is disagrees with
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...mittees. Remedy:
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ORGANIZATION
Form O-14
....Roosevelt...N.F.
Kempfold

		Name	D	Haggas	Oddliffe	Mufa	Tolhurst	Mathiesen	Carlson			Total Feet	Misc.	TOTAL
				8/4	8/7	8/12	8/16	8/19	8/23					
Supervisory Inspection	Year 22 Days	Supervisor					10							
		Deputy		8										
		Forest Clerk												12
		Total												
Work plan		Dairy analysis		①	✓		✓	✓		Mis. 8/16	8/23			
		Travel map		1	✓		✓	✓		Mis. 8/16	8/23			
		Record					6			8/16 ✓	15 ✓			
	A.W.P.	Prepared		✓	✓	✓	✓	✓	✓					
		Well drawn		✓	2	✓	7	2	✓					
		(Relative to C. Contracts)			(2)		O							
	M.W.S.	Prepared		✓	✓	✓	✓	✓	✓	/	14 ✓			
		Well drawn		✓	✓	✓	7	✓	11	/	✓			
		Progressive riding												
		Seasonal distrib.												
Office & H'qtr System		Fire season												
		H dqtr's work												
		H dqtrs imp. wk.												
		Mail & supplies												
		Files						8						
		Maps												
		% System		✓		4		O						
		Desk system		✓		✓		9				17		
		Notebook system			✓	✓3	✓	✓		15	✓			
		Office seclusion		✓						✓	✓			
		Handling callers			5	✓				✓	13 ✓			

(98)

① None yet. Some made as straight clearing checks. 8/5 and 6 found 36 days full time Dec - Mar inclusive. This seems much too low. Clearing analysis needed.

2. Plans carefully prepared but leans much too strongly toward activities rather than specific jobs. No entry yet made of the jobs set up by Roberts report. Monthly schedules are better in this respect.

3. Rangers not furnished with notebook tabs. This should be done. Shirt pocket book not carried.

4. Not used. Uses desk pads, and carries reports in distribution basket.

5. See clearing analysis and discussion under Org.

6. No memo made

7. Leans very strongly toward activities rather than jobs, especially the M.W.S.

8. Has very good scheme for closed files. Set up on toilet tank on counters, so that front can be serving unit for building unit drawers. Racks made out of 1x3's

9. Needs lettered documents, i.e. study, unfiled, etc.

10. To Sept 1, 1921

11. The schedules, also the A sent, leans too much toward activities. B sent good.

12. Wishes plans to show Rangers go to Ranger meetings. This is a good plan for all concerned.

13. Kept no records for a short time - seem about 130 per mo. Clerk handles majority of items.

14. Keeps a scratch list of office jobs and a field list by Ranger in notebook. Very good.

15. Advises using shirt pocket books only for scratch memos, later transferred to regular book.

16. Insp. Memos are very good, but of course susceptible of improvement with new forms like Tally Sheets

17. See Org note 8/28

Prescott Forest DIARY Copy of ANALYSIS of Ed[illegible] by Wales Date
Walnut Cr. Ranger District (Ranger) (Inspector)
Year F.Y. 1922 D-3 Form O-16

	Month	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Total Days		
Non-Work	Sun. Hol. Lv.	1/2	1	3	6 1/2	9 1/2	4 1/2	2	5	2	3 1/2		4	°45	*44	
Non-Field	Hdqtrs.	2 1/2	1	1	4 1/2	1	5	2	2 1/2	2 1/2			2	26	44	
	" Imp.	1/2			3	3	1 1/2	1 1/2	2	7	4 1/2		2 1/2	27	20	
	Mail & Supplies	2 1/2	3 1/2	2 1/2	1	3 1/2	3 1/2	2	1	2	3		2 1/2	29		
	Forage		1 1/2							1				3	12	
	Meetings Court etc.									1				1	7	
	Office	8	6 1/2	11 1/2	7	7 1/2	12 1/2	7 1/2	7	6	7		5	93	72	
	Unclass	1 1/2								1/2			1	3		
	Phoenix					1 1/2										
	Suprs. Office		1		1 1/2			1			1/2		1	7	6	
	Other Districts															
	Total Days	15	13 1/2	15	17	16 1/2	22 1/2	14	13 1/2	19	15		14	189	150	
Field	Commercial Sales															
	Other Timber	1/2														
	Grazing	10 1/2	4	6	4 1/2	3	3 1/2	7	2 1/2	8	10		6	71		
	Lands	1	10 1/2	3 1/2	3	1	1/2		1	1/2	1 1/2		1	25		
	Improvement															
	Roads & Trails	1	2	1 1/2				8	6	1			1 1/2	23		
	Fire Fighting			1										1		
	Other Fire	2 1/2								1/2			3 1/2	7		
	Other Districts															
	Total Days	15 1/2	16 1/2	12	7 1/2	4	4	15	9 1/2	10	11 1/2		12	127	166	150
	Total	30 1/2	30	27	24 1/2	20 1/2		29	23	29	26 1/2		26	361		
	Total days on overnight trips	8	13	12	3	1		5	0	6	5		9	68	*63	90

From Algraphs Proposed standard

To be supplemented by detailed discussion of mistakes in use of time and summary of diary conclusions

° reduced to yearlong. * Apache, Sat, Lin

* Over 1921

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Prescott Forest DIARY ANALYSIS

Crown King Ranger District

Year FY1922

of R.S. Tallafferro (Ranger) by Wales (Inspector) Date 6/26/22 (110)

D-3 Form O-16

	Month	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apl	May	June	Total Days
Non-Work	Sun. Hol. Lv.			3	1	1	3	1	3	3	2	3	3	23
Non-Field	Hdqtrs.	1/2	1 1/2	1/2	8 1/2?	3	2	4	5 1/2	2 1/2	1	4	1	34
	" Imp.	4 1/2	4 1/2	9 1/2	2 1/2	4 1/2	1			2		2		30 1/2
	Mail & Supplies		1 1/2		1	6 1/2	1			1				11
	Forage		3											3
	Meetings Court etc													
	Office	6 1/2	2 1/2	3 1/2	6	4 1/2	6 1/2	8	8 1/2	5	5	2 1/2	3 1/2	62
	Misc							1	?	1		1		3
	Suprs. Office								2	2				4
	Other Districts													
	Total Days	11 1/2	13	13 1/2	18	18	10 1/2	13	16	13 1/2	6	9 1/2	4 1/2	147 1/2
Field	Commercial Sales	1/2	1									1/2		2
	Other Timber	1/2				1 1/2								2
	Grazing	4	8 1/2			4 1/2		17	4	9 1/2	11	11	6	75 1/2
	Lands	3	2	11 1/2			15		3	3	3			40 1/2
	Improvement	5	1			1				1	7		5	20
	Roads & Trails	2	5 1/2			2	1				1	1/2	4 1/2	16 1/2
	Fire Fighting	1/2											3	5 1/2
	Other Fire	4					1 1/2					6 1/2	2	14
						1 1/2			2	1	1			6 1/2
	Other Districts				12									12
	Total Days	19 1/2	18	13 1/2	12	10 1/2	17 1/2	17	9	14 1/2	22	18 1/2	22 1/2	194 1/2
	Total	31	31	30	31	30	31	31	28	31	29	31	30	364
	Total days on overnight trips	4	9	11	11	6	13	12	6	9	11	9	3	104

To be supplemented by detailed discussion of mistakes in use of time and summary of diary conclusions

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(Approx) Field Tame - Prescott Stock Exch Misc Travel

District	1921 - Days		1922 Days to 8/1		Last Bank Drop			1921				Days to 8/1
	Wales	Munro	Wales	Munro	When	Days	By	Munro	Field	Misc	Total	
Walnut Cr	5	30?	9	5	Mar 21 - Jan 22	30 18	Munro Wales	Wales Munro	120 153	26 11	146 164	135 138
Skull Val.	5	15?	0	4								
Prescott	10	?	5	2								
Crown King	30	5?	11		Jany 2	10	Wales					
Jerome	15	8?	6	3	Sept 20	10	Wales					
Cherry	15	4?	3	14	May 21	10	Wales					
Bloody B	15	14?	0	3	Feb 21	10	Munro					
Cave Cr	20	40?	0	40	Jan Apr 21	40	Munro					
Total	120	153										

Misc. Observations

8/1 Jackrabbits eat watermelons just as they are ripening, according to Pressler, near Tonto RS. Higgins will look this up and verify.

8/4 Fordson Tractor mower on Van Dickson ranch below Skull Valley cuts up to 80 acres per day. The best teams cut only 10 to 12 acres. In addition the tractor can be run with a light at night if necessary.

8/6 Oak Freezing Oldham says that 10° below zero after a wetting will spoil Ariz oak browze. Turns brown but dont fall off till spring. Has happened in 1919 and 1921 on Walnut Cr district. Damage confined to exposed slopes, & this is generally the SW slopes most valuable for winter grazing.

HBW & AJ

Ranger Work Plan Scheme (104)

Printing schedule of reports and other routine jobs on sheets.

Space on margin to check "S" = scheduled "✓" done.

Time estimates & checks on monthly schedule.

Space for appts made?

Working in trip schedules by marking order or groups of jobs in schedule.

Periodic transfer of dead material to files.

Pasteboard binder for diaries and other Ranger notebook stuff.

Covers: get out of alignment. are better. Look up which kind now issued.

Map Cases: by sewing together two blue cloth guide sheets.

8/31 Wales Notebook System (105)

Contents

1. All tally sheets. Most of them used to very good advantage except that blank spaces are not taken advantage of to list special points on which data are desired.

2. Tabs for each Ranger District. Under each:

(a) Cumulative Job List, checked off. (This might be improved by showing Assignments as between him & Deputy)

7/31 Munros Notebook System.

(a) Tabs: Adm, Grazing, Dist Insp, Fire, Diary Anal, 6 permits, Growth Obser.

Under each tab are Encyclopedia stuff, cumulative tallies, case memos, so tally sheets

(b) Shirt pocket book tabbed & rather overlaps the main notebook

(c) Started an Encyclopedia

Comment: main need is a better tab system. Has lots of good dope. Should add somewhere a job list by Dists. Packet in back of cover for any 874 sheets needed.

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(Confidential)

L - PERSONNEL

Leopold's General Inspection Report, Prescott, 1922.

1. Training. It is gratifying to note that the Prescott not only understands the training policy of D-3 but is making good progress in executing it. This refers not only to new trainees, but to rounding out and developing the older men.

They have had more success with vocational men than any other Forest. This is due in part, of course, to being near Whipple Barracks and being able to make personal selection of vocational men, but also in part to the attention which has been given them by the whole force.

2. Ranger Problems. A year ago Higgins, Taliaferro, Mickelson, Thompson, and McNelty were "out of gear" in some respect or other. Today any question mark has been removed from all but two, Higgins and McNelty. Both are excellent men and will probably be successfully handled. Of course, there is still lots of work to be done on the others also, but they are on the way. This is a fine record of clearing up.

3. Prescott Staff. Heretofore two possible general faults have been mentioned. These may be labelled, but not fully described, as follows:

(a) Over-emphasis on "regulations".

(b) Lack of skill in handling the public, especially grazing permittees.

In a sense, (a) might be part of (b). (a) is covered on p.48 (N.B.#38). I had only a limited opportunity to observe (b), since I saw only the method of dealing with individual permittees. I saw nothing to criticize, and much to commend, in the existing relations with such permittees and citizens as I met. If there is or was any such fault, it must pertain to the methods pursued at the larger stock meetings. Since there were none of these going on during my visit, I have no basis for comment.

There is, however, another fault which I think merits careful thought. Wales and Munro have been putting in a very large volume of work. It has produced good results so far. The outstanding problem, however, is the existence of more work than they can do. This overload is increasing, rather than decreasing. There is danger that present methods will lead them into a blind alley.

It is almost trite to say that ingenuity in improving methods, rather than more effort in grinding out the daily grist, is the way to increase output. Nevertheless I am convinced that this is true in the Prescott case. The situation can be met only by quality, rather than quantity thinking. The only way to get quality thinking is to avoid overstrain and to take time for positive recreation. I talked this over thoroughly with the staff, and again strongly urge their consideration of it.

Reading Facilities. Wales has been arranging for Rangers to take out cards at Prescott Library. Loan period 2 weeks. This is a good plan, but could be made still better if office would offer to take out and mail the books and attend to renewals if necessary.

Explaining policy to Rangers. Mutz didn't know why improvement funds had been short last 2 years.

Living Expenses. Prices of groceries in Prescott are very high. A $13 order at the "Pay 'n take it" store in Prescott was $7 lower than that charged at the regular retail stores. Oldham has wholesale privilege at Babbits through a personal friend. Suggested to Wales the advisability of cooperative buying of some sort by the whole force. Might be well to discuss at Meeting if any.

Meeting. Wales says last Rangers meeting was in 1908. Wants 4 days. Groom Cr.

8/30 McNelty suggested meeting on the Caveness allotment and working out a complete range management plan; also doing some actual trail work. Verde men would bring own horses. Hire other horses at Sycamore. County Agent to attend. No speeches. Discussions evenings. 4 days plus travel. I think very highly of this plan.

8/31 Question of Possible Over-Emphasis on Regulations, Procedure, and other Machinery Rather than on Condition of Forest.

Possible Examples of Tendency

(a) Letter to C B Laird from Wales (6 permits C&H 3/8/22)

(b) ¶1 Munro's Insp. Memo. Walnut Cr Dist (O Supervision 4/4/21)

(c) Munro's conversation 8/5 with Higgins re files.

Examples of Emphasis on Condition of Forest

(a) The general campaign to do away with overgrazing of range in future. Progress in:
- Boundary fence progress
- Drift Fence & Allotments - Reductions
- Water Development
- Stock Associations

(b) Attention to the Erosion problem. Progress in:
- Gully - stopping by Rangers
- Control work at Stations

(c) Exceptional interest in figuring out past history and future possibilities of brush type.

Conclusion: If a wrong tendency has existed in the past it has by now practically disappeared. An "exaggeration for the sake of emphasis" may have been temporarily induced by necessity of overcoming deficiencies of past administrations. There is possibly a natural learning on the part of present staff which will bear watching by them, but I have dismissed the subject as a major fault of Wales administration.

PERSONNEL
Form 0-12

....Prescott N.F.

By...Leopold...

| | | Kemp | Wilson | Mattoon | Mattoon | Quesinberry | Quesinberry | Woodcock | Woodcock | Woodcock

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FIELD OUTFIT

Form 0-13

....Prescott...N.F.

By...Hosford....

	Name	Wilcox	Wesson	Higgins	Oldfather	Hosford	Tomlinson	Watkins	Thompson	Brown	Duffield			
	D		1/2	2/2	1/2	1/2	1/2	1/2	1/2	1/2				
Mount	Saddle animals			✓	✓	✓		✓	✓	✓	✓			
	Pack animals				✓	✓		✓						
	.													
Comp Equip & Saddlery	riding	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
	pack	/	/	✓		(1)		✓	9	9				
	Bed	✓				✓								
	Mess kit													
Surveys	Compass		✓					✓						
	Declination		✓			✓		7						
	Chain	/	/			✓		4	✓					
	Pins	/	/			(2)		✓	10					
Misc.	Marking tool				✓	✓	(3)	(5)	12		(13)			
	Scale stick	/	/						/		✓			
	Note book	✓	✓		✓	✓	✓	✓	✓					
	Equipment list							✓	4					
Motor	Tools	/	✓		✓	/								
	Jack	/	/		✓	/	/							
	Pump	/	✓		✓	/	/	•						
	Light	/			✓	/	/							
	Patching outfit	/			✓	/	/							
	Extra parts	/			✓	/	/							
Personal	Knife		✓	✓	✓	✓		✓						
	Matches		✓	✓	✓	✓	✓				✓			
	Watch	✓	✓	✓	✓	✓		✓	✓					
	Clothing	✓	✓	✓	✓	✓	✓	✓	✓		✓			
	Uniform	✓	✓	✓	✓	✓	(14)	○	(15)		?			
Getaway			✓		✓	✓	✓	(16)			✓			

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(1) Pannier (two worn) are worn out and no good. Furnisher has own pack saddle. We should furnish a good pack outfit over this kind of an district.

(2) No flags. Loses lots of time.

(3) Case not carried while we were out 5/16. Next day carried but dull ends poor handle.

4. Surgher actually uses it, but not the ones in note-book. Were not checked very well.

5. No case carried. Says has neither grinder nor grindstone. Means camp where Wolden came there was no levels, 2 chs later, or tripods on Forest.

6. See note under DE, Ranger Surveyor

7. Set on 140 should be 140 30'

(8) Poorly kept - maybe not average however.

9 furnisher has own

10 flags neither old & clean.

11 not used.

12. Marking hatchet has good handle but is dull.

(13) Marking hatchet carried, but neither dull.

(14) Has breeches, - going to get coat.

(15) Has or dress uniform.

Wales

8/10 In talking over Higgins case Wales stated that one of his faults was showing fight when a permittee did. He suggested that I might call Oldhams attention to the need for writing up his reports promptly after getting work done. I explained to him why I didnt think it good policy for me to emphasize reports, to the exclusion of the real cause - faulty organization by Oldham of his own work.

8/11 Mutz says Wales located part of Bundle Pup & part of Mingus Mt trails.

8/20 Michelson says he did not particularly like Wales at first but now considered him one of the best supervisors he has ever worked for. Says Wales has changed his viewpoint entirely. He seemed particularly impressed by Wales hard work and conscientiousness. Says Wales has made a great improvement over any previous supervisor on the Prescott.

8/29 Wales uses riding time to instruct vocational men like Cannon and get them ready for exam.

Munro

8/1 Handled stockmens boundary fence meeting at Skull Valley very well.

8/3 Handled Carter - Rigden range dispute well. Was not an easy case.

8/4 Is Munro inclined to overemphasize routine jobs? When Higgins was acknowledging not always keeping himself up to scratch mentally Munro replied by some example pertaining to filing system.

8/5 Munro thought Higgins was a bit sore because criticized after inspection. I told him it had been my impression that he was not sore about that, but about the manner of Munros reply (see above note).

8/10 Told Wales about above. He agreed that Bob tackles all kinds of Rangers in about the same way.

8/10 Wales says Munro is good at giving news stories and does his end of the publicity work.

8/15 Wales says Munro has had slight falling-out with both Higgins & Michelson

8/20 No sign of the above as near as I can see, at present.

8/28 In conversation with Wales, stated that the main doubts about Munros fitness for a supervisorship were (1) Incapacity for abstract thinking

(2) Possible doubt about ability to understand and handle all kinds of men. His handling of men tends to be all the same, and is not elastic to meet cases like Higgins

Higgins

8/5 Munro says Higgins was somewhat disaffected by the McNelty case until the matter was explained to him. That the present condition of his station was a great deal better than last year. Seems to have had a very bad slump at that time. Says that Higgins often diverts discussion by hauling out his books when he (Munro) is trying to check files or do some other work.

8/15 discussed case with Wales - not sure that the family equation is very clear. We agreed that he should be moved and that if it were not possible to place him right on the Prescott that D.O. would find some other places

McNelty

8/5 Munro thought McNelty should have informed Wales about the Campbell agitation, which he knew was going on. (Wales not so sure of this)

8/1 See note Sheet O-6 re Summit Tool box.

8/10 His office is not very orderly.

8/24 Does not ask questions about conditions on other Forests

Has a large stock of practical knowledge and considerable skill. Always amiable and friendly toward everybody & everything - never heard him express resentment, sore feelings, or moodiness. An almost extreme case of Wiseman - carried to a fault.

These are strong qualities to build on.

8/30 See Ranger Meeting suggestion p 37., "Pers."

9/1 Some evidence of low ideals of conservation. Wants to stock Groom Country to keep down the Black Canottins and cant see any question of overstocking at willow because brush is OK.

Conclusion I agree that the only way to approach this case is Wales plan of making a very thorough inspection and then talking on the basis of it. Wales would have done this before now but McNelty has twice requested postponement so that he could get matters in shape.

M

Mutz

8/11 Expresses his views in pretty strong language - gather that he may be a bit quick on the trigger with his temper.

Does not seem to take an analytical interest in such things as brush hazards and forage value of species.

Nevertheless he shows up well in actual performance and recognizes essential information when he sees it. Seems to regard inspection as a chance to learn but does not ask questions. Has the knack of "getting action" in dealing with people. Have the impression he may be hasty or intolerant in condemning moves he may not understand, especially if they come to his attention by mail rather than personal explanation.

Would not express an opinion on Pradt because had not worked for him - good viewpoint.

8/20 Munro says Mutz failed to get along with Warren & Gordon, both of whom he considers good men. Says he gets along OK with permittees but not with subordinates.

Michelson

See Poders D Insp memo 6/29

8/10 Warren remarked M. regarded as high class cow hand on roundups.

8/20 Michelson says "Reserve" instead of Forest. He should get over this.

See note even date under "Wales"

Gave him an opening to say that a transfer would do him good, but he seems anxious to stay. Think having built the house has a good deal to do with this.

8/26 Commands Warren's absolute loyalty and support. Mutz failed to do this.

8/26 Late getaway, due to late rising, very noticeable and different from all the other men. Think he should take this in hand. Michelson is plastic - his interest is easily aroused - and I think Wales is now in a position to greatly improve his effectiveness.

Believe he should be urged to have his eyes attended to. Has headaches probably arising from them.

9/1 Wales thinks M wouldn't like road work - mainly because of family. Said to Wales at one time he did not want to become a Deputy. This may be out of date. Wanted to be "the best D.R. in the SW"

A LOT LIKE AL!

Oldham (50)

8/9 Oldham has I think improved himself since my last visit. He has a very active mind, good imagination, force, tact, and a keen sense for essentials. A good deal of egotism at times but I cannot see where it is hurting his work. Seems to have the confidence of some pretty difficult permittees. The only Ranger I have seen who habitually pays attention to erosion control in his daily work, stopping up a gully as a matter of course, same as taking a rock out of a trail.

8/9 Is taking a C/S course in civil engineering with Internatl. Also does a good deal of general reading and takes an active interest in Democratic politics.

8/27 Always very positive in his views, whether or no he has any command of his subject matter. Inclined to be didactic. By the same token, he will tackle absolutely anything.

°Pradt (51)

8/7 Wales on Oldham both said an excellent helper but incapable of handling a district. Wales plans to try him out on a light district like Cherry with the understanding that he must pan out or make way.

8/10 Noticed that Oldham had to help him make out exp acct. When asked, Oldham says he always did this to save time and avoid tangles. Wales & Oldham both say that if given a district, Pradt will not likely get tangled up, but will fall down on quantity of work if at all. I agreed that if this were the case he was entitled to a tryout.

8/20 Michelson does not consider him D.R. Says hard worker but shies at footwork; judgement good but can't handle people; "can't think of but one thing at a time". Very neat & clean. Expects a district. Sulky when offended. Not a student.

Gray.

8/15 Older than usually desireable for recruits - Wales says 39. Extreme "Tejano" type in appearance, speech, and opinions. For instance: unnecessary airing of views on "Niggers" and "Mexicans". His views are now of our business, but uncalled for expression of them is not an official asset and may have to be called to his attention. Seems competent and intelligent.

8/22 Cowness remarked Gray a very good cowman.

9/1 Believes in "water witching". This doesn't sound very promising.

°Taking a C/S course in English. Michelson says writes an excellent diary.

Taliaferro

8/16 Needs coaching in analytical thinking. See note 5 Sheet 0-12. In general impresses me as having made a decided pick-up since my last visit. Believe he is rather pressed financially. Also that he has been working very hard. See Wales Dairy Analysis.

Seems very anxious to benefit by criticism.

8/27 Wales says Taliaferro thinking about notebook systems but doubtful over how much time they take in the field.

Thompson

8/5 Munro says there has been a great improvement in Thompson since last winter.

8/24 Munro says is the only man who got his round-up figures by classes. Others said it could not be done - he did it. Also has been the first man to get Cartwright's confidence. He has put in 4 concrete troughs, repaired 2 older ones, and made application for south drift fence made, all since July 1. Always before was suspicious and unfriendly toward the service.

Linton RE

5 Has definitely given up the idea of a ranger assignment. Is now temporary because of failing the last Forest Clerk exam. Short on stenography.

8/8 Oldham says speaks & reads & write Spanish well

8/10 notice he is doing night work on stenography so as to pass exam.

8/27 Habitually works overtime, both in office and at home.

Conclusion: when Miss Hill arrives the position now held by Mrs Goff will presumably be taken away. Wales would like keep this till about Jan 1 (depending on how Miss H pans out) in order to train Linton in steno work so he can pass exam.

Linton is qualified for Executive Asst.

AL

Yalm

8/1 Munro says will never make a District Ranger – for one thing because he becomes irritable with whoever he is working. Thinks this may come from his war experience. This does not jibe with Wales statement that Yalm & Taliaferro both out of doubtful class.

8/12 Mutz says Jalm was contemptuous of Natives and Basques and objected to Mutz taking a friendly attitude with them. Also when Mutz talked Spanish to them would suspect they were joking about him and get sore. Says Jalm has come out of this attitude to a large degree. Thinks he might make a district ranger but not yet. Good head but opinionated.

8/20 Michelson says changed his attitude altogether in last 3 mos. Says came personally recommended to Deering, and the Deerings rather spoiled him. Then when Wales put him to work he resented it, but later changed his mind and acknowledged Wales was right.

Says caught onto grazing business remarkably quickly and permittees liked him very much.

Munro says Mrs Campbell showed Yalm Jones confidential personnel report.

Conclusion Wales says Jalm will be OK for FA after he finishes school. Not as good a mind as he should have. Told him we didn't want any FAs not OFS material. May seek FA work or outside work in east.

? I doubt.

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8/30 Van
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Linton RE
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or Executive

(55)

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Conclusion Wales says Jalm will be OK for FA after he finishes school. Not as good a mind as he should have. Told him we didn't want any FA's not DFS material. May seek FA work or outside work in east.

? I doubt

(56)

Anderson.

8/10 Eligible just going on - young but seems very promising. 1/2 yrs Ohio State. Has made good as guard, on trails, & on phone line.

W. Mutz

8/12 High School, 1 yr St Michaels, 1 yr college Denver, 1 yr Missouri mines. Means to take exam this fall. Looks good.

Warren

8/10 Vocational. Discussed Coburn roundup with him. Seemed intelligently informed on it. He had represented FS on the OK range.

8/12 Mutz says Warren was trifling with improvement work and not clean about the premises, but improved somewhat before leaving. "Professional Southerner" in his views. Good head. Was disaffected by Mrs Campbell.

8/20 Michelson says very promising.

Cannon

8/30 Very promising. McNulty says could handle a district. Will take exam this fall.

9/1 Conclusion: All regarded as good ranger material. Some question re C's education.

-56-

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE



F. S. D-3
JAN 15 1923
Referred to
DISTRICT FORESTER
WASHINGTON

ADDRESS REPLY TO
THE FORESTER
AND REFER TO
O
Supervision

January 9, 1923.

District Forester,

Albuquerque, N. Mex.

Dear Sir:

I have just finished reading Leopold's 1922 Inspection Report on the Prescott. My interest and appreciation is perhaps best expressed by saying that we reached the office exceptionally early this morning with a determination on my part to clean up some back work which is cluttering up my desk. I did one job which took ten or fifteen minutes and have spent the rest of the time on Leopold's Report. It is now after eleven. I regret the dissipation of the morning's time, but feel that I have gotten my time's worth in a knowledge of District 3, and in the suggestions and inspiration I have gained for use in our own inspection methods. We are, of course, revising our inspection outlines and methods in preparation for the coming season's work and I shall not only be influenced by what District 3 and Leopold have developed - I shall copy quite shamelessly a number of the methods Aldo has used.

There are a number of points in this report which should have discussion between District 3 and the Branch of Operation, but I think all of these should be left to be handled by Mr. Kelley when he reaches District 3.

There is one point of mechanics which I want to mention while I think of it. Do you feel the need for developing some method of duplication which would enable you to put out Leopold's notes in typewritten form? Several ways of doing this occur to me. They would, of course, represent additional clerical time and expense. I wonder if the greater readability of a report in which longhand has been converted into typewriting would not be worth while in a record which should have the permanent value which, it seems to me, has been built into the form of inspection report you are now using.

Very truly yours,

Copy made for inspection report

Assistant Forester.

D

June 1, 1923.

Supervision-Manzano,
Inspection.

Memorandum for District Forester:

The attached Manzano report is based on the following trip:

April 19-27,	9 days	- Mt. Taylor & Sedgewick,	With Kelley and Kartchner.
April 28-May 1,	4 "	- Zuni	With Kelley and Kartchner.
May 7-13,	7 "	- Sandia	With Kartchner.

The trip was short, and after our return the special reclassification job prevented my adding an inspection and conference in the Supervisor's office. I did not get out with Nave at all.

For three reasons, some of the findings of this report can not be given the same weight as those of a more thorough inspection.

I intend to follow up by short trips later on if possible. In fact, I would like to undertake periodical visits to the Sandia District in order to learn more about the current course of progress in ranger work, and the possibilities of more or less continuous contact. General inspections at intervals of 4 years do not afford any such opportunity.

Such a continuous contact with the Sandia District would also enable me to study "Administrative Economies" in ranger work to good advantage.

(Sgd.) Aldo Leopold
Assistant District Forester.

D
Supervision-Manzano,
Inspection.

LEOPOLD - 1923
(Manzano)

GENERAL INSPECTION REPORT

MANZANO NATIONAL FOREST

~~D.F.~~
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PR
S
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FA
OM

Aldo Leopold
Asst. District Forester

April 19 - May 1
&
May 7-13

1923.

Copies as follows:
1 - D.O. Inspection file
1 - D.O. Case files
1 - F.S. Inspection file
1 - F.S. Case files
1 - F.S. for division

General Appraisal of the Manzano Forest

1. Condition of Present Forest Property.

Range & Watershed.

Mt. Taylor: good except lower edges, and class-overgrazing of high parks and glades.
Zuni: Very poor, especially lower edges and high parks.
Sandia: Satisfactory except Tijeras Canyon and west side under rim.

Timber. Good except scant reproduction Mt. Taylor. The reproduction of the old Sandia burns is especially noteworthy and highly gratifying.

Fire & Insect Protection. Good within present boundaries, as measured by damage.

Agricultural Land is steadily deteriorating except the high dry-farms of the Zuni.

Recreational. Adversely affected in places by overgrazing and erosion.

2. Improvement, Development, & Extension of Forest Property.

Considering the difficulties and fixed points due to small users, mostly unprogressive, fair progress has been made in range management, but there remains a huge field for action. I would warn against any tendency to regard moves possible elsewhere as necessarily impossible on the Manzano. Sometimes simple peoples are the easier led, and there is a vast advantage in the low valuation set on time and labor.

Watersheds have been deteriorating for a long time and there is little to be said about improvement except the existence of a proper attitude among the force.

The Manzano's opportunity for fire cooperation - followed by extension through exchange - may be classed as among the big jobs of forestry in the Southwest. It is receiving much too small a proportion of the time and energy of the Manzano force. On the Manzano, as elsewhere, we frequently let the work with fixed dates have priority, whether or no it deserves it.

3. Business Efficiency.

A rapid improvement in planning and inspection methods is taking place. Public relations seem in general to be good.

The organization of the force is defective in that the office is carrying too much, and there is room to pass a part of the overload to the field. Even beyond this, there is room for economy in ranger time sufficient to greatly improve administration on the ground. The spirit of the whole force seems exceptionally good.

C O N T E N T S

Sec.	Subject	Page	Notebook Pages
A	Fire	3	5-9, 16-19, 22-23, 26-27
B	Finance	9	29-31, 34-35
C	Improvements, Pastures, Forage, Etc.	10	37-40-41
D	Roads, Trails, Surveys, Maps	12	63-67, 72-77
E	Organization	17	80-82, 88-94
F	Grazing	26	
G	Forest Management	27	
H	Lands, Exchange, Erosion, Recreation	29	119
I	Game	31	
J	Personnel	32	46-47, 52-53

A - FIRE

The following are outstanding points, needing emphasis over and above that given in the notes:

1. Cooperative Agreements. Col. Breece has expressed a desire to exchange all his land, cutover and uncut, for our timber on Wingate, Sedgewick, and Jemez, reserving cutting rights (with seed trees) on his present uncut land. This is fine but may fall through or be long in process. Accordingly it should not color or delay our offering him (as well as all others) a definite cooperation proposition, and if he turns it down, proceed to consider a compulsory fire-control law, just as if no exchange were pending. Such a course will help speed up the exchange.

I do not agree that the present unwritten agreement with McMillen is enough. It should be of record.

The importance of the Zuni land exchange and fire cooperation situation can hardly be overstated. Slash fires on this land are absolutely denuding it.

2. Sandia Reproduction. This big burn is coming in to Fir so well, and the value of these lands for demonstration of forestry and recreation is so great, that a special margin of safety in our protection scheme is justified.

3. Fire Tools. Such unjustifiable failures as the San Mateo tool box must be corrected promptly.

4. Prevention. The Manzano has a light risk as to lightning. The prevention work so far has been conscientious but rather perfunctory, except as to enforcement, where a fine start has been made. Greater ingenuity in effective prevention work is needed. Taking the Gallup Kiwanians to the Zuni burns is an example of what could be done. Using the Priests in educational work of all kinds among the Plazas is an example of what has been overlooked.

4/22 no action toward specifying or furnishing any emergency ration. I think this should be done.

4/23 Kelley says all axe handles should be suspended. This can probably best be done by a tack and string. Also where no special facilities available should not handles be ranged down & cut off ready for insertion, with wedges?

4/24 Kuwanis Fire Luncheon. Kelley made the suggestion that pieces be given to show Gallup Kuwanians McGaffey Fire area and F.S. cut-over area. I offered to furnish cooks & finances.

4/24 Visibility maps made by WS for Taylor, Capitle, Cedro, but not McGaffey. None made of Ohio's. Visibility poor, much of it indirect. Brennan says 2/3 of the Fe Vengate Hazards is covered. Says WS checked all possible locations before deciding on present site.

5/7 This year's [illegible] are too big to go in a Cantina. (Washington written he this - Ar)

5/13 no tool box at Placitas. Would question whether there should not be. Satisfying this [illegible] be on job list.

done ✓

McGaffey Case

1/2 of 1 guard for 2 mos	$100
Protect 8000 acres 1/8 of 1000	12 per Mo
Flat Rate would be 12	8.80

No refunds made recently. Excess now not need must be refunded.

Flat rate on suppression would work OK here because alternate sections.

4/25 KCK plans no written cooperation with McMillen. Figures they furnish own detection & suppression and nothing left but interchange of services, expense as per land ownership.

4/26 All Cooperators should be given the chance to say yes or no to a definite reasonable proposition before next year in order to plan campaign for fire control based for 1925. Weeks law or money?

4/26 Breece has not been approached by KCK.

Gross Kelley held up pending suppression rate.

McMillen unwritten but OK

McGaffey 1 Grd. Job basis OK for present

4/28 Check Coop Agreement with AT&SF to see if we are getting enough money out of it for fire. (KCK should do this)

4/29 McGaffey Co. are dispensing with services of Bob Smith, who was Lookout-F last yr, so he can serve again this year. He has a regular job with them. This is very good cooperation.

Brg Fires 1921-22

No.	Name	Owners Land	Owners Timber	Acreage Burned	Cause	Fought By	Date	Remarks
1	McK. Camp	McK. L.L.	McK. L.L.	40 acres	logging	nobody	1920-21-22	A group of successive fires Kept west of camps, burned houses
2	Kittmer	1st natl	McK. L.L.	18 acres	Herding	Children F.S. at Bdge	may 1921	Panic apathy on Cutover
3	Web Ridge	Marshal	McK L.L.	30 acres	Herders of Marshal Locomotive	Stockmen F.S. at Bdge	6/14-17 1922	Cutover N of ridge, S all uncut
4	Gallagher W	McFarland	McGaffey	4 acres	Locomotive Fish Plate	McGaffey F.O.	3/12/22	Absolutely clean burn. McGaffey fought as Agent for McFarland.
5	Hunters Cr	McFarland	McGaffey	1 acre	Tank & Locomotive	McGaffey F.O.	May 1921	Brush & tree burned

1923 adjustment of Colorado & Eastern Railroad Co. Land Grant in Douglas County, Colorado

Statement showing the gross area, the area excepted and the area patented to the Railroad Company in each township.

Township	Gross Area	Area Excepted	Area Patented
6 S. R. 67 W.	23,040.00	1,280.00	21,760.00
7 S. R. 67 W.	23,040.00	1,280.00	21,760.00
8 S. R. 67 W.	23,040.00	1,280.00	21,760.00

FIRE PUB. & COOP.

Form 0-2

..Missoula N.F.

By ..Leopold.....

		Dist. D	Mt. Taylor Wfld	Zenas Wfld	Tigras
Risks Reached	Settlers etc	Brush			
		Branding			
	Tourists etc	Sellup		✓	
	Incendiary				
Interviewed	Schools				✓
	Editors				
	Military				
	Indian Ser			✓	
	Co Agents				
	Mail Carriers				
Genl Pub	Signs Pap	New up	Wfld		○
		Old down	○		○
	Signs Met	New up	✓		○
		Old down	○		○
	News stories			✓	
	Use of Publ. Materials			✓	
Land Owners				✓	
Timber Operators				✓	

FIRE IMPROVEMENTS

Form 0-4

...Missoula N.F.

By...Leopold...

		Place	Dist. D	Mt. Taylor Wfld	Zenas Wfld	Tigras
Instruments	Orientation				2	
	Installation				✓	
	Condition					
	Protection				✓	
	Orientation Pt				2	
Towers	Shelter		/			
	Ladder soundness		/		✓	
	Lightning wires		/			
	Guys		/		✓	
	Gen'l repair		/		3	
					3	
Cabins	Location		/		4	
	Design		/		/	
	Repair		/		/	
	Furnishings		/		/	
Pastures	Wrangling time		/		/	
	Condition		/		/	
	Repair		/		/	
	Use		/		/	

9

1. 3/4 mile NE of Lookout, 4100' above. Indicates need to put pasture at this cabin. I doubt advisability of this. Plenty of grass on top and creek water could be provided by shoveling shovelsnow into trough.
2. Compass. GS permit to Wenzgate Star would be better where standard protractor used.
3. Case of the best jobs I have seen — an ideal set of goods construction. Brennan deserves much credit for it. Should have map board & protractor. needs paint to prevent checking
4. Lines at Middle 1/2 mi. Okay under circumstances.

TELEPHONES
Form O-5

...Mangano N.F.

By Leopold

	From			Granite		Tyrone		[illegible]					
	To			Bristol		Ellis		Blactos					
	D			9/25		5/7		9/10					
Lines	% Seen			10		50		all					
	Route			✓		✓		✓					
Lines – Support	Poles			5 ✓		7 ✓		12					
	Insulators			✓		8							
	Ties			3		/							
	Tension			✓		✓		✓					
	Brushing			4		(9)		12					
	Lightning wires												
	Place	Mt Taylor	Cin Lobo		Mich Hill	Bull Rob	Bull Rob						
Instrument & Installation	Attachment		✓				(10)						
	Weather Prot.	1	/		(6)		✓						
	Batteries Re.					✓	✓						
	Wiring						(11)						
	Ground						✓						
	Protector Bl.						✓						
Repairs	Tools												
	Extra Parts		(2)										
	(as per Review p 47)												

23

1. 2 wall sets and nine set at cabin. 1 for peak. Nine set out of order.
2. Check against accessory list 1921 Review p 47 showed a good many shortages. Check made by Kelley. Only about 50% of items on hand.
3. See Imp. note 4/25 re brackets
4. not yet up to standard. Can be improved in Maint
5. would have been well to stub this as built but fund did not permit. Should be stubbed when first poles begin to rot off.
6.
7. Extra fine job, cedar poles, tops wired against splitting
8. 1 bracket pried off at junction Ellis stub
9. Evidently not been brushed for years – recent work incomplete – brush in or within 3 feet of wire almost everywhere.
10. Spikes. Backboard split
11. no tubes, loose job, easily torn off where located.
12. Recent repair work by Wren rather poor – done without supervision

FIRE EQUIPMENT

Form 0-6

Maurcaus N.F.

By Rutford

	Place	Mitchell	Cowlitz	Shoemaker	Rasp. Mill	Individual
	Dist.	Trapper	Trapper	Trapper	Trapper	
	Cache	Cabin Wall	R.S. Wall	Bar. Wall	Bar. Wall	Saw Wall
Usability	Axes sharp	○	○	○	13	○
	Saws sharp	✓	○	4		○
	Handles	✓	*	10	(15)	16
	Worn out tools eliminated?	✓	○	(7)		✓
Availability	Segregated	✓	✓	✓	✓	✓
	Orderly	✓	✓	✓		✓
	Depository clean	✓	✓	✓		✓
	Place well chosen	✓	✓	✓	✓	✓
	Grouped	/	/	/		/
Selection	Proper number	1	11	✓		✓
	Proper kinds	1	✓	✓		✓
	Standard type	✓	✓	✓		✓
	Phone material	✓	✓	○		✓
	~~Ration~~ bags, etc		11	(8)		20
	Light	2	✓	○		(21)
Protection & Maintenance	From weather	✓	✓	(5)		✓
	Branded or died	✓	9	9		9
	Oiled or greased	○	○	(6)		✓
	Sealed or locked	✓	✓	✓	(14)	✓
	Sign on door		✓	✓		✓
	Sharp. facilities	(3)	12	○		18
	Check list	○	○	✓		19
Ranger	Saddle tool					
	Fire pack					
	Ration, canteen					
	Horse up					

1. Axes dull, weighted & hidden, only 3 usable
2. Pulaskies but no adz
3. Axes, files, 2 grindstones at stations
4. Poor belt axe for fast driving could not singulate
5. Set on grounds - 4 C. bottles oil & handles 4 axes sharpened
6. Hoes issued from district yards in May
7. Swede rakes with teeth, Kadley, Idaho
8. Windy, Kendall, Idaho
9. Many strap handles missing. 4 cant hooks, axes, broomsticks
10. 4 unlabeled axe tools all OK but 1 S. 13. axe. No records
11. 34 rakes, 10 shovels, 10 hoes. Probably some excess of numbers but short of county charges
12. Grindstones not mounted, broken under
13. Bleach but not oils - funnels
14. Should have F.S. padlocks instead of special locks
15. Flake painted when delivered. Says issued not unassembled handles to rangers
16. All goods but rope
17. Transportation about same as 1941 cannot keep all project
18. Grindstones at mill but not used. Cant use emergency dodge
19. No telephone
20. Out of office
21. 2 shovels, axe, lantern, sharpening stone at house

C - IMPROVEMENTS, PASTURE, FORAGE, ETC.

The following are outstanding points, needing emphasis over and above that given in the notes:

George Mill Line. The construction of this with scant funds is very commendable.

McGaffey Tower is one of the best tower jobs I have seen anywhere.

Maintenance. Enough money has been spent in the last two years on the Sandia Phone lines to put them in perfect shape, whereas at least a quarter of the line on the north end has hardly been touched. Warnock's supervision was interfered with by sickness but this only partially accounts for the poor showing.

Mt. Taylor Quarters is a baffling question. Neither Grants nor Canyon Lobo is satisfactory but one or the other must be chosen. I lean toward Canyon Lobo and using single men as the safest, until we know more about what exchange and cooperation will do to our organization.

Cabins and Pastures. The situation at El Dado would indicate that the need for these as a basis for progressive riding has been overlooked. On the other hand, the cabin at Jaral would indicate the contrary. It is a highly important matter on all districts of the Manzano.

STATIONS & HEADQT'S.

Form 0-8

Manomet N.F.

By Penfield

		Place D	Corrugated 5/16		Barbed Wire 1/4		Sulphur Stn 5/16		Engineers RS 5/16							
Maintenance Orderly Clean	House		✓		✓		✓		✓							
	Office		✓		✓		/		✓							
	Barn & c—		✓		✓		/		✓							
	Toolhouse		✓		✓		✓									
	Outhouse		✓		✓				✓							
	Grounds		✓		✓		✓		✓							
	Storeroom		/		✓		/									
Protection Fire	Flues						✓		✓							
	Extinguisher		✓		✓		/		✓							
	Ladder		✓		✓		/		✓							
Sanitation	Water supply		✓		✓		✓		9							
	Sewage		✓		✓											
	Garbage		✓													
	Manure		✓						✓							
Land	Maint. fertility		/				/									
	Erosion		1				8		4							
Tools Equip & Supplies	Excess		2		④											
	Condemn		3		5											
	Repairs				6											
	Shelter		✓		✓											
	Arrangement		✓		✓											
	Use		✓		✓											
Misc.	Meridian															
	Sta. map & plan															
	Landscape plan															

1. Roadside mowing not reasonable pleasure. Use of chisel found by us.
2. Groundstone
3. Chopped areas (Probably Canada bog. Concave edge)
4. Unsatisfactory excess of 5 in thickness of ones on shallow soils, 2 earthworks, 1 level
5. Unsatisfactory, according to F.S. specification 2 shrubs in flower bed.
6. 1 level, with bubble bent. Otherwise generally very well-better than average shape specified. Corners of paths to be to fine tools (Page D-6)
7. Use of Septic tank employs water street without total system. This seems to me neither dangerous as the effluent of the tank is not safe till it's used to action of soil, sewage, air, & vegetation. An example like wrong of sewage system. Case has established without its merging present contrast. [illegible] great that there would be no possible objection to [illegible] of sanitation.
8. Gully area used up by long gone [illegible] to get water [illegible] Present water is relevant 10 yrs. ago. Needs [illegible] about 2 ft. [illegible] Present extensive gully [illegible] with finest hopes. Of no general [illegible] Gen & plan.

D - ROADS, TRAILS, SURVEYS, MAPS.

1. Responsibility for Roads. It is my personal opinion that the District Office has not always kept the lines of responsibility clear on Tejano, although I know of no recent instance where such errors were not promptly corrected. I am satisfied that the Supervisor has erred in his use of Warnock and Brennan on Roads.

2. Tejano Road. It was agreed that:

(a) Brush at end of road would be pulled out and burned in the road.

(b) An attempt would be made to give away the usable wood to anybody for any purpose. Further improvement in the situation as to brush hinges somewhat on the success of this attempt, and is up to the Supervisor.

(c) That certain especially offensive high stump areas would be cut down by Cano.

(d) Cano should in some way be connected by phone.

(e) Mussy camp left at Sawmill Spring would be cleaned up.

(f) Seeps now bogging the road would be drained.

As to the engineering and equipment features of maintenance, on which suggestions were made by Major Kelley, I suggest that the Supervisor consult DE or the Manual as to any points of doubt than to try and state them in writing.

3. McGaffey Road. The agreement with Emmons is digested in the notes. The faults in the organization of last year's work were:

(a) Deficient written specifications.

(b) Delayed inspection by Supervisor, which must be tied in with short field time.

(c) Brennan not used to keeptrack of things on the ground.

4. Maps. In general, map improvement is at a low ebb. The fire map policy was not understood. In intensively used country like parts of the Manzano, I believe that Rangers need maps on at least a 1" = 1 mile scale, or preferably 2". If DE agrees I would suggest this be discussed. Kartchner has good ideas about the use of pocket status for this, and should be in on the conference, as well as Lands.

4/30 Conference with Brunnons. [illegible] loan us equipment for finishing Wingate - McGaffey road. If Mucks loaned would ask us to take drum with them so as to insure care. Brunnon & Clark agree that road would be barely passable in places unless finished this fall. Agreed that about 1/4 of the present surfacing would probably come out in fixing the road. Agreed that Hughes will survey about Sept 1. Agreed that FS would meet 500 of 800 spent this spring out of 500 Maint now allotted. Want 60 days notice of equipment wanted. Above subject to confirmation by Commission.

Grants - Cu Lobo. Liney says the short cut could be made useable with very little expense. Especially if we do not build at Grants this should be looked into and if feasible, bundled in 1924. It is much shorter.

Surveys & Maps

4/20 Blueline print furnished Liney as fire map is very dim and poor. Any reason for this? KCK says all the rest were also weak. Also new locations for phone lines was put on and old one left on. KCK says old locations were crossed off and new ones put on in ink.

4/20 Declination. Kelley says it would be practicable to give field the tendency and amount of variation to add or subtract from old twp plats.

4/24 Maps 1923 fire maps also show both old & corrected locations of San Lucas Cu, Canyon seco, phone to San Mateo

4/24 Fire map Policy. KCK did not understand the fire map policy of filling in blanks. I explained this. (Has been explained in 2 Fire Reviews & Admin Guide)

4/24 Map Corrections now made on 1/2" base. Why shouldn't they be made right in the pocket states on 1" to mile? This could be done by adding simple topography & drainage in the states.

4/29 Abutment to Puerco bridge on Wingate road, for which we furnished $200 10% in 1922 is poor job, s.c. not well protected by rip rap. Total cost $600. KCK saw Ross in 1922 to fix this but never done.

Points not shown on Maps:
Wylie upper ranch, Moak mill set,
Mexican place above Wylie's, Mosca Peak,
Francis El Dado ranch, Bloomfield Mill,
Spring west of Moak mill set, Ellis Corral,
McGaffey Tower, Lagunitas Springs,
Capulin Springs

5. Maintenance. I am convinced that short periods of actual work as crew members holds out great possibilities in effecting more economical and better maintenance. Some tentative conclusions on trail maintenance on the north end of the Sandias are:

Ideal Crew:

Fireman goes ahead with D.B. axe, picks route, does coarse brushing. Cuts and locates water bars.

2nd man, hatchet in belt, does fine brushing and piles brush. If time allows, throws out brush.

3rd man, pick mattock, throws out rocks, installs water bars, grubs stumps.

ROADS & TRAILS				
Form 0-10	Project	RS-grove	grove-top	McKaffey Tow
...Nanzano N.F.				
By ...Leopold.....	Yr.	1921	1922	1922
(*Roads only)	D	8/21	4/21	11/19
Cost per mile		300	172	
Route		✓	3	✓
Grade: Working		12		
Grade: Max.			17	18
Cross Sec.: Slope		✓		✓
Cross Sec.: Width		(1)		5
Cross Sec.: Backslope		✓		✓
Cross Sec.: Fill			✓	✓
Cross Sec.: Fill protection			✓	✓
Cross Sec.: No excav. on gentle slopes		○	✓	✓
Drainage: Flats		✓	✓	(6)
Drainage: Spillways		(2)	✓	/
Drainage: *Culverts				/
Drainage: *Ditches				/
Drainage: *Prot. ditches				/
Drainage: Logs: Size		(2)	✓	(6)
Drainage: Logs: Angle		(2)	✓	/
Drainage: Logs: Imbedded		(2)	✓	/
Clearing		✓	✓	(7)
Blazing		✓	✓	/
Signing		✓	✓	✓
Maint.: Down timber		✓	✓	/
Maint.: Erosion		✓	✓	
Maint.: Fill				
Maint.: Heel & tread				

(1) under [illegible] then policy in most places.
(2) many logs at upper end of flats instead lower. No special spillways. Logs too small and not bedded. Just above rim on mesa route was plowed and tread crowned. I doubt if this would effectively prevent bogging.
3. Unnecessary use of N. hillside in places.
4. Rocks carefully laid in fill and strong enough to stand travel on edge.
5. Built wide for making up timbers. O.K.
(6) no drainage as yet, except accidental drainage due to undulating grade. Should be installed.
(7) Brush as felled. Should be cleaned up in this kind of a place.

E - ORGANIZATION

The following are outstanding points, needing emphasis over and above that given in the notes:

1. Work Plans. Good progress all around, especially Warnock.

2. Job list habit.

Name	Jobs that came up during trip.	Jobs of record by Rangers at end of trip.	Per Cent of Record
Laney	8	6	75%
Brennan	12	8	66⅔
Warnock	14	~~4~~ 10	(70%)

The Supervisor is setting an excellent example to his men in the matter of job lists and notebook methods.

3. Use of Time. Laney spoiled his excellent summer record by too much motor used mail and supplies through the winter, leaving the far end of his district without supervision. Warnock evidently uses his motor too much, although I did not analyze his diary. Brennan's very high field time would yield more results with better planning.

4. Manzano Program.

p. 6 - Some jobs are not assigned, as for instance fire cooperation with McKinley, McFarland, Carr, Mirabal, etc. Also XI - 1.

p. 7 - A few not localized, viz. VI - 1. Under this though possible stubbing of new lines like Geo. Mill might have come up.

p. 8 - Some do not cross-reference to specific standards or suggestions furnished by D.O., viz. VII - 5 should refer to p. 5, Sample Gila Plan, "Outline for Training Guards", at least until Manzano gets out its own localized outlines.

p. 8 - Some assignments illogical, viz. VII - 6, which assigned to Rangers, whereas inspection shows shortages and surpluses which are an inter-district problem.

p.17 - Some jobs omitted, Fire Prevention, (mentioned in Fire Plan).

On the whole the Manzano program is a fair job, but still a long way from actually reflecting the best available thought of the Service on Manzano problems. The copies used by field men are all clean and unscribbled - a conclusive sign that the program is not a live record as yet. The four most important jobs in it were not adequately covered, viz: Job List Habit, L-Exchanges, Erosion, Fire Cooperation.

I have entered a large number of suggestions on the Supervisor's copy.

Indicators of Good & Poor Work. (Items not necessarily of equal importance)

Good Work.	Poor Work.
Mt. Taylor Dist.	
Organizing winter phone crew and building Geo. Mill line.	Poor condition of fire tools 1 week before opening normal fire season.
Steady progress on sheep exclusion from bunch grass.	Lack of winter patrol of S.E. part of Dist. See Travel Map.
Good Work Plan (but no work schedule)	Lack of decision or plan for reaching one as to quarters for covering N.E. end of Dist.
Zuni Dist.	
Good relations with public.	Lack of specifications and inspection of County road work, McGaffey Road.
Excellent construction of McGaffey Tower.	
High field time (230) and overnight trips (120).	Losing track of burning of fire line N. side of Sec. 14.
Exceptionally good mount and outfit.	
Organizing Wingate Association.	
Tijeras Dist.	
Increase in wood sales and decrease in trespass.	Boundaries not posted at La Madera.
Cleaning up small grazing trespasses and counting goats.	Poor results for expenditure in trail and phone maintenance.
Job list habit and active Work Plan.	Unfamiliarity with points and routes on top of mountain.

How Lumby made note of jobs? Answer 11/25

no	1.	Bridalveil Recreation Trail	no
yes	2.	Spring clean	yes
yes	3.	Map Location Module Mill	yes
		Map places Rainmaker	yes
yes	4.	Nails, files, signs, rivets Dan Mettle Box	yes
yes	5.	Brandishing pardners, Bl Dado	yes
yes	6.	Cabin & post vises, Bl Dado	yes
yes	7.	Mt Shop Inspiring	yes
no	8.	Homesteading Origins	no
			25%

Answer 50

How Brennans made note of jobs?

no	1.	Capacity to protect Pierces clientele?
yes	2.	Signal sent for Customers? Hanging out Laundry? Riding Barrel?
yes	3.	See Bloomfield as Logging area trees?
yes	4.	" " " sale legal under Conservation laws
yes	5.	" " " use Lungs Cancer
no	6.	Bull note in letter on Cocklebrans hay.
yes	7.	Connecting signal at Cave Mallett
yes	8.	Burning brush due N. Line of Sec 14
yes	9.	Setting stats paid for 500 props?
no	10.	Underwoods Fire Precautions on McGaffey down
yes	11.	Roofing Upgrading McGaffey Timber & standard protractor
no	12.	Durability map, McGaffey (KCK)
		33%

How Warnimonts made note of Jobs?

yes	1.	Abatable to fire protection for McGaffey?
(2)	2.	Ranger Policy Involvement with Rangers?
(2)	3.	Brandishing Responsible on woodland
	4.	Assessed value of Cutover lands & timber
	5.	Selling MBM to see Well Connecting Camps no clear Cuts?
	6.	Seeds Observations 2 private erosion plots
	7.	Declining Inv. MB M. Culvert
	8.	Want fence for Forest Inv. RS?

How Warnimonts made note of Jobs?

yes	1.	Brandishing Woods & stump milling, Tyaughton Road?
no	2.	Shop Policy Clients of organizations. Office to Empress
yes	3.	Shop Playing Travel Cancer Fibre, Tapes
(yes)	4.	Map Location for Smelter, Star Mallery Co Cabins,
No	5.	Private no agency for fire crews, Erosion Control
no	6.	Use of grass Cuttings above Star Mallery Co
yes	7.	Posting Boundaries, Notices, Tapes by Smallwood Property
	8.	Secondary Publicity Brochures photos & letters
yes	9.	Prepares plans & estimates cabins & products explains
	10.	Rise Dunns spruce saw or?
yes	11.	Extension Cable for Camp Camps, removal to cabins
no	12.	Mowing rather toilet and fireplaces, planning areas
yes	13.	Burning Brushpiles of Tyaughton Roads for fire control
	14.	Blazing trail to Logging Units Spr.
yes	15.	Have Camps make clean up of Sawmill Spr. Road Camp
yes	16.	Exchanges for Silles, Allen, Granules places, Jas Hunter Cor Also Ashas Stage Ranch?
yes	17.	Brushing & Blazing Tim Cagen - Ransom Trail?
	18.	Complete posting boundary, Warrington Creek
		70%

Tool box for Planters?

ORGANIZATION
Form 0-14
....Hussyana N.F.
Leopold

		Name	Mt Taylor		2 mine		Mitten		Scandia			
		D	1/4									
Supervisory Inspection	Year 12 Days	Supervisor	19		27		24		12	Total	82	
		No trips	3		5		6		6	(KCK)		
		Length longest	7		13		10		8			
		1923, KCK	5				7		4			
		Have camped 7/25	13		30		18		8	Total	69	
		Total								(KCK)		
Work plan		Dairy analysis	✓		5✓							
		Travel map	✓									
		Record of Insp.			(5)							
	A.W.P.	Prepared	✓		✓				✓			
		Well drawn	✓		✓							
	M.W.S.	Prepared	0		✓				✓			
		Well drawn			4✓				✓			
		Job heat. habet	0		0				✓			
		Progressive riding										
		Seasonal distrib.										
Office & H'dqtr System		Fire season										
		H'dqtrs work										
		H'dqtrs imp. wk.										
		Mail & supplies										
		Files										
		Maps			✓							
		% System	2		(6)							
		Desk system			✓							
		Notebook system	✓									
		Office seclusion			✓							
		Handling callers	✓									

1. Extra good job - will advise change of title so far as can.
2. Rather slenderer.
3. notebook very good no use encyclopedias but not an active record.
4. a fairly summary of the biggest jobs best of summaries worked mental supplemented by a current alone job list habitually used.
5. Highest field time of any D-3 Ranger. KCK's interest. ½ page covers only 2 general points. Had a detailed notebook record by Brennan. Such kind of an degree of conclusiveness ought to have been made.
6. Only 2 cards as has used no entries on desk cal.
7. Warrants need separate page for each or else only to receive plenty of room for new entries.
8. Keep a card at desk and notebook under actively take for entering jobs, and mail claims.

For KCK Notebook System see notes under "Personnel"

Pa'dena

Re ange Cut 40 mill
in 400,000 feet gross.
trees have modified
Split Pole W.S for,
Scaling limit Inter
removed. 32 mi
2 days + 2.00 meals
Hot mob marking
wood Hauling was
making a job of
length of haul to M
Office Days at Pa

Limitation & Mail
mail sent Fm. t
Enroll & Trespasses
penalties applied
recommended.
Possible Falls work
locations, fire tool

Possible from other
R R lands methods

4/23. Commen
Travel map s
Taylor, America
sides of El Dad
sufficiently co

..Mangano.....Forest DIARY ANALYSIS of ...Lassey..... by ..AL & KCK..... Date 4/23 93
(Ranger) (Inspector)
...Mt. Taylor.....Ranger District
Year M22-3 KCK AL 1st 2nd Total
D-3 Form O-16

	Month	Apr.	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Total Days			Aver '22
Non-Work	Sun. Hol. Lv.	5½	7½	¼	5	¾	3¼	5½	3	9½	6	2	3	22	29	51	50
Non-Field	Hdqtrs.	2¼	2	¼	7½	2½	6½	6	3½	3	7	3½	4	22	27	49	34
	" Imp.	½			½	6¼	½	1	1	1		2½	5½	8	11	19	15
	Mail & Supplies	2½	2¼	1½	2½	2¼	2	3½	2½	5½	4	2½	2½	13	20½	33	14 ✓
	Forage	½				¼								1		1	3
	Meetings Court etc											8			8	8	5
	Office	5½	3½	6¼	3¾	4½	6¼	6	13	4½	6	5	3	30	37½	67	53 ✓
																	6
	Suprs. Office																11
	Other Districts																0
	Total Days	11½	7¾	8¼	14¼	15¾	15¼	16½	20	14	17	21½	15	73	104	177	141
Field	Commercial Sales	3	2½	2½			½	4½	4½			1½	3	9	13½	22	23
	Other Timber			¼	1						½			1	½	2	7
	Grazing	5¾	7½	2½	4½	13½	10	3	1½	7	6	2½	3	44	23	67	68
	Lands	¾						1½						½	1½	3	16
	Improvement	¾		¼	½		1		1			½	6	2½	7½	10	16
	Roads & Trails	½		2¼	4	1				½	1			8	1½	10	12
	Fire Fighting			8	1									9		9	6
	Other Fire	2	5¾	6	¾									15		15	12
																	11
	Other Districts																2
	Total Days	12¾	15¾	21¾	11¾	14½	11½	9	7	7½	7½	4½	12	89	47½	130	173 ✓
	Total	30	31	30	31	31	30	31	30	31	30	28	30	183	180	364	364
	Total days on overnight trips	11	13	18½	3½	12½	3	5	3	0	5	0	8	61	21	82	73

To be supplemented by detailed discussion of mistakes in use of time and summary of diary conclusions

Sample Supervisor's Notebook System

Notebook No. 1 (Current* Business) (3-ring)			Notebook No. 2 (Encyclopedia) (3-screw posts)	
Heading	**Tab**		**Heading**	**Tab**
Scratch Memos Expense Account Equip. Check List Trip Schedule	Mem.		Temporary place for sheets to be periodically filed under following tabs:	Tran.
Fire (incl. Fire Improvements) - General	Fire		Fire statistics and material of permanent value transferred from No. 1	Fire
North	N			
South	S			
Zuni	Z			
Mt. Taylor	T			
Finance, Prop., Accts.	Fin.		Statistics on finance, property, activity costs and accounts, and material of permanent value from No. 1	Fin.
North	N			
South	S			
Zuni	Z			
Mt. Taylor	T			
Improvements, Forage, Pastures, care of quarters Equipment & Supplies (District tabs follow)	Imp.		Statistics, handy rules, tables and data, also material from No. 1	Imp.
	N			
	S			
	Z			
	T			
Personnel - General Sheet for Warnock	Pers.		Past ratings, service records, etc., of employees. Statistics on personnel.	Pers.
	N			
Shartzer, Flake	S?			
Laney	Z			
Brennan	T			
R.& T., Maps & Surveys, Signs, (District tabs follow)	R.&T.		Digests of cost figures on const., maintenance, etc. Digests of Manual specifications, etc.	R.&T.
	N			
	S			
	Z			
	T			
Organization - Work plans, diary analyses, travel maps, use of time, training, districting, insp. outlines and methods.	Org.		Past diary analyses, field time.	Org.
	?			
Grazing - Including range improvements and game and fish.	Graz.		Statistics on permits, removals, allowances.	Graz.
	N			
	S			
	Z			
	T			

*To be started new each year or field season.

Sample Supervisor's Notebook System (Cont'd)

Notebook No. 1 (3-ring)		Notebook No. 2 (Encyclopedia) (3-screw posts)	
Heading	Tab		Tab
Timber sales, management plans, S-22 and F.U., forestry program,	FM N S Z T	Statistics on these	FM
Lands. Watersheds, erosion, boundaries, claims, uses, exchange, recreation.	Lands N S Z T	Statistics on these	Lands
Miscellaneous	Misc.	Misc. statistics	Misc.

Explanatory of Notebook No. 1

Notebooks:

No. 1 is for current material. No. 2 is stuff valuable for reference. Some of it will be obtained by transfer from No. 1.

For temporary, personal, or unauthenticated entries.

Hand this to clerk when trip over.

Check over before starting on trip and see if you have what is needed.

Of current trip. Revise as you go.

Under "general" have cumulative pages for any natural divisions of the subject, such as Plans, Guard Pers., or Individual Fires. Also put any inter-district tally sheets and cumulative job lists here.

Use District tabs for special notes on individual performance.

Under "general" have separate cumulative pages for such subjects as wage scales, property surplus and shortage, inter-district tally sheets, and photostated B-MP, D-MP, etc.

Use district tabs for special notes of local application only.

Under "general" have pages for subjects, interdistrict tally sheets like O-8 and O-9, specifications of general application.

Use district tabs as above.

Cumulative pages for deputies and clerks under general.

Similar cumulative page for each ranger on which to enter note of (or cross reference to) any matter especially bearing on his value, ability, needs, rating, promotion, assignment, etc.

Under "general" sheets for map corrections, survey projects and methods, current R. & T. construction program, interdistrict tally sheets like O-10.

Use district tabs as above.

K.C.K's Notebook System

Tabs: O-Imp., Pers.,
Fire,
North, South, Mt. T., Zuni
Impr.,
North, South, Mt. T., Zuni
Forest Man.,
North, South, Mt. T., Zuni
Lands,
" " " "
Grazing,
" " " "
Misc. (no sub-tabs)

(General section before Dist. tabs begin

Mechanical Points:

Long leather tabs break off.
Rings over-crowded - needs separate Encyc. book.
Handwriting small and neat.
No ruler, calendar, mounted map, pencil sheath.

Use of Notebook:

See Org., and K.C.K. pers. In general O.K.

Special Notes on K.C.K. System:

Does not use "Good & Bad" indicators system.
Keeps Field Schedule and list jobs for each place. Good.
Copy of fire law - good idea.
Statistics kept same as notes.
No provision for retiring Encyclopedia stuff.
Cumulative tally system not used.

No separate scratch memo provision.
Entries not invariably dated.
Much valuable Encyclopedia stuff.
Cumulative page system not used.
No printed tally sheets in book.
Has excellent Equipment Check List of his own.

F - GRAZING

A 1. Sheep Exclusion, Mt. Taylor. Meeting this season to work out removal of 30,000 sheep from Mt. Taylor bunch grass area.

K.C.K. says this is good move because not sheep range. I agree. Rather fine bunch grass, utilization fair but apparently mostly by cattle. I consider this a proposition of getting reproduction to fill blanks, rather than to get advance reproduction for cuttings. Reproductions very scarce - some nipped trees 12" high were at least 12 years old. In spite of light utilization the flats and high slopes are badly eroded.

2. Railroad Land. Agreement with A. T. & S. F. provides that we administer railroad sections; fees are paid to railroad direct on L/T issued by us, fees being same as ours. Kelley questions our right to insist on railroad payments before issuing permits as it is using U. S. authority to force people to rent from railroad. Says elsewhere railroad lands are handled under G-7.

3. Range Conditions, Zuni. All flats along road denuded of all or most of sod. Cattle on Wingate reduced from 2200 to 1400 this year.

4. Powder Area, Ft. Wingate. Quartermaster's Department called for bids for grazing this area and Perea Cattle Co. has bid $451. Captain Lewis of Ordnance Department, in charge on ground, said not to favor this. Has War Department a right to lease this area?

5. Wingate Cattle Growers. Organized by K.C.K. and Brennan. Apparently been considerable work done. Meeting well handled.

6. West Side Goat Ranches. Most of these ranges pretty heavily used with devastated area around ranches due to corralling goats every night. Believe it should be considered whether bedding out system can not be applied. Warnock is now counting all these permits. Some owners claim they had not been counted for years past.

7. Sandia Trespass. Warnock has cleaned up a number of troublesome small cases in a highly commendable way.

G - FOREST MANAGEMENT

1. Sandia Cordwood. I accompanied Warnock on a trip to the north end, hence saw very little of the cordwood situation. Kartchner reports, however, a decided increase in sales and a still more decided tendency to transfer operations from the Forest to the Grants.

2. Moak Sale. Marking very heavy (much less than 3 22" seed trees per acre). More than 80% of stand taken. No new reproduction. Some stumps high.

3. George Sale. Reproduction scant. Some about 15 years old. On points and rocky ground a little 1919 stuff, but mostly area will have to depend on post-cutting reproduction. Seed trees have been well selected and marking fairly conservative. Most of area without heavy enough grass to interfere with reproduction. Logs average 114' gross and 90' sound scale. 4300' per acre marked on plot, 78% by volume Y.P. and 7% B.J. 12 seed trees over 20" per acre but this was on plot. Cost f.o.b. R.R. $16 per M. when running steady. 4.00 contract logging and 2.00 cutting - $6. Hauling to R.R. 3.50 + 50¢ loading.

4. Gallup Mines. The Gamerco Mine of the Gallup-American Coal Co., Horace Moses Mfg., uses 1 car of Y.P. props and ½ car mine timbers today. None of the Manzano officers seem to know what goes into the Gallup market except that the local stuff comes from McGaffey. Believe this should be set up as a job.

5. McGaffey Camp. Cleanup week organized by Brennan. Whole camp in extra good shape.

6. R. H. Bloomfield state sale near Ramah. 20 stumps averaged 13.2" and varied from 10"-7". If this is done on unregulated cutting, why shouldn't 14" Maxon George Sale be reduced to 12" or 10"? Brennan says Bloomfield might leave seed trees if asked to.

7. McGaffey Logging Railroad averages $500 per year to maintain, Brennan says.

8. Sec. 14 Fire Line. K.C.K. says he left job of completing this sale, which would naturally include the burning of this line as per contract requirement. Brennan did not understand this - job had apparently been lost sight of.

9. Gambel Oak at Tejano Station 35' high and 2½" stump diameter. Tallest, slimmest tree I have seen in Southwest.

10. Reproduction in Gambel oak thickets is very good, 2-15' high, mostly White fir. Many stands will close within 10 years.

11. Vega Cuttings from Ellis Ranch to Capulin Springs are very extensive, and of all ages. Practically means handling of Fir type on a selection system. In order to increase the proportion of Douglas would suggest marking W.F. only even if butts have to be wasted. Warnock says there is no rule against cutting D.F. but that he has never marked any.

12. Split Posts. K.C.K. says idea is not only to charge for number posts a round piece will split out, but also not to sell any but splittable trees. (Red cedar reserved for pencil stock). I disagree with not selling unsplittable trees because monosperma does not usually grow a single splittable bole. This rule assumes thorough cutting by area. I believe these small sales must always be on the selection system.

13. Cordwood took up to 30% of Warnock's time in recent months.

H - LANDS, EXCHANGE, EROSION, RECREATION

Boundaries are posted poorly or not at all at El Dado, near old Carr millsite, around La Madera, between Tejon Grant and San Pedro fences, and on west side near Domingo Baca Canyon.

I have no doubt that all there have been run out and marked at some time or other, but what is needed is a definition of what constitutes posting. This, with the excellent maps of the status of posting such as Warnock carries, will remedy the situation. There is an excess of Signship boundary signs that had just as well be used.

Since boundary fences will ultimately be needed throughout D-3, I suggest that in revising boundaries we bear in mind whether the proposed line can be fenced. Some of the west side is unfencable due to topography.

Exchange. The big defect that looms up to me is that we are not using rangers on exchange. Of course there are parts of it they can not handle, but when the Supervisor is so pressed by routine that he can not push exchange, there is all the more reason for using available ranger time. We overlook that exchange does not consist wholly of wading through a set procedure. There is a big job of setting the stage before this can even begin. For instance, does Mirabal want to liquidate his stock business? Has he connections who would take his timber certificates? Rangers can determine these questions and without an answer we can not even begin, because we do not know whether to offer public domain, or timber, or whether we need special legislation or not. Keeping the wheels in motion doesn't necessarily mean turning them ourselves.

I think we should try to acquire Ellis Ranch and even some of the lower ranches by exchange.

Erosion. Our discussions were too lengthy to be recorded here, other than a bare list of topics:

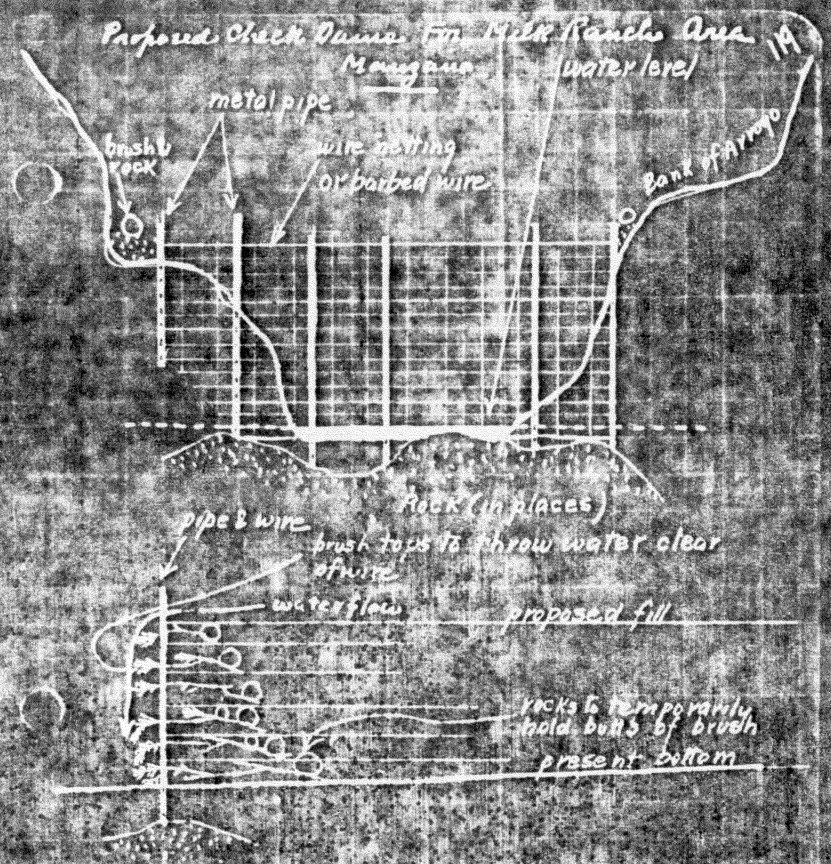
1. Ramah Dam. Built 1882. I would appreciate getting better figures on height, height silted, estimated per cent silted, acreage irrigated, and prospective life, for the erosion records.

2. Willow Stocks. It would be a good idea to start stocks at stations like Tijeras, or other convenient distributing points. This was done at Sulphur Springs.

3. A Glossary of Erosion Terms in Spanish would be a highly useful supplement to "Spanish Terms for Rangers".

4. Works. A demonstration bank control works was installed at Canyon Lobo.

5. Milk Ranch. This is the most impressive instance of devastation in process that I have ever seen on an agricultural area. Ranger Brennan will be doing a lasting public service if he can save this fine piece of land. A form of check dam is suggested herewith.



The banks will have to be sloped to set an end of wire under the end posts. For refilling the excavation, brush should be inserted to prevent washing.

The abutment of the dams should be thoroughly walled up as soon as built.

The fill behind the dams is to be built up gradually, using brush to drift the water so that it will not get behind the wire.

Bedrock shows only in places. Where dirt bottom the pipe ends of course be shown deeper.

Scale: 1 space = 1 foot

AL
5/4/23

I - GAME

Steps have been taken to try stocking the Sandias with white-tail deer and restocking with turkey.

J - PERSONNEL

Kartchner is, in my opinion fundamentally sound material for Supervisor and rapidly improving.

He is working hard, practicing new ideas, is a good woodsman, has the confidence of his force, is learning Spanish, is getting acquainted with his people, and has good judgment and facility in handling people and business in lines with which he is familiar. He is not yet well posted on road policy.

He showed a puzzling lack of facility in handling County officials. Tying this in with my second-hand information on the McMillen case last year, the best diagnosis I can offer is that he "freezes up" in handling "big" men or unfamiliar lines, or in the combination of the two. I have talked this over with him, and offer the above simply as a suggestion that might be helpful to him. I would advise trying to talk and think more simply and naturally in such cases. I have every confidence in his ability to overcome this handicap.

Warnock has improved greatly and done some fine work. With the steady pressure of good leadership and more studious habits on his part, he will round out into very good deputy material. He still has a trace of self-consciousness which appears at times, but this goes with strong personality and is harmless if under control. He must also learn to seriously undertake jobs for which he has no liking, but which go with the work - like learning Spanish. If Warnock will undertake these measures of self-discipline, and complete his job of making a success of his district, he will be above par as a deputy. In justice to himself, however, and to his potential value to the Service, I think he should demonstrate in these respects before being promoted. He deserves $1420 any time we can give it.

Brennan is of the same makeup as Lessel. He has any amount of energy and a surprising ability in getting along with all kinds of people, as well as good practical sense. He needs to school his mind, however, in clear thinking and studious habits. He should also learn to guard himself against positive statements of things he is not sure of. His reaction to Kelley was splendid. I can see lots of growth ahead of him if he will take in hand the above points. He merits promotion to $1420 after Warnock.

Laney is a very sound man who knows more than would always appear. He has the capacity to absorb new ideas and methods and is rapidly doing so. He merited the $1320 recently given him.

Flake is a promising man of exceptional poise. The Manzano deserves credit for putting out this kind of trainee.

Quinn (vocational) I am afraid is hopeless.

Form 0-13

...Manzano N.F.

By Leopold

| | | Flake | Quinn | | |

PERSONNEL
Form 0-12
....manzano..N.F.
By..Leupold.....

	D	Yeatman	Leupold	Hall	Hall	Hall	Hall	Hall	Hall	Hall	Hall
Title		Asst. Engr.	Engineer	Asst. Engr.	Asst. Engr.	Asst. Engr.	Asst. Engr.	Asst. Engr.	Asst. Engr.	Asst. Engr.	Asst. Engr.
Salary		1680	1800	1320	1320	1320	1320	1320	1320	1320	1320
Date last Promotion		7/1/26	7/1/22	9/1/25	9/1/25	9/1/25	9/1/25	9/1/25	9/1/25	9/1/25	9/1/25
Year's service		10	22	4	2	1	1	1	1	1	1
Rating Order: Supervisor											
Rating Order: Inspector											
Poor Work: Date letter			2								
Reading & study					?						
Debts											
Separated			(3)		6	✓					✓
Reasons W/P			0		✓						
Safe Fire Plans											
1922-3 Fire Reviews											?
Manual Roads Manuals			(1)								0
Safe resident Inspection			?								
Struct resident Inspection			?		?						
Use of Library			0			✓					
Acquaintances			✓			✓					4
Public Relations			✓			✓					✓
Letter Recorder			✓		✓	/					✓

(1) Commendations not posted.
2. See 2nd note Pers. under 4/27; see trouble working
(3) See note under Personnel personnel
4. Generally Agent Reynolds and his district Kansas lumber. (KCK change to Kansas Reynolds).
5. Poor progress. Knows a good many records but does not know facilities for finding them together.

53

D
Supervision-Manzano,
Inspection.

June 14, 1923.

Forest Supervisor,

Albuquerque, N. Mex.

Dear Kartchner:

Enclosed are three copies of Inspector Leopold's report - one for your inspection file, one for the case files and the third for such use as you see fit to make of it.

The report requires no particular comment on my part since it explains itself. It is full of good suggestions as to ways and means of improving the administration of your Forest. With respect to the sections pertaining to other offices, I have this to suggest; that you visit the District Office with a copy of the report and discuss with each Office Chief the particular section affecting his office so as to get his first-hand views. I think this is necessary since a number of questions are raised which should be finally settled in this way and since you are located where ready conference is possible, such action is preferable to asking each Office Chief to write you in detail. I will be glad to have you keep notes of these several conferences that can be typed and filed with the two copies of the inspection report held here after initial by the Office Chief. Whether these memos should be prepared by you in person or by the Office Chief can best be settled between you and them individually. I desire copies for follow-up purposes.

There are one or two points I would like particularly to emphasize. Your trip with Leopold and Kelley has, I think, fully emphasized the value of detailed ranger inspections by yourself and deputy and thorough-going diary analysis as a means for correcting rangers' mistakes in use of time. Further argument on my part would be superfluous. I would like to feel, however, that you are checking your rangers as to their compliance with District standards and in your inspection of such work as roads and trails are checking them against compliance

with the technical manuals on the subject and the detailed specifications established for each job. The use of standards, technical manuals, tally sheets and circular letters of instruction in your supervision or inspection work and the discussion of these with your men will, I am sure, result in closer observance of outstanding instructions by the ranger force and better performance on the ground. I want your help through personal example along these lines. Needless to say, inspection memoranda for follow-up purposes are essential if we are to get the most out of inspection.

I want also to emphasize the importance of your assumption of full responsibility for minor road work as well as trail work on your Forest. The use of assigned project men has in some instances resulted in some misconceptions on this point in spite of all I have been able to do to clear the atmosphere and make the Supervisor feel that the project man is actually working under his orders. What is true of minor road work under immediate charge of project men is also true of minor road work under County supervision. I am getting "fed up" on County expenditure of Government road funds in view of numerous instances of unwise expenditure, and as rapidly as possible am withdrawing from cooperative arrangements that take this work out of our hands except in some cases as to maintenance. It is going to require close supervision on your part to get full compliance with road and trail manual instructions but checking against these instructions will have the desired effect on the men doing the work.

My own observations on the condition of the Tejano Road parking terminal were very pronounced but I have withheld them pending Leopold's report. I can not urge too strongly that the brush at the terminal be cleaned up and disposed of by burning at the very earliest opportunity. The fact that it has been left so long is, in my opinion, a reflection on the local force since it constitutes a pronounced fire risk in view of the heavy known use of the road by Albuquerque people who must be educated in the care of camp fires, etc. We have much to lose if fires get started from the Tejano Road and I can not feel entirely satisfied that your own and Ranger Warnock's responsibilities for keeping fire out have been fully accepted and recognized. There is much that should be done in connection with the whole recreational development there that has remained undone to this late date. Considering the money invested and what a recreational area means to Albuquerque (our home town) I feel the signing of the road with directions to water and points of interest, and the signing of tributary trails should have been arranged for before the opening of the present season. This important matter should not be overlooked since people are inquiring every day as to

how to reach springs and little side trips that can be made from the road. Another year your trail plans should by all means provide for connecting the road at its terminal with the summit of the mountains by supplementing the existing trail system and adding needed improvements, including signs, so that this section of the Forest can be made to serve a more useful recreational function. It would seem to me that the ranger or some other Service employee should be able to do a little rough and ready work in preparing camp grounds which should be signed and with a little clearing up would help to allocate camping where camp fires will prove a negligible menace. There is little fire prevention signing along the road and it has occurred to me that a temporary sign calling attention to this year's little fire along the road would serve a very useful purpose. I am not sure that patrol of the road on Sundays is made as effective as possible. Should not the man so engaged interview campers, cautioning them against leaving camp fires uncovered, urging camp-ground cleanup, etc? I have the welfare of this recreation project closely at heart since it means so much to Albuquerque, and am going to watch its development with the facilities you have at your command with a great deal of interest. We have in our road project and the country it opens up an opportunity to bring home to the people of Albuquerque what the Manzano Forest really means to the community and we should not overlook this big bet.

There seems to have been some misunderstanding as to the employment of or rate of pay of someone engaged on the maintenance of the Tejano Road. I have asked Mr. Long, who is involved, to attempt to clear up the misunderstanding with you in person because it was never his intention nor the intention of anyone in this office to mix in on the employment of a maintenance man for that road in such a way as to affect rates of pay, etc., and I believe the note in Mr. Leopold's report, p. 9, bearing on this subject must be based on a misunderstanding of the situation. Long has also something to say on the subject of maintenance of the Tejano Road. This bears on failure in some places to maintain the inslope. The particular failing was also noted by Kelley and myself on a recent inspection trip. In connection with the maintenance some additional work can be done in widening present narrow places and in reducing bad points. Among the important signs needed are direction one-way signs below and above Dr. Long's cabin. These are imperatively needed.

I gather from Leopold's report that the ranger work plan idea is working well on your Forest. I am particularly pleased that Warnock is treating his work plan as a job list. This is precisely what I have been driving for. I like immensely the idea of arranging the work plan in such a way

as to leave them "open at the bottom", so to speak, for the purpose of adding new jobs that develop from time to time instead of as at present keeping some of these in the ranger's head, some on promise cards, some in the ranger's desk basket and others in his notebook. If the rangers will come to use the annual plan for these pencil notes, they will acquire the habit of going to that particular place for their list of jobs when planning monthly schedules or the work to be undertaken on the particular field trip. Ranger work plans should be nothing more or less than a job list and if so constructed it will facilitate checkingoff as jobs are completed so that at the end of each year a check of the annual plan will furnish a fairly comprehensive record of work accomplished on the district in addition to having served a useful purpose throughout the current year for specific work plan purposes. From what I gather, Warnock is following this conception of a ranger's work plan pretty closely and I am sure it is the right course to pursue. In making these observations I realize that it is somewhat of a departure from the sample sent out from the District Office but it is the development of a thought that I have had for a considerable time and on which I am placing a good deal of emphasis in all my Forest trips.

I am fully aware of the reasons which kept down the amount of your field time last year and am sure that with the Manzano on a two-man basis, your opportunities for field supervision will be considerably increased. The past inspection is of the kind that should prove mighty helpful to you as a comparatively new Supervisor and my only regret is that Kircher's Brazilian assignment last year prevented giving you the benefit of a year's start for my own experience has been that inspections such as the one you have just been favored with are of tremendous value since it brings another point of view closely to bear on administrative problems and particularly on methods of inspection.

I have every confidence in your ability to give the Manzano the kind of administration and supervision it needs. The job is one of growing importance and there is a splendid field for constructive work, particularly in the direction of land exchange. Located as you are in Albuquerque, in close contact with the Office of Lands, I am sure a good deal of progress can be made in filling out the Manzano's dimples with valuable Forest land, particularly in the Zuni and Mt. Taylor divisions.

With best regards,

Very sincerely yours,

Enclosures-

Frank C. W. Pooler

District Forester.

(over)

P.S. Since the foregoing was written, reports are received that the Gross-Kelly fire has broken out again. There are a number of things about this fire on which I want information and I would like to see you on the subject when you return to Albuquerque.

F. G. W. P.

F
8 D

June 29, 1923

Supervision - Manzano
(Inspection)

District Forester,

Albuquerque, N.M.

Dear Mr. Pooler:

Your letter of June 14 with attached inspection report by Mr. Leopold is received.

I want you to know how greatly I appreciate the helpful criticisms made during the inspection and recorded in the report. This being the first general inspection by the District Office of work and conditions for which I was responsible since entering the Forest Service, it naturally assumes unusual importance.

Your suggestion that the report be taken up in person with the various office chiefs and proper notes made for follow-up purposes will be complied with. However, such a large portion of the points raised in your letter have already been acted upon in a manner I consider satisfactory, that I am sure you will be interested in the following advance comments:

Ranger Inspections:

The demand upon my time in 1922 prevented the detailed inspection that must be made to secure the best results. However, I have satisfaction in the apparent effect of shaping view points, team work and systematic planning which were the most strongly emphasized. This season's inspection has been started on a more comprehensive basis and we are without excuse should it not be fully carried out.

Minor Road Work:

Our cooperative arrangement with McKinley County worked out miserably and I accept the blame. It is wrong in principle irrespective of this particular job. I had understood that this same arrangement had been satisfactory in the past and the deal

for 1922 was made before the latest standards were out. The prints were sent the County Engineer when received but the main trouble lay in the fact that my two inspections were before and after the faulty work was done.

Tejano Road and Recreation:

The parking terminal was cleaned up and the brush burned about June 1 shortly after Cano was lined out on the maintenance work. There have been varying opinions among inspectors as to whether the brush on this road should be burned except for clearing. The extra fire hazard is not great but it is unsightly. In future work of this kind the brush should be piled in the clearing and burned before another wheel is turned. I shall request a definite statement from the District Engine r as to whether we should pile and burn the remaining brush below the terminal when conditions permit and go into the matter of f nds as it will be rather expensive. Meanwhile local people are hauling out some fuel, poles and such other material as can be used on their ranches free of charge.

June 6 to 9 was spent with Ranger Warnock in a general examination of the Tejano Country as a basis for Recreational plans. Sixteen home sites were staked off in Sulphur Cañon and the public informed through the press. Several applications are on file and permits are only pending selection of lots by the applicants. An area remains below, down to the San Antonito Station, which can be staked out and added as the demand increases.

Appropriate signs were placed on side roads and camp grounds before traffic started last spring. Pits were dug for garbage and are being carefully tended by our road man who is also doing effective patrol work and distributing publicity material. Fire signs were put up at the same time other parts of the Sandia District were posted for the season - perhaps a little late due to Warnock's illness. Trail signs were requisitioned as a result of the recreational examination and will be up before July 4. Water signs, I confess, were not considered of particular importance the way the springs are situated but have been included at the suggestion of your office. Mr. Leopold made the excellent suggestion that a temporary sign be placed on this season's fire which was done. Ranger Warnock had conceived the same idea and was making a requisition when told the sign had been ordered.

The misunderstanding regarding the employment of Cano for maintenance has been discussed with Engineer Long who made notes of what I understand about it.

Proper maintenance of the inslope was strongly emphasized when this season's work first started but it took some little time to get this over to Cano. There has been much improvement in this

D.F.

respect and on June 24 last, Engineers Norcross and Long, whom I met on the road, were very complimentary toward what had been done. We are gradually widening the road in places while other narrow points are a powder proposition and should be handled at the beginning of next season's work.

The "one-way" signs mentioned as of special importance were made last fall and erected this spring before traffic started. However they both face down road and other sign "This way down" is being made for the up-hill side of the upper sign.

Our big opportunity for effective service in the Sandias is fully recognized. I have some ideas as to how it should be worked out and will always appreciate your advice and suggestions.

Very sincerely yours,

K. C. Kartchner

Forest Supervisor.

Is this widening occurring [illegible] or to [illegible] widened [illegible] - Jm

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
MANZANO NATIONAL FOREST

ADDRESS REPLY TO FOREST SUPERVISOR AND REFER TO

ALBUQUERQUE, NEW MEXICO

June 29, 1923

D
Supervision - Manzano
(Inspection)

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Very sincerely yours,

K C Kartchner

Forest Supervisor.

E
Supervision

July 12, 1923.

Memorandum for District Forester:

Reference is made to Supervisor Kertchner's "E-Supervision, Manzano, Inspection", letter of June 29 to you and previous conversation I had with you concerning the apparent mixup in the employment of a man by the name of Cano to maintain the Tejano Canyon road:

I have previously informed you that I did not employ Cano and this statement still holds. When George Vise who was recommended to the Supervisor to supervise the spring maintenance on this job came into my office one day and asked about employing Cano and the scale of wages, I told him to take it up with the Supervisor and that I thought Cano should be paid the same scale of wages as he received when on the job under Kissam. It further appears that Vise employed Cano at $6.50 per day and that prior to the time he was engaged Ranger Warnock had been negotiating with Cano to take the job at $125 per month but had not succeeded in getting him for this price. The figure of $125 per month was agreed upon by Supervisor Kerchner and Ranger Warnock as a basis of negotiating with Cano but Warnock later figured that Cano could hardly afford to accept this wage. The Supervisor stated that he did not believe Cano could have been secured for $125 a month.

District Engineer.

E
Supervision

July 12, 1923.

Memorandum:

Referring to "D-Supervision, Manzano, Inspection", letter of June 29 from Supervisor Kartchner to the District Forester:

The question raised by the Supervisor as to what should be done with the brush cleared from the right of way of the Tejano Canyon road, will say that in my opinion it should be left as it is since it is gradually being taken out by people and used as fire wood, and furthermore, it would be a rather expensive undertaking to dispose of the brush by piling and burning at this late date. However in the future the plans for our road work should be definitely formulated far enough in advance to permit the clearing and the burning of brush in the right of way during the winter when there is little or no fire danger.

The proper method of maintaining this road so as to produce a distinct inslope was discussed with the Supervisor who fully understands what we are aiming at and has taken the necessary action to see that this condition is brought about. Some of the rocky points and sharp curves should be improved by widening.

C.M. Long
District Engineer.

2 copies
ent Manzano

D
Supervision-Santa Fe,
Inspection.

July 31, 1923.

Memorandum for Mr. Pooler:

I was interrupted so constantly during my stay in the office that I only had a day and a half to put on this report and had to cut it pretty short. It may not be as good looking a report as you had hoped for but I think it does contain the substance of the most important conclusions arrived at with Supervisor Andrews.

There were a multitude of other matters which might or might not be included but Andrews and I discussed them so thoroughly that I really believe it unnecessary to put them into the report.

I am making an exception in not sending the entire personnel section to the Forest and I am covering Andrews' personnel in a memorandum, disposition of which I am leaving to you.

Aldo Leopold.
Assistant District Forester.

Apparently matter included in att. personnel section discussed on ground and so am (not) forwarding to Forest + Pooler surely on Santa Fe into other hands than Andrews.

8/14/23.

CONFIDENTIAL

O

Personnel,
Santa Fe.

July 31, 1923.

Memorandum for the District Forester:

This is a confidential supplement to my report. Details which appear on pages 46-51 of my notes are not repeated here.

The principal purpose of sending me to the Santa Fe was, as you remember, to get a definite answer to the question of whether there was anything wrong with the personnel relations of the staff, and if so, what. We were already satisfied that they were fully competent as far as the work was concerned.

I gave priority to this question throughout my trip. My conclusions are as follows:

Andrews.

1. I can see nothing wrong with his method of dealing with either Forest officers or the public.

2. He probably had faults during his old administration, and in addition fired a lot of men who still live in the country. This old situation has been perpetuated and magnified through no fault of his, and tended to projudice new men.

3. He now has good relations with most of the men, but some sore spots remain. It is of first importance to cure these.

4. He should cultivate the habit of expressing his interest in the family affairs of the force. It is possible that families have helped keep alive the trouble mentioned in (2).

5. He has the capacity for caustic or incisive remarks. This arises from a good quality, but unless held in control is liable to offend.

6. He should safeguard his tone in correspondence. It was my intention to wade through a lot of files to check this, but I didn't get around to it.

7. He has the rare trait of self-criticism to such an extraordinary degree that it was not even embarrassing to frankly discuss all kinds of details as to self-improvement in this matter. This not only saved me what might have been an unpleasant job, but is of great value to the Service.

8. He is intolerant of "going through motions" that have no meaning in accomplishment. This again is a highly valuable characteristic, but one which must be held within bounds.

9. If Andrews could command the unanimous personal support of all his force he would come very near being top Supervisor of D-3.

King.

1. There is a lack of mutual sympathy between King and Andrews, possibly growing out of old associations.

2. His physical handicaps are serious but he does a surprising amount of work in spite of them.

3. He has one of the best minds and soundest viewpoints of any of our men.

4. His physical handicaps do not prevent him from carrying great weight with the field.

5. He is one of our best prospects for Supervisor.

Pincetl.

1. Relations with Andrews now entirely satisfactory.

2. Doing lots of hard work and every promise of a successful deputy.

Assistant District Forester.

I think this can be readily arranged by Mr. Long or myself in conference with the State highway officers. At that time we will urge on the state to acquiesce in the expenditure of money for a survey of this route by the B.P.R. Mr. Wheeler has already acquiesced in making such a survey and in the Otowi change, and I know Washington will readily concur in the allotment of funds for survey purposes once the state's approval is also secured. In requesting survey, we will ask Wheeler to look over both the Ancho and Water Canyon routes, running his location survey on the most practicable route, which should authoritatively settle any question as to their relative merits although Forest Service opinion seems to now favor Ancho hill. With survey plans and estimates before us it will be time enough to urge the early programming of the work for construction which may have to be delayed some time. The one controversial point I foresee is that our Frijoles road as now programmed includes the Buckman bridge as part of the Forest highway project. In making the swing I shall try to eliminate the San Ildefonzo bridge in view of pending legislation. If the project is finally approved on the Owoti route without the bridge our construction will, of course, have to be concurrent with the bridge construction by state or county authorities. Should we wind up, however, by including the San Ildefonzo bridge in the Forest highway project we will be merely exchanging an added demand on the Forest highway funds for greater freedom of action as to date of construction.

On page 16 some reference is made to maintenance of the Pecos road. Not long ago the matter of maintenance was discussed with Mr. Wheeler, at which time we expressed the fear that some money was being wasted through lack of supervision. We suggested that the matter be taken up with his local agent and that if possible Morrison, of the B.P.R., be instructed to make occasional trips to the Pecos to keep a closer line on maintenance work under way. I have every reason to believe that this matter will clear itself up to our mutual satisfaction.

On page 20 reference is made to the Barker-Mossiman grazing appeal case. My understanding of the situation after discussion with Scott is that when the grazing reconnaissance data becomes available in the near future a readjustment is going to be necessary on account of the lower carrying capacity figures that will then likely be established, and that in the meantime King is interviewing both Barker and Mossiman with a view to quieting matters temporarily until the final conclusions and adjustments can be reached. With such a plan I am in hearty accord.

On page 21 reference is made to sheep exclusion matters as they refer to the White Pine Lumber Company's prospective cutting area. Leopold's notes and the statements you made to

me while in Santa Fe a month ago are in accord. You were objecting to the assumption that exclusion would be necessary for the entire prospective area on the ground that certain portions of said area would not require this treatment in view of advanced reproduction. Our circular of instructions on this subject, RS (G) Protection, Animals - Damage to Reproduction by Sheep, of July 29, 1921, page two, makes it clear that the policy though one of total exclusion of sheep, etc., excepts areas completely with established reproduction, etc. The period of exclusion has now been modified to ten years in advance of cutting instead of the three years mentioned in the circular. The point is that we assume there will be sheep exclusion for cut-over areas or areas to be cut over unless it is locally established that such action is unnecessary, the burden of proof being on the local force.

Mr. Marsh tells me, however, that the slant he got on this was that your office felt our letter of June 1, desig ated G-Supervision Santa Fe, Goat Grazing, where reference was made to sheep - particularly the last paragraph - acted as a damper on exclusion. It was not so intended. At the time that letter was written no definite proposal for exclusion could be located here, nor can one now be located. It is entirely possible that a map or memorandum starting with Cassidy may have reached you on the subject but if so no copy is available here. The purpose of the letter of June 1 as it refers to exclusion of sheep from the White Pine Lumber Company area was merely to request that the procedure for bringing about exclusions be followed. This procedure is dealt with on page two in the following terms "Areas for exclusion should each year be reported in the Grazing chapter of the Supervisor's annual working plan". I am much interested in applying the exclusion policy as outlined in the exclusion circular of July 29 to the White Pine Lumber Company's area as rapidly as conditions justify. If there have been specific instructions as to this exclusion which we have overlooked here, and in view of which you believe our letter of June 1 a deterrent factor, do not hesitate to call our attention to the correspondence. As matters stand, however, the foregoing should clear up any misunderstanding on the subject if such exists. Mr. King's G Applications-Santa Fe, Permits for 1923 letter of April 26, page 2, indicates that some of the sheep are being removed from the area this year, so I take it progress is being made in this direction.

You will find Leopold's report interesting and helpful reading, and his notes, particularly in the matters of detail, should be of a good deal of assistance in correcting minor omissions as opportunity affords. Since the report was submitted Mr. Marsh has had an opportunity to be long enough with you on Management work, which Leopold purposely omitted covering, to note the great big pick-up in this important line since Lang's visit of a year ago. He has further observations to

Santa Fe -

make and will submit a special report after completion of his inspection, but has seen enough of conditions to be able to tell me that the Forest Management work on the Santa Fe has gone up in the last couple of years from a position below par to one well above par for the District.

The reaction I get after reading Leopold's report with the utmost care is that the Santa Fe under your administration is making very excellent progress; that you have a fine personnel and are to be commended very highly for your administration. There are, of course, many points in which improvement is possible, but that is to be expected, and in the main you are to be congratulated for the results you are procuring.

Very sincerely yours,

Frank C. W. Pooler

District Forester.

Enclosures-

C O N T E N T S.

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A - FIRE

1. Prevention. Santa Fe fires run 72% man-caused as against 52% for the District. There probably were some wage fires set this year. The closing in of reproduction may augment any latent tendency toward incendiarism. Stamping out such a tendency is therefore a job of vital importance.

The native people are accustomed to respect authority. It is therefore clear that straight law-enforcement is our main move. Prosecutions are increasing, but are not yet reaching this risk.

Education is our other principal move. I have little faith in the efficacy of merely conventional methods. Pinson's cooperators are a move toward the heart of the problem. I also suggest freer use of existing institutions like the church.

2. Cooperation. Pinson's success leaves little to be said. I can only advise doing likewise on the other districts, especially Cochiti. Pinson has accomplished the following:

(a) All labor cooperated on Cundiyo line and Cordova line. About 80 man-days contributed.

(b) Development Vigil and Aragon as per diem guards, including suppression, detection, and educational work.

(c) Building tower at Truchas, with volunteer detection by Manuel Martinez.

This has done away with necessity of Aspen Peak guard and made it unnecessary for Pinson to go to fires on north end except as a matter of reporting. They keep time for suppression, engage crews (never less than two and as many as they judge necessary). They operate under a "relation of confidence" with Pinson, compete among themselves, and in general carry out in full the "key man" idea in fire control. All but Martinez (storekeeper) get free phones.

3. Cooperative Agreements. A draft of a three-cornered agreement for the Baca Location was drawn and left with the Supervisor. Chances for extension of cooperative area seem very good. Our conclusions were:

1. Baca Location seems ready for action.
2. Separate rates should be established for cutover and non-cutover.
3. Rangers should be used on preliminary work.

4. Suppression. Calling the Jemez rangers to review on

the ground the errors made in the Redondo fire was a move of the right kind to offset inexperience in suppression, and to offset our curious inability to get rangers to read advice on suppression methods. My criticism of this fire is revised as follows:

Inspection of Line shows that all the errors always made by inexperienced men and pointed out in Gila Plan, Fire Review, Bulletin, Guide, etc., are here repeated. Specifically -

1. Insufficient instruction to crews and cook, (see 2).
2. Insufficient foremen (claim material lacking, 2 crews, 1 with 17 men 1 foreman, other with no foreman).
3. Delayed shift basis. Men on 24 hour basis, 6/19-6/24.
4. Building line too close to fire in difficult ground instead of further back on easy ground.
5. Lines on down slopes resulting from (4).
6. Not enough axe work on snags.
7. Failure to remove chunks along line.
8. Insufficient use of backfire.
9. No diary of fire.
10. Foreman without file and some sectors without axes.
11. Failure of overhead to get beds, cook outfit, soap, and food supplies necessary for sustained effort.

The fire ought to have been corralled by Guard Sandoval when it broke out. He had it surrounded at 15 acres and left it with only 4 men. It then broke away. I saw about 1/4 mile of his line - it was poor, being raked in bunch grass without grubbing. His training by Bosworth was verbal only because of his long service, again proving that experienced men are often unskilled men.

5. Fire Plan should be thoroughly overhauled for follow-up, which was found defective. I also advise the tabular form - to correct the present narrative form would make it too long.

GENERAL APPRAISAL OF SANTA FE FOREST

1. Characteristics of Forest Resources.

The outstanding fact about the Pecos is its resistance to abuse. Its ecology is that of Colorado. Reproduction comes easily, erosion checks itself, overgrazing heals over and game comes back. All kinds of deterioration are less cumulative than in the rest of D-3.

Heavy local damage to all kinds of resources has taken place since the 16th century, but the country is still there. This does not mean that damage leaves no scars. On the contrary it produces radical changes - the history of three centuries is boldly inscribed in soil and vegetation of the west side above Santa Fe. The point is that when one equilibrium is upset there is another ready to take its place. This is the characteristic of resistant countries the world over. They change but do not dissolve. The true Southwest, on the other hand, does not change. It is either conserved or in process of dissolution.

Except as to timber, the Jemez seems to be more like the Southwest.

2. Condition of the Forest Property.

(a) Range & Watershed. It seems strange that the salvaging of the Pecos by bluegrass has not received more notice. It is one of the most significant phenomena in southwestern forestry. Here we have another characteristic of a resistant country - that the artificial type may be as valuable, or more so, than the ultimate type. The reversion of the valles of the Jemez from bunch to short grasses is also very remarkable.

Not all of these changes, however, are harmless. The deterioration of alpine cienega, all stages of which may be seen on Panchuela-West, must have a very great effect on streamflow needed for irrigation. Such an area is many times more important for watershed than for all other purposes combined. Likewise the deterioration of timber-line burns is extremely serious because the timber-line country, unlike the rest of the country, is non-resistant and erosion is progressive.

In general, the range and watershed is locally badly damaged. The watershed is more important than the range, especially on the Pecos, the latter being of consequence only because of the number of people dependent on it. But the same people are even more dependent on the watershed. Conservation of timber-line range and alpine cienegas are the problems which should have priority. Devising successful methods of getting

the local communities to adopt conservative grazing methods is more important than the refinement of our technical knowledge through reconnaissance and studies. We already know much more than we practice.

(b) Timber Resources. The outstanding fact is the great deterioration of site qualities in the alpine types through fires. Half the Santa Fe will one day go up at least one notch in site quality and yield. Next in importance is ease of reproduction, including yellow pine. This is not new, but the fact that most of the pine reproduction is of the same age as the cutting possibly represents a new characteristic. There is something here which we do not yet understand, and that probably does not apply to yellow pine generally.

The intensiveness of the local market is something which has not been appreciated. On the east side props are being culled out of yellow pine reproduction down to 5" on the stump and 10' or 12' high. This calls for haste in effecting exchanges of cutover Grants and suggests the feasibility of thinnings in our own stands.

Timber resources are in general in a deteriorated condition but steady improvement is practically assured. Timber is the one resource going up hill, not down.

(c) Agricultural Land. Losses through erosion are less active and less complete than on other D-3 Forests. Some canyons like Santa Fe have lost all their lands inside the Forest. Others like El Medio and Tesuque have lost a strip along the banks. But in general bluegrass, superior native agriculture on small holdings, and re-stabilization on a lower level have held losses down. The loss of fertility through leaching is almost as serious as the direct loss of land. We are not but should be cooperating with County Agents in teaching how to counteract this through terracing, leguminous mixtures and rotations, use of manure, etc.

3. Improvement, Development & Extension of Forest Property.

(a) Lands. The stage seems set for acquisition by exchange. There is danger, here as elsewhere, of this vital work being slighted or delayed for less important matters.

(b) Timber. Good progress in management plans. We must not make the error of overlooking the increasing productiveness of alpine types due to fire protection, regardless of present yield. It will take a century or two to restore these lands, but they are worth it, regardless of present income. Planting must start soon.

(c) Range & Watershed conservation is a question of skilful handling of permittees. The notable achievement of Ranger Pinson shows what can be done. It will be necessary to accept in advance, however, the probability that (1) spots of range can never be used up to their theoretical capacity, (2) erosion control works must become a responsibility of the permittee if we are to use it at all.

(d) Recreation development entirely satisfactory. Ideas of present administration sound.

4. Business Efficiency of Administration.

(a) Quality of Personnel. Distinctly above average.

(b) Handling of Personnel. Some weak spots.

(c) Planning Work. Fair. May be expected to rapidly improve because of thorough understanding by staff.

(d) Inspection Methods. Rapidly improving.

(e) Public Relations. Vary from excellent to absent, but generally good. Methods vary widely with individual rangers, but in general not a "popular" administration in the narrower sense. This is a point in its favor. The public relations being developed on the Tesuque District may well serve as a model.

(f) Organization. Some defects of distribution of function as between staff and field. Executive Assistant overloaded. Gratifying absence of rangers immersed in paper work. Distribution of functions among staff good. Some difficult districting problems but every indication that they are being solved in the best possible way. Future tendency must be toward smaller districts. It must not be forgotten that the geography of the Santa Fe results in a "far-flung" Forest just as if it were scattered like the Coronado.

FIRE GUARDS 20
Form 0-3
.....N.F.
By.....

		Name				
		Job				
		D				
Qual.	Eyesight				✓	
	Physique	✓	✓		✓	
	Character	✓	✓	✓	✓	
Instr. & Map	Has them	✓	✓	✓	✓	
	Knows them				✓	
Training	Country & R'tes	✓	✓	✓	✓	
	Law enforcem't				✓	
	False smokes	✓			✓	
	Instruments	✓			✓	
	Phone rep'rs.				✓	
	Suppression	✓				
Discipline	Test calls	✓			✓	
Industry	Hours	✓	✓	✓	✓	
Outfit	Tools	✓	✓	5	①	
	Fire pack	✓	✓		✓	
	Ration, Canteen	✓		✓	✓	
	Horse			✓	✓	
	Watch, Key	✓	✓	✓		
Records		✓				
Use of time	Lives on top	✓			✓	
	Supplies	✓	✓		✓	
	Water	✓	✓		✓	
Imp. Wk	Planned	✓				
	Equipped	✓				
Camp Quarters	Order	✓	✓		✓	
	Sanitation	✓	✓		✓	
Work Cond	Subsistence	✓	✓		✓	
	Read'g. matr.	○	✓			
Insp	Ranger				✓	
	Supervisor			✓		

22 FIRE IMPROVEMENTS
Form 0-4
.....N.F.
By.....

		Place				
		Dist.				
		D				
Instruments	Orientation		?	·	✓	✓
	Installation				✓	✓
	Condition		✓	✓	✓	✓
	Protection		④	✓		
	Orientation Pt		3	✓	✓	
	Vis. Int. Mod.		5		○	✓
Towers	Shelter		1	✓		✓
	Ladder sound		✓			✓
	Lightning wires		✓			
	Guys		6			
	Gen'l repair		2			
Cabins	Location		5	✓	✓	✓
	Design		✓	✓	✓	✓
	Repair			✓	✓	✓
	Furnishings			✓	✓	✓
Pastures	Wrangling time		5		✓	✓
	Condition		✓		✓	
	Repair				✓	○
	Use				✓	

1. 40' windmill tower, no room for a crew to work, probably would be unsafe to be one on.
2. No place marking for the cable stallion was tied as lying over the ground - evidently been there for years - Ground around done what it was for. If this are to go up, why not put at up? There was some discussion that the platform as too unsafe to hold it - would be easy to throw on readily. Substantial platform made of metal, should be to receive this marking.
3. Need compass. Reasonable easy. Position suggested - Fence would be easy to pick more guides points.
4. Protractor left on table near - Reminder to wrangler.
5. Trees and dead branches under the tent ropes (covering Harmont) could injure Persons. If to be in regular Ranger Permit as outing would stay.
6. Fence. Balance of wire and in good shape for normal effort.
7. Lightning arrester wire required 2" board which is nailed on wood but still, the plate overlapping the nail, the edge of which are exposed for wire cutters. In heavy lightning storms dangerous. Windows should not be by whole walls.
8. Incidentals. Available in store (used at present) & feeding game trails needed.
9. Remarks. Not were recorded as wrangling done for present [illegible] not very orderly. Consideration needed.

1. Hitch. Been used 2 weeks only 10, but have had no scratch chains. Great pressure off less wear & tear. (Recommend many has about worn out)
2. Lack of accessible information of [illegible] Ranger Service Cards, Etc.).
3. Emergency guards. Handy packed. Hardware to [illegible] drain.
4. Horses for packing counter not yet fixed - should be.
5. New [illegible] - [illegible] double.
6. [illegible] Keys. Cover however are all separated.
7. Dishes [illegible] only 1 cup, one [illegible], drill. Should have separate flare cups with scoreboard.
8. [illegible] Outfit not to responding as [illegible] on the line before going to fire evidence has suppression force. Rather [illegible] always to go to a phone on every fire no two back to headquarters & the rest there as emergency - would be better. [illegible] Ranger for issuance of [illegible] up and told from [illegible] at.
9. No record of [illegible]. Important for [illegible] enforcement.

TELEPHONES

2½ Form O-5

...Service For...N.F.

By...Campbell...

		From	Hallvale	Ballinas	Burnt	Ecstasy	Gallows	Hermitage	Pinchbeck	Pumpkin	Rainbow	Rosario				
		To	Hallvale	Ballinas	Pequot	Boundary	Hermitage	Nicer	Pinchbeck	Pumpkin	Rainbow	Rosario				
		D	9/11	9/8	9/6	9/12	9/6	9/6	9/8	9/8	9/7	7/6				
Lines	% Seen		100			95	20	50	95		100					
	Route		✓			✓		8	✓		✓	17				
	Support: Poles		1			⑥	(7)	✓			15 ✓	/				
	Support: Insulators		2					✓	(13)		(16)	✓				
	Support: Ties		3				(7)	9			(16)	✓				
	Tension		✓					✓			?	✓				
	Brushing		4	5				9	(13)		(16)	(16)				
	Lightning wires															
Place																
Instrument & Installation	Attachment		✓	✓	✓	○										
	Weather Prot.		✓	✓	✓	✓										
	Batteries Re.		✓	✓		✓										
	Wall Tubes		○	○	○											
	Wiring		✓	10		✓										
	Ground St?		✓	✓	(11)	✓										
	Protector Bl.			✓	✓											
	(a) clean			✓	✓											
	(b) Shelter			11	✓											
	(c) Asbestos Mat															
Repairs	Tools		/	✓		✓										
	Extra Parts		✓	12		✓										

1. Some pole down - Rang thought at had been done on long time.
2. Ground rays 8 per mile. Too many on gentle country?
3. " " trouble negotiating. Suggest limit Tree.
4. OK as kept in a dozen places where trees & limbs have reached at. Trunk crew could have worked this line without extra cost, but were not told to.
5. Not yet brushed - built last winter.
6. Line down. We put it up with canvas. Trunk crew could have worked from saddle down. Line to Peak broken, not worked this year. This might be awkward in the event of a sudden dry spell.
7. Line down near Harveys. See note over date, Fire Plans
8. Not now right due to subsequent roads work.
9. In a few places one or two per cent have brush contacts on stems, but also old the wires drifted against trees. Ok for the grounds at Pinchbeck & Gowlers.
10. Bad joint in the insulated lead-in wire.
11. Unsafe walk under eaves. Rattle, one needed.
12. Needs extra wire for splices please.
13. To barbs grounds replaced. A few brush contacts
14. Ground wire unplaced and exposed under eaves. Needs lowering poss.
15. Cable drive magneto points dirty, wires rusty. O.K.
16. many grounds due to worn off brackets, broken ties, defective brushing, temporary patching. Is key contact brass worn? Crew have fixed this? (Possibly wire too tight)
17. Telephone old trail in several places. Some one should be moved.

Conclusions

1. Lines are poorly brushed & tied. Too many brackets
2. Following would help:
   (a) Combining trail & phone work
   (b) More carrying of sharp saddle axes.
   (c) Better grounds. Rainwater on grounds at ground compos.

2b FIRE EQUIPMENT

Form 0-6

...Santa Fe...N.F.

By...Penfield.....

	Place	Dalbiez	Hermit's Peak	Willow Cr.	Pecos	Romero	Sena Shop	Blubaugh	Ratchford	Rinconada	Forgotten	Cabin	
	Dist.	Vigil	Vega	Pecos	Pecos	Pecos	Cuchra	Cuchra	Cuchra	Cuchra		Tererro	
	Cache	Ldg.	Box	Box	Barn	Box	Wagon Box	Box	Box	Box	Box	Box	
	D.	6/9	6/15	9/11	4/19	4/20	9/21	9/23	6/27	6/28	7/2	7/5	
Usability	Axes sharp	✓	✓	✓	✓	✓	⑨	○	○	✓	✓	○	
	Saws sharp	○	/	6	✓	/	✓	✓	○	✓	?		
	Handles	⑤	3	7	✓	✓	⑭	✓	✓	⑲	✓	○	
	Worn out tools												
	eliminated?	✓	✓	7	8	✓	⑭	✓	⑱	✓	✓	✓	
Availability	Segregated	①	✓	✓	✓	✓	✓	✓	17	✓	✓	✓	
	Orderly	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	○	
	Depository clean	✓	4		○	✓	✓	✓	✓	✓	✓	○	
	Place well chosen	✓	✓	✓	✓	✓	✓	?	✓	✓	✓	✓	
	Grouped	○	/	/	○	/	○	○	○	○	✓		
Selection	Proper number	✓	✓	✓	✓	✓	✓	✓	18	✓	✓	✓	
	Proper kinds	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Standard type	✓	✓	17	✓	✓	✓	✓	✓	✓	✓	✓	
	Phone material		✓	○	/	/		○			/	✓	
	Ration, bags, etc	✓	✓	○	⑨	✓			⑱		✓	✓	
	Light	✓		/	⑨	/	○	○		⑳	✓	⑳	
Protection & Maintenance	From weather	✓	④	✓	✓	⑬	✓	✓	✓	✓	✓	✓	
	Branded or died		✓	✓	✓	✓			✓	✓	○		
	Oiled or greased		✓	✓		○				✓			
	Sealed or locked	①	✓	✓	✓	15	✓	✓	✓	✓		✓	
	Sign on door		○	○		✓	✓	✓	✓	✓	✓	✓	
	Sharp. facilities	✓	✓	✓	⑪	✓	○	○	✓	✓	✓	✓	
	Check list	○	✓	✓	12	○	✓	✓	✓		✓	○	
Ranger	Saddle tool				✓						✓		
	Fire pack				○						✓		
	Ration, canteen				⑫						✓		
	Horse up				✓						✓		

27

① Apparently one room, rest in another room, latter with special lock to which only Ranger has Key. Thus is dangerous. All fire stuff should be in 1 room under F.S. lock and seal.

2. No nakeo. 15 sent elsewhere last winter.

3. Axe no D. B., handle S. B.

4. Inside of box dusty – not set up enough off ground.

⑤ Bent unit on back thus spring.

6. No axe on box. One on last.

7. 1 shovel with broken grip. 5 short handled.

8. 2 shovels RP, SH.

⑨ Bags in office. Should all be in one place.

⑩ Lantern in office but no oil ready.

⑪ Limitations no good. No rasp.

12. Not up to date.

13. Should be cut to count as 2 in new mess kit.

14. Axe grounded. Tools in winching bottom are sealed.

15. Seals torn off. Open. ?

⑯ 3 axes, all double, no good handles, 1 worn out.

17. Trail crew tools in with fire tools.

18. Too big one unit, only 1 axe, 1 bag room out.

⑲ Nice handles, not fitted to axes. Thus is the case in most boxes.

⑳ Lantern but no oil.

B - FINANCE

1. Forage is allotted by weight rather than dollars. This tends to get away from the principle of the Ranger driving a good bargain, but is all right as long as prices are closely watched.

Only one horse is grained in winter, due to insufficient funds. Some of the Rangers feel this rather keenly. I know of no remedy at present.

Prices paid seemed reasonable.

2. Mileage Control. The existing system is fairly good, but there is need of working out a clearer and more specific set of definitions of allowable trips on each district. At present, of 8 districts, 3 have no motor, 2 have fairly clear rules, 3 have no rules except scrutiny given accounts.

3. Travel. About $440 charged to R. & T., also $175 forage, F.Y. 1923. A circular has been issued reminding all Forests of the Forester's instructions.

4. Office Methods. I checked over with Pettis various points like precautions against duplicate payments, use of cooperative funds, ranger allotments, motor costs, approval of vouchers, and time-keeping on fires. I had a very good impression of finance methods and control in these respects.

C - IMPROVEMENTS, QUARTERS, & EQUIPMENT

1. Telephone Maintenance. The lines as a whole are sub-standard as to brushing and support. The staff is well aware of this, but some rangers still persist in the fallacy that a line is all right as long as it "works". Combining telephone and trail maintenance is one of the means of catching up that should be tried although only incidental work could be performed out of trail funds. Habitual carrying of sharp saddle tools would also help. (See Tally sheet O-5).

2. Improvement Plans for prospective exchange and fire cooperative areas should be kept in mind from now on.

3. Pack Equipment. The Santa Fe in general does not pack freely and easily, although they have more and better pack saddlery than any other Forest I have seen. What is lacking is the habitual organization of pack outfits. For instance, an organized system of receptacles for food has more to do with a pack getaway than fancy panniers and saddle.

STATIONS & HEADQT'S. Form O-8. N.F. By:	Place	Misc.				Tools Equip & Supplies							Land			Sanitation				Protection			Maintenance Orderly						Clean				
		Walk-Rite-Ader	Landscape plan	Sta. map & plan	Meridian	Use	Arrangement	Shelter	Repairs	Condemn	Excess		Erosion	Maint. fertility		Manure	Garbage	Sewage	Water supply	Ladder	Extinguisher	Flues	Storeroom	Grounds	Outhouse	Toolhouse	Barn & c—	Office	House				

1. Change to the shelter type
2. Erected two guard compounds this year by Ltr. now complete, but there still remains much to be done. Should get a full time guard for this work.
3. Should be added to Grindstone Ranger Station. Should be moved to Cowles Ranger Station.
4. 1" pipe, wire & sandpoint
5. Garage
6. Fence relocated
7. Corrals
8. ½ concrete repair
9. 4 tank stands (2 steel, 2 log) to be completed this year
10. 9 gal Pedrick (Pyrene) extinguishers
11. ½ Key Rite Insulator (Pyrene) - replacing shingle
12. Partial completion this year - replacing shingle
13. Fence relocated
14. Fence relocated
15. Dam constructed this year - Ranger Ltr. of
16. Fence relocated
17. Fence relocated

-7-

FIELD OUTFIT

Form 0-13
4th Sawtooth N.F.
By... Leopold...

	Name	Purcell	Reynolds	Kenyon	Chilton	Crumbo	Dahmann	Dubruiel	Long	Moore	Rentfrow	Rondeau	
	D	6/5	6/7	6/9	6/19	6/23	6/23		6/28	6/30	7/2	9/11	
Mount	Saddle animals		✓	/	✓	✓	✓		✓	✓	✓	?	
	Pack animals			/	✓	(6)	✓		✓	10	✓	✓	
	F.S. Key			✓	✓				✓		✓	✓	
Camp Equip. & Saddlery	riding		✓		✓	✓			✓	✓	✓		
	pack		(2)		✓	(6)			✓		✓	✓	
	Bed	(7)		✓	✓			✓	✓	✓	✓	✓	
	Mess kit		(2)		○				✓		✓		
Surveys	Compass				✓								
	Declination												
	Chain										✓		
	Pins												
	Pocket Globe		(4)		(4)					✓			
Misc.	Marking tool		(1)		✓				(5)	✓	✓		
	Scale stick				✓								
	Note book		(5)	✓					✓	✓		?	
	Equipment list												
Motor	Tools	✓											
	Jack	✓											
	Pump	✓											
	Light												
	Patching outfit	✓											
	Extra parts												
Personal	Knife		✓					✓				✓	
	Matches							✓				✓	
	Watch							✓	✓	✓	✓		
	Clothing	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	
	Uniform	✓											
Getaway			3						✓				
Robert Suit Fuels													

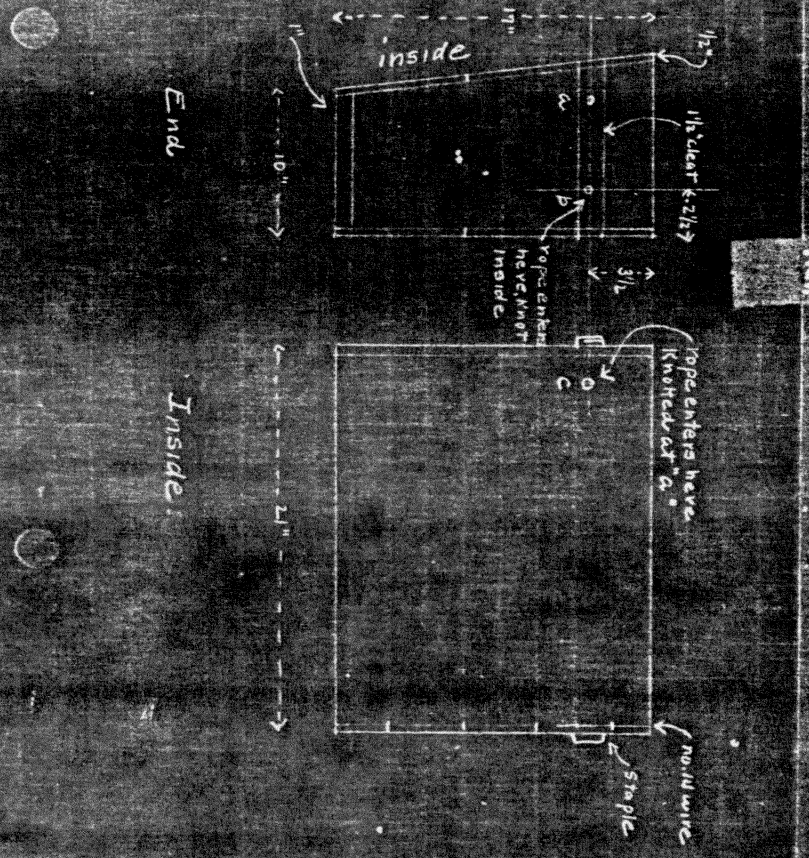
45

(1) Very dull — i.e. the cut was off face. Sharpened in Tonthouse.
(2) Bedroll satisfactory but no pack covers (plenty of old canvas available, condemnation) was originally outfit of receptacles & cook kit. Seems to me it would pay use in pack dist.
3. Thrift everything was ready to go into Cigarpa & on packs See (2)
(4) not carried because final application status not yet completed by D.O. It seems to me a very poor idea not to have the best weapons, even if not perfect. See note on 5-shot pan case near Superior
(5) Today made entries since was started 9/11
(6) Knew nothing about packing was in practice and entirely unprepared to go on pack trip.
(7) Brought no bed from out to Redondo pine. Should have use the chance of needing it.
(8) Canvas was but edges very double.
9. Had not received small waistpocket notebooks — used one of hers
10. Today I have damaged. Packhorses hard to

Newton Kyacks

63

Used by Packer for Grazing Reconnaissance Party James Newton.



1. Wt. about 25# per pair.
2. Wire after being drawn tight is pulled through 2 holes twisted and stapled on inside.
3. Size suitable for either horse or mule.
4. Capacity 150# groceries plus any suitable top load.
5. Sling ropes 1/2"

AL
6/14/43

D - ROADS & TRAILS, MAPS & SIGNS

The Santa Fe staff has as good a grasp of the Minor Road and Trail policy as any staff I have seen. The only bad defect found in actual execution of the work in the field was in -

1. Trail Maintenance. Money was being wasted on the Pecos and San Miguel Districts due to poor foremen, in spite of efforts by the Ranger in the former case to give plenty of supervision. This foreman question is simply a case of planwise effort to develop an "auxiliary corps" of foremen who can be trained and who can serve year after year.

The habit of demonstrating (as opposed to merely describing) proper maintenance to foremen is commendable and should be extended; likewise the trial of the burro-crew-plan, and the periodic or rotation plan of covering the Forest.

There is quite a mileage of old trails with down timber. To actually maintain the present mileage will require both the continuation of the present allotments and also the improved methods above mentioned.

2. Trail Plans. I do not think we should add a great deal of new mileage of graded trails, but there is still room for much low-grade secondary construction.

The formation and climate of the Santa Fe is favorable to good trail work. Even allowing for this, much credit is due for the general excellence of the existing system, especially to the old-time Supervisors and Rangers who undoubtedly did a lot of good work without special funds which was never seen by District Office inspectors. Tom Stewart's work deserves special mention in this connection.

3. Trail Specifications. I am more than ever convinced of the soundness of our present standard of a narrow outslope tread on a good grade with reinforced and obstructed fill and thorough drainage. I am not sure that the Santa Fe force as yet fully comprehends the real intent of the new manual. To the extent that they think the manual calls for a cheap, steep, inslope, or unduly narrow trail they are mistaken, and they can not follow the intent of the Manual until the mistake is cleared up. Demonstration by the staff is the remedy for this situation.

4. Trans-Jemez Road. I will not attempt to repeat in detail the study of this project. Letter of July 23 shows roughly the conclusions to date. Some of my notes are photo-

stated herewith, not as final conclusions, but for the data they contain. A brief summary of the joint conclusions of the Supervisor and myself is as follows:

(a) A permanent surfaced road to the Frijoles is an urgent necessity.

(b) A road to Las Vacas is next in priority.

(c) There is no similar hurry about the balance of the Trans-Jemez road.

(d) All "patching" on the Frijoles road should hereafter be on permanent location, and this location will follow the Ancho rather than the Water Canyon route, and probably the Otowi rather than the Buckman route.

(e) The Otowi vs. Buckman question depends on the bridge and State connection. In so far as possible we should force a prompt and decisive choice by the State. If we fail to do this, there is danger of political see-sawing between the two, and danger of our becoming involved in questions extraneous to the Forest Service.

5. Maintenance Obligation. I urge working out definite agreements with the counties which will remove any doubt as to which roads are our obligation as to maintenance, and any further mixture of work or funds. See tentative list, N.B. p.173.

6. Surveys & Maps. The doubt expressed by the Santa Fe about D.O. responsibility in some cited instances of map work is met by my letter of July 30.

While map work on the Santa Fe is not entirely neglected, I doubt if the matter gets as much attention as it deserves. Especially on intensive areas like the San Miguel District, the Espanola District, and the Pecos River should we not begin to use larger scale administrative maps in conformity with the increasing intensiveness of our administration?

What makes map improvement seem like a big job, when in reality it is not, is our aversion to cumulative records. (See Organization).

6/5/23 Chimayo Road 15

Supplies from Santa Fe $20 per 3 ton truck load. Underbid Espanola

Allotment $2500 plus 250 man-days cooperation worked up by Pinson.

Layout 1½ miles very steep sidehill from Media to top of mesa, after which mostly smooth going. Work now within ½ mile of top.

Drainage Using cross drainage - no culverts or bridges. Dams being built of rock & cedar - pinon brush discarded.

Purpose wood supply for plazas

Location by Pinsette, Pinson, & Neal in March. Staked as per Manual.

Wages Foreman $150 per mo; labor 1.75 plus board, teams up to 5.00 and feed selves but board driver. Labor without board $2.25.

Width S.H. specified 9', actual 7-9, quite uniform. Turnouts 15', only 1 measured.

Curves well laid, especially above.

Specification Sheet O.K.

Camp in fairly good order but some papers & trash scattered about.

Equipment 1 Martin Ritchie. Plows short of boards but now en route.

Cost Data new sheet devised by Pinsette given Neal today.

General Cooperative labor not controllable as to amount time or size of teams - not of great use. Paid them 50¢ cash in lieu of board, culling the weakest.

There is one stretch below the upper arroyo crossing about 300' without a drain. It is so smooth that I fear it will wash.

-12-

6/5/23 Comment on Jemez Roads

From the general south county of the Jemez there are

2 routes east

3 routes south

1 route west

6 routes.

This completeness is very commendable but until completed to priority from the standpoint getting the mail regularly through. To decide the main routes through (for instance those marked in green) there should be considered:

(a) Railroad plans & probable roads to follow them

(b) Roads under bridges & state highway connections

(c) Roads that might be definitely left to other agencies (Letter #11 to Espinosa)

In connection with (b) Santa Fe have registered but not yet received from D.O. as approved state highway maps. (7/30 - not yet applied)

6/6/23 Gallinas Cr. Roads. Built by state (convict labor) in about 1907. Grade & ways & masonry work has been excellent. Almost entire length is never washed as were down so that the granite bedrock is exposed.

6/7 Dawson Roads. Vegas wanted me to put in $1000 on this. Not yet as not road with 3 parties - otherwise OK as to local roads, planking & culverts gone but stringers will last a year or so yet.

6/14 Bellamah Roads. Have missing none of the side bridges are nailed down. This should be done as they roll badly. Improve the abutments that caved and left a dangerous hole. Ranger should mend washouts on these roads.

6/18 Pecos Roads. Very good shape as exp. that down to Pecos 2.5% that is banked a little & not inboard of inc. This is important and should be reworked in maintenance, especially on curves. This ex. bank edge of the fields also often stops water instead of conducting the water off the roads.

6/23 Frijoles Road. Brokenmans hill is 8% and by resurfacing & drainage can be made into a good road. 3 miles. FEA's est. is $5000 - probably higher.

Maint. work this year on the section up Water Cr. OK except brush disposal poor in places and grader is out in the weather. "Little weakness"

Water Cr. Hill 16% Max. & 3 1/2 miles longer.

6/26 No. Pueblos

8 Pat.	Cebolla	2	"	"	1	"
6 "	San Antonio	2	"	"	0	"
3 "	Sulphur	2	"	"	0	"
?	Valle ceton	10				
10	Jemez Springs	2	"	"		

Las Bacas: 9 machine yardmen; 1 lumberman

6/29 Cuba Espanola Roads. Jan 1913 $950. 10% was allotted for abutting on Mesa and roads up Bonito Cr. from Hughes Mill. 4 miles were completed. All hand work, crew of 4 men under Frank Duffy. Has stood up remarkably well. About 9' wide, max grade 13-14%

Seems to me to be a good showing for the money.

Roads manager must allow last land not washed except on first hills.

6/30 Alamo Cr. Crossing. Has $58 (including about $200 Cooperation) bridge built & crossing one. Max grade 9%. Much freighting estimated should have cost $800. Very good job.

7/2 Ancho Route to Frijoles. (See note of 6/23 above) Ancho hills have 250' including one pitch of 14% for 30', which can be easily reduced 10% by 250' of work (est. cost $250)

Exposure N. but less snow trouble than in Water Cr.

Width now 7' but can be widened. Rest of hill 6-9%.

Total length of S. side hill .5 mile.

Climbing out of Ancho on N. there no. 3 mile of 13%. To be rebuilt, foundation by exposed tufa bedrock of 7-8% to be surfaced.

Working down into Ancho there no .1 mile of 12% to be rebuilt on gentler grade.

69 In Rincon just S. of Water Canyon junction there is 1/2 mile of easy new construction, circling the Rincon instead of dipping through it.

Total miles, Fryoles to junction Water Cn. 6.2
" " Water Cn Hill route 9.8
Mesa above water Cn hill has 3.6

3 miles of clay bad in wet spells. Ancho route is good yearlong. 4 bridges on former, none on latter route.

7/2 Buckman Hill

115'	12%	through cut.	Curve S. new Const.
	7%	SH, S side Rincon	OK
.3 mi	0-4%	bench	OK
	9%	SH	Pitch 200' Relocate
	11%		400' to relocate
1 mile?	6%	To Buck. arroyo	OK
150'	10%	Down " "	relocate
.3 mile	6%	" " "	OK

2.5 miles from gate to top of hill.
13.6 " " " " Fryoles via Ancho Route.

Disadvantages of Buckman route
21 miles unimproved connection via Agua Fria
3 RR crossings
Clay flats
7 - 12 miles unimproved connection, Poaque
Poor bridge site

74 7/6

Notes of Conference with French

H.B. 279 Approved 3/12/23 (Chap 127 Laws 1923) Santa Fe Co 3/4 mill for 1923-4. Bridge to be built first. Bill only authorizes to make a levy.

Crandall is proposing federal approp. for bridges at San Juan & Cochito.

Ed Safford, County Treas, says Commissioners have done nothing toward making the levy, and doubts if they know about the bill. (Jose Ortiz, Galisteo, member of Commission)

French seemed to think that everything pointed toward the San Ildefonso bridge rather than Buckman, but that when it came to construction local pressure would be exerted in favor of Buckman to keep the bridge in repair.

I forsee here a process of political see-sawing which will leave us high and dry as to a decision. Therefore we will have to make the decision and stand pat.

French had no data as which is the best bridge site.

Asked him for advice about tufa roads but he was not familiar with the problem.

Conclusion I think we will have to decide on the Otowi route and stick by it. We have no warrant to assume 2 approaches to the Jemez will be built; the above bill is the state's expression of choice; all factors of population point to it, and engineering factors are about equal.

Section	A Route (Buckman) Mi.	A Route (Buckman) Max. Grade (rebuilt)	B Route (Otowi) Mi.	B Route (Otowi) Max. Grade (rebuilt)
A_1 Frijoles-Wool Rd.	7.0	Flat		
A_2 Ancho leg	8.5	10-8		
A_3 Water Cn.-Buckman Hill	1.2	6		
A_4 Buckman Hill	5.5	9-6		
A_5 Cutoff to Alamo Cn.	5.0	8		
A_6 Wool Rd.-County line	8.0	7		
B_1 Rio Grande-N.F.Bdry			5.4	6
B_2 N.F.Bdry-Wool Rd.			15.0	8
A route	30.2			
B route			21.7 + 20.4 = 42.1	

Arguments

A Route	B Route
E. & W. leg on Grant No inhabitants E. side 10 mi. less for F.S. 14 " more " State	E. & W. leg on Forest E. side natives to wood 10 mil. more for F.S. 14 " less " State
Serves 2 ranches & school by building 4 mi. (A_5)	Serves Alamos School and 12 ranches
Baca Location wool shipped Buckman. None now at Otowi (greater tonnage than ranches).	Connection all but 2 mi. on Indian lands
	Connects better with tourist route from Colorado and Taos via U.S. Hill
	More ruins opened up (Otowi and Sancowi)

for Maintenance Agreements with

	Miles	Prot Mgmt	Future Mgmt	Amt
Cruz	8	Co, Coby, Utah, FS	FS	
ceo-Bonito	7	Co, FS	FS	
	13	Co & Powers	Co	
	5	FS & Co.	FS	
ay	17	Co & Powers	Co	
Bracero	15	Co	Co	
chuela	21½	FS	FS	
ehuaco	5	FS & Co	Co	
Cruces	15	FS & Co	FS	
ces Cruz	10	giant powder	FS	
- Bonito	8	FS	FS	
Cruz		Co	Co & Indian	
Hill		FS & IS	FS	
o - Frijoles			Pending	
	12	none	FS	
La Cueva			private	
uentes		none	Co	
Cebra			FS	
bres de la fuente			Co	
Coyote		Co	FS	
ueo negro			FS	

Mgmt. Rugged cliffs and deep canyons no
d. 5 pending 300 per mo. Next yr.
Rocky way so to make it accessible by
Rustic. Cons of whole wood. Will buy
Superviseo shingles. Needs discussion.

ROADS & TRAILS

Form 0-10
.....Santa Fe, N.F.
By....Leopold.....

(Roads only)

Project

	Yr.	D											
		0%	9½	6¾	9%	0%	6⅛	6½	6⅝	19 21	19 33	15 24	
Cost per mile		1						60			450	80	
Lbr. & Insp. of Crews		②						15			✓		
Route		✓	4	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Switchbacks				✓			12		✓	✓	✓		
Grade	Working	✓	✓	✓	✓		✓	✓	⑥	15	✓		
	Max.	✓	✓	✓	✓	10	✓	✓	15%	✓	✓		
Spec. to Foreman		②								✓			
Cross Sec.	Slope	✓		✓	/			15	✓	✓			
	Width	✓	5	5	/			15	✓	✓	31		
	Backslope		✓	✓	/					✓	✓		
	Fill				/			15	✓	✓			
	Fill protection		6	6	/			15	✓	✓			
	No excav. on gentle slopes	✓		✓	/	✓	?	✓	✓	✓			
Drainage	Flats		✓	✓		11	12	14	✓	✓			
	Spillways	✓	✓	✓					✓	✓			
	~~Culverts~~												
	~~Ditches~~												
	~~Prot. ditches~~												
Logs	Size	✓	✓	✓	/		5		✓	12"	✓		
	Angle	✓	✓	✓	/		5		✓	3	✓		
	Imbedded	✓	✓	○	/		5		✓	12"	✓		
Clearing		✓	✓	✓	⑨		✓	✓	⑱	✓	✓		
Blazing		③	✓	✓	⑨		✓	✓		✓			
Signing		✓	✓	✓	⑨		✓	✓	✓		✓		
Maint.	Down timber	✓	✓	8	⑨		⑬	✓	✓				
	Erosion	✓		✓	✓		12	15	✓				
	Fill			✓	/				19				
	Heel & tread			✓	⑨				✓				

1. #190 maint. needed on 18 miles; #10.50 per mile. Bump method, 4 men. Crew too big?
2. Foreman doesn't know what lumbering (foreman) had in mind in any other specifications he could office had written them more fully informed & equipped. Those dangerous crossed wires on that kind of later. Blame has already been placed by crew.
3. Very badly overblazed on many places.
4. Couple bad & needless curves & reverses grades above Santa Pablo, but did not have time to verify this.
5. Very wide but irregular corner. Were made as probably little extra cost.
6. No attempt to obtain full width under Timber sufficient.
7. All of lumbering work shows that he does not understand how to build a flat.
8. Various timber not cleared, saddle to peaks.
9. Various timber & loose rocks not been cleared for yarding. Blazes sparse in brush & obscure. Many timber, 1 fork, no brush.
10. Very steep patches, Mc side Hollenger. Might pay to spot these.
11. Seep hole S. of Hollenger. Might pay to corduroy. Drainage.
12. Washing badly in open burn on trip down mostly to lack of drainage. Liable to reassert in gullies. Suggest it be drained into the gullies stopped with logs.
13. Considerable downed timber on E. side.
14. A good way to moderate drainages for an inexperienced person is to drive all pikes on the inside to impede flood of water. Logs under no pretense to water lower edge of earth traverse. Angle of logs can be predicated by a scratch. This method used by Johnson.
15. Am afraid of 12 spots by Johnson was used. Buy Cuerbo cedar were working up to 3', mostly trenches. Some of work OK but mostly many errors. We installed simple of all kinds of excavation & drainage.
16. Too low on the Switchback Cabell on Sat. Loosened by the freeze.
17. Some too straight across on places where there is no flat.
18. All made on common sense. Was necessarily big separation.
19. 192 319 mat. was Cabell made some of the best work I have seen.

3/13 Projects for maintenance agreements with Counties.

Project	Miles	Forest Maint.	Future Maint.	Amt
Santa Fe. Cnty	8	Co, City, Stab, FS	FS.	
Glen Dgnacio - Bandelier	7	Co, FS	FS	
Galisteo Cnty				
Pojoaque	13	Co & Pojoaque	Co	
Boundary - S. Fork	5	FS & Co.	FS	
Vegas - Boundary	17	Co & Pojoaque	Co	
Tapello - Bacon	15	Co	Co	
Pecos - Panchuela	21½	FS	FS	
Rowe - Colmor	5	FS & Co	Co	
Rowe - Rincon	15	FS & Co	FS	
Pecos - Cow Cr	10	gun powder	FS	
Chamayo - Borrego	8	FS	FS	
Santa Clara Cnty		Co	Co & Indian	
Rodarte Hill		FS & TS	FS	
Los Alamos - Frijoles			Pending	
Valle Calvo	12	none	FS	
Jemez Sp - La Cueva			private	
Cuba - Sanchez		none	Co	
La Jara - Cuba			FS	
W. rd above La Jara			Co	
Ballena - Coyote		Co	FS	
Coyote - Penas Negras			FS	

9/14 Pecos Road Maint. Engr. office very busy now being worked. Spending 300 per mo - not getting results. Only way to make it a worthwhile learning to take care of whole road. Why BPR? Supervisors shoulder repair discussion.

8th TRAILS

Form 0-10

.....Santa Fe..N.F.

By...Penfield.....

(Roads only)

		Project	Yr	D	Pojoaque - Santa Fe Boundary	Pojoaque - Santa Fe Boundary	Santa Fe - Pojoaque Boundary	Santa Fe - Pojoaque Boundary	Vegas - Espinoso	Tapello Mt.	Indiana Co.	Rowe - Pecos	Elizabeth - Tapello	Upper Pecos	Campus Pk.
					9/11	9/12	9/13	9/13	9/11	9/12	9/12	9/13	19 21	19 23	19 24
Cost per mile					1						60			50	80
Org. & Instr. of Crews					(2)						15			✓	
Route					✓	4	✓	✓	✓	✓	✓	✓	✓	✓	✓
Switchbacks							✓			12		✓	✓	✓	
Grade	Working				✓	✓	✓	✓		✓	✓	✓	15	✓	✓
	Max.				✓	✓	✓	✓	10	✓	✓	15%	✓	✓	
	Spec. to Foreman				(2)									✓	
Cross Sec.	Slope				✓		✓	/			15	✓	✓		
	Width				✓	5	5	/			15	✓	✓	31	
	Backslope					✓	✓	/					✓	✓	
	Fill							/			15	✓	✓		
	Fill protection					6	6	/			15	✓	✓		
	No excav. on gentle slopes				✓		✓	/	✓	?	✓	✓	✓		
Drainage	Flats					✓	✓		11	12	14	✓	✓		
	Spillways				✓	✓	✓					✓	✓		
	~~Culverts~~														
	~~Ditches~~														
	~~Prot. ditches~~														
Logs	Size				✓	✓	✓	/		3		✓		✓	✓
	Angle				✓	✓	✓	/				✓			✓
	Imbedded				✓	✓	○	/				✓			✓
Clearing					✓	✓	✓	(9)		✓	✓	(18)		✓	✓
Blazing					(3)	✓	✓	(9)		✓	✓			✓	
Signing					✓	✓	✓	(9)		✓	✓	✓			✓
Maint	Down timber				✓	✓	8	(9)		(13)	✓	✓			
	Erosion				✓		✓	✓		12	15	✓			
	Fill						✓	/				✓			
	Heel & tread						✓	(9)				✓			

Masc. Trail Notes

7/30 Trail Bridge on Pueblo Cr. near Los Alamos built last year. 40' long, 8' wide, 3" plank, 3 stringers. Took

10 man days @ 2.00 (incl board)	20.00
Lumber 1000' @ $25	25.00
Teams, 2 for 1/2 day	6.00
	$51.00

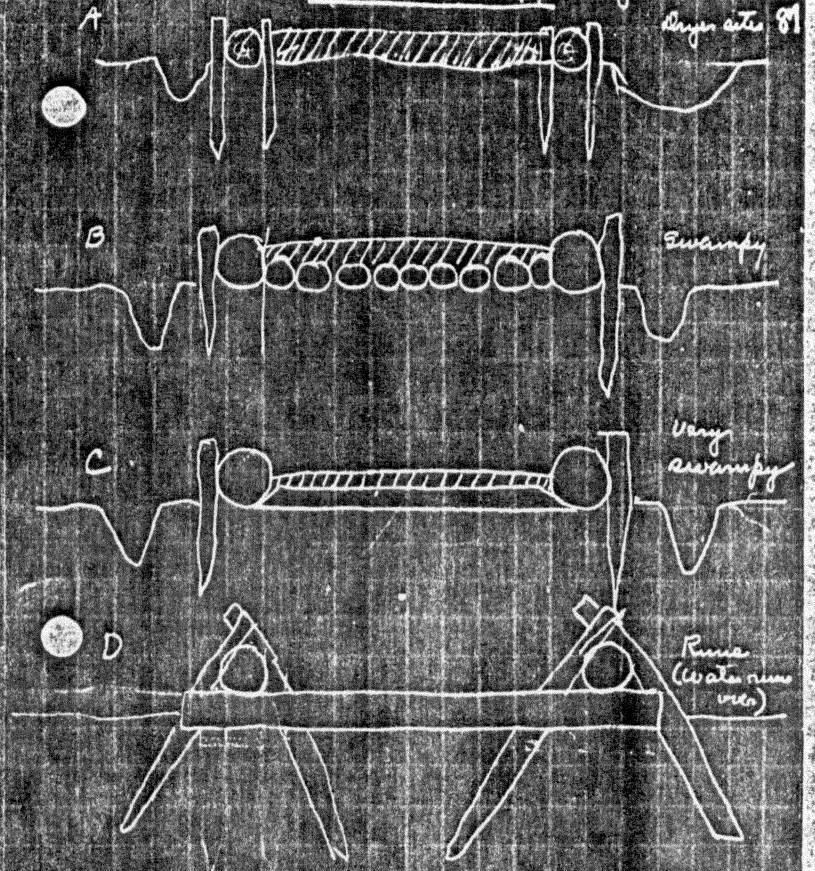
7/1 Frijoles upper Crossing Built by Lease & Carter, ranger labor, no powder or money. An excellent and durable job, but full of rocks due to cattle cutting the switchbacks. Could be stopped by laying log guards. On S. side of creek trail is sliding down hill because of lack of

7/11 Trail Drive Nagels crew (7 men, feed selves) being paid 2.25 (Nagel 4.00). Organization seems OK except that axemen had no file and were doing felling with dull edges. Suggest they be supplied with files and keep one sharp edge. No blacksmith or forge (no heavy rock work). Nagel seemed to have a good understanding of job except I dont think understood theory of obstructing fill.

7/11 Shortage of Foremen brought up in connection with Indian Cr trail. Timoteo Griego, who built Oramba-Capulin trail (one of the finest jobs of I seen anywhere) was not employed this year. As long as such men remain unemployed we are not at the end of our rope. Pincett brought up this point.

Suggestions For Cienega Trail on Upper Frijoles

7/10/38



All work to be graded toward drainage point, at which point type D to be used to let the water across over the trail.

"A" is as per Trail Manual p 42.

If possible sods to be filled in right side up so they will grow.

No rocks available.

E - GRAZING

1. Handling Permittees. As stated before, the big problem on the Pecos is not knowing more accurately what to do, or being able to back it up with technical data, but in persuading the permittees to do it.

My impression is that men like Pinson, working toward getting each community to run its own grazing on its own allotment, is the only promising possibility. Our job is by leadership, organization, and suggestion to steer the community, rather than to try to supervise each of its members individually. This is essentially the D-4 method of handling large numbers of small permittees.

2. Handling Applications. I am confident that this must be eventually thrown to the field and that this can be accomplished without offence to visitors. Even if the office helps make out an application, it could furnish the applicant an envelope to mail it to the Ranger, thus showing him that the Ranger must pass on it first. Such measures would, I think, change the present habit of coming to the office.

6/5 150 Applications have come in and been handled since closing date was March 1. 25% of these came in accompanied by Ranger recommendations. Notice of the remainder were acted on after Ranger Rec. because certain Rangers have learned passed the buck back. Heretofore it has not been custom to demand ranger recommendations.

6/9 Permit Records Grounds has tabulation (large) brand, earmark, name, C. H. S.B.C., allotment, carrying capacity, exempt stock, seasons permitted. Learned this on Cursory. Camps in cautious.

6/12 Goat Damage From Sims Recommends to write along the boundary to an almost continuous chain of "summer" ranches obtained by various trades, act of June 11 under from which goats were grazed. Every ranch has undivided area of 40 to 100 acres around it, beyond which no splendid reproduction which came up after the old. Cuttings but before these ran this were located. Most of this reproduction is beyond the reach of goats, but in many places the goats subsist entirely on weeds and the ranger finds which no Trigger to fell the remaining openings. Grounds some of these ranches the ouds brush so all dead and there is literally nothing to eat but grass. The boy could clear of it so that our own lands we could get as 75% stand even with goats. But use well quit 100% without them.

6/20 Mpiegan Tank Needs $300 for repairs of dams & enlarging spillway. Should also be fenced, brushed, and planted with willows or cottonwoods. This would exclude grazing by equally because rest of stock.

6/24 Bayou Lumber Rangers are moving to new location (average distance 6 d miles go d) much assessment work (mining). It seems to me both these objections can be overcome.

Rangeing Recommendations Units 0-3

1923

Forest	Year	Chief Party	Acres	County	Permittee	Field	Other	Total	Cost	Total Field	Cost Examining
Cocs.	1916	Jackson Tidwell	1,643	Gila	Jackson Tidwell	.814	.284	1.107	$1,820		
Tonopah Test	1917-19	Hibbert Tidwell	274		Reed Aline	.75	.27	1.02	1,820		
Coal	1914							.125	180		
Coconado	1915		369		Nile	.98	.54	1.52	5,220		
Sequoia	1916		433		Hill	.30	.50	.80	3,500		
Cascade	1919-21		875		Robins	.36	.42	.78	6,200		
Cascade	1920	Coop. Tidwell	553		Coop. Tidwell	.96	1.50	2.46	13,000		
Shasta	1921	Coop.	519		Coop.	1.00	.88	1.88	9,850		
Santa Fe	1921	Peasley	528		Peasley	.90	.66	1.56	8,250		
"	1922	"	551		"	1.50	.60	2.10	12,000		
			6,208			180	.56	1.37	83,502		

1.64

6/29 Machine Shearing (Bruyere & Newenport)

Items	Machine	Hands
Wages per sheep	10¢	8¢
No. per day	150-200	100-110
Wt. per fleece	6/2-7#	less (madam suttelene)
Proportion grease	2/3	less (guess rawhide)

6/29 Rancon Bonds one of worst examples of overgrazing I have seen. FEA remembers this was heavy brush grass. For about 10 years there 100-150 cattle run it for about 3 years and annihilated the brush grass, although shrubs, trees, weeds are still usable. Stocking now reduced & changed to sheep (Services). Some short grass survives under bush, probably occupy the area, same as on Bacon Location.

6/30 Bonds Fences (Young) does favor the centre contracts, according to Brewer. Observed this on Pacos.

7/10 Grazing Appln in case of Bonds permit on media clause was inserted that he might run on Fraydes if permitted by Ranger. This was done by office without consulting Parsons. Result: Bonds hinder immediately uses Fraydes without permission. Shows bad effects of office action rather than ranger action on 6 applications.

7/12 Fremont Attack on Overgrazing problems

1. Burning fences. (Not enough range to pay for it)
2. " Draft fences (would be disastrous economy)
X 3. " Jointers" agreeing to pass progressive
4. Conservation Communities

6/17 Barker - Mossmans Case Scott made an final investigation in October and rendered a decision on May 26.

Barker challenges whether this decision as per the letter is the same as that verbally rendered on the grounds as to: 1. Location of fence. Tree-corner marked Tree-spring.

2. Close of season - Nov 30 (or Date of available feed) instead of Oct 31. This was to favor Beaver.

3. No. of Mossmans cattle to count with Barkers on Beaver & Hollingers fenced out 40 head by Scott. Barkers & Applebees claimed number this was unreasonable to be in accordance with decision on grounds Below rent clause was this.

Comment Young said neither has right to this knowledge Scott made any notes on the days of the conference.

Barkers applied for use ex tenancies Nov 30 to year-long on 20 head. Not acknowledged or acted upon so there were technically trespass. This Mossmans are using as a change of trespass and as justifying his crowding deer bluff onto Lower Beaver this summer. This appears from the letter of 5/26. So not fair for us to force a trespass and then recognize it as a breach of the agreement?

Young suggests acknowledgement of application now due to take long now 210.

Mossmans are running black cattle (Angus, Galloway) to know Barker is running Herefords. The cross does brand it less. Mossmans left an invoice of fences. Sheep not cut till forced to remove them by Andrews. (Moved all but 8 out of 20, B. 2 days)

Possible Compromise Fences M. to give up his 40 head on Beaver; B. to give corner of Barkers ranch. spring on N. side below draft fence.

The meat of this dispute is Mossmans claims of preference on Beaver, which if it is so is based on unpermitted use. See letter 5/26.

6/9 Library. There are very full sets of building and many technical books at Ballivian. Shouldn't these be consolidated for Supervisor's library?

6/11 Inventorium at Sawmill Reservation R.S. 4 P.M. Felled stumps up to 1 1/2" x 1 3/8" x 1" by actual measurement. Same alone 1 3/4 x 1 1/2 x 1 1/4 after 5 minutes heavy use. Some of Radcliffe and some concentrate in cutting.

6/12 Cutting Area. Founds No. of known records. Possibly trespass. Boy named Lucas getting fourteen dollars a day cutting down big Brown = 200 prop. poles to Lewis Kelley made 100 skids on ground. All sizes from very small (4" at butt) to large (about 8" at butt & 8' long). Says knows nothing about Cubic. Made cuttings this spring. Ground uneven no corners or lines made cannot see stakes.

6/25 Johnson Sale. Stumps mostly good; brush poor on many places; worst part is trees not windrowed up for burning and neither called nor scaled. Also some places where blocky made, were marked by Brown and a few made scarce to mill. Johnson's cut scribed D.F. without marking & Chamula Perry had permitted etc. Perry says not true. Snowdrift fuel on creek banks not satisfactorily disposed of.

6/27 Sheep Enclosure & Reproduction. Endeavor to obtain reliable exclusion for proposed White Pine Lbr Co. cutting areas. Cedar fence lines about 1/2 Circles recommended. Bonyeno allotment along roads route as necessary.

6/29 Cajamolco Working Circle. Plan by Andrews & Moore. 70 yr cycle, 140 yr rotation, based on 18" tree (because means with not grow bigger timber). All figured successfully except on two canyons. Limitation by 10 yr periods = for decade beginning 1923 11,000,000 ft. First cut 30001, seconds 3500. Rivers from Santa Clara to St. Johns drains Grants reserved. Mostly by gas mills. Figure one mill of 10M capacity. Circle includes 25 million on Bonyeno. 60 million left [illegible]

6/29 Hughes Sale. Mill burned Sept 1921. Leaving 350M on the woods, all scaled & paid for. White Pine not required, cut - much of the reproduction as of that species. Making with dog openings. Windfalls of 2 per acre. Fair log scale trees. Stumps rather good. Brush "to be lopped & lay as it falls."

6/29 White Fir usually sold for 2.00, W.P. 3.00. Could not this be made lower to advantage?

6/30 McCready Sale. Pay removed means cutting 3 C ft mill. Log Rule is nice especially good brush disposal and good marking with effective clearing along of roads. Mean timber runs 15 logs per M as compared with 7 per M for Baldwin. Felling 75¢ and 55¢ for narrow gauge tree. Felling conducted @ 10¢ per log. Cut for year 1785M. Stumpage 3.00, no fire, stump may 14" tops 8". 66% cut guaranteed - Uncle plots showed this exceeded.

7/1 Buckman Cutting on Loomis Ranch first bridge from the north. 19+3=22 yrs old; 14+3=17 yrs old. Cuttings supposed to have been between 1895 and 1900. Thus, as well as the reproduction on Hughes sales, indicate strongly as to time for reproduction cloven up to stumps to survive cuttings, as shown latent seed to come up after cutting.

7/6 N.M. Lbr Co Sale. Range memo 5/5 recommends sale of Ballivian tracts of Chamisa down different. Cinderella memo may 12 thinks 0 cuts improbable.

6/5 Carlos Dunn of 1st Nat'l Bank Bonita says they are cashing traveller's checks of tourists at rate of $15000 per mo.

6/4 Sullivan Lots The canyons above the patented lands is very attractive but I think should be held for recreation rather than sold. There no much private lands below, most of which must eventually go to summer homes. Future people will need somewhere to go. The canyons are too dark for many to climb out and the upper canyons are the logical places for them. No roads are needed except possibly for a short distance above the uppermost meadow.

6/26 Sulphur Springs Ivyng listed for $100,000. Refused one offer of 15000 recently.

7/1 Park at Fogelis

Room & board in the area per day 25.00 per week

Horse to use of [illegible] per week 5.00

Use of Saddlehorses [illegible] per week 10.00 per day

Sleeping [illegible] (Reid's Resort) 3.00 per week up

Tent rental 40.00 per [illegible]

Meals in resort dining room $2.50 [illegible]

Pack Burro $7.00 each per night

7/6 San Simeon Indian Land 28 at Jenny Lind Camp ground obtained. Have not time to keep for overnight.

6/5 Look up muddying of Pecos & above timberline Excluded areas.

6/9 Grazing Research Carnely assign Asst. D.P. Kennedy, Agronomy Dept, U of C, Berkeley, to be first on the work. Write to him what he does. In general, he has not much faith in many of our native grasses, except for "Tiffy" - our exotic.

6/11 Sheridan Place was also made an examination of fences and fences for field to Cuttle Canyon.

6/14 Bluegrass on Jenkins above Wasserman plot up to 22% (Kennedy Ranch) has come up (100 lbs/acre) to 16-18 density of bluegrass. Soil granitic & short. Deer Range for cattle. Cover above much as for [illegible] factor - no [illegible] on [illegible] of W.P. Dale Brooks, & Jenkins.

6/14 Abbey Williams request Hensley no appearance why to use. Then will [illegible] Santa Fe could [illegible] [illegible] to D.O.

6/21 Bluegrass at old corral about 4 miles up Jenkins Creek to be starting examples of Kennedy Cuttle [illegible] of stock closing out and protection of little glades which have since come on [illegible] bluegrass. Ranger to more completely tabulate [illegible] including the glades nearby.

6/28 Tank gulleys Tanks on [illegible] with grading [illegible] on Tanks on [illegible] [illegible] [illegible]

125

Exchange

6/9 Las Vegas Grant contains much deserable forest land that is being heavily culled for props and ties.

6/11 Same with Gross Kelley lands N. of San Lorenzo.

6/11 Ranger Functions in Exchange

1. Data on Land Values
2. Talking to grazers about comparative fees, preferences, stability.
3. Talking to grazers about continuity of area, policy etc.
4. Employment, Roads & Trail advantages, on N. F.

6/12 Props are being cut off private land down to 5" on the stump. This means culling the leaders out of reproduction not yet in the pole stage and often only 12' high. We had better get hold of this land promptly or we will lose heavily in the next crop of timber.

7/9 Homesteads for Exchange. Are places like Pinson place on Tesuque and Williams place on Ewmedio being listed? Seems to me they should be.

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Agriculture

6/17 Oats & Peas Barker plants 50# Swedish Select oats and 50# San Luis Valley stock Peas. Cuts when oats is between milk & soft dough. Yields 2 tons & better per acre. Seed from Jenkins, Antonito. Alt 7500'. Will do just as well up to 8500'. County agent is advocating the above. Would be a little better to get an oat 2 weeks later with strong straw like Swedish select.

Erosion (Cont)

7/13 Wesley Bradfield, School of Archeology, working on climatic changes, ethnological evidence. Andrews will look him up.

Kirk Bryan working on geological aspects of erosion. Look up his stuff.

Conclusions

1. Develop question of permittee responsibility for erosion control as a condition of grazing permits.
2. Develop gully-plugging habit while riding range.

6/4 Rankey says there are 2 elk (presumably draft fawns Pecos herd) on Eaton Ranch S. of Lemay. Also a pup he has 130 deer.

6/6 Whitetail Horns Taken & raised by F.R. Stevenson on Pecos

Age	Length above beam	Description
1½	5"	1 spike with brow tines 1 spike started to fork at end
2½	7"	3 points & brow tine each horn
3½	9"	Same except longer
4½	12"	4 pts & 2 brow tines, 1 side. 4 pts & 1 " " , other side

6/6 Whitetail on Pecos Stevenson says elk means Windsor saw great bunches on Pecos on elk days. Never only the little bunches on Mesa. (See map)

6/6 Bears on Pecos Says most of the bears clear up on head of Rambler and go over the divide immediately on emerging on spring.

6/9 Recruit Party Cook Vocation See Recruit Party, Pecos.

6/10 Turkey Nite Hawk says Lovejoy killed 2 turkey on Johnson Mesa weighing 22# & 24#; both old Gobblers. Verify this.

6/11 Young Turkey Wood seen by Ground June 1 nearer Longmeadow ranch a little bigger than quail.

6/13 Rainbows on Lutesville Reservoir grew to 10# same H. says Hawk says.

6/14 Bainbridge S.E. Cimarron, Gallinas, Sapello.

6/14 W.T. of Douglas James Newton says keeps grizzly of Texas 10 Banana on Polar grew to El Paso Zoo. When he died there he weighed 810#.

6/27 Deer Feeds (Bankers) Elk Feeds (Pankey)

Winter	Summer	
Sumac & Cornus Alba	Willow	Cornus Sericea
Mt. Mahogany		Aspen
Mt. Willow		
Ceanothus		
Wild Peavine		
Virginia Creeper & seed pods		
Wild Cat Sage		
Brown weed (?)		

Gobbling Bug Complex Bankers dine on 3 cases; alder beaver, underbrush coyotes rubber tires & pockets. Not always sure deep snow.

Rustling, Buzzing Insects do smells curious; Bankers says. Hear butchering under shade & suppose meat on [illegible] pockets & hunt them & show up promptly.

Trout on Alder Lake (probably Rainbow) planted in 1919 were 14" to 16" long 4 years later (See Edwards, Cimarron)

Turkey feeds (Bankers) (Nagel & Gregory)

Wild Oats	Pinon nuts
Rosehips	Pine seeds
Mast	

Wise Bears Pull Cone (Bankers) Annually adds to fewer (more to eyes) until teeth after which death as accompanied by cone and Rewards process of general weakening with both claws & teeth, mostly latter. True as to black bear particularly.

Wild Plums taken by coyotes, seeds build, Bankers says.

Cock Pheasant Apparently leave hens as soon as they begin to nest. Bankers & Edwards 4 on head 3 of hens which in high yellow fence — he crowd calls or like hens crowing meaning laughing up in the Aspens.

Pinons & Turkey Dubois one says he once knows killed 3 at Wing 5 Jan. (Watrous Mesa) 1921 during very heavy Pinon crop. Birds were poor and crops crammed only pinon seeds & bugs. No absence of shrub & grass. Thinks turkey cannot [illegible] thickets.

Elk Horns 2 double brow tines. Horns bi Rangle brow tines formed by Herman Co Harney at Harney Ranche about 1890. He said there were more left there when he came on 1882.

1 double tine formed on Elk Mt on 1920 by R. Springfield Panamint Route Las Vegas

Sheep Horns formed by R. Springfield on Ramparts above of Harney Ranche 1922. Underground, discolored with iron. Bone was thin head. Alkaline?

Double Backwards Withered before electrum - after the last gold dealer tried to make some molasses except at least she wouldn't.

Special Flies recommended by fishermen for Pecos River: Grey Hackle (yellow), Grey Hackle (yellow) Grey Hackle Yellow Body and Hackle Brown Hackle. Is this the northern Rocky rather than S.W. variety?

Length, Inches	Where Obtained
23"	(R) 1 brow tine + 3 tines 5"-8" long + pt. Beaver Cr. 4 3/4" max girth beam
24 1/2"	(R) 1 brow tine + 2 tines 6"-9" + pt. + tip on beam
	(L) 1 " " + 2 " 9", 1 with tip, + pt. broken Beaver Cr. 4 5/8" max girth beam
20"	(R) 1 brow tine + 2 tines 6"-7" 3 1/4" max girth beam
20"	(L) same. Beaver Cr.
20"	(L) 1 brow tine + 7", 7", 4" Girth beam 4"
18 1/2"	(L) 1 brow tine + 6" fork and + 5 1/2" + 2 1/2" Girth beam 3 1/2"
16"	(R) 1 brow 1/2" + 6" + 4" + pt. Girth beam 3"

Bear Killed June 1. 5' x 5'. weight est. 130# female fat. Claws 3" max. straight across front 1 1/2" back 3/4". Hair on back 3", light, brown color. Weight on scales 115 pounds 17 1/2" diameter arm across way up. Tip with pt. Stomach full of Ochre.

Buffalo Wallow (Rutledge) Horse feathers sumac 5 a small bunches near Las Tequesas W. of Sumter Fe near Cienega. Knew they were in Botanical Valley. Cienega record wonderful shows been about 1883. (Baby Lynch - mentioned Durham bunches on Arroyo - wonderful Comanche exact date.

Tuesday Quail Season of Cuchata to Buffalo Hunter & would have conversation.

Incidental habit of old bulls spring to 1450

7/1 Fayetteville Bundaker says hunt on "Delight Makers" but Judge A. J. Abbot says there were more when he came in 1908. Some then been shocked times, principally Cattle Canton Branch. First fields first run at upper land by Ranger Chapman in 1910. Second shocking by Boyds in 1921.

7/9 Whitehall, W. side Small bunches sloughs near Labadie Ranche Smiles NE of Fremont Pt. station. Quail season opened. Together three are big ranch hazel burgs recalls as very small deer when they say no more ex terminated, which used to prove no ranch regions. Sonora clear?

7/12 Turkey Weights Gregory says he killed and weighed 2 turkey gobblers on Eleventh Mesa last November. They were 22# & 24#. Both fat, one so full of pinon and pinon seeds.

7/12 Pinons & Turkey. See above. Johnson Nagel also told Andrews that there is no doubt about turkey eating pinons.

Notes of Interview with John P. Bengard 6/23/23
Superintendent N. Mex. State Fish Hatchery, Pecos N Mex
AL & FEA 133

1. Identification of Trouts

Species	Color Spots	Color Belly	Remarks
Native (Bl. Spotted)	Black	Redish	No spots on front of back or nose
Rainbow (Steelhead)	Black (small)		Spots on nose. Reddish band all along side
Eastern Brook	Mottled & Small pink	Brownish	White edge on all lower fins.
German Brown	Brown & small pink	yellow	Rear under fin reddish

2. Temperature Requirements

Species	Optimum	Max.	Remarks
Native	40°-50°	60°	
Rainbow	50°-60°	70°	} endure a wide range
Brown	50°-60°	70°	
Brook	50°	60°	Endures alkali & minerals

3. Data on Growth at Hatchery

Species	Size	date	Size	date	Remarks
Brown	11"	5/1/22	18.5"	3/1/23	Wt. 4.5#. Caught in Peas
	by Irvin.		Contained 6		rainbows 4" to 7½" long.
Rainbow	Hatch	Feb	2¼"-3½"	now	
"			12.5"	13 mos	Wt. 0.75#. Forced feeding.
Steelhead	Hatch	5/1	1¼"	now	
Brook	Hatch	1/1/23	3"	now	Ready to ship
Native	Hatch in		4 wks at 54°		From Eagle Nest Dam.

Measure 6 to the inch.

Interview with Bengard (cont) 132

At Colorado hatchery with temperature 47° eggs take 40 days to hatch, 20 to "eye up" and 20 to come out. Govt figures 5 days longer period for each degree less temperature. B. thinks more.

Size of Eggs The fatter and younger the fish the smaller the egg; the older and thinner the fish the bigger the egg.

Max. trout eggs 3 to 1", 90 to fluid ounce.
Min. " " 10 to 1", 600 " " "

Color of Flesh is matter of food, not species. Insects produce white flesh. Fish & especially shrimp produce pink flesh.

Water Temp at Hatchery springs 54°F; probably ponds are 1° higher. Rio Grande at Hot Springs 5 miles below Elephant Butte 51° in April. Colorado Hatchery 47°.

Feeds ground liver shipped from Pueblo butcher shops in 50# cans 8¢ per lb + 1½¢ postage = 9½¢. Bill $100 per mo. Now considering dried fresh water herring from Mich.

Costs No accurate cost keeping. Eggs cost $2.00 per M f.o.b. Lisboa. Little fry ready to feed (3/4") figures cost him $3 per M
Fry (3-4") " " " 3.50 " "
Fingerlings (4") " " " 5.00 " "

Hybrids occur between native & rainbow (both spawning in spring). Brook & Brown spawn in fall. Hybrids have proven fertile up to 5 years, beyond which fertility goes down so they cannot be used in hatcheries.

Stocks
Eagle Nest Dam: Rainbow, natives, & hybrids
Elephant Butte: Steelhead (Rainbow)

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I - ORGANIZATION

1. Staff. There is a general impression that the present kind and degree of specialization and distribution is working much better than anything so far tried. My impression is that it is a good scheme, and that it is understood and worked sensibly.

2. Districting Conclusions.

Pecos:

1. It is physically possible for Johnson and two assistants to cover present Pecos District. Travel map shows it.

2. At least one of these must be trained (Panchuela) for the present scheme to have a chance of working well.

3. Grazing and fire conditions prevent splitting of present district.

(Above not agreed to by deputies. Pincetl doesn't know, King would divide north from south but in favor of first trying out present scheme)

(Present allotment is 2½ men - Cowles position allotted yearlong but only asked for for 6 mos.)

Las Vegas:

Must be one-man and one district. Heavy and lots of packing but no other way to do it.

Cochiti-Santa Clara:

Can not be successfully combined. Sales have declined but will not get any lower. Now taking 2-3 days per week of Espanola Ranger. Land Exchange might change whole layout but would still be only two. Bland man would move to Jemez Springs.

Coyote-Gallina:

Problem is getting men to stay. Now have a man in Rodriguez. Therefore present arrangement would stand. (King would favor splitting but in favor of testing present scheme) Now working out of Coyote and Capulin Ranger Stations.

3. Inspection Trips. See Analysis, N.B. p. 107. There is a healthy tendency toward more thorough inspections, and no danger of this going too far.

A map has been compiled showing all staff travel on or near the Forest for 1922. The preparation of this record is very commendable. It shows about 6 areas of a twp. or more on Jemez not seen, and 4 on the Pecos. This, however, is not an accurate picture. In general, it is my judgment that the map indicates need for freer use of pack trips after reaching a district by motor.

4. Ranger Work Plans. In general, good. For detailed review see N.B. pp. 108, 109, 110. The form and content of the ranger plans are more satisfactory, however, than their actual use. There is lacking the habitual use of job lists, necessary to bridge the hiatus between the Annual Plan and the daily grind and give the two a vital connection with each other. The result of my drill in job lists is as follows:

Ranger	Jobs Agreed on in Field	Jobs Found of Record at end of Trip	Per Cent Found of Record, end of Trip
Ground	16	10	62%
Pinson	6	2	33%

I am entirely satisfied with the staff's understanding of Ranger Work Plans, and the progress being made. I suggest abandoning the follow-up copy of monthly schedules coming in to the Supervisor. It is a dead letter anyhow.

5. Forest Program. Exceptionally good, with evidence of actual use. I am returning herewith my copy with pencil suggestions for additions accumulated during my trip. These may not completely cover all the suggestions in this report.

6. Santa Fe "Tally Sheets" a creditable effort toward progress. These are not a tally sheet of detailed facts but rather system for recording general conclusions as to condition of a district. Such conclusions could very logically be based on tally sheets (not necessarily the printed ones) and the Santa Fe sheets could be revised for this particular function without greatly changing them. Viz: Tally sheet O-6 would give the detailed facts about fire tools by caches while the Santa Fe "Fire Sheet" would give a conclusion as to whether the general condition of tools on a Ranger District was unsatisfactory, improving, good, or excellent.

7. Indicators of Good and Poor Administration. See N.B. pp. 92, 93, 94, 95. This is a new and promising device borrowed from Kelley which I recommend as a cumulative record for Supervisor's use. It is needless to say that the entries are not necessarily of equal weight. Keeping one of these is

especially beneficial to the Inspector in helping him keep his balance.

8. Notebook Methods. Good progress and the utmost open-mindedness by the staff, but no general realization among the Rangers that they could profit by a notebook system.

After two year's observation of the attitude of the notebookless Forest officer, my conclusion is that the root of the difficulty lies in his aversion for and distrust of cumulative records.

After all, the entirely subject matter of notebook systems deals with one form or another of cumulative records. If the "patient" believes that cumulative records are impracticable, burdensome, or impossible, they are just that for him, and a notebook system is impossible. We must begin with a, b, c's and teach by showing that some simple cumulative record is not only possible but easy. The rest will follow in due course.

The broad outlines of a Supervisor system is given, N.B. p. 91. This is simple and better than the system outlined in my Manzano report.

9. Diary Analysis and Use of Time. The activity chart, N.B. p. 105, is a year old and is shown as a suggested method of graphic analysis, rather than as a criticism of use of time.

Summary of Analyses extended from the calendar year 1922 to the F. Y. 1923 are shown on N.B., p. 116. The improvement in Johnson and Ground deserves special commendation.

10. Methods of Travel. The cabin-and-pasture idea as an aid to progressive riding has taken firm root, but can be still further extended to advantage. Advance storage of grain in these cabins would facilitate their use. Organization, as distinct from mere purchase, of pack outfits would also help. Some of the ranger mounts are of questionable quality.

11. Office Organization. 1 Executive Assistant, plus one male trainee, plus 1 steno would relieve the present overload on Pettis due to handling shipments. An attempt is under way to make this adjustment.

12. Ranger Paper Work. There is a gratifying absence of complaint among men like Moore, Perry, Johnson, and Pinson.

13. Standards. Little progress toward the formal development of local standards, but I think we are coming to it, whether we label our action as standards or something else.

Just a random example: brushing phones. There is great need of a definition generally applicable and acceptable as to what constitutes satisfactory work.

14. Symptoms of Load. Unquestionably the Santa Fe is now loaded on this basis: that a job that is obviously necessary and that preferably should be done at once, must nevertheless wait its turn in the work plan on a priority basis. Only a radical improvement in methods can greatly expand the capacity of the present organization to absorb work. I believe this improvement is possible and actually under way, but nevertheless we should recognize that some day the force must be increased or the work must be culled over and something dropped.

89

Job List Habit

Has staff noted these jobs?

1. Providing follow-up for guards.
2. Game refuges, Jimmy & Pecos
3. Some arrangement to tide over till pocket status complete.
4. Small Notebooks - did they get to all Rangers? Perry none.
5. Reduction of grazing business coming to office
6. Agreement with Counties re road maintenance
7. Decision as to Pecos Road Maint.
8.

Has Ground noted these jobs?

6/16

no 1. Fastening stubs to poles, phone line to Trout Sprgs?
yes 2. Providing for follow-up of Lookout firemen?
yes 3. Game Refuges, east side. Work up.
no 4. Combining fire tools in 1 place, under seal or FS lock
yes 5. Look up officers, owners, & govt Las Vegas Grant.
no 6. Figure out needed additional Jmps & area to cover.
no 7. Using Priests in fire prevention.
yes 8. Looking up need for ridge trail S. from Barrillas.
yes 9. Boundary posting S. end
no 10. Devise system for map corrections
yes 11. Run Gerons lines to see if timber trespass exists.
no 12. Carry varnish for signs & fire posters
yes 13. Install Platform & railing, Barrillas Tower.
yes 14. Spring for Receiver hook, Barrillas Pk. Guy wire
yes 15. Clearing & brushing Big Cross - Bull Cr. Trail Signs.
yes 16. Setting wire above Harvey for stubbing below Station

10/16 = 62%

95

Has Perry noted these jobs?

1. Water bars in School Section Cr.
2. Down poles in San Pablo
3. Excess property at Bluebird
4. Cross-drains for Elsebird Road

7/12 Has Prisoner noted these Jobs?

yes 1. Thorough overhaul and relocation of defective sections Borrego phone line
no 2. Study need of additional cabin in Frijoles and
no stocking cabins with grain.
yes 3. Better brushing Borrego trail
no 4. Commending Labadie for erosion control works.
no 5. Agreement re maint. S. F. Canyon

Indicators

Good Admin.	Poor Admin.
Tesuque District	
Admirable progress in fire cooperation, Truchas, Cordova, Cundujo, Nambe etc. Getting help of settlers to build phones; development of perdeem guards. Organization of salting by Cundujo permittees. Realization of urgency of overgrazing problem on damaged areas.	Poor condition Borrego phone line. Non-use of notebook while riding.

Good Admin. (Remarks)	Poor Admin.
Reviewing Santa Fe Tally Sheets and giving them a trial.	7 Circulars since Jan. found on Galleries files which they had never seen. Poor team work in the office.
Pick-up in Records & Information use of time as a result of Ranger Analysis.	No time to use Rangers in preparing for Land Exchanges.
Aggressive handling of private lands postings on Peaks.	Supervisor personally directed C Recons Party which has spent $25,000 data on this Forest Ridge rock discovery that Rangers on east side descant Know this land lines or district.
Intelligent trail maintenance - Blueline - Sulphur.	Errors by Dist. Lead crews on Peaks Revision this lack of proper supervision.
Excellent past records, good cooperation, and good construction of new RDT Santa Clara Boat.	Defective procedures for follow-up, Hermits Pk & Truchas Look Points.
Effective management Plan written by Rangers and Supervisor working jointly, Esp. annual working circle.	No circulation of reading matter or stimulation of use of Library facilities.
Interest in noticeboard systems and other improved methods by staff.	Occasional approval of C Appl. without reference to ranger. Too much grazing business coming to office.
Excellent past construction and trails.	
Elimination of Aspen Pic guard and Ranger at Borrego through development of fire conservation.	

Good Admin.	Poor Admin.
Mora San Miguel	
Field days since 1/1 at the rate of 23 per yr above average; overnight at rate of 16 above average.	1. No provision for follow-up of Hermit Pk. Lookout - Firemen. The made Visio Cir. a Class C
Made a "Self Ranger Analysis"	No cooperative relations with County Agent
Entire frankness in discussing shortcomings of district administration	No attempt to use permits to get forestry across to natives. Carries no stallion and wholly unimpressed one land lines, fences, & cuttings on S. end have been over 8 on Public Range trail on which has spent money this spring.
Low percentage of "unproductive time" (Factor three 3+4+5)	Failure of line officers to note obsolescence of platform needs of Gravillas Peak Tower.
	Does not know or consider cultural & historical
Espanola District	
Alamo Cow Crossing; getting cooperation, good construction, economical construction.	No follow-up for Ranger Fireman on Fire Plan
Low cost & good construction Ojo del Oso Trail	
Creditable relations with Los Alamos Schools	

Indicators

Good Admin	Poor Admin.
Pecos District	
Field days since Jan 1 at the rate of 47 days per year above average, as against 8 days below for 1922	Poor work at start on maintenance Escoba & Indian Cr. trails.
Aggressive attack on problem of private land lines through use of winter time. (19 days in Jan & Feb)	
Facility in deciding on jobs & passing on problems of 2 assistants.	
Cuba District	
Thorough understanding & practice of trail principles, Bluebird - Calaveras maintenance work, 1923	Poor condition of Fire tools. Excess property at Bluebird. Not combining telephone with trail maintenance - Bluebird Sulphur Trail
Stock Association lined up	
Good relations with difficult permittees	
Use of Priests in fire cooperation	

Summary of Santa Fe Field Time 1922

2/26/23 101

	FEA	RK	MP	Total
Santa Clara	15	17	8	40
Bandelier	6	0	14	20
Cochiti	1	1	31	33
Cuba	5	9	5	19
Chama	12	11	3	26
Galling	6	9	0	15
Tesuque	22	10	1	33
Panchuk	8	12	3	23
Mesa	11	16	8	35
Mora	5	9	20	34
S-M	91	94	93	
Aver	101			
Misc	31	13	4	
	122	107	97	
Aver	128			

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PERCENTAGES OF ACTIVITIES OF RANGERS, SANTA FE N.F. F. Y. 1922

	Ground	Johnson	Lemley	Moore	Perry	Peterson	Pinson	Rodriguez
1.								
2.		.006	.041				.022	.003
3.	.072	.093	.114	.077	.231	.096	.179	.2163
4.	.098	.066	.042	.015	.246	.096	.084	.002
5.	.026	.012	.029	.010	.017		.052	.085
6.						.002	.009	.030
7.	.146	.019	.022	.029	.023			
8.	.174	.043	.110	.018	.121	.041	.051	.049
9.	.032	.026	.020	.016	.032	.037	.009	.010
10.		.003	.004					.001
11.								
12.	.082	.224	.012	.196	.121	.166	.106	.042
13.	.082	.159	.148	.120	.136	.166	.161	.168
14.	.060	.016	.057	.326		.287	.115	
15.		.022	.029	.016	.008	.023	.023	.024
16.								
17.				.040		.348		
18.				.034				
19.								
20.								
21.	.024	.023	.053	.009	.004		.003	.026
22.			.004					
23.	.017	.020	.014	.006	.025		.003	.037
24.			.003				.006	
25.	.205	.237	.247	.071	.183		.140	.234
26.	.056	.011					.001	
27.							.003	
28.		.005						
29.	.024	.015	.051	.017	.099		.033	.073
	100	100	100	100	100	100	100	100

Santa Fe N.F.

RANGER TIME - PERCENT - 1922 FY

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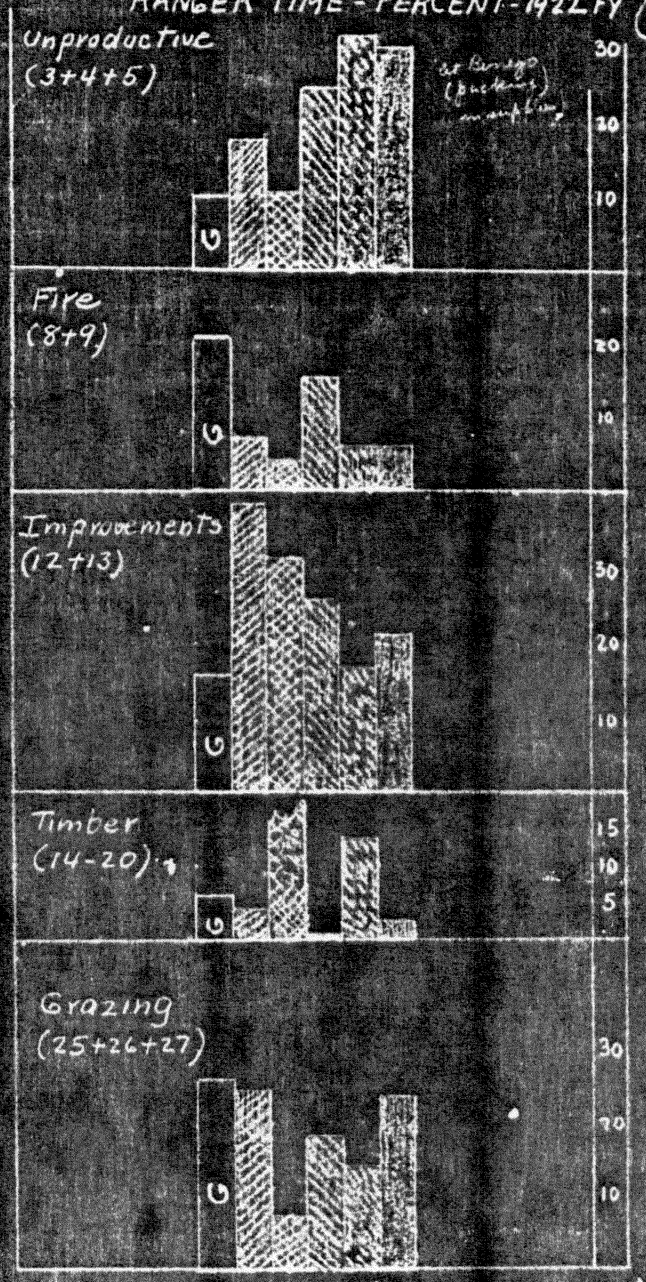

AK 4/6/23

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Work Units 1921 FY Revised for Present Dists

Men			
①	Ground	Mora-San Miguel	2350
③	Johnson	Pecos 184, Panchuela 216, Sands 220	6200
②	Moore	Santa Clara 264, Cochiti 124	3880
①	Perry	Cuba	2340
①	Pinson	Bonego 109 Tesuque 109	2180
②	Rodriguez	Chama 167 Gallina 156	3230
	(Lemley) (Bandelier)		
10		6	20180
	Per District	(D-3, 2420)	3723
	Per Man	(D-3 1800)	2018

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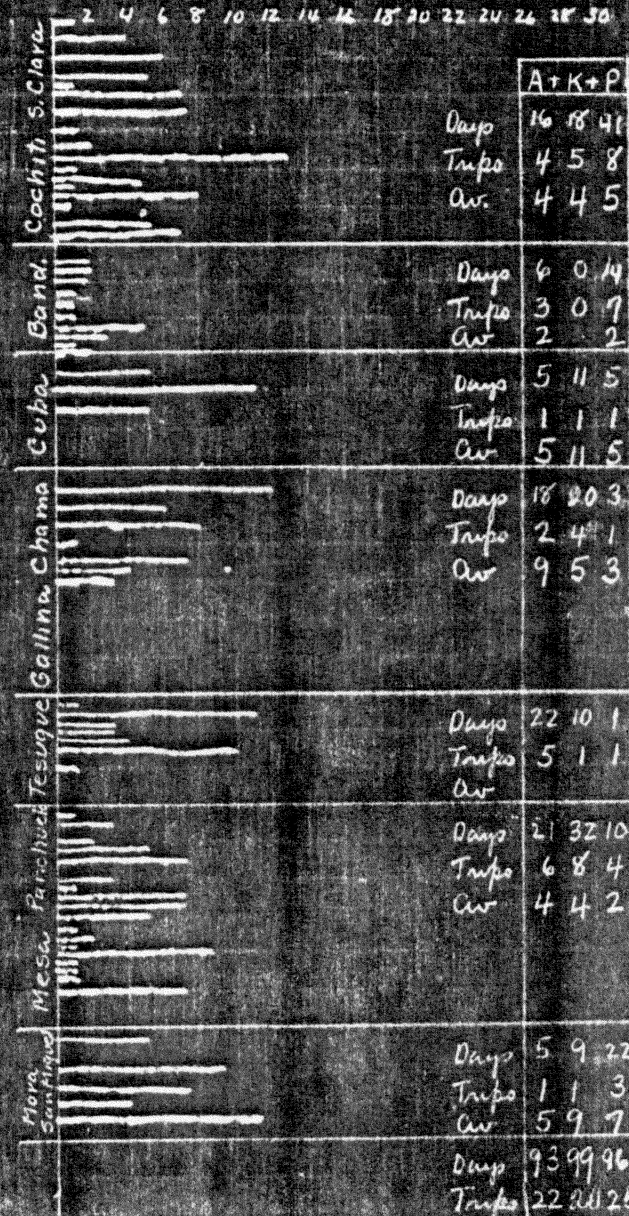
Length & Distribution (approx) of Inspection Trips
Santa Fe N.F. – 1922



	A	K	P	T
Days	16	18	41	75
Trips	4	5	8	
Av.	4	4	5	
Days	6	0	14	20
Trips	3	0	7	
Av	2		2	
Days	5	11	5	21
Trips	1	1	1	
Av	5	11	5	
Days	18	20	3	41
Trips	2	4	1	
Av	9	5	3	
Days	22	10	1	33
Trips	5	1	1	
Av				
Days	21	32	10	63
Trips	6	8	4	
Av	4	4	2	
Days	5	9	22	36
Trips	1	1	3	
Av	5	9	7	
Days	93	99	96	
Trips	22	24	25	
Av	4½	5	4	

Average stay with Ranger

-35-

Fresno Progress Columns left at right for entering steps accomplishment each job. Plus has been used. Also spaces between jobs to add definitions, reassignment, & detail. Also Field Schedule (now obsolete) - Inge general, very good.

Ranger Work Plans

Santa Clara Arrangement like Fresno Prog, modern objectives. Good. Greatest defect was tendency to try to standardize, specify terminus, use "technical" phrases. For instance "Scarify one of each stocks" doesn't mean much unless it tells where one can refer to a list of the places where scarifying is practiced. "Annual renewal of boundary posting" doesn't mean much until it tells where to refer to a map showing status of posting and the standard of what constitutes satisfactory posting in various kinds of cover & conditions. Fire Prevention was discussed in 2 words. What was the subject of the annual campaign & what were the methods to be used about it?

Plans to show last units A & B jobs & should we have disregarded this distinction as obsolete.

Monthly schedules are good - especially as supplemented by notebook job books.

Las Vegas Format is fair. Advance heavier. Really little. Ex sample of good item: "Install new tool house at ____" then follows location. Remainder "Encourage better builds at every opportunity" has room for explanation except at index. Comprehensive effort.

Schedules also quite good but 3 items dated up to one month obtainable degree. Actual schedule every few pages not very readily obtainable of this plan.

Tenaya Fully up to the other rangers. Adequate. Inside form. Shows evidence of effort to reduce peak loads, eg working up seasonable wood during winter. Job list to be well tied in as to where & what, but like the others short, one reference to "Cookbook", Fire instances "made notice one suppression action, good or bad." A very worthwhile job, but would not one reference to Lake Plains p. 9 possibly result in cutting the labor in half?

Schedules good. Some pretty short.

Pecos Follows "objectives" like Santa Clara. A very good job, schedules mainly along showing dates for progress. Invariably 2 schedules even billed, but under "Fixed dates" the whole month is dotted up. I doubt favorability of this. No assignments to 2 crews. Certain jobs some monthly schedules might be profitably re-assigned.

Bandelier Mostly improvements. Has no other responsibility, except the wpa entrance, and handling tourists. Neither of these shown on the plan or schedule. I can't help but think that an item of Ranger's education could use the plan, even one involving tourists.

Cochiti Shows a very good grasp "Objectives" form, with Schedule quite favorable to shown quarter basis priority. Monthly provision to spare co-operation tasks than average. This one Scheme is quite good.

Chama One of the best plans I have seen. Very fully, much money jobs very faithfully stated. First to mention one of jobs definitely tasked as secondary emphasis. Believe that more jobs could be finished out of plants seasons. Last appendices of jobs not definitely stated but to be kept [illegible]. Schedule OK. Job assignment

Cuba As very [illegible] showing clear [illegible] Objective reference [illegible] have the work forces [illegible] fountains as [illegible] Very good distribution [illegible]

119 Tesuque Fully up to the other rangers. Admin. Guide form. Shows evidence of effort to reduce peak loads, viz: working up season's wood during winter. Jobs tend to be well tied in as to where & what, but like the others short on reference to "Cookbook". For instance "Make notes on suppression action, good or bad". A very worthwhile job, but wouldn't a cross reference to Gila Plan p. 9 possibly result in cutting the labor in half?

Schedules good. Some pretty short.

Pecos Follows "Objectives" like Santa Clara. A very good job. Includes many items showing desire for progress. Monthly schedules even better, but under "Fixed dates" the whole month is dated up. I doubt feasibility of this. No assignments to 2 assts. Certain jobs on monthly schedule might be profitably assigned.

Bandelier Mostly improvements. Has no other responsibility except 1/2 trip as to fire, and handling tourists. Neither of these shows up in the plan or schedule. I can't help but think that a man of Lemley's education could see a plan, even in handling tourists.

Cochiti Shows a very good grasp. "Objectives" form with colored ink symbols to show quarter and priority. Handles prevention & fire cooperation better than average. This ink scheme is quite good.

Chama One of the best plans I have seen. Very full, and many jobs very explicitly stated. First to mention as a job definitely listed incendiary suspects. Believe that more jobs could be pushed out of peak season. List appended of jobs not definitely stated but to be kept in mind. Schedule OK. Jobs assigned.

110 Cuba A very concise concentrated plan showing clear and progressive thinking. Objective references complete. In general I have the impression that it hits the vital points and is even better than it looks. Very good distribution of emphasis as among activities.

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SANTA FE DIARY ANALYSIS SUMMARY

By Aldo Leopold - June, 1923

Activity	Johnson	Johnson	Ground	Ground	Pinson	Aver.
	1922	Jan. June	Aug. Nov.	Jan. May	1922	1922 D-3
Sun., Hol., Lv.	68	46	58	37	31	50
Hdqtrs.	20½	12	24	19	36	34
" Imp.	2	4	9	7	22	15
Mail & Supplies	4	6	24	13	22	14
Forage	1½	2	9	3	33	3
Meetings, Court, etc.	1½	4		11	60	5
Office	52	62		80		53
(Pecos House)	43		85			
(Trans. Sta.)	7					
			3			
					12	6
Suprs. Office		6				11
Other Districts						0
Total Days	200	94	154	133	185	141
Commercial Sales	10	54	38	20		23
Other Timber	1	10	10	7	13	7
Grazing	42	36	40	31	28	68
Lands	10	56	11	10	5	16
Improvement	47½	22	35	86	16	16
Roads & Trails	32	22	7	10	38	12
Fire Fighting	8	2			4	6
Other Fire	12½	18	4	32	7	12
Game	2		3		37	11
			3			
			2			
Other Districts			3			2
Total Days	165	220	153	196	148	173
Total	365	360	365	365	364	364
Total days on overnight trips	64	50	81	89	91	73

J - PERSONNEL

(Confidential Section)

1. Training. There appears to be correctable defects in the training done by Johnson and Rodriguez, which are understood by the staff and will, I think, be overcome. This is, of course, a very important matter.

2. Study. There has been a notable omission of efforts to circulate reading matter, stimulate use of library, and in general to make a conscious effort to encourage the mental growth of the individual in a plan-wise way.

3. The Ranger Personnel averages high, but has some of the faults of age and experience. On the whole, however, it is an enormous advantage to have such men. I doubt if the Santa Fe could be run at all on an inexperienced personnel. Stability in such places as Cochiti is now one of the main problems.

4. Ranger Promotions. See N.B. p. 39.

5. Promotable Material. See N.N. p. 41.

General notes - Personnel

6/5 Personnel Survey, tabulated, 3/1/23, casts up status of employee, future possibilities, transfer plan if any, how to replace if lost. Practically a "classification of Personnel" - good idea. Filed with Forest Program.

°6/6 Training. I gather from King that Johnson did not do extra well in managing Peterson - personal relations were OK but he found it "less trouble to do it himself". I'm not sure that Johnson was duly called on this attitude.

6/15 Halbert for Bandelier, suggested by King. I think this an admirable idea.

6/30 Reading Matter. I gather that the office does not round - robin semi-technical or technical reading. Believe this is overlooking a good bet.

7/10 Lists of Reading Matter. Pinson suggests there be made available lists of books, bulletins, reports, magazines, etc. for men wishing to qualify themselves in sales, trails, roads, silviculture, etc. I promised him this would be done.

° See note under Peterson & Johnson 7/3

Conclusions

1. The rangers are an exceptionally able and experienced group.
2. They are not studying. Should be encouraged to do so.

Promotion

1420	1320
1. Moore	1. Rodriguez
2. Pinson or Perry depending on inspection.	2. Lemley

[illegible]

Prospects for Promotion

Road Foremen

A Moore & Johnson. Ready now. Also Perry Pinson

K Pinson (doesn't want it) - Moore (where personally interested in Project)

P Johnson, Moore, Pinson, Perry, Lemley

Timber Sale Men of high Grade (i.e. Forest management)

A Moore, Bosworth, Johnson.

K Ground (Scales only) Bosworth

P Rodriguez (is a sawyer), Lemley, Perry, Moore Bos. Pinson

Deputy

A Johnson - when faults corrected

K Johnson, Moore, Perry

P Bosworth, Lemley, Perry

PERSONNEL
Form 0-12
42 Santa Fe, N.F.
By Leopold

	Rutledge	Pinard	Pettyjohn	Pengra	Wurtz	Shadle	Hawley	Johnson	Arnold	Crider	Bennett	Kirk	Purtell	Andrews
Title	D	HR	HO	HR	HR	HR	HR	HR	HR	FR	HO	HS	HS	HS
	R	13	150	13	13	12	12	150	13	12	150	11	25	30
Salary	20	20	0	20	20	20	20	0	20	20	0	0	20	0
Date last	—	7/6/22	8/1922	12/1/22	11/7/22	—	—	9/1922	4/1/22	4/16/22	11/20/22	7/16/22	7/1/20	7/1921
Promotion														
Year's service	3	5½	2	3½	1		4	7	7	3	3½	9	11	116
Rating Order Supervisor														
Rating Order Inspector														
Poor Work Date letter														
Reading & study														
Debts														
Specific Conversation	✓	✓		✓	✓	✓	✓	✓	✓			✓		
Specific Reads	✓				✓	✓			Lots			✓		
Specific Writes	✓					✓			No					
Specific Progress rpts						✓								
Fire Review					✓									
Pearson W.V.P.					?				①				②	
Hufford-Work Posts									①					
Range Lectures	✓				?			✓	①				✓	✓
Recommended Routed Magazine					③	③								
Recommended Library						✓								
Recommended Non-shop L	✓		No	No					①					✓
Recommended Other			?		✓	✓					✓			

① Had not heard of it, and entirely favorable about admitting it. My impression is that he does not already read, has not been urged to do so.
② Had read it but not favorably with strong reasons as a criterion of advancement vs subsequent Repro.
③ Charles is one who not received Journal of Forestry, American Forestry, Timberlands, Products. Time is of importance especially Summer.

Bosworth

6/6 King says regards F.S. simply as training - has means and eastern offers. Also been "swelled up" by offer from Los Alamos School. Good man.

6/24 Told Andrews how highly he valued experience & training received. Told me he was sorry to be transferred before end of summer.

6/30 Moore said he thought Bosworth first came out without any particular intention of staying with Service but now might be induced to stay. Especially well liked by mill men and permittees.

7/6 Decided that he is to stay on Bland Rest rest of summer and then go on a big sale.

Doherty

6/15 Cassedy remarked his drainage work was excellent but contours & culture poor. Wohlenbergs Recorn work cited as best.

7/3 Peterson told King reasons for dissatisfaction were

1. Poor training under Johnson
2. Hesitancy by Rodriguez to give him orders until he asked for them
3. Very poor quarters

King thinks he was a better man than Bosworth - older and more "bottom". Got 1800 with N. Carolina state forester.

6/4 Personnel Survey considers time for Fryoles this fall. Would question this.

6/9 Did not know anything about Non-Shop Library or Dr. Long's Gumbel Oak findings. Apparently no student.

6/9 Asked what a "Working Circle" was during a conversation with King on game. Did not seem to know it pertained to timber.

6/10 Ground: Knew nothing about any game refuge on his Dist, nor had any function been given him in working up fire cooperation with Las Vegas Grant.

6/11 Seems to lack a healthy curiosity as to his surroundings. Didnt know cost of props, where they went, what County Agent thought farmers should do to maintain fertility, land lines outside forest. When I chopped down a pole out of a thicket he said we had "taught him something" - that he didnt know we were allowed to use pine saplings. Told King today he had concluded to resign as he wasnt able to satisfy anybody with his work. King told him to await the outcome of this inspection.

6/12 Eye trouble. Says this has prevented him from doing proper office work ever since he left the Carson. I told him it would surely pay him to have them attended to.

6/12 More examples of lack of information (see note of 6/11): Asked if Johnson had any lookouts.

6/14 Pers. Action I asked King if he were going to encourage Ground to stay. Said no - that decision was up to Ground after pointing out faults to be overcome & capacities to be developed. That Ground harbored the idea that he was not a good office man - that on the contrary he was weakest as a field man. This is true and an admirable way to put the case up to Ground.

Johnson

6/6 See note of even date re training Peterson under "general notes on personnel"

6/9 Trout Case Cassidy told King Johnson had pretended to go back to Pecos and then slipped back and caught the cook fishing. Later the same day he saw Cassidy in Pecos and did not mention the matter. For these reasons Cassidy was a little peeved at him. King says J. has always had trouble getting along with F.O. but gets along O.K. with users.

6/14 Anti-sheep according to King. Ambition is to eliminate sheep from Pecos, whereas it is best adapted to sheep, according to G Reconn.

6/15 Cassidy guessed maybe thought he should have gone up instead Pincett. Told him why not.

6/20 Andrews remarked on Johnson being moody part of time while out with us. Said this usually happened according to his observations, and might account for discontent of assistants.

6/23 King says made a big pick-up since promotion to 1420.

7/3 King says his trouble in training men is that he regards his large practical knowledge somewhat as a "trade secret" and hesitates to part with it unless it is specifically asked for. "Same way in fishing" - says King.

J. is a tremendously valuable asset if we can guide him into the right viewpoint and handle him just right
AL

6/6 King says health is again O.K.

6/16 " " his training, except that obtained from Shepard, has been poor, but that he thinks he can make a Ranger of him. I told him Hessler of U.N.M. had a high opinion of Lemley.

7/2 Mrs Lemley says Lemley's trying to his back prevents his doing much riding or chopping or very cold weather. If put back on a dist. would like one that can be worked from a buggy most of the time.

7/3 King believes his back is actually still bad but Pincett thinks this is a matter of Mrs L not wanting to go to Bland.

In general I have a good impression of Lemley - believe he is solid
AL

Cowles

6/21 Cowles told me he had not had time to show Lucero how to build a section of trail. His diary however shows at least 4 days on it. If he was not showing Lucero how to build trail, what was he doing?

4/23 Couldn't pack a horse. See Tally sheet.

7/7 Is Captain in the Medical Reserve Corps. Recently ordered to training camp for a couple of weeks.

7/14 Trail job turned out fairly well.

Can see no hope for making a ranger out of Cowles
AL

Charles

7/3 King doubts if he has much ambition. I dont see any evidence of such a lack.

Charles as an A-1 prospect. AL

Earl

6/4 Looks like a modest, capable, clean young man - very promising. Related to Mrs Purcell

7/3 King says one previous employer in Las Vegas thought he wasnt a sticker - sort of rolling stone.

6/4 Paying $20 rent at Espanola. Very attractive new 5 room house. Purcell says not saving anything.

6/14 King says M. has great apeed when he concentrates.

6/20 Had a talk with Moore, in response to his question about chance for advancement. Told him he was listed as deputy material and also for ranger promotion. Also that the biggest asset he could lay up for future advancement was a record for conspicuous success as a District Ranger.

Asked him if he would care to be considered as a Project foreman on roads. Said he did not want to be away from his family, but otherwise would be glad to consider such a proposition.

7/1 Possible that Moore's attitude is that of representing Espanola with the Forest Service rather than representing the Service in Espanola. Everybody talks about what Moore has done for the country in roads & trails.

7/14 King says that above matter is superficial rather than fundamental. Is sound at bottom.

At bottom Moore is solid and valuable. Could go as far as he wants to AL

58 Perry

6/6 King says has started a notebook system - only ranger who has done so.

6/16 King thinks he has staff possibilities.

6/30 Said he did not find time for much study or reading.

Did not see much of him but surmise that he is a real ranger.
AC

60 Pinson

6/6 King says an independent thinker, no education, exceptional ability in handling natives and much respected by them.

6/16 Cassidy size-up: Has his own notions of what his job is and does it well and don't care particularly what others think of his work. Has "poker face" as far as letting others know what he thinks of them. Actually knows & covers his district.

7/11 Remarkable achievement in handling natives, especially as to fire cooperation. Need.

Pinson is one of the surprises of D-3. A remarkable character and an invaluable man in just the right place.
AC

Rodriguez 59

6/16 King says firmly doesn't speak English - is thinking of moving east to teach them.

6/15 King suggested him for sales a/c experience on lumber operations. Afraid tho that race prejudice might be bad.

7/3 See note of even date, Petersen. FEA says he is not pro-native in Forest matters - on contrary has little patience with backward natives. Not raised in native community (Flagstaff)

Pettis. 61

6/4 Pincell says has been overworking and nervous - has a "blow-up" every once in a while.

6/4 King says been talking about quitting. That if he did staff would be hit against it as to accounts, which nobody else is familiar with.

7/7 Says around end of fiscal year he has had to work 2 or 3 nights per week. During rest of summer he has to work all day and Saturdays but not nights.

Santa Fe couldn't run without Pettis. Impressed by his command of his work
AC

6 - Recorm Party

Game Violation Cook Rutherford caught fishing Sunday May 27 by Johnson. Agreed to come and plead guilty. King says this will be enough. Cassidy not yet seen re this.

6/9 met Cassidy at Gallinas. Did not seem to think that his cook should turn himself into the J.P. unless Supervisor insisted. I told him I thought the Supervisor plenty lenient in not insisting on his being fired. He thought the "moral effect" had already been secured. How about the moral effect on F.O. and others who may hear about it?

6/9 Lister Cassidy remarked soft & fat & sciatica — hard to break in on field work. See note under Johnson.

6/10 Fire King said party had thrown in very well helping Rangers. Also had left clean camps. They left the San Geronimo station very clean.

6/14 Cassidy's sizeup of party; order of merit:

1. Stevenson No botanist. Very shrewd - good management.
2. Lister Good.
3. Renner Research Pathologist & botanist. Not practical.
4. MacDuff Will become very good. Not yet earning keep? because of inexperience.
5. Vacant. wants Arnold, who was poorer than 1922 bunch but better than present bunch except Stevenson.

6/14 King's Sizeup of Cassidy: Very excellent combination of scientific & livestock knowledge. Hard to hurry or flaster.

JCK OF V 1

D
Supervision
Tonto
Inspection

June 28, 1922.

JCK

MEMORANDUM FOR MR. KIRCHER:

You are scheduled for an inspection of the Tonto this fall and there are several things I noted that I would be glad to have you look into.

Cover Data:

Lands has worked out from the Classification a tabular statement showing cover conditions of the various Forests. The Tonto was classified as to cover as follows:

Grass land-Sage brush - - -	1,308,893	acres
Timber - - - - - - - - - -	291.276	"
Woodland - - - - - - - - -	266,710	"
Brush - - - - - - - - - -	241,183	"
Nonproductive - - - - - - -	16,487	"

You will get over a good deal of the Tonto Forest, and I would like your general observations as to the volume of the first and fourth figures. In my opinion the grass land-sage brush type has been greatly over estimated, and the brush type greatly under estimated. Perhaps if you discuss this with Goddard you can give us a rough figure that will more truly give the facts.

Joe Hand:

Hand has been working as an assistant ranger a long time, much of the time for Rencher. Last year he had the only case of over-night getaway. This year in a specific case, the Horse Mountain fire, he left it before it was out, and has been pretty thoroughly criticised by the Supervisor for doing so. In that particular fire he took four hours fifty-five minutes riding to it, whereas Rencher at a later date covered the same ground in two hours less. That means he is a slow rider. His health is not good, perhaps that is why he is so slow. Rencher does not believe he is a satisfactory assistant; at least he goes so far as to say he would rather have $300 additional money to employ a man when he wants him than Hand's services for a nine months period. All this was discussed later with Goddard, and I left on him the burden of satisfactory settlement. What I

tried to do was to make it plain that Rencher was responsible for reporting ~~the~~ dissatisfaction of his assistant and shipping him to the Supervisor if he could not use him, and that the Supervisor was responsible for getting rid of Hand if he is not up to par. Goddard rather feels that Rencher is too severe a judge of Hand and on the whole he is a satisfactory man. I would like to have you go into this particular case carefully when you are on the Tonto, and if Hand is a man who should go then get someone moving in the direction to bring this about. One thing we should bear in mind, that is we should not waste time and money on men who cannot become district rangers after as long a period of service as Hand has had. I am afraid his health will operate against giving him a District even in the absence of other possible drawbacks.

Sheep Guards:

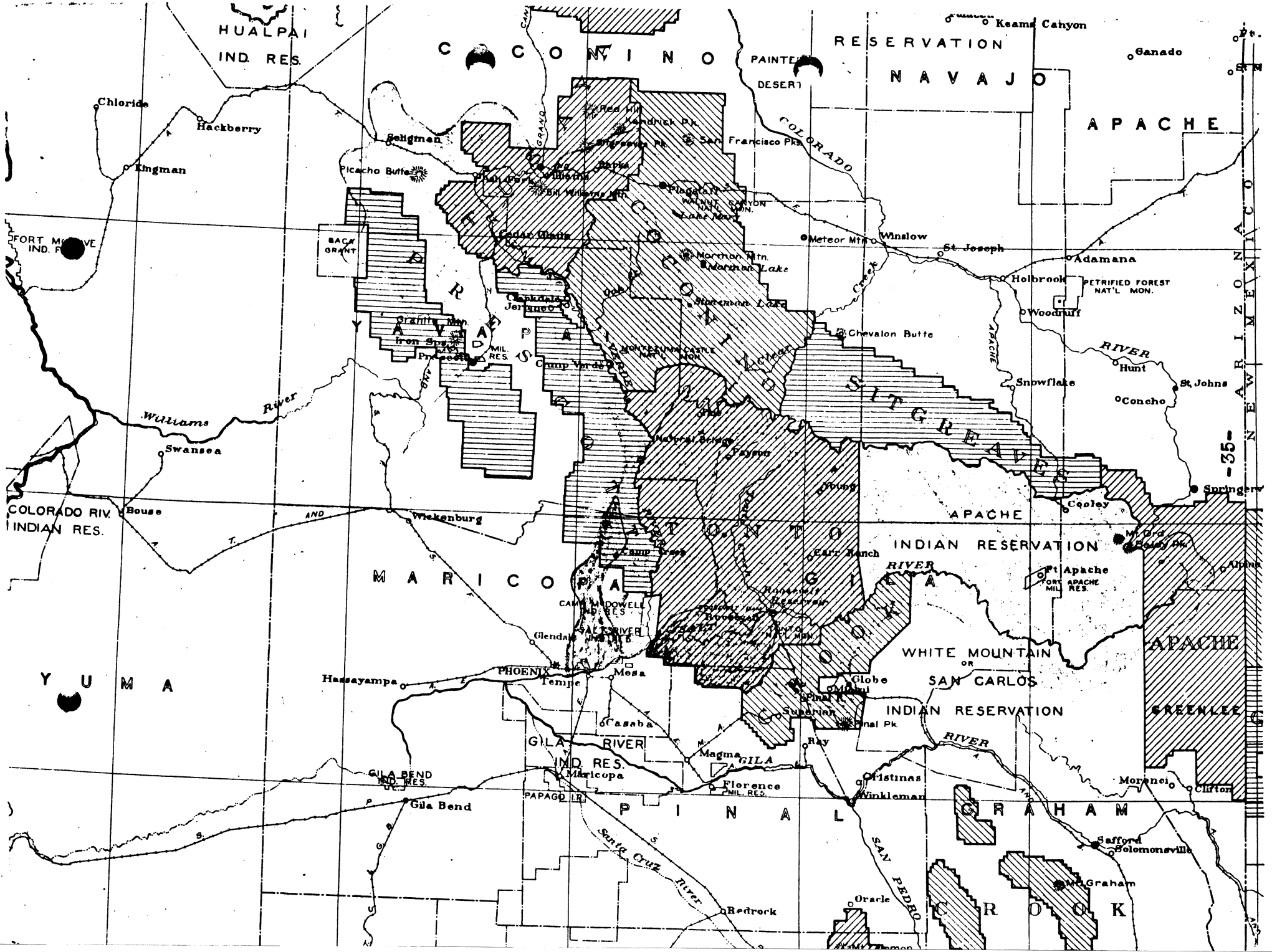
Please go into the sheep guard situation and see whether we are making ample provision for the Tonto. Last year the upper end of the Heber-Reno Driveway was not patrolled and there was a lot of trespass.

Fire Lookouts:

Rencher rather raised the question of the adequacy of the present lookouts. Goddard believes he is amply protected. Perhaps this will bear further watching while you are there.

Telephone System:

Rencher is anxious to get the telephone from the Thirteen ranch to the OW ranch and from there to Gentry Lookout. He believes this will be an excellent fire protection move as it will put a per diem guard in communication with the lookout and District Ranger and will give the Tonto the direct benefit of the Gentry Lookout's observations without delay. Goddard too rather figures that this would be a desirable improvement. Some eighteen miles of line is involved. Will you consider the proposal this fall?


HUALPAI
IND. RES.
COCONINO
PAINTED
DESERT
RESERVATION
NAVAJO
APACHE
Keams Canyon
Ganado
Chloride
Hackberry
Kingman
Seligman
Picacho Butte
Red Hill
Kendrick Pk.
San Francisco Pks.
COLORADO
Williams
Bill Williams Mtn.
Flagstaff
WALNUT CANYON NAT'L MON.
Lake Mary
Cedar Glade
Meteor Mtn.
Winslow
St. Joseph
Adamana
Holbrook
PETRIFIED FOREST NAT'L MON.
Woodruff
FORT MOHAVE IND. RES.
BACA GRANT
Mormon Mtn.
Mormon Lake
Stoneman Lake
Clarkdale
Jerome
Granite Mtn.
Iron Sps.
Prescott
MIL. RES.
Camp Verde
MONTEZUMA CASTLE NAT'L MON.
Chevalon Butte
Clear Creek
APACHE
RIVER
Hunt
Snowflake
St. Johns
Concho
ARIZONA
NEW MEXICO
Williams River
Swansea
Natural Bridge
Payson
Young
Springerville
Cooley
COLORADO RIV. INDIAN RES.
Bouse
Wickenburg
APACHE
INDIAN RESERVATION
Mt. Ord
Baldy Pk.
Alpine
Camp Creek
Carr Ranch
RIVER
Ft. Apache
FORT APACHE MIL. RES.
MARICOPA
CAMP McDOWELL IND. RES.
SALT RIVER IND. RES.
Roosevelt Reservoir
Roosevelt
Glendale
WHITE MOUNTAIN OR SAN CARLOS INDIAN RESERVATION
APACHE
GREENLEE
YUMA
Hassayampa
PHOENIX
Tempe
Mesa
Globe
Miami
Pinal R.
Superior
Pinal Pk.
Casaba
GILA RIVER IND. RES.
Ray
RIVER
Magma
GILA
Maricopa
GILA BEND IND. RES.
Florence
MIL. RES.
Cristinas
Winkleman
Morenci
Clifton
PAPAGO I.R.
Gila Bend
PINAL
GRAHAM
Safford
Solomonsville
Santa Cruz River
SAN PEDRO
Mt. Graham
Oracle
Redrock
CROOK

Personnel,
Croxen, Fred W.

July 23, 1923.

Memorandum:

At a conference in Flagstaff with Supervisor Swift and later with Supervisor Swift and users of the Heber-Reno Sheep Driveway, the matter of Croxen's alleged attitude towards sheep was discussed. This attitude has repeatedly been complained of on the part of the sheepmen.

As explained to Supervisor Swift, I have no good reason to question the reliability of the general statements made as to his attitude and feel that some of our trouble on the lower Heber-Reno trail is due to this. The matter of either moving Croxen from his present district or absolutely insuring a satisfactory attitude on his part towards sheep I have left up to Supervisor Swift with the understanding, however, that if I continue to receive complaints against Croxen which, on investigation, proved to be founded on fact, I may find it necessary to personally take cognizance of them. I am convinced that much of the friction on the Heber-Reno Driveway can be removed if a thoroughly sympathetic ranger were located on Croxen's district.

This memorandum is being filed solely as a reminder that conditions on the lower Heber-Reno can not be allowed to be complicated by the personal attitude of local rangers. There is no reason why the Heber-Reno situation can not be put on a workable basis instead of resulting in continual friction and to the extent that friction is occasioned by the attitude or conduct of our own men we must remove it.

Copy for Tonto inspection file

amount of time into grazing in view of the importance of proper grazing to Salt River Valley interests.

(5) Organization suggestions, page 23, which I understand are matters already under consideration. This matter of adjusting ranger district lines and relocating headquarters to suit present day work conditions and the like is very fundamental.

(6) Erosion suggestions, pages 33-45. These are very numerous and I realize you are actively developing plans in the direction they take, and are pretty fully agreed with Leopold as to what should be done. I especially hope you can put through the silt survey as soon as possible.

Your interest in the whole erosion question and in grazing as it affects this only confirms my confidence in your ability to correct present unsatisfactory watershed and grazing conditions and thereby render a tremendous service to the important agricultural industry of southern Arizona and to the State at large. Until watershed cover conditions and satisfactory control of such grazing, as it is found can be safely allowed is an accomplished fact, Forest administration on muchof the Tonto can not be claimed to have proven a success. You are in a peculiarly fortunate position by reason of past experience and acquaintance to bring about the desired conditions on the Tonto and in doing this will accomplish a service of a very high order.

I am particularly interested in the suggestion that time may show that grazing may have to be entirely eliminated from portions at least of the Tonto. You have previously advanced the same idea and feeling as you do about it, I am confident that you will make a supreme effort to successfully accomplish the scheduled removals of stock from the Forest this fall. This is a matter of the utmost urgency and a task of considerable proportions since, as I understand the situation, the removals, taking into consideration reductions in yearlong stock, the 8700 odd head of short season stock which should have gone off last fall but did not, and the 1922 natural increase, will likely run between 20,000 and 25,000 head. My understanding is also that these removals are needed to bring grazing down to 45,844 head yearlong plus the natural increase, the number tentatively agreed upon by Messrs. Kerr and Goddard to be reached by the end of the 1922 season. Mr. Kerr is not at all satisfied with this figure which was a compromise and is still some 5,000 head yearlong in excess of the carrying capacity for the Forest which is estimated to be 47,577 head of cattle yearlong basis. Before this figure is reached, it will be necessary to bring the number of stock under yearlong permit

See Mr. Swift's letter of Oct. 10 to Super. Tonto, Removals of Stock) and my reply of Oct. 12.

down to approximately 40,000 head and it is likely that even this is excessive considering the encroachments of brush and reproduction even if one were to ignore strictly watershed conditions. All of this leads me to hope that you will not only bring about as close to 100% action as possible on the scheduled removals for 1923 but will include in your 1923 grazing report specific recommendations for such further reductions as you believe necessary for 1924 and if you possibly can, for 1925.

The point I want to emphasize is that irrespective of whether or not our studies, experiments, silt measurements, etc., show that watershed interests demand total exclusion of stock from parts at least of the Tonto, there are pending and future reductions admittedly needed for range protection reasons that even on present watershed information, can not be avoided. If you will insist upon these adjustments as rapidly as they can be brought about and at the same time through experiments and efforts in various ways build up the information bearing upon the extent to which grazing reduction must ultimately be brought to safeguard the agricultural interests below and ways and means in which this can be accomplished without unfairness to the established stock industry, you will be focussing on the most important problem facing the District today. Offhand I would say that down to a certain point, let us say down to the point of conservative stocking, the livestock industry should foot the bill for reductions, since to change overgrazed conditions to good range conditions is not only in the interest of the Forest watershed but the stock growers themselves. If we determine that it is going to be necessary to cut below that point, then perhaps we will face a situation of working out a plan whereby the particular interests to profit by the final reductions, even to the point of exclusion, should foot the bill. What I want to avoid is destroying one established industry for the benefit of another without some recompense. At the same time we are a long ways from the point where reductions on the Tonto can be said to be made entirely in the interest of watershed protection. There is still heavy overgrazing as such and we all know it. I believe it will now be only a matter of a short time before the promised grazing assistance can be supplied you. Grazing appraisal has interfered with Hussey's assignment in the past but it will soon be possible to relieve him for work on the Tonto unless in the meantime, in the light of Leopold's report or of your own suggestions, a better plan for augmenting your force can be worked out. You are going to be pioneering in the studies work to a large extent and I realize that your plans will develop as the work progresses. It is enough to know that you are in full accord with the importance of the erosion-grazing problems ahead of you and the

need for early remedial action.

We are still awaiting the Tonto trespass reports growing out of failure to pay grazing fees. I hope that you will expedite action on these cases for you must appreciate that delay in getting the trespass cases before the court is going to mean delay in the removal of the trespass stock. My guess is that you are hoping fall sales will materialize and result in payments in numerous cases. You may be right but my hunch is that there is a tendency to hold back on payments until the Forest Service actually begins court proceedings for collection and that we are only delaying our own game when we hold up the inauguration of trespass proceedings.

I expect to be in southern Arizona the middle of October with Rachford, Kerr and Cooperrider on grazing appraisal matters, and after that meeting will have an opportunity to talk over any features of Leopold's report you believe should be discussed with us generally or with me individually. In the meantime the report is being forwarded as approved, subject to this letter and such comments as the Office of Grazing or other interested offices may see fit to make.

With best regards,

Very sincerely yours,

Frank C. W. Pooler

District Forester.

Enclosures-3

GENERAL APPRAISAL OF TONTO FOREST

Condition of Resources: As compared with the date of settlement (40 yearsago) the timber resource on the Tonto has undergone a vast improvement in productivity, while watershed and range values have undergone a vast deterioration.

As compared with the time of creation of the National Forest the same is true, but in less degree. The processes of deterioration and improvement were well under way before the Forest was established, and have simply continued since.

Effectiveness of Forest Administration in Conserving Resources:

Fire control has saved a material proportion of the young pine area from destruction. It began at the opportune moment when the pine thickets induced by removal of grass and cessation of fires were closing in and creating a new hazard of their own.

Grazing administration has slowed down the deterioration of the range.

Watershed deterioration has been checked in the pine thickets, and in some of the denser brush areas. These combined cover roughly 20% of the total area.

In a social sense, administration has been beneficial in preserving order and in building phone lines and roads. An important recreational service is also now started.

In general, fire control, phone lines, roads, and recreation are the only elements of our administration that could so far be called successful. The dominant objective - watershed conservation - has not been attained.

Analysis of Reasons: The principal factors affecting past success or failure have been:

(1) All of the big changes in watershed, range, and timber conditions were well under way previous to the creation of the Forest. No administration could have done more than mitigate or modify them.

(2) On a browse and grass range like the Tonto the penalties of overgrazing are not as sharp, clear, and immediate as on a grass range. Self-cure by starvation is postponed; cause and effect are obscured. The carrying capacity of the land is passed long before the point of a "die-off" is reached.

(3) The Tonto was withdrawn as a watershed. There has probably been less progress in scientific study of watersheds than in any other field of natural science, and certainly less progress than in any other subject affecting forestry. Accordingly, field officers have lacked the stimulus of being called upon to contribute to a body of knowledge on watersheds and to execute a growing watershed policy.

(4) Physical circumstances have been unfavorable to clear thinking from a conservation viewpoint. Pioneer grazing work in an inaccessible and in some ways backward community, with frequent public opposition and infrequent inspection, are formidable obstacles to accomplishing something that the local public has not asked for and only vaguely understands.

Business Efficiency of Administration: The Tonto has always tended to enlist and develop a strong personnel, but the present evidence indicates that most of the rangers are not performing up to their capabilities.

In the management of funds, there has been a sustained tendency toward fluctuating from one extreme to another in the scale of estimates and expenditures.

Planning work shows as very good in the office force and poor in the field force. The same is true of inspection methods.

Public Relations seem to be good on the Forest and extra good in the towns.

Organization problems have not kept pace with progress elsewhere. There seems much too great a variation in intensiveness of administration among various regions, but no well defined consciousness of this defect among the force. There are several overlapping jurisdictions in the form of "fire districts" but these are in process of solution. Much ranger responsibility was assumed by the office, but this is rapidly being corrected. In the past there has been a tendency toward overwork in the office. This is poor organization, but I think will be corrected by Supervisor Swift.

General Summary: The outstanding defect of the Tonto has been a lack of skill in the analysis of conservation problems on the ground. The consequence of this defect was a lack of stable fundamental policy to guide administrative work. All other defects, past or present, are minor compared with this.

This report makes no pretense of supplying any such analysis or establishing any such policy. It would be an

absurdity to base ~~either on thirty days~~ field work by one unfamiliar with Southern Arizona ecology. This report simply aims to set ~~forth illustrative instances~~ of the kind of observations, and methods of reasoning therefrom, which I think are needed.

Neither does this report state much, if any, new facts along the above lines. The bulk of my conclusions I find are familiar ground to Mr. Kerr, Mr. Talbot, and Mr. Cooperrider. But facts are useless unless they underlie the daily thought of the field force. The present staff will function along these lines, but the rangers have not yet begun to understand the problem, much less help solve it.

What I am driving at has nothing to do with technical qualifications. This becomes daily more evident.

C O N T E N T S

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G	Forest Management,	28 ✓	98-101
H	Lands - Miscellaneous,	32	102
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SEC. A - FIRE

(Note: All of the main conclusions of this report are as nearly as I know, mutual agreements unless otherwise specified)

1. Control of Hazards. Fire hazard has undoubtedly been increasing for several decades, both in the pine and woodland (brush) types. The fire record indicates, however, that control is getting better, rather than worse. (See N.B. 3a, P. 4)

The present question is: can grazing be reduced or eliminated in the interest of watershed without the benefit being offset by increased fire hazard and damage?

My reply would be, yes, even up to the total exclusion if that were found necessary. Reasons:

(1) Watershed is paramount, and there is no evidence that even the severe fires of pre-settlement days destroyed the equilibrium of the watershed. If they did, the damage was certainly not comparable to what grazing has done since.

(2) Exclusion could not increase the hazard in either pine thickets or pure brush. The only increase would be in connecting them by areas of inflammable grass. This might increase the possible size, but would not greatly affect the intensity or number of fires. The old fires were ground fires, entirely susceptible of control had there been any control. The new ones would "top out" in both the brush and young pine, but so do the present fires, which cover only 1100 acres per year, or about one third of one per cent of the present hazard area.

Of course, total exclusion should be avoided if possible; this is merely to record the opinion that we would not lose control of fire should it prove to be necessary.

Total exclusion would, of course, increase the cost of both protection and suppression, but it would decrease the MC risk, and these factors might roughly balance.

In the past there has existed an idea that the hazard in pure brush could and should be reduced by grazing through the building of trails. This idea should be dropped. Reasons:

(1) The hazard would probably not be reduced, even by heavy grazing. Non-palatable brush would simply close in on any openings made.

(2) Very heavy damage to watershed would occur on relatively open spots.

2 → STILL HASN'T FOUND THE KEY

(3) The normal type succession (replacement of brush by woodland) might be interfered with.

Of course this is no argument against trails. We need them anyhow.

2. Fire Plan. Supervisor Swift has dropped the old plan entirely, starting out afresh. This, I think, was a good move, provided the formulation of a new plan is not neglected. (See N.B.#2, p. 4)

There is a question in my mind as to whether all the present lookouts should be financed as primary. The resulting fireman expense may be avoidable. I did not try to make a decision, but left the matter open for study by Swift. Tentative conclusions and arguments to date are given on N.B. 3 & 4, p. 5)

3. Law Enforcement. The numerical showing is poor (10% prosecutions, D-3 average 25-30%). These figures alone, however, do not impress me so much as the fact that a ranger like Rencher had no idea of a plan for apprehending possible incendiaries. Here is a start toward a "tickler list". I wish the Tonto would undertake to amplify and perfect it, both for their own plan and for publication in the Fire Review as a sample:

Incendiary Plan

(a) Analyze all past MC fires for data on the following:

1. Motive — Wages? Range "improvement"? Private Feud? Anti-Forest?
2. How — Matches? Special devices? Wilful carelessness?
3. When — Season? Time of day or night? Special trip, or while riding range?
4. Where — Study occurrence chart.
5. Who — Individual or group? Isolate suspected persons.

(b) With respect to these suspected persons and their probable motives try to anticipate incendiary activity. For instance when they are

1. Discharged from employment
2. Denied employment
3. Denied grazing or other privileges
4. Trespassed or otherwise punished or feeling sore
5. "Broke"
6. Drinking

(c) Learn all you can in advance about suspects that might help interpreting clues if a fire occurs.

1. Horses, kind and size of shoes, gaits, feed used (for diagnosis of sign).

2. Automobile, kind and condition of tires.

3. What form and kind of tobacco smoked, if any.

4. When and where riding, for what purpose, with whom.

5. Footwear, kind and condition. Everything bearing on footprints, gait and other peculiarities.

(d) Miscellaneous.

1. Make sure lookouts keep lightning record daily.

2. Possible use of rewards in getting evidence (Manual, p. 4-T.)

4. Prevention & Publicity. Too many paper fire signs of the same kind occur in someplaces.

The prevention work heretofore done has been of the conventional type, and should be continued. There is room, however, for the use of strictly local ideas. For instance: do the stockmen know that every brush fire increases the proportion of manzanita and thereby decreases the quality of the range? If not, ways should be found for bringing this and similar points home to them.

Walter Lazear's point that fire leaves stiff dead brush that is impossible to ride through might be likewise used.

5. Suppression. I had a very good impression of the skill of the Tonto force in suppression work. The Pine Flat fire brought out one new point: that some country is so rough as to make night work on fires dangerous. In such cases I think it good practice to withdraw crews at night, taking advantage of early morning for work usually done at night.

The Tonto bears out my observations on the Prescott: that there is a lot to be learned about the behavior of brush fires. There is much evidence to indicate that brush fires seldom spread to great size, although the Catalina fire may have been an exception. Old timers say the fires they used to set in the Matazals had to be kindled in many places to get a partial burn.

Fire Plan (Dated 4/5/23) (2)

1923 Plan is merely a brief general letter (8 pages) emphasizing

1. Ranger responsibility
2. Rangers to work out details, consulting Mather Field & Gila Plan, and to submit sketch of it before opening of season.
3. MC fires, prevention work, figuring travel routes
4. Instruction of guards 3 days
5. Inspection of guards
6. Phone lines in good shape. Plan transport.
7. Equip. in shape. Store #20 provisions at R.S.
8. Test Calls set 8AM, 12M, 5PM
9. Elapsed Times. Wage Scales. Notice of Per Diems [illegible]
10. Reports.

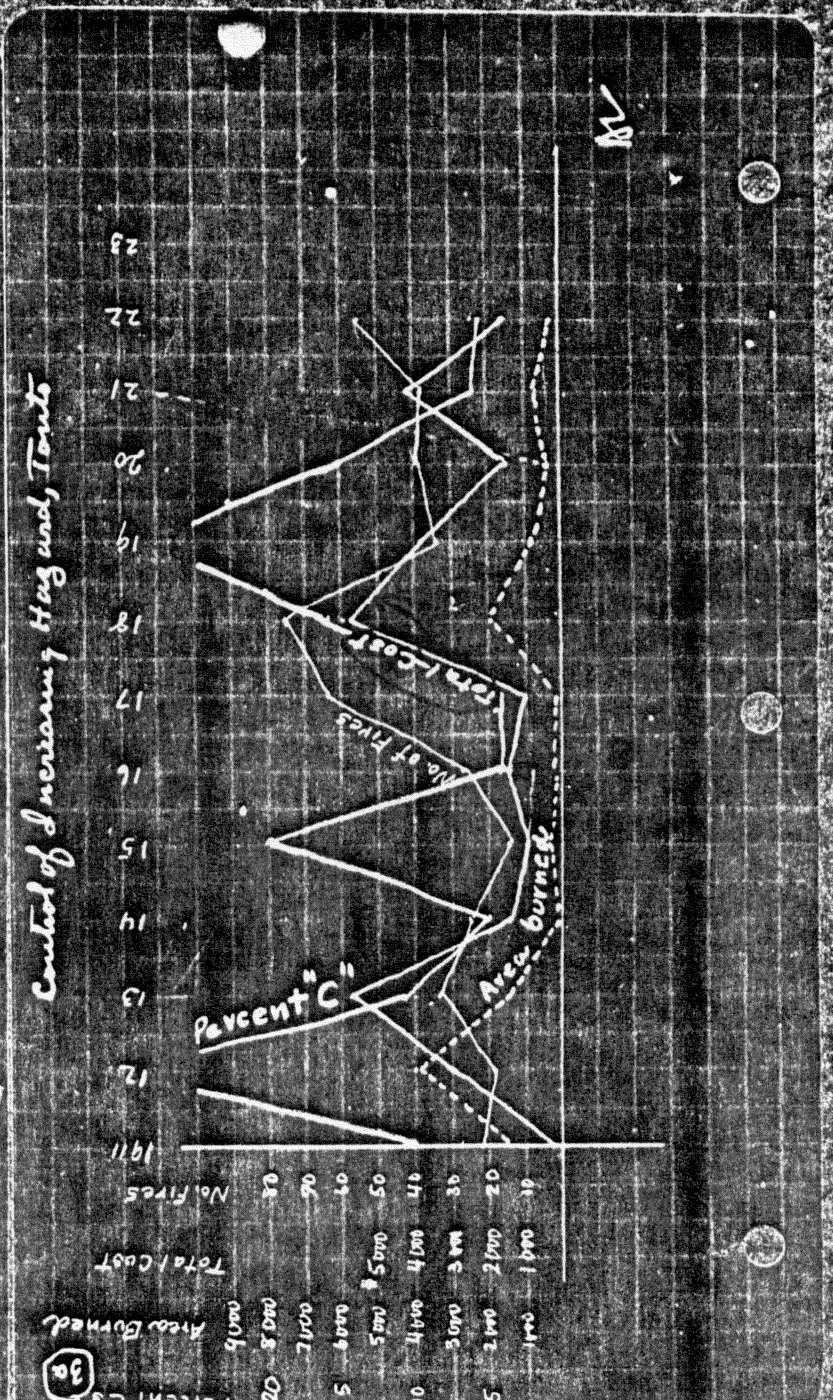
Swift says old plan was long, Rangers hadn't confidence in it, control was centralized at Roosevelt. Therefore cut it off entirely and started anew. Under these circumstances I think he did right.

The chuck list is light in comparison with Gila and runs to prepared foods. Might pay to reconsider it.

listed in Program Thought

8/21 Visibility Maps Kirby says no start made toward these. (See Cheney's 1921 memo - says being prepared)

8/28 Type Map One is mounted in office - made long ago - I don't know how accurate but will serve at least as a basis for building up a good one by gradual correction.



(3a)

(3) Sierra Ancha

Analysis of Smoke Chaser Question

		A	B	C
1916-1920 fires S. of 2nd Parallel				
10 fires per year	= 53 =	35 +	11 +	7
1921-22 13 per yr	27 =	18 +	9 +	0

Some fires in above handled from Reno & Pl. Valley. 8-10 fires per year handled by 3 guards Sierra Anchas, not allowing for out of season fires. Carrying charge (BNF) $600 + bonus or about $750. If I cut out $450. $200 additional insurance for extra safety.

Swift says cost of packing hay grain & water might equal 200. If this is true, arrangement is OK.

This fireman was obtained 7/1/22. Previous to that Ranger & Per Diem Gds did the suppression.

8/19 Reynolds Cr. fireman was carried 2/3 of the time out of trail funds and also used to pack to trail crews while Ranger at station. Also packed water to McFadden.

8/20 Per Diem Gds: Peterson, Murphy, Carr, Hall, Conway.

8/21 20 gals packed from RS every 12 days by Ranger or Fireman to McFadden. 1 good horse packed this — with keys would make.

Conclusion Enter on program for study practicability of

1. Reducing Pallotment for fireman and paying out of R&T
2. Converting one or both lookouts into Lookout-firemen, depending on per diems to hold down peak while they have gone to fires if conditions demand it.

(4) Diamond Point

Analysis of Smokechaser Question

	A	B	C	Total
1916-1920 in Sup. Zone	33	23	9	65
1921-1922 " " "	24	6	1	31
				7) 96 = 14

Previously fires handled by firemen from Indian Gardens. This year lookouts wife paid wages while he was absent on suppression.

James & Kirby want fireman continued but should live on top with lookout.

Absences on suppression this year not over 1 day and down to 3 hrs.

Area is covered by Bakers Butte and further out by Promontory. Neither sees close up under run. McFadden sees something under run but pretty far off.

Conclusion Present scheme of man & wife is OK as long as it can be done. Estimate for fireman should be dropped for next year if probabilities are that same or similar arrangement can be made.

Range Enforcement

Bayview Reading me of Pt Keepr records of lightning. Hadn't considered natural cause a genuine Bert Belanger - based evidence before JP when dismissed dropping case. A very good letter of warning is no trouble here. Jones thinks there are no incendiary rangers, in usual force. Has some friends however (Pete Haught) that might do this. Great "against the govt". Has worked into them through established personal relations. Anderson thinks there are some. Magetal Circumstances no conclusions. Had one fire probably set by a prospector to burn out another prospector but no proof.

Pleasant Valley Rencher thinks there may be an tendency towards incendiarism. Has had no cases of any specific plans for meeting it.

Summerhaven none.

Range Enforcement Record - Toronto

Distr.	1921			1922			1923		
	MC	cases	Inc.	MC	cases	Inc	MC	C	Inc.
Bruce				1			2	1	
Pompton				2		2	2		
Reno				0			5	1	1
Salt R				2					
Sierra Ct.				2			1		
Pl. Valley		1	1	3		1	7	1	
TOTAL	14	1	1	10	0	3	17	2	1

3 years, 14 MC, of which 5 were believed incendiary, resulted in 4 prosecutions, an effectiveness of 10%. D-3 has been running 25-30% last 3 years.

Conclusions: This work needs to be pushed, especially as carefully thought out plans to apprehend incendiaries as may exist. I suggested how this might be done. (see opp. page)

FIRE IMPROVEMENTS

Form 0-4

Toronto.....N.F.

Range.....Foothills.....

Place	Dist. D	Quarrel Pt Pompton	Cooke Pk SA	McFadden Pk SA	
Instruments	Orientation	1			
	Installation	(3)	(2)	✓	
	Condition	2	2	✓	
	Protection	2	2	9	
	Orientation Pt	1	5	✓	
			7		
Cabins	Shelter			(10)	
	Ladder sound			✓	
	Lightning wires				
	Guys				
	Gen'l repair			✓	
			8		
Lookouts	Location	3	✓	✓	
	Design		✓	✓	
	Repair		(6)	(11)	
	Furnishings				
Pastures	Wrangling time		✓		
	Condition		✓		
	Repair		✓		
	Use				

By compass sightings. Orientation point should be established. Point located on bases of new plat disappeared survey.

2. Protractor plate warped. Dont believe it should be left out all the year. Pivot loose and not level.

3. Likely suggestion warning cabin to top ends in ring of flame look alike houses of it, or using the material for smoke as houses. I think this a good idea.

4. About 5 acres brush, including some palatable browse. Necessary, however, to feed hay and grain furnished by guard.

5. Has 3 windows. Shutters but drawing not posted.

6. Overdue. Partly due to [illegible] but not all.

7. Suggest clearing some of the small black rock that obstructs view for one west portraction.

8. Doubt if workability of [illegible] house. Would look closer one inside room, which is very necessary.

9. Left outside. Believe should be taken in during winter.

10. Frames and canvas provided but canvas not used.

11. Unorderly outside. Roof of ungalvanized iron - might be well to paint it.

Conclusions

(a) Lookout houses needed over Devonport Pt to McFadden, using material from present Cabins and installing stand and map boards and fire finders.

(b) Establish & post orientation points, all lookouts

(c) Clear dead of interfering trees.

(d) Investigate feasibility of water-tanks on McFadden

(12)

FIRE EQUIPMENT

Form O-6

.....Tonto.....N.F.

By..Rutledge.....

| | Place | Flowerpot | Pine | Pingree | Pingree Branch | Pingree Branch | Pingree Branch

SEC. B - FINANCE

1. Morris Follow-up. All of the points of Morris's inspection of 3/18/23 had been met except the 861 method of keeping track of S.U. payments, suggested by Cheney. It was agreed that this should be done.

2. Charging Guards. Anderson has not understood heretofore that it was entirely proper and desirable to charge to R. & T. any guard time actually so used. This has resulted in missing some possible G.E. savings.

3. Wage Scales seem variable, unstable, making it hard for an outsider to judge what we should pay.

In the future, scales should be correlated with the Crook, Prescott, Sitgreaves, and Coconino.

4. Mileage Control. At present there are not enough roads to encourage excessive mileage except as to mail and supply trips to town, and these have been rigidly regulated in the past. No other control attempted except to set maximum allotment.

5. Forage & Travel. It is impossible to deduce anything from past figures because rangers did not make a rule of paying their way at ranches. This is now being corrected, and standard rates established for meals, lodging, and horse-hire.

Forage comes to about $115 per horse per year due to high freights and poor pastures. This is about $30 above average.

Only about $60 ranger travel was charged to R. & T. last year. The prohibition on this will therefore not affect future G.E. travel allotments.

SEC. C - IMPROVEMENTS, QUARTERS, EQUIPMENT

1. Condition of Phone Lines is poor (See N.B. #10, p. 10) and service poorer than on any Forest I have seen. Much of the trouble must be due to poor brushing, poor splices, poor grounds and other easily remedial defects. Needless to say, the removal of these obvious defects must be a first step toward a cure.

I can not avoid the impresssion that the poor condition is partly due to poorly organized maintenance and the nearly universal habit of not carrying a sharp saddle axe. About $4.00 per mile was available this year in cash. Mr. Swift says $2.00 per mile was found sufficient for repairs on the Crook.

2. Globe-Intake Line. Mr. Swift has decided to build this metallic, which I think is wise. He has taken great pains in negotiating for good prices on good materials. All wire on hand lacks only 10 miles of a #9 metallic circuit to the Intake. Eventually there should be a metallic circuit as far as Reynolds Creek. An effort should be made to trade the #9 for #12, but if this can not be done it will be better to use the #9 than to re-ship.

3. Private Phone Connections. This is a troublesome situation, the high points of which are covered in Swift's letter of September 4 and Mullen's reply of September 7. I am not entirely satisfied that our existing policy is adequate to cover the situation, even with skilful management by the Supervisor.

4. Summary of Proposed Action on Line Troubles.

1. Brush to at least a 3' clearance.
2. Install switches to enable stub lines to be cut off, and on main lines to facilitate ringing in one direction at a time.
3. Overhaul all grounds not yet covered. Pond them at guard cabins or wherever else there is a doubt about their being good.
4. Solder joints throughout system.
5. Reno-Payson line to be made all #9 instead of part #12 as at present.
6. Insert "niggerheads" in ties where tree insulators split.
7. Build Globe line metallic circuit, eventually to Reynolds Creek.

TELEPHONES

(10) Form O-5

.....Tonto.....N.F.

By..Leopoldo.....

From		Tonto Cr.	Indian G.	Workman Creek	Reynolds
To		13 Ranch	Payson	Creek	Hall ch
D		8/11	8/12	8/20	8/21
Lines	% Seen	50	20	50	75
	Route	✓		✓	✓
Support	Poles	/		/	/
	Insulators	✓		✓	✓
	Ties	✓		✓	✓
	Tension	(3)		✓	
	Brushing	4	(5)	○	(7)
	Lightning wires				
Place				Castle Pk	
Attachment				✓	
Weather Prot.				✓	
Batteries Re.				✓	

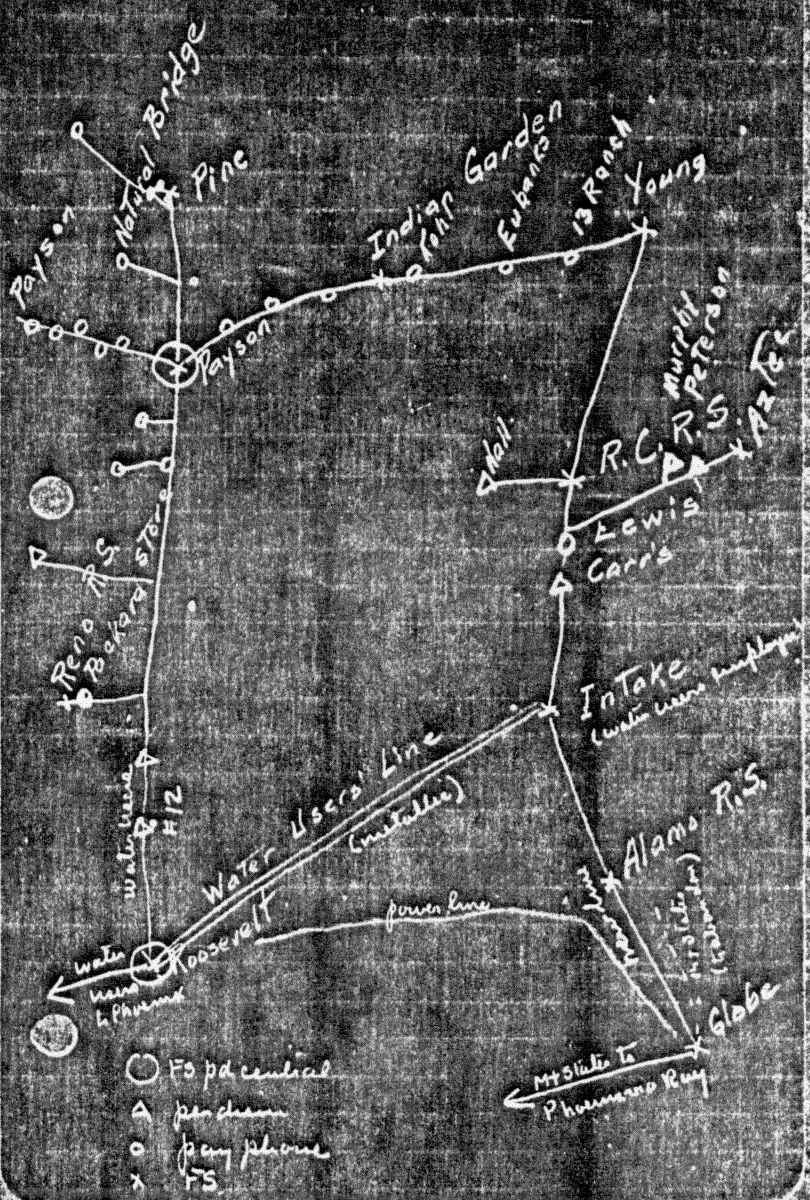
(11)

1. Very few brackets. Instead used double dead ends O.K.
2. Link ties on E end, plain ties w end at Swifts suggestion. He says links wear in two. I would incline to doubt whether they wear in two as fast as a non-link tie crystallizes.
(3) Seems to me too tight throughout. Afraid breaks will occur.
4. OK for a beginning but eventually should be brushed to standard clearance in my opinion.
(5) In places a good deal of brush that must touch line in wet weather. This is case near H. Haught Jr. Ranch.
6. Suggest ponding the rod for dishwater.
(7) This is a private line but has brushed on it everywhere and is a drag on our line.

(25)

Tonto Telephone System

(new line to be metallic till power line out of Globe is passed)



-10-

5. Quarters. The crying need is for ranger offices. Both this office and the Tonto should strain every resource to provide them, even though smaller and cheaper than we eventually need. The two back rooms could be left off if necessary at first.

The Reno water system is urgent. This office can not prescribe the remedy for this situation. I told Mr. Swift to go ahead on any feasible arrangement.

STATIONS & HEADQT'S.

Form 0-8

.....Tonto..... N.F.

By...Kneale.....

		Place	D	Prescott Hdq	Reno	Dana	Rodeo Grande	Pinegrove	Reynolds Cr.	Chaparral Rd.
Maintenance	Orderly	House		?	③		○	✓	✓	✓
		Office					/	✓		✓
		Barn & c—			✓		/	✓	⑬	✓
		Toolhouse		✓			/	✓	○	✓
		Outhouse			✓					
	Clean	Grounds		?	✓			✓	○	✓
		Storeroom							○	
Protection	Fire	Flues				8	✓	✓		✓
		Extinguisher					/	✓		
		Ladder					✓	✓	✓	✓
Sanitation		Water supply					✓	9		
		Sewage		2						
		Garbage								
		Manure					/			
		Flies			✓		..	⑦		
Land		Maint. fertility					/	11	14	
		Erosion			11 ✓		⑫	✓	14	16 ✓
Tools Equip & Supplies		Excess		1			5			15
		Condemn						✓		
		Repairs			12					⑮
		Shelter			✓			✓		⑮
		Arrangement		✓	✓		⑥	✓	⑬	
		Use			✓			10		
		Transfers								
Misc.		Meridian						✓		
		Sta. map & plan								
		Landscape plan								

1. Following available for use on other Forests
   6" mft. crosscut saws, hand, used 1 Clemo
   6 wicces, steel, 3" faces
2. Trouble with sewer choking. Effluent from septic tank drains direct to lake. Advise lack of ground for segregation & know of no remedy except chemical treatment.
3. Use upper side of house only. The plaster protects the adobe walls from ground water. The foundation being too low. There is need for draining walks. Verandas should be louvered and trenched.
4. Quarters segregated & guttering. See Quarters, Sheet 2
5. 1 doorbell, 1 barrel splits
6. Cracking, interiors & inside of house disagreeably noisy. Is weatherboard left as by crew without Ranger knowledge, needs metal checks buy instead of old fence boards without Ranger's knowledge being used. ( ) same steps as formerly complained there was an abundance left at old head station)
7. Offices not screened. Should be.
8. Boiling point.
9. Trunk needs cover.
10. No object in disinfectant tools.
11. Erosion by check-dams of all the gullies in the yard. These are very good & simple to settlers.
12. DK by cart stuff recently brought in by road crews.
13. The grounds and the natural drainage were cut up, littered and disorderly. Consideration must have the appearance of a running stream as for a short time. 19 was made stable orderly and OK.
14. Most of the plowed land has lost the humus washed off, but there are 2 acres in front of the house which is fairly good. Some check dams are advisable.
15. Has 2 braces, 2 mauls, 3 steel planes. All but chest nearly unfit.
16. Some gullies near RS filled with brush. Can't erosion of wild type, especially in plow lands, would be advisable. Bank of cherry creek would be holed better if planted with cottonwoods at once.

Conclusion Reynolds Cr. and Rodeo Grande Quarters not up to scratch. Quarters otherwise O.K.

(31)

PASTURES

Form 0-9

.....Junto.....N.F.

By..Rupfield.....

		Place	Judson Bandon	Pampeon 125	Raymond's Cr.	Pleasant Valley
		D	Pl. 11	Pl. 12		Pl. 22
Condition	Pas. Grass		①	3	5	✓
	Pas. Sod		①		5	✓
	N.L. Grass		①	4✓	✓	/
	N.L. Sod		①		✓	/
Rotation	Possible		2			?
Grazing	Used		no			
Organization — Wrangle Time	Average		15	/		15
	Max.		15	/		3hrs
	Night lot			/	✓	①
	Stock gentle		✓	✓		
	Handled O.K.		①	✓		
	Bells			/		
	Water control			✓	✓	
	Div. fences			✓	6	
Stocking — Ranger	Horses			2	3	4
	Cows			2	1	2
	Other					
	Other animals		8	2	2	1
	Hogs		5			
	Total		15	6	6	7

(32)

① Pasture badly eaten out - only worthless grasses and weeds - needs to be reseeded. Whole pasture needs to be reseeded. Would require 4 horses, 3 cows, 3 calves, 5 hogs. Amount of rest could afford to allow would be insufficient to be sufficient to prevent loss.

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(33)

FIELD OUTFIT

Form 0-13

.....Tonto.....N.F.

By..Leopold.....

		Name	Albrecher	Brandt	James	Cowan	Ranchies	Hunt		
		D	9/6	9/7	9/13		9/20	9/21		
Mount	Saddle animals				✓	✓	✓			
	Pack animals				✓	✓	✓			
Camp Equip. & Saddlery	riding				✓	✓		✓		
	pack					✓		✓		
	Bed, camp				✓					
	Mess kit				2✓					
Surveys	Compass				3					
	Declination									
	Chain					✓				
	Pins					✓				
	Level				(4)					
Misc.	Marking tool		✓	(1)	✓	(1)	5	(1)		
	Scale stick						✓			
	Note book						(5)			
	Equipment list									
Motor	Tools									
	Jack									
	Pump									
	Light									
	Patching outfit									
	Extra parts									
Personal	Knife						✓			
	Matches									
	Watch						✓			
	Clothing				✓		?			
	Uniform									
Getaway										
Axe stone										

(34)

① duplic.

2. Need 2 more 1 qt.

3. Rees not carry suitable traps.

4. Only 2 levels on Tonto – 4 men would be more economical. Rangers had to buy out 22 miles of trails this spring without a level.

5. no notebook was carried except Cole. Axe sharp

Conclusions

a. There is a tendency to have ex pensive pack saddlery and riggings without having good pack outfits. What is lacking is an organized system of receptacles, bed, etc. to make packing quick and easy.

b. There is need for habitual carrying of notebooks, sharp saddle axes, compass or level, pocket tape, etc. Some rangers are carrying "weld west" equipment to the exclusion of that necessary for their work.

c. What is needed is a higher standards of what constitutes good equipment, good condition, organized equipment, and skillful use of equipment. Carrying of excessive weights on the saddle or person is not advocated and is not necessary. On the contrary I am simply advocating an attitude of good woods manship toward all equipment questions.

4/2

SEC. D - ROADS & TRAILS, SURVEYS & MAPS

1. Minor Road Plan. The following projects are under consideration at this time:

Name	Miles	Spec. (p.18)	Cost	Admin. Class (p.6 Man.)	Preference (p. 8, Manual)
(a) Cold Sprgs.	16	7' or 9'	$15,000	Light	1(a), 4
(b) Control Road	22	7'	15,000	"	2
(c) Sycamore-I.G.	10	* 9'	25,000?	Ordinary	3 or County
(d) I.G. - 13 Rch	12	* 9'	30,000	"	10% Fund or Co.
(e) a 13 Rch - Rim	6	9'	30,000	"	10% " " "
(f) x Pine Air	16	9'	60,000	"	4 (County coop?)

x - In Maricopa County - rest in Gila County
* - County road already constructed is 12'-14'
a - See Long's report on Young-Heber Reconnaissance and memo of 8/21/23.

Preferably an understanding should be had with Gila County that we will build (a) and (b) if they will build (c), (d) and (e), first running a location survey and confining all work to the final location.

If this can be done (as seems likely) (a) should be built first and then (b) from F.R.D.

If this can not be done, there is a question in my mind whether (e) should not have first call on our F.R.D. funds.

I do not like to see another road up the rim like (e) on the program when 9 others are already being agitated in Arizona, and only 2 financed. However, I was not present during the Young-Heber Reconnaissance and therefore accept Mr. Long's and Mr. Swift's judgment that there is no other way to connect the Payson and Pleasant Valley communities.

The Pine Air project is discussed under Lands (Recreation).

2. Roads to Date on the Tonto have the following outstanding points:

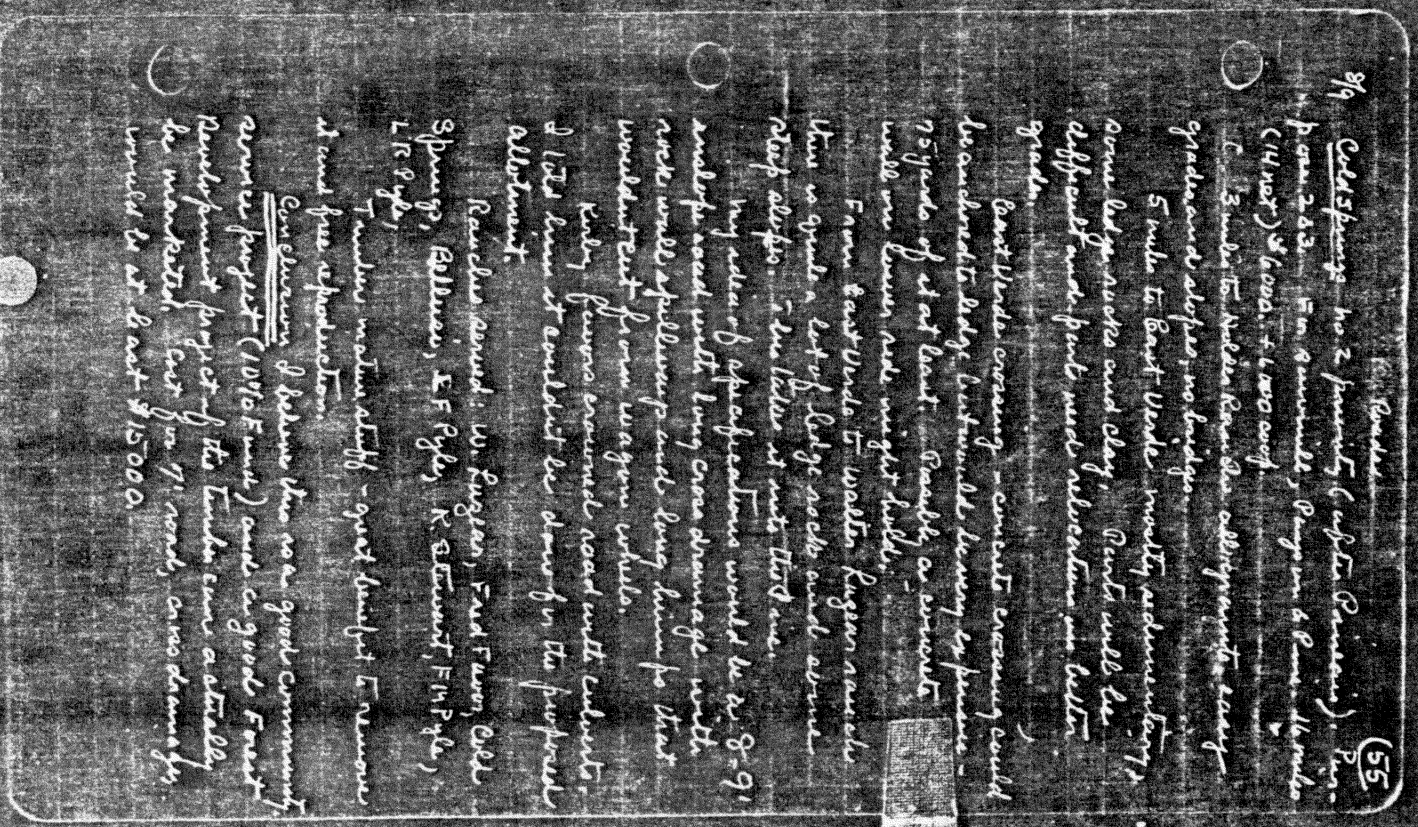
1. A reckless scale of expenditure by Gila County, i.e., too much money for the result attained. The Pinal and Roosevelt-Reno roads are cases in point, although I was unable to verify the figures in the latter case. This tends to demoralize our own work, we must guard

against this.

2. Extra favorable formations. Practically no malpais or adobe on the Forest. Maintenance easy.

3. Some tendency toward "patchwork", i.e., spending money on locations that must shortly be abandoned, as in project (d), where $600 was spent on 20% grades without drainage. The amount is insignificant compared with (1) above, but I mention it in its bearing on avoiding like errors in the future.

5. Maintenance. See note of 8/20, N.B. # 60, P. 16, about county maintenance of Sierra Ancha road. Rencher thinks that if the county installed a patrol system he would have to supervise it to get effective work. I doubt this, but I have no doubt that all the high altitude highways can be cheapest and best maintained by the patrol method.



Pine Air Road

$20,000 in private subscriptions, mostly from Mesa (Church project) spent many years ago. This work now partly washed out.

County Engineer, in company with Rangers Hall & C of C men looked over route Nov 1922 and recommended construction $40,000, half Co, half F.S.

O.S. Stapley, Pres Mesa C of C, has taken lead on part of public. J.L. Bone now County Engineer.

Road Plans shows No. 1 priority, 16 miles, 2500 per mile, $40000 (20,000 coop), width 10', purpose Recreation & fire.

8/26 New Engineers est. is $60000

Pinals from Phoenix	110 mi.
Pine Air	80
Mumehaha	55 (air-line newspaper)
"	80 (Kirby)
Payson	138
Cane Ranch	128
White Spar Road	95

Misc Road Notes

8/5 Apache Trail State, water users, Counties etc have put up $350,000 for repairs. Part of work done - looks like a good job. Fish Cr Hill 9%

8/11 Indian Gardens - 13 Ranch $600 (half county) put in repairs on old road 1922. Grades in crossing canyons run up to 20% with rocky ground and sharp turns. This makes it impossible to rely on the road as a truck trail. It serves 3 or 4 ranches for freighting, and one man runs as Dodge over it although it cant possibly pay to do so. No drainage whatever installed. I think the expenditure was poor judgement, especially in omitting drainage.

8/12 Indian Gardens - Payson First miles from Payson built by County in 1920. 12' - 14' wide, plus 3' ditch on turnpike sections. Lumber culverts (mostly open) and wooden bridges with log abutments. All present construction in granite, one slope, good condition. Location rest of way follows present road. Brushed out. The brush piles are quite a fire hazard in the pine. Couldnt they be burned out of R&T funds?

8/20 Sierra Ancha Kirby and Rencher say County does periodic maintenance, sending crew in once each summer. This could be cheaper & better maintained by a patrol system. Should we accept the County's present work as satisfactory?

Parts of this road are banked wrong due to faulty maintenance. Out curves are banked out and vice versa.

8/26 Superior Highway. Swift says maint. has come to 350 per mile per yr. but this was insufficient. 650 autos and 58 trucks on lightest day recently.

8/26 Pinal Road 16' + 2' ditch, one slope. 8% working grade. $65,000 contract plus extras $75000 ÷ 5¼ miles = 15000 per mile. Walls poor. Seems to be expensive compared with Tejano Cn. Brushing done by our crew very good.

8/31 Jacobsen Cr McCraken says Sec 1 $65,000

4. Trails. The following is a summary of trail work to date:

(a) Past work characterized by violent reactions from too expensive to too cheap and worthless trails. These extremes should be avoided.

(b) At least 40 miles of trail were built this year without Abneys (supply now requisitioned).

(c) Failure to receive the Trail Manual this summer will necessitate careful study and discussion to get the benefit of it in 1924.

(d) Rangers do not yet, as a whole, understand the present Trail policy, believing themselves out of harmony with it. This belief is not justified before they know what the policy is.

(e) I am not sure but that there is danger of too heavy a trail program, which causes more interference with than benefit to administration. Training up better foremen will partly offset this.

As affecting future work, I can best express my suggestions by offering the following on good and bad practice. This is a tentative compilation as per p. 52 of the Manual. I would appreciate criticism of it, since it will be used as a part of a system of inserts to be issued to all D-3 officers, expressing the D-3 policy for applying the Manual to this District. Not only the subject matter, but the clearness of expression of it, should be criticized.

Trail Plans, Estimates, & Allotments

Practice

Good	Bad
Supervisor to keep cumulative cost record on which to base estimates by comparison.	Allotting to projects by guess. A ranger can not meet both a fixed allotment and fixed specifications unless the former fits the cost of the latter per mile.
	Scattering projects so widely on a ranger district as to needlessly interfere with admin. work. (This does not apply to crews placed for fire)

Location Surveys

Practice

Good	Bad
Zigzag up smooth slopes, or get on edge of rougher ground, to make drainage possible.	Running straight up smooth slopes with no plan to divert water.

Organization of Crews

	Maintenance crews of more than 2 or 3 men.

Construction Work

Left off loose rock and build macadam tread on top of the natural surface instead of through it.	Grubbing malpais or other surface rock when there is more of the same underneath which would be exposed by erosion.
	Rolling large rocks down the hill which could be set to strengthen or obstruct the fill.
Placing obstruction on fill to force traffic over slightly protruding "toe rocks" which would be expensive to remove.	Grubbing out very heavy slightly protruding "toe rocks" from tread, especially outer edge of tread.
Using pitch logs for retaining wall where available, especially where suitable rock is scarce.	Using small sappy poles for retaining wall or in fill.
On smooth hard bedrock build trail on top of it. Lay durable poles braced by steel pegs set in drilled holes andmacadamize tread.	Blasting trail out of smooth hard bedrock with a jagged cleavage.

Drainage

All drain logs on a given stretch of trail of same species or at least approx. the same durability.	Using less durable woods for drain logs when Gambel oak (green unpeeled) or other durable woods easily available.

Drainage (Cont'd)

Good	Bad
Fixing the permanent level of the spillway by setting a flat rock, pole, or pile of broken rock at point where water leaves the tread.	Omitting spillways in soft fill at drains, causing dips to cut out too deep.
Near a switchback be careful to see that water drained from the upper leg is promptly caught and drained from the lower leg; i.e., "stagger" your drains.	
Smooth off top of drain logs with sharp or knotty edges exposed.	
Obstruct end of drain log, or if feasible weight it down with a big rock.	Leaving end of drain log unprotected from undermining by traffic.
Leaving horizontal roots useful as drain-bars or to hold surface.	Chopping horizontal roots from tread.

Maintenance

Use adze or sharp mattock for removing sprouts from stumps flush with tread. Use hand-axe for cutting back light brush.	Using heavy sharp axe for very light brush or small sprouts on stumps.
	Needlessly grubbing grass from tread

Inspection

Actually performing samples of kind of work desired.	Trying to describe verbally some point in trail work susceptible of demonstration by sample.
Use a system of stakes to indicate location, kind and angle of drainage structures desired.	
Riding over a trail after completion to "polish up" the brushing work.	

Inspection (Cont'd)

Good	Bad
Carry a tape and Abney level and Trail Manual.	Passing on widths, grades, etc. without measuring them.

Miscellaneous

Practice

Use of pitch snags for guard rails on switchbacks.	Use of sap pine posts and rails on switchbacks when cheaper, more durable obstructions are at hand.
Blaze thrifty pine only, where there are enough of these to serve the purpose.	Blazing suppressed or unthrifty pine in "bug" country, creating centres of infection.
Powderman to carry whistle for signals.	
Axemen or foreman to carry file for sharpening axes during work.	
Combining trail and phone maintenance where phone line runs along trail.	Incurring double overhead expense where both can be done at one time.
Use of pruning shears for brushing in trails through southern Ariz. brushfields.	
Place rail across bottom of narrow gulches to prevent packs from going up the gulch instead of up the trail.	

ROADS & TRAILS

Form 0-10
.....Tonto.....N.F.
By...Leopold.....
(Roads only)

Project	Highline	Turquoise	Mumbled Ridge	Pantz	Mogollon Rim	Tonto Tramway	Northern Co.	Aztec Pk.	Rim-Rugwell	Arrow Ground	McFadden Pk.
Yr.	1922	1923	1923	1922	22-3	23	1920	1923	1920	1923	1923
D	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Cost per mile $	30	✓		(3)	70		900	100		130	25
Route	(1)	✓	4	(8)	✓	✓	✓	✓	15	✓	✓
Grade — Working		✓	✓		✓	✓		✓			✓
Grade — Max.	35%	✓	4	(8)	✓	11	14%	15%		17%	✓
Cross Sec. — Slope	✓		✓		9%	✓	✓	✓	✓	✓	✓
Cross Sec. — Width	✓		✓			12		✓		✓	22
Cross Sec. — Backslope			✓			13				✓	✓
Cross Sec. — Fill			5					✓		✓	✓
Cross Sec. — Fill protection			5				✓			7	✓
Cross Sec. — No excav. on gentle slopes			6			14				✓	/
Drainage — Flats	(2)		(7)		9%		16			19	23
Drainage — Spillways							✓			19	✓
Drainage — °Culverts							/				/
Drainage — °Ditches							/				/
Drainage — °Prot. ditches							/				/
Drainage — Logs — Size			(5)			15	✓	✓	✓	✓	24 ✓
Drainage — Logs — Angle						✓	✓	✓	✓	✓	✓
Drainage — Logs — Imbedded						15		✓	✓	19	✓
Drainage — Logs — Kinds							16			20	✓
Clearing	✓	✓	✓	✓	✓	✓	17	✓	✓	✓	✓
Blazing	✓	(3)	✓	/	✓	✓	✓	✓	✓	✓	✓
Signing					10		✓		✓		
Maint. — Down timber	✓			/	/	/	✓	✓	✓		✓
Maint. — Erosion	(2)		(7)	(8)	✓	15	✓	✓		21	✓
Maint. — Fill											
Maint. — Heel & tread						13					

(1) Built as a secondary trail with little regard for grade. Best that could have been done for the money but was wise to attempt anything as such a country warranted as larger allotment.

(2) no drainage installed. All the points to be permanently relocated should be drained 1924. Damage already.

(3) Over blazed. Tread not completed. Would caution against grubbing too much - would simply remove loose surface rocks.

4. Oil except where crew got off location on one hill.

5. no special effort to obstruct or strengthen fill at strategic points. Put in some examples of these.

6. Maybe a little too much grubbing of rocks, which accentuates washing and leaves no clean tread.

(7) no drainage as yet. Badly needed - present ruts are in decaying rock. Would not want till next year for this.

(8) Cost $218 (1/2 FS) for 2 1/2 miles. Two chutes over hill would seem to be as bad as no trail. Route has unnecessary reverse grades. No drainage. Grades without limit. Impossible to build one 15% but needn't be more than 8 or 10%.

9. No tread excavated. A good plan for secondary trail through dense brush. No drainage necessary.

10. None yet. Grades needed.

11. up to 400' of 32%. Not readily avoidable.

12. 24" - 48". Too wide for them as present standard. Would have paid better to put the added cost into drainage and guards at switchbacks.

13. Very much sidehill work. Traffic getting onto fills.

(14) Some use necessary spreading over top.

(15) Very light stuff, now rotted and being knocked out. Does place reliance to brake.

16. absence of flats makes it hard to keep the logs imbedded. Logs neither small.

17. Some sharp rocks & stumps cut lower and need to be knocked off for track clearance.

5. Surveys & Maps.

Map improvement has been at a standstill but is now again under way.

Rangers should start cumulative map correction data.

The proposed allotment surveys are an especially commendable move from the standpoint of maps.

SEC. E - ORGANIZATION

1. Tonto Program. An especially painstaking plan showing signs of constant reference, corrections, additions, and checking off.

On the whole it is also a good plan, although showing some lines of work not yet thought out and resolved into concrete jobs. To "stimulate", "encourage", or "push" an abstract idea like Fire Prevention or Game Protection without any suggestion as to how or what specific moves are to be made is evidence that this work is not yet thought out. (Of course, we in the D.O. also have such evidence in our program).

I have entered in red crayon throughout the plan sample suggestions for its improvement. These are not instructions - the Tonto should write their own plan and decide their own priorities.

There is one point of mechanical arrangement deserving special mention - the Tonto program is inter-leaved with the D.O. on thin white, and Kirby's personal work schedule the same on thin yellow. This is good.

There is every indication of vitality in the Tonto Program - and this is what we are after.

2. Ranger Work Plans. The plans as they stand average rather poor. What is more significant, of the rangers I saw, only James, and to some extent Croxen, showed a satisfactory attitude. For detail, see N.B. #68, p.23a.

3. Notebook Systems. With the exception of James and to some extent, Croxen, the rangers I saw have made no progress on this matter.

The staff, especially Kirby, is setting them an excellent example.

4. James Diary Analysis. This diary analysis (See p.23d) shows:

(a) A very low field time, even considering that much interviewing of permittees is done at Payson and not counted as field.
(b) A very high proportion of overnight to field time, indicating excellent use of field time.
(c) Very long hours and other evidences of hard work.
(d) Much evidence of heavy pressure of office work. James' habit of lengthy correspondence may account for this in part; also the nine trespass reports made last winter.
(e) Not much actual help from his (vocational) assistant.

(f) Very low time on grazing field work, especially considering the importance of grazing on this district.

This analysis suggests the following questions:

(1) Shouldn't Payson have a regular (not vocational) assistant, at least during the non-sheep season, rather than Pleasant Valley?
(2) Isn't Payson too big as compared with Pine?
(3) Wasn't Payson overloaded with scattered trail projects?
(4) Would more cabins and pastures help? (James says no)
(5) Can not special jobs like 10-day fire report be delegated to Pine, Salt River, or some other man less heavily loaded?

5. Use of Time, All Rangers. The comparative chart, N.B. #81, p.23a, shows that unless there has been some now unknown change in the rangers' interpretation of activities:

(a) The amount of unproductive time of all Tonto Rangers as measured by the headquarters activities, increased in F. Y. 1923, as compared with F. Y. 1922. It was below D-3 average and is now above.

(b) Grazing time of all the Tonto Rangers except Croxen decreased around 10% in F. Y. 1923, and is now below average for D-3. This, of course, should not be - in fact, is a fundamental reflection on the efficiency of field work.

The decrease in grazing is about equal to the increase in improvement due to the heavy trail program. This might account for the matter, were it not for the increase in unproductive time, which experience has shown is usually the place to which grazing time is diverted.

The more I think about the matter, the more I am convinced that a thorough Diary Analysis of every ranger on the Forest is urgently necessary. This will show up what has happened, and if done before winter will give enough time to formulate corrective action and get it into operation by next season.

6. Indicators. These sheets (N.B. 71-75) are not rounded out and complete. They are offered simply as a sample of a new idea in inspection methods which I think could be used by staff men to excellent advantage.

7. Use of Staff. Some of the rangers would be a little too willing to have Kirby do their work for them. This is natural and harmless as long as he does not make the mistake of doing it. There are some items assigned to Kirby in the Program which lead me to think this word of caution not altogether unnecessary.

8. Districting. I did not get into details. I would simply list as pending jobs:

(a) Decision as to Cave Creek headquarters.
(b) Cherry Creek adjustment.
(d) Payson-Pine adjustment. Better assistance for Payson.
(d) Elimination of overlapping responsibility in fire, trails, or wherever it may exist.

I am not satisfied that the Tonto can be administered up to existing standards with the present number of rangers. The time for active consideration of this question is not ripe, however, until such matters as are treated in Paragraphs 2, 3 and 5 of this section are disposed of.

9. Administrative Economies. The Tonto doesn't use the Lincoln system of promise cards, whereby cards are prepared in the office and sent out with the correspondence.

Combining getting check sheet data and grazing applications is a move that would save much ranger time.

I suggest that ranger's keeping travel maps be discontinued.

Notes on Condition of Range

8/6 Windy Hill – a peninsula in east arm of lake – usually an island – has not been used by cattle and has excellent grass.

8/9 Crowfoot-Mesquite James says Wm. Craig of Payson (very reliable) says that Curly Mesquite which now forms the entire range in the region south of Payson was formerly crowfoot grama. That overgrazing caused the change in type. James says he is a close observer & well read.

8/16 Mesquite & catclaw on mesas along Tonto has greatly thickened and grown larger. Croxen says used to be no obstruction to riding. Due to cessation of grass fires?

8/18 Florence Packard says Filaree first appeared in Ram Valley in Sunflower country in 1878. Spread rapidly. Several grasses formerly abundant now extinct. Grasses called Black Grama, Galleta, and Mesquite were found on mesas along Tonto – now gone. Mesas didnt have enough grass to burn. About 30 yrs ago a 41" snowfall killed all the catclaw. Both Catclaw and Mesquite have since increased greatly in number and size.

8/22 Grass along Pleasant Valley Road green but thin and very weak heads – grama & side oats but very few stems and these not over 10" high.

8/25 Grass in considerable quantity on cliffs in Salt River Canyon and in rough Limestone country W. of Fish Cr. – both too rough for cattle to reach.

8/27 Bermuda shows some interesting symptoms of spread. It covers the granite gravel "high bottoms" at head of the Lake but is weak on the silt flats. It is found on all the granite road grades up as high as Payson & Reynolds Cr. Moisture conditions on these places must be very close to that of the granite country as a whole. There is no telling how far it will go.

SEC. F – GRAZING, GAME & FISH

Historical Data on Grazing
In Tonto Country

Gila Valley Swift says that Z. C. Prince of Safford, recently killed in an auto accident, helped drive the first cattle into the Gila Valley in the middle 80's. Tonto was probably stocked later than this. Mormons first came in 1873 but brought no large herds.

Brush Growth E.E. Pyle of Payson says cows could be seen for 3 miles in old days on mesas near Payson now dense brush. Houston after 20 yrs absence went to take a look at his old haunts on Houston Mesa and got lost.

Cave Cr. Thompson says cattle were brought into Cave Cr. by Jim Kentuck & Orms in 1882.

Hi Fuller says cattle were brought into Payson country by himself and others 45 yrs ago – that would be 1878. These were Durhams & polled Angus. Told this to Kirby.

Reno Croxen says Packards settled in Greenback country in 1873, but probably brought no cattle as they were hunters. Clines drove in from California with cattle in 1875, settling at mouth of Reno.

Droughts First one 1882. Killed much brush. Next one 1891 (same year as flood). Next 1902-1904. Next 1921-3.

Florence Packard says first cattle in Tonto were 30 Durhams brought in by John Meadows in 1879. He neglected them and they didnt do well. Clines came in about 1880 with 200 head, coming from Vallecitos the other side of the Colorado desert. John Ward brought cattle into Sunflower country and his brother into Tonto 40 yrs ago. Cattle were at their maximum about 1900.

Sheep first drove through about 10 yrs before Forest was created. First local sheep introduced about 1879.

$15-18-21 paid for steers by Jim Ramah for 10,000 head delivered at Winslow. Got 1.00 per head commission. This was standard price for years. This was about 1890.

District	Work Units	Area	Mem	Engaged Indiv. Per Man	Hr. Reduc	Overnight Range	Highlands Ranches (Sample)
Pegasus	3270	341 M	1	3270	55	60 ?	77
Elk Valley	2770	295	1½	1840	8.5	100+?	4
Santa Cruda	2330	265	1	2330	7.0	100 ?	6
Salt Pines	3230	348	1	3230	10.5	100+?	2
magalgal	4690	501	1½	3130	11.0	100+?	5
Pane	2810	287	1	2810	11.0	100+?	
	19100	2027M					
Cruc C.	3320	280	1/8	3320			
	22,420	2307M		2802			
D-3 Average	20,835	1,560 M	10	1800			

Units for Staff Mem 22,420 ÷ 2 = 11,210

22,420 ÷ 3 = 7,473

D-3 average = 8945

Engagements Statistics - Trends

Ranger Work Plans

8/12 °Pegasus a good plan. Main faults in my judgement are (1) too neat & formal and kept in files, showing infrequent use, additions, corrections, etc (2) Absence of some sort of circulation "Job List" for keeping track of little jobs bearing on the plan. This might be provided by a memorandum section of notebook, or by leaving blank pages in plan. James never uses scratch notes in "quick draw" notebook and promises cards, and this partially meets the need.

8/14 *Mag algal Annual plan contains a majority of real jobs. The rest are vague items - some of them covering important subjects. For instance, the plan gives no clear idea of what the big jobs of the year are in improving grazing conditions. What reclamations are to be put through? What areas should be studied to get answers to specific questions? What excess stock and trespass jobs? What moves toward organization and co-operation? What fences and waters built? The monthly schedules are more specific but some months do not seem to start with 30 days work in sight. I know, of course, this is so.

The whole binder is neat, clear, and later entries made on typewriter. I would rather see them hand, measured up, and checked off as if it were used every day.

8/21 *Reynolds Cr. Follows old A & B list instead of new sample. Schedules more specific. Plan written before sample came out.

Conclusions On the whole only fair progress. Overhead pressure is not going to carry them much further. Good example, like Kirby's, however, ought to produce results.

° Kept in files * Kept in binder

(72) Has James these jobs of Record?

yes 1. Stocking Pyle & Ellison Creeks & See Canyon

no 2. Draining Highline trail.

no 3. Ask for "Black Mesa Reserve" field notes.

yes 4. Determining trout species now introduced & sticking to them in restocking.

no 5. Draining Doubtful Ridge trail this year.

yes 6. Burning brush - Clark & Rascal Sale

3/6 or 50%

Has Croxen made note of these jobs?

1. Enter on Work Plan check survey of Tonto Creek Ranches and uses.
2. Sign for Middlewater trail on crest.
3. Relocation Park Trail?

(73)

Indicators	District
Good Admin.	Poor Admin.
Payson Dist.	
Excellent relations with users.	Deficient drainage on recent trail work.
Civic activities - high standing	Overgrazed condition of Indian Gardens RS pasture.
Ability to think out work in which he is inexperienced, like trail construction.	High office time
High percentage of over-night time and long hours of work.	
Highly developed notebook System	
Start made in transit survey of Allotment boundaries.	
Mazatzal Dist.	
Assembling grazing files into cumulative folders for each permittee.	No current record of grazing or uses delinquents.
Starting cumulative Tabulation of calf branding sales, losses, butcherings for each permit.	

(70) Has Staff these jobs of record?

1. Loosening tension, 13 ranch [illegible] line?
2. Drainage Doubtful ridge, highline, Nigrete trails?
3. Getting trout identification sheet for James?

yes 4. Ask for Black Mesa field notes

5. Correct Sierra Ancha Road on Map. Start keeping of map corrections by Rangers.

yes 6. Decide prop. change in Cherry Cr. District line.

7. Decide if Maintenance satisfactory, Sierra Ancha Road

8. Solution of horse & burro problem, Pleasant Valley

(71) Indicators - Tonto Forest

Good Admin.	Poor Admin.
Stockmen voluntarily turning in excess in some cases	Excessively low costs and standards on Highline Trail
Throwing fire responsibility to Rangers.	Omitting drainage on 13 Ranch road.
Starting actual survey of all Callotments, 5 yr. program	Only 2 levels on Forest. 22 miles trail laid out on Payson Dist. 1923 without any. 4 now requisitioned.
Development in notebook systems and work Plans by staff.	Crozen never been on one of his Callotments? (59)
Exceptionally wide acquaintance of both Supervisor and Deputy	Rangers don't go with 1 allot when he records quadrats. No copies of report sent Rangers.
Nearly universal habit of using brush for erosion (a small thing in itself, but significant)	Low field and grazing time as reflected by Cost Activities
A live going "Tonto Program" currently used as a guide to work.	

(74) Has Ranch these jobs of record?

no 1. Finishing drainage Armer Corral trail

no 2. Clearance for Astec peak protractors

3. Pools for Astec Peak ground rods. Cleaning of cabin.

no 4. New posts, using stumps, Astec Peak

5. Rearranging R.S. fences.

no 6. Installing culvert, RS gate

no 7. Installing switches to facilitate ringing from RS

no 8. Secure brushing of Hall & Astec Stub lines.

(75) Indicators District

Good Admin.	Poor Admin.
Reynolds Cr. Dist.	
Good quality of trail work and much work for money on McFadden trail (but excessive in width)	Lustered condition of ranger station yard, outbuildings, equipment and supplies.
	Needs no notebook in field. Has no particular notebook system.

Tonto Forest DIARY ANALYSIS of James (Ranger) by Leopold (Inspector) Date 8/27

Payson Ranger District

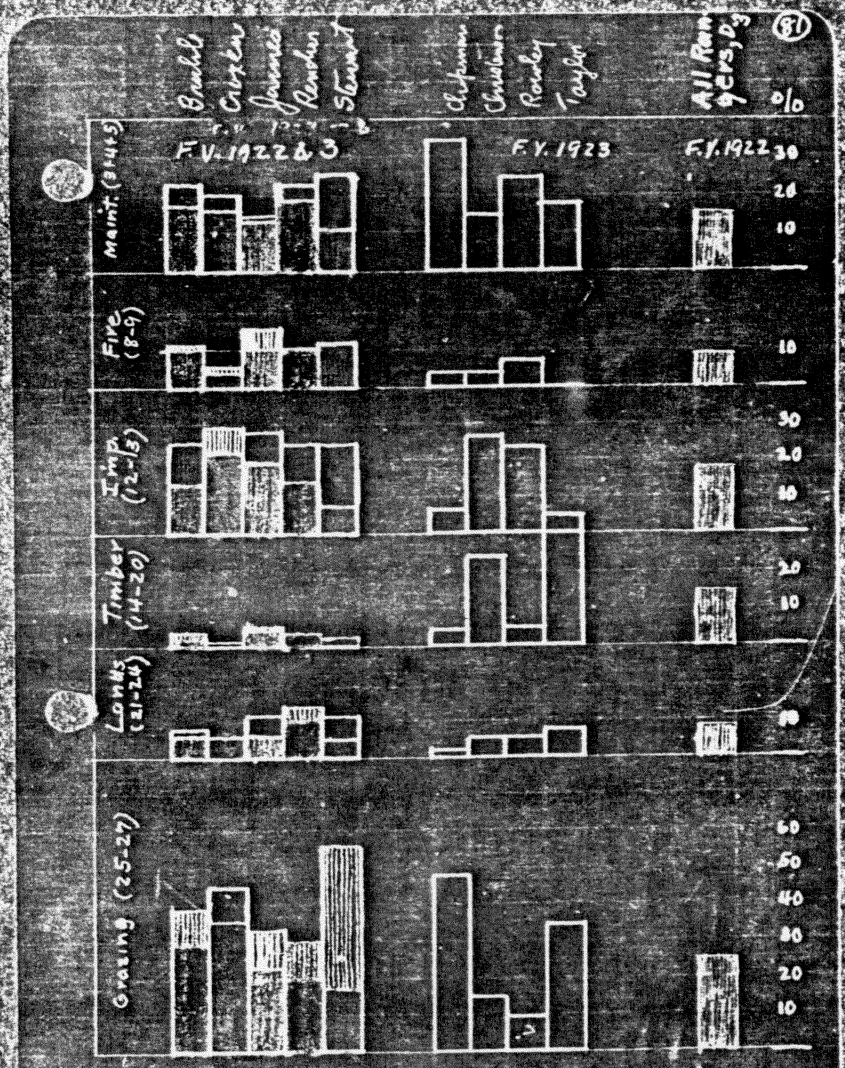
D-3 average 1922

D-3 Form O-16

	Month	1922 Aug	Sept	Oct	Nov	Dec	1923 Jan	Feb	Mar	Apr	May	June	July	Total Days	
Non-Field	Non-Work Sun. Hol. Lv.	3	2	3	1	3	3	17	1	1	1		1	36	50
	Hdqtrs.	4	2	5		1	2			4	1	3	2	24	34
	" Imp.	1		1	2				2		3		1	10	15
	Mail & Supplies	2		1							2			5	14
	Forage														3
	Meetings Courts etc				8	1								9	5
	Office	10	9	10	6	14	14	8	13	3	9	6	8	110	53
	Payson allowance limitations		2	3	1	2		1			1	1		11	
															6
	Suprs. Office				3		2	2						7	11
	Other Districts														0
	Total Days	17	13	20	20	18	18	11	15	7	16	10	11	176	141
Field	Commercial Sales	1	1				1		4	1			5	13	23
	Other Timber	1	1			1				1				4	7
	Grazing	5	6	3	5	7	3		3	2	2	1		37	68
	Lands		4	1	3		4		3	2	1	1		19	16
	Improvement	1				2	1		4	12	5	1		26	16
	Roads & Trails	3	3	3	1					4	3	12	11	40	12
	Fire Fighting											3	2	5	6
	Other Fire			1			1		1		3	2		8	12
															11
	Other Districts														2
	Total Days	11	15	8	9	10	10		15	22	14	20	18	152	173
	Total	31	30	31	30	31	31	28	31	30	31	30	30	364	364
	Total days on overnight trips	6	10	6	2	10	7		10	9	9	19	12	100	73

To be supplemented by detailed discussion of conclusions

mistakes in use of time and summary of diary



Percent of Time by Activities. Hatching shows decrease for 1923 as compared 1922. Uncolored space shows increase. Stewarts decrease in grazing is partly explained by his taking a district instead of being grazing man at large.

Stewarts 1922 grazing time is due to his assignment as a special grazing man during that year.

(85) Notes on Palatability

8/8 Manzanita Kirby has seen stock eating manzanita especially the blossoms in May. Has picture to prove this.

Ariz Barberry Saw this heavily browsed. James says this is everywhere the case, but G claims it is "not known to be browsed".

Coffee Bush James says one of main feeds at lower altitudes but not used at higher.

Green Gentian Lazear knows of nothing that eats it.

Catclaw Swift says that at Queen Cr. cattle every year browsed catclaws that had already been browsed down and let others alone.

Mormon Tea on mesas W. Bend browsed to ground and dying

Small Ceanothus in Sierra Anchas considerably browsed by cattle - some use range with nothing else on it Rencher says. Same in Pinals, Kirby says.

Mt Willow (false willow) much browsed in 4 Peaks country.

Manzanita Saw some isolated bushes N of Jumper Flat that had been heavily browsed by cattle.

(93) Misc Grazing Notes

8/14 Inspectors Tallies by classes seems to be an urgent necessity on yearlong ranges. Kirby says he thinks Sanitary Board would consider statewide action to this end. Recommended in grazing reports. No comment by D.O.

9/18 Salting on Com. Allots Croxen proposes to hold meetings and get each individual to agree to salt at one ground for a specified period. Sounds very good.

8/21 Proposed approvals under present conditions in an unpaid case the Ranger doesnt know how many stock a permittee is supposed to be grazing. A list of proposed approvals would remedy this.

8/22 Broomie Horses 500 horses and also unclaimed burros running in Pl. Valley country, Armer says. Rencher & Hand say figure is high and say part are exempt & permitted. This situation doesnt seem to be in Stewarts work plan. Should be some solution to this. Kirby suggests all exempt stock should be required to be kept in paid pastures instead fences being discouraged by service policy.

-25-

Game Notes

8/6 Mt Graham Refuge Stockman pounds 1/2 pt per head at Swift's request and shoots 2 lions while killing 15 lions during 1927. $40 per head paid. Swift says deer are being seen more and more on adjacent hills and cattery is freed from refuge.

8/6 Ends of Roosevelt Lake

Cormorant	Spotted Sand piper
Osprey	Tern (red feet, black tip)
Red breasted merganser	Phalarope (lit on water)
Blue Heron	Cowbird or Arcadian (seen high)

8/6 Mt Sheep Alex and Ed says Lemons reported seeing 2 ewes with lambs this year. Swift says sheep are seen regularly on "Peanut Post" Mt. west of Superior 6 miles.

8/8 Elk James says no elk known found on Pinyon country nor has he heard of any.

8/8 Turkey Says most of turkey nest on top of range and stay there till driven down by snow after breeding season.

8/9 Quail Varley has seen gambel quail on Cave Cr East SE of Red Rover mine on Tafoya's ranch, on Haslewood, and on Peralta. James says needs to be late arrival Pinyon = never called quail. Gambels come up to Pinyon, no further. Also to Pk. Valley Rs.

8/9 Jaguar Walter Lageard says was killing calves and yearlings on Cold Springs country, bringing the kills back along wood coming brackets at. Set 5 traps. Caught one of three kills but dog got the calf with without disturbing one of them. Calf drags brush pulled down by the giant, not real clear. Then took after him with dogs but cat would not tree at all and mauled the dogs very badly. Rest have up over the rim. Now living on head of Devils Cr on Pinon - 2 Bar Survey near end. 14 dogs after him. Has heard of others E of Pleasant Valley but doesn't know where. Has one canon [illegible]

whitetail seen by Walter Lageas near Cold Springs.

8/14 Javelinas Varley made Coryden says these are found on Creek and Tonto as follows:

Pinals. - head of Salem Cr, NW & equal PK, NW S. side
Scelenios - Pinal Creek Cr
Verde River - near Salt
Head of Campaign Creek - 15 mi SE Roosevelt

9/6 Four Quail Coryden says Aaron Thomas in 1918 at - Little Spring near Ends Blue Ridge Roads - also on Blue Ridge RS pastures. None on Mazatzal Rest. 1 flock Pleasant Valley RS

8/17 Turkey & Bruin Coryden suggests that turkey can not escape predatory animals in very dense sometimes brush. Only a few in north end of Mazatzals. Thinks thinning accomplished by disappearances of turkey in Chiricahuas, Pinals, Catalinas, Huachucas, etc.

8/18 Florence Peak Rds came to Tonto in 1875. Simpkins records saw antelopes. Were a few turkey in Tonto but few and Mazatzals until winter in Salt R canyon. No oak here except on Fossil Cr. & Clear Cr. These horses were feral but all were all gone. Found sheep horns east of Del Shay basin on Sierra Anchas but none elsewhere. Buck fuel at first fed communities except near Four Peaks and on Superstitions Mts where deer were mostly whitetail. After cows the whitetail became the more common mostly sleepy ones. Increase of brush may account for this. Bighorn sheep found on Lady Sheep were same as California Grizzlies but smaller. Were not many bear when he first came to country. Many horse come run with the stock. Jaguars one killed by Ford Haught on ranch at head of Pine Cr 2 yrs after the dog season. Another by Blue Askins near Pershings Horseback Ranch about 1891 or 2. Then one killed several dogs, refusing to tree. Coryden says saw a Jaguar on the alpine Rds. Rds. 46 miles N W Selgman on Aprils 1910 at Pine Springs.

Coryden says elk were found on Selgmans NW to NE of Williams. May have been part of Fossil Cr herd.

8/19 A. J. Hall says there was a real grizzly over the Indian Reservation over the head of Cabezone. Home left on Santa Ana Mts.

8/20 W.T. of Lyons One extra large one killed by wolf[illegible] weighed 140# after entrails removed.

8/20 Rev. Tailed Cats Found at Roosevelt, Vail Station, Eagle Creek, Spanishtown, Blue River,

8/24 Mt Sheep Chemehuevis were in some one Creek. Rancher says he found bones in 1901 in Flat top 14 t. East of Bagdad and also on Water Can on West side 1½ mi. SW Ranger Station.

8/28 Bobcat young females, killed by Kirby and Leopold near Devils Gulch in Apache Trail 8/25 measured as follows:

Length over all, incl tail	31"
" Tail	6
Spread ear to ear excl tassel 1/2"	9"
Root Tail to end of outstretched hind leg	19"
Height at shoulders	16"
Rear paw, length over pads	2"
Front " " " "	15/8"

Very clean and long animal - forgot to get girth.

8/29 Bob White Swift says he has killed several in hunting native quail along foot of Graham Mts. Probably escaped introductions.

8/29 Parrots Says has seen hundreds of them in Sabinoso in certain years. Green back, yellow breast, small. Seen only in summertime July or August, last time in 1916 or 1917, and also 2 yrs before that. In flocks of 100. Much noise. In WYP.

9/30 PH Dixon Camp Blue - 8PM Cienega Pinyon

8/6 Bass in Roosevelt Lake, a mad to bite artificial Coaster, bait, beat me spinning - followed by child feeling with pin also. Fishing poor during hot weather.

8/10 Trout Average weight was grasshoppers below dams up to 22". Remember used for stocking this far. I strongly urge that only these species be used for stocking future waters.

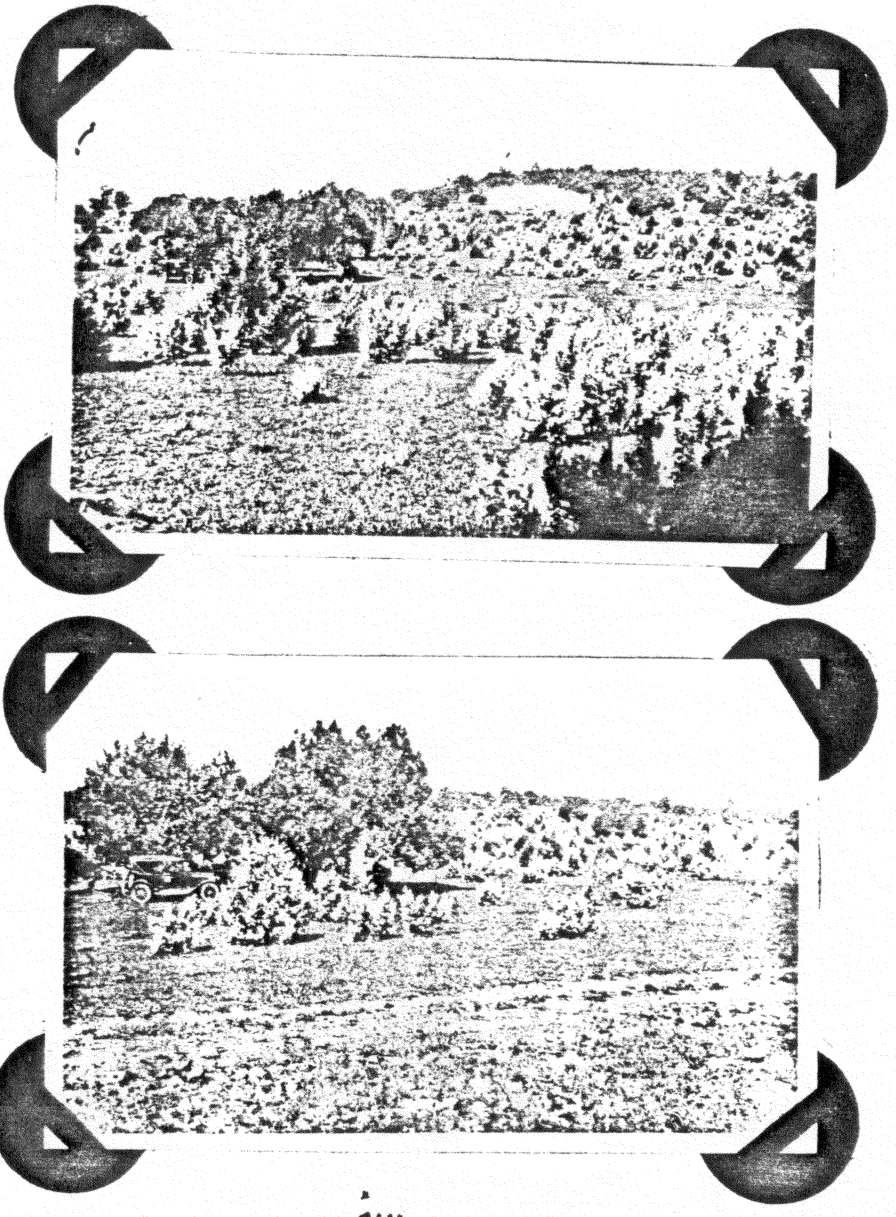
8/6 Communists Alexanders estimates there are 2100. Idea prevails that bass have been growing & Carter because of them. Trout caught in Salt River said to have come from there.

8/10 Rangers South Bass caught 4 miles up W. side N. arm in cove with Tango with spinner; 5:30 - 6:00 PM, bait only

	#1	2	3	4
Caught by	M.	M.	TTS	TTS
Length	23¼"	21½"	20½"	20"
Girth	14"	13¾	13"	13¾"
Gape of mouth vertical	4"	3½	3½	3½
Spread of tail	8"	7"	7"	7"
Length gill fan	3"			
Weight	6#	5½#	5#	5#
Dressed, deheaded & de-finned, skinned	3#	2½	2½	2½

9/11 Trout in Tonto Cr seem to be Baseline Brook. Fine fish in 1920. None seem to be up to 16" (Hubert camp there are also natives in it) Rancher says Brook in Sycamore

9/13 Thompson of Roosevelt says Cole River Salmon fingerlings both below and above dams. Below they run up to 40#. Catfish are great bullheads and don't get over 3#.



Juniper reproduction ~~and~~ park north of Juniper Flat. Scars on old juniper trees in this park indicate that fire formerly ran over it. Even-aged reproduction evidently due to removal of grass by grazing and consequent cessation of fires.

SEC. G - FOREST MANAGEMENT

Summary of Facts and Evidence - Grass - Fire - Brush - Erosion Theory (Applicable only to Pine and Woodland Types)

1. Grass Once Covered the Woodland (now Oak Brush) Type and carried repeated fires in country where there is now no grass and often no possibility of fire. Indicated by:

   (a) Old Timers remember the grass and the fires.

   √ (b) Many areas showing repeated scars on Juniper and burned off Juniper stumps, could now not carry fire. Junipers often too scattered to have ever carried fire without help of grass.

   √ (c) Brush up to 40 years old is found adjacent to these scarred trees. Could not have survived fires which burned them.

   √ (d) Heavy even-aged Juniper reproduction about 40 years old found in parks bearing scattered burned-off Juniper stumps.

   √ (e) Oak and young Juniper (kept down by fire) is found crowding out old Manzanita (propagated by fire).

   (f) "Islands" of grass remain in a few inaccessible places.

   √ (g) A little young pinon but old trees almost totally absent.

2. These fires also burned the W.Y.P. Type, which probably also carried much grass in places but now has none. Indicated by:

   √ (a) Many catfaces and burned snags. Healings all 40 years or more old. Trees often too scattered to have carried fire without the help of grass.

   (b) Almost universal thicket of pine reproduction, even-aged, 40 years preponderating.

   √ (c) Pine reproduction encroaching on Juniper and brush at lower edge of type, indicating line pushed up by fire.

   (d) Young pine crowding out old Manzanita.

3. Grazing eliminated the grass. This eliminated the fires. This relieved the brush both of the root-competition of grass and damage by fire. This accounts for brush "taking the country". Indicated by:

   (a) Ranges were stocked, fires ceased, and expansion of brush and reproduction all [redacted] simultaneously (about 40 years ago).

   (b) No other relation among these phenomena than that of cause and effect has so far been broached.

4. The Oak Brush is a transition type and will revert to Woodland. Indicated by:

(a) Juniper (and in some places cedar) reproduction is coming in, all less than 40 years old.
(b) Old stumps are very large, showing that site is adapted to woodland species in a much denser stand than has existed in the past.

The relatively scattered stand in the past was due to fires burning both old trees and reproduction, and competition of grass against reproduction.

5. The present active erosion is caused by

(a) Brush or reproduction is a less complete ground cover than burnable grass, except where brush or reproduction is very thick, continuous, and extends to the banks of watercourses. (Only in such places has erosion been avoided).
(b) Localized overgrazing, especially of watercourses, causing erosion in spite of any or all cover, (brush, weeds and grass).

The relative weight of these factors varies with locality, degree of past and present grazing, and stage of vegetative reaction.

6. The net effect of overgrazing and cessation of fires for the past 40 years has been:

(a) Great damage to the watershed resource.

(b) Great benefit to the timber resource.

(c) Great damage to the range resource.

What would have happened if fires had been controlled without overgrazing is a matter of conjecture. It is probable, however, that approximately the present benefits could have been secured without the present degree of damage.

7. Future Management must be premised on the following:

(a) The watershed resource is dominant in importance.

(b) The watershed is damaged more by overgrazing than by fire. During the period of no grazing and severe fires erosion was not abnormally active. During the period of no fires and severe grazing erosion became abnormally active.

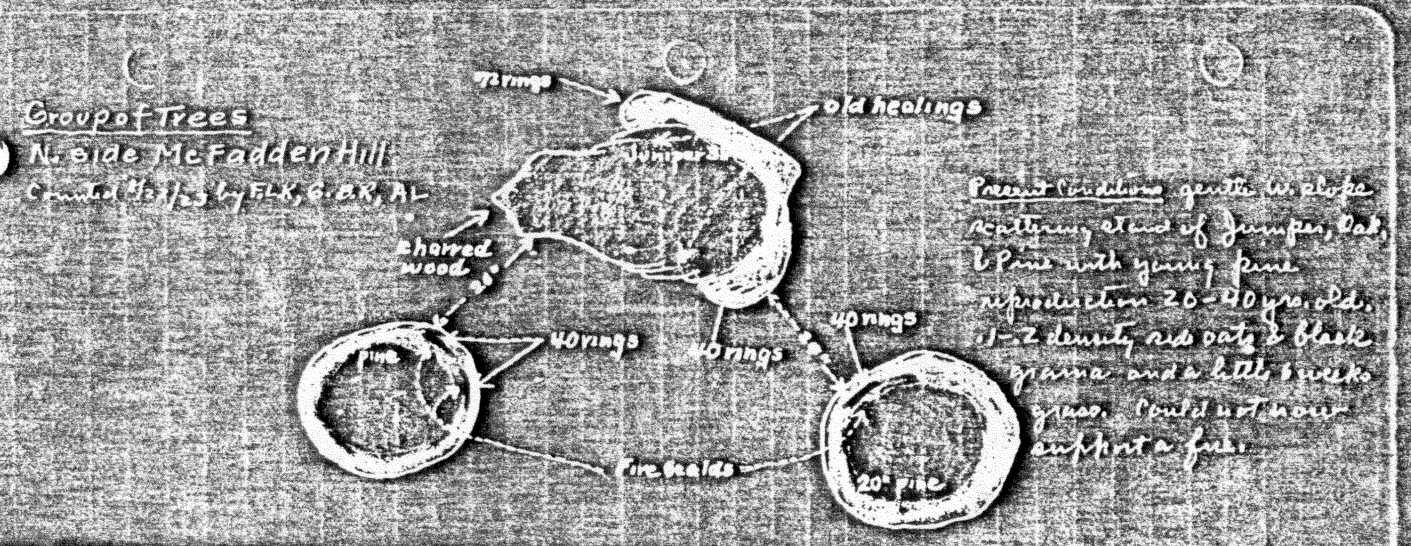


Juniper-pine group, analysis of which appears on page 30 below.

The date of beginning of abnormal erosion is conclusively proven by the trees along watercourses and by historical evidence coincident with widespread overgrazing.

(c) The assumption that the growing fire hazard due to brush can be reduced through grazing is false and dangerous. Some of it is too thick to be opened even by goats. Most of it is too thick to be opened by cattle. Furthermore it is a mixture of many species. Heavier grazing of this mixed brush would usually mean mere substitution of unpalatable for palatable species, without decrease of density. Grazing, through removal of grass-competition, has in part caused this expansion of brush, and can not likewise be made the agency for removing it without resorting to a rate of stocking ruinous to the watershed and to the stability of the livestock industry.

(d) If watershed is dominant, this brush fire hazard must be accepted until such time as it is crowded out by timber. Fires which may meanwhile occur will damage the watershed less than excessive grazing would, because they are quickly healed over by new brush. Such fires can with good organization be held down to an area that will not seriously retard replacement of brush by timber for the forest as a whole.



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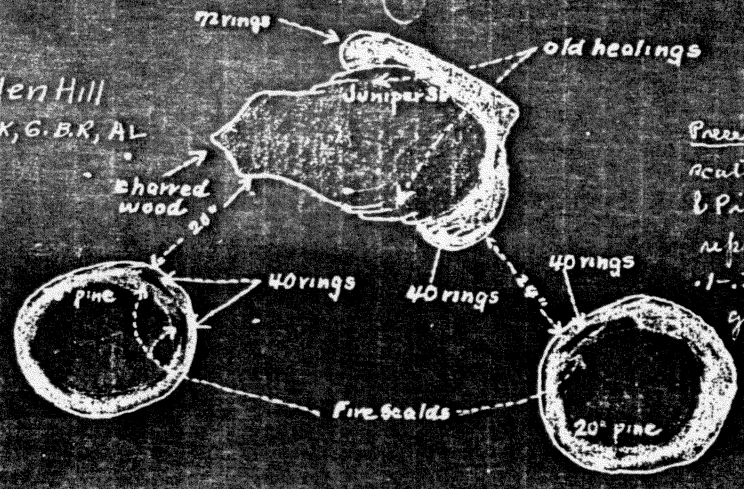
Group of Trees
N. side McFadden Hill
Counted 8/22/23 by ELK, G.B.K, AL



Present Conditions gentle W. slope scattering stand of Juniper, Oak, & Pine with young pine reproduction 20-40 yrs. old. .1-.2 density rich oats & blackgrama and a little 6 weeks grass. Could not now support a fire.

Conclusions Severe repeated fires scarred this Juniper, the last occurring about 40 yrs ago. This same fire scalded but did not scar the two pines. The Juniper had probably reached ate present age or nearly so before the pines started (There are many young pine coming up under old Juniper now on worthy areas) and also received heavy scars, since it seems unlikely that the pines would have survived after a heavy fire.

(9b) No fires have occurred since grazing reduced the grass hazard. There must have been heavy grass to carry the early fires.

(9a) Checks of Scars - Fire Breaks Crossevin Theory

Counted	Location	Notes
18" Utah Juniper	1/2 mi S. Sunflower Rch	Old occur, counted both sides, 50-60 years old. Wouldnt now carry fire.
5" Alligator	Pyle Cr, Control Road	1' from 20" fire killed Juniper near old ranch. 50 yrs or more ago.
4" Manzanita	Same clump	30 years
4" Pine	3 mi E Mouth of Rude Cr	29 yrs. 1' from burned out pine snag. Younger than most of reprod.
3' Alligator	Pyle Cr, Control Road	Healing over rather fresh scar 66 years.
36" Alligator, 2-20" WYP	N. side McFadden Hill	See opposite page

Form S-2

FIELD Designation: Pg. 100

Tonto N.F. Clark & Roscoe (formerly Holder & McDonald)

By Leopold In charge: James

Date 8/12/23

← Rose Cr. Mill 8/21/23

Class	Ranger		✓	Stumps	✓
Amount	20 M		✓	Tops	✓
Rate	2.50		✓	Breaks	
Cut to date			✓	Long butts	
			✓	Def. trees	
			a	Trees left	
			✓	Log damage	✓
			✓	Snags	(5)
Admin. Ins.	Has them	/	Utilization	Records	
	Uses them	/		Has manual	
	Satisfactory	/		Uses manual	
Prog. Map.	Keeps up	/	Scaling	Economy	
Cost Record	Admin.			Check made	
	Logging	✓			
	Milling	✓			
2.50 Stum. Rate	Satisfactory $2.50		b	Lop-scatter	
✓	Payments	✓	✓	Pile-burn	1
				Pulled	
✓ Sale Bdry.	Logical			Fire lines	1
✓	Natural	✓		Kept up	
no	Posted	no		Instructions	
Contract	Final date		Camp Sanitation	Garbage	
	Periodic cuts			Refuse	(3)
	Modifications			Outhouse	
Marking — By local force	Sample			Pigs	
	Satisfactory			Water supply	
	Instructions			Barns	
	Use			Flies	
Marking — By insp.	Plots marked	no		Screens	
yes	Calipered	no		Streams	
no				Sawdust	4
Logging	Plans				
	Cooperation				

(a) possibly a tendency to leave too small seed trees
b To be scattered in draws where there are any.

FIELD Form S-2 Pg. 201

Fire protection	Tools		Officers' qtrs.	Adequate	
	Arresters			Condition	
	Skidder sets			Sanitation	x
	Skidder equip.				
	Loader equip.		Local inspection		
	Engine equip.		Status of operation		
	Watchman		(to be covered below or		
	Patrol		on a separate sheet.)		
	Dead snags		Cover further points of		
	Sawdust		value enabling a		
	Former fires	2	reviewing officer to		
			size up the situation		

1. No band on Holder sale. Mill sold. Unsuccessful attempts to get purchasers to clean up. D.O. finally allotted $90 to clean up at Service expense. This has been expended in lopping & piling this spring but no burning done yet. Piles along road are a bad hazard. Plans are to burn this fall. Suggest borrowing a Hauck Torch.

2. There are three old fires along the road. All before James took charge.

(3) Living quarters and mill on special [illegible] - former badly littered with cans. Already spoken to and will clean this up.

4. Sawdust partly on bank of creek but most of it has been hauled across onto bench on opposite side.

(5) a good many uncut snags. New operators have agreed to do this on their area.

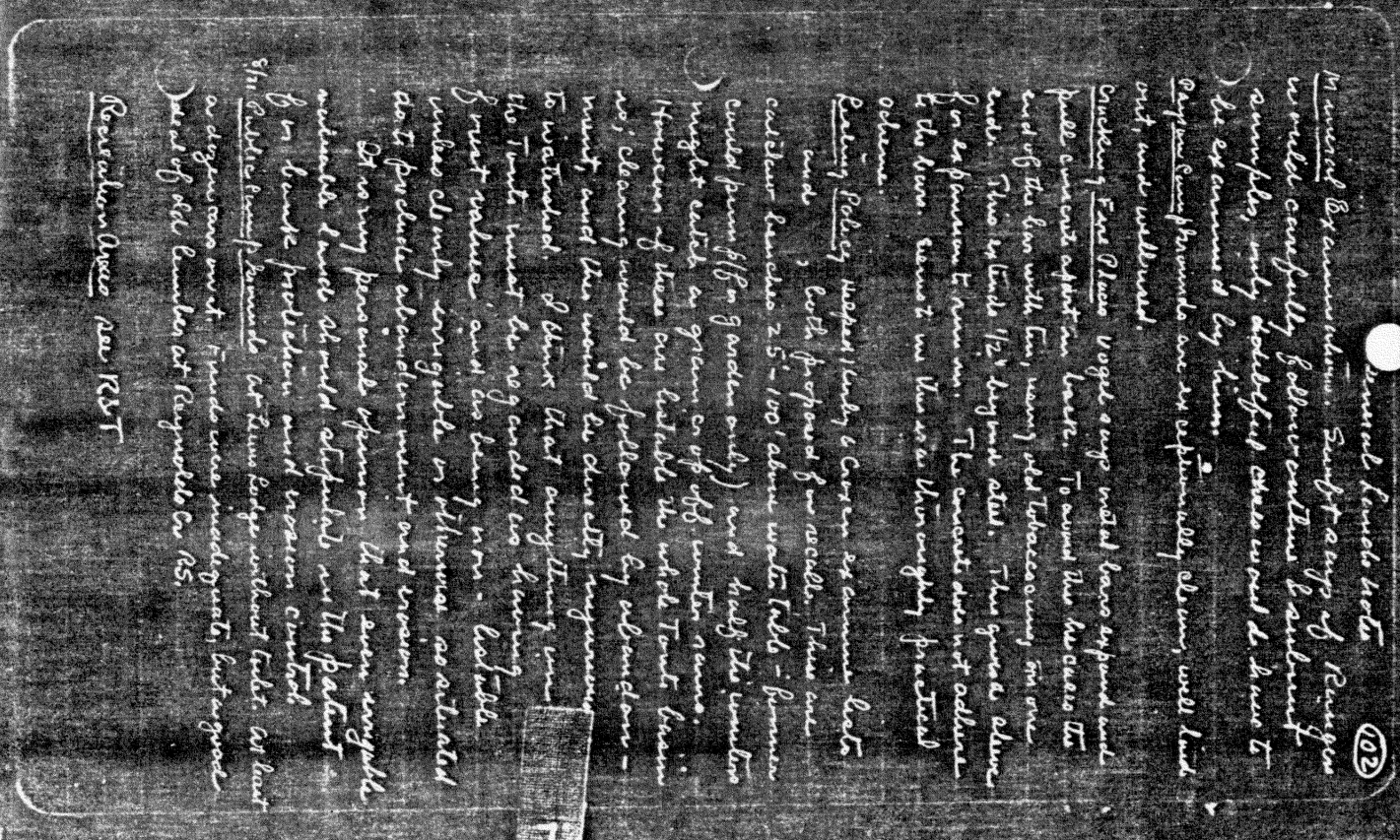
Prices set $45 and $55 respectively at Payson for so called "clear" and "mill run" at Payson, 16 miles west.

SEC. H - LANDS - MISCELLANEOUS

1. Recreation. To my mind the development of a recreation area for Phoenix is the most important current recreation problem in D-3. The needs of Globe, and other cooler towns is not comparable in importance. Distance is the most important factor. See table, p. 14, R. & T.

The proposed Pine Air project has the advantage from a standpoint of distance. Unfortunately I was unable to examine it due to lack of time.

2. Listing Policy. Mr. Jones tells me that the view expressed on N.B. #102, p. 32, is correct. This did not seem to me to be fully understood.



SEC. I - EROSION & WATERSHED.

Due to the fact that Superintendent Craigin was out of town and it was impossible to get the needed interview or data, a final report on the erosion situation is impossible at this time. The following is an attempt to briefly describe the present situation.

1. How Bad is the Present Siltage? The fundamental difficulty is that we have no answer to this question.

The 1916 survey showed 18,000 acre feet. This is less than 1% of the new capacity (2,100,000) and just 1% of the original capacity (1,800,000).

The 1919 survey is of record as no appreciable change over 1916.

I do not, however, accept these figures. There is at this low water stage in sight, high and dry, by ocular estimate:

In delta of Salt River,	15,000	acre feet
In delta of Tonto Creek,	7,000	" "
	22,000	" "

To reconcile this figure with the silt survey it would have to be assumed there is no silt in the lake proper.

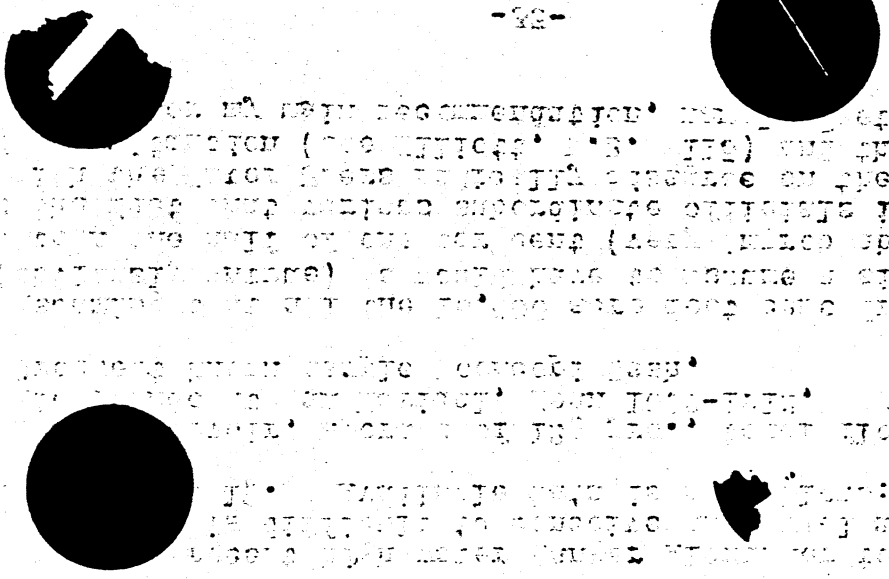
The Water Users own records since 1917 show an average flow of 800,000 acre feet from Salt River (See N.B. #118).

8,000,000 x 10 yrs. x 2% silt = 160,000 acre feet
x 10 yrs. x 1% silt = 80,000 " "

During a recent high water Ranger Alexander took samples showing 4%. It is difficult to conceive an actual average content of less than 1%. Available data is as follows:

Zuni Reservoir, average of 12½ yrs., total flow,	1.88%
Rio Grande at San Marcial, Mean 1897-1912,	1.66%
Greatest known sample (Moencopi Wash)	85.00%

Assuming that all the 18,000 acre feet came from Salt River (obviously untrue) we would have to assume a silt content of less than one half of one per cent (very improbable). Add to this the fact that various subordinate officials in or connected with the Water Users radically disagree on the seriousness of the situation (see Elliott, N.B. #115) and the reason will be clear for my main recommendation, namely, getting an



Mouth of a dry wash about 3/4 mile long in bad lands opposite Anglers' Inn. In spite of the clay formation, these dry washes did not seem active because there is no delta at the mouth of the wash which is in a long estuary where no delta could have been removed by wave action.

Mouth of a dry wash about 3/4 mile long in bad lands opposite Anglers' Inn. In spite of the clay formation, these dry washes did not seem active because there is no delta at the mouth of the wash which is in a long estuary where no delta could have been removed by wave action.

immediate new survey at which a Forest officer will be present.

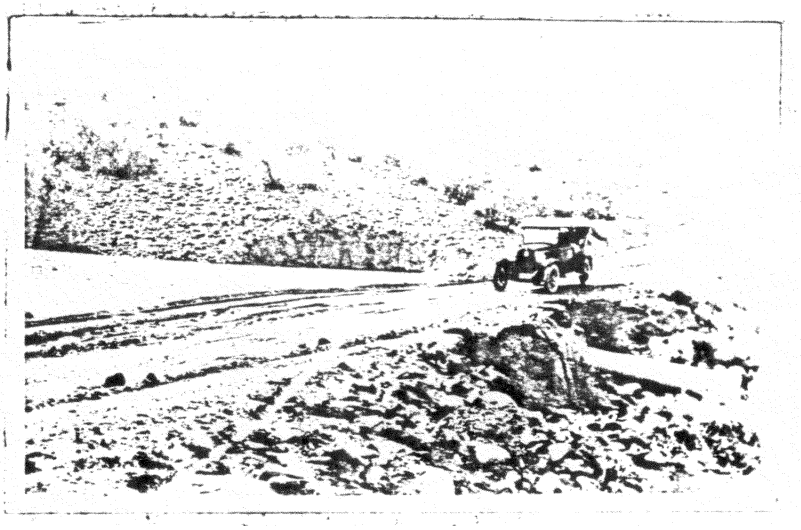
2. Where does the silt come from? A glance at the following map and table will make it evident that:

(a) Unless the Water Users' figures are grossly in error, Salt River is the main source of silt.
(b) Less than half the watershed of Salt River is National Forest. Most of it is Indian Reservation.
(c) Whatever is done on the Forest must also be insisted on for the Indian lands, in so far as can be without actually dispossessing the Indians.

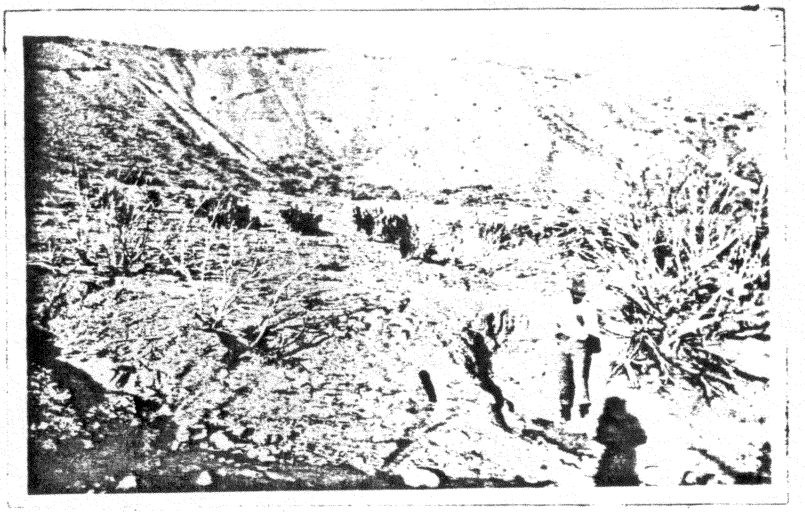
*Areas of Watershed Affecting Salt River Valley

	Roosevelt Lake	Salt River Below Lake	Verde River	Total
Tonto	1,136,500	351,200	734,200	2,221,900
Crook	322,500			322,500
Apache	231,400			231,400
Prescott			818,800	818,800
Coconino			999,800	999,800
Tusayan			693,200	693,200
Apache Ind. Res.	1,578,200			1,578,200
San Carlos "	377,900			377,900
Salt River "			47,900	47,900
Camp McDowell Ind. Res.			25,800	25,800
Public Domain		195,800	914,700	1,110,500
	3,646,500	547,000	4,234,400	8,427,900

*All watershed areas were first outlined according to the division of drainage on the maps. Areas were obtained by planimetering, taking an average of three readings. Areas were outlined on the 1/4-inch base maps for Forest areas and public domain within the map. The public domain outside base map compilation and Indian Reservations were taken from the 1921 General Land Office map. The areas on base maps were divided up into tracts within the scope of the planimeter.



Washout on Roosevelt-Reno road. The washed out culvert on the lower side of the road indicates the former depth of the draw on the upper side of the road. Upper side of the road now entirely filled up by granite fan as a result of one summer rain. A huge acreage of this decomposed granite is on its way to the lake but has not yet reached the lake.



Mouth of a dry wash about 3/4 mile long in bad lands opposite Anglers' Inn. In spite of the clay formation, these dry washes did not seem active because there is no delta at the mouth of the wash which is in a long estuary where no delta could have been removed by wave action.

3. How Bad is Erosion on the Tonto? Bad but not much worse than the average Forest.

I incline to think not much Tonto silt is as yet in the lake. But a stupendous acreage is on the way. This is because the worst erosion is in granite and the granite is too heavy to move far very quickly. There is still a chance to hold by vegetation the granite now on its way to the lake. It is in the washes where a vigorous growth is possible.

Whenever we can get good figures on (1) Tonto Creek flow and silt content, (2) Salt River flow and silt content, (3) Actual silt in lake, it will be possible to calculate accurately the acreage from the Tonto Forest.

Mr. Swift should verify whether the observers on Tonto and Salt Rivers are not taking silt contents, and if this is true, we should urge that they be started at once. A few years would give at least a rough figure to apply to the flow figures.

4. Proposed Remedies.

(a) Total Exclusion. As is evident from N.B. #115, p. 45, Mr. Elliott is publicly circulating a proposal for a sinking fund to liquidate the grazing industry on the Forest.

The calculation on N.B., p. 121, shows clearly that the grazing industry should be sacrificed if necessary, but certainly it is premature to arrive at such a conclusion before we know how bad the silting is, and without likewise proposing a control for the other lands involved, and also some solution of the sheep driveway.

I have already stated under Fire, p. 1, that the increased fire hazard could be handled if grazing were excluded. I do not think that fire should be a very big factor when a decision is finally made. Under Forest Management, p. 2X, is given the evidence in support of the theory on which I base this conclusion.

(b) Reductions would, of course, give partial relief, especially with fencing and rotation grazing. There is always reason to doubt, however, whether cattle reductions would not tend to result in full grazing of a smaller total area, instead of partial grazing of the whole area. Moreover, the area grazed would tend to be the watercourses and gentle country, which need relief the worst.

(c) Sheep. It is conceivable that a wholesale switch from cattle to sheep would facilitate control and do less

damage than the equivalent in cattle. Sheep could not be run in the pine and brush thickets, but these do not need grazing, as already pointed out under Fire Hazards, p. 1. If such a switch were made, more rigid restrictions as to numbers, season, and methods of handling could possibly be effected.

5. Further Studies should be started at once - the big trouble now is that we must guess at the degree of relief exclusion would offer. These studies should include:

(a) Removal of stock from sample grazing allotments, with careful Grazing and Watershed Reconnaissance in advance, followed by periodic observations. See possible allotments, N.B. #109, p. 41.

(b) Small pair of areas to compare actual siltage from grazed and excluded ground. All the siltage could be held at the road embankment by putting an elbow on the culverts, and measured by transit and levels, as is done in the lake. See N.B. #109, p. 41.

(c) Small pair of areas to compare actual siltage from check-dammed and uncheck-dammed ground. See N.B. #109, p. 41.

(d) Working with Water Users in Silt Survey.

(e) Trying out control plants and other artificial works. Of these, Bermuda grass is the most promising. Stream fencing does not look promising.

6. Verde Watershed. James Lane, in charge at Roosevelt, says that the ultimate purpose of the Mormon Flat dam is to divert all of the flow from Roosevelt Lake to a new storage dam at Stewart Ranch on the Verde, which would of course catch all the Verde flow also. To do this the Water Users must acquire the Paradise-Verde water rights. Lane claims they are just waiting for the Paradise-Verde project to explode before undertaking this.

If this is ever done, it of course means that the Verde watershed will fall into exactly the same category as the Roosevelt Lake watershed, and the same controls should logically be applied to both. This would double the area affected and involve a lot of public domain. There is no public domain on the Roosevelt watershed.

7. Summary of Action Recommended.

(a) Induce the Water Users to make an immediate silt survey and assign the Grazing Assistant to keep track of just what is done, so that the results can be reliably interpreted.

(b) Induce the Water Users to start continuous observations on silt content of Salt River and Tonto Creek, and compile all past observations which may be available.

(c) Grazing Assistant to make a thorough study of all reports and data on file with the Water Users as to past silt surveys and interview the engineers who made them, if possible.

(d) Map the nature and extent of erosion. Start of a map attached hereto.

(e) Inaugurate the series of studies and demonstrations listed under (5). Finance out of Range Improvement.

(f) After a new silt survey is made and interpreted, call a conference of Water Users, Forest Reclamation and Indian Services, Stock Associations, and Arizona Industrial Congress to consider a program of action.

Notes on Agriculture

Salt River Valley

Land Prices $100-300, levelled, ready to cultivate.

Dam Charges Payment period extended from 10 to 20 yrs by Act Congress several years ago.

New Dams at Horse Mesa and Mormon Flat financed by bond issue recently oversubscribed.

Electrical Power at Horse Mesa calculated to pay off original dam charges without assessment of landowners.

Interest Charges on private loans for whole valley only $5000 in arrears according to recent estimates quoted by Swift.

Grapefruit said to have brought in 1400 per acre in some cases last year. Swift thinks good future to grapefruit because of recent discovery of canning process which will increase consumption and utilization low grades.

Agricultural Population according to B J Showers of Extension Service there are 7000 farmers in Salt River Valley @ 5 people each = 35000 directly dependent on Agriculture.

Drainage Is accomplished chiefly through big wells placed 1/2 mile apart, from which water is pumped and turned into canals.

Water 3 to 5 acre feet per acre required in Salt River Valley. Short staple cotton because of shorter season takes less than long staple (Swift)

Shrinkage in water from Lake to farm is 60%. (Swift) Evaporation off Lake said to be 14 feet per yr.

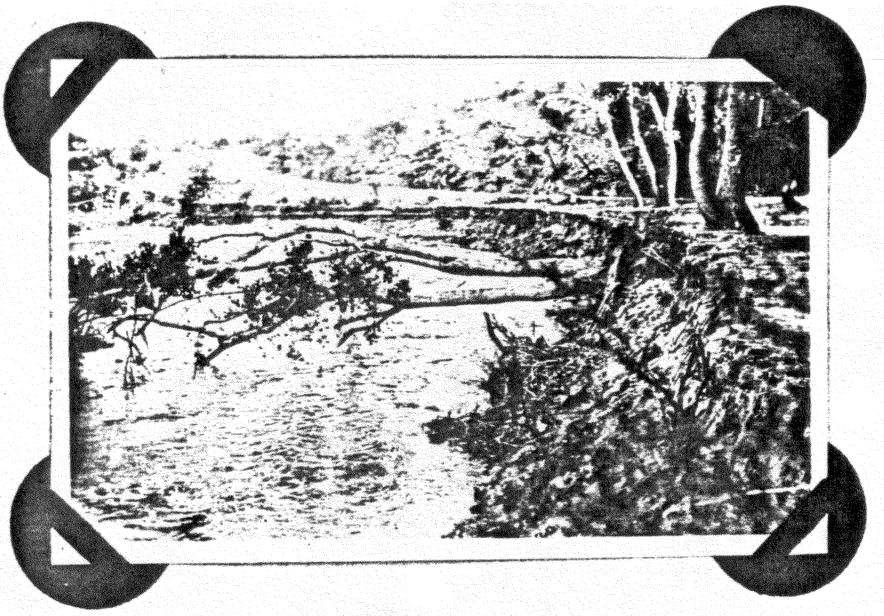
Water Values Reclamation charge is $70.
Sale value of land $200
Water delivery 4 acre feet $270 value
Plus 60% shrinkage 10 acre feet creates -
1 acre foot storage has created commercial land value of $27.00

Indian Check Dams

8/16 Indian Check Dams on Mesa Sec Reno RS were evidently agricultural terraces rather than for erosion control. All in gentle draws with good soil, near village ruins, and extend entirely across draw instead of only across lowest part. Croxen says never found in steep rough country.

8/18 Those on Mafatzals and in Rock Cr. conform to above theory. It might be possible to arrive at a minimum age for this work by silvical evidence. For instance, if a tree could be found with a root reaching over and across a dam, the dam must be older than the tree.

Suggestion: Turn the Rangers loose on the problem of determining the minimum age of these dams. It would be wonderful training in the weakest point of the average Forest Officer of D-3, namely Diagnosis of evidence supplied by nature.



Bank erosion by Tonto Creek at H-4 Trough showing encroachment on Reno-Payson road. The jackstraw suggested, P. 40, is recommended for bank protection in a situation like this.

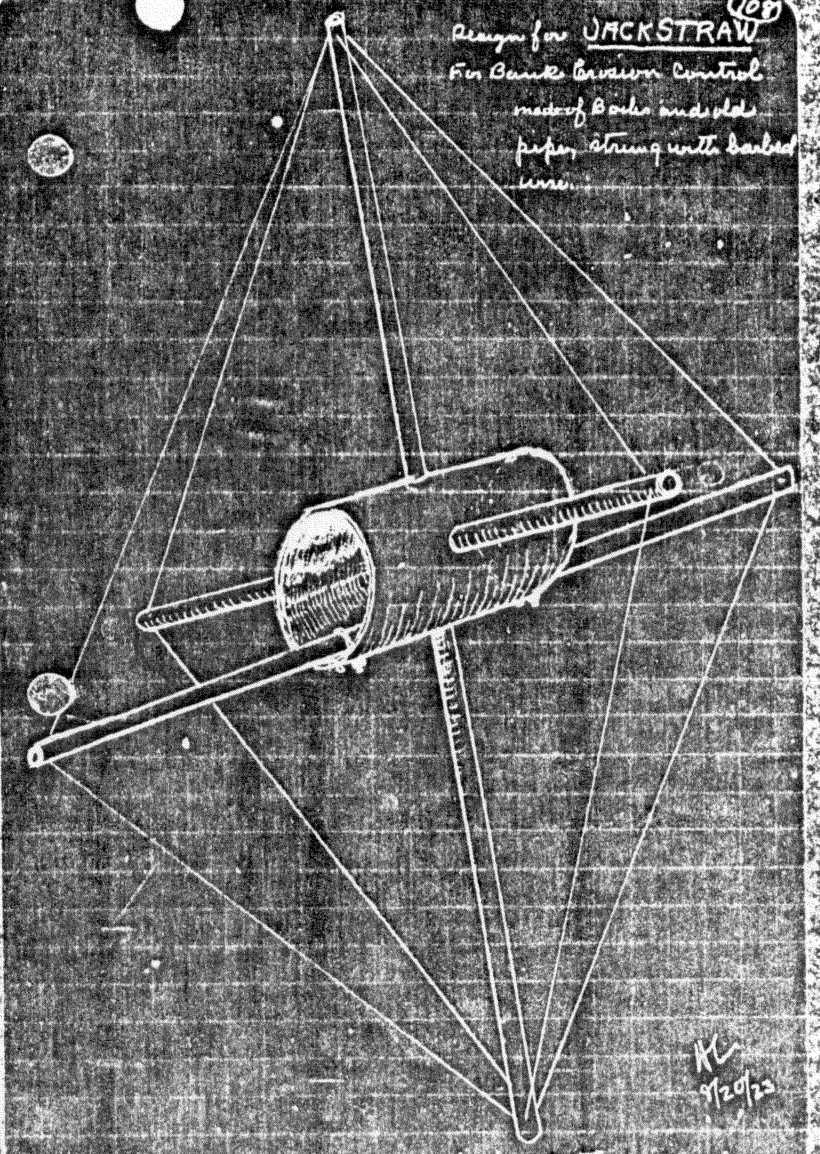
Notes on Mechanics of Erosion

8/12 Star Valley at the Schoolhouse has a grade of 1°10' and is filling rather than cutting. A fork of Star Valley in same granite formation and about same size has a grade of 1°15' and is cutting – banks about 3' high.

8/18 Cutting & Filling Croxen says there was a grove of ash on Ash Cr. which filled up 6'. Trees were then cut for fuel. Later the creek cut and left the 8' stumps. Along lower Bumblebee and side washes of Tonto from Aarglers Inn to Reno are all making big fans which clog all culverts along road. The creek then cuts these off during floods.

8/31 Moving Deltas Kerby points out that the worst condition for pushing the deltas toward the dam would be a big flood during a low stage of the lake. In addition the constant ex-bowing is constantly pushing it down.

Design for JACKSTRAW
For Bank Erosion Control
made of Boiler and old pipe, strung with barbed wire.



AL
8/20/23

This device is cabled or chained to the eroding bank. The current swings it into place – the wire gradually catches debris and by retarding the current induces a deposit of silt, thus deflecting the current from the bank. Willows can then be planted to bind the whole mass together. Suitable for places like H4 trough, where Tonto Creek is threatening the Pay on road.

(109)

Test Areas (Re summed 8/25)

No1 S. of and above highway 7.0 miles from Roosevelt P.O. 15 chs x 5 chs, gentle mesa, Sm mesa grass, cuffe bush, Creosote, Cat claw, mesquite, bluethorn, total density .05 to .10. Catch basin 14 ac, 8' deep, 30" culvert would have to be closed. Remnants of grama & bastard mesquite on area. Barely fenced. .2 mi. E of Grapevine Sign.

No2 S. of and above Highway 4.5 miles from Roosevelt P.O. 3/4 x 1/2 mile (guess), gentle mesa with draws up to 20' deep. Vegetation about same plus yucca, opuntia, & niggerheads. Drains through 8'x6' Culvert, bottom 12' below road, good catch basin. Two forks - 50' dam would divide catch basin of new culvert put in for W. prong. Suitable for check dams.

No3&4 Parallel draws S. of and above highway 4.3 miles from Roosevelt P.O. (about 3/4 mile x 5 chs on 30 acres each. Vegetation same as #2 plus sage. Not suitable for check dams. Both drain by an artificial ditch into a culvert (concrete) 10' wide x 6' high, bottom 8' below road. Separate catch basins could be assured by damming artificial ditch & plugging culverts. (T line is 1/8 mile E of where power line crosses road)

No5 more compact 1/8 x 1/8 mile or better. Culvert 36" pipe, bottom 10' below Road. Best so far. Thin vegetation & snakeweed. 3.3 from Roosevelt P.O. Hoodoos, no similar plot to match it.

8/25 Allotments on which total exclusions might be secured: Jean Holder - Pergola
Herb Howes - Bl Mesa
ZT Outfit - Pk Valley

Notes on Roosevelt Lake (110)

9/6 Rate of fall now about 4" per day. Only 1 day this drawdown that level held into autumn.

Altitude 2230' at high water. Pk lowest 1100'.

Fluctuations Jun 1920 recent (1912 ft over 20 fall way

Dam is about 264' - now about 147. Total fluctuation 117' approx. Only says new 14' gates treabled capacity. 9' doubled at, 5' trebled at.

Temperature of discharge at dam is 38-40°F

Cloudy Water extends half way down E. arm

1st Silt Survey Swift's says win 1912 vs 1914. 14 yrs recollections of fill at that time (3 yrs after construction) was 25,000 acre feet.

Test of Craigins Theory

1,188,000 acres Tonto drains into lake

1,188,000 acre feet silt if only 1' removed

2,200,000 " " present capacity, exc. silt already deposited & counting 15' gates.

Conclusion: 1' removed from Tonto alone would half fill the dam. 1' removed from whole watershed would fill it twice. There is much more than 1' which could be removed, and even then weathering of bare rocks would still produce silt.

*About 4 flow cubic

Mouth of Tonto Cr.

...practicable with the Tonto [illegible]. No delta, valley only 1/3 mile wide, creek very slight and clear, carrying no ... [illegible] ... that only floods ... [illegible] ... to be a factor.

... Tonto was originally a bucket with flood ... since 1891. Water gorged at ... Dam and backed up Tonto Creek ... [illegible] ... 4 Tonto was only 4 to 5 miles. Stockmen ... [illegible] ... for irrigation.

... dense stand of Cat-claws on the basalt ... would be a very effective screen of sediment ... clogged and floods turned through them.

... Tonto is running at ... ox bowing delta ... [illegible] ... 3 ox bows have ... [illegible] ... [illegible] ... depth of delta ... at least 15 feet ... [illegible] ... zone of ... [illegible] ... between the ... [illegible] ... and the ... [illegible] ... growing from ... [illegible] ... Burned ... [illegible] ... wood ... [illegible] ... [illegible] ...

... [illegible] ... 1875 Tonto was ... [illegible] ... 100 yds wide ... [illegible] ... first cutting began before 1891, ... [illegible] ... [illegible] ... the ... [illegible] ... [illegible] ... [illegible] ... [illegible] ...

15

... x 3 miles x 7' = 47000 acre feet

Mouth of Salt River (112)

Notes: Delta material is salt and fine sand — no coarse sand. Present lower water runs actively ox bowing and carrying heavy load more to latter.

Comparison of channel slope with probable height of tree (a) shows no silting below end of zone. Mesquites are above channel.

Delta might be used for agriculture.

Calculation: 4 square miles = 2500 acres x 6 feet = 15000 acre feet in present delta.

Ship floated 1000 miles in 20 days. Runs at 3 miles per hr. 75 = 375 sec. feet. of 2% silt 7 x 1 x 60 x 60 x 24 = 40,000,000 ft silt per day = 40 acre ft = 15 acre ft per day 5000 days to silt delta by ox bowing during low water. This allows height = 1/3 of delta.

8/19 Salt Test by Alexander. 3 quart sample taken from Salt River on March 30th showed about 4% of silt.

8/19 Interview with Roberson, Carleton, Reclamation Engr. when Dam was 114' high over the Dam in 1916. Apron was only 15' long, so it undermined and washed out.

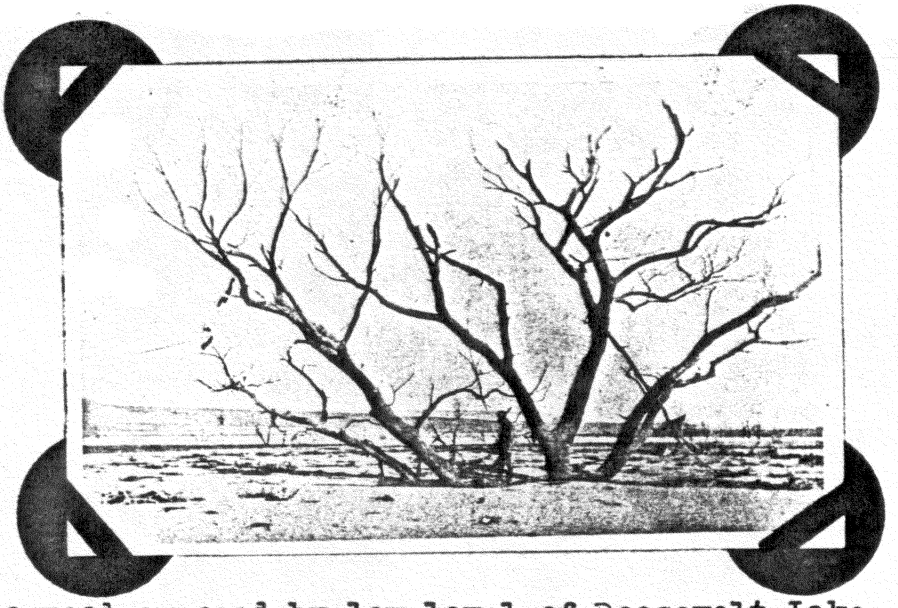
8/26 Channel of Salt River used to take only 24 hrs flood once. Now always running a long time.

SALT RIVER AT INTAKE

From October 1, 1917 to September 30, 1918,	351,716	acre feet	
" October 1, 1918 " September 30, 1919,	886,356	" "	
" October 1, 1919 " September 30, 1920,	1,633,946	" "	
" October 1, 1920 " September 30, 1921,	515,096	" "	
" October 1, 1921 " September 30, 1922,	534,096	" "	
	5/3,921,210		

2% silt content (assumed) x 10 yrs. x 800,000 per yr. = 160,000 acre ft.

-42-



Cottonwood exposed by low level of Roosevelt Lake, showing depth of silting at lower end of Tonto Creek delta.

Mouth of Tonto Cr.

Not navigable as far as the Salt River. No distinct delta, valley only 1/3 mile wide, water flow very slight and clear, carrying no salt during normal conditions. Channel banks 3 to 5 ft. high, only floods cover flats. Creek to be a factor.

9/3 Crozier says Tonto was originally a thicket with sloughs. First flood came in 1891. Water gorged at site of present Dam and backed up over swamp reeds and mud. In swamp also trees had to go ahead of sheep to keep grass.

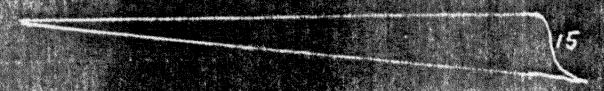
In 1904 Tonto was only 100 to 15 miles. Sheepmen and others felled cottonwoods for browse.

9/5 The dense stand of Batamote on the bars at mouth of Tonto would be a very effective screen of channel could be clogged and floods turned through them.

9/18 Mouth of Tonto is running at 20 ox bowing delta in two channels. These have not covered cottonwoods showing that depth of delta is at least 15 feet.

There is a fine zone of bowlder and cobbles between the highwater line of the mesquite and the subsequent batamote growing from subirrigation. Between the access to a broad sandy bottom there are quantities.

9/18 Florence Packing Co. says when dam came in 1895 Tonto was a narrow gravel wash not over 100 yds wide with deep holes full of long tail. First cutting began before 1891, which was a big flood year. Some bottles of the good timber has been cut out. A big part of the cutting had to move out and go to work on mines.



1/2 mile × 3 miles × 7' = 7000 acre feet

Mouth of Salt River



notes. Delta material so salt and fine sand - no coarse stuff. Salt lower in water river is actively ox bowing and carrying heavy load into lake.

comparison of cottonwoods with probable height of tree (a) above and falling below ends of bars. mesquites are shown above cottonwoods. Mesquite might be used for agriculture.

Calculation 4 square miles = 2500 acres × 6 feet = 15000 acre feet in present delta.

Chip planted 100' in 20 min. 20 min. at same rate 75 = 375 sec. feet. 2% or 7 × 60 × 60 × 24 = 40 000 000 ft. salt per day = 40 acre ft per day 6000 tons per year into mouth of delta by ox bowing clearing lower waters. This seems high - rate 1/3 of delta.

9/19 Salt Test by Alexander. 3 gallon samples taken from Salt River in measured flow showed about 4% of salt.

9/19 Indians in survey Robinson, Carrizo Creek, says water never got high enough to the Dam in 1916. Upper flow only 15' long, 20' at most and washed out.

9/26 Clearing of Salt River used to take only 24 hrs Sunday says. Now always considered a long time.

114a

THE ROOSEVELT DAM

Height of Dam to top of spillway gates	299 feet
Thickness at base	168 feet
Thickness at crest	20 feet
Roadway on top of dam, width	16 feet
Depth of available storage	225 feet
Length of dam on top	700 feet
Length of Dam at base	210 feet
Depth of foundation in bedrock	36 feet
Cement used in building Dam	338,452 Barrels
Masonry used in building Dam	342,325 cu. yds.
Area of the Roosevelt Reservoir	25½ sq. mi. or 16,320 acres
Volume of water in reservoir when full (Enough water to supply the lands under the system with all the water needed for three years without the addition of another drop.)	1,637,300 acre ft.
Area of drainage basin, about	7,500 sq. mi.
Elevation of area within drainage basin,	2,300 to 11,500 ft.
Area of land now under irrigation	205,000 acres

Electric Power developed at the Roosevelt Dam is now 10,000 H. P. At other points 15,000 H. P.

With new plants now being installed and the more complete operation of all plants made possible by the building of the Mormon Flat Dam an additional 7,000 H. P. will be developed or 55,000,000 K. W. H.

Length of Power canal at dam	19 miles
Length of Main Canal and Laterals	781 miles
Depth of Spillways	15 feet
Length of Spillways, North Side	205 feet
Length of Spillways, South Side	220 feet
Capacity of Spillways	80,000 second feet
Size of diversion tunnel at Dam	10x13 feet
First stone laid	September 20th, 1906
Last stone laid	February 5th, 1911
Date of dedication	March 18, 1911

The unit of measurement in the Salt River Valley is the acre foot. An acre foot is water enough to cover one acre of land with water to the depth of one foot. The duty of water is the amount of water required to produce crops In the Salt River Valley the duty of water is about 3½ acre feet per year.

"Gentlemen:—Pursuant to your request of even date for information concerning charges for water service and other purposes on the Salt River project, the following information is furnished. For the season ending September 30, 1922, the charges are as follows:

"Total assessment per share, entitling each acre to delivery of two acre feet of water, is $3.74, which amount is composed of the following items:

$2.00	per acre for repayment of government construction charge,
1.65	per acre for construction drainage works, waste ditch system and enlarging Eastern canal.
2.35	per acre estimated gross cost of operation and maintenance irrigation division.
Total $6.00	per acre gross cost.
Less 2.26	estimated net revenue from power, excess water and other sources
$3.74	per acre net charge.

"If the first two items above, amounting to $3.65 per acre for construction, are considered as fixed charges for the year, there remains the apparent charge of only $.09 per acre for operation and maintenance.

"All water in excess of two acre feet per acre charged at the rate of $1 per acre foot. The average use of water for which the land is charged is approximately 2.8 acre feet per acre.

"For the season ending September 30, 1923, the charges have been fixed as follows: Total assessment per share, entitling each acre to delivery of two acre feet of water, is $3.65, which amount is composed of the following items:

$2.00	per acre for repayment of government construction charge.
1.65	per acre for construction of drainage works, waste ditch system, etc
2.15	per acre, estimated gross cost of operation and maintenance of irrigation division.
Total $5.80	per acre, gross cost.
Less 2.15	per acre, estimated net revenue from power, excess water other sources.
$3.65	per acre, net charge.

"If the first two items in the last statement, amounting to $3.65 per acre for construction, are considered as fixed charges for the year, the apparent elimination of a charge for operation and maintenance is accounted for.

"The net power revenue available for application to the reduction of project charges is approximately $350,000, or $1.70 per acre each year.

"The assessment for drainage works, waste ditches, etc., representing $1.65 per acre each year, was spread over a three-year period, the last installment of which is shown in the statement of charges for year ending September 30, 1923.

"It, no doubt, will be of interest to you to learn that this association controls all of the power rights on the Salt River from the Roosevelt Dam to Granite Reef Dam, and has practically completed arrangements for the financing of a power development program whereby the large consumers of power will advance the money, obviating the necessity of raising funds by direct assessment of its shareholders. This contemplated development within a short time after its completion will take care of all repayments to the United States for construction charges and also pay the normal operation and maintenance charge.

"When the construction of the Roosevelt Dam was first advocated, the assertion was often made that the power system would eventually pay the entire cost. As time went on this possibility was to a ceratin extent forgotten, however, we can now safely say that the original assertion is true and feel confident that it will be a reality within a few years.

[Signed] "F. C. HENSHAW, Secretary."

114 c

Extracts From
"Salt River Valley" C of C Booklet

1867	First Canal built
1911	Roosevelt Dams dedicated
89,317	1920 Census Maricopa County
100,000	Present claimed population
1,367,305	acre feet, capacity of Dams
1100'	Length Granite Reef Dams (38' high)
$50	per acre, Construction charge to Govt
20	yrs without interest, terms of payment
3	acre feet, approx duty of water
205,000	acres now under Cultivation, S.R. Project
100,000	acres, irrigated other ways
700,000	Est. possible irrigable acreage in County
1100'	Av. elevation of Valley
400	miles permanent paved highways now
$250	per acre, improved land without Bldgs
$500	max incl buildings, usual
$4000	capital needed to start 20 acre farm
8-10	Tons per acre, good alfalfa
$ 12,500,000	Govt has expended on SR Project

Cost of retiring cattle industry on Tonto Forest (Kirby)

60,000 cattle @ $30 per head,	1,800,000
Range Imp. - $10 per head,	600,000
Ranch Property - 10 head,	600,000
	3,000,000

Considering revenue from sale of the cattle and other salvages, the cost of the retirement could probably be kept down to $1,500,000

If the stock were only excluded from areas draining into Roosevelt Lake, the cost would be a great deal less - probably under $1,000,000.

List of Questions to Asst Water Users 2

(A) Source of Silt, Salt R. in Rural?
1. Recharge Salt R.
2. Salt Content " "
3. Salt Acreage, " "
4. Total Salt Acreage
5. Percent silted
6. Estimated Life of Reservoir

(B) Valuation of Resources
1. Assessed Valuation of Farms
2. Est. Population of Farms

(C) Silt Survey
(Rec) 1. Cost of first in 1915 (6/15)
" 2. " " second in 1916
(WU) 3. " " third " 1919 1600
4. Acreage Silt #1
(by Haydon) #2 15,000 ?
" " #3 same as 1916.
5. Percent silt #3

(D) Effect of Silt

(E) Water wastage. Acre foot in valley requires acre feet in dams
Evaporation Loss
Leakage loss

(F) Uses of water
1. Average per acre per yr

(115)

Interview F. J. Elliott. 8/3/23

Original cost of dam to goot $11,000,000
Turned over to Water Users at 9,000,000
Earlier Canals worth $

Life of Investment Louis Hill, construction engineer, figured dam would not have to be raised for 100 years. Elliott now thinks it will have to be raised in 20 years (from 1911 or 1923?) at which time it will be 33% to 40% full.

Raising Dam 100' will raise cost to 15,000,000 and would add the present capacity, which is 1,200,000 acre feet. In other words capacity of the $15,000,000 investment would be 2,400,000 acre feet - 30% of 1,200,000 in silt or 2,000,000 acre feet. Cost per acre foot storage would then be $7½. Now $10.00

Scheme for Financing Extinguishment of Stock

1. Get Congress to turn back grazing fees into a sinking fund
2. Assess water users proportionate to reduction in siltage, to be put into new construction.

Original flow of Salt River would have irrigated 200,000 acres, according to Arizona Republican (authority not known)

Valuation Elliott had some idea about compensating for acreage. Swift and I put him right on this. Value of stock & property and going value of business is all that they could be compensated for.

Craigins Idea is that denudation of watershed is best for reservoir, Elliott says. We told him this was inconceivable.

I[illegible]view with James Lane 8/19/23 (117)

Silt Surveys 1[illegible] 2 surveys, about 1916 by Recl. S. and 1919 by Water users. Permanent triangulation stations now established will lessen cost. Thinks would cost under $5000. Siltage not figured in calculating contents.

Storage Old Dam - - - - 1,800,000 acre feet
With new 15' gates add 300,000
Present 2,100,000

Says Dam would not be raised further without widening at bottom. Present factor of safety 16. Cyclonic - rubble construction, consisting of masonry walls with large rocks thrown in & poured around. Cross partitions.

Plans Mormon flat not meant for storage. Ultimate purpose is to divert to Stewart Rob on Verde, catching Verde flow also. Paradise - Verde, however, has to be acquired before this can be done. Thinks Mormon Flat will hold 300,000, and with new power unit at Roosevelt will cost $1,800,000.

Finance The Mormon Flat power ponds (1,800,000) sold at 93¢ to Bank of Italy at Los Angeles. Had hoped to get 97¢.

Paradise Verde voted bonds on their land last week.

Horse Mesa will cost $5,000,000 to be financed by mines who will take it ~~back in~~ power.

Conclusion Lane is not a bit worried about silting. Says diver recently examining face of dam found no silt. Thinks F.S. is going to make silt survey.

SEC. J - CROOK NOTES

County Road. 16' one slope + 2' ditch, 5¼ miles. Contract $65,000 plus about $10,000 for subsequent repairs (mostly fallen walls) = $15,000 per mile. Wall work is poor, partly due to friable schist - partly due to building them too vertical.

Wood. Much wood, mostly oak, along upper part of road. Cut 1922 - sap would be rotten before very long. This stuff is only 2 miles above present cordwood operations, and directly on the road, necessitating no packing. Why not shut down the sales and give them this stuff free to save it?

Recreation Roads. Not being slashed - clearing exactly 14'. Wood piled to one side. Brush should be burned with Houck torch - much quicker and safer. Aspen, ash, maple and conifer cordwood might also be given away to clear it up before road construction.

Ferndale Station badly needed - only one 12 x 16 building now with 6 x 12 porch. Erosion bad on station, should be check-dammed.

Ferndale Trail. Built in 1922 and 1923. Gross miles 6, net 5½. Cost about 3700 ($3000 allotted at first, $100 balance now left). Cost to date $620 per mile. Width 4'-6'. Inslope. Drainage Kelley type but not nearly sufficient and existing drains partly defective. Washed badly by recent rains. Evenly sustained 12% working, 15% maximum grade.

SEC. K - PERSONNEL

(Confidential)

General Comment. The Tonto personnel averages extra good. They are mostly experienced men, and the rangers tend to have one of the faults that goes with experience, namely, a non-receptive mind.

Training. There should be more encouragement of reading and study and more systematic circulation of reading matter. Actual teaching of simple problems in observation, analysis, conclusion, and application to administrative plans is badly needed. The need for such teaching is discussed under "General Appraisal", p. 2.

Promotions are badly needed for Anderson, Kirby, and James in the order named.

The Solomon promotion to $1200 is already arranged for.

Individual Comment. See attached sheets.

Kirby

8/2 Swift says works every night till about 8:30.

8/10 seems very well liked and respected by permittees. Rather sigid in sticking to his viewpoint in an argument on small matters.

8/13 Many evidences of the intolerant mind which goes with the Arizona type of westerner. Very much against "foreigners" and frequently uses the distinction of "white" and other.

With this goes a single mindedness, industry, and loyalty quite out of the ordinary. Told me he studied much of his correspondence courses in camp. One night fell asleep while studying by the light of a candle stuck in a Kyax - bed and outfit burned.

8/20 Kirby's acquaintance is remarkably wide. Everybody knows him.

8/21 Always maintains neat personal appearance.

8/27 Have picked up the general impression that he would function even better on his own as a Supervisor than as a Deputy. He is stubborn on small matters as a Deputy but exceptionally open-minded and has good judgement in big questions of policy.

Conclusion In almost the top class of Supervisor prospects. Should stay in Arizona however, and would of course profit by a good deal more of Deputy experience under Swift.

Anderson

8/2 Swift says attitude and contentment greatly changed for the better during last 6 mos. Says works part of most Sundays.

8/5 Pays 60¢ per day stage fare (18.00 per mo) and gets free ride from neighbor one way. Pays $10 rent in Tempe. Consider possibility of raising an 1800 for helping him & Stiles.

8/13 Was not well liked at Payson, but much improved in attitude and tact since then.

8/27 Showed me his family accounts, balanced each month. On insurance months goes in debt - lives within an inch of the last penny. A raise badly needed and much deserved.

Conclusion In the top class of Executive Assistants and should by all means be kept there at an adequate salary.

(46)

Croxen

8/14 Spent $250 personal funds on completion of Reno house.

8/18 Croxen's outstanding fault is lack of personal control of temper and feelings. He constantly and unnecessarily uses strong names and threats over the most trivial matters or even in telling of trivial matters that happened long ago. This habit must inevitably handicap his public relations.

On the other hand he has excellent and original ideas on his work. Has an extra good field outfit.

8/20 Volunteered a loan to WHO during his illness.

8/26 Swift says he told him to use his strong language to relieve his feelings to him but to watch out what he said in public or to strangers. This is an admirable way to put it. Swift told Duffield that as far as he was concerned Croxen was to stay on the Sheep Trail work.

Conclusion Croxen is a valuable man and fundamentally sound. I have a hunch that less interference with the details of his work, and more training in principles is what he needs.

His sheep trouble probably arises from his habit of intemperate language, used at times without discrimination as to audience. He must be cured of this.

He needs some training in the principles of planning work and is receptive to the right kind of advice on this.

(45)

Bruhl

8/10 Paid $22 for a stetson hat. Is this a sign of not being quite grown up yet?

8/11 See note under Stewart re Stewart being put in charge of range count on Bruhl's Dist.

8/20 Kirby mentioned that he "appeals" from Deputy and Executive Asst's rulings on fiscal matters.

8/21 Kirby remarked B. thinks he is a strong grazing man but he (K) doesn't think so.

Kay

8/21 Carries no notebook, axe, instruments, or slicker, wears boots, spurs, & ex shooter. Very helpful about chores at Ranger Station. Inquiring about material to study - this should be furnished by office.

8/27 Anderson says Vocational officer Kimball told him Ranger course at Missoula was away over his head. Kay told me delay by vocational Bureau in sending him caused him to arrive late and this was why he didn't complete the course.

Conclusion: I have doubts of whether he will make a Ranger but did not see enough of him to attach much weight to my opinion.

(48)

James

8/10 Is member of School Board and seems to be one of the officials of the Payson "Rodeo." Seems to get badly tired out by long rides.

8/11 Kirby says strongest point is improvement in public sentiment. Anderson was not liked. Says has put sales in fine shape. Not especially skilled in livestock or improvement work. Very good at selecting & handling crews, and giving clear instructions to foremen.

8/13 James is taking correspondence courses with Lilly, teaching him his course. Diary analysis shows very long hours of work.

Had an exceptionally well arranged program for stockmens meeting - showed exceptional judgement.

8/26 Kirby thinks him Deputy material and more able than the high paid men on the Crook.

Conclusion James is the best ranger on the Tonto with the ability to expand still further.

Needs training in concise expression, or rather the use of it in shortening his correspondence, diary, etc. This verbiage is harmless but would save much work for himself.

(50)

Stewart

8/11 Kirby says is an extra good cow-man. Was put in charge of Pine Rist. Range count by Goddard over Bruhl, who possibly didnt feel very kindly about it.

8/26 Kirby thinks Mrs S may prevail on him to quit.

Hand

8/10 James is sure he will make good anywhere that he doesn't have fires or other very strenuous work. Especially qualified for Cave Cr., he thinks.

8/22 Rencher thinks he will make good on a non-fire district. Makes a very impression with me. Has his quarters in extra neat and orderly condition.

Hussey

8/2 Swift is worried about Hussey carrying weight with permittees. I told him he had the reputation of being one of the most practical of the technical grazing men. He also doubted whether Hussey had recovered from his "Wild West" stuff. I told him it was my impression Fred Arthur had taken that out of him.

Swift said he had received no letter about Hussey's proposed duties.

Conclusion: needs of the Tonto are for a man:

(a) To give technical advice to the Supervisor on watershed problems.

(b) To take charge of all experimental work on watershed problems

(c) To study, diagnose, and accumulate information on watershed problems.

(d) To function in grazing matters as a Grazing Assistant.

Before Hussey or any other man is assigned it should be determined that he is qualified to handle all the above, of which the first three are by far the more important.

9/10 Interview with Talbot & Cooperrider They say that Hussey is the pick of all the technical grazing men possibly available; that his attitude on grazing and watershed is that of a conservationist; and that he is intensely interested in the Tonto problem and has the brains to contribute to its actual solution. That the "wild west" stuff is all over with.

Reucher

8/2 Kirby was very keen on offering Reucher a detail to G Recom party and then making him G.A. instead of Hussey. Swift also favored this. I told them there was no way open for such a move.

8/3 Got up an idea for financing range improvements through bond issues. Sent in to D.O. 3/17/23 but never acknowledged by D.O.

8/20 Not an observer or student of natural phenomena. Had never studied what denuded the Gambel Oak on Astec, what had thickened the brush, what effect fire had on brush. However has a fair knowledge of grasses.

8/20 Doubt if he has an exceptionally high ethical standard in some matters. "Sandpapering rifle in army"

8/21 Has "cowpuncher" attitude as to equipment. Sole leather chaps, street shoes, six shooter, 3 dogs but no notebook, axe, or slicker. Negligent about shaving and personal appearance.

8/21 After a falling out with Arthur Hall, with whom he was going to enter a partnership, he wanted to cut off Hall's telephone line (granted free as Per Diem Guard) until ordered not to by Kirby.

Also predicted that County would close up Lewis Lodge because it is a roadhouse. Had not occurred to him that if it is that bad it is up to him to pass on breach of term permit requirements.

Has decided not to resign.

Later: Evidently was "hot up" in above matters. Made a generous remark about Hall.

Conclusion Valuable and fundamentally sound, but does not absorb new ideas from paper and must be taught them in person. Has a lot of them to learn.

Cheney 1924
Apache

1440 Inspection
Gen. Insp. Reports - Apache
Vol. I

D
Supervision-Apache,
Inspection.

September 10, 1923.

Forest Supervisor,

Springerville, Arizona.

Dear Mr. Siser:

I have just had an opportunity to read Mr. Kircher's report and believe that it might help clarify some of the points discussed in it to add the following supplementary statement:

P. 2, Printed Guard Letters.

I intend to try to work out this idea and believe that it has merit.

P. 6, Ranger Labor on Phone Lines.

The desirability of having rangers perform labor on phone construction possibly depends somewhat on the season during which the job is done. If such work can be performed during the non-field season, it is probably often a very desirable use of ranger time. On the other hand, as Mr. Kircher states, it is liable to be very undesirable during the field season. The recent Apache work seems to have been performed in October and November. The degree to which this has interfered with administrative work is something that a Supervisor can best judge.

P. 10, Motors.

For some years there was a doubt as to the propriety of our trading in motors obtained from the Army through the B.P.R. It is now decided that anything but heavy trucks thus obtained can be condemned, turned in on the purchase of new motors or otherwise handled, the same as Forest Service cars. The big trucks, however, are disposed of by report-

ing them to the B.P.R. for disposition. This is simply mentioned for information.

P. 13, Sherman Assignment.

I am sure that you will agree that Sherman should not be kept indefinitely on miscellaneous work since he is too experienced and capable a man. Unless an opportunity to give him a district arises in the comparatively near future, it might be well to consider whether he should not replace one of the less valuable men now on districts or else be offered as a District Ranger to some other Forest. I am sure that the Datil has need of him should the opportunity to place him on the Apache not materialize.

P. 19, Work Plans.

It is noted that the west end of the Alpine District is still being slighted. This was the condition in 1921 and possibly this situation illustrates a point which the Apache rangers need to learn about work plans. It is my recollection that the Apache concurred that the west end of the Alpine District had been ignored. If so, did the work plan for that district set up the job of correcting this defect? If not, has that job now been set up?

Field Time.

The following is a summary of the diary nalysis made by Mr. Kircher, converted to yearlong and compared with the D-3 average. The asterisks also compare with certain figures from the 1921 analyses.

		Non-Work	Non-Field	Field	Overnight
	Marks	54	218	a 93	36
(converted)	Balke	42	185	136	116
	Girdner	44	203	•118	67
(converted)	Fears	42	104	220	89
"	Haynes	38	204	x 120	50
		5/220	5/914	5/687	5/358
		44	183	138	72
D-3 average,		50	141	173	73

• Nave 146 days 1921
x 140 days in 1921
a 150 days in 1921 on Nutrioso Dist.

Apache...

Fire.

The improvement that has been made in the fire organization is highly gratifying to Operation.

Very sincerely yours,

FRANK C.W.POOLER, District Forester,

By [illegible]

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
SOUTHWESTERN REGION
517 GOLD AVENUE, SW
ALBUQUERQUE, NEW MEXICO

IN REPLY REFER TO

6230

February 2, 1968

Miss Susan Flader, Project Assistant
Division of Archives, Memorial Library
University of Wisconsin
Madison, Wisconsin 53706

Dear Miss Flader:

In our letter of January 26, 1968, we advised you that we would recall from the Archives the Engineering inspection report prepared by Messrs. Long and Leopold in 1923.

We have received this report and after review find that only a portion of the report would provide the information you wish. Copies of this material are enclosed and you may keep them.

Sincerely yours,

Wm D. Hurst

WM. D. HURST
Regional Forester

Enclosures

O

Improvement-Coconino,
Minor Roads & Trails,
Mormon Lake-Long Valley Road.

September 28, 1923.

Memorandum for the District Forester:

I visited this project September 25 and 26 and examined all work as far as the cinder cone which is about 1½ miles north of the north end of the Mulder work. I told Supervisor Miller and Project Foreman Young that my visit was mostly for the purpose of information because you expected to visit the ground in the near future and would make final settlement of any questions remaining open.

General Aspects:

Making Mormon Lake the north terminus of this project was based on the assumption that the County would connect with us from Lake Mary. There has been a recent change of administration in the County and the new commissioners are unfamiliar with the County road system. Even after making due allowance for this, it remains a fact that not only is there no assurance as yet of the construction of a road from Lake Mary to Mormon Lake but the road from Flagstaff to Lake Mary has received practically no maintenance this year and is being badly damaged.

I wish to raise the question whether it is good policy for us to count on the County for the new construction needed when they are not performing the needed maintenance on already-constructed roads. The result of Supervisor Miller's study of this question should be determined before the extension of our construction beyond the Mulder section is approved.

During a summer like this last one, the Lake Mary-Mormon Lake road could hardly be considered as a usable route.

Mormon Lake-Double Cabin Park Section (1922 work). Mr. Long recommended that this section be repaired and brought up to 12-ft. standard next spring.

I found it to be badly damaged. Many of the culverts will be cut if the ruts become any deeper. After consultation with Supervisor Miller, we decided to recommend that the reworking of this section be undertaken this fall. Having obtained your approval of this recommendation, I wired Supervisor Miller today accordingly. There should be transferred to this section such part of the balance in the 1923 allotment as Mr.

Miller finds necessary to spend. This plan contemplates that the 3¾ miles of grading necessary to connect the 1923 work with the Mulder section will be performed first thing next spring. This 3¾ miles is already cleared.

Location Surveys. Mr. Young claims that experience has proved that the parks instead of being boggy holes which should be avoided in location work, actually contain more gravel than the side hills and of course also have the advantage of more sunlight. He advises that in the further extension of this project, this experience be kept in mind.

Traffic Regulation. The damage done by traffic this summer is bound to suggest the question of whether traffic should not be excluded from this road during *periods when it is possible to do so and when the damage which would be done would outweigh the value of the traffic. I would suggest that Supervisor Miller study out the amount and kind of regulation needed and that we take up with Washington the establishment of the necessary authority by regulation of the Secretary or other means. Heretofore where regulation has been attempted at all, we have had to depend on Counties and other agencies. The Santa Fe desires to regulate traffic on the Pecos road; the Manzano, in my opinion, should do so on the Tejano road. With your approval I will go further into this matter.

Double Cabin Park-Mule Park Section (1923 work). As pointed out in Mr. Long's memorandum, about 1/2 mile of this project was built 18 ft. turnpike. The remainder is built to the standard 14 ft. turnpike and 12 ft. crowned side hill section with a 2-ft. ditch.

Excess Width. Mr. Young gives the following explanations of the 1/2 mile which is above standard: At the start of the work his tractor man, who was a vocational student, took it upon himself to ignore the 12-ft. width stakes and plowed up some extra width. When this came to Young's attention he was angry and went off to think the matter over. It then occurred to him that a short section of extra width might be a valuable demonstration of the best method of providing material for a 2-ft. shoulder to hold surfacing next year. Accordingly, he built a half-mile of this 18-ft. section; 4-ft. of which is to be cut off for shouldering purposes next spring, thus reducing it to standard 14-ft. turnpike. I told Supervisor Miller and Mr. Young that so extensive a departure from specifications should have been at least reported to this office. On the other hand, Mr. Young and Mr. Miller feel that Mr. Long should have mentioned their explanation of this over-standard width in his report.

Surfacing. The merits of Mr. Young's experiment with this excess width for shouldering purposes is, of course, an

*I mean here the spring period after the closed winter season

engineering question which should be passed on by Engineering rather than Operation. A diagram of the actual turnpike section involved leads me to believe that the amountof material in the excess width is just about sufficient for a 8" shoulder. If, however, the surface is to be less than 8" at the edges or less than 10-ft. wide, it is probably more than sufficient. I do not see how this road can be intelligently built or inspected until the specificationsfor surfacing have been agreed upon. I recommend that Engineering draw up a diagram of the proposed method of surfacing with the necessary explanations.

I was pleased to find that Supervisor Miller has been looking up the feasibility of crushing hard malpais and Mr. Young has made someinvestigation of a Ryolite dyke which occurs on the 1922 section and a cinder cone which occurs about 1½ miles north of the north end of the Mulder section. These investigations have not been concluded but the foresight exercised in starting them will probably facilitate our 1924 surfacing problem. I forgot to suggest this in the field but I would now suggest that if possible some test pits be sunk in both these formations and some samples taken so that the surfacing question may be further studied during the winter.

Clearing. The 1923 work as far as *Mule Park is standard 25-ft. clearing and needs nothing more than that. From Mule Park to the cinder cone, the original 25-ft. has been widened to 35-ft. A thorough examination convinces me that practically all of this section is either boggy or runs through pine thickets or constitutes turnouts or curves; all of which justify the additional clearing. The cinder cone itself, however, being in a favorable formation and being partly south slope, needs no excess clearing and with this the local officers agree.

~~[illegible]~~ the 1922 ~~[illegible]~~ 35-ft. ~~and~~ the local officers told me that they do not favor any blanket widening to 35-ft. but desired authority to make selective cuttings on such parts as they deemed necessary. I told them that under the Manual and the existing specifications, they already had such authority. We then rode over the 1922 section and checked each other as to just what should be cleared - finding ourselves in substantial agreement. I therefore authorized them to make selective clearings on the 1922 section but requested that such clearings be conservative since it is always possible to later remove trees that may erroneously now be left. My observations convince me that the shade problem, in so far as it has resulted in actual rutting of the road, is practically confined to level flats. There may be places on the grades which remain slippery a little longer by reason of shade but in considering clearings in such places it should be remembered

*1/2 mile beyond present camp

that the road will be wider and also surfaced as well as crowned; all of which will tend to mitigate the seriousness of a slightly longer duration of slippery conditions.

Logs and Brush. An effort has been made to give away the logs cut on the right of way to the Straham mill about one half mile from the present road camp. The mill has not so far utilized any considerable amount of these logs. If there is any way to persuade them to take more of them, it should be done. This is a problem in which, it seems to me, the District Ranger shouldlend a hand.

Brush has been dragged from the right of way and neatly piled in the woods. While this method of disposal has been conscientiously carried out, I do not consider it the best method. I believe it would be cheaper and better to cut the necessary fuel and burn the green brush on the right of way. The local officers seem to think this a promising scheme.

Cross-sections. Form MR-1 setting specifications for this project allows Cross-sections E or F as alternatives in troublesome ground. Putting the matter briefly, the Coconino has construed all of its ground to be troublesome and is using Section F universally on side-hill and Section G universally on turnpike. I am sufficiently impressed with the difficulties of this malpais formation to consider this practice as justified.

Merits of 1923 work. I was strongly impressed with the general excellence of the road Young has built this year. Aside from the question of departures from specifications, the Coconino officers seemed in doubt as to whether it might not be too good to please this office. I told them that it was my emphatic opinion it was not too good. Their efforts to raise the crown above the surrounding country is proven by the existing conditions to have a vastly superior durability under moisture than the sub-standard work done last year.

Turnouts and Curve Widths. I did not have time to go into this in detail but Young tells me that except on the experimental half-mile the dimensions are practically standard. In any event, no important degree of expenditure is involved in these questions.

Costs. The local officers said that approximately $5,000 of this year's $20,000 allotment went into maintenance and repairof 1922 work, leaving approximately $15,000 as the cost of six miles of 1923 work - an average of $2500 per mile. I am not competent to pass on the merits of this figure but am inclined to consider it a good showing.

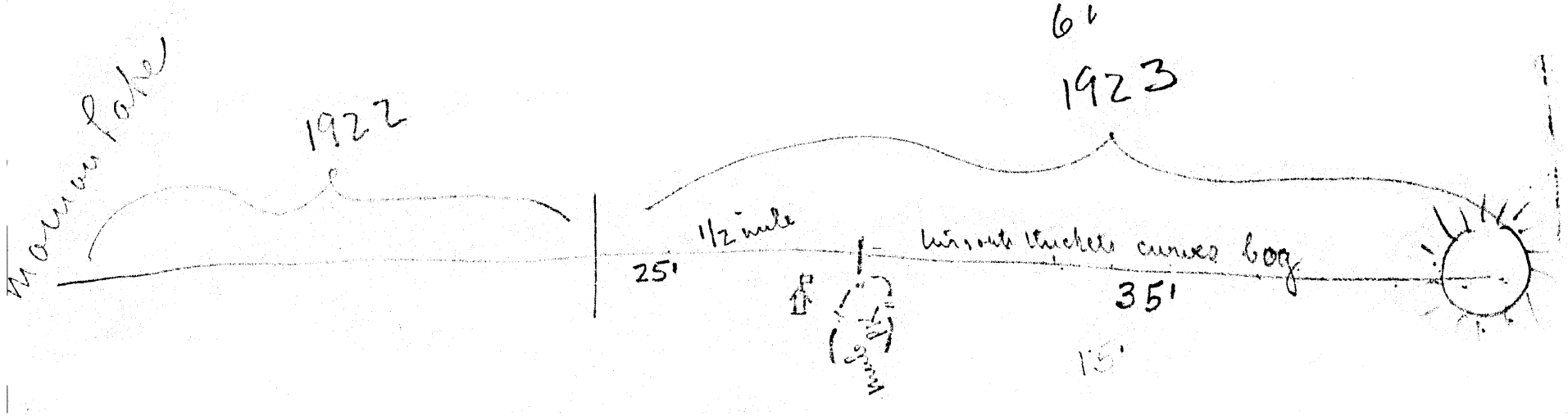
Organization and Wage Scale.

1	Flunkey (dishwasher and water)	$2.00 per day
1	Cook, $90 per month,	3.00 " "
1	Foreman	4.50
1	Tractor Driver	5.00
1	Grader man or plow shaker	5.00
1	Plow shaker (holds plow)	3.00
1	Fresno man @	3.00
1	Skinner (6 horses) also tends horses	2.75
2	Powder monkeys @ 4.00	8.00
15	Pick and shovel and labor @ 2.50	30.00
1	Quad driver, 90 per mo. part of time	
10	horses $2.00 each (they feed)	20.00
		86.25
	26 x 3 = 75 meals @ 33¢	25.00
	Project foreman	5.60
	Outlay per day - - - - - - - - - - - - -	116.85

Mulder Section. Apparently the result of our two years' experience with this road has brought us back to the specifications adopted by Mr. Mulder on the Blue Ridge section. While I did not have time to examine this section, Mr. Miller assures me that it is standing up remarkably well. It seems to me that Mulder should be given the credit for his skill, ~~and if after you~~ ~~correspond with me, I would suggest you write him a note of appreciation.~~

Aldo Leopold

Assistant District Forester.



Mamon Lake
1922
6'
1923
1/2 mile
25'
35'
15'

1440 INSPECTION
Coronado
GII 1904-1941
FRC 3614

D
Supervision-Coronado,
Inspection.

December 20, 1923.

Forest Supervisor,

Tucson, Arizona.

Dear Mr. Calkins:

I have been much interested in Mr. Kircher's report. Possibly the following comments might somewhat clarify a part of the questions raised.

P. 3, Fire Atlas. I, of course, still remember your general view of the plan of accumulating fire experience through a fire atlas. We went into the matter very thoroughly to determine the practicability of dropping a part of the requirements for the southern Forests. We found that the A - K system could not be compiled for the District as a whole without requiring substantially all of it from all Forests. The system is built to get uniformity and comparability. The need for uniformity is, of course, obvious and the necessity of requiring the whole system from all Forests is one of the penalties we must pay to get it.

P. 4, Fire Maps. There is no objection whatever to dividing fire maps for use of field officers and giving them only such part of the Forest as they have a real need for.

P. 4, Improvements. We can nowhere meet your needs for the coming year. The present scheme of allotment among Districts is apparently in effect for two more years and the Forester has not seen a good chance to ask for an increase.

P. 6, Roads. It is entirely possible that we erred in withdrawing the Turkey Creek money. There will be an opportunity to discuss the whole plan at the coming conferences and with the advantage of Mr. Kircher's recent visit we ought to be able to get at a better understanding.

P. 8, Pastures. While possibly a minor matter, I would like to express my gratification at the reported improvement of your pastures. D-3 could hardly defend the condition of many of our pastures and I can not help but

L. N.

think we must begin our range conservation at home.

P. 8, Maps. It is also gratifying to note the active work in map improvement mentioned in the case of Smith and Thompson. This activity has tended to stagnate in recent years.

P. 9, Speedometers. It is noted that your new Ford has no speedometer. A cleanup of our store-room has just revealed a complete one and we are sending it to you at once. We are trying to make all our mileage records based on actual speedometer readings.

P. 11, Diary Analyses. In addition to Mr. Kircher's summary of non-field time, I have for my own information prepared the following general comparative table:

	Non-Field	Field	Overnight
Scholefield	132	172	102
Wingo	141	181	115
Frieborn	162	153	85
Smith	140	177	96
Harris	133	195	87
Galer	180	125	51
Olson	158	153	80
	7/1046	7/1156	7/626
	149	165	89
aver.	141	173	73

My information is insufficient to draw full conclusions. It is interesting, however, to note that your rangers are above average on overnight and a little below average on field. Superficially the conclusion would be that they are a little sparing of field time but use such field time as they do put in to good advantage. Galer's field time pulls down the average perceptibly.

Very sincerely yours,

FRANK C.W.POOLER, District Forester,

By Aldo Leopold

Pooler - 1923
(Datil)

1440 INSPECTION
General Inspection Reports - Cibola
Vol II
FRC 3613

D
Supervision-Datil,
Inspection.

July 25, 1923.

Forest Supervisor,

Magdalena, New Mexico.

Dear Mr. Douglas:

The following comment is offered on Operation subjects, supplemental to Mr. Jones' report. The points covered by Mr. Pooler's letter of July 24 are not repeated here.

Ranger Lookout - p.25.

The standing rule is that all rangers are to live on top and all lookout-firemen, except as specifically approved by the District Forester. Such specific approval is supposed, of course, to rest on special reasons and no such reasons are cited. Presumably, however, the arguments have been gone into if there were any reasonable alternative. On this assumption the arrangement is approved.

Protection on Towers - p. 28.

The standard is that all towers were to have at least a breast-high wind protection by 1923 and all regularly used towers were to be housed in as rapidly as funds permit. Protection from weather is doubtless especially important on the Datil and experience has thoroughly substantiated its importance in general.

General Comment.

Judging from my casual visits to the office last spring, there may be the necessity of a mutual understanding as to the report of general satisfactoriness in such questions as fire plans, fire suppression, law enforcement, fire atlas, improvement plans, R. & R. plans, work plans, use of time, etc. Not having been on the Datil for several years I can, of course, speak only from general impressions but it might be well to guard against giving the rangers the impression that the re-

port actually O.K's performance in all these matters. As I understand it, the report does O.K. them from the standpoint of comparison with other Forests and from the standpoint of effort made and progress made but hardly from the standpoint of actual satisfactoriness as compared to standard since no Forest is in that condition and not even this office is fully functioning in any of these respects. I do not think there is any possibility of misunderstanding as between the staff and this office but there might be such a possibility when the rangers read the report.

Miscellaneous Points.

It was my understanding that you had finally decided that Fritz was not District Ranger material in the long run. I recommended him to the Apache on these grounds. If final decision is still pending, this office would like to be notified of your final opinion when it is arrived at, together with specific recommendations for his future.

I take it that you will add to your program for next year the jobs now unrecorded but agreed upon as a result of this report.

We have been trying to develop a standard method of measuring and comparing use of staff time with respect to length of trips. As a suggestion which might help in your own study of your own problem, I will shortly send you a photostat of a method tried out on the Santa Fe which may bring this point out in a little bit different way than the tabulation on page 17.

Experience on other Forests this year points to the organization of trail maintenance as one of the spots which needs attention on most Forests. If the past season has brought out anything new as to methods, I would appreciate your telling me about it at the next opportunity for conference.

If the delay in getting fire signs, mentioned in Par. 4, p. 26, was due to any delay in this office, we would be glad to be advised.

I have the general impression that your Forest deserves commendation with respect to the percentage of law enforcement cases actually obtained on the really man-caused fire risks. This may simply be a reflection on the general absence of tourists but nevertheless it is what we are striving for.

It is quite a blow to be losing Crain. I wonder if he fully appreciates the better salary situation which will

gone to the rangers of his class under reclassification, and the importance which the whole service now attaches to rangers who make a sustained and successful effort at actual conservation work on a ranger district through a period of years. I can not help but think personally that Grain is quitting at the wrong time. There is every prospect that by next July 1 he would have a real money-saving job and that opportunities for recognition of the kind of work he has started are increasing all the time.

Very sincerely yours,

FRANK C.W.POOLER, District Forester,

By Aldo Leopold