

MISSOURI DEPARTMENT OF CONSERVATION

MEMORANDUM

Date January 2, 1975

FROM: Wayne Porath and John Lewis

TO: Deer and Turkey Committee, North Central Section of  
The Wildlife Society

cc: Wildlife

SUBJECT: Deer and Turkey Newsletter

There appears to be an interest in the exchange of information relating to research and management on deer and turkey among the states associated with the North Central Section. Individuals who attended the deer and turkey meeting at the Midwest indicated an interest in the formation of such a committee. Such a committee could serve to facilitate the exchange of ideas and cooperation between the various states relating to common problems and objectives concerning the deer and turkey resource.


In an effort to follow through with the interest that has been shown, a brief newsletter containing a status report and your ideas about the desirability of such a committee hopefully can be assembled.

We will prepare this first newsletter upon receipt of status reports and comments from participating states. Each state should designate individuals to prepare a status report. One for deer and one for turkey. Comments concerning the committee: objectives and procedures should be sent in by everyone who has an interest.

Each status report should contain information on habitat conditions, populations, hunting pressure, harvests and hunting success. Additional information might include brief accounts of current research and management programs.

The success of this committee depends on the collective interest, without it, it won't work.

WP:JL:sss



MISSOURI DEPARTMENT OF CONSERVATION

MEMORANDUM

Date August 21, 1975

FROM: John Lewis and Wayne Porath  
TO: Midwest Deer and Turkey Committee Members  
SUBJECT: 1975 Newsletter and Status Reports

---

The Midwest Deer and Turkey Committee is off and rolling. Thanks to input by many of you, we have been able to compile a set of status reports, an appropriate first step in the long term functioning of such a committee. We especially thank Bob Donahoe, Supervisor, Forest Game Project, Ohio DNR, for chairing an organizational meeting of the committee at the 36th Midwest Fish and Wildlife Conference held in December 1974 at Indianapolis.

Contributors of the status reports will recognize that we have done some editing -- primarily to condense reports to one or two pages. It becomes obvious in reading the reports that there are some problems common throughout the region. With deer, loss of habitat, excessive illegal drain, lack of suitable census tools and increasing the use of rationing to provide adequate hunting opportunity yet protect the resource are examples.

Problems confronting turkey management shared by most of the states in the mid-west are: loss of habitat, due to changes and intensity of land use, maintaining interest and awareness in the wild turkey from both the esthetic and sporting viewpoint and providing maximum hunting opportunity consistent with existing populations. Inherent with these problems is the need for developing and implementing better census techniques, a better understanding of the impact of current hunting seasons with regards to harvest mortality and hunting pressure and hunting success.

An appropriate future step for this committee may be to zero in on some of these common problems and exchange ideas for solutions. We saw evidence in the reports that progressive management of these species is occurring throughout the region. Let's share those progressive ideas.

Several people have given suggestions for future activities of this committee. These include:

1. Keep the committee informal.
2. Meet annually at the Midwest Fish and Wildlife Conference and hold a field workshop every two-three years. Hold the workshop at a time other than the Midwest because competition for travel spaces to this Conference is keen.
3. Develop a general statement of purpose.

# Missouri Department Of Conservation

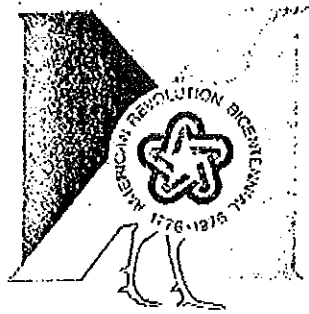
Midwest Deer and Turkey Committee Members  
August 21, 1975  
Page Two

4. May be conflict with the Great Lakes Deer Committee.
5. Provide opportunity to discuss mutual problems and possibly form research committees to attack common problems to eliminate possible duplication of research efforts.
6. Hold attendance to a minimum to facilitate better exchange of ideas.
7. It may be desirable to sub-divide a meeting into a turkey section and a deer section to allow smaller discussion groups.
8. It may be appropriate to include Kansas, Nebraska, South Dakota and possibly North Dakota since their deer and turkey ranges include agricultural areas (note that a Kansas report is included).

Interest in a workshop, as indicated in the letters received, appears to be high -- are there any volunteers? A justification for the committee's existence should be developed by all the participants at this first meeting. Subjects for discussion could be selected from the status reports and expanded. Hopefully a committee member from the (host state?) would agree to serve as chairman for the committee in 1976.

Again, thank you for your interest to date and we'll watch the mail for letters from volunteers. A committee's collective vitality depends on the individual interest of its members.

JL:WP:sss



## MISSOURI DEPARTMENT OF CONSERVATION

Fish and Wildlife Research Center • 1110 College Ave.  
Columbia • Missouri • 65201 • Ph. 314 - 419 - 3761

CARL R. NOREN, Director

January 20, 1976

Mr. Jack Calhoun  
Illinois Department of Conservation  
605 State Office Building  
400 South Spring Street  
Springfield, Illinois 62706

Dear Jack:

First let me state that we suffered from our Tuesday night dinner most of the way back to Columbia, thanks primarily to OT.

Below is a summary of a few discombooberated notes I took during the organizational meeting. Obviously, my secretarial abilities are lacking (remember that when you vote next year).

Meeting attendees: Jack Calhoun (Ill.), Forrest Loomis (Ill.), Jerry Garver (Ill.), George Hubert (Ill.), John Ludwig (Ont.), Lee Gladfelter (Ia.), John Lewis (Mo.), Ollie Torgerson (Mo.), Wayne Porath (Mo.), and Denver Bryan (Mo.). Initial discussion pointed out that some members of Great Lakes Deer Committee had expressed concern of possible conflict created by a Midwest Deer and Wild Turkey Committee. However, our discussion pointed out that this group would deal primarily with farmland deer and turkey and would be complimentary to other groups.

Consensus was that this group should not necessarily be associated with the North Central Section - TWS, but should have some "identification" so travel authorization to future workshops would be more likely. John Lewis and I will attempt to obtain recognition for the committee from the International Association of Fish and Game Commissioners. Following that formality, an introductory letter will be sent to administrators in the following states, advising them of the committee and encouraging representation. (Michigan, Wisconsin, Minnesota, Iowa, Illinois, Indiana, Ohio, Kansas, Nebraska, South Dakota and Missouri)

### COMMISSION

JIM TOM BLAIR  
St. Louis

ROBERT G. DELANEY  
Charleston

G. ANDY RUNGE  
Mexico

ROBERT E. TALBOT  
Joplin

## Missouri Department Of Conservation

Mr. Jack Calhoun  
Page 2  
January 20, 1976.

It was felt that some type of bylaws or organizational guides would be needed to reinforce committee structure and provide administrators with information about the committee. Lee Gladfelter and Ollie Torgerson will develop these within the next few months.

The question of an appropriate name for the group drew considerable discussion but by consensus "Midwest Deer and Wild Turkey Committee" was chosen. Another topic which generated much discussion was -- who would be represented by states at committee workshops? Because a workshop atmosphere is desirable, two (or three) maximum persons should attend per state. These persons should be biologists and should be the personnel primarily responsible for species management of deer and/or turkey in the state. The bylaws committee (Lee and OT) will develop more definitive guidelines on this topic.

Each year, or whenever, workshops are held, the host state will report on happenings at the workshop in the form of a newsletter. The host state and date of the next workshop will be selected. That host state will have the responsibility of developing and announcing plans for the upcoming workshop. Missouri will host the next workshop during the third week of January, 1977. John Lewis and I will organize this meeting.

The following are names of persons we felt would be likely recipients of your post-meeting write-up Jack. In addition, a number of names are included in the status report which we prepared last summer. Combined, they should provide a reasonable mailing list for this first go-round.

State	Deer Representative	Turkey Representative
Illinois	Jack Calhoun Forrest Loomis	Jerry Garver
Indiana	John C. Olson Maurice Reeves (?)	Decker Major (?)
Iowa	Lee Gladfelter	Terry Little
Kansas	Bill Peabody	Kent Montel
Michigan	Dave Arnold Joseph Vogt	Vic Janson
Minnesota	John Ludwig	?
Missouri	Wayne Porath Ollie Torgerson	John Lewis

Missouri Department Of Conservation

Mr. Jack Calhoun  
Page 3  
January 20, 1976

State	Deer Representative	Turkey Representative
Nebraska	Karl Menzel	Samie
Ohio	Robert J. Stoll	Bob Donohoe
South Dakota	Art Richardson	Lyle Peterson
Wisconsin	Frank Haberland	Ron Nicholas

Jack, if you can make heads or tails out of this -- great. If not, don't vote for me next year.

Thanks for hosting us this year. You guys did a great job.

Sincerely,

Wayne R. Porath  
Wildlife Research Biologist

WRP:sss

cc: Crawford  
Lewis  
Torgerson  
Sadler

P.S. That tagged deer I was telling you about was taken November 15, 1975, in eastern Macon County. It was a red plastic "bell" tag with #47 apparently inscribed on it.



STATE OF ILLINOIS

DEPARTMENT OF CONSERVATION

605 STATE OFFICE BUILDING

400 SOUTH SPRING ST.

SPRINGFIELD 62706

ANTHONY T. DEAN  
DIRECTOR

HAROLD L. ELLSWORTH  
ASSISTANT DIRECTOR

CHICAGO OFFICE—ROOM 100, 160 N. LA SALLE ST., 60601

February 10, 1976

Dear Mr. Major:

Enclosed is a copy of the newsletter resulting from the first annual meeting of the committee.

We are sending this to you for your information and because we would like to invite you to join the present committee, if you have not already done so.

We feel we can all benefit from the information exchange and just plain conversation. Some of the late evening seminars were extremely productive.

Seriously, let Wayne Porath, Missouri, know how you feel about joining the Midwest Deer and Wild Turkey Committee.

Sincerely,

*John C. Calhoun*  
John C. Calhoun  
Staff Biologist

JCC:kp  
Enc.

An organizational meeting of the Midwest Deer and Wild Turkey Committee was held at Horseshoe Lake Refuge, Illinois, on January 12, 13, and 14, 1976. Biologists attending were: John Lewis, Wayne Porath, Ollie Torgerson, and Denver Bryan (Missouri), Lee Gladfelter (Iowa), John Ludwig (Ontario), George Hubert, Forrest Loomis, Jerry Garver, and Jack Calhoun (Illinois).

On the morning of January 13, George Hubert (Illinois) explained the deer data required by the Wildlife Unit at Colorado State for using the big game populations simulation they have developed. Two of the states in attendance are going to Colorado in the near future. Illinois biologists discussed the use of the deer population projections.

A business meeting was called after lunch. The delegation elected John Lewis president and Wayne Porath secretary.

Initial discussion brought out the fact that members of the Great Lakes Deer Committee were concerned about a possible overlap in the purpose of the organizations. Discussion of the delegates indicated that this was not felt to be a problem, since the primary concern of the Midwest Committee was management on farmlands.

Recognition of the Committee by the International Association of Fish and Game Commissioners was deemed advisable, so that state organizations would authorize travel to the workshops in the future. John Lewis and Wayne Porath volunteered to undertake securing recognition.

A need for by-laws, or organizational guides was recognized. Lee Gladfelter and Ollie Torgerson will develop these and submit them for approval in the next few months.

An exchange of information, and further investigation, was deemed necessary in areas of deer natality, fawn mortality, and illegal kill in the midwest.



A discussion of an appropriate name for the organization resulted in unanimous approval of Midwest Deer and Wild Turkey Committee. The delegation felt that, since the purpose of the committee was to hold informal workshop and discussion sessions, the membership should consist entirely of biologists responsible for the management of deer and wild turkey in their state. A discussion of numbers of persons from each state to attend meetings indicated a concern for the committee becoming so large that informal meetings would be impossible, and meeting sites difficult to arrange. The committee on by-laws was charged with resolving this question.

It was voted that, at each meeting, the host for the next session would be chosen. The host would be responsible for the program and site arrangements, and would prepare and send a newsletter to all members following the meeting.

Missouri volunteered to host the next committee meeting, to be held the third week of January, 1977, location to be announced at a later date. John Lewis and Wayne Porath will organize the meeting.

The committee voted to send a copy of this letter to biologists in Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, Ohio, South Dakota, and Wisconsin.

### Deer Contributors

John C. Calhoun  
Staff Biologist  
Division of Wildlife Resources  
Illinois Department of Conservation  
605 State Office Building  
400 South Spring Street  
Springfield, Illinois 62706

John C. Olson  
Wildlife Research Biologist  
Division of Fish & Wildlife  
Indiana Department of Natural Resources  
4111 Vernal Pike  
Bloomington, Indiana 47401

Lee Gladfelter  
Wildlife Biologist  
Iowa Conservation Commission  
Wildlife Research & Exhibit Station  
Boone Iowa 50036

William C. Peabody  
Big Game Project Leader  
Kansas Forestry, Fish & Game Commission  
Game Research Office  
1803 W. 6th  
Emporia, Kansas 66801

Joseph Vogt  
Wildlife Division  
Michigan Department of Natural Resources  
Lansing, Michigan 48926

Wayne Porath  
Wildlife Research Biologist  
Missouri Department of Conservation  
1110 College Avenue  
Columbia, Missouri 65201

Robert J. Stoll  
Assistant Supervisor  
Forest Game Project  
Ohio Department of Natural Resources  
Division of Wildlife  
New Marshfield, Ohio 45766

## Illinois

White-tailed deer habitat in Illinois is extremely varied. The nine southern counties contain the Shawnee National Forest, and the private lands within the Forest are primarily second growth forest, old fields and small farms. Central Illinois is large farms with some timber and farm woodlots, with winter cover confined to the main watersheds. Northern Illinois is farmland, with the north-eastern counties hilly and timber covered. All of Illinois except the black land prairie in the east-central region is excellent deer range since the white-tail accepts farm crops, and in many cases exists mainly on farm crops. Habitat conditions in the central and north are deteriorating annually because of the loss to urban development. Deer in the northeastern counties have occupied forest preserves and parks within the city limits of even Chicago and the major suburbs. These deer are not huntable, and will continue to present a problem to game managers.

Statewide white-tail populations have been increasing annually since 1957 when the first open season was held. Illinois has developed no reliable method of determining total populations, and does not publish a statewide population figure. Road kills, doe-fawn ratios, winter herd sex ratios, and check station age, sex ratios and hunter success are used to determine trends and reproductive rates.

Check stations have been mandatory since the first season in 1957. All data have been put on a computer tape, and analysis was started this year. Two biologists took data to Colorado to be run on a program designed for big game populations. The program appears to be suited to the data Illinois has recorded, with a few areas needing more interpretation.

The statewide white-tail population is presently being managed within its capabilities to reproduce. The additional factor that must be considered is the population level that is acceptable to farmers. At the present time it appears that the northern Illinois deer herd is stabilized, the central, especially the areas along the Illinois, Mississippi and Wabash rivers appears to have recovered from localized over-shooting due to appointed Department supervisors ignoring quotas. The outlook for continued increase in deer available to the Illinois big game hunter is excellent.

Hunting pressure has increased annually since 1957. The 1974 season showed 67,525 hunters. The significant fact about hunting pressure is the shift from northern Illinois to southern Illinois, and now toward central Illinois. This has reflected directly the change in population, and is, of course, due to quota adjustment. This shows one of the main advantages of the quota system -- being able to put the hunting pressure where the deer are. Bowhunter numbers have reached 25,000.

The harvest increased from 1,735 in 1957 to 14,000 in 1975. Bow kill in 1974 reached an all-time high of 1,400. Illinois has been fortunate in having started with an any-deer season. This has made the control of the herd through hunting possible.

Forest game biologists feel that the program worked out by Colorado, or one similar, should allow analysis of the past 18 years data and furnish a background which will allow projections. Needed to make the data more useful is a better sample of reproductive rates by area. These records are being gathered now from road kills, and will probably be kept for several years to get adequate samples.

## Iowa

Deer hunting in Iowa was discontinued in the late 1800's to protect a rapidly declining deer herd. Growth of the deer herd in the 1930's and 40's resulted from restocking, escape from captive herds, and immigration from surrounding states. By 1953, deer were concentrated in large herds in many counties, complaints of severe crop damage were common and the first hunting season in modern times was implemented. Hunting promoted better distribution of the deer into available habitat and reports of crop damage subsided. The estimated fall population has increased from 18,000 in 1953 to 40,000 in 1974.

Because of a nutritious food source (corn) and limited snow accumulation in the winter, starvation of deer in Iowa is rare. Annual production is very high with the majority of female fawns breeding and reproducing their first year. The major causes of deer mortality are legal and illegal hunting. Starvation, disease, accidents and predation account for only a small percentage of the loss.

The management plan for deer in Iowa is designed to provide the maximum recreational opportunity to the citizens of Iowa while maintaining a healthy, growing herd. Deer surveys conducted annually to monitor population trends include: results of hunting seasons, sex and age composition of the herd, winter population estimates, and miscellaneous mortality reports. The results of these surveys form the basis for hunting season regulations, the principle management tool for deer in Iowa. Beginning in 1972, modified bucks-only seasons have been held to allow more hunters in the field, longer seasons, and deer herd increases. The majority of hunters are required to harvest antlered bucks while some hunters can harvest any-sex deer. The ratio of bucks-only to any-sex licenses issued varies in the 5 hunting zones. In 1973, about 37,000 shotgun hunters harvested 12,000 deer while in 1974 nearly 50,000 shotgun hunters harvested over 16,000 deer. Hunter success for bucks-only shotgun hunters averages 30 percent while any-sex hunters average 60 percent. Bow hunting is also very popular with an average hunter success of 18 percent by the 10,000 bow hunters in the state.

As in all deer management programs there are some problems which arise. One of the most important is finding a reliable census technique for our agricultural state. Another is the need to enact legislation to eliminate free landowner deer licenses so the Conservation Commission will have complete control over the issuance of licenses. Yet another problem is illegal hunting and how to measure it as well as cut it down.

One tool for deer management is a good research program to provide data from which sound management practices can be formulated. A radio telemetry study has just been completed with the objectives of determining home range, habitat preference, as well as daily and seasonal movements of deer. Plans are now underway to test a spotlight census technique and a tooth sectioning technique for aging deer.

The return of the white-tailed deer as a game species in Iowa is a tribute to good management and research. Likewise the responsibility for the future of deer in Iowa rests squarely on the shoulders of the Conservation Commission and its research, management, and law enforcement branches.

## Indiana

Six surveys are used annually to provide indices and estimates of population or harvest of deer in Indiana. The first is a statewide deer harvest mail survey. A sample of approximately 2,000 hunters is made, and the Division mails an initial request for information plus two follow-up mailings. An estimate of statewide harvest is made and compared to known harvest on military areas. Aerial surveys of selected military areas are made when conditions permit. As of February, 1975, snow conditions had not been favorable for over-flights for three years. Deer checking stations are set up and manned only on military areas during the gun hunt. The following information is collected: age (by tooth wear), sex, weight, antler points, state of lactation, crippling loss, deer seen, shots fired, and hours hunted. Pellet group surveys are conducted only on military areas. The results are used as indices and are not considered very reliable for a number of reasons. An index of deer loss by other than legal means is made annually in a miscellaneous deer loss survey. All forms of mortality are reported to the Division of Fish and Wildlife by conservation officers. Roadside counts are conducted on selected military areas. These yield both production figures and population indices.

The state of Indiana had a statewide bucks-only gun season and a late archery season in 1973 (1974 data are under analysis). The archery season followed the gun season and included 28 days of any-deer hunting followed by 9 days of bucks-only hunting. Gun hunting was restricted to shotguns or muzzle loaders with a single slug. The firearm season was bucks-only and lasted 14 days. Those with muzzle loaders were allowed to hunt for deer during the gun season and second archery season. A substantial amount of deer hunting is done on various military areas and enclosed bases within the state. Deer of either-sex were legal on these areas. The season length, both for archery and shotgun, varied with the wishes of personnel on individual military areas. Seasons were recommended by the Division of Fish & Wildlife based on herd management needs for each base, and each was accepted virtually without change.

An estimated 57,901 shotgun hunters and 22,017 archers were in the field during the 1973 season. Archers accumulated 177,126 units of effort (= 1 man attempt at hunting) and harvested 1,092 deer while firearms hunters took 7,152 deer with 159,853 units of effort. A total of 1,735 deer was reported killed by other than legal means in the state during 1973. The majority (1,517) of these were highway kills while 129 illegal kills were reported. Other types of losses were small.

Productivity data are collected at military areas and probably do not represent statewide situations. Information on lactation is poor, mainly because of inability of hunters to recognize lactating does, or lack of cooperation, or both. Values from military areas should not be considered to represent the entire state, as these areas have a high deer population. Population estimates on three areas range from 12 to 40 deer per section.

Age-Sex Ratio and % of Lactating Does From 1973 Harvest  
and Fall Roadside Counts on Military Areas in Indiana

Area	Harvest Check Station*		Fall Roadside Count
	Buck:Doe:Fawn	% Lactating Does	
N.A.D. Crane	135:100:167	49	14:100:92
Camp Atterbury	118:100:146	40	-
Jefferson Proving Grounds	135:100:76	16	59:100:62
Average	125:100:119	30	44:100:72

\*Sample Size = 1,738

The most recent land use information available is nearly 20 years old. In 1958, 15.9% of the state was forested, with the majority in the southern part of the state. Approximately 37% of all woodland was pastured. Most of the deer in the northern part of the state are located in agricultural areas and are well fed. Even in the south, deer appear to be eating grasses and leaves all year long.

The forest wildlife project's major emphasis has been constructing woodland clearings and waterholes that provide more forage for deer. A major problem has been the trails constructed to the clearings, since these provide easy access to the areas by illegal hunters. Any habitat improvement is, of course, limited by the small amount of land under direct control. Less than 1.4% of the total land in the state is under public ownership. A farm game program also provides information and some materials to the private landowner. The program is primarily oriented to small game, and the landowner is in complete control and may choose not to follow recommendations. Military areas are managed mostly according to the direction of the local conservation club, which may or may not request information from management biologists.

The deer herd appears to be increasing throughout the state. The population outside the military areas is believed to range from less than 1 up to 40 deer per square mile. Most of our management work is restricted to public lands and military areas. The only over-populated areas are small pockets located on military areas or other such protected enclaves. The outlook for the state is fair. With the same general problems facing all of wildlife -- namely, public apathy and habitat loss -- we still expect the population to increase slightly for at least a few years. We are hoping to experiment with some limited doe hunting outside of military areas in the near future.

## Kansas

Kansas deer habitat is represented by a constantly changing array of woody, grassland and agricultural vegetative communities whose ability to support deer fluctuates with season, climatic conditions, intensity of land use, cropping "patterns", and degree of human disturbance. This habitat exists primarily as small, scattered woodlots, the "Cross Timbers" area of southeast Kansas, and as riparian ecological communities. Approximately 5 percent of Kansas' 52,230,000 acres of land area is capable of supporting deer during some portion of the year. Deer are present in all counties with most populations associated with the presence of permanent woody vegetation.

It is ironic, but the large flood control and irrigation reservoirs that have tended to stabilize stream flow providing flood plain conditions conducive to the establishment of woody vegetation beneficial to deer, have also promoted timber clearing and an increase in intensity of land use below these structures which is detrimental to deer populations. But, natural plant succession and Fish and Game Commission habitat management-development in the upper reaches of most western and central Kansas reservoirs have provided year-round habitat which has probably increased deer carrying capacity on the drainage. About 98 percent of all land area in Kansas is in private ownership. The value of the interim leases held by the Fish and Game Commission on most federal reservoirs is obvious.

The loss of the Soil Bank or Conservation Reserve grasslands in the late 60's was detrimental to our mule deer and pheasant populations. Now the Department of Agriculture's "full production" philosophy coupled with highly mechanized and large-scale monoculture farming operations are having devastating effects on many wildlife species. The grazing of woodlots and riparian habitats by livestock is commonplace in Kansas. Probably 70 percent of all woodlands are grazed and/or used as livestock wintering areas.

Kansas' deer population is currently below range carrying capacity (economic and biological). This is indicated by increasing deer populations in most areas, good physical condition of the herd, lack of crop depredation complaints, and a tolerable level of deer-vehicle accidents. The distribution, quality and quantity of winter deer habitat and the degree of rural landowner tolerance of deer, will eventually establish an artificial, but economically realistic, upper population level.

Mule deer are found primarily in the western one-third of the state (west of 100th Meridian) whereas white-tails are more numerous eastward and are virtually the only deer east of the 98th Meridian. Eighteen to 20 percent of the statewide population is composed of mule deer. Densities range from none to about 10 deer per square mile. Average density is .40 deer per square mile.

Kansas' deer population has been on an increasing trend over the past decade. The average annual rate of increase in deer-vehicle collisions for the period 1961-1974 has been 15.7 percent; 9.6 percent since 1965 when we began to hunt deer. Approximately 2 percent of this increase is attributable to traffic volume. The statewide road-killed index shows an average annual change of 13.4 percent since 1961 and 7.4 percent for the 1965-1974 period.

A periodic Landowner Deer Survey is scheduled for mailing to a 3-4 percent sample of randomly selected rural farm and ranch owner-operators in February 1976. The survey is conducted every 5 years to determine deer population trends, the impact that deer are having on farm-ranch operations, and landowner attitudes toward the deer resource and management policies. Random deer classification counts are conducted by selected field personnel from August through October, deer observations are made by all field men in October and January, and spotlight counts are conducted on two drainages in

northwest Kansas each fall; all to determine sex-age ratios. These random counts are only marginally successful and their statistical reliability has not been determined. They are used primarily for their trend rather than absolute value.

Harvest is the major source of deer mortality (average = 14.3%) followed by highway accidents and unreported losses which include unknown deer poaching activity. This latter form of mortality is a deterrent to population growth in several localities. Mortality rate from all causes has averaged 21.4 percent since 1965. Dog-coyote-bobcat predation on fawns is known to occur, but its affect on net herd growth has not been determined. Disease and parasite infestations are not a significant cause of mortality. However, it will become increasingly important to monitor the general physical condition of the herd as planned population growth continues.

Ages of deer harvested by firearms hunters are determined by incisor annuli examinations. Gary Matson, Milltown, Montana is performing this service on a contractual basis. Only adult incisors (2.5 years and older) and a sample of "questionable yearlings" are prepared histologically. Incisors from fawns and most yearlings can be separated from adults on the basis of tooth morphology and in the case of yearlings, degree of crown wear.

"Time-specific" life tables constructed from December firearms harvest data show that average life expectancy at birth is just over 2 years. Survival rates for females are good; particularly for white-tail does. The fawn increment is averaging about 40 percent of the spring (or post-season) deer population. Few (3.8%) antlered white-tails and even fewer (1.2%) mule deer bucks survive to 5 years. Approximately 60 percent of all white-tails and mule deer harvested annually are less than 2 years old.

Kansas has offered its bowhunters liberal seasons for the past 10 years. Average season length has been 63 days; just over 70 days the past 2 years. The deer management unit approach, limited permits and flexible hunting regulations form the basis for controlling the firearms harvest, hunting pressure and hunter success. Season length was increased from 5 to 9 days (which includes 2 weekends) in all central and eastern Kansas management units in 1970; statewide in 1973.

Total annual harvest (archery and firearms) has increased 264 percent for the period 1965 through 1974, although not in a continuously increasing pattern as harvest rate is influenced by permit quotas, number of antlerless deer taken annually, and length of season. Firearms deer hunter success rates have increased steadily from a low of 23 percent in 1969 to a high of 42 percent in 1974. Bowhunters are averaging 17 percent success.

There is currently no active deer research in Kansas. Most ongoing work is management oriented. We are in the last year of a "waiting period" of a mule deer movements study. Strategic, long-range plans are being prepared for all wildlife species. A deer publication or bulletin is planned.

During this period of general inflationary trends and widespread unemployment causing economic stress, conservation agencies across the nation became acutely aware of the rise in big game poaching violations. The potentially deleterious affect on sustained yield harvests of deer and herd growth are apparent. Methods must be found for detecting and determining the magnitude of these losses, assessing their impact on the deer resource, and then developing strategies for reducing this form of mortality. In 1973, a deer poaching questionnaire (subjective and probably biased) was sent to all personnel in our Law Enforcement Division. The response rate was 100 percent. During the period November 1973 through January 1974 officers reported an illegal kill of 788 deer. Approximately 72 percent of this activity occurred in eastern and southcentral Kansas.



## Missouri

Deer had been extirpated from the prairie regions of northern and western Missouri by 1890. In 1925, only 395 deer were estimated to occur in 23 counties of southern Missouri. A 20-year restocking program was initiated in 1937 and by 1959 deer were present in all counties.

Hunting deer was prohibited in the 1930's and early 1940's to protect growing herds. Resumption of legal hunting occurred in 1944 and was restricted to bucks-only in selected counties through 1950. During this period hunter numbers increased from 7,500 to 19,000 and harvest increased from 580 to 1,600. Archery hunting began in 1946. Either-sex firearms hunting was initiated in 1951 and the period of the 1950's was one of the expansion of hunting area, hunter numbers, deer numbers and deer harvested. Since the mid-60's, hunter demand has exceeded supply of deer and rationing in various forms has become more and more intense. Hunter numbers are still growing and now exceed 200,000 and harvests fluctuate around 30,000.

A variety of harvest management tools has been implemented to reflect increasing demand for Missouri's deer resource in recent years. A management unit system of zoning was implemented in 1970. In portions of northern Missouri where range quality is high (agricultural crops are food staples) but deer are vulnerable to harvest because of limited cover, years having bucks-only and either-sex seasons have been alternated. This has provided increased yields through maintenance of an older, more productive age distribution within the population. Elsewhere in Missouri, either-sex hunting has been gradually reduced from 7 to 2 days and bucks-only seasons established in some zones. In recent years, total season length has been 9 days. In 1972 either-sex hunting was reversed from the beginning of the season to the end (2 days) which effected a 40 percent decrease in the harvest of females. Additionally, hunters spent more time in the field. Use of quotas was begun in one zone in 1974. Any hunter could take an antlered buck on a regular deer permit but to hunt either-sex an antlerless permit was required. A specified number was issued at random from mailed in applications. The system was successful and will be expanded in the future.

As in other midwestern states, Missouri does not have a reliable statewide census technique. Instead, harvest sex and age structure, highway mortality, browse utilization surveys and crop depredation complaints are used to determine population trends.

Missouri's habitat is variable and deer numbers and condition reflect this variability. Typical northern Missouri landscape includes rolling, glaciated farmland with woody cover associated with stream and river systems. Corn, soybeans and domestic legumes compose the bulk of food sources for deer in this area. Southern Missouri is unglaciated and oak-hickory forests predominate. Types include oak, oak-pine, pine, cedar glade, mixed bottomland and cypress-gum-tupelo of the delta portion of southeastern Missouri. These types are extensive but much less productive than northern Missouri types. Deer are smaller, less productive and less numerous per land unit than in north Missouri.

Habitat problems center on land use trends which are affecting all species of wildlife in Missouri. Most recent forest inventory data show Missouri has lost over one million acres of forest in the last 10 years. Losses are attributed to conversion of forest to fescue pasture, reservoir construction, levee development and urban encroachment. The effects of these changes are evidenced by declining deer numbers in certain areas.

Another serious problem is the drain caused by poaching. Magnitude of poaching is difficult to measure but losses probably range between 5,000 - 10,000 annually. A recent anti-poaching campaign in Missouri stimulated increased public awareness and cooperation, however, the problem is still serious.

Recent research activities have included investigation of nutritive value of preferred deer foods, summer food habits studies, use of prescribed burning to improve forage production and determination of the value of refuges as population centers for deer in threatened habitat associated with riverbottoms.

Future deer harvest management will reflect increasing demand for the resource and a dwindling habitat base. Approximately 95 percent of the land in Missouri is privately owned, and at this point in time, the white-tailed deer is a by product of other primary uses of this land. Herds are still increasing in most areas but it is inevitable that the growth curve and habitat availability curve will cross, which has already occurred in some areas of Missouri.

## Michigan

The goal of deer range management is to achieve a minimum of 35% aspen type, 65% in intolerant types, (aspen, oak, jack pine, and upland brush), 6-15% in permanent grassy openings, and 25% in the seedling-sapling growth stage. Correlations between buck kills and different forest types showed that the intolerant types are most productive.

The most recent pellet survey in the spring of 1974 was conducted in the northern half of the Lower Peninsula. It produced an estimate of 300,000 deer. No survey was made in Region I, the Upper Peninsula, or in Region III, the southern Lower Peninsula. Spring, 1974, statewide population was estimated to be 600,000 deer. The northern Lower Peninsula population estimate has almost doubled since the spring of 1971 due to several reasons, including minimal antlerless harvests, mild winters, good acorn crops, a booming timber market, and an intensive deer range improvement program. The 1974 deer harvest was excellent, with the best buck kill since 1964. Harvest improved in all three regions, with the northern Lower Peninsula registering the greatest gain. Weather conditions were favorable for hunters allowing them to spend more hours afield and thus increasing the kill.

Michigan is currently in the third year of a five-year intensive deer habitat research project. Effects of varying intensities of timber removal on four pairs of similar land units, one-quarter township (9 square miles) in size, are being measured. Each unit is monitored for deer population and harvest, vegetation response, and public reactions and attitudes. Objectives include: (1) determine how many deer can be produced through various intensities of habitat management, (2) determine the number of deer needed to provide a quality experience for both hunters and other recreationists, (3) measure the values of the varying successional stages to recreationists, and (4) evaluate the costs of producing deer under both natural and artificial systems. Approximately 17,000 acres have been cleared by cutting and by fire in this sizeable research project. The results should prove useful to other north central states.

The Michigan Department of Natural Resources is in the fourth year of a continuing deer range improvement program aimed at producing a Michigan deer herd of one million animals by 1980. The management is pointed towards the 360 geographical townships which have produced the greatest numbers of deer in past harvests. Management techniques employed include mechanical and manual cutting, commercial harvest, prescribed burning, herbaceous seeding, and herbicidal application.

### Recent Harvests

Year	License Sales	Antlerless	Bucks	Total	% Hunter Success
1974	unavailable	4,000	71,800	75,800	unavailable
1973	623,040	7,400	58,880	66,280	11.2%
1972	553,963	7,540	48,220	55,760	10.6%
1971	559,426	15,300	46,730	62,030	11.6%
1970	647,463	16,410	52,380	68,790	11.1%
1969	656,853	40,520	66,260	106,780	16.9%
1968	623,480	37,290	64,250	101,540	16.9%
1967	589,248	45,510	58,540	104,050	18.4%
1966	574,312	32,090	62,100	94,190	17.0%
1965	605,493	49,630	62,580	112,210	19.1%
1964	563,599	54,420	86,920	141,340	25.7%
1963	515,720	49,360	74,750	124,110	--

## Ohio

The white-tailed deer was virtually extirpated from Ohio in the early 1900's. Improving habitat conditions, invasion from neighboring states plus effective game laws and law enforcement have provided for deer population growth from the 1920's to the present. The 1973 Ohio herd was estimated to number about 70,000 deer with the greatest densities occurring in the SE, Ohio's rugged Hill Country (1-8 deer/section), and the lowest in the intensively farmed rolling to flat Western and NC regions (1/2-1.9 deer/section). Based on the deer highway kill, our principal growth index, the deer herd is increasing about 20 percent annually in the Hill Country (recent antlerless permit harvests are geared to slow this growth rate), and 0-10 percent in the remaining regions of the state.

The total 1974 deer harvest in Ohio was 10,747 (primitive hunt 373, archery 984, and gun 9,390), a 40 percent increase over 1973. For the 1974 deer gun season the state was again divided into 5 hunting zones. The 6 county Zone 1 in extreme NW Ohio had a basic 5-day bucks-only season with free antlerless permits allotted on a county basis. The 19 counties in Zone 2 in NC Ohio had a 3-day bucks-only season. The 9 counties in Zone 3 in extreme NE Ohio had a 1-day either-sex followed by a 4-day bucks-only season. The 31 counties in Zone 4 in SE Ohio had a basic 6-day bucks-only season with county antlerless permits for 13 counties. Zone 5 in Western Ohio is closed to gun hunting. A total of 7,496 antlerless permits was issued for the 1974 gun season with 30 percent of the permits filled. Total gun hunting success was about 1 in 10-13 hunters. Hunting pressure by zone, varied between 1,000 and 8,500 hunter trips per county. Resident deer hunters pay \$4.50 for a hunting license and \$10.50 for a Special Deer Hunting Permit.

Habitat quality throughout Ohio is good; unfortunately quantity is at a premium. Ohio has about 11 million people and therein lies the major problem. Glaciated SW, Central and NE Ohio are highly urbanized and industrialized while western, NW and NC Ohio are intensively farmed; deer range here is limited to riparian habitat and farm woodlots which are slowly vanishing. Ohio's unglaciated Hill Country, part of the Appalachian foothills, offers the greatest potential for deer. Here 40 to 70 percent of the land area is in forest and brush, providing optimum conditions for deer. As would be expected, deer condition (mean yearling antler beam diameter about 24mm) and reproduction (a 65-80 percent fawn conception rate and virtually a 100 percent conception rate for does 1.5 yearst) are good.

Harvest management goals are geared, with varying degrees of success, to fit the particular characteristics of each zone. We have successfully employed the county antlerless permit system in Zone 1 to distribute and control the harvest in counties subject to over-harvest while also pushing the legal gun kill over the reported highway kill (whether this will result in a stabilized herd remains to be seen). A 3-day bucks-only season provides deer hunting recreation in Zone 2 while permitting herd growth. Although the herd is increasing, the conservative bucks-only regulation, under Ohio conditions, permits the highway kill to exceed the gun kill by more than 3-fold. In Zone 3, urbanization is usurping the deer range and numerous 4-lane highways result in high out-of-season mortality. A 1-day either-sex, 4-day bucks-only season (originally considered a fairly drastic regulation) permits in-season mortality to slightly exceed out-of-season mortality resulting in herd stabilization and surprisingly few problems. In Zone 4, the county antlerless permit system is being employed to slow and eventually arrest herd growth in counties with 7+ deer per section (highway kill and crop damage complaints are additional criteria for county permits) while allowing maximum herd growth in peripheral bucks-only counties. The permit system is administratively bulky, but provides good harvest control. Whether the permit system will work in Zone 4 remains to be seen.

### Turkey Contributors

Jerry Garver  
Union County Refuge  
Route 2  
Jonesboro, Illinois 62952

Decker Major  
Route 2  
Mitchell, Indiana 47446

Lee Gladfelter  
Wildlife Research Station  
Boone, Iowa 50036

Kent Montei  
1803 W. 6th  
Emporia, Kansas 66801

Vic Janson  
Department of Natural Resources  
Stevens T. Mason Building  
Lansing, Michigan 48926

John Lewis  
Wildlife Research Biologist  
Missouri Department of Conservation, Fish and Game Research Center  
1110 College Avenue  
Columbia, Missouri 65201

Robert W. Donohoe  
Ohio Department of Natural Resources  
Division of Wildlife  
New Marshfield, Ohio 45766

## Illinois

Wild turkey habitat in Illinois is quite limited. The amount of occupied turkey range is approximately 400 square miles. There is another 300-400 square miles of suitable habitat that is currently unoccupied. Most of this land lies within the purchase boundary of the Shawnee National Forest in southern Illinois. This includes a few areas of private land in other parts of the state that are suitable for turkeys. One such area in Calhoun County was stocked in 1974 and the turkeys are apparently doing very well.

Most of the occupied turkey range lies within Jackson, Union, Alexander, and Pope counties. These are the only counties open to hunting. Nearly all suitable habitat in Jackson, Union, and Alexander counties is occupied by turkeys. Range expansion, is limited by intensive farming, decreasing amounts of forest land, and larger human populations. Turkeys are expanding their range in Pope County and into adjoining counties. This expansion has been slow in this area and we attribute this mainly to heavy poaching. The illegal kill of turkeys is the major limiting factor throughout our turkey range in Illinois. We predict that eventually Pope County will provide the highest kill.

A release on private land of 2 adult gobblers and 12 hens was made in Calhoun County in 1974. This was the first release on private land. A cooperative agreement with landowners was made prior to the release. A minimum of 5 broods were raised last summer. There is approximately 50 square miles of habitat in this area.

Some movement of Missouri turkeys into Illinois has been noted. Turkey sightings have been made in several counties adjacent to the Mississippi River in western and southwestern Illinois. A banded adult gobbler was killed in Union County during our 1973 spring season that was released in Cape Girardeau County, Missouri.

Illinois' first turkey season was a three-day season in 1970. One thousand permits were issued and hunters harvested 23 gobblers in a three county area. Hunters harvested 52 gobblers in the 1971 three-day season. From 1972 through 1974, the season was split. Hunters were allowed to participate in only half of the total number of days indicated. The split season was discontinued in 1975 and hunters were permitted to hunt during the entire season. Season dates in 1975 were April 16 thru April 27. Hunter success has averaged three percent for the past six spring seasons.

Illinois has a mandatory county check station. Data collected includes whole and dressed weights, age, beard length, spur length, location of the kill, and complete digestive tract, internal organs, and a blood sample are taken for later analysis. Food habits, disease, and parasite analysis is done by Eastern Illinois University on a contract with the Illinois Department of Conservation.

A landowner brood survey will be initiated this year and a deer hunter survey on turkey sightings during the 1975 fall deer season. These are modeled after Missouri's surveys.

We have a P-R Federal Aid Project called the Shawnee Cooperative Wildlife Habitat Development. This involves the development and maintenance of wildlife openings, waterholes, and access trails in the 250,000 acre Shawnee National Forest. The work is done by the U.S. Forest Service usually on a contractual basis. They are reimbursed by the Illinois Department of Conservation. Presently, there are 3,154 acres of openings, 861 waterholes, and 492 miles of access trails have been developed. The U.S. Forest Service is now making a complete inventory of the Shawnee National Forest by compartment examination. Through this Federal Aid Project (W-51-D), we are reimbursing them \$.15/acre for this examination.

## Missouri

Settlers moving into Missouri found wild turkeys in seemingly inexhaustible numbers. During this period of early settlement the state's wild turkey population was estimated at 250,000 birds. Habitat destruction and constant hunting had practically eliminated the wild turkey from the northern half of the state by 1900. The state's wild turkey population reached its lowest level in 1952 when it was estimated that fewer than 2,500 birds remained. During the period 1925 to 1942, 14,122 game farm turkeys were released in Missouri. A wild turkey survey conducted in 1942 indicated that the liberation of game farm turkeys had failed to increase the state's wild turkey population. The program of releasing game farm turkeys was discontinued in 1943 and emphasis was directed toward the protection and management of the remanent wild population.

Since 1954, Missouri's wild turkey population has expanded greatly due primarily to the restocking of wild trapped turkeys. Approximately 2,000 birds have been trapped and released in 102 sites in 72 counties. Forest game habitat conditions during the past 20 years, particularly on nearly two million acres of public lands, have improved due to fire control and better timber management practices. Missouri's primary turkey range is in the more heavily timbered southern half of the state, which includes the major portion of public lands. Occupied range has been extended north to Iowa and 22 counties north of the Missouri River support huntable populations. Of the 74 counties which were opened for hunting in 1975, more than half had no turkeys prior to 1954.

Missouri's first spring gobbler season was for a short three days in 1960. Approximately 700 hunters harvested 94 birds. During a two week season this past spring approximately 30,000 hunters harvested 5,546 turkeys. Hunting success rates have averaged 16 percent.

Wild turkeys have been reported in 105 of the 114 counties in the state and the current population is estimated at 50,000-60,000.

Present land-use trends (timber-pasture conversion) are having a tremendous impact on all wildlife in Missouri. Approximately one million acres of timber have been converted to pasture during the past 10 years. Reservoir construction has removed almost another million acres from wildlife production. Increases in livestock has affected and caused further deterioration of marginal habitat throughout the state. Missouri's turkey population may have reached its peak during the early 70's.

Current research projects are; an evaluation of present land-use practices on turkey habitat and populations, continued study of wild turkey population dynamics to provide data on harvest and natural mortality, and age and sex structure.

## Indiana

Wild turkeys in Indiana originally occupied most of the forested areas of the state. By 1900, the wild turkey had been extirpated due to over-harvest and habitat destruction.

Acquisition of cut-over forest lands by both Indiana DNR and federal agencies began in 1930 and totaled 250,000 acres by the mid-1960's. By 1967, still only 17 percent of the state's land supported forest cover.

Restoration and management of the wild turkey in Indiana has generally followed these steps: Protective legislation, establishment of refuges, stocking of wild-trapped turkeys, habitat management and hunting.

The first attempt to re-establish turkeys in Indiana with wild-trapped birds was made in 1956. Turkeys from Arkansas were released on the 60,000 acre Crane Naval Ammunition Depot in Martin County. Following this initial release wild turkeys obtained from Missouri were stocked in four counties between 1961-1966. Subsequent restockings have utilized birds trapped from previously established populations. New releases have been limited to one or two per year with no less than 10 birds per release. Turkeys have become firmly established in portions of 10 counties. Three counties that have been recently stocked are still being evaluated as to the status of the release.

Ownership or control of land in excess of 1,000 acres of public ownership or 2,500 acres of private land is deemed necessary for the establishment of a turkey flock. Further restrictions would limit dwellings to one per 2,500 acres.

Efforts were initiated in 1953 to improve turkey habitat with the establishment of two 6,000-acre refuges -- one on national forest land (Perry County) and one on state forest lands (Harrison County). A program of woodland habitat improvement designed to benefit wild turkeys, ruffed grouse and white-tailed deer was implemented. Waterholes were scheduled to be built at the rate of approximately two per section and five one-acre openings per section. Turkey releases were made before all of the clearings were completed. The remaining openings were finished between 1966-68 and were seeded in a clover-lespedeza mixture.

The Harrison Management Area was opened to hunting in the spring of 1974. The Perry Management Unit is still closed to hunting, but is one of the best sources of turkeys for restocking.

Indiana first turkey season since the turn of the century was held on May 2-5, 1970. This was a gobblers only season with limited shooting hours (daylight to 11:00 a.m.). Hunting was restricted to 100 permittees on a drawing basis. Sixty-two hunters participated in Indiana's first turkey season and they harvested six gobblers. The number of permits were gradually increased through 1973 when the restrictions on hunter numbers was eliminated, applications exceeded the number of permits available only in 1971. The spring gobbler-only hunt has continued with no alteration planned for in the near future. Seasons dates for 1975 were April 24-28. Hunters pay \$5.00 in addition to their regular hunting license for an opportunity to bag a gobbler.

Current research efforts have been directed toward an evaluation of various restocking attempts. A telemetry study was designed to compare movements, habitat utilization and adaptability of five established turkeys in typical habitat to that of 10 recently released birds in atypical habitat.



## Iowa

The wild turkey originally occurred throughout most of Iowa and was considered plentiful in all the wooded sections of Iowa until about 1860. However, turkeys eventually disappeared from the state as a result of heavy logging and over-harvest. Several early restocking attempts by various organizations using semi-domestic and game farm birds failed to re-establish turkeys in the wild. The first attempt to re-establish turkeys with wild-trapped stock was made by the Iowa Conservation Commission in 1960. These birds were of the Rio Grande subspecies obtained from Texas and have only established a relatively low, but stable population in northeast Iowa. Several attempts to stock Merriams turkeys from Nebraska failed in 1966. The bright spot in the restoration of turkeys in Iowa has been the release of wild-trapped Eastern turkeys obtained from Missouri during 1965-68. These birds, released in State Forests in southern Iowa, have established and are maintained increasing populations. Estimates indicate that there are presently over 1,000 birds in these two release areas.

A spring gobbler season was initiated in 1974 because of the good turkey populations in certain areas of the state. A total of 450 licenses was issued through a random drawing for which 1,200 applied. The success of Iowa's first turkey season was tremendous because adult gobblers were abundant. A total of 117 birds was harvested for a statewide success rate of 28%. Hunters in the two southern zones did even better recording 33% and 37% success rates.

For turkeys to survive successfully in Iowa, they obviously must tolerate farming activities. Even the most extensive forested areas are closely associated with farmland. Currently, Iowa turkeys appear to live in harmony with farming activities. There is no doubt that intensive farming, grazing, and the limited size of forested areas, will restrict the range and population levels of turkeys in Iowa.

No reliable technique has been found to determine total numbers in a wild turkey population, but Iowa is using several techniques to obtain a population trend. A winter aerial survey has been conducted since 1969 utilizing both fixed winged aircraft and helicopters. Landowners are contacted and asked to report brood sightings in the spring.

A radio telemetry study has been initiated to evaluate turkey behavior on new release sites as well as distribution and movement. New release sites are being documented for future stocking and recent release sites are being evaluated for brood production and distribution.

A trapping and transplanting program was started in 1972 in southern Iowa. Since then more than 10 release sites have been stocked and during the next two years many more sites will receive wild-trapped birds obtained from Missouri. So the future for turkeys in Iowa is bright and interest among the citizens of Iowa is high. The wild turkey restoration project is certainly an example of a sound wildlife management and research program in this state.

## Kansas

Two subspecies of turkeys inhabit Kansas, the Rio Grande and the Eastern. Rio Grandes, re-introduced in 1965, account for the main population of wild turkey in Kansas. Eastern turkeys were re-introduced in 1974. All re-introductions were with wild birds.

Rio Grande - Kansas' turkey habitat primarily is found along the major stream drainages. The greatest populations of turkeys and some of the better turkey habitat is along the Arkansas, Cimarron, and Medicine River in the southwest and south-central Kansas. Areas north of the Arkansas River support isolated turkey populations and these flocks have not been increasing as desired, and their numbers have fluctuated greatly from year to year. Reasons for the failure of turkey flocks north of the Arkansas River are not known.

Greatest threat to the habitat in the prime turkey range is the lumber companies' newfound interest in the cottonwood tree. This is the dominant tree in western Kansas and quite often the only tree that could be utilized as turkey roosts. Lumbering interests have been cutting many of the cottonwoods with tall, large trees being favored. This has been especially true along the Arkansas River. This is a very real threat to the turkey habitat along the Arkansas River and could eliminate or seriously reduce the turkey from this drainage.

The Red Hills region, south of the Medicine River in Barber County, supports the greatest turkey populations. Cedars (Juniper sp.) can be found in the rough breaks throughout the area, and are spreading rapidly on upland sites and better grazing locations. Ranching interests are considering control measures. Some cedar control would benefit both rangeland and turkeys, but a substantial reduction of cedars would be detrimental to the turkey habitat in the area.

Rio Grande turkeys have moved into shelterbelts that previously were not considered good habitat. This is requiring a different look at our transplanting program concerning the selection characteristics for release sites.

Most western Kansas landowners respect the few trees that have and are in no hurry to greatly reduce their timber. The limited amount of Rio Grande turkey habitat currently is in good condition, but threats are present and in the future could be destructive unless "action" programs by the Fish and Game Commission to develop and/or promote a land use policy compatible with wildlife interests is implemented. Today, the primary limiting factor of Kansas turkey populations is lack of suitable habitat.

The Rio Grande turkeys population has been increasing. Winter surveys in 1974 accounted for 1,617 turkeys. The state's estimated turkey population is between 2,500 and 3,000.

Kansas held its first modern day turkey season in 1974. Four hundred permits were issued for the nine-day spring season of which 308 were used. Hunters spent 906 man-days (2.9 days/person) afield and harvested 123 turkeys (39.9% hunter success). Of the 123 turkeys harvested, 120 were gobblers and 3 were bearded hens.

Current research and management programs include summer brood and winter flock surveys, and a transplanting program. A new and/or improved winter flock survey is needed. We hope to implement a workable survey in the near future. Wildlife food plots established on the Cimarron National Grasslands primarily for the "benefit" of turkeys will be monitored to measure the use and affects. Turkeys are moving about five miles east of the Grasslands during the winter and one possible reason for this movement could be the scarcity of available winter food in the predominantly grassland-sage-cottonwood-willow area.

Eastern - Missouri turkeys were received during January 1974 and released at two locations in eastern Kansas. Fifteen birds were stocked at each site. Habitat in portions of eastern Kansas should be suitable for this subspecies, but it is still too early to determine if these releases have been successful.

Current research and management programs involve monitoring these flocks until such time that their numbers can withstand trapping and transplanting operations. Portions of the eastern one-third of Kansas would provide the main stocking area.

We are considering the possibility of releasing Eastern turkey toms with Rio Grande hens in suitable habitat within the middle one-third of the state. Kansas contains an area too far east for the Rio Grande and too far west for the Eastern turkey. A cross of the two subspecies may be well adapted for this region.

## Michigan

Native wild turkeys disappeared in Michigan around 1900. The first successful attempt at re-establishment was in 1954 when turkeys were released by the Department of Natural Resources in the Allegan State Game Area in southwestern Michigan. These were pen-reared birds from the Allegheny Wild Turkey Farm in Julian, Pennsylvania. Turkey eggs were also obtained from this source and resulting poults were released at Allegan.

A total of 882 game farm turkeys was released at various locations in the lower Peninsula by the Department of Natural Resources between 1954 and 1963. Releases since then have been turkeys that were live-trapped from established Michigan flocks.

The first hunting season was in the fall of 1965 with 82 turkeys taken. Fall seasons continued through 1969 under a limited permit system. A total of 535 turkeys was taken in these five fall seasons.

The first spring gobbler season was in 1968 and has continued each year since. Since 1968 through 1974, hunters bagged 850 gobblers. Each successive spring hunt has seen an increase in the kill. The harvest in 1968 was 25 and a record kill of 238 turkeys occurred in 1974.

Hunting has been restricted to about 5,000 permits in recent years. These permits are apportioned over three areas.

The current turkey population in Michigan is estimated at 5,000-6,000 birds. Three areas support huntable turkey populations: Allegan in the southwest (about 600 birds); Mio in the northeastern Lower Peninsula (about 2,000 birds); and Baldwin in the northwestern Lower Peninsula (about 2,500 birds).

The two northern areas total about 4,000 square miles and comprise over 90 percent of the established range. There are a few turkeys in other parts of the northern Lower Peninsula and in a 50 square mile area in Menominee County in the Upper Peninsula.

No significant increase in turkey numbers in future years is anticipated because of limited habitat.

Turkeys are found in about 14 of the 33 northern Lower Peninsula counties. Only Allegan County has turkeys in southern Michigan, but this is to be expected since this part of the state is largely farmland or urban. Winters in the bulk of the Upper Peninsula appear to be too harsh to support more than token numbers of turkeys.

Cover in areas where turkeys are currently established is predominantly oak. Grassy openings comprise 5 to 20 percent of the areas. Water is present in the form of streams, lakes, seeps, and marshes.

## Ohio

The wild turkey once inhabited the entire state of Ohio. Several factors led to its extinction, reported in 1904.

The Division of Wildlife began a concerted effort to restore the turkey to Ohio in 1952. Between 1952 and 1957, 1,400 game, farm turkeys were reared at the Waterloo Wildlife Experiment Station and released in several large forest areas. Field investigations showed that these releases were not successful. Transplantings from states having wild turkey populations were initiated in 1956 through 1963. This program, plus an instate trapping and transplanting operation, has been responsible for the re-establishment of the wild turkey in 19 counties in Ohio's southeast forestlands. The present estimated turkey population is 4,000.

Ohio's first turkey season in 64 years was a 4-day spring gobbler season in early May 1966. The four day early May seasons were continued each year through 1969. In 1970, two, 4-day gobbler seasons were held each year in late April and early May. The gobbler hunt will be extended to two, 6-day seasons in 1975. One, 2-week spring season has been recommended for 1976.

Hunter participation is controlled through a permit system, with no more than 1,000 being allotted on a first-come, first served basis per hunting season. Between 1966 and 1971, the turkey permit was issued free. In 1972 and 1973, \$5.35 was charged in addition to the \$4.50 hunting license. In 1974, the permit charge was increased to \$10.50. Hunters receiving a permit also receive an information brochure, a self-addressed questionnaire and a location list of the mandatory checking stations.

In nine spring seasons, 406 (1:21) hunters have been successful in bagging a gobbler within 14 open counties. Seventy-four have had shots and missed, and many unsuccessful hunters have seen and heard turkeys. These results prove that the turkey is well established in certain areas, and can withstand moderate hunting pressure without a decrease in the population.

Ohio's commercial forestland in 1970 totaled 6.3 million acres; 4.4 million of these acres were located in the southeast Hill Country. A recent U. S. Forest Service survey reported that the Hill Country forestland should continue to increase at a rate of about two percent annually through the next decade. Whether this forest expansion will provide a more extensive environment for turkey survival in Ohio, with almost 11-million people living in the state, remains to be seen. Demands on the forest community for wood products and recreational opportunities are becoming greater each year.

Three turkey management areas ranging in size from 4,300 to 15,000 acres have been established on public forestlands in the Hill Country. Each area is managed with emphasis on turkey production.

The future of the wild turkey in Ohio's Hill Country will depend on (1) firm landuse priorities favoring the management of the bird on public and private forestlands; (2) successful transplants to new areas; and (3) continued awareness and support of the state's turkey program by hunters, as well as interested citizens.

COMMISSIONERS  
LES LICKLIDER, CHAIRMAN—CHEROKEE  
THOMAS A. BATES—BELLEVUE  
JIM D. BIXLER—COUNCIL BLUFFS  
JOHN G. LINK—BURLINGTON  
JOHN C. THOMPSON—FOREST CITY  
HERBERT T. REED—WINTERSET  
CAROLYN T. LUMBARD—DES MOINES



FRED A. PRIEWERT, Director  
300 Fourth Street, Des Moines, Iowa 50319  
515/281-5145

An EQUAL OPPORTUNITY Agency

March 24, 1976

Ollie Torgerson:  
Fish & Wildlife Research Center  
1110 College Ave.  
Columbia, Missouri 65201

O. T.,

I have completed a rough draft of the Organizational guidelines for the Midwest Deer and Turkey Group. Please look these over and make your comments or suggestions and then return them to me so that I can get a final copy made.

There are a few points in these guidelines that I feel I must justify to avoid confusion.

1. The title - I titled this paper organizational guidelines instead of bylaws because I feel we need to keep things as informal as possible and guidelines is a better term. Also I called the organization the Midwest Deer and Wild Turkey Group instead of Committee as voted on in Illinois. The reason I don't like the word Committee is that this implies that we are a function of some other organization and appointed by that organization. I don't think we are being sponsored by any other organization although I feel we need approval from the Midwest Fish and Game Commissioners. We certainly were not organized by the North-Central Section of the Wildlife Society. Therefore, I feel the word group better describes our function. This may take a vote by the membership.

2. Officers - again I feel that the term Chairman better describes the position than President because his major job is to organize the meeting. I also feel that the two officers should be selected by the host state rather than elected by the group. The reason is that since there may be a time lag of several years between meetings there may be a turnover of personnel that could eliminate one or more of the officers if elected. On the other hand if selection was made by the host state this would not happen and there would always be someone there to set up the meeting. I think the group should recommend candidates to the host state but I feel the state should be allowed to select the person they want to run the meeting. There are some disadvantages to this system - for instance we may see some administrators being selected for these offices. Therefore, I am looking forward to some comments and discussion on this part.

3. Attendance - I feel we need to limit attendance to 35 people. If some of the 11 states do not wish to participate in the group then we may be able to increase the quota, each state could send from 3 to 4. I don't know of any states that would want to send more than 4 and this may be too high. If we can break the 35 people down into deer and turkey workshops then I think we will be working in groups of 15-20 people which is about the right size group to get good interaction and discussion.

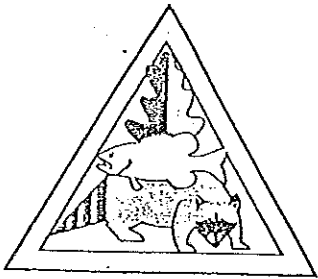
Any comments or suggestions you have would be great. At least I feel we have a starting point and after you and I agree on things then we can send it out and it can be finalized at the first meeting in January. You might also obtain the thoughts of Porath and Lewis on this that is assuming they are capable of some sort of thought!

Sincerely,

A handwritten signature in cursive script that reads "Lee Gladfelter".

Lee Gladfelter  
Wildlife Biologist  
Wildlife Research Station  
Boone, Iowa 50036

LG/bk  
enc.



# MISSOURI DEPARTMENT OF CONSERVATION

Fish and Game Research Center  
1110 College Avenue • Columbia, Missouri 65201

CARL R. NOREN, Director

May 12, 1976

Mr. Lee Gladfelter  
Wildlife Biologist  
Wildlife Research Station  
Boone, Iowa 50036

Dear Lee:

This is hard for me to admit, but I can find little wrong with your draft organizational guidelines! I've read it over several times and passed it to Porro and Lewis and still nothing. I'd say you did an outstanding job, which is hard to believe because you're an Iowegian.

On point #2 in your letter, I think you covered the problem in the guidelines under officers saying biologists shall fill the positions of chairman and secretary.

Our next step should be to mail a copy of these tentative guidelines to the deer and turkey biologists and Directors of the members states seeking tentative approval. The Midwest Game and Fish Commissioners meet July 19-22 at Rapid City, South Dakota. Chairman is:

John Popowski  
Department of Game, Fish, and Parks  
Sigurd Anderson Building  
Pierre, South Dakota 57501

I think we should seek tentative approval from them this year and final approval in 1977.

John Lewis has agreed to handle this as current Chairman so I guess all you have to do is send him a final copy of the proposed guidelines.

You do good work Gladfelter -- just not enough work. Otherwise you'd have as big a deer in Iowa as we do in Missouri. Take care.

Sincerely,

Ollie Torgerson  
Wildlife Research Biologist

OT:sss

cc: Lewis, Porath

COMMISSION

JIM TOM BLAIR  
St. Louis

ROBERT G. DELANEY  
Charleston

G. ANDY RUNGE  
Mexico

ROBERT E. TALBOT  
Joplin