Twenty-second biennial report of the State Conservation Commission of Wisconsin for the fiscal years ending June 30, 1949 and June 30, 1950. 1951

Wisconsin. State Conservation Committee (1928-1956)
Madison, Wisconsin: [s.n.], 1951

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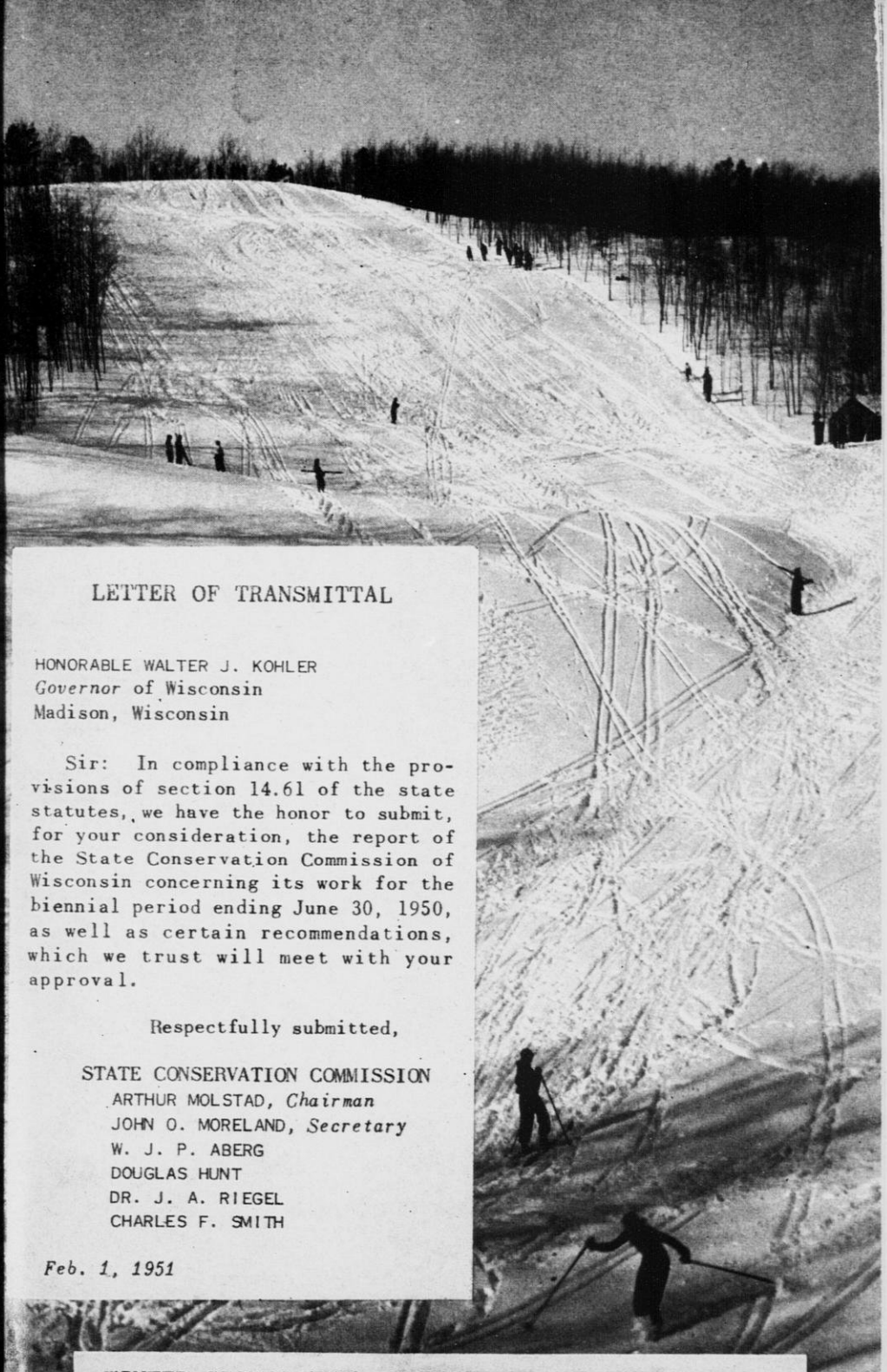
Twenty-Second

Biennial Report

of the

Wisconsin State Conservation Commission

Publication 612-51



LETTER OF TRANSMITTAL

HONORABLE WALTER J. KOHLER
Governor of Wisconsin
Madison, Wisconsin

Sir: In compliance with the provisions of section 14.61 of the state statutes, we have the honor to submit, for your consideration, the report of the State Conservation Commission of Wisconsin concerning its work for the biennial period ending June 30, 1950, as well as certain recommendations, which we trust will meet with your approval.

Respectfully submitted,

STATE CONSERVATION COMMISSION
ARTHUR MOLSTAD, *Chairman*
JOHN O. MORELAND, *Secretary*
W. J. P. ABERG
DOUGLAS HUNT
DR. J. A. RIEGEL
CHARLES F. SMITH

Feb. 1, 1951

WINTER SPORTS AREA, KETTLE MORAINE STATE FOREST

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TWENTY-SECOND BIENNIAL REPORT

OF THE

STATE CONSERVATION COMMISSION

OF

WISCONSIN

For the Fiscal Years Ending June 30, 1949
and June 30, 1950

MADISON, WISCONSIN
1951

CONSERVATION COMMISSION

ARTHUR MOLSTAD, Milwaukee
Chairman

JOHN O. MORELAND, Hayward
Secretary

W. J. P. ABERG, Madison

DOUGLAS HUNT, Wautoma

DR. J. A. RIEGEL, St. Croix Falls

CHARLES F. SMITH, Wausau

CONSERVATION DEPARTMENT

ERNEST F. SWIFT
Director

H. T. J. CRAMER
Assistant Director

C. A. BONTLY
Finance

W. T. CALHOUN
Information and Education

W. F. GRIMMER
Game Management

G. S. HADLAND
Law Enforcement

C. L. HARRINGTON
Forests and Parks

GEORGE SPRECHER
Assistant Director

LULU M. KORN
Clerical

NEIL LEMAY
Forest Protection

LAURENCE F. MOTL
Engineering*

EDWARD SCHNEBERGER
Fish Management

L. P. VOIGT
Personnel

F. G. WILSON
Cooperative Forestry

** The engineering division was activated in August, 1950.*

Administration

The purpose of the conservation act as stated in section 23.09 in the statutes is "to provide an adequate and flexible system for the protection, development and use of forests, fish and game, lakes, streams, plant life, flowers and other outdoor resources in the state of Wisconsin."

The Conservation Commission, a policy making body consisting of six members appointed by the Governor for a term of six years, is the agency charged with the responsibility of carrying out the purpose of the conservation act. The commission is authorized to make such rules and regulations, inaugurate such studies, investigations and surveys, and establish such services as it may deem necessary to redeem its responsibilities.

CONSERVATION DIRECTOR

The execution of the policies of the conservation commission is carried out by the conservation department of which the conservation director is the administrative head. He is employed by the commission and continues in office at the pleasure of the commission. He exercises the powers of the commission in the interim of its meetings but subordinate thereto, but does not have authority to make rules and regulations. He is the appointing authority for personnel of the department.

ASSISTANT CONSERVATION DIRECTORS

Two assistant conservation directors aid the conservation director in the administration of the department. All division chiefs are directly responsible to one or the other of these assistant directors depending upon the work of the division. Coordination of the work of the divisions and between the various divisions constitutes the principal work of the assistant directors. Public relations and liaison work with state, federal, and private organizations are also important functions.

SUPERVISOR OF INVENTORY

The supervisor of inventory is the custodian of the department records of physical property. He is directly responsible to one of the assistant directors.

It is his duty to maintain such records as are necessary to assign responsibility for department owned non-expendable property and to afford the best distribution of such property.

He investigates and makes recommendations for procedures to be used in property control. Annual physical inventories are checked against inventory records to maintain their accuracy.

His duties include the taking of such special inventories as are necessary for property control, and to supervise general annual physical inventory.

In January, 1950, a full time supervisor of inventory was appointed. During the biennium a man was selected to make a complete survey of boats, canoes, and outboard motors, to determine physical condition and use of this equipment, and for purposes of repair and redistribution. A state wide survey of all department buildings was begun for the same purpose.

PERSONNEL OFFICER

The purpose of the personnel office in the conservation department is to establish an integrated over-all personnel program for the department. In government service as in private industries, it has been found that as a department or business increases in complexity, specialists are required for employee and employment relations problems. In addition to the establishment of a well-rounded personnel program, additional duties are assigned to the personnel officer of an administrative character. These included acting in the absence of the director and assistant directors as administrative officer, and providing assistance to the director and assistant directors on personnel, organizational, coordination and other management problems as requested.

Among the regular personnel functions assigned to the personnel office may be included the following:

1. *Recruitment.* Specifically, locating and attracting qualified and competent personnel for vacancies in departmental positions. Since all the positions in the department are filled by competitive civil service examination, this recruiting function principally takes the form of informing by personal contact and regular information channels, universities, schools, and other sources of qualified applicants for employment of the impending civil service examinations and referring prospective applicants to the proper agency, the Bureau of Personnel, so that they will be available and will compete when the positions are vacant in the department.

During the biennial period which this report covers, the department has recruited for 192 vacancies in permanent positions and has referred to the Bureau of Personnel many applicants who later were successful in civil service examinations and appointed to positions in the department.

2. *The selection of personnel.* When positions are vacant in the conservation department, the Bureau of Personnel is notified and requested to conduct a civil service examination for the position in the department. The department personnel office assists the Bureau of Personnel in preparing the examination, in evaluating the application blanks of applicants for the position, and in the conduct of oral examination for the position. When a list of candidates has been certified as being qualified for conservation department positions, the personnel office then in conjunction

with the employing division of the department makes recommendations for the selection of candidates from the qualified lists.

In assisting the Bureau of Personnel in the selection of candidates for positions in the department, the personnel office has coordinated the efforts of all the divisions in providing technical assistance for written examinations, and the personnel officer has acted on oral examining boards with representatives of the Bureau of Personnel and general public on all of the previous vacancies mentioned for which oral examinations have been held.

3. *Placement of Personnel.* The departmental personnel office assists divisions in proper placement of certified candidates from the eligible lists of the Bureau of Personnel. This is done by interviewing candidates and in knowledge of positions so that the qualifications of prospective employees can be matched with the requirements of the job.

With the reorganization of the game, fish management and other divisions of the department this biennium, with accompanying job reallocations, additional placement work was necessary. Also, the personnel office has made transfers and replacements to promote greater efficiency within the department.

4. *Job classification.* The departmental personnel office makes recommendations to the Bureau of Personnel so that a standard job classification plan can be properly applied to all positions in the department. As necessary changes are required through changing job requirements, recommendations for reclassifications of various positions in the department are made to the state Bureau of Personnel. A program of periodic reevaluation of all positions in the department to insure proper classification is carried out.

With the cooperation of the Bureau of Personnel, approximately 75 job reclassifications were effected in the department in the reporting period. Also, approximately between 25%—50% of the department's positions were reevaluated as to proper classification in the regular classification survey carried out by the department.

5. *Training.* The personnel office coordinates the in-service training program of departmental personnel. Training programs are carried out on an area, division, and department-wide basis. This program is conducted in cooperation with the division and outside specialists so that the job efficiency of departmental employees may be constantly improved.

The training program carried out by the department in the last biennium included supervisor's training conferences, law enforcement schools, fish management schools, and technical schools in watershed improvement.

6. *Job evaluation.* The departmental personnel office in conjunction with the state Bureau of Personnel is establishing a department-wide program of job evaluation based on performance standards. This program will be used in an evaluation of the services of employees to determine needs for future training and promoting employee morale through recognition of able performance.

The job evaluation program is rapidly approaching completion with the cooperation of the Bureau of Personnel.

Mt. Pisgah and the Kickapoo river valley from Wildcat Mountain, Wildcat Mountain State Park.

7. *Job promotions.* The departmental personnel office in conjunction with the state Bureau of Personnel conducts the promotional program of the department through competitive promotional examinations. The department very closely participates in this program by assisting the Bureau of Personnel in conducting the promotional examinations. When eligible registers for promotions are established by the Bureau of Personnel, the departmental personnel office makes recommendations for the selection of individual employees for promotions to higher positions within the department.

8. *Employee morale.* The departmental personnel office is assigned responsibility for promoting good employee morale. To accomplish this object, the personnel office is available for individual counseling, for consultation on grievances, and other employe problems.

9. *Administrative systems and procedures.* The personnel office is charged with investigating and making recommendations for improved departmental procedures for administration and supervisory practice.

The department is contemplating an expanded survey on administrative systems and procedures when additional personnel become available for this work.

LEGAL COUNSEL

The legal counsel drafts commission orders; prepares recommended legislation of the department; reviews progress of conservation legislation introduced during legislative sessions; examines titles and closes land purchases; prepares legal documents and serves as consultant to departmental personnel in legal matters related to the performance of their duties; examines bounty and deer and bear damage claims; issues special permits and contracts; provides the public with legal interpretation of conservation laws through personal contact and correspondence; assists in the preparation of printed conservation laws and regulations for general distribution.

WISCONSIN CONSERVATION CONGRESS

The Wisconsin Conservation Congress, consisting of five elected representatives from the 71 counties of the state, continued its progressive and effective role in conservation during the biennium.

Under Richard A. Hemp, chairman, L. C. Whiffen, vice-chairman, and Ross Bennett, secretary, the Executive Council strengthened and continued the committee system for study on big game, waterfowl, trout, fish, upland game, fur, water resources and education-public relations. All committees hold regular meetings and conduct surveys in their particular field.

Probably the most important change was made whereby the code of procedure was revised to allow the election of one regular representative from each county for the period of three years, one regular member for the period of two years, and one regular member for one year; and one alternate for the period of two years, and another alternate for the period of one year. This new procedure went into effect in May of 1950, and hereafter each county will elect two men, one regular and one alternate every year. The experienced men who are retained will greatly facilitate the function of each county committee.

In December of 1949 the Executive Council as well as the eight study committee members attended the meeting of the Midwest Wildlife Conference and participated in its discussions. This conference was held at Madison in the Memorial Union of the University of Wisconsin.

On June 5, the congress in its statewide meeting at Madison elected its new district councilors and Richard A. Hemp was elected chairman, Jesse T. Walker, vice-chairman and Emery A. Premeau, secretary.

In August of 1950, Mr. Richard Hemp, chairman for the past three years, presented a paper on the History and Function of the Congress at the Midwest Association of Conservation Commissioners at their annual meeting held in Milwaukee. The edition of the code of procedure as well as a code of operation and ethics of various study committees were the two most important developments for this period.

The permanent appointment of Russ J. Neugebauer as liaison between the congress and the Council was made.

Fish Management

INTRODUCTION

The Fish Management Division of the Conservation Department is charged with the responsibility of maintaining and safeguarding the fishery resources of the state, to the extent that reasonable harvests of available crops can be made by sport and commercial fishing without danger of depletion to the resource. In the face of the terrific increase in fishing pressure each year and the ever-increasing costs of materials and services this has become a tremendous problem which can only be met by wise and judicial use of all known successful fish management practices, and proper coordination of all sections of the division. Outstanding success in this direction has been realized and during the past biennium it has been possible to allow a more liberal harvest of the sport fishes by longer seasons on both open water and ice fishing.

Fishing intensity remains at a high level as is shown by the sales of angling licenses during the biennium.

	1948-1949	*1949-1950*
Sportsman's	27,042	21,085
Resident	716,018	670,618
Non-resident	269,535	261,930
Family—Non-resident (10 day)	15,258	17,159
Total angling licenses	1,027,853	970,792

Resident license sales of course do not represent the total number of fishermen for the reason that residents between the ages of 18 to 65 only, are required to have a license to fish.

ADMINISTRATION

The coordinator system of fishery administration which was placed in effect early in 1948 has been continued in this biennium and has resulted in more efficient administration and better coordination, cooperation, and team work between the various sections within the division. This system has had remarkable success in the administration of the over-all program of the fish management division, and all sections and areas are now staffed with permanent supervisors.

The division of fish management is made up of the following sections for more efficient operation of the fisheries program:

Fishery Operations (Propagation) Fishery Biology
Rough Fish Control Great Lakes Commercial Fishing
Watershed Management

The Mississippi River Survey has been absorbed by the southern area biology section and will continue to operate under that administrative unit.

FISHERY OPERATIONS

A continuation of the program of rearing trout to the larger sizes such as yearling and legals has remained in effect and expanded during the past two fiscal years, and this program has had its effect in greatly improved fisherman success in angling for these species. The reduction of the minimum size limit from 7 inches to 6 inches has enabled the department to nearly double the legal trout production and stocking. The policy of stocking brook trout in all streams which are suitable for that species has been continued, and streams which are suitable habitat for brown trout or rainbows only, are stocked with those species. Some of the deep water lakes which were stocked with rainbow trout have produced excellent results in both growth rates of fish introduced and in remarkable angling success. This program will be expanded as rapidly as lakes are determined to have suitable habitat for trout. A total of 5,368,218 state and 810,568 federal brook, brown, and rainbow trout were stocked in state waters in 1949, and 3,632,223 state trout in 1950.

The production of fingerling muskellunge has been continued during the biennium and this activity has been carried on at both the northeast and northwest area headquarters located at Woodruff and Spooner, respectively. During the 1950 angling season Wisconsin anglers enjoyed unusual success in catching muskellunge and this success is attributed, at least in part, to the fingerling stocking program. When sufficient funds and rearing pond areas are available it will be highly desirable to expand this activity.

Fingerling walleye production facilities have been enlarged with the addition of two completely drainable rearing ponds which are located in the northeast fisheries area in Vilas county and one in the northwest fisheries area in Barron county. These ponds are in active operation and are showing excellent results in the production of the highly desirable walleye fingerling for stocking purposes in state waters. The construction of two additional ponds is being planned and the necessary land acquisition is now in process. Construction will commence as soon as the land negotiations are completed. With these additional facilities further expansion of this program will be realized. During the year 1949 there were 594,125 walleye fingerlings produced, and in 1950 there have been over 2,000,000 walleye fingerlings reared and stocked in state waters. This output will be greatly increased when the additional facilities are completed.

In addition to the propagation activities assigned to the operations section, this group assists in habitat improvement, lake conversions, construction and maintenance.

ROUGH FISH CONTROL

The rough fish control program has been carried forward during the past biennium under the administration of the fisheries area coordinator and has been utilized as an efficient and effective tool of fish management to improve habitat conditions for the more desirable game fish species, fur bearers, and waterfowl in the various waters of the state, where needed. As most rough fish control problems exist in the southern fish-

eries area, practically all activity of this section has been in that area. State removal crews have been utilized wherever it has been determined by biological and fish management observations that rough fish populations have become out of balance with game fish and are consequently injurious to the more desirable sport fish species. Private contract commercial fishermen have wherever possible been assigned to the more productive waters which are not subject to control and which assume a commercial aspect such as flowage lakes and large river systems; state crews have been utilized in areas where control can be realized without a continual removal process. Regulations governing contract fishing have been improved by a more restrictive contract and better regulation over holding ponds and equipment. Holding pond permits are now required and ponds must be constructed in accordance with departmental requirements and approval.

A new form of rough fish removal under a cooperative agreement with sportsmen's clubs and other non-profit organizations has been instituted. Under this agreement the department furnishes the necessary equipment and one man to supervise and direct the fishing operations, and the sponsoring agency furnishes the necessary labor. All fish produced are the property of the club or organization and may be sold to the best advantage by them, all funds so realized must be used for conservation purposes. Under this system many of the smaller lakes, ponds, and streams can receive needed rough fish removal work without the utilization of an entire state removal crew.

Rough fish removal by state crew operation has been conducted during the past biennium by five permanent state crews with permanent stations located at McFarland, Oshkosh, Fond du Lac, Horicon, and Edgerton (Newville). The Edgerton station has now been removed to Burlington, Wisconsin. Seasonal operations were conducted from sub-stations located at Omro, Orihula, Green Lake, Beaver Dam, Lake Kegonsa, Delafield, Calumet Harbor, and Sheboygan marsh. The following tabulation represents the entire rough fish removal by weight, by both state and contract crews for the fiscal years 1948–1949 and 1949–1950.

Year	*State Crews (Pounds)*	*Contract Crews (Pounds)*	*Total Pounds*
1948–1949	3,262,760	3,760,562	7,023,322
1949–1950	2,116,829	1,766,802	3,883,631
Total	5,379,589	5,527,364	10,906,953

There were an average of thirty contract crews in operation during the past biennium and their activities accounted for a substantial part of the entire rough fish removal which is reflected in the table above. These operators give valuable assistance to the general state rough fish removal program. These commercial fishermen are issued contracts for specified waters and all their operations are supervised by departmental personnel including the weighing and shipping of fish caught. The supervisory personnel are with the crews at all times actual fishing is in progress; they are identified by departmental insignia which are placed on outer clothing

in conspicuous places so that the public can readily identify the supervisor in charge of such operations.

Rough Fish Sales

The sale of rough fish produced by state crews has been assigned to the supervisor of rough fish control for more efficient administration of this activity. Sale of fish produced by contract crews is handled by the contractor who, by a provision of the contract, is appointed to handle such sales as an agent of the issuing authority, and the best price obtainable is required to protect the state's interest in these contracts. A percentage of 5 percent of gross sales is usually collected by the state to defray costs of supervision and other service.

FISHERY BIOLOGY

The fishery biology section plans and directs research pertaining to all phases of fish management. Special emphasis is placed upon studies dealing with pollution, fish distribution, fish diseases, parasitism, growth, stocking procedures, and the control of competitive or destructive species of fish.

Lake Surveys

The fish management division has an obligation to the angler to properly manage each body of water in order to obtain a maximum sustained yield of desirable game fish species. The maximum benefits are realized from each body of water by setting up systematic plans of fish management. These plans are based upon studies of the physical, chemical, and biological characteristics of the body of water which is followed by a stocking plan if needed, regulation, elimination of pollution and other phases to assure a sustained yield.

Information acquired through the lake survey is used to assist in formulating a constructive stocking policy for planting of fish and to furnish to the public in the locality a scientific interpretation of conditions of fundamental importance necessary to full utilization of the fishery resource. While the majority of the lake surveys are of necessity of an extensive rather than intensive nature due to the urgency of requests for information, particular emphasis is placed upon fish populations, species, composition, size distribution and growth, natural reproduction, water chemistry and fishing pressure.

The state wide lake survey program processes approximately one hundred lakes each year, and information secured assists in making up a comprehensive fish management plan for each body of water studied.

Stream Surveys

There are two types of stream survey conducted by the biology section, the detailed and intensive shocker survey, and the more rapid and extensive reconnaissance survey. The reconnaissance survey has been made use of to make a rapid survey of the waters considered trout waters which were being stocked annually with trout. The following objectives are realized from stream surveys: elimination of non-trout waters from the list of

approved streams and prevention of loss of fish by overstocking streams having a habitat well below average; the singling out of better trout streams so that greater effort can be concentrated upon increasing production in waters which are more favorable to trout; obtaining a record of streams which are in need of immediate attention for comprehensive stream survey and final determination of their status as trout water; and building up a planting guide for each county, open to revision as stream characteristics change. Approximately 250 stream surveys have been completed annually and are extremely helpful in setting up efficient fish management plans for each stream.

Prevention and Treatment of Disease

Prevention and control of disease is of major importance to our legal trout program. Studies are made of the various trout diseases as they appear in the state hatcheries. Each hatchery is visited by a bacteriologist every two weeks so that disease can be detected and treated in the early stages of an epidemic. Thorough studies are made of each lot of trout and general sanitary conditions of individual hatcheries. Basic studies have been made of certain diseases which are due to bacteria. During the past biennium a bacteriologist has been added to the staff of each of the three areas so that diseases can be detected in the early stages and outbreaks of epidemics prevented.

Mississippi River Survey

The Mississippi River Survey has been placed under the supervision of the southern area biology and will continue under that administration. A continuance of the creel census work and tagging studies has been conducted.

GREAT LAKES FISHERY

The commercial fishery of the state's portion of the Great Lakes annually produces from 15 to 18 million pounds of fish for food. Over the years lake trout and whitefish have been the choice fish produced. Lake trout fishery on Lake Michigan has now disappeared probably because of the invasion of the sea lamprey. This animal is a parasite averaging 18 inches in length and 2 inches in diameter which attaches itself to the host fish by means of a vacuum-cup-like mouth and then with rasping teeth bores a hole into the body and feeds on the body fluids. The lamprey is believed to possess an anti-coagulant which is injected into the wound and allows the blood to flow freely. Lake trout have been its favorite prey since it invaded Lake Michigan in about 1936. The lake trout production reached a peak in 1944 when nearly 2¾ million pounds were produced. As the sea lamprey increased the lake trout decreased in abundance. In 1948 only 540,101 pounds of lake trout were produced, a still greater decline came in 1949 when 107,715 pounds were produced and the 1950 production will be only about 40,000 pounds.

So far the production of lake trout in the Wisconsin portion of Lake Superior has not been affected. Sea lamprey have been observed, however,

and certain Michigan and Minnesota streams have been observed to have lamprey spawning runs. A continual outlook for them in Wisconsin streams tributary to Lake Superior has failed to find a spawning run. Whether or not the lake trout population of Lake Superior will follow the virtual destruction by the lamprey that it did in Lakes Huron and Michigan remains to be seen. In the meantime the Great Lakes states including Wisconsin in cooperation with the U. S. Fish and Wildlife Service are trying to do everything possible to control this pest. Wisconsin efforts in controlling the lamprey are described in this report.

The smelt population is apparently on the increase and good runs have been realized, particularly in Lake Superior waters, during the past biennium.

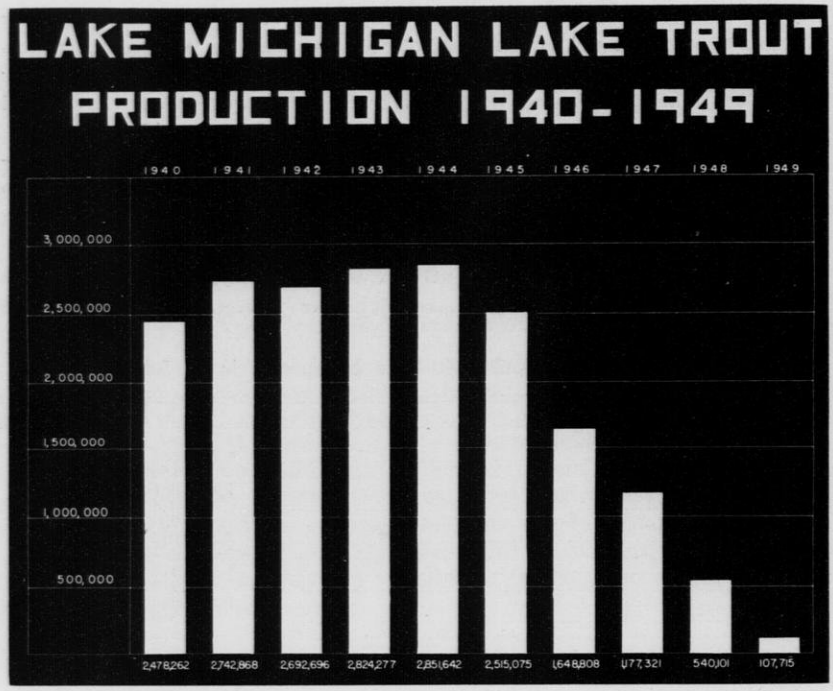
Tabulation of the 1948 and 1949 take by species is as follows:

	1948	*1949*
Trout	1,093,058	621,921
Trout, Undersized	2,130	7,545
Whitefish	1,690,661	1,248,474
Whitefish, Undersized	6,318	2,709
Menominee	10,700	12,424
Chubs	2,670,942	3,764,484
Herring	11,391,227	9,365,200
Perch	1,003,625	824,446
Suckers	588,377	657,902
Carp	1,032,045	1,321,385
Catfish	25,340	26,203
Bullhead	105,929	81,379
Smelt	505,300	488,998
Lawyer	77,055	27,581
Crawfish	7,238	1,732
Walleye Pike	69,676	68,491
Pickerel	19,162	12,307
Sheepshead	50,909	33,012
Bloaters	21,670	28,481
Shiners	----------	10,218
Salmon	----------	15
Garfish	----------	3
Dogfish	----------	965
Total	20,371,362	18,605,875

Sea Lamprey Control

The destruction of the lake trout fishery has been mentioned earlier in this report. There is no sure fire method of control known but various means are studied for effectiveness and economy of operation. To date the trapping and destruction of spawning migrants seems to be about the only known method. Lampreys migrate into streams to seek gravelly ripples where they build nests for their eggs. The eggs hatch and the larvae burrow into the soft mud of the stream for metamorphosis. This process takes three or four years following which three years is needed for the lamprey to reach maturity. The program is to trap the lamprey on their way to the spawning grounds and *destroy them before they spawn.* (The adults normally die after spawning.) If all such migrants can be destroyed over a seven year period the population would be greatly reduced, if not practically eliminated.

Sea lamprey traps were operated in six locations during the spawning run in the spring of 1950 in streams tributary to Lake Michigan. A total



of 16,410 sea lamprey were taken in these traps during the spring of 1950 as compared to about 6,000 destroyed in 1949. Trap locations were in Hibbard's creek and Lily Bay in Door county, Three Mile creek and the Kewaunee river in Kewaunee county, and the East Twin river and Fisher creek in Manitowoc county. Removal efforts of this parasite will be continued and expanded with a more permanent type of trap utilized, and in new locations wherever lampreys are found in spawning runs.

WATERSHED MANAGEMENT

Watershed management is the newest of the fish management division activities. The declining number of good trout streams, and silted lakes and ponds precipitated a genuine desire to do something about it. The result was the watershed management program which was activated during this biennium.

This program is necessarily first concerned with soil and water, controling run-off and erosion, and secondly with the immediate lake or stream. The watershed management activity cooperates with the U. S. Soil Conservation Service, county agricultural representatives, and local groups in attempting to create an awareness of the basic problems involved and in trying to show how they can best be solved.

A stretch of deteriorating Wisconsin stream. Close grazing by cattle has destroyed cover, promoted erosion, and seriously injured the fish habitat. Muddy water deposits silt downstream.

State crew stabilizing a stream bank. Rock and logs are in place, willows have been planted, and cattle are being fenced out.

Protected stream bank one year after improvement. The bank cover is growing back.

The lake or stream is really at the bottom of a watershed, and when reasonable controls in the headwaters have been instituted, improvements on the water body are considered. Watershed management seeks to provide and maintain vegetative cover on stream banks, stabilize stream banks, increase carrying capacity by providing shelters and "holes" for fish through the use of devices and the stabilizing of water levels and banks on streams, and lakes. Field men, therefore, find themselves doing such things as fencing cattle out of streams, building water level dams, and planting willow mat revetments on eroded banks.

To show the public what can be done, demonstration watershed management projects have been set up at various places in the state. These projects are located on the Black Earth creek in Dane county, Prairie river in Lincoln county, Radley creek in Waupaca county, Kinnickinnic river in St. Croix county, and Devil's creek in Rusk county. In each of these streams fencing and habitat improvement have been initiated and much time has been spent in selling soil and water conservation in each watershed.

At the same time, a number of cooperative projects aimed at education and improvement have been started, and the number is expected to grow. These cooperative projects are directed by the conservation department but sportsmen's clubs and civic groups furnish much of the education media and labor connected with stream improvement. Most advanced of these projects are Crystal creek in Dodge county, and Four Mile creek

in Marathon county, sponsored by the Beaver Dam Lake Fishermen's Club and the Mosinee Sportsmen's Club respectively. It is the desire of the fish management division to expand these activities as fast as manpower and funds are available.

CONSERVATION CONGRESS

The division of fish management has been in close contact with the Conservation Congress and especially with the executive council of that body and the various committees dealing with fish management problems during the past biennium. Through the support of the congress it has been possible to make some important changes in fishing regulations which will allow longer seasons for hook and line fishing with reduced bag limits on the larger game fish species. Separate ice fishing regulations under the new rules are unnecessary and this eliminates the need for issuing a separate pamphlet, which means a considerable saving to the department.

Game Management

The game management division was reorganized during 1949–50 to include five area coordinators. The purpose of this reorganization was to have better representation in the field where closer contact could be maintained with local game problems.

GENERAL GAME ADMINISTRATION

The total game division disbursements for the years ending June 30, 1949 and June 30, 1950 were $1,079,666.57 and $1,253,975.41 respectively. Expenditures include general game administration, hunting and trapping regulations, all propagation and stocking, exhibits, land leases and purchases, surveys and investigations, winter feeding, the administration, maintenance, and development of refuges and public hunting grounds, administration of commercial game, deer, and fur farms, licensed shooting preserves, game and trapping season reports, publications, all game research, and miscellaneous game projects and services.

The game division now has 144 permanent employees.

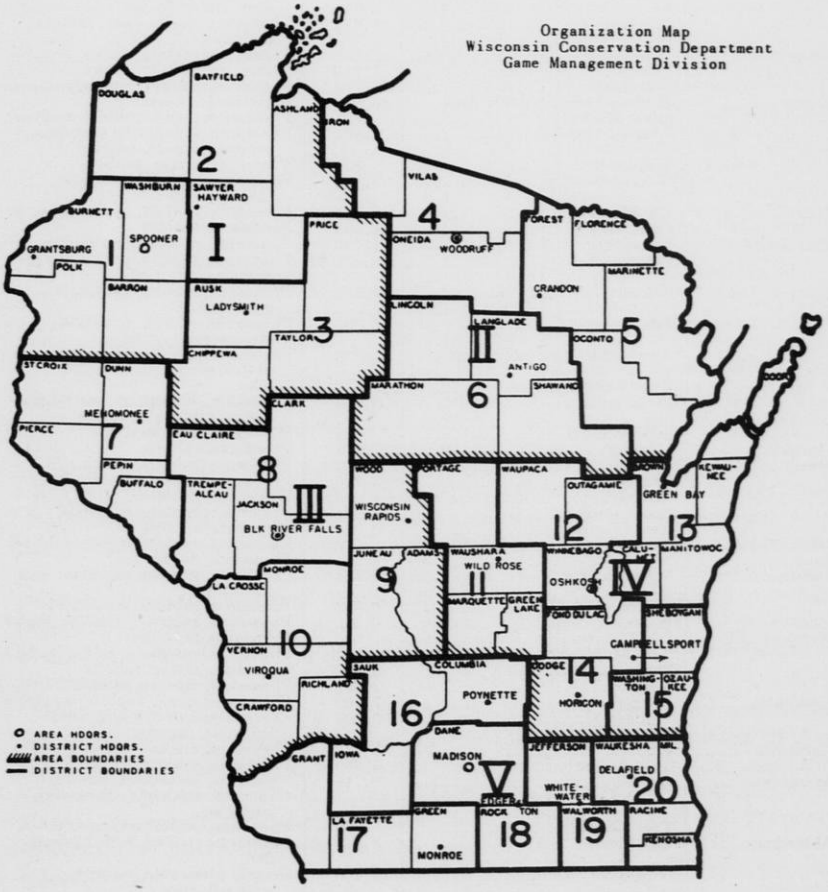
GAME REGULATIONS

The Wisconsin Conservation Commission continues to regulate open and closed seasons on all species of game and furbearing animals as provided by law. Before establishing seasons, however, a thorough survey is made of game conditions throughout the state, not only among department personnel and representatives of the Wisconsin Conservation Congress, but also among the people themselves.

PUBLIC HUNTING AND FISHING GROUNDS

Our public hunting grounds program is still in the process of expansion. Beginning in 1938 with one area consisting of 1,280 acres, the program now has expanded to approximately 100 public hunting grounds containing about 283,483 acres. Of this, about 233,316 acres have been leased. About 37 areas were added during the biennium, and purchases were made in 20 counties at a cost of approximately $250,000. Totogatic, Yellowstone, Storr's Lake, Mazomanie, Tiffany, and Sensiba were some of the larger areas purchased. The following list shows the number of areas in operation each year:

Year	Areas	Acreage
1938	1	1,280
1939	2	21,120
1940	4	24,614
1941	4	25,971
1942	8	31,309
1943	11	32,699
1944	23	58,454
1945	31	63,959
1946	50	145,516
1947	63	192,561
1948	71	224,407
1949	100	283,483



PUBLIC HUNTING AND FISHING GROUNDS AS OF JUNE 30, 1950

County	*Name*	*Acreage*	*Game Species Prominent*
Adams	Big Spring	2,270	Pheasant, rabbits
	Colburn	4,374	Deer, rabbits, ducks, ruffed grouse
Barron	New Auburn	525	Pheasants, ducks, rabbits
Brown	Sensiba	450	Pheasants, ducks, rabbits, squirrels
	Suamico	1,329	Pheasants, rabbits, squirrels
Buffalo	Tiffany	6,201	Waterfowl
Burnett	Crex Meadows	15,760	Waterfowl, ruffed grouse, deer
	Fish Lake	4,125	Waterfowl, ruffed grouse, deer
	Kiezer Lake	1,024	Waterfowl, ruffed grouse, deer, rabbits, squirrels
Calumet	Brillion	8,018	Pheasants, rabbits, raccoon, squirrels, Hungarian partridge
	New Holstein	1,345	Pheasants, rabbits, raccoon, squirrels, Hungarian partridge
Chippewa	Hallie	1,720	Pheasants, rabbits, ruffed grouse
	Jim Falls	2,311	Pheasants, rabbits, ruffed grouse
Columbia	French's Creek	2,027	Pheasants, ducks, rabbits
	Jennings Creek	380	Trout fishing, pheasants, rabbits, deer, ruffed grouse
	Portage	1,675	Pheasants, ducks, deer, rabbits, raccoon
Dane	Deansville	2,362	Pheasants, rabbits, ducks
	Leuten	1,746	Pheasants, rabbits, ducks
	Mazomanie	7,776	Pheasants, ducks, rabbits, squirrels
Dodge	Horicon Marsh Wildlife Area	10,000	Waterfowl, pheasants
	Shaw Marsh	771	Pheasants, ducks, rabbits, squirrels
	Theresa Marsh	4,694	Pheasants, Hungarian partridge, squirrels, ducks, rabbits
	Westford	801	Pheasants, ducks, rabbits
	Wildcat Swamp	3,128	Pheasants, squirrels, raccoon, rabbits
Dunn	Elk Mound	5,574	Pheasants, rabbits, squirrels, ducks
	Peckmiller	1,903	Pheasants, rabbits
Eau Claire	Augusta	1,627	Pheasants, ducks, deer, rabbits
	Pleasant Valley	2,477.77	Pheasants, rabbits, ducks, woodcocks
Fond du Lac	Brandon	1,577	Pheasants, rabbits, Hungarian partridge
	Eden	1,807	Pheasants, rabbits, squirrels, Hungarian partridge
	Kettle Moraine State Forest	620	Pheasants, rabbits, Hungarian partridge
	Rush Lake Right-of-Way	----------	Ducks
	St. Cloud	3,653	Pheasants, Hungarian partridge, ducks, rabbits, squirrels
	Supple Marsh	321	Waterfowl, pheasants
Grant	Montfort	3,773	Pheasants, rabbits
Green	Albany	2,003	Pheasants, rabbits, ducks
	Brodhead	3,225	Pheasants, waterfowl, rabbits
	Brooklyn	4,690	Pheasants, rabbits
	Browntown	3,904	Pheasants, rabbits, squirrels
	New Glarus	2,921	Pheasants, rabbits
Green Lake	Silver Creek	3,070	Pheasants, rabbits, ducks, squirrels
Iowa	Avoca	3,954	Pheasants, ducks
Jefferson	Jefferson Marsh	2,881	Pheasants, rabbits, raccoon, waterfowl
	Princess Point	5,643	Pheasants, rabbits, waterfowl
	Waterloo	5,223	Pheasants, raccoon, rabbits, ducks
Kenosha	Des Plaines	696	Pheasants, rabbits
	New Munster	1,863	Pheasants, rabbits
	Paris	3,420	Pheasants, ducks, rabbits
	Salem	2,091	Pheasants, rabbits, squirrels
La Crosse	Bangor	7,962	Pheasants, quail, rabbits, squirrels
	Van Loon	5,694	Pheasants, ducks, quail, deer, squirrels, raccoon
Lafayette	Argyle	3,035	Pheasants, ducks
	Yellowstone	3,263	Pheasants, rabbits, squirrels
Manitowoc	Collins	9,745	Pheasants, waterfowl, rabbits, raccoon, squirrels, Hungarian partridge
	Two Rivers	880	Pheasants, waterfowl, rabbits
Marathon	Eau Pleine	4,141	Pheasants, rabbits, ruffed grouse, deer
	Nine-Mile Swamp	3,480	Grouse, pheasants, rabbits, squirrels, deer
Marquette	Lawrence Creek	677	Pheasant, ducks, deer
	Mecan	669	Pheasant, deer, rabbits
Oconto	Oconto Marsh	1,600	Pheasants, sharp-tailed grouse, waterfowl

County	Name	Acreage	Game Species Prominent
Outagamie	Deer Creek	441	Pheasants, rabbits
	Mack	1,358	Pheasants, rabbits
	Maine	720	Pheasants, rabbits
	Outagamie County	412	Ducks, pheasants, rabbits
Ozaukee	Cedarburg	1,697	Pheasants, rabbits
	Ulao	1,953	Pheasants, rabbits, waterfowl
Polk	McKenzie Creek	2,129	Deer, trout fishing
Richland	Richland	3,124	Pheasants, quail, rabbits, squirrels
Rock	East Hanover	2,236	Pheasants, ducks, rabbits
	Evansville	5,163	Pheasants, rabbits
	Footville	4,332	Pheasants, rabbits
	Lima	2,939	Pheasants, ducks, rabbits
	Rock Prairie Goose Refuge	1,452	
	Storr's Lake	527	Pheasants, rabbits, ducks
St. Croix	St. Croix Island	484	Waterfowl
Sauk	Potter's Marsh	4,018	Pheasants, quail, ducks, rabbits
	Reedsburg	1,713	Pheasants, quail
	Witwen	2,747	Pheasants, ducks, rabbits
Sawyer	Totagatic Conservation Area	2,265	Deer, grouse, woodcock
	Wiergor Springs	1,307	Deer, ruffed grouse, rabbits
Sheboygan	Adell	1,352	Pheasants, Hungarian partidge, rabbits, squirrels
	Nichols Creek	1,037	Pheasants, rabbits, squirrels
Vilas	Mann Creek	200	Ruffed grouse, deer, waterfowl
	Stevenson Creek	200	Ruffed grouse, deer, waterfowl
Walworth	Clover Valley	1,159	Pheasants, ducks, rabbits
	Richmond	1,010	Pheasants, rabbits
	Troy	8,852	Pheasants, ducks, rabbits, squirrels
Washington	Allenton	2,286	Pheasants, rabbits, ducks
	Colgate	855	Pheasants, ducks, rabbits, squirrels, Hungarian partridge
	Hartford	1,414	Pheasants, rabbits
	Kewaskum	961	Pheasants, rabbits
Waukesha	Eagle	1,725	Pheasants, rabbits
	Vernon Marsh	2,628	Pheasants, rabbits, ducks, squirrels
Waupaca	Clintonville	1,919	Pheasants, rabbits, waterfowl
	Marion	4,975	Pheasants, rabbits, squirrels
	Mukwa	1,464	Pheasants, waterfowl, rabbits
Waushara	Pine River	4,576	Pheasants, rabbits, deer
	White River	210	Pheasants, rabbits, squirrels
Winnebago	Bay Boom	3,113	Pheasants, waterfowl, squirrels
	Deltox Marsh	773	Pheasants, rabbits
	Deppe Marsh	100	Pheasants
	Rush Lake	1,524	Pheasants, waterfowl, rabbits, squirrels
Wood	Wood County	18,632	Ducks, deer, grouse, rabbits

The general procedure has been to lease areas in those portions of the state where land is expensive, but hunting pressure heavy; however, land which lends itself to development is purchased. We have purchased wildlife habitat which is unusually well situated to serve as a nucleus for the surrounding country. Sometimes it is feasible to purchase right-of-ways to lakes or streams. Again, it frequently is practical to purchase excellent wildlife habitat to save it from destruction by private interests; and, when streams are to be developed, land along the shores must be purchased.

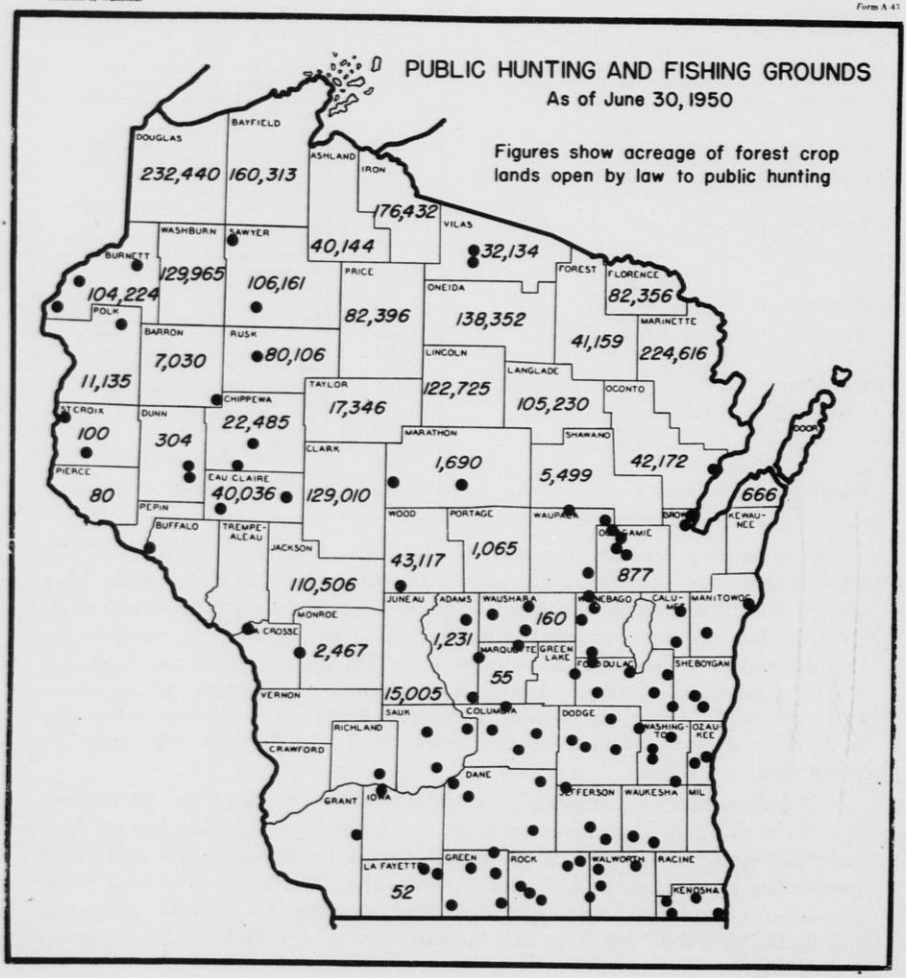
All public hunting grounds, no matter whether leased or purchased, are involved with procedures such as the following: the planting of food patches; artificial feeding in winter; the stocking of pheasants and other game; fire protection; and, in many cases, the planting of food and cover plants. A regulation also provides that damage to private property, incidental to public hunting, can be paid for by the state if it occurs on leased areas.

Most of our public hunting grounds, recently established, lie in the southern and western portions of the state; however, most of the services

of the public hunting grounds program now are being extended to the large forest areas of the north, which already are under public supervision. In this part of the state, deer yards are being bought for purposes of improvement. At the close of the biennium, Wisconsin had acquired by purchase a total of 24,011.87 acres of deer yards. About 3,763 acres, involving eight counties, were added during the biennium at a cost of $31,131.80.

Wisconsin Conservation Department
Madison 2, Wisconsin

Form A 43



DEER YARD PURCHASES

Year	Areas Added	County	Name	Acreage
1944	2	Iron	Hay Creek	1,320.
			Boot Lake	680.
1945	6	Bayfield	Flag River	160.
		Iron	Hay Creek	480.
			Big Island	960.
			Boot Lake	320.
		Lincoln	Newood	960.
		Marinette	Town Corner Lake	319.59
		Price	Price Creek	1,392.
		Sawyer	Chief River	760.
1946	3	Ashland	Hoffman Lake	4,960.40
		Iron	Hay Creek	1,329.45
		Marinette	Town Corner Lake	321.25
			Miscauno	357.9
		Sawyer	Chief River	40.
			Kissick Swamp	896.23
1947	3	Ashland	Hoffman Lake	480.
			White River	720.
		Bayfield	Flag River	240.
		Burnett	Kohler-Peet	2,553.35
		Iron	Hay Creek	160.
		Rusk	Silvernail	557.65
		Sawyer	Chief River	80.
1948	2	Bayfield	Flag River	80.
		Burnett	Kohler-Peet	320.
		Iron	Hay Creek	40.
		Marinette	Town Corner Lake	80.
			Amberg	254.6
		Sawyer	Flat Creek	171.34
1949	1	Ashland	White River	240.
		Bayfield	Flag River	80.
		Iron	Underwood	1,601.84
		Marinette	Amberg	449.26
		Rusk	Silvernail	480.
		Sawyer	Flat Creek	46.61
		Washburn	Flat Creek	160.
Totals	17	10	17	24,011.87

Prior to the reorganization of our five game areas, a regional wildlife development program was conducted mainly in cooperation with landowners having a soils plan with the U. S. Soils Conservation Service. This program operated in about 16 counties as shown in the following table:

Year	Units Planted	Number of Counties	Acreage Planted	Total Plantings
1949	92	14	288.5	121,700
1950	167	16	200.5	220,000
Totals	259		489.	341,700

Conifers planted included white and Norway pine, white and Norway spruce and white cedar; hardwoods included hackberry, black locust, hard maple, white ash, black walnut (seeds), mountain ash, and basswood.

Some of the more important game food and cover shrubs planted were: choke berry, bittersweet, buffalo berry, wild crab, highbush cranberry, coralberry, gray, red-osier, and silky dogwood, American plum, multiflora rose, thornapple, Virginia creeper, and choke cherry.

A special experimental wildlife habitat and woodlot improvement program was carried out in Rock county during the biennium. Two-hundred

units of land were planted involving 1,500 acres; and 600,000 trees and shrubs were used. Labor was obtained partly from schools and scout organizations.

A beginning was made on a large stream development project which promises to improve, not only habitat for trout, but also habitat for game. This is the Black Earth Creek project in Dane county.

The experimental stream development project on the Badfish Creek was further developed and maintained during the period.

The public hunting and fishing grounds map indicates that other lands also are open to the public for hunting purposes, as it shows acreages of our forest crop lands by counties. In addition to these lands, there are such public areas as: The Kettle Moraine Forest Units; Horicon Marsh; the Central Wisconsin Conservation Area; and state, federal, and county forests in the northern part of the state. Combined areas open to public hunting at the close of the biennium amounted to nearly five-million acres. Some lands within these areas are share-cropped by the department, and by-products, such as surplus timber and sphagnum moss are sold.

As stated before, plans are already underway to purchase additional public hunting grounds. The Princess Point area and the Vernon Marsh are examples of two such anticipated acquisitions.

Wildlife and Game Refuges

The total acreage of lands posted as refuges throughout the state was reduced during the biennium in accordance with good management practices. We still have about the same number of refuges (136) as we had two years ago, but the overall acreage has been reduced. We now have 54,175 acres. Special closed areas were established, however, during our deer seasons.

Winter Game Bird Feeding

A winter feeding program has been conducted for game birds in Wisconsin since 1929, or earlier. Feeding activities have been concentrated mainly on pheasants, Hungarian partridge, and quail; although some grouse have been benefited. This program is carried on in cooperation with the county conservation wardens and with the help of local sportsmen's clubs.

In the winter of 1948–49, a total of 174,494 pounds of corn and 1,720 pounds of grit were distributed in 50 counties at a cost of $4,418.99. A total of 177,496 pounds of corn and 2,703 pounds of grit at a cost of $3,988.36 was distributed in the same number of counties in 1949–50.

In Wisconsin, dairy farming and intensified agricultural practices have reduced food and cover to a minimum; making it necessary to augment the winter food supply.

Winter Deer Feeding

In 1943, a new statute provided that revenue derived from $.50 on each deer tag sold, be spent exclusively for the purchase and distribution of winter deer feed and for the requisition of winter deer yards. As a

result of this legislation, 914 tons of hay and deer feed concentrate at a cost of $45,866.13 was distributed in deer yards during the 1948–49 winter feeding season. Distribution costs amounted to $15,044.33. In 1949–50, 625 tons of hay and 362 tons of deer feed concentrate amounting to 987 tons at a cost of $43,687.77 were distributed. Although other divisions participated in the feeding of deer, the responsibility was placed upon the forest protection division because the distribution of manpower and equipment was such that this division could carry out the program efficiently. Distribution costs during the winter of 1949–50 totaled $21,209.55.

Licensed Farms and Shooting Preserves

Game and fur farms and shooting preserves are licensed only after considerable investigation has been made. The following areas were newly established during the period:

	1948	*1949*
Game Farms	19	48
Deer Farms	6	5
Fur Farms	30	63
Shooting Preserves		5

At the close of the period there were approximately 195 game farms, 480 fur farms, 47 deer farms, and 67 shooting preserves. The acreage in shooting preserves now amounts to about 39,092 acres.

In addition to the above special licenses, the game division issues about 25 permits to band birds annually, and about 25 to 30 scientific collecting permits.

Tabulation of Game Kill Reports

The annual tabulation of hunters and trappers game kill reports was continued to determine the number of each species taken during the previous open season. About 6% of the deer tag purchasers were contacted through a public poll to determine the number, age, and sex of deer killed, as well as the location. Questions also were asked to obtain the hunter's opinion on types of seasons. A complete survey again was made of the bow and arrow season and of deer seizure records.

Since these tabulations are used by the department, by federal agencies, and by the public at large, a new project has been started wherein complete statistics of all game species for all time will be made available in compact form.

Bounty Payments

Our present statutes provide that a bounty of $2.50 shall be paid on adult foxes and $1.00 for kits. One-half of the expense of this bounty comes from the conservation fund and the other one-half from the state's general fund. Statutory payments from the state's general fund for bounty payments on wolves, coyotes, wildcats, and lynx, have been in effect for some time. The payment on each adult wolf and coyote is $20.00; for cubs of these species, $10.00; and for wildcat or lynx, $5.00.

The total numbers of animals bountied under the law for each fiscal year of the biennium, and expenditures were as follows:

	Animal	*Number Bountied*	*Expenditure*
1948–49	Coyote and wolves	2,902	$ 55,790.00
	Wildcat and lynx	437	2,185.00
	Red fox	18,884	44,006.50
	Gray fox	5,494	13,490.50
		27,717	$115,472.00
1949–50	Coyote and wolves	3,135	$ 57,970.00
	Wildcat and lynx	482	2,410.00
	Red fox	21,953	50,990.00
	Gray fox	6,489	15,915.00
		31,799	$127,285.00

Deer and Bear Damage Claims

Before July 1, 1949, the $25,000.00 annually appropriated from the state's general fund by statute for the payment of deer and bear damage claims was not sufficient to cover costs. Although the number of claims filed and allowed in 1948–49 had dropped somewhat from the high of the previous year, the amount necessary continued to soar far above the amount anticipated when the annual appropriation of $25,000.00 was provided in 1945.

Since July 1, 1949, a new law, designed to level off damage payments, has been in effect. This law, now Sec. 29.595 (2) (c) of the Wisconsin Statutes, provides that all claims approved during the fiscal year shall be held until the end of the year, and then, if the total amount of the claims exceeds the $40,000.00 now appropriated by statute, they shall be pro-rated. During the 1949–50 fiscal year, claims approved totaled $42,887.88, and these were pro-rated so that 93.3% of each valid claim was paid. Although $45,971.98 was paid in 1949–50 for deer and bear damage claims, the amount over $40,000.00 came from the previous year's balance and was used to pay pending claims held over from 1948–49.

Biennium payments amounted to $96,611.39. In 1948–49, the state emergency board provided $33,000.00 in addition to the appropriation in order to meet these claims.

The payments for each fiscal year by species are:

Fiscal Year	*Deer*	*Bear*	*Total*
1948–49	$45,839.29	$ 4,800.12	$50,693.41
1949–50	39,998.93	5,973.05	45,971.98
Totals	$85,838.22	$10,773.17	$96,611.39

During 1949–50, 40 varieties of crops were damaged by deer. Items leading the list for which damage was paid were oats, garden vegetables and fruits, corn, hay crops, and beans.

STATE EXPERIMENTAL GAME AND FUR FARM

The State Experimental Game and Fur Farm, Poynette, Wisconsin, is the general field headquarters of the game management division. It offers services free of charge to the fur and game breeders of the state; conducts the propagation of game birds and animals for release in the wild, and cooperates with clubs which rear and stock game. It carries on experiments, examines wild animals that are diseased, and renders miscellaneous services pertaining to the management of game.

Other important functions are the maintenance of bird and mammal exhibits and grounds for the use of the public.

The following are some of the details:

Production and Distribution

The following charts are totals, but the breakdown by counties will be found in the annual report.

	1948-1949	*1949-1950*	*Totals*
Eggs produced:			
Game birds	402,542	416,322	818,864
Reeves pheasant	79	47	126
Chukar partridge	367	247	614
Mutant pheasant	604	782	1,386
Totals	403,592	417,398	820,990
Eggs set:			
Game birds	356,273	384,735	741,008
Reeves pheasant	32		32
Chukar partridge	282		282
Mutant pheasant	552	174	726
Totals	357,139	384,909	742,048
Eggs shipped to cooperators:			
Game birds	34,344	33,373	67,717
Chicks hatched:			
Game birds	284,375	287,195	571,570
Reeves pheasant		11	11
Chukar partridge	126		126
Mutant pheasant	261		261
Totals	284,762	287,206	571,968
Chick distribution:			
Day-old chicks to cooperators	190,400	199,830	390,230
Chicks in farm brooders:			
Game birds	78,431	87,641	166,072
Chukar partridge	126		126
Mutant pheasant	246	359	605
Totals	239,203	287,830	557,033

Stocking

	1948-1949	*1949-1950*	*Totals*
Birds liberated from:			
Egg program	5,733	10,585	16,318
Day-old chick program	146,288	150,703	296,991
Farm 16–20 week-old birds	23,174	16,483	39,657
Mature pheasants	27,032	39,555	66,587
Totals	202,227	217,326	419,553

The improvements in the stocking program started in the past biennium were continued with good results, and further research was made by the research section. The practice of holding hens over the winter by cooperative clubs has increased, especially in the northern part of the pheasant territory, with the clubs carrying all of the expense for this program.

Game Animal Stocking

The following tables show that the stocking of raccoon had not decreased to any great extent, but this is due to the stocking of mature breeders to cut down our production both for 1950 and the future. In 1949 we released many of our breeders, but in the culling out process we kept the best, and our production per female was thereby increased. The future program calls for a very small herd which will be kept for seed stock to build up our herd when and if the raccoon population goes down in the wild.

The rabbits and squirrels were trapped on the Farm and in Milwaukee county and released in counties throughout the state.

	1948-1949	*1949-1950*	*Totals*
Raccoon	1,349	958	2,307
Rabbits	268	48	316
Squirrels	12	18	30

Trapping Program

During the past biennium pheasant trapping in Milwaukee county has been combined with rabbit and duck trapping. There was not the surplus of birds as in previous years, but the research section had problems that they wished solved. Game Farm personnel did the trapping. The pheasants and rabbits were distributed in other counties of the state, and the ducks were sent to Horicon Marsh.

	1948-1949	*1949-1950*	*Totals*
Pheasants	412	----------	412
Rabbits	268	48	316
Squirrels	12	18	30
Ducks	244	388	632

Confiscation and Clearing House Section

During the biennium the clearing house section received, housed, and fed the following birds and animals until they were properly disposed of:

	1948-1949	1949-1950	Totals
Fawn	71	40	111
Mature Deer	9	4	13
Raccoon	22	48	70
Snowshoe Rabbit	3		3
Rabbit	268	48	316
Squirrel	12	18	30
Badger	1		1
Woodchuck	1		1
Mink		1	1
Skunk		7	7
Red Fox	1		1
Porcupine	1	1	2
Opossum	1		1
Bear	3	2	5
Nutria	1		1
Otter	1	2	3
Whistling Swan		2	2
Mallard Duck		323	323
Wood Duck	2	6	8
Black Duck		48	48
Pintail		5	5
Golden-eye		1	1
Lesser Scaup		4	4
Bluebill		7	7
Redhead		1	1
Baldpate		1	1
Blue-winged Teal		3	3
Bobwhite Quail	1	20	21
Canada Goose		3	3
Blue Goose		1	1
Golden Eagle		1	1
Bald Eagle		1	1
Pelican	1		1
Capercaille		10	10
Black Grouse		6	6
	399	614	1,013

Public Relations and Education

The Farm's public relations and educational program, consisting of the animal and bird exhibits, was back to the pre-war status, and the public used it to maximum capacity. The Farm's personnel attended sixty-seven meetings sponsored by sportsmen's groups, in which talks were given and movies shown. The Farm also furnished all of the live birds and animals for the Educational Division's exhibits to county fairs, state fair and sportsmen's organizations.

Maintenance

The program of replacing 250 pheasant breeding pens each year was continued. Fifty raccoon pens also were replaced. The Farm was given additional money to build 50 new pheasant runs each year of this biennium, which furnished new grounds for the birds and a replacement of the old pens. The old pens were not torn down, but are used to hold the mature public hunting grounds' birds until they are released prior to and during the open hunting season. The replacement of pens was continued on its actual needs.

The upkeep and painting of the various buildings was continued in rotation at a minimum of cost.

Our Farm's crops have improved, due to the crop rotation program which we have been following.

The fire control and protection program is given first priority at all times.

Ten new incubators were purchased during this biennium.

Pathological Laboratory

No pathologists were employed by the Farm during the period.

FEDERAL AID IN WILDLIFE RESTORATION PROGRAM

The Federal Aid in wildlife restoration program in Wisconsin which is financed through allocations made to the states from 11 per cent excise taxes on sporting arms and ammunition, reached its highest functionary level in this biennium. The program which consists of the functions of land acquisition, development, maintenance, and research almost doubled. Comparative figures for funds allocated during the period 1946–50 are shown below.

Federal Aid Apportionment

Fiscal Years	*Amounts*		*Total*
	Federal	*State*	
1946–47	$ 62,109.03	$ 20,703.01	$ 82,812.04
1947–48	203,862.68	67,954.23	271,816.92
Totals	$265,971.71	$ 88,658.24	$354,628.96
1948–49	$268,544.61	$ 89,514.87	$358,059.48
1949–50	254,461.42	84,820.47	339,281.89
Totals	$523,006.03	$174,335.34	$697,341.37

Although the different functions are individually budgeted they tend to overlap in that research is a prime prerequisite to land acquisition and development. The function of "coordination" includes preparation of documents, clerical service, some supervision; and takes care of preliminary procedures required to activate a project. The table on page 33 shows a breakdown of the annual Federal Aid appropriations according to the budgets allotted for each function.

Coordination

The increase in federal aid activities mandated the need for greater coordination. Consequently, this project showed the largest per cent expansion of any of the functions. In the past, preliminary work on land projects frequently was accomplished through the use of state funds. Today, Federal Aid funds may be used to finance preliminary engineering services. This change has increased the work of the coordination project greatly.

With the exception of the preceding added activity, this project continued to function as in the past with an increase in the amount of each one of

its different duties. One stenographer and one accountant clerk were added to the staff.

The different functions coordinated by this project are listed separately under their proper category.

FEDERAL AID COST SUMMARY

WILDLIFE RESTORATION PROJECT*

(All amounts include Federal and State shares)

Types of Projects	*Cost by Years*	
	1948-49	*1949-50*
Coordination	$ 8,050.00	$ 41,779.00
Acquisition	195,070.00	235,598.00
Development	61,100.00	74,382.00
Maintenance		18,722.00
Research	96,433.00	121,563.00
Totals	$360,653.00	$492,044.00

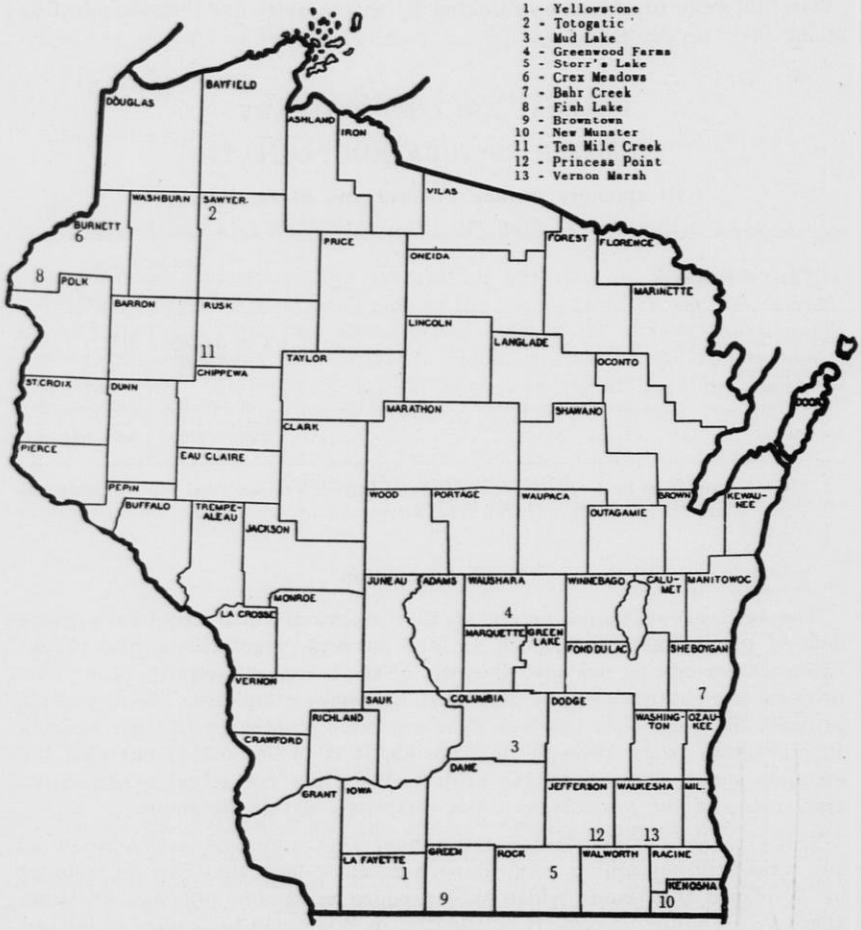
*Includes only those funds which were set up at the beginning of each fiscal year. Amendments are additive in the detailed accounts of each function.

Land Acquisition

The land acquisition function of this program which requires a great deal of preliminary work, such as land surveys, negotiations, and preparation of documents, provided the bulk of the increased activity. Many new projects were started, others continued, and some completed. The important projects on which work has been done are listed together with their budgets for the fiscal years 1948–50, on page 35. It is to be pointed out that the amounts shown for each of the projects listed are not actual expenditures since many of the projects were not completed in this biennium.

These areas are distributed throughout the state and are selected as key sites still containing good game habitat or land that can be restored or developed into lands which will produce maximum numbers of game species at a minimum cost. It is essential in Wisconsin to acquire or control key areas which will be used as nuclei from which expanded programs of habitat development can be started. In trend with current land use practices, the number of Wisconsin state areas and their respective acreages which contain good game habitat are rapidly disappearing. Hence, unless the remaining areas can be retained and new ones developed, sportsmen will find themselves without recreational areas where they can exercise the privilege of hunting.

Many of the newly acquired areas contain water supplies which can be controlled through the installation of dikes and dams to produce large acreages of excellent aquatic game habitat. Three of these projects are definitely scheduled for development as major waterfowl areas during the next biennium. They are: Yellowstone, Crex Meadows and Totogatic.



The Greenwood refuge was purchased primarily as an area to be managed for large flocks of geese that stop there for long periods of time during migration. This area was purchased and managed with special plantings of food patches during this biennium.

Bahr's creek is a special project characterized as being in the line of migration for large numbers of hawks. The preservation of this area will enable studies to be carried out to determine further the real economic value of our many native hawks.

The remaining areas have a variety of game species but most of them feature the ring-necked pheasant. These areas have many natural food and cover plants. Some of the areas offer fishing facilities but these are only secondary benefits.

FEDERAL AID COST SUMMARY

LAND ACQUISITION PROJECTS

(All amounts include Federal and State shares)

Project	*Cost by Years*		*Completed Projects**
	1948-49	*1949-50*	
Yellowstone 16-L	$110,181.34	$120,450.00	
Totogatic 17-L	20,000.00	20,000.00	
Mud Lake 20-L	50,000.00	38,451.31	($11,548.69)
Greenwood 21-L	35,000.00	3,694.25	(31,305.75)
Storr's Lake 23-L	20,940.05	876.38	(20,063.67)
Crex Meadows 30-L		21,303.88	
Bahr Creek 32-L		5,865.00	
Fish Lake 33-L		36,029.38	
Browntown 34-L		13,738.00	
New Munster 35-L		21,350.00	
Ten Mile 36-L		14,231.79	
Princess Point 37-L		26,800.00	
Vernon Marsh 38-L		147,650.00	
Total	$236,121.39	$470,439.99	

*Total expenditures for completing these projects are listed in this column.

Development

As more and more lands have been purchased for game management purposes, the operation of improving the habitat in such areas has naturally increased. In addition, the Rock county area was selected for demonstrating and managing game habitat. The different development projects and their respective budgets are listed in the table on page 36.

Horicon Marsh Maintenance Project 26–M

Since the land acquisition is nearly complete, and since much of the basic biological development has been accomplished on the Horicon marsh wildlife area, the major activity now is maintenance. Project 26–M has been set up for this purpose. Approximately 10 per cent of the project's activities consist of development.

One of the main activities of this project is to handle the share cropping muskrat harvest. The total harvest and the state's share for 1949–50 follows:

	Total	*State's Share*
Muskrats	29,678	14,837
Mink	89	45
Raccoon	17	
Opossum	6	
Weasel	1	
Skunk	3	

FEDERAL AID COST SUMMARY

DEVELOPMENT PROJECTS

(All amounts include Federal and State shares)

Project		Cost by Years	
		1948-49	1949-50
Horicon Gauging	10-D		$ 990.00
Rock County	18-D	$15,000.00	20,040.54
Regional	19-D	40,000.00	43,460.14
Muskrat–Waterfowl Improvement*	22-D	7,615.00	4,891.80
CWCA—Meadow Valley	28-D		27,474.70
CWCA—Black River Falls	29-D		25,570.00
Muskrat–Waterfowl*	31-D	10,314.00	10,314.00
Totals		$72,929.00	$132,741.18

*Completed projects.

Receipts

Species	Number	Average Price Per Pelt	Total
Muskrats	14,837	$ 1.53	$22,699.36
Mink	45	$17.55	790.16
			$23,489.52

Other activities include maintenance of 37 buildings and grounds, bridge repair, clearing of willows and cottonwoods overhanging channels, 12 miles of road repair, and construction of 72 rods of new line fences. Wildlife habitat management includes: planting food patches on 350 acres of farm land by share cropping arrangements with neighboring farmers, 3 acres of herbaceous replantings, burning over 3,982 acres, existing coverts were managed and food made available to local wildlife species through special effort such as knocking down corn. Other activities on the area included patrolling; purchase of equipment such as trucks, tractors, field tools; and maintenance of this equipment.

Horicon Marsh Development—Gauging Station and Weir Construction (10–D–8)

In order to properly control water levels for game management purposes and comply with existing laws governing water levels, project 10–D–8, which provided for the installation of a United States geological stream gauging station on the Rock river and Cipoletti weirs on small streams entering the marsh, was submitted and approved on March 24, 1949. The project was completed in the current biennium and a final report is pending. The budget approved for this work was as follows: gauging station $800.00, weirs $100.00, and contingency fund $90.00. Small supplementary budgets will provide funds for reading the gauging in the future.

Horicon Marsh—Waterfowl—Muskrat Improvement Project 22–D

In line with the policy of conducting a habitat management program on this area that would result in larger game populations, project 22–D was set up and approved on November 1948. The objective of this project was to install two series of ditches in three ten and one five acre plots. One series of ditches was to be accomplished by a dragline and the other by blasting. The purpose of this project was to determine the cost of such installations, the number and distance between ditches that can be installed in any given unit area to produce maximum fur crops per minimum unit cost of investment, the rate of increased fur production in these ditches over a period of years, and the longevity of such ditches. The fur research project is following through on the evaluation of this ditching project as a type of marsh management.

The distance between ditches, length in feet and cost are shown in the table at the bottom of this page. The ditches are 13 feet wide at the top and five feet deep.

It was hoped that the cost and value of blasted ditches could be compared with that of ditches installed by dragline. In December 1949, one ditch 1,489 feet long, was blasted at a cost of $0.25 per foot (material only included). This is considerably more than the cost of $0.17 per foot for the dragline ditches. In addition, the blasted ditches were very inferior in that the banks were very irregular and the maximum depth was only three feet. This attempt at blasting concluded this type of effort to construct a desirable ditch. The project was completed in December 1949.

Horicon Marsh Waterfowl Habitat Development Project 31–D

A relatively large part of Horicon marsh consists of an area that is relatively dry in summer and which grows a dense stand of sedge and bluejoint grass. This portion of the marsh produces only a negligible amount of game. In order to increase the productivity of this area a ditching project similar to 22–D was prepared and approved in November 1949. A total of 11 miles of ditches will be installed by dragline using either department equipment and manpower or by contract. To date 9,111 feet of ditches (16 per cent of the total area to be ditched) have been installed. Abnormal weather has been an inhibiting factor in accomplishing the objective of developing 11 miles of ditch.

NEWLY-DREDGED DITCHES ON HORICON MARSH

Code Number of Ditch	*Spacing in Feet*	*Length in Feet*	*Cost*	*Per Cent of Cost*
D 4	400	1,489	$ 248.06	10.61
D 2	200	2,778	462.92	19.80
D 1	100	5,056	842.62	36.04
D 5	50	4,706	784.40	33.55
Totals		14,029	$2,338.00	

Research Projects

The purpose of the research projects continues to be the study of all game management problems, but during the past two years emphases were put on inventories and the development of methods of inventories. A special game survey project was activated to help other research projects plan study methods and develop standard census techniques which can be used by game managers. In order to accomplish the huge task of developing census methods and surveying the many game species as rapidly as possible the number of personnel and projects were considerably increased in the 1949–50 fiscal year.

With the completion of the fox research project and the submitment of a final report, the fox project leader resigned. His final report is being prepared for publication. Three new projects were started in this biennium; they were pathology, capercaillie and black grouse, and game survey. The fur and waterfowl projects were expanded to include studies of beaver and geese respectively. The research projects and their respective budgets are listed in the table below.

Throughout the 1948–50 biennium special efforts were made to keep the public informed on the status of game species, the results of hunting seasons and the results of special studies. The media for this dissemination of information was through current news releases and bulletin articles. Immediately following the opening and closing of the different hunting seasons a report was submitted to all newspapers covering hunter's success, distribution of kill and the sex and age of game bagged. The number of popular and technical articles published during the biennium are too numerous to mention here by title, but approximately 50 reports of this type were made. In addition, project personnel worked with study committees of the conservation congress, spoke at numerous sportsman's meetings, and worked with other department personnel for the purpose of acquainting them with new developments and recent studies in game management.

FEDERAL AID COST SUMMARY

RESEARCH PROJECTS

(All amounts include Federal and State shares)

Project		*Cost by Years*	
		1948-49	*1949-50*
Deer	4-R	$19,330.00	$25,210.09
Waterfowl	6-R	19,490.06	25,596.25
Pheasant	9-R	20,920.00	24,682.00
Fox	12-R	7,215.00	3,013.00
Grouse	13-R	16,178.00	31,081.00
Fur	15-R	12,100.00	18,244.00
Pathology	24-R		6,658.37
Game Survey	25-R		2,915.00
Capercaillie-Black Grouse	27-R		12,000.00
Totals		$95,233.06	$149,399.71

Deer Research Project

Approximately 10,000 deer weights obtained from game warden records of confiscated deer were studied. The records were analyzed to determine whether there was any relationship of the availability and quality of foods found in the different parts of the state to the weights of deer from such areas. The date was classified by geographical distribution. The breakdown by area and the weight differences are shown on page 40. A statistical analysis of this data was made by the game survey project leader and it was found that the deer from poor range, which includes Chamber's Island and central Wisconsin, definitely weighed less. While the relatively low central Wisconsin deer weights can be attributed to inferior soil fertility conditions, those from Chamber's Island seem to clearly reflect the effects of years of overbrowsing.

Special studies at the Ladd creek yard were continued in order to obtain additional information on the capacity of winter range to carry a certain number of deer over a period of years. The Ladd creek deer enclosure, a four-acre area divided into four one-acre pens, was fenced in the fall of 1945. Deer were admitted to three of these pens in January 1946. During the winter yarding periods from 1946 through 1949, deer have been enclosed in these pens. Pens I, II, III have been subjected to 240, 369, and 453 deer browse days respectively. One pen has not been browsed by deer since the fence was constructed. The effect of the deer browsing was determined by stem counts in the summer and fall of 1949.

The stem counts indicate that, whereas the type of browsing carried out in these pens has practically cleaned out the 2-foot to 7-foot size class, there has been a great upswing in the reproduction of 0–9-inch and 9-inch to 2-foot size classes. Although no highly palatable browse species are expected to show any great recovery, it does appear that by restricting deer from these pens for two years, a variety of medium and low palatable browse species will become more abundant than when this experiment was begun in 1946. This enclosure is located in a deer yard that was very heavily browsed in 1942–43 and no highly palatable browse plants were present here in 1946, with the exception of red maple.

Winter range studies were carried out to determine yard conditions. A total of 323 and 220 yards were examined in the 1948–49 and 1949–50 winters. The results of these studies are shown below.

Area	*No. of Critical Yards (Percent)*	
	1948-49	*1949-50*
Northwest and northeast	65	63
Central	52	55

The differences in the two years is very slight and shows that winter range conditions are still very poor as regards available browse.

Each winter the deer research project personnel together with other departmental employees examined a number of key yards to determine the number of illegally killed deer, which were left in the woods, and winter losses. Central area figures show a very low starvation loss in both years,

1948–50. The illegal kill during the forked-horn buck season in one area, ran as high as one deer for each 40 acres in 1949. In 1950 during the antlerless season the illegal kill was very low, but the crippling loss increased to one deer per 95.7 acres. In comparing the two years, the wastage on a percentage basis of deer from both crippling and illegal kills was much less in 1949 than in the 1948 season.

Northern area yard checks showed that starvation losses were low with the exception of the far northwest counties. Flag yard checks made in April, showed one starved deer for each 7.64 acres in 1949 and 3.75 acres in 1950. The heavier loss in 1950 occurred despite a heavy winter feeding program.

DRESSED WEIGHTS OF DEER TAKEN FROM AREAS CONTAINING POOR WINTER RANGE (FOR 1945 ONLY)

	Adult and Yearling Does		*Doe Fawns*		*Adult and Yearling Bucks*		*Buck Fawns*	
	Average Weight	*No. of Deer*	*Average Weight*	*No. of Deer*	*Average Weight*	*No. of Deer*	*Average Weight*	*No. of Deer*
Chambers Island	88	108	42	33	112*	82	41	27
Central Area III	98	155	52	52	95	196	55	31
N. E. Area II	105	54	54	21	106	53	59	24
N. W. Area I	100	61	59	16	105	33	61	7

*79% of male deer weighed were adults. The majority of deer in the adult and yearling buck class from the other areas were yearlings. This accounts for the larger weight in this class.

Deer repellent studies were conducted which showed that both the Goodrite Z. I. P. and Diamond "L" compounds were effective in reducing deer damage in garden crop areas but not in orchards. The Diamond "L" compound applications cost only about one-seventh that of the Goodrite Z. I. P. repellent.

A number of areas were staked out in different areas to determine the annual browse production under varying conditions such as soil types, geographical location, and land use.

An extensive study of deer hunter success and reproduction rates was conducted during the 1949 season. Figures on hunting success were obtained for 9,488 men. A total of 337 legally killed deer were checked by project personnel. This kill included approximately 36 per cent fawns, 48 per cent does, and 16 per cent yearling bucks. Hunter's success on opening day was 46 per cent. It was estimated that a minimum of 50 per cent of the hunters shot a deer in this season.

Pheasant–Quail Project

With the cooperation of the game survey project, a crowing census method was developed and applied to get accurate information on the size of Wisconsin's breeding pheasant population. Transects have been laid out in the majority of the counties having at least average pheasant habitat. The number of times cocks crow from about 15 different points along a 15 mile transect were tallied. These counts varied from 0.9 to 31.7

different crowings heard. Repeat counts will be made in subsequent years to determine trends in pheasant abundance. These crowing counts together with winter observations on sex ratios and numbers of birds seen along transects have shown that there was an increase of 1–10 per cent in Wisconsin's 1950 spring breeding population over 1949.

The number of broods seen, size of broods, date of hatching and location were recorded for 555 broods in 1948 and 427 in 1949. These figures showed that a maximum was reached in pheasant productivity in the summer of 1949 with 7.9 young produced and alive in August per successful hen. Hatching dates indicated that only a relatively small loss occurred during hayfield cutting because the peak of hatching was passed before hay mowing operations really got underway. Intensive studies supplemented the observations on statewide hatching dates to show that hay mowing as a mortality factor in pheasants has been over estimated in recent years.

Intensive studies have been carried out to get all of the facts possible on the value of stocking artificially-propagated pheasants annually in large numbers. The survival rate and reproduction capacity of pheasant hens from the game farm, native wild birds, and wild transplants from Milwaukee county were compared when released at the Potter's marsh study area in Sauk county. It was found that the game farm hen showed a survival and reproduction rate which was very satisfactory and equally as high as that of the native and transplanted wild hens.

The survival and return of game farm cocks released in summer was studied at Potter's marsh in 1948. Because every precaution was taken to get a complete and true picture of survival, the detailed results of this study are shown in the table on page 42. A minimum of fifty-eight per cent of the summer released cocks survived to the hunting season as shown by the hunter returns. This is an exceptionally high return compared to results obtained in other states. However, most of the other states making this study failed completely in getting accurate returns by improperly checking the areas stocked, and quality of birds released, and the stocking methods.

Birds fed on special hormone diets showed a recovery rate that was 5–9 per cent higher than those fed normal rations.

The hunter check was repeated and similar results were obtained in 1949 and 1950.

Gentle release pens were compared with crate releases as regards the efficiency of these methods in the survival of birds. The birds from the gentle release pens when released in spring showed a much higher survival than did the crated birds. Figures on the survival of fall released birds using these two methods showed little difference in efficiency.

In order to improve the wild pheasant as a bird that can withstand all types of adverse Wisconsin environment, intensive studies have been carried on with penned birds. The physiological factors associated with survival have been studied through a cooperative project with the zoology department of the university. Observations were made on the relationship of age to productivity. All of these results have been analyzed and will be used in producing a superior game farm bird which when released in the wild will have every quality required for high survival.

DAILY SUMMARY OF HUNTERS CHECKED ON THE POTTER'S MARSH PUBLIC HUNTING GROUNDS IN 1948

Date	*No. of Hunters*	*Man-Hours*	*No. of Dogs*	*Birds Crippled*	*Summer-Released Cocks Shot*	*Spring-Released Cocks Shot*	*Cocks Released in Previous Years*	*Cocks Released During Hunting Season*	*Wild Juvenile Cocks*	*Wild Adult Cocks*	*Total Birds Shot*
10/23	574	1,257	123	82	241	6	1	----------	112	8	368
10/24	508	1,327	140	20	64	4	1	----------	40	5	114
10/25	31	70	16	2	5	1	0	----------	0	1	7
10/26	40	100	11	1	7	0	0	----------	3	2	12
10/27	14	21	5	0	3	0	0	----------	2	0	5
10/28	76	120	26	0	4	0	0	5*	9	1	19
10/29	28	79	15	5	4	0	0	11	5	2	22
10/30	107	297	35	4	13	1	1	14	8	1	38
10/31	83	253	41	0	7	0	0	5	7	1	20
11/1	14	37	14	1	1	0	0	4**	1	0	6
11/2	29	63	15	2	2	0	0	25	0	0	27
11/3	4	8	3	0	2	0	0	6	0	0	8
11/4	34	100	18	1	3	1	0	19	3	1	27
11/5	12	33	6	0	3	1	0	2	0	0	6
Totals	1,534	3,775	468	118	359	14	3	91	190	22	679

*Date of first season release (75 cocks).
**Date of second season release (100 cocks).

A quail inventory method based on counting whistling birds in spring has been refined and is now employed throughout the quail range. The method is very accurate and relatively inexpensive. These whistling counts have enabled the department to open seasons in those counties which have the highest numbers of this game bird.

Winter mortality rates have been studied and show the relatively large loss that this bird sustains annually. Unless the quail is shot during the hunting season, large numbers will be wasted annually as even the average winter claims a very high toll. Winter losses range from 40–90 per cent depending upon the severity of the winter.

The life habits of the quail make it a bird that can be studied easily. It is used as a model on which much information needed for management can be acquired and which also applies to other Wisconsin upland game birds. An example of this is the study conducted on the survival of young birds from hatching time to the hunting season. Brood observations showed that approximately 35 per cent of the young hatched die before the hunting season begins. A complete analyses of the effects of different types of weather on game bird survival also were made.

In order to properly set hunting seasons, the status of each game species must be determined annually but economically. The resources of the federal crop reporting service offers considerable possibilities for getting information on the size of game crops through their questionnaires to farmers. Several methods for determining quail populations through farming questionnaires were attempted and the results analyzed.

Approximately 140 quail were trapped and transplanted to areas containing good cover but no birds. The number of birds stocked and areas of release are shown below. These releases have shown considerable promise in stocking birds in local areas since in all three of the release areas the transplants have produced one or more broods.

QUAIL STOCKING

Site	*County*	*No. of Birds*	*No. of Releases*
University of Wisconsin Arboretum	Dane	64	3
River Hills	Milwaukee	51	2
Horicon Marsh Wildlife Area	Dodge	26	1

Fox Research Project

A total of 51 fox dens were examined to determine food habits of this animal, 33 of which were red and 18 grey. The staple food taken was rabbit. Parts of upland game birds were found in small quantities at only a few of the dens examined, indicating no serious predation of these birds.

Although the fox has been studied from a number of aspects very little is known about reproduction rates, sex ratios, and weights as they relate to population trends. Weights were obtained on 407 foxes. There were no important differences between the weights during a three year period indicating that food supplies were relatively constant during this study

period. There is some evidence that the peak weight of foxes is reached in fall. This means that if fox weights are to be used at all for determining differences in fox populations from one year to the next only animals collected at the same time during each year of study should be compared. The grey fox showed a higher average weight than did the red. This was contrary to expectations. Previous studies had indicated a sharp decline in the fox population that might have been attributable to food shortages.

Observations on live litter sizes to determine reproduction rates are difficult to make, therefore, some other character was sought. Placental scars were counted but the results indicated that this method of getting information on large numbers of litter sizes was impractical since only very fresh carcasses can be used. Stock piling a sufficient number of fresh carcasses is relatively impossible.

Important basic information was obtained on sex ratios. A total of 585 red and 243 grey fox carcasses were examined in 1949. The precentage of males was fifty-one among the reds and fifty-seven among the greys. Age ratios indicated that there were 5.2 young to one adult red fox and 2.4 young to each adult grey fox. With such information computations can be made on the size and status of fox populations.

A total of 1,475 pelts were examined from Wisconsin, Iowa, Michigan and Minnesota for quality. Wisconsin and Michigan pelts were inferior to Iowa and Minnesota. The reason for this difference in quality is unknown but may be related to the method used to take foxes and the relative differences in the health of the general populations in each state studied. Similar differences existed in the sex of the animals trapped or shot. Wisconsin's take showed a preponderance of males. The effect of taking more of one sex in controlling populations should be studied further.

An intensive investigation was made to compare different types of scents as lures to attract foxes and a list of different scents was prepared and tested.

Fur Research Project

The main objectives of this project from 1948–50 were: to continue to get information on how heavily muskrat populations should be trapped, to obtain maximum yields, to determine reproduction rates, to census populations, and to find methods of improving marsh habitat which would increase the number of muskrats on a given area.

Before muskrat populations can be managed properly, much basic information is required. Hence, the major activities of this project are designed to procure information.

Apparently muskrat reproduction was very high in 1948 and 1949 with litter sizes averaging 8.0 in both years. Ninety complete litters were trapped and examined to get this information. Additional information on the size of breeding populations was obtained from winter house counts which indicated a high carry over for both years.

There is a possibility that differences in sex ratios between years might give some clue on how heavily a muskrat population can be trapped in order to get maximum harvests and yet leave adequate breeding stock. Although sex ratios are even at birth, a preponderance of males develops shortly thereafter. The nature of this shift to more males in a population

is being studied. Over 700 young muskrats were trapped, aged, sexed and tagged in 1948 and 1,329 were tagged in 1949, but over 1,900 were handled. A widely unbalanced sex ratio would indicate an abnormal condition. There were no apparent abnormal ratios in the Horicon marsh population which indicates that the marsh is in a healthy condition.

Techniques were worked out for trapping the young-litter muskrats as well as for larger animals later in the season. These techniques are essential to attaining the objectives set forth.

Recoveries by trappers of muskrats trapped and tagged previously is yielding much information on survival and movement. From 15–18 per cent of all muskrats trapped in any one season were recovered in the trapping season following tagging.

Owners of small marshes and/or large marshes would like to know if there are ways to improve the habitat in these areas to get maximum muskrat populations on minimum investments. In December 1948, a series of plots each containing two or more ditches and which varied only in the distance between the ditches and the number of ditches, were dredged by means of a dragline. The ditching details were described under project 22–D, which was discussed earlier in this report. Complete studies are being made in the utilization of the ditches, proper spacing for maximum returns and return in muskrat pelts per unit cost of investment. Vegetation was planted in the ditches and on the banks to increase food supplies and prevent erosion respectively. The results of the first year are shown in the following table.

HARVEST SUMMARY—EXPERIMENTAL DITCHES—1949

Ditch	*Muskrats*	*Mink*	*Raccoon*	*Muskrats/ Mile of ditch*	*Muskrats/ $100 invest.*	*Muskrats/ Acre*
D 5	20	1	----------	24	3.25	4.0
D 1	53	2	----------	58	6.31	5.3
D 2	36	----------	1	72	7.75	3.6
D 4	12	----------	----------	44	4.76	1.2
Totals	121	3	1	48	5.2	3.5

Movement studies show that of 125 tagged muskrats in the ditches, 80 per cent moved less than 300 feet while the longest move was 850 feet. The time elapsing between tagging and recovery by steel trapping during the regular open season varied from 1 day to 75 days.

A tremendous increase in the beaver population in the last decade resulted in a demand for a special study of this species. The beaver project to date has made some interesting observations concerning the 1950 beaver population in the state. For instance it was learned that the state had at least 35,000 beaver at the beginning of 1950 and we know that the harvest of beaver in the spring of 1950 was not great enough to reduce our beaver population for 1951, in fact it probably increased a little. This is known because an anlysis of 666 beaver carcasses in the spring of 1950 showed that our normal beaver population is capable of producing approximately a 60 per cent annual increase. A sixty per cent increase allows

about a 33 per cent annual harvest without reducing the population. The beaver harvest in the spring of 1950 was 11,500 beaver or almost one-third of our population, thus the 1951 population of beaver for the state should be about the same as for the year previous.

Carcass examination also showed that the female beaver averages 4.4 young per litter with 4 young being most common litter size. One female was examined that contained 9 young. The sex ratios among both adult and kit beaver were even.

It was found that a small fraction of yearling beaver were pregnant and that a large number of two-year-olds were pregnant. No exact percentages could be figured out on these age classes as we cannot as yet age the beaver accurately by any known technique. Male beaver were found to produce spermatoza at two years of age. This means that when the two-year-old beaver are driven from a colony by the parent beaver as is the accepted procedure, they are capable of starting their own colonies and breeding in the majority of cases.

Maps were prepared to show the 1950 beaver colony locations and the 1950 trapping harvest on a statewide basis. Questionnaires were designed to obtain a maximum of information from the trappers. The first response to the questionnaires by the trappers was remarkable in that 63 per cent of the questionnaires received were in usable form. The technical correctness of the questionnaires was checked by comparing them against information known.

Various types of beaver habitat were studied and the carrying capacities of the optimum type ranges were roughly calculated. More will be done on this study in the summer of 1951. So far, it seems that only a good stand of aspen trees will support a colony of beaver from 8–10 years, provided all the food is utilized, but this is rarely the case.

Benefits derived by other game and fur species from the presence of beaver ponds were studied. Fur bearers in general (mink, raccoon, otter, and muskrat) were found on 70 per cent of all the ponds examined. Ducks (mallards, blacks, woodducks and blue-winged teal) were found feeding and loafing on 55 per cent of the pounds, and duck broods were found on 24 per cent of the ponds.

The project will continue to study the population changes and behavior, habitat requirements, and many secondary problems with an eye toward developing better management methods.

Capercaillie and Black Grouse

In order to keep up with changes in land use and wildlife habitat, federal and state conservation departments are constantly making efforts to acquire and test new species of game. On August 29, 1950, a cooperative study was set up by the Fish and Wildlife Service and the state conservation department to test the suitability of capercaillie and black grouse and two species of Scandinavian grouse in northern Wisconsin forests. Outer Island, one of the Apostle group, was selected as having the prerequisite habitat for survival and study purposes.

The total number of birds received to date and the fate of each is shown on page 47. Of this group a minimum of five capercaillie were known to

be alive in the spring of 1950. These survivors plus uncounted birds and supplemented by four adult capercaillie released in May 1950, are the present study group. No new birds have been received this year. The approximate cost of each bird received was $70.00 including shipping costs.

DISPOSITION OF BIRDS

	Shipment No. 1 August 3		*Shipment No. 2 August 19*		*Shipment No. 3 September 23*	
	Bl. Gr.	*Caper.*	*Bl. Gr.*	*Caper.*	*Bl. Gr.*	*Caper.*
Died before liberation	0	0	2	5		
Liberated	1	6	4	20	0	0
Sent to Game Farm	0	0	2	4*	4	7
Died after liberation	?	1+	3	?		
Total shipments	1	6	8	29	4	7

*These birds were liberated on May 22, 1950.

Dr. Gardiner Bump, representing the Fish and Wildlife Service in this study, is seeking to procure more planting stock for this project. His European cooperators have pledged efforts to get more birds to help make the tests complete. As of this date the accomplishments attained are the development of methods for procurement of planting stock, shipment and release, and field management including predator control.

Game Survey

This project was activated on January 1, 1950. The project leader worked with all of the other research projects in developing census methods and analyzing the results for all of the game species being studied. Surveys conducted through the media of farmer questionnaires, sent out by the federal crop reporting service, also were set up and analyzed.

Four crop reporting surveys were run in the spring of 1950 to determine the winter status of bobwhite, the wild ducks on farms, wild duck production on farms and the occurrence of foxes on farms. The results of these surveys showed: (1) A general increase in the number of wintering quail in 1950, and (2) about 15 per cent of the farms had breeding ducks present and about 10 per cent reported broods of ducks averaging 7.5 young each. Standing water as of June 1, 1950, was only 46 per cent of that of 1948. The northwest district was superior in duck density and the southwest and west districts the poorest, and (3) twenty-three per cent of the farmers reporting observed foxes on their land since May 1, 1950, and six per cent reported litters being raised on their farms. Poultry loss was reported by seven per cent of the farmers with an average loss of 15 chickens. The west and southwest led in fox density with the east and southeast being lowest.

Other census developments included setting up an area to be used in determining Hungarian partridge trends and the numbers of mourning doves nesting in the state. A careful analysis was made of the method used to census the relative number of spring breeding pheasants through crowing counts. The method was refined and standardized for future

usage. Transects were selected for making ruffed grouse drumming counts. Areas were mapped and observed for the number of prairie chicken and sharptail grouse making spring mating displays. Since nearly all of these census methods were tried for the first time in 1950, no data is available for comparison with other years.

The research section is convinced that all of the censuses attempted have and will continue to evolve information which will enable the conservation department to set the best type of hunting season regulations possible, considering the annual status of each game species surveyed.

Pathology

It has long been observed that game populations fluctuate from high to low numbers during certain years. The causes of the fluctuations are varied but in at least a few cases widespread outbreaks of diseases have been reported. In order to determine how much of our game is lost through diseases and whether methods can be developed to increase the general health of our wildlife resources a pathology research project was started in January 1950.

Many species of different game animals were examined for disease symptoms and/or the causes of the incidence. However, before the degree to which diseases cause losses of animals on a state-wide basis can be determined, it is necessary first to get knowledge on the normal blood constituency of the different state game species. The project has examined blood smears from almost all of the state game species and has a fair picture of the blood content for at least certain normal times of the year. Additional blood studies are being made to determine blood content changes during different seasons.

Examination of more than 125 muskrats from Horicon marsh showed that at present there is no serious disease condition existent on this area.

Blood studies of 60 prairie chicken showed no incidence of blood parasites. Thirty-eight per cent of 45 ruffed grouse had blood parasites *(leucocytozoan)*. It was found that the incidence of *leucocytozoan* increased as laboratory temperatures were increased. Wild pheasants failed to show any active symptoms of avian tuberculosis. Seven out of 50 rabbits gave positive tests for tularemia but none of the cases were active.

Important progress was made in diagnosing an outbreak of diseases in raccoon from the Monroe, Darlington, and Evansville areas. Attempts are being made to reproduce the disease condition found in the sick raccoon in experimental laboratory animals. The symptomatology of the disease was that of a brain involvement, consisting of hindquarter paralysis, coma convulsions, spasms, tremors, and change in behavior.

Miscellaneous autopsies were made on about 200 different animals including deer, mice, pheasants, swans, ducks, red-legged partridge, and quail.

Grouse Management Research Project

The principal objectives of the project are the development and experimental practice of land management techniques for improvement of sharptailed grouse and prairie chicken habitat to perpetuate these species as game birds; to gather information on the numbers and trends of Wiscon-

sin populations of sharptails, prairie chickens, ruffed grouse, and spruce grouse; and to survey the incidence and importance of grouse diseases and parasites.

Study areas for sharptails and prairie chickens have been established in Douglas and Portage counties. The Douglas county area is primarily for sharptails and lies north of the village of Gordon. It consists of 2,480 acres leased by the conservation department for grouse management purposes. This area is closed to all hunting and trapping except deer hunting. Since closing in of forest growth has eliminated much sharptail grouse range in the state, experiments have been made to test the effectiveness of various methods of land clearing. In the spring of 1948, 120 acres of jack pine, popple, and willow brush were burned under controlled conditions with the cooperation of the department's forest protection division. Cost of this effort was 69 cents per acre, but was not entirely successful because of stimulation of willow and popple sprouts, and the fact that large trees and shrubs were not knocked down, although killed by the fire. Thus the desired degree of opening was not accomplished. Another land-clearing experiment in the summer of 1949, involved the use of Seaman rotary tiller in opening up stands of brush and small trees, and while successful, it proved uneconomical, as the cost of clearing 27 acres was $18.10 per acre. Study quadrats have been established on these areas so that the effect of clearing methods on plant successions can eventually be fully determined. An additional 70 acres, mostly jack pine, was cleared by hand in 1949 to maintain a series of large, connected openings in the state-leased sharptail range.

Winter feeding on the Douglas county area has been carried out with the planting of 15 acres of buckwheat in patches of varying size. Standing grain attracts the birds until snow comes, after which buckwheat is shocked so the birds can continue to feed above the snow.

TOTAL CORN AVAILABLE TO PRAIRIE CHICKENS IN PORTAGE COUNTY

WINTER GRAIN SURVEY AREA, WINTER 1949–50

Town and Range	*Township Names*	*No. of Sections Surveyed*	*No. of Corn Fields*	*No. of Food Patches*	*No. of Feeders*	*Total Feeding Places*	*Total Acres of Corn*
T21N R7E	Grant (south)	24	7	2	----------	9	48.00
T21N R8E	Pine Grove	31.5	24	18	4*	46	158.50
T22N R7E	Grant (north)	14	6	----------	----------	6	27.75
T22N R8E	Plover and Buena Vista	34.5	6	2	2	10	20.33
Total ----	----------	104.0	43	22	6	71	254.58

*There was one feeder outside the survey area, in T23N, R8E, Section 34.

A second experimental grouse management area, primarily for prairie chickens (pinnated grouse), has been established in southwest Portage county. This area is a cooperative arrangement between the grouse project and local farmers and sportsmen in about two townships in the Towns of Pine Grove, Grant, Buena Vista and Plover. The department owns or

controls no land in this area, but is offering advice and some help to the cooperating landholders on how to maintain their land as the best remaining prairie chicken range in Wisconsin. Winter feeding has been carried on by establishing food patches of corn through buying standing corn from farmers on the area or by giving the farmer seed to plant and leave standing all winter for the grouse. In addition, surveys are made annually to determine how much grain is available to the birds each winter on the study area. Winter food is one of the most important factors that limits the winter carrying capacity of any grouse range. Results of the 1949–50 grain survey is summarized in the table on page 49.

Since many more grouse appear in the spring and summer on the two study areas than can be accounted for by winter populations, trapping and banding programs have been undertaken to determine where chickens and sharptails move to at various seasons of the year. In the winter of 1949–50, 300 prairie chickens were banded and released on the Portage county study area, while 72 sharptails were banded at the Douglas county area. The locations of the birds must be known at all seasons so that habitat management can be carried out on all the birds' range. More birds can be expected if both summer and winter range can be managed than will result when only winter range is in good shape. Banding, followed by reports of hunters and others of bands they acquire, are the keys to locating the varying seasonal habitats.

Trends in population numbers of sharptails and chickens are determined by a yearly series of population measurements. These are made statewide when possible and are intensified on the two study areas. They include winter flock counts, spring booming ground counts, and summer and fall brood counts. This information showed that an increase in numbers of chickens and sharptails throughout the state has occurred in the past two years. The hunting season for sharptails and chickens in 1950 is the first since 1942.

Ruffed grouse studies are attempting to develop methods for determining trends in the numbers and composition of populations and to survey the incidence and importance of grouse diseases. Studies are carried out on a statewide basis whenever possible, and like sharptails and chickens, such measurements as winter flock counts, spring drumming counts and brood counts are regularly made. In addition, there has been a fall hunting season on ruffed grouse in both 1948 and 1949, which has allowed the compilation of information on the sex and age of birds killed by hunters. Hunters assisted this phase of the study in 1949 by contributing grouse wings and tails, from which sex and age can be determined, in special postage-paid envelopes distributed by the project. Sex and age ratios are summarized on page 51. These ratios indicate that a major share of the fall population was composed of young birds; reproduction the previous summer was excellent; and a continued large population may be expected the following year.

Special collections of ruffed grouse are made in summer and winter for parasitological and pathological examination at the Poynette State Game Farm. Results of these studies are at present too few to be significant, but the proper evaluation of disease and parasites in Wisconsin grouse can be made after more years of information are obtained.

Fall Ruffed Grouse Sex and Age Tallies

	1948	*1949*
Total birds examined	223	2,078
Percent males	49	54
Percent juveniles	86	82

The past two years have witnessed a definite upswing in the number of ruffed grouse in the state. The 1948 hunting season was the first since 1944. By repeating these studies each year through a series of annual population fluctuations, it is hoped that more information can be obtained on the nature of the grouse "cycle" in Wisconsin.

Waterfowl Management Research Project

The Wisconsin waterfowl management research project has as its main object the provision of information for a better understanding and improved management of Wisconsin and continental waterfowl populations, both resident and transient.

This is accomplished by several different procedures. The first are various inventories of waterfowl populations. A number of transects across several of the state's waterfowl producing areas were established and run by auto and by airplane. In the spring, the number of ducks, both breeding pairs and singles, are counted and used to estimate the size of the breeding waterfowl populations in the state. Then in the summer, transects are again run, this time to tally the number of duck broods seen and so indicate the extent of duck reproduction on Wisconsin waters. In the fall, weekly aerial censuses of ducks migrating through the state are made on three selected routes in good duck hunting areas. These censuses have shown the trends in the migration of local and transient ducks through the state and have allowed adjustment of the hunting season to take advantage of the maximum waterfowl movements. Three permanent air census areas were established in 1949, after some exploratory flights in 1948. They include the northwest area (21 lakes and marshes in Burnett county), the Mississippi river from La Crosse to Ferryville, and southeast Wisconsin in an area including Horicon marsh and the lakes and marshes in the lower Fox and Wolf river valleys.

Additional efforts have been made to find the status of the Canada goose as a breeding bird in Wisconsin and to trace its migratory movements through the state.

A second approach to Wisconsin waterfowl information is through the measurement of production. This is accomplished through duck brood counts, as shown mainly by breeding grounds surveys previously mentioned, by analysis of sex and age data from ducks killed by hunters, and by trapping and banding ducks of all ages to discover where they go and what happens to them. Waterfowl banding operations are carried out mainly in fall and spring.

Approach number three is the measurement of the waterfowl kill by Wisconsin hunters. This has been determined during the past two years by contacting as many hunters as possible during the season by trained

project assistants to record hunting success and the type, sex, and age of the hunter's kill. Checking stations are established at all major waterfowl shooting areas throughout the state so that a good cross section of the state's waterfowl hunting can be obtained. In 1948, about 5,300 hunters with 4,000 ducks, 50 geese and 3,700 coots were checked by the project. In 1949, this total was raised to 10,000 hunters checked with 10,000 ducks, 350 geese and 3,000 coots.

In addition two special problems of note were worked on during the biennium. Techniques for hand-rearing of semi-wild mallard ducks for restocking were worked out and several hundred ducks were banded and released at Horicon marsh and near La Crosse to try to build up the local populations of breeding ducks and to thereby provide better shooting. A study of bottom samples from Lake Puckaway and Clam lake (Burnett county) showed enough lead in the form of spent shotgun pellets to give Wisconsin a potential lead-poisoning problem second to no other state. Lead-poisoned waterfowl (birds that have picked up shot as grit) often have been found in heavily hunted, shallow water areas in other states, but so far Wisconsin has escaped any loss from this cause, although the potential danger is there.

Law Enforcement

The law enforcement division of the conservation department has two major responsibilities, both of which are basic and vitally important in this state's present and future conservation plan:

1. Prevention of violations of conservation laws by education.
2. Enforcement of all conservation laws with special emphasis placed on the habitual violator.

The division has outlined to its personnel a program in education, especially as it pertains to juveniles. Wardens encounter many youngsters in the field who are violating conservation laws. It is not our objective in this youth education program to arrest these youngsters for such violations. Rather, the wardens explain to them the need for conservation laws and appeal to their sense of good sportsmanship to live up to all of the rules. We tell them there is no satisfaction in cheating in a ball game in order to win; by the same token there is no satisfaction in cheating in the fish and game laws in order to bag a rabbit or catch a fish. The wardens meet with their parents and ask for their cooperation and at the same time suggest that the boy join some youth organization where he will have an outlet for the energy that all juveniles have. This energy will then be expended for something constructive rather than something destructive.

Each case is reported to the Madison office and a juvenile file is kept so as to determine the progress we are making in the years to come. We send this young man literature together with a letter asking for his cooperation and explaining that we will be glad to help him wherever we can. This not only makes a better conservationist out of the youngster concerned but also makes him a better citizen and definitely will curb juvenile delinquency in the long run. Wardens also meet with youth groups such as Boy Scouts, 4–H Clubs, Future Farmers of America and church youth groups and tell them the conservation story, placing the warden in a position of being a friend and councilor rather than an officer with the power of arrest.

We have placed much emphasis in our field personnel to allot a great share of their time to the apprehending of the habitual or repeater type violator. During the last session of the legislature a new penalty law was passed with teeth in it which will help to discourage repeater type violations. This cooperation from the legislature will go a long way to reduce conservation violations. Our whole program is aimed at prevention wherever possible and a determined crack down on the hopeless habitual violator.

Mississippi River Commercial Fishing Law Enforcement

On July 1, 1947 the division took on the added responsibility of the Mississippi River commercial fishing section. Ten men were involved in

this transfer. The commission felt at that time, because the duties of these men were of a law enforcement nature, that they should be transferred from the fish management division to the law enforcement division. During the last biennium we found that we could employ five men who were trained in law enforcement experience to replace the ten in this particular section provided they were given the proper equipment with which to enforce the laws. This new reorganization took place March 1, 1950 and additional equipment was purchased. We found that the five men replacing the ten improved the law enforcement considerably and at the same time saved several thousand dollars for the state.

Wardens' Duties

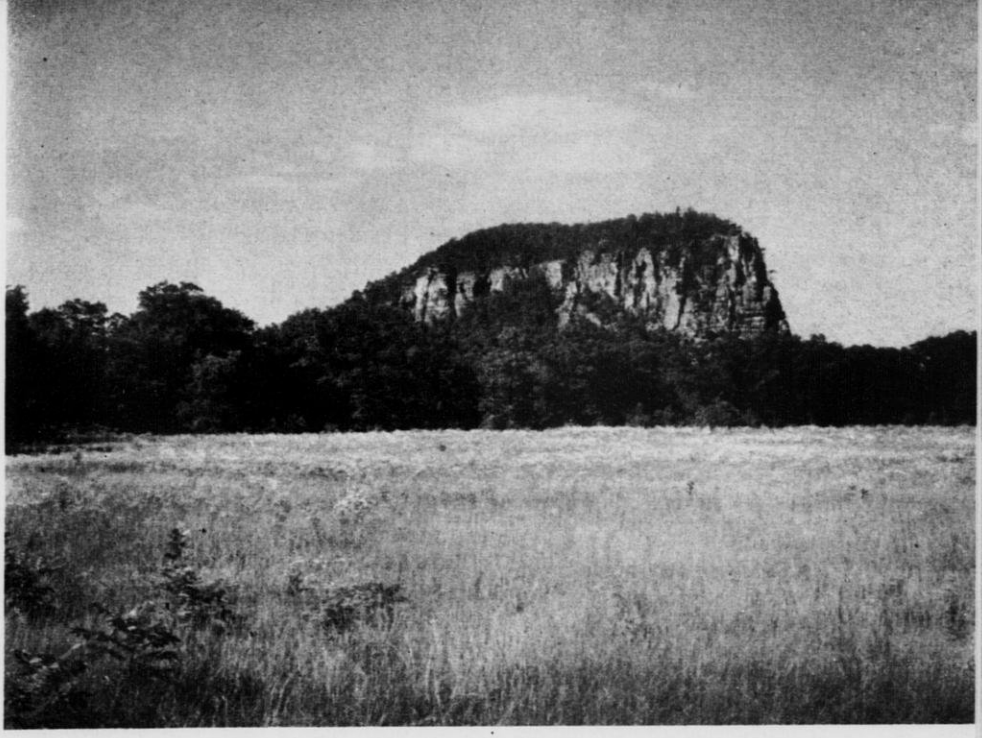
From his original status of purely a law enforcement officer the conservation warden operates on a wide field of varied conservation efforts that may apply to his area or district. He pinch hits when the need is to plant fish; when an emergency arises, he fights forest fires; he is called back into the country to consult with farmers about wild animal depredations and he is the local office of information on all conservation matters.

Because of the broad nature of his work, new specifications were set up requiring more formal education in order to give the public the best possible service for the program that we have laid out. The specifications are that he must be between the ages of 21 and 30, be at least 5′ 9″ tall and weigh not less than 160 pounds, and pass a rigid doctor's examination because the working conditions call for being out in all kinds of inclement weather. It is also required that he be a graduate of a recognized college or in lieu thereof have at least two years of college training plus two years of related experience in conservation activities.

Modern Improvements

There is a constant public demand for additional wardens but the policy of the division is to have the most effective law enforcement program with a minimum of personnel. This policy calls for the employment of the highest caliber men available to fill warden positions and to equip them with the best possible modern facilities to carry on their work. For example, it is much more economical to supply a warden with a two-way radio than it is to hire another warden—and just as effective from the law enforcement standpoint.

Ten more two-way FM radio sets have been installed in wardens' cars in the past biennium, bringing the total to forty. These units are operated in conjunction with the state highway traffic division, and we find that this equipment increases the efficiency of our warden force by approximately one hundred per cent. He is constantly in touch with headquarters so that all information can reach him at all times, thus being able to increase his percentage in the apprehension of violators where the public cooperates. By the same token he can dispense information from his automobile to the hunting and fishing public, thus providing better service for the people in this state. This equipment also provides a means whereby the area field supervisor has the necessary daily contact with his men, and as a result better supervision is obtained. It is our hope that all of



Roche a Cri rock at the roadside park of the same name.

our 105 wardens may be equipped with radios in the near future, thus giving us a statewide communication system that can be interlocked with all other radio facilities in the state.

The division is making the best possible use of modern techniques applied to law enforcement. Guns and ammunition are examined by ballistics experts to determine whether or not certain ammunition has been fired from certain guns which are used in a violation. By getting this expert evidence, we are better able to prepare our cases for court and many cases are prosecuted which heretofore have not been brought into court due to lack of proper evidence. The division uses the services of the F. B. I. laboratories in the analysis of game and wild animals which determines the specie and the period of time which has elapsed since it was killed. These tests have proven highly successful in obtaining a higher percentage of convictions. A modern warden is no longer operating as an individual but is part of a highly developed law enforcement unit.

Arrest Records

For the biennium ending June 30, 1950, 7,668 persons were arrested. Our records also show that we have a 98 plus percentage of game law convictions. We are not listing the arrest record with the thought in mind that a great number of arrests is one of our objectives. We are listing it here only for the purpose of being factual and not because we are proud of this record. As stated before, emphasis is placed on prevention and our

wardens are definitely not rated on the number of arrests they make in any given period of time.

Deer and Bear Damage Claims

Under a specified section of the statutes the conservation department is required to appraise and pay actual damage done by deer and bear to agricultural crops and livestock. The last session of the legislature revised the deer and bear damage law and placed a ceiling of $40,000 on the amount that could be expended in any one year for the payment of deer and bear damage. The conservation wardens investigate and process all deer and bear damage claims.

Beaver Control

The division has three permanent state beaver trappers on its payroll. A specified section of the law provides that whenever any property owner or lessee of any lands makes complaint in writing to the department relative to beaver damage, the department shall investigate and take action either by removing the beaver by dead trapping or by live trapping and restocking them in areas where they will do no harm. The beaver in the past biennium have been on the increase and as a result the damage complaints have also increased. It is the department's policy to try to keep a proper balance by having a short open season each year to keep down the beaver damage complaints and also to let enough seed stock remain so that trappers can take advantage of a season each year.

The division has placed emphasis on the live trapping of beaver rather than the dead trapping, even though it involves more time and money, as we are of the firm conviction that we should save as many animals as we can so that the general public can harvest these animals during the legal open season.

In the last biennium the law enforcement division has taken steps to remove beaver from our better trout streams, especially in the northeastern area of the state, as in too many instances the beaver have taken over completely and as a result the trout streams have deteriorated somewhat. Beaver have their place in the game picture as well as any other animal, but in some instances they prove to be detrimental, especially in our better trout streams. Consequently we now have a program to remove beaver from these areas in order to perpetuate the better trout streams.

Special Investigational Section

In the year 1947 the division created the above section which now consists of three seasoned enforcement officers. These men are assigned to work specifically in areas where acute enforcement problems arise and where the regular wardens are too well known to be effective. They deal entirely with the more important infringements on conservation laws. This is again in accord with the division's policy of aiming at the commercialized violators.

As money is available we plan to expand the special investigation from six to ten men as we believe that this small roving force throughout the state will do much to curb commercialized conservation law violations.

Great Lakes Enforcement (Commercial Fishing)

In addition to the enforcement problems within the land boundaries of Wisconsin, the department is charged with the enforcement of commercial fishing regulations on the Great Lakes wherein the state has jurisdiction. On Lake Michigan and Green Bay waters the department has a 43 gross ton steel patrol boat which is 50 feet long and equipped to patrol the Great Lakes water area. The water area of the Great Lakes wherein the state has enforcement jurisdiction is an area equal to approximately 1/11 of the size of the state land area.

The personnel in this section includes one supervisor, one boat captain and two patrol engineers. This patrol boat was purchased in 1941 at a cost to the state of $8,500 which was approximately one-half its original cost and at the time of purchase was only three years old. With proper care this boat will be able to give continued good service for another twenty-five years. It operates not only during the regular navigable season but through the winter months on Lake Michigan as well.

Summary

In the last biennium the division put into effect cost accounting. The cost accounting system breaks down the work into activities and time and amount of money are segregated for each activity. It gives a complete accurate report in regard to the number of hours and time spent on each activity and tells the story as it is actually worked out in the field. This cost accounting procedure is a great help for administrative purposes as we can tell at a glance whether or not the proper amount of time and money are spent on the major activities.

There are now 105 wardens, including 1 chief warden, 1 assistant chief warden and 5 area field supervisors as the state is divided into 5 areas with a field supervisor in charge, with approximately 21 men in each area. There are also 3 beaver trappers, 2 patrol boat engineers and 1 patrol boat captain, making a total of 111 in the division. During the past biennium we have made more use of our seasonal employees from other divisions during the fall hunting period when we employ 50 additional wardens for the months of October and November. The bulk of these men come from the forest protection division as they are laid off usually about October 1. We then hire them for the remaining two months, thus giving them longer employment with the department and at the same time we have personnel who are trained in fighting forest fires in case we should have such a hazard during this period as forest fires receive No. 1 priority from the law enforcement division.

We have established an in-service-training school for wardens which we hold once a year.

We would also like to state here that generally speaking we are getting much better cooperation from the district attorneys and courts throughout the state as it is recognized that all officials who have to do with law enforcement must work together as a team in order to accomplish the most good.

Information and Education

All divisions of the department are charged with a responsibility to provide information to the public in connection with their other duties. The information and education division's entire work programs are directed specifically to the problem of producing reliable and factual information on conservation matters as they relate to commission policies and department activities.

News releases to the daily and weekly newspapers, publications, visual aids, exhibits, radio programs, a speakers bureau, demonstrations, and conducted tours are some of the media of information employed by the division to provide this service.

The conservation commission and administrative officers of the department believe the work of the information and education division to be extremely important. It is felt that the success of the conservation program is to no small degree dependent on public attitude. When the public understands the objectives and the reason for certain conservation activities, there normally follows more wholehearted cooperation and more active support on the part of our citizens. How well the public is informed often is a determining factor in the success or failure of a state conservation program.

The ever-increasing interest in Wisconsin conservation affairs has resulted in more and more demands for informational and educational services from the department. To attempt to meet this demand, the methods and activities employed by the information and education division described in this report are those which experience and study have proven to be those which will best serve the public.

In August, 1948, the informational and educational services were organized into one unit—the information and education division. Under the new organizational plan, the various activities which formerly were conducted more or less independently under the general supervision of an assistant director were unified into one division under the administration and direct supervision of a superintendent of information and education. This form of organization grew out of the demand for increased activities in this field. It is aimed to provide full-time divisional administration; to facilitate better coordination in the units directly engaged in informational and educational work; and to improve the correlation of the varied and intensive informational and educational services conducted by the entire department. During 1948–50 we feel the objectives of the above organization have been in part realized in the comparatively short period the new plan has been in operation.

INFORMATION

Newspaper Services

The conservation department continued its usual information services during the past biennium. A two-week's check made for the executive office during the winter of 1949–50 showed that conservation department releases were used by 250 daily and weekly newspapers of Wisconsin. The check did not cover out-of-state usage or usage by radio stations.

The "How's Fishing?" information service that had operated for years was put on a weekly basis, the information supplied by telegraph from the field.

A limited mat service to newspapers is operated by the department. With a contemplated expansion of the photographic service, the department expects to be in a position for a better picture supply to newspapers.

Publications

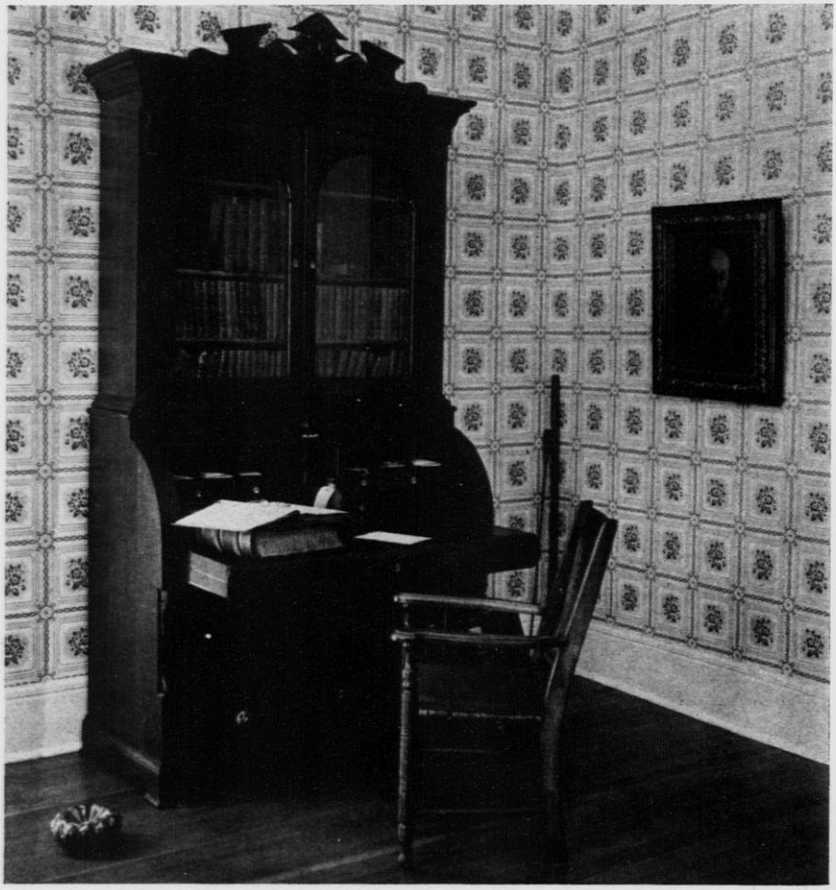
In the interests of economy, the mailing list of the monthly Wisconsin Conservation Bulletin was revised during the biennium. All subscribers who failed to return a reservation card included with one issue were dropped from the list. At the same time the Wisconsin school list was revised and expanded to make more than one copy available to the larger schools which have several courses or departments requiring the Bulletin.

Demand for the Bulletin continued very brisk. Applicants were screened to eliminate children and students, who were expected to use the copies in their school libraries. Requests that the Bulletin be sent to other individuals than the applicant were screened by sending post cards to the prospective subscribers and requiring that the cards be returned before placing these persons on the mailing list.

The circulation of the Bulletin reached 51,000 in May, 1950. (It was 40,400 in June, 1950, since this publication is not sent to schools in summer.) Aside from the special mailing lists (Wisconsin schools, libraries, Conservation Department personnel, sporting goods stores and barber shops) a majority of the Bulletins went to holders of sportsman's licenses, who voluntarily pay $6.50 or more a year to support conservation. Some copies were sent on request to educators and conservation workers in virtually every state and major nation.

Other Publications

Procedures were inaugurated which are intended to give additional assurance that any publications issued by the department are justified by need, and are as economical as the requirements permit. For other than routine publications, an approval form must be filled out, giving the essential facts, and this form must be approved by the applicant's supervisor, his division chief, the supervisor of publications, and the department's public relations board before a requisition is prepared for approval by the director. In addition, a high proportion of non-routine publications, including all those costing substantial sums, are now provided for in the supplemental budget and therefore subject to direct scrutiny by the conservation commission.



Original Nelson Dewey desk in the partially-restored library. Nelson Dewey Memorial State Park.

Among the publications of the biennium were: Soils of Wisconsin in Relation to Silviculture, a technical guide for foresters which is available for $1; Twenty-first Biennial Report of the Wisconsin Conservation Commission; and Wisconsin's Deer Damage to Forest Reproduction Survey. Wisconsin Wildlife was supplied for schools. Four publications on forestry and farm woodland management were published or revised and reprinted in cooperation with the Wisconsin College of Agriculture. Revised and reprinted publications included Wisconsin Game Fish; Grubs in Fishes; Wisconsin State Experimental Game and Fur Farm; Wisconsin Raccoon Raising; and Visual Aid Material, the department's catalog of films. Recreational advertising publications were Vacation in Wonderful Wisconsin, and a number of forest and park folders. Hunting, fishing, and

trapping regulations were published annually. Various articles from the Wisconsin Conservation Bulletin were reprinted in limited editions.

Activities Progress Report

During the biennium twenty issues of the department's Activities Progress Report were distributed to department personnel and key conservationists throughout the state. This publication, which summarizes meetings of the conservation commission, conservation congress and other important occasions, totaled 512 pages during this period. This includes two indexes for each previous twelve issues in the December, 1948, and March, 1950, publications. During this period, the mailing list was increased to approximately 3,600.

EDUCATION

Education

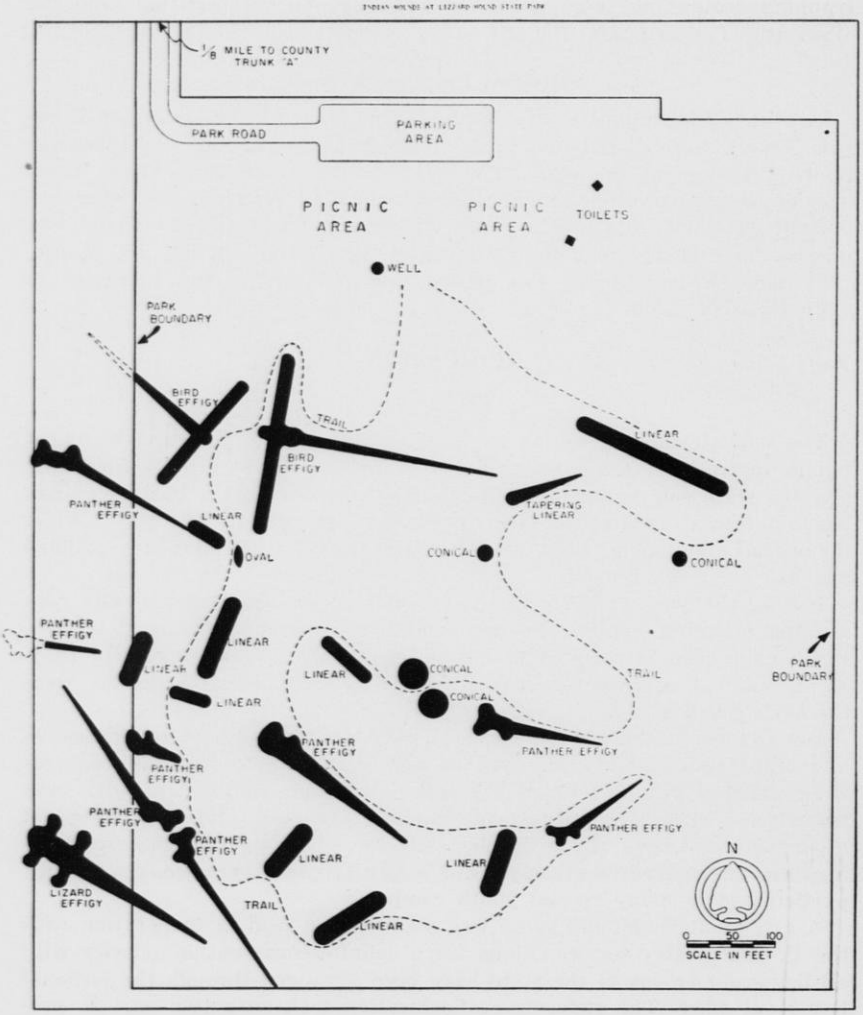
The educational section, in cooperation with the state department of public instruction, the University of Wisconsin College of Agriculture, and the state soil conservation committee, has, during the past biennium, begun formulating a conservation education program for the state. While the overall plan has not been completed, certain activities have been planned and are being worked out.

During the year 1950, three area institutes and conferences with curriculum planning committees were held with nine county normal schools. Plans have been formulated to include all county normal schools in 1951. A program of conservation panels has been arranged with all the state teacher's colleges.

Junior conservation clubs, 4–H clubs, FFA groups, boy scouts, girl scouts, and other youth groups engaged in conservation projects and programs were assisted by the educational section through conferences with club leaders and officers; organizational planning; program planning of general interest and projects of special local interests; talks; motion picture showings and in various other ways. The supervisor and educational assistant participated in many special youth camps.

A girl scout leadership camp was planned and held in cooperation with the U. S. Forestry service. Plans for a definite conservation activity with all boy scout troops in the state have been arranged through the national boy scout office. The supervisor of education took an active part in promoting and staffing the high school workshops held at the Trees for Tomorrow camp during the spring of 1950.

An adult educational program has been carried out through talks and motion picture showings before service clubs, women's organizations, conservation clubs, and various other groups. The educational section assisted in the planning and programing of the first state sportsman conference held during the past summer for the purpose of studying basic conservation. The section also assisted in promoting and planning a conservation school for the conservation committee chairmen of the Kiwanis clubs in Wisconsin. The supervisor of conservation education has served as a consultant in the planning of the programs for conservation groups attending the Trees for Tomorrow camp located at Eagle River.



The education section assisted in various in-service training programs conducted for department personnel.

A statewide conservation corner project was carried on in cooperation with the Wisconsin School of the Air. It was estimated that around 3,000 school children took an active part. Enrollment in this activity has doubled for the school year 1950–51.

The supervisor of education took an active part in the teachers' colleges conservation workshop held at Eagle River during the past summer.

The Bulletin list for schools has been revised to more adequately meet their needs. An educational section for teachers has been prepared for each month during the length of the school year.

Three new educational booklets have been prepared. Two of these are being reprinted at present. A booklet on Wisconsin's forest resources, prepared in 1950, will be released for distribution early in 1951.

While the education section desires to distribute conservation booklets through the county superintendents and other school administrators, this is not always possible. The section has, therefore, prepared a teacher's packet of conservation booklets, which is distributed to individual teachers without charge. Between three and four thousand of these packets have been sent to Wisconsin teachers during the biennium.

Visual Aids

During the past biennium the department's photographic section has continued to organize a visual library of subjects designed to effect a better understanding of conservation and the objectives and activities of the department.

Since it is desirable, every citizen should know about forest resources and their proper management, wildlife management, fish and fish management, and other related subjects. A library has been developed for loan purposes consisting of 38 films on these subjects. They are available to any Wisconsin group or organization free of charge, except return transportation charges to Madison.

Twelve scenic and recreational motion picture films have been made showing Wisconsin's fine fishing waters, state parks, canoe trips, winter sports and natural vacation areas. These films are of interest to citizens of the state as well as the tourist public from other states. Because of the ever-increasing nation-wide demand for our department films, slides, and display sets, it was necessary to formulate a new visual aid out-of-state distribution policy during this period. The greatest potential area from which Wisconsin draws tourists comprises the nine states of Minnesota, Iowa, Missouri, Kansas, Illinois, Michigan, Indiana, Ohio, and Kentucky. Out-of-state distribution has been limited to these states and 12 motion picture films, three slide sets and three display sets of a recreational publicity nature are distributed in this area.

In April, 1949, two copies of each of our films were deposited with the Milwaukee Public Museum and the Milwaukee Public Library film libraries. Since that time all film requests from the Milwaukee area are referred to these agencies. In fifteen months the Milwaukee Library has distributed 2,036 copies of our films while the Milwaukee Museum has distributed 1,975 copies during the same period. Over 25% of the state's population reside in the Milwaukee area. During the previous biennium less than 1,000 films were shipped to the Milwaukee area from Madison as compared with the above total of 4,011 which represents only 15 months. Under this new distribution plan, the Madison office is better able to take care of the heavy film demand for the balance of the state.

Production and release of two new color films; FOREST NURSERY IN-TRAINING, a forest nursery, instructional, trainee, type film, and THIS IS MY HOME, a conservation congress committee trout habitat film were completed during the biennium.

In addition, 38 copies of eleven film subjects were purchased and made available for free distribution from our library. They are THEN IT HAPPENED, a 16mm color sound film; WILD FOWL IN SLOW MOTION, a 16mm color sound film; FOREST NURSERY IN-TRAINING, a 16mm color silent film; GREEN FRONTIERS, a 16mm color sound film; PAUL BUNYAN HAD A SON, a 16mm color sound film; THE LIVING EARTH, a 16mm color sound film; PHEASANT FEVER, a 16mm color sound film; RETRIEVERS AT WORK, a 16mm color sound film; YOURS IS THE LAND, a 16mm color sound film; and THIS IS MY HOME, a 16mm color silent film.

The visual aids library now contains 395 reels of 50 different subjects, approximately one-half of these are colored sound films. Reports of film, slide, and display set showings totalled 20,193 for the biennium, an increase of 73% over the previous biennium.

Records of speeches delivered by department representatives are maintained in this section and show a total of 1,465 during the biennium; 1,123 used department movies with their talks.

The still photographic file contains 12,150 black and white and 2,079 color transparencies of conservation subjects and scenic views about the state. Newspapers, magazines, and state publications utilized 27,627 of these photographs without charge during this period. Our only requirement is the use of a department credit line with each reproduction printed.

Exhibits

Demands for the conservation exhibits increase each year. Starting with around a dozen displays in the early '40's and 21 in 1946, the past biennium saw a marked upward trend in exhibit activity. It was possible with the recent doubling of display facilities to stage 39 conservation shows in 1949 and a grand total of 51 exhibit appearances in 1950.

The popularity of the exhibits continues to stem from their interesting and attractive appeal and the fact that the messages they impart are understood by thousands of state citizens, many of whom are not naturally too concerned about conservation activities. The opportunity to see and identify native game birds, animals, and fish, view department sound motion pictures and colored slides, become acquainted with conservation publications on display and most important of all, to contact department personnel at the information booth of the exhibit, all help to promote conservation education and good public relations.

A 20-foot booth, with an electrically-lighted state conservation activity map and a motion picture booth, was constructed during the biennium. Also several smaller educational displays. An important addition to the exhibit program during the biennium was the construction and occupation of the 100-foot exhibit headquarters and storage warehouse located at the Game Farm in Poynette. The new quarters, equipped with office, carpenter and paint shop, storage space and a two-truck garage has enabled the exhibit personnel to greatly intensify their construction, maintenance, and staging operations.

The conservation department exhibit at the State Fair Grounds at West Allis also was improved with several permanent features during the 1950

year. Starting in early spring, the improvements began with new tree and shrub plantings and continued up to fair time with the addition of a much-needed permanent electrical and plumbing system, several new log cabin fixtures, and a paved foot path around the grounds. The two-acre conservation show featuring the miniature waterfalls in a state park and forest setting, forest and game cover nursery beds, continuous sound motion picture showings, and the display of wild animals, birds, and game fish, many in their natural habitat, continued to be a star attraction at the 1949 and 1950 mid-August State Fair. The clocked attendance passing through the conservation grounds in 1949 amounted to around a quarter of a million people, and reached an all-time record of over 300,000 interested visitors, during the 1950 fair.

During the 1950 season, exhibit appearances were made at: St. Rita's Sport show, West Allis; Madison Farm and Home Week; Chicago Outdoor Show; Darlington Club Sport Show; Chicago International Sports and Outdoor Exposition; Fort Atkinson Sport Show; Waupaca Sport Show; Shawano Kiwanis Sport Show; Northeastern Section State Teachers Convention, Green Bay; Minneapolis Northwest Sports, Travel and Boat Show; Milwaukee Sentinel Sports and Vacation Show; Fond du Lac Outdoor and Sport Show; YMCA Indoor Circus, Madison; JCC Home Builders and Sport Show, Eau Claire; YMCA Show, Beaver Dam; Oconto Falls JCC Show; Wisconsin School Safety Patrol Congress, Wisconsin Dells; Wisconsin Conservation Congress, Madison; Richland Center Dairy Day Celebration; Frederic Rod and Gun Club Celebration; Keno Drive-In Conservation Show, Kenosha; Chicago Lion's International Convention; Milwaukee Mid West Wildlife Conference; South Milwaukee Spectacle of Music; Three Lakes Conservation Field Day; Chicago Fair Store Fishing Exhibit; Northern Wisconsin District Fair, Chippewa Falls; Lincoln County Fair, Merrill; Rock County Fair, Janesville; Kenosha County Fair, Wilmot; State American Legion Convention Parade, Green Bay; Tri-State Fair, Superior; Barron County Fair, Rice Lake; State Fair Exhibit, West Allis; Pierce County Fair, Ellsworth; Sawyer County Fair, Hayward; Webster Fair; Osseo Labor Day Celebration; Crawford County Fair, Gays Mills; Polk County Fair, St. Croix Falls; Monroe Cheese Day Celebration; Grant County Fair, Bloomington; Osceola Fair; Argyle Fall Festival; Sauk County Soil Conservation Field Day, Reedsburg; Oconto Sportsman's Club Corn and Potato Show; American Forestry Association Convention, Eagle River; Sheboygan City Employees Jamboree; Shawano County Conservation Club Display, Gresham; Wisconsin Educational Association Convention, Milwaukee; Y's Men Christmas Project, West Allis.

The conservation shows presented during the biennium to sportsmen's clubs, county fairs and civic groups were a 96-foot set-up of game animals and birds in a rustic north woods setting of evergreen and white birch trim, live game fish displays and various educational exhibits, including dioramas, photo blow-ups, color translites, information booth and continuous color slide and sound motion picture projection. More educational features were being worked into the various displays, and during the past year new attractive informative signs were placed on the bird and animal displays. An information and literature display booth was used at all exhibits.

Exhibits highlighting game cover improvement, watershed management and other conservation department projects, are now under construction and will be ready for use early in the next biennium.

RECREATIONAL ADVERTISING

Wisconsin's program of advertising and publicity designed "to attract tourists from outside the state to this state," as prescribed and financed by statute, was in its fourteenth and fifteenth years of operation during the biennium. The appropriation provided for this work was $110,000.

Major aspects of this intensive effort to attract vacation guests included advertising in magazines and newspapers, news stories, magazine articles, photographic releases and exhibits at outdoor sports and travel shows. Advance publicity was given to special events, festivals, historic pageants, sailboat and motor boat regattas, winter frolics and all other noteworthy outdoor recreational attractions presented by the numerous vacation centers of our state.

Display advertisements were scheduled to appear from March through June in 12 leading outdoor and other nationally circulated magazines. Newspaper ads were used weekly during late April, May and June in the travel pages of 28 papers in metropolitan centers largely within Wisconsin's potential zone of vacation appeal, the northcentral states, with special emphasis in the nearby Chicago area. To stimulate autumn vacations a shorter advertising campaign was conducted during late August and early September each year with good results.

Inquiries from new record high numbers of prospective guests were prompted by the invitational messages contained in our ads, by our news releases and photographic releases to magazines, and by our participation in out-of-state sports and travel shows. Friendly and profitable contacts were carefully fostered and expanded with outdoor editors and feature writers, travel editors, travel agents, motor clubs, railroads, bus and air lines, steamship companies and auto ferries. Summed up, by the employment of these ethical and efficient advertising and promotional methods, our program brought 97,264 inquiries in 1949 and, despite the coldest and wettest summer season in Wisconsin's history, brought 83,556 inquiries in 1950.

The highlight activity of the biennium was the very successful and profitable Travel Editors' Tour of Wisconsin. Working in cooperation with the Wisconsin State Chamber of Commerce, the Wisconsin State Hotel Association and the Greyhound Bus Company, we assisted in planning and conducting the tour of 27 nationally known travel editors from other states on a 1587-mile tour of our state's vacation centers. No other single effort in which we have participated has ever earned Wisconsin so much favorable publicity as an outstanding vacationland.

Forest Protection

Adequate forest protection is one of the prime requisites of any conservation program. Successful forest protection depends upon favorable public sentiment, wise regulation, strict enforcement, an intensive program of prevention, and an organization equipped to take prompt and definite action on all fires.

The forest protection division, charged with the responsibility of protecting and preserving, rather than a program of production, does not list its accomplisments entirely in terms of tangible assets. With many fires occurring annually on the forested lands of the state, it is impossible to estimate their potential possibilities for destruction of life and property in terms of numbers or in dollars and cents. The public, as a partner in this enterprise, has, along with other factors such as weather conditions, improved mechanized equipment, and better trained personnel, made possible Wisconsin's outstanding record in the field of forest protection.

The primary object of the forest protection division is to hold each fire to the smallest possible area and to limit the size of fires so that no more than 5% of the total number of fires will reach ten acres in size. The annual burn shall not exceed one-fourth of one per cent of the total area under protection.

A total of 16,115,000 acres have been included under a system of intensive protection. This system is divided into the Northwest, Northern, Northeast and Central areas, covering all or parts of thirty-five counties in the northern and central parts of the state. Each area unit is composed of either two or three protection districts for a total of ten.

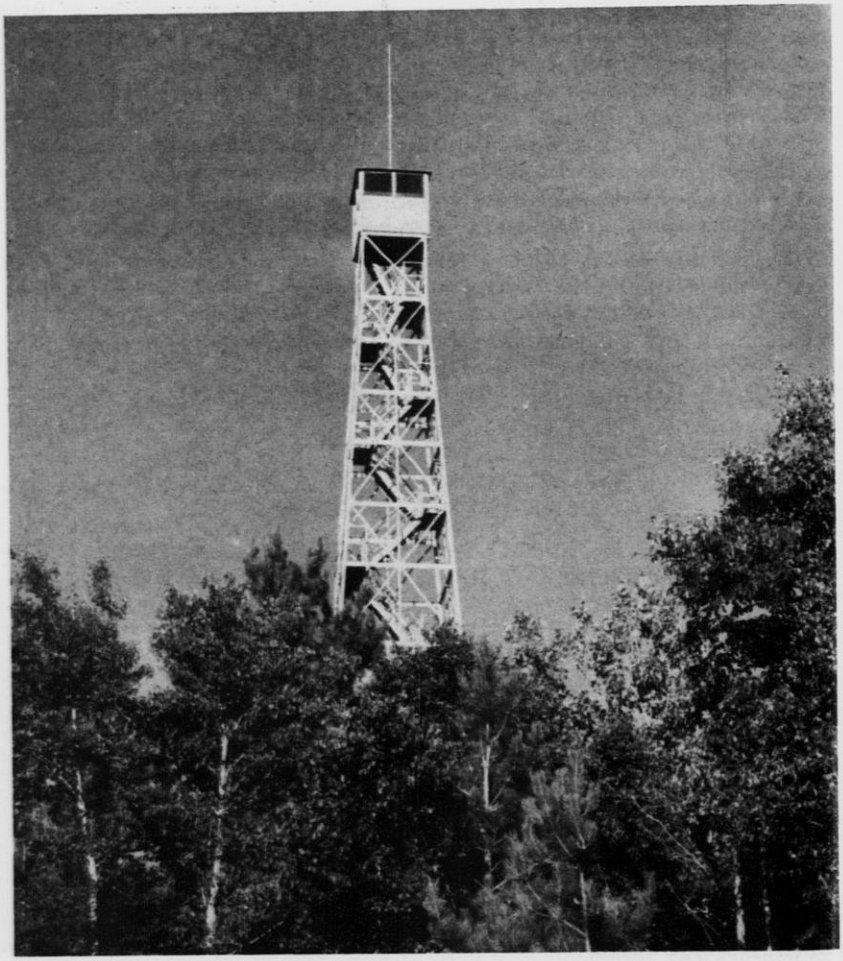
During the last two years in addition to progress made in the prevention, presuppression and suppression of forest fires, the forest protection division's accomplishments include the addition of over one-quarter million acres of land in Marathon County to the intensively protected area, instigation of an historical study of forest fires in the state in cooperation with the Lake States Forest Experiment Station, establishment and extension of a radio network for forest protection communication, improvements to equipment by standardization and use of production methods of assembly, and extension of personnel training to all levels of organization.

In an emergency service like forest fire control there exist major problems to which continued effort must be exerted. With increasing use of the public lands by our people and the increasing pressures on our forest economy by the use of its products necessitated by our present national emergency, the risk of fire damaging our productive potential becomes much greater and must be met with increased vigilance. We must continue to improve our technique in fire control by greater use of heavy equipment, extended communication system, and better trained personnel. Con-

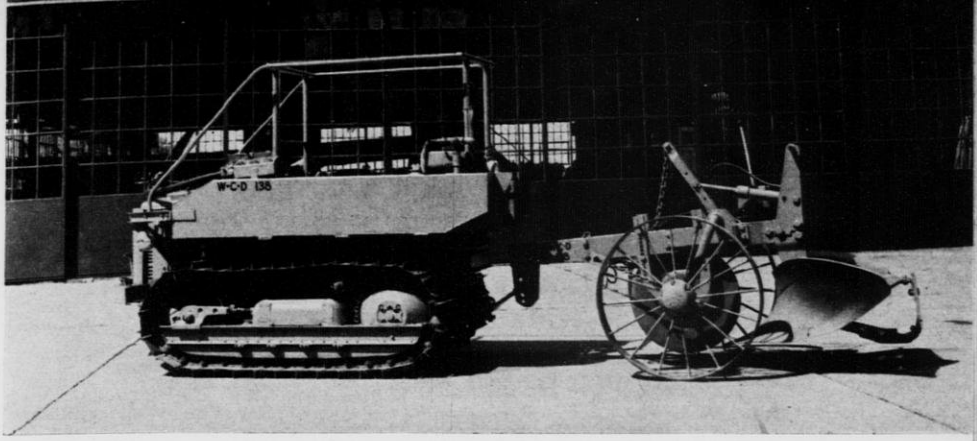
tinuity of effort is a necessity since halfway measures always bring halfway results.

In a comparison of severity, 1949 was a decided improvement over the preceding year. The 1,164 fires that did occur represented a reduction of 36% from the 1,825 fires in 1948. The 9,749 acres burned were 59% less than the 1948 total of 23,574 acres, and the reduction in the number of fires and total acres burned is reflected in the reported dollar damage which dropped from $95,117 in 1948 to $47,704 in 1949, a decrease of 50%.

The spring fire season began in late March and continued until early December, resulting in a fire season of about normal duration. Burning conditions were severe in April and could be considered a continuation



Rest Lake fire tower.



Forest protection division tractor equipped with two 75-gallon water tanks, 25-gallon-per-minute flange pump, brush guards, portable radio, and connected to a heavy-duty fire plow.

of the 1948 season. The ground surface dried off quickly and fires burned into the ground, resulting in fire behavior similar to a fall season with the addition of a high rate of spread so characteristic of a spring season.

The danger was alleviated by rains during May and June although high hazards again prevailed from August through November. The rainfall varied during the year with some of the northern districts reporting a slight increase over the normal average and the southern districts reporting a cumulative deficiency of six inches.

The largest fire of the year occurred on April 21, burning approximately 3,200 acres or 33% of the total area burned and accounting for nearly 50% of the total reported dollar damage. Fire causes remained at about the same general level excepting a reduction of 11.2% in railroad-caused fires, which is indicative of the railroads' effort to redeem their responsibility in this regard, and an increase of 10.9% in debris burning fires, which may be accounted for by the dangerous, although not entirely obvious, burning conditions during the early spring season.

The substantial reduction in the number of man-caused fires reflects the increasing fire consciousness of the general public and the value of the fire prevention program. The fact that 91.4% of the total fires that did occur were held to less than 10 acres in size is a measure of the efficiency of the fire control organization and the response of the people.

1950 FIRE REPORT SUMMARY

The 1950 fire season by comparison with the seasons of 1948 and 1949 was from the standpoint of severity below normal. 669 fires were reported burning a total of 2,313 acres with a listed dollar damage of $10,283. The average acres per fire was 3.46. The per cent of fires held to ten acres or less was 96% of the total fires. The largest fire that occurred was 355 acres in Juneau County in the central area during the spring fire season.

Contributing factors in the 1950 fire season record were favorable weather conditions with evenly spread precipitation characterized by a

late spring, the more effective use of heavier equipment, extended and highly developed communication system, and a more highly efficient trained personnel in fire fighting techniques.

These factors were implemented by increasing cooperation from the public, press, radio, and industrial agencies in a general fire prevention program.

FIRE RECORD BY YEARS

Year	Total Cost of Protection	Area under Protection in million acres	Cost Per Acre in cents	Number of Fires	Percent of fires less than 10 acres	Area Burned Over	Acreage Per Fire	Damage
1939	$447,503.43	13.6	3.3	2021	93.0	9864	5	$22,157
1940	422,330.87	13.6	3.1	1622	89.0	11534	7	23,594
1941	443,935.87	13.6	3.3	799	97.0	1439	2	2,854
1942	442,639.74	13.6	3.3	823	92.0	3104	4	6,694
1943	487,692.19	13.6	3.6	962	88.0	12814	13	40,698
1944	532,723.34	13.6	3.9	1180	89.7	9532	9	16,956
1945	544,580.31	13.6	4.0	742	91.9	8971	12	43,868
1946	658,318.74	16.1	4.1	1567	92.0	7792	5	29,895
1947	737,784.34	16.1	4.6	1398	94.0	16007	11	74,645
1948	979,757.16	16.1	6.1	1825	91.6	23574	13	95,117
1949	948,809.53	16.1	5.9	1164	91.4	9749	8	47,404
1950	*	16.1	--------	669	96.0	2313	3.46	10,283

EXPENDITURES BY YEARS

Year	Contributed by State	Contributed by Fed. Gov't.	Contributed by Counties	Total Cost of Protection
1939	$402,262.04	$ 38,631.30	$ 6,610.09	$447,503.43
1940	265,899.83	136,819.52	19,611.52	422,330.87
1941	340,646.07	95,554.36	7,735.44	443,935.87
1942	326,650.01	108,898.92	7,090.81	442,639.74
1943	303,839.59	177,699.49	6,153.11	487,692.19
1944	341,376.63	188,006.98	3,339.73	532,723.34
1945	327,837.73	212,203.71	4,538.87	544,580.31
1946	330,768.20	324,069.51	3,481.03	658,318.74
1947	398,372.11	336,712.28	2,699.55	737,784.34
1948	651,897.05	315,706.76	12,153.35	979,757.16
1949	673,581.19	253,408.06	21,820.28	948,809.53
1950				

ALLOTMENT OF EXPENDITURES BY YEARS

Year	Administrative Expense	Field Personnel	Equipment and Improvements	Fire Fighting	Total Cost
1939	$ 80,130.48	$248,446.73	$ 82,187.50	$ 36,738.72	$447,503.43
1940	73,770.73	235,375.51	75,707.61	37,477.02	422,330.87
1941	74,562.01	258,607.23	73,161.77	37,604.86	443,935.87
1942	65,452.44	326,439.34	37,169.32	13,578.64	442,639.74
1943	65,600.74	387,437.62	21,243.88	13,409.95	487,692.19
1944	51,743.30	429,997.44	33,466.03	17,516.57	532,723.34
1945	33,184.70	462,891.20	34,361.25	14,143.16	544,580.31
1946	42,548.67	556,241.98	37,006.72	22,521.37	658,318.74
1947	44,994.87	589,962.06	56,220.33	46,607.08	737,784.34
1948	63,814.05	684,653.33	120,306.37	110,983.41	979,757.16
1949	45,855.32	749,811.34	123,516.20	29,626.67	948,809.53
1950					

Cooperative Forestry

The Forest Crop Law

Lands entered under the provisions of Chapter 77 of the statutes total 2,310,842 acres. In addition to production of timber, they constitute the largest class of public hunting grounds in the state. Land examination totaled 72,340 acres for the biennium.

Privately-owned lands entered under the law show an increase of 35,571 acres during the past two fiscal years, bringing the total to 218,275 acres. This figure is not a true measure of the effect of the law in encouraging private forestry. The forest holdings of ten wood using industries on which forestry practices have been approved by the conservation department total 597,937 acres. It is doubtful whether industry would make such an investment and plant more than 43 million trees, without the forest crop law to fall back on if general property taxes became excessive as present young stands grow in value.

County Forests

County lands entered under the forest crop law by 28 counties increased by 62,104 acres, bringing the total of this largest class of public forests in Wisconsin to 2,092,566 acres. As a rule, the county entries during the past two years consisted of lands which blocked into former holdings, though there were a few minor extensions of county forest boundaries. County acquisition of lands by tax deeds is leveling off. Most counties purchase some lands each year to consolidate their holdings.

In all cases, a committee of the county board has charge of the county forests. Some employ a full time administrator to carry out the work, while in other counties the agricultural agent or a county officer acts in that capacity. The district foresters of the conservation department provide technical services, including preparation of timber sales specifications, selection of areas for planting, and soil testing to determine the species to be planted.

Work Programs

The work plans covering all forestry activities on the county forests are now brought up to date. During the war years, with limited and changing personnel, first priority was given to timber sales because of the great need for forest products in a war economy, and paper work was laid aside. For the first time, the record of achievement is complete.

The counties now have 79,010 acres of forest plantation, of which 12 per cent had to be replanted due to failure because of drought, rabbit and deer damage or other causes. The leading counties are Marinette with 11,686 acres, Oconto with 6,760 acres and Bayfield with 6,056 acres of plantation. Oconto county has the highest proportion, 36 per cent, of

A hardwood-hemlock stand characteristic of many acres which Wisconsin counties have acquired by tax deed. A cultural cutting has removed the poorest trees. Natural seeding and good cutting under future timber sales will build up the growing stock in both volume and quality.

total county forest area in plantations. Other counties, like Rusk, have a low per cent of plantation because of the excellent second growth stands of hardwoods so that less planting is required.

During the last two years planting on county forests totaled 3,929 acres in 1949 and 3,993 acres in 1950. Douglas county was the leader both years. Bayfield held second rank in 1949 and third in 1950, when Marinette took second place.

Other work included release of plantations or natural stands from a competing overstory of inferior species, which was suppressing more valuable trees. Such cultural cutting has been done on 24,938 acres of which 1,623 acres were released in the past two years.

Service roads or truck trails, which are not public roads and are not maintained by gasoline tax income, are receiving greater attention. Many counties are taking over some of the state fire lanes because of the growing need for hauling forest products cut on county forests. Rusk county has been a leader in the building of new service roads, while Iron county

SUMMARY OF PLANTING AND CULTURAL CUTTING ON COUNTY FORESTS

County	New Planting				Replanting				Cultural Cutting			
	Prior to 1949	1949	1950	Total to Date	Prior to 1949	1949	1950	Total to Date	Prior to 1949	1949	1950	Total to Date
	Acres				Acres				Acres			
Ashland	393	20	18	431		20	38	58				
Barron	40	14		54					12			12
Bayfield	4,841	634	581	6,056	958			958	2,302		40	2,342
Burnett	3,736	214	327	4,277	2,286	164	194	2,644	3,105	137		3,242
Chippewa	66	43	44	153		3		3				
Clark	4,812	180	172	5,164	534	60	26	620	107	29	33	169
Douglas	3,411	984	810	5,205	249	76	8	333		42		42
Eau Claire	1,535	94	76	1,705	262			262			6	6
Florence	1,817	168	109	2,094	120			120		50		50
Forest	340		36	376	4			4				
Iron	3,821	121	48	3,990	624		12	636	897	30		927
Jackson	5,629	97	112	5,838	972			972			50	50
Juneau	2,643	175	108	2,926	161			161	171			171
Langlade	4,395	126	100	4,621	1,032			1,032	1,056			1,056
Lincoln	2,896	18	75	2,989	134			134				
Marinette	10,738	321	627	11,686	2,637		61	2,698	4,202	281	190	4,673
Monroe	88		10	98	105	15		120				
Oconto	6,396	222	142	6,760	809	4	73	886	1,700	496		2,196
Oneida	1,538	17	35	1,590	1,425			1,425	1,092			1,092
Polk	304			304	7			7	33			33
Price	856	24	74	954	31	18		49	61	39	30	130
Rusk	769	71	51	891	414		24	438	2,897			2,897
Sawyer	3,722	83	81	3,886	1,780			1,780	3,680		102	3,782
Taylor	174	25	24	223			2	2			68	68
Vilas	1,694	172	191	2,057	6			6	158			158
Washburn	1,017	31	68	1,116	441			441	1,349			1,349
Wood	3,417	75	74	3,566	515			515	493			493
Total	71,088	3,929	3,993	79,010	15,506	360	438	16,304	23,315	1,104	519	24,938

SUMMARY OF TIMBER SALES ON COUNTY FORESTS—1950

County	No. of Sales	Logs		Cordwood						Piece Products			Total Sales Value
		Conifers	Hardwoods	Pine	Spruce	Balsam	Other Conifers	Aspen	Other Hardwoods	Crossties	Posts	Poles	
		MBF											
Ashland	42	40.86	651.57		219	1,817	500	424	7	1,965			$ 20,978.62
Barron													
Bayfield	25	48.87	39.12	357	30	411	19	4,769			80		10,698.18
Burnett	18	6.35		961	106	152		643			500		6,762.79
Chippewa	27	1.81	6.32		13	11		915	11				1,377.64
Clark	8	8.60	6.48	127				170	20				1,686.20
Douglas	34	108.53	80.46	3,986	582	1,543	136	16,739		578	9,707	1,340	49,169.50
Eau Claire	18	.90		1,060				17	13				4,129.37
Florence	8	.27	8.24	90	22	48	6	567	9	33	258		1,314.32
Forest	1	.27	1.00		1	5							32.03
Iron	42	80.43	238.29	2	482	1,249	559	2,477	30	8,399	2,282		18,698.94
Jackson	30	23.77		995					101				4,421.12
Juneau	1			15									30.32
Langlade	21	105.44	173.14		197	752	42	584	56	52	1,630		10,688.11
Lincoln	21	9.37	6.23	44	93	252	70	1,201	134		2,995	4	4,091.44
Marinette	41	232.48	78.73	94	486	1,443	264	7,147	118		6,379	200	28,922.86
Monroe	1			128									511.00
Oconto	7	8.57	9.82	29	1	3	2	171					680.30
Oneida	26	20.48	37.34	1	206	783	478	1,486	111	583	5,332	720	9,178.00
Polk													
Price	30	38.04	12.66		157	185	88	8,858	16	36			14,581.09
Rusk	57	160.32	873.94	26	33	98	21	295			1,241		18,472.74
Sawyer	30	51.11	63.32	10	53	208	192	670	10	406	3,466	491	4,828.88
Taylor	11	18.57	7.05		35	133	43	243			87		1,272.22
Vilas	10	27.58		176	5	12		102					1,255.17
Washburn	78	69.30	615.75	306	280	1,190	40	11,877	49		2,032	165	36,602.05
Wood	2							8					16.00
Total	589	1,061.92	2,900.46	8,407	3,001	10,295	2,460	59,363	685	12,052	35,989	2,920	$250,398.89

SUMMARY OF TIMBER SALES ON COUNTY FORESTS—1949

County	No. of Sales	Logs		Cordwood						Piece Products			Total Sales Value
		Conifers	Hardwoods	Pine	Spruce	Balsam	Other Conifers	Aspen	Other Hardwoods	Crossties	Posts	Poles	
		MBF											
Ashland	22	22.96	621.90		43	782	254	384	2	538	3,373	169	$ 16,034.67
Barron	1	.49	.67										15.86
Bayfield	16	2.46		24	47	203		4,525					7,443.90
Burnett	11	15.52		1,807	113	10	54	13					12,579.32
Chippewa	10		30.07					386					789.59
Clark	10	.63	.43	13					48		75		625.93
Douglas	27	68.29	44.29	498	486	803		18,581	41	1,361	7,294	1,431	33,319.38
Eau Claire	15		17.00	1,556				22					6,585.39
Florence	4	5.90		181	13	42	2	181			710	109	1,171.00
Forest	2	4.94	18.10										336.42
Iron	24	110.82	313.48		23	224	88	851	50	583			9,924.50
Jackson	12			588			4		48		345		2,698.22
Juneau	3			37									132.51
Langlade	16	45.82	143.54	43	132	728	162	1,214	62		280	65	13,046.98
Lincoln	23	15.69	170.95	5	66	434	220	575	148		1,359		6,588.10
Marinette	23	215.26	252.37	165	221	442	175	1,783	578		4,936	117	11,884.60
Monroe													
Oconto	21	75.36	71.06		112	112	110	2,125	7		17,299	130	6,750.79
Oneida	20	23.93	185.15		224	823	930	3,791	68		6,384	60	14,594.14
Polk	1			30									90.00
Price	26	39.86	65.91	26	61	313	93	4,455	25	518	73		9,957.17
Rusk	74	294.84	1,529.82		35	33	3	1,038		54	6,520	3	34,919.64
Sawyer	34	53.04	294.96			139	360	512	6	4,026	1,712		7,207.60
Taylor	11	26.74	40.42		29	159	84	161	18	101	156		1,623.15
Vilas	10	.38	.12	157	37	78		2,817	129				6,118.39
Washburn	59	19.14	336.93	96	131	315		5,135	79		2,955	500	12,674.09
Wood	2							22	17				41.50
Total	477	1,042.07	4,137.17	5,226	1,773	5,640	2,539	48,571	1,326	7,181	53,471	2,584	$217,152.84

has made special effort to buy lands crossed by truck trails. As an alternative, Iron county has often built a by-pass around private lands. While these service roads are gated during periods of fire danger, they are usually open to provide hunter access to large areas.

Timber Sales

The district foresters' records on county timber sales, like those for forest planting, are compiled by calendar years. The figures will differ from the county records, since the district foresters enter only completed sales. The number of sales increased from 477 in 1949 to 589 in 1950.

With most of the county forests acquired by tax deed, many of the trees now of saw log size were too small or of too poor quality to be taken in the original logging. Much of this material has now become merchantable. Hardwoods predominate, while pine of saw log size is less common. As a result, the volume of hardwood logs was 77 per cent of the total 9,141,620 board feet of logs cut during the biennium.

Cord products, chiefly pulpwood, totaled 149,286 cords for the two years, of which the largest item was aspen with 107,934 cords. Of the conifers, balsam ranked highest with 15,935 cords, while pine, mostly jack pine, totaled 13,633 cords for the biennium. Part of the balsam cut was due to salvage following two severe windstorms. The total cord equivalent of all cut products was 76,654 in 1949 and 92,166 cords in 1950. For the latter year, this means cutting at the rate of .044 cords per acre, while the growth rate is at least four times as much. As the volume of growing stock is built up, the annual increment will rise, permitting greater cuts in future decades. While the intangible values of forests for hunting, soil conservation and stabilization of stream flow are great, the success of forestry like agriculture must be measured by the harvest.

Gross income to counties on sales completed in 1949 was $217,152.84, which increased to $250,398.89 in 1950, when the average county income was almost 12 cents per acre. We now see that these unwanted, tax delinquent lands of twenty years ago have become valuable properties, with the counties receiving cash returns which will increase over the years.

As early as 1910, E. M. Griffith, Wisconsin's first state forester, in his biennial report, regretted that the counties had sold so much tax delinquent land a decade earlier, instead of creating county forests, but predicted that speculative owners of non-agricultural lands would not continue to hold them and the counties would again have an opportunity to acquire county forests. Two decades later the Interim Committee on Forestry and Public Lands reported to the 1929 legislature: "The Committee is impressed with the fact that the counties, because tax delinquent lands revert to them, are the chief governmental unit around which the program of public forestry in Wisconsin must be built." With the total county forest area now greater than the sum of state and federal forest holdings in Wisconsin, and with the present record of achievement, the soundness of the recommendations made by Griffith 40 years ago and by the Interim Committee 20 years ago is apparent.

Forestry Service

A plan for dividing the state into 26 cooperative forestry districts has been approved by the conservation commission. In the first ten districts the work load consists mainly of providing technical service on the county forests. However, these district foresters handle many requests for assistance to owners of small forest holdings. In the remaining districts, which cover the agricultural regions of the state, the work of the district foresters is to help owners of small forest holdings. This means mostly farm woodlands, which for the state total 5,511,258 acres of which 1,535,538 acres are not grazed by livestock, according to the 1945 census of agriculture.

These farm foresters work closely with the county agricultural agents and the soil conservation staff. In fact, most of them have a desk in the offices of either of the two agencies. Frequently they assist in farm planning, especially on location of the fence between woods and pasture, or selection of tracts which should be reforested.

This work is supported in part by federal funds under the Norris–Doxey law and the figures given are from the reports of the foresters to the U. S. Forest Service. In 1949, eight of these farm forestry districts covering 24 counties were active, though only four were operating for twelve months. They assisted 555 forest owners, with 23,534 acres of woodland. Of these 451 adopted improved forestry practice, including forest planting on 1,488 acres. Timber harvested according to the foresters' recommendations included 2,870,800 board feet of logs, 4,350 railway tie cuts, 7,460 fence posts plus other products, with a total equivalent of 4,836,000 board feet. In addition, marketing service was given in selling 5,962,000 board feet, bringing the total cut, on which the foresters gave help, to 10,798,000 board feet. On this the owners realized $275,117 for stumpage (the value of standing timber). The total income was $421,252, the difference being the value which farmers earned by logging and hauling cut products to a mill or shipping point.

For the year ending June 1950, with eleven foresters covering 34 counties and with more established contacts, 1,142 owners were assisted, the woodland served grew to 47,435 acres, while 2,558 acres were reforested. The owners adopting better practices numbered 870. Cutting under good methods included 4,712,000 board feet of logs, 40,562 tie cuts and 63,705 fence posts. The total log scale equivalent of all products was only slightly larger than the preceding year, or 10,970,000 board feet. It is significant that of this total, the volume on which only marketing service was given dropped to 3,486,000 while the volume cut under good practice increased to 7,484,000 board feet. The return on timber stumpage of $262,951 showed a small decrease, due to the fact that the foresters were stressing the removal of poor quality trees. On the other hand, the total income of $422,730 showed a slight increase, indicating that more farmers were earning winter income by doing their own logging.

The Forest Inventory

During the biennium computations were completed on the inventory of the Marinette county forest. For all species the present volume was

COOPERATIVE FORESTRY—FOREST CROP LANDS BY COUNTIES

July 1, 1948–June 30, 1950

County	Private Entries					County Entries					Total Forest Crop Lands
	Prior to 1948	1949	1950	Withdrawn	Net Private Lands	Prior to 1948	1949	1950	Withdrawn	Net County Lands	
Adams	1,031.27		200.00		1,231.27						1,231.27
Ashland	1,039.95		237.56		1,277.51	38,306.02	480.00	200.00	120.00	38,866.02	40,143.53
Barron	651.52				651.52	6,238.67	140.00			6,378.67	7,030.19
Bayfield	920.00				920.00	152,135.77	4,511.70	2,905.16	160.00	159,392.63	160,312.63
Burnett	180.30		200.00		380.30	100,673.02	3,064.61	759.39	653.70	103,843.32	104,223.62
Chippewa	463.00			80.00	383.00	21,261.73	480.00	360.00		22,101.73	22,484.73
Clark	165.55				165.55	128,096.60	748.12			128,844.72	129,010.27
Door	649.60		108.80	92.10	666.30						666.30
Douglas	11,462.66	366.62	315.25	328.86	11,815.67	213,085.85	5,575.57	2,003.29	40.00	220,624.71	232,440.38
Dunn			304.35		304.35						304.35
Eau Claire	520.00		160.00		680.00	36,504.16	2,611.90	240.00		39,356.06	40,036.06
Florence	43,118.76		464.12		43,582.88	38,893.58			120.00	38,773.58	82,356.46
Forest	30,463.67		40.00	40.00	30,463.67	10,726.16			31.09	10,695.07	41,158.74
Iron	80.00	4,320.00	280.00		4,680.00	169,781.43		1,970.94		171,752.37	176,432.37
Jackson	320.00				320.00	107,848.97	1,101.02	1,561.66	325.40	110,186.25	110,506.25
Juneau	280.00		80.92		360.92	13,055.65	280.00	1,308.73		14,644.38	15,005.30
Lafayette			51.67		51.67						51.67
Langlade	5,578.45		838.74		6,417.19	89,827.36	3,767.04	5,218.14		98,812.54	105,229.73
Lincoln	5,375.81	20,599.74	1,020.00	40.00	26,955.55	95,209.11	320.00	240.00		95,769.11	122,724.66
Marathon	1,370.00		479.58	160.00	1,689.58						1,689.58
Marinette	400.00		338.00		738.00	219,994.59	3,724.68	160.00	1.00	223,878.27	224,616.27
Marquette	55.00				55.00						55.00
Monroe			80.00		80.00	2,307.08		80.00		2,387.08	2,467.08
Oconto	463.40				463.40	41,256.18	680.00	220.00	447.74	41,708.44	42,171.84
Oneida	58,066.37	80.00	3,808.63	2,916.78	59,038.22	72,332.44	1,028.50	10,158.83	4,206.37	79,313.40	138,351.62
Outagamie	360.00				360.00	556.98			40.00	516.98	876.98
Pierce			80.00		80.00						80.00
Polk	847.10		1,018.51		1,865.61	9,027.24		242.25		9,269.49	11,135.10
Portage	471.72		593.72		1,065.44						1,065.44
Price	1,912.38		200.00		2,112.38	75,448.04	4,276.24	640.16	80.74	80,283.70	82,396.08
Rusk	654.52	68.00	72.70		795.22	78,952.60	400.00	360.00	401.84	79,310.76	80,105.98
St. Croix			100.00		100.00						100.00
Sawyer	1,350.00			400.00	950.00	101,992.09	2,100.48	1,805.02	686.60	105,210.99	106,160.99
Shawano	5,579.23			80.00	5,499.23						5,499.23
Taylor	1,051.55		651.02	291.29	1,411.28	15,415.11	120.00	400.00		15,935.11	17,346.39
Vilas	483.24		40.00		523.24	30,831.25		840.00	60.00	31,611.25	32,134.49
Washburn	674.08				674.08	126,262.66	2,184.09	1,246.35	402.46	129,290.64	129,964.72
Waushara	80.00		160.00	80.00	160.00						160.00
Wood	6,585.43	2,400.00	322.03		9,307.46	34,442.35			632.94	33,809.41	43,116.87
TOTALS	182,704.56	27,834.36	12,245.60	4,509.03	218,275.49	2,030,462.69	37,593.95	32,919.92	8,409.88	2,092,566.68	2,310,842.17

50,500,000 board feet log scale and 413,900 cords. Growth figures indicate that, with cutting on the average of the two preceding years, total volumes at the end of ten years should rise to 70,000,000 board feet and 700,000 cords. The volume of growing stock must, of course, be built up for maximum production, but it is apparent that the present rate of cutting is conservative. It is not desirable that no cutting whatever should be done, for there are always some trees which should be cut before they deteriorate. Field work was conducted in the Burnett county forest in 1949.

In 1950 the Forestry Advisory Board to the conservation commission recommended a forest inventory of 32 northern and central Wisconsin counties, with 30 per cent of the estimated cost to be contributed by the wood using industries of the state, 30 per cent by the counties to be covered and the remainder to be borne by the commission. The costs of aerial photography are being shared by the federal Production and Marketing Administration. The U. S. Forest Service will conduct the work on the two national forests and turn over its figures for the areas covered.

This project was fully activated in July of 1950. Twenty-three foresters are assigned to the work, with the intention of completing the job in three years. The need to take stock of our forest resources is clear, considering the importance of Wisconsin wood using industries. The paper industry alone ranks second in the state in annual payrolls. The final figures on volume and growth will help to determine the desirable annual cut.

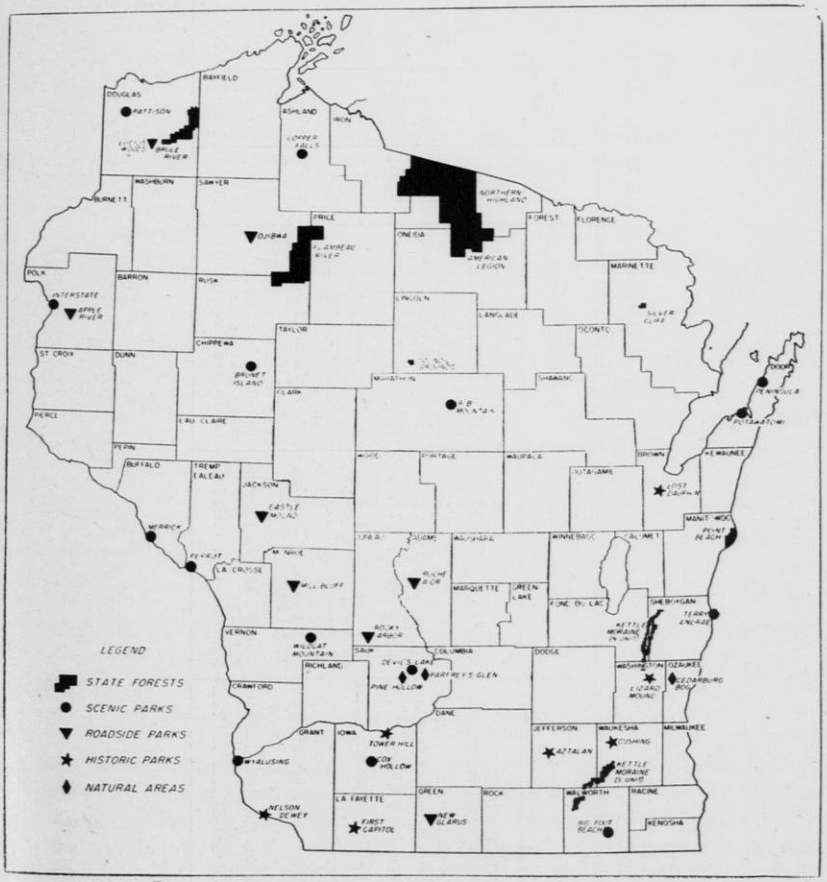
NORWAY PINE, BRULE STATE FOREST

Forests and Parks

The biennial report of the activities of the Division of Forests and Parks has been divided into three main parts: (1) State Forests, (2) State Forest Nurseries, and (3) State Parks.

STATE FORESTS

For the most part the lands incorporated within the boundaries of the state forest units were cut over from 25 to 50 years ago. With approximately twenty years of satisfactory fire control, many acres have regrown to a thrifty second growth stand of timber now reaching a size where



WISCONSIN STATE FORESTS

Name	*Location and State Highway Connection*	*Dominant Features*	*Swimming*	*Camping*	*Electrical Outlets*	*Store*	*Address of Forest Manager*	*Water Frontage*	*Picnic Grounds*
STATE FORESTS									
American Legion	Oneida Co., T.H. 47	Inland lakes, wooded terrain	Yes	Yes	No	Nearby	Trout Lake	Many glacial lakes	Yes
Brule River	Douglas Co., T.H. 2	River scenery	Yes	Yes	No	Nearby	Brule	Brule River	Yes
Council Grounds	1 mi. W. of Merrill, Lincoln Co. T.H. 51	Pine woods, river scenery	Yes	Yes	No	Nearby	Merrill	Wis. River	Yes
Flambeau River	Sawyer Co., T.H. 13, 8, 70	Flambeau River, Wilderness Forest, canoeing	Yes	Yes	No	Nearby	Phillips	Flambeau River	Yes
Kettle Moraine	N. Unit—5 mi. N. of Kewaskum, T.H. 55 and 45	Glacier formed hills and valleys	Yes	Yes	Yes	Nearby	Campbellsport	Mauthe Lake	Yes
	S. Unit—4 mi. N. of Eagle, T.H. 59	Glacier formed hills and valleys	Yes	Yes	No	Nearby	Eagle	Long Lake Whitewater Lake	Yes
Northern Highland	Vilas and Iron Counties, T.H. 51	Glacier formed lakes, wooded terrain	Yes	Yes	No	Nearby	Trout Lake	Trout Lake and many other lakes	Yes
Point Beach	4 mi. N. of Two Rivers, T.H. 42	Lake Michigan, sand dunes, pine woods	Yes	Yes	Yes	Nearby	Two Rivers	Lake Michigan	Yes
Silver Cliff	Marinette Co., T.H. 141	Sandy pine plain	No	No	No	No	Wausaukee	None	No

commercial values appear. Within the limits of these forests the state owns roughly 3,500 acres of old growth virgin timber, the largest area being located along the north fork of the Flambeau river.

Not only are these areas of value for the production of a timber crop, but they possess recreational values of great usefulness to the public.

Several hundred miles of lake and river frontage, hills, marshes, and other geographic, historic and natural features embraced within the state forests provide a wide variety of recreational opportunities.

The eight state forests of Wisconsin as of June 30, 1950 contained 267,657.16 acres. A tabulation showing location, how reached, dominant features and other information appears on page 82.

STATE FOREST LAND ACQUISITION

The examination and acquisition of lands within established forest boundaries continued over the biennium. Substantial progress was again made in blocking in the state ownership principally in the Brule River, Flambeau River, Kettle Moraine, and Northern Highland forests. Approximately 7,390 acres of land were added to the state forest holdings during 1949 and 1950, the largest single gain being in the Kettle Moraine where in excess of 2,100 acres were acquired.

The following table shows the total acreage of state-owned forest land by counties within the boundaries of the eight state forests.

STATE FOREST ACREAGE AS OF JUNE 30, 1950

Name	*County*	*Acres*	*Total Acres*
American Legion	Oneida		37,234.50
Brule River	Douglas		18,532.54
Council Grounds	Lincoln		278.17
Flambeau River	Sawyer	52,647.27	
	Rusk	9,093.52	
	Price	6,801.47	68,542.26
Kettle Moraine	Fond du Lac	3,629.43	
	Sheboygan	6,395.37	
	Northern Unit Total	10,024.80	
	Jefferson	674.00	
	Walworth	784.96	
	Waukesha	3,912.08	
	Scuppernong Unit Total	5,371.04	15,395.84
Northern Highland	Iron	12,358.73	
	Vilas	112,805.83	125,164.56
Point Beach	Manitowoc		1,709.29
Silver Cliff	Marinette		800.00
TOTAL			267,657.16

REFORESTATION ON STATE FOREST LAND

The upsurge in tree planting in Wisconsin continued over the biennium in spite of increased planting costs. Although the number of trees planted on state forest lands as compared with the previous biennium, was slightly less, the number of trees planted on public owned lands increased 29 per cent. On private lands there was a total of 23,007,915 trees planted during

Salvage of storm-damaged timber, Flambeau State Forest.

1949 and 1950, an increase of 68 per cent over 1947 and 1948. The late spring of 1950 greatly reduced the length of the planting season.

The following table gives figures on the number of trees and acres planted on state forests for the years 1949 and 1950.

STATE PLANTING REPORT SUMMARY, 1949 AND 1950

	Trees	*ACRES*		
		New Planting	*Replanting*	*Total*
American Legion	97,000	80		80
Brule River	1,087,200	602	252	854
Flambeau River	276,450	246	19	265
Kettle Moraine	419,855	330	17	347
Northern Highland	569,500	194	165	359
Point Beach	13,100	12		12
Misc. CWCA, Gordon, etc.	142,290	84	19	103
TOTALS	2,605,395	1,548	472	2,020

Sale of Forest Products

Timber sales over the biennium were greatly accelerated. To a large extent these were salvage operations of wind and storm damaged timber. Timber damage through wind and storm over the biennium was probably the highest ever experienced in the history of the state forests. The severe windstorm of October 10, 1949 blew down or damaged an estimated 3 million board feet of timber on the Flambeau Forest alone.

Gross revenue derived from the sale of forest products over the biennium amounted to slightly less than $80,000.00. The apportionment to the counties of revenue from sale of wood products cut on state forest lands for 1949 and 1950 follows: (Section 25.30 Wisconsin Statutes)

APPORTIONMENT TO COUNTIES OF REVENUE FROM SALE OF WOOD PRODUCTS CUT ON STATE FOREST LANDS. (SECTION 25.30, WISCONSIN STATUTES)

The following apportionment is made on the basis of state forest acreage as of June 30, 1949:

Total acreage ---------- 264,058.88 acres
Total income ---------- $ 23,825.12
One-fourth of income ---------- $ 5,956.28

County	*Town*	*Town Acreage*	*County Acreage*	*Per cent of County to Total*	*Amt. Due County*
Douglas	Bennett	520.00			
	Brule	4,116.27			
	Highland	9,172.48			
	Solon Springs	4,203.79	18,012.54	6.82141	$ 406.30
Fond du Lac	Auburn	2,206.77			
	Osceola	1,150.03	3,356.80	1.27123	75.72
Iron	Mercer	7,244.96			
	Sherman	5,113.77	12,358.73	4.68029	278.77
Jefferson	Palmyra	594.00	594.00	.22495	13.40
Lincoln	Merrill	278.17	278.17	.10534	6.27
Manitowoc	Two Rivers	1,494.44	1,494.44	.56595	33.71
Marinette	Silver Cliff	800.00	800.00	.30296	18.05
Oneida	Lake Tomahawk	8,092.33			
	Newbold	10,757.56			
	Sugar Camp	7,605.45			
	Woodruff	10,551.95	37,007.29	14.01479	834.76
Price	Flambeau	1,195.56			
	Lake	5,604.49	6,800.05	2.57520	153.39
Rusk	Cedar Rapids	5,066.53			
	South Fork	3,920.33	8,986.86	3.40336	202.71
Sawyer	Draper	9,664.03			
	Winter	41,775.59	51,439.62	19.48036	1,160.31
Sheboygan	Greenbush	2,199.50			
	Mitchell	2,926.41			
	Plymouth	41.03			
	Scott	1,063.31	6,230.25	2.35942	140.53
Vilas	Arbor Vitae	24,172.59			
	Boulder Junction	33,301.54			
	Cloverland	2,344.62			
	Manitowish Waters	4,277.68			
	Plum Lake	31,794.93			
	Presque Isle	5,141.38			
	St. Germain	3,650.07			
	State Line	5,738.18			
	Winchester	1,960.00	112,380.99	42.55906	2,534.94
Walworth	LaGrange	560.88			
	Whitewater	218.08	724.96	.27455	16.35
Waukesha	Eagle	1,279.98			
	Ottawa	2,314.20	3,594.18	1.36113	81.07
	Totals	264,058.88	264,058.88	100.00000	$5,956.28

APPORTIONMENT TO COUNTIES OF REVENUE FROM SALE OF WOOD PRODUCTS CUT ON STATE FOREST LANDS. (SECTION 25.30, WISCONSIN STATUTES)

The following apportionment is made on the basis of state forest acreage as of June 30, 1950:

Total acreage ---------- 267,657.16 acres
Total income ---------- $ 56,008.17
One-fourth of income ---------- $ 14,002.04

County	*Town*	*Town Acreage*	*County Acreage*	*Per cent of County to Total*	*Amt. Due County*
Douglas	Bennett	520.00			
	Brule	4,116.27			
	Highland	9,692.48			
	Solon Springs	4,203.79	18,532.54	6.92398	$ 969.50
Fond du Lac	Auburn	2,289.40			
	Osceola	1,340.03	3,629.43	1.35600	189.87
Iron	Mercer	7,244.96			
	Sherman	5,113.77	12,358.73	4.61737	646.53
Jefferson	Palmyra	674.00	674.00	.25182	35.26
Lincoln	Merrill	278.17	278.17	.10393	14.55
Manitowoc	Two Rivers	1,709.29	1,709.29	.63861	89.42
Marinette	Silver Cliff	800.00	800.00	.29889	41.85
Oneida	Lake Tomahawk	8,119.54			
	Newbold	10,877.56			
	Sugar Camp	7,685.45			
	Woodruff	10,551.95	37,234.50	13.91127	1,947.86
Price	Flambeau	1,196.98			
	Lake	5,604.49	6,801.47	2.54111	355.81
Rusk	Cedar Rapids	5,173.31			
	South Fork	3,920.21	9,093.52	3.39745	475.71
Sawyer	Draper	10,270.63			
	Winter	42,376.64	52,647.27	19.66967	2,754.16
Sheboygan	Greenbush	2,239.50			
	Mitchell	3,051.53			
	Plymouth	41.03			
	Scott	1,063.31	6,395.37	2.38939	334.56
Vilas	Arbor Vitae	24,172.59			
	Boulder Jct.	33,301.54			
	Cloverland	2,631.79			
	Land O'Lakes	5,857.51			
	Manitowish Waters	4,277.68			
	Plum Lake	31,794.93			
	Presque Isle	5,159.72			
	St. Germain	3,650.07			
	Winchester	1,960.00	112,805.83	42.14564	5,901.25
Walworth	La Grange	506.88			
	Whitewater	278.08	784.96	.29327	41.06
Waukesha	Eagle	1,597.88			
	Ottawa	2,314.20	3,912.08	1.46160	204.65
	Totals	267,657.16	267,657.16	100.	$14,002.04

Improvements

Forest Roads—In cooperation with the State Highway Commission the work of improving the forest roads on all state forests was advanced. The highway system on these areas is divided between the primary and secondary forest road system. The primary system carries a considerable volume of traffic and requires higher construction and maintenance standards.

The first phase of two major road improvement projects was completed in the Northern Purchase Unit of the Kettle Moraine State Forest. A total of 1.05 miles of town roads in the townships of Greenbush and Mitchell in Sheboygan county, and Osceola in Fond du Lac county was completely rebuilt and gravelled in 1949 and bituminous surfaced in 1950. This work also included the entrance road and parking area in the new Long Lake Recreation Area. The work was completed under contracts with the Sheboygan county Highway Commission and supervised by State Highway Commission engineers.

An entrance road and parking area were constructed to the new Lizard Mound Historical Park Area.

The new northern entrance to the Point Beach State Forest was completed by the construction of two miles of new highway to connect with projected new state highway No. 170 from state trunk highway 42 to Lake Michigan. The completion of this road will materially add to the public use made of the Point Beach forest.

On the Flambeau River Forest during 1949 approximately 7 miles of road were regraded, sand lifted, gravelled and surfaced in Price county. In Sawyer county 2½ miles were relocated and regraded completing the road relocation to the Sawyer–Price county line. In Rusk county the approach road from highway 8 on the south was completed and surfaced to the Rusk–Sawyer county line.

On the American Legion Forest 3 miles of forest road "D" was reconstructed and surfaced.

There were 4 miles of forest road "N" on the Northern Highland Forest reconstructed and surfaced.

Highway "S" through the Brule State Forest was improved.

All of the above improvements were in addition to the regular summer and winter maintenance on all forest properties.

Buildings and Grounds—Additional facilities for public use were constructed or developed on the state forest properties.

On the Flambeau River Forest a new camp and picnic grounds, including well, fire places, tables, toilets, etc. were developed on the north end of Connors Lake.

On the Northern Highland Forest work on the Dam Lake Campground in the vicinity of the Rest Lake Fire Tower, started in 1949 was completed and ready for use prior to the opening of the 1950 season. All facilities normally associated with forest campgrounds are available.

The picnic area and park facilities were improved at Trout Lake point.

Along the water-way trails on the Northern Highland Forest forty-seven campsites with limited facilities were developed and maintained.

On the northern forest properties 70 new picnic tables were constructed as additions or replacements, and additional fire places, toilets, and other facilities were added to or improved.

The Long Lake recreational area of the Kettle Moraine Forest started in 1948 was completed with the exception of the camping area and bathing beach. Roads and parking lots were completely graded and gravelled and were surfaced with blacktop in 1950. Sanitary facilities are complete as is the new drilled well, fireplaces, picnic tables, etc.

Work on the development of the Lizard Mound site was begun in 1949. An entrance road and parking lot were graded and gravelled, a well drilled, a trail system laid out and constructed, picnic area started, and sanitary facilities built. The area was ready for use by July 1, 1950.

Work was started on the Lake Geneva project by way of general clean up, picnic ground facilities and water supply.

At Mauthe Lake the lighting system was extended to include the main rest rooms and camp grounds, the beach was improved with additional sand, and the foot trail around the south side of the lake was rebuilt.

A parking lot at the Greenbush Winter Sports Area was constructed and further improvements to the ski hills were made by grading the slope and replacing guard rails along the highway.

The Whitewater Lake Area development was extended with the installation of twenty five or more picnic tables, several temporary fire places, sanitary facilities, improvement to roadside by seeding cuts and road shoulders, and the planting of 50 or more hardwood trees of larger size. Construction of the beach area on Whitewater Lake was also started.

On the southern forests 189 new picnic tables were constructed to be used at new picnic areas and to replace broken and worn out tables in existing areas.

The treatment of the picnic and camp grounds of both Point Beach State Forest and the Kettle Moraine State Forest with D. D. T. kept the mosquito population very low.

New Equipment—The program of annually acquiring a limited number of new trucks as replacements for old worn out units was continued over the biennium. The periodic exchange and purchase of new equipment results in dependable transportation and greater efficiency of operation.

One new crawler type tractor with bulldozer was purchased for general construction, operation and maintenance work on the Flambeau River State Forest.

Forest Damage

Although there were a considerable number of forest and marsh fires within the boundaries of the state forests, most of the fires were on privately owned lands. Damage to timber and reproduction was negligible on all fires. On the Northern Highland Forest the largest single cause of fire was attributed to smokers while on the Flambeau River Forest, lightning led all other causes.

Deer damage on the forests was lighter than during the previous biennium.

A small amount of damage was caused by rabbits and mice in young plantations.

In a few abandoned fields that had been machine planted white grubs took up to fifty per cent of the trees planted.

Wind and storm damage as previously mentioned was high over the biennium and easily exceeded damage by all other causes combined.

Public Use

As usual, there was a heavy use of the state forest properties for recreational pursuits such as camping, picnicking, swimming, canoeing, fishing, hunting, hiking, winter sports, field trials, archery field meets, photography, nature study, etc. It is difficult, however, to measure or even estimate the extent of these activities quantitatively on the forests as a whole. Records kept at public campsites through registration and automatic counters on certain use areas are helpful indicators of the trends in public use.

From Campsite Registrations 1949 (Calendar Year)

Forest	*Number of Camp Grounds*	*Length of Season in Days*	*Av. No. of Persons per Camping Unit*	*Av. Length of Stay in Days*	*Daily Average Persons*	*Total Camper Days*
American Legion	5	122	3.8	9.9	94.1	11,471
Northern Highland	23	130	3.6	8.9	238.2	30,929

Campsite Attendance—Month of July Only on Northern Highland Forest—4 yrs. Period

Year	*Camper Days*	*Av. Number of Persons Camping Daily*
1946	6,165	----------
1947	9,456	282
1948	12,231	397
1949	13,536	436

It should be pointed out that in addition to the 23 campsites on the Northern Highland Forest at which attendance records were kept that no attendance figures are available for 6 picnic grounds and 47 river campsites which were also in use and fully maintained.

Southern Forests Attendance by Areas (1949 Calendar Year)

Mauthe Lake Area	
Total People	200,308
Total Cars	50,800
Total Campers	8,482
Total Tents	1,423
Total Trailers	144

Point Beach State Forest	
Total People	216,966
Total Cars	54,484
Total Campers	612
Total Tents	187
Total Trailers	23

Scuppernong Unit Roadside Picnic Areas	
Total People	852
Total Cars	248
Total Campers	604
Total Tents	130

Lapham Peak Picnic Area	
Total People	23,229
Total Cars	5,926
Total Campers	64
Total Tents	16

Greenbush Winter Sports Area	
Total People	5,061
Total Cars	1,348

Field Trials Attendance Estimates	
Total People	17,000
Total Cars	4,200

Total People Using Picnic and Camping Facilities during 1949—503,972

Total Cars	127,065
Total Campers	9,886
Total Tents	1,794
Total Trailers	167

It would appear that from attendance figures kept on the Northern Highland Forest that public camping is beginning to level off. The figures on overall public use of the forests of southern Wisconsin indicate that there has been a 30% increase in the use of these facilities over the 1948 calendar year. There is a need to greatly expand the picnic grounds, develop new beaches whenever possible, extend the foot trail system, improve the forest roads, improve hunting and fishing, construct a new organized camp area and enlarge winter sports areas if the people of southeastern Wisconsin are to gain complete benefits that the area should provide for them.

STATE FOREST NURSERIES

More than 35 million seedlings and transplants were distributed from the four state nurseries and two county transplant nurseries over the biennium. In addition to the trees sent out from state and county nurseries, a substantial number were also purchased from federal nurseries and distributed through state channels. The principal demands for forest trees from the state nurseries continues to be as follows:

1. For reforestation of publicly owned lands.
2. For planting by farmers and landowners.
3. For demonstration and educational purposes among schools, 4H groups and extension forestry projects.
4. For highway and other plantings by official state agencies.

Trees packaged for shipment at a state nursery.

Distribution

Due to the efforts of the department foresters, the state extension foresters, county agents and Soil Conservation Service workers, there was a considerable increase in regimented truck shipments. The rising costs of express shipments also caused more planters to call for their trees at the Nurseries.

The unusually late spring caused all 1950 tree shipments to be considerably delayed. This was particularly true of the northern nurseries, where shipments could not begin until well after the first of May, and were not complete until shortly after June 1. While the trees themselves were dormant and in a satisfactory planting condition, the idea of the late season discouraged some planters and resulted in more than the usual number of cancellations of orders.

The Norway pine and white spruce varieties were again much sought after with the demand exceeding the supply. On the other hand, the end of the planting season saw small quantities of white pine, white ash, American elm and white cedar seedlings still available. The higher 1950 selling price of nursery stock apparently had little effect on the planting of trees.

Stock Inventories

While the combined stock inventories of all nurseries is again greater than the preceding year, the rate of increase is smaller, indicating that a leveling-off of the post-war expansion effort may be attempted. The 1950 inventory, after fall shipments have been deleted, shows a total of somewhat over 63 million trees in the four state nurseries. The quantities of

one and two year old seedlings are about equal to the 1949 amounts. Sizeable increases are indicated, however, in the more desirable three year seedlings and transplant age classes. Over 20 million seedlings and transplants will be on hand for Wisconsin tree planters during the 1951 spring season. These inventory figures are based on low densities per square foot or per bed with resultant high quality plantable stock. Greater densities per bed would give increased production and less unit costs, however, the desired standards of the trees would diminish.

Labor

Seasonal labor in the nurseries was comparatively easy to get during 1950, and was of increasingly good quality. This was particularly true at the Griffith Nursery. Hayward had some difficulty in obtaining sufficient help, while Trout Lake and Gordon were aided by inmate labor from the Gordon and McNaughton forest prison camps.

Even though mechanization has been stressed in all nurseries, the operations of tree production are such that a large amount of hand labor is always needed to efficiently package, distribute 20 million trees in a matter of a few short weeks. It is always difficult to hire a sizeable crew of able-bodied men when the job is known to last only 5 or 6 weeks. The rate of pay should at least be equal to local industries, and compensation should not be limited to an established maximum work month.

In view of the high business activity and military drafts it is expected that the nurseries will experience difficulty in obtaining sufficient and competent men to carry on the job of distributing the 20 million or more trees on hand for the 1951 spring planting season.

Nursery and Forest Research

Studies in forest soils, diseases, insects and genetics went forward during the year. Considerable progress was made in these projects of a research nature as carried on by the State University with funds and field assistance furnished by the Conservation Department.

The control of the damaging white grub worms, after four years of intense study and efforts, appears to have been accomplished. The application of 100 lbs. of 10% chlordane dust mixed in the soil, from all indications, arrested almost entirely severe damage from what would normally have been a bad white grub year.

Particular emphasis is also being placed on the study of the Oak Wilt disease and several interesting facts have been learned about the translocation of this disease between neighboring trees by means of their root system. Work is also being resumed in field and laboratory trials of new fungicides in the control of the damping-off fungus.

Studies in soils includes the use of ammonia gas in improving the quality of peat compost, and the effect of ground water levels on tree growth. Trials in the use of sawdust as a means of soil improvement have also been initiated.

The genetic project is completing its second year with progress made in the location of superior specimens of native trees. Considerable grafting

of scions from these superior trees is again being carried on in the greenhouse at the Griffith Nursery. Seed from these better class trees has also been sown as a means of carrying on progeny tests.

Insects and Diseases

After ten years of comparatively little damage from the damping-off fungi, the Griffith Nursery experienced considerable loss to its newly germinated white and Norway pine seedlings this past spring. The seriousness of this fungus attack during the spring of 1950 can probably be attributed to the unusually late season, with the seeds not sprouting until May 17—over two weeks later than normal. The seedlings were thus not far enough advanced in growth and hardiness by early June, when ground and climatic conditions are highly favorable for the development of the damping-off. This damaging disease was not unusually severe in the northern nurseries, although its prevalence at the Nepco Lake Nursery would give credence to the presumption that weather conditions peculiar to Central Wisconsin during the critical period following seed germination was especially favorable to the spread of the fungi.

It is hoped that research will develop a spray or dust that can effectively be applied only after the first signs of wilting occur. This would eliminate yearly applications of fungicides, which are usually put on regardless of whether they are actually needed or not.

The Pine Bark Louse, oftentimes called an aphid, was rather abundant at the Griffith and Hayward nurseries in the 3–0 and 2–2 white and Norway pine. Reasonable control was obtained by periodic sprayings with Vapatone and Nicotine sulfate.

The gall rust, which commonly attacks jack pine, was scarce this year.

Seeding and Transplanting

The cone crop in the fall of 1950 was good. White pine could be rated as from moderate to light, Norway pine was moderately heavy and jack pine, white spruce and balsam fir were good in all areas. The department set up collection stations at the four nurseries, and the following amounts of cones were purchased: Norway pine—432 bushels, white pine—468 bushels, white spruce—319 bushels, Norway spruce—85 bushels, and balsam fir—142 bushels. Prices paid were $6.00 per bushel for Norway pine, $1.25 per bushel for white pine, $6.00 for white spruce, $3.00 for Norway spruce, and $4.00 per bushel for balsam fir. The amount of seed extracted from these 1950 cones along with the 1948 seed still on hand, will continue to maintain ample seed reserves for future production schedules.

Seeding in the nurseries was again increased this year, but not on as large a scale as in previous post-war years. It is figured that approximately 2 million more trees will be inventoried as 1–0 in the fall of 1951 than is shown on this year's inventory. It is felt that tree production is gradually catching up with the demand, and in another year or two, barring unforseen and unavoidable losses, that a leveling-off can begin in the make-up of seeding schedules. The transplanting of between 4 and 5 million seedlings each year is considered sufficient under the present tree distribution pro-

Applying chemical sprays for weed control in forest seedlings at the Griffith State Nursery.

gram. Greater emphasis is being placed on the raising of good quality 3 year seedlings. This age class is much cheaper to produce than transplant and three or four times as many trees can be grown per unit of area.

Production Problems

The winter of 1949–50 saw little snow during the early part. Snowfall was about normal during the season at the Griffith Nursery in the central part of the state, while it appeared to be more than average in the northern nurseries. Precipitation in general was considerably below normal in the central part of the state. The northern nurseries experienced about average rain and snowfall.

An unusually late and cold spring broke all records and delayed the digging of trees in the nurseries and subsequent field planting by at least two weeks. Some planting jobs had to be reduced due to the shorter season, and a few small individual tree planters cancelled their orders outright.

A severe windstorm on May 5 and 6 caused a large amount of sand blowing in the nurseries. Some of the newly germinated hardwood trees at Wisconsin Rapids were cut off by the blowing sand. Portions of the seed beds were uncovered. In some instances windbreaks had collected two foot drifts of sand deposited by the severe winds. These winds also caused substantial blow-down in standing timber as well as considerable damage to buildings and other property.

During mid-summer a definite yellowing of the needles in parts of the older aged seedlings and transplants at Trout Lake was noted. The discoloration was still evident at the end of the growing season. While tissue tests are being run by soils men at the College of Agriculture, it appears offhand that soil fertility is out of balance, with the probability that too heavy applications of liquid fertilizer may have caused toxicity to the trees from over supplies of nitrogen.

New Improvements

A large size row-crop dusting machine was acquired during the year and is stationed at the Griffith Nursery. While this machine was purchased primarily for the application of chlordane dusts in white grub worm control, still it can also be used for the application of any insecticide or fungicide in the dust form. It is expected that another machine will eventually be needed to avoid conflicts in scheduled dust applications among the four nurseries.

Additional wire hardware cloth for bird protection was obtained for use at Gordon and Wisconsin Rapids. An attempt is also being made to purchase cedar lumber for seed bed replacements, largely at Wisconsin Rapids.

At the Griffith Nursery a 32′ x 78′ addition to the packing building is under construction. This extra space will afford faster and more efficient packaging of those tree orders going to farmers and other owners of comparatively small parcels of land. The number of these tree shipments have been increasing each year to the point where their sorting, counting, grading and packaging was creating quite a need for additional room and a bottle-neck in the entire distribution program.

Several new trucks as replacements for old, worn out units were acquired at most nurseries and will aid materially in the transportation of trees during the spring distribution season, as well as in routine traffic operations in the overall conservation program. Three used one-half ton pick-up trucks were also acquired under the nursery program and turned over for the use of the forest research projects. One farm type wheel tractor was purchased for each the Hayward and Gordon Nurseries for cultivating, mowing and other general nursery work.

Varieties for Wildlife Improvement

The demand for the game food varieties again increased substantially in 1950. This is particularly true of the multiflora rose, which continues to be much sought after. Although it is doubtful whether the multiflora rose will develop successfully in the northern counties; it appears from plantings made several years ago in some of the southern counties, that good survival and growth can be expected.

Nearly a three times greater number of game food plants were distributed in 1950 as was shipped out the preceding year.

Public Relations

Interest in nursery operations and tree planting methods reached another high point during the year. This was especially notable among school

organizations. Numerous chartered busses and groups of automobiles visited the nurseries during the spring season particularly. Many programs of teacher's meetings and institutes included staff members of the nurseries as well as tours and actual observations of tree growing activities.

Correspondence with tree minded individuals was also unusually heavy, as was the distribution of descriptive and explanatory pamphlets and bulletins dealing with the procedure of obtaining and the subsequent planting and care of forest and game food species.

ANNUAL OUTPUT OF STATE FOREST NURSERIES

Year	*Private*	*Public*	*Totals*
1911	----------	192,300	*192,300
1912	----------	18,000	**18,000
1913	----------	68,500	68,500
1914	20,200	458,430	478,630
1915	77,400	----------	77,400
1916	110,200	216,650	326,850
1917	272,105	332,525	604,630
1918	246,278	262,485	508,736
1919	200,151	309,900	510,051
1920	206,682	113,875	320,557
1921	199,601	255,925	455,526
1922	39,482	83,710	123,192
1923	177,260	176,800	354,060
1924	247,000	163,300	410,300
1925	350,538	160,700	511,238
1926	748,497	424,200	1,172,697
1927	1,038,249	579,000	1,617,249
1928	1,101,464	637,200	1,738,664
1929	1,393,267	1,022,750	2,416,017
1930	1,185,075	981,500	2,166,575
1931	1,304,250	2,050,350	3,354,600
1932	880,315	5,701,500	6,581,815
1933	822,950	4,318,050	5,141,000
1934	1,486,725	15,209,785	16,696,510
1935	1,376,189	10,737,715	12,113,904
1936	3,592,224	9,535,482	13,127,706
1937	5,811,662	8,702,429	***14,514,091
1938	6,530,124	18,775,862	***25,305,986
1939	8,775,557	21,872,280	***30,647,837
1940	12,305,025	28,352,316	***40,657,341
1941	11,085,364	15,575,351	***26,660,715
1942	11,373,445	9,417,192	***20,790,637
1943	9,612,340	4,117,192	***13,729,532
1944	7,867,220	2,160,590	***10,027,810
1945	10,080,584	3,252,224	***13,332,808
1946	8,019,675	3,858,332	***11,878,007
1947	7,077,654	4,509,653	***11,587,307
1948	6,976,387	5,399,185	***12,375,572
1949	9,378,035	6,526,090	***15,904,125
1950	13,629,880	6,254,130	***19,884,010
	145,599,054	192,783,458	338,382,512

*Stock secured from Michigan State College.
**Stock purchased.
***Includes inter-nursery shipments.

OUTPUT OF STATE FOREST NURSERIES — 1913-1950

STATE NURSERY TREE DISTRIBUTION

All Nurseries—State and County **Year of 1949**

Species	*State Forests*	*County Forests*	**Extension*	***Private*	*Highway*	****General*	*Totals*
Norway Pine	498,000	716,975	531,425	2,270,870	6,000	951,745	4,975,015
White Pine	33,000	231,400	495,150	1,234,575	15,000	300,260	2,309,385
Jack Pine	590,000	4,134,270	449,550	929,470		321,425	6,424,715
Norway Spruce	12,500	2,000	186,275	253,050		101,950	555,775
White Spruce	53,700	152,945	205,650	376,625		330,640	1,119,560
Black Locust			1,750	75,825		17,700	95,275
American Elm	56,000		46,050	42,325	10,000	16,925	171,300
White Ash	3,000		21,725	63,675		8,725	97,125
White Cedar	4,000		6,125	54,150		10,550	74,825
Black Hill Spruce			1,700	8,000			9,700
Black Walnut Seed			2,675	41,700		9,750	54,125
Sugar Maple				10,000		25	10,025
Tamarack	7,300						7,300
TOTALS	1,257,500	5,237,590	1,948,075	5,360,265	31,000	2,069,695	15,904,125

*Extension—Stock distributed through the State Extension Forester, the State Club Leader, and the County Agricultural Agents. This column includes Community Forests.

**Private—Individuals purchasing under the Tree Application and Agreement Form.

***General—Trees transferred to other State Nurseries and other agencies not covered by the above headings, i.e., Gordon Nursery, Soil Conservation Service, Parks, Clubs, Institutions, etc.

STATE NURSERY TREE DISTRIBUTION

All Nurseries—State and County **Year of 1950**

Species	*State Forests*	*County Forests*	**Extension*	***Private*	*Highway*	****General*	*Totals*
Norway Pine	269,120	1,130,410	638,160	3,064,625	5,000	878,630	5,985,945
White Pine	86,775	115,970	1,188,460	1,942,250	66,200	1,332,195	4,731,850
Jack Pine	831,170	3,548,780	431,425	921,775		382,525	6,115,675
Norway Spruce	19,720		265,760	291,900		80,400	657,780
White Spruce	28,000	134,825	113,875	967,075		325,375	1,569,150
Black Locust			2,675	42,850		14,625	60,150
American Elm	3,110		67,950	30,925		34,575	136,560
White Ash	3,260		69,900	64,225		43,625	181,010
White Cedar	4,400		17,600	167,500		86,350	275,850
Black Walnut Seed			1,000	51,750		13,475	66,225
Hard Maple	1,990	5,000	1,500	58,500		27,125	94,115
Basswood				3,700		500	4,200
Tamarack				100		4,000	4,100
Yellow Birch	400						400
Balsam Fir				1,000			1,000
TOTALS	1,247,945	4,934,985	2,798,305	7,608,175	71,200	3,223,400	19,884,010

*Extension—Stock distributed through the State Extension Forester, the State Club Leader and the County Agricultural Agents. This column includes Community Forests.

**Private—Individuals purchasing under the Tree Application and Agreement Form.

***General—Trees transferred to other State Nurseries and other agencies not covered by the above headings, i.e., Gordon Nursery, Soil Conservation Service, Parks, Clubs, Institutions, etc.

STATE NURSERY TREE DISTRIBUTION

By County

All Nurseries—State and County (Not Federal) **Year of 1949**

County	*State Forests*	*County Forests*	**Extension*	***Private*	*Highway*	****General*	*Totals*
Adams			17,000	180,600		34,500	232,100
Ashland		31,000	2,100	5,500		150	38,750
Barron		14,000	44,900	23,350			82,250
Bayfield		982,000	2,800	27,600			1,012,400
Brown			107,750	29,350	20,000		157,100
Buffalo			12,000	98,200		3,000	113,200
Burnett		406,300	7,400	36,400			450,100
Calumet			16,700	21,100			37,800
Chippewa		33,000	68,950	58,550		3,000	163,500
Clark		245,900	38,300	28,425		180,000	492,625
Columbia			15,500	129,650		54,250	199,400
Crawford			15,450	11,425			26,875
Dane			25,450	37,975		55,375	118,800
Dodge			10,500	14,350			24,850
Door			18,200	18,000		375	36,575
Douglas	588,700	1,349,000	12,500	740,715		21,400	2,712,315
Dunn			13,650	32,050		3,000	48,700
Eau Claire		197,000	73,150	92,175		51,350	413,675
Florence		231,500		28,200		3,000	262,700
Fond du Lac	19,500		9,150	7,500		5,800	41,950
Forest			9,700	13,225			22,925
Grant			12,250	48,925			61,175
Green			31,750	43,875			75,625
Green Lake			6,700	56,900			63,600
Iowa			23,300	35,450		200	58,950
Iron		54,120		12,700			66,820
Jackson	93,000	183,000	35,300	54,400	10,000		375,700
Jefferson			16,775	93,775		11,650	122,200
Juneau		205,470	179,400	84,700			469,570
Kenosha			5,300	6,550			11,850
Kewaunee			9,250	4,675			13,925
La Crosse			40,500	54,700			95,200
Lafayette			1,750	1,250		500	3,500
Langlade		131,325	13,350	21,600			166,275
Lincoln		17,250	31,150	84,700		6,530	139,630
Manitowoc	5,000		29,300	61,850		100	96,250
Marathon			87,400	128,900		108,350	324,650
Marinette		416,800	47,700	85,350			549,850
Marquette			21,050	141,475		72,000	234,525
Milwaukee			12,400	20,925		140	33,465
Monroe		12,000	37,650	90,175		1,000	140,825
Oconto		225,800	25,300	73,075		83,600	407,775
Oneida		16,750	35,800	202,800		500	255,850
Outagamie			20,800	73,650			94,450
Ozaukee			5,750	26,250			32,000
Pepin			7,000	9,000			16,000
Pierce			16,500	18,400		5,300	40,200
Polk			24,050	25,550		20,000	69,600
Portage			44,400	298,950		13,100	356,450
Price		23,775	25,000	51,100			99,875
Racine			6,500	23,525			30,025
Richland			11,850	18,200			30,050
Rock			18,500	141,200		13,200	172,900
Rusk	6,000	43,000	16,150	7,850		1,000	74,000
Sauk			71,150	125,950		16,000	213,100
Sawyer	121,300	97,000	13,900	64,275		84,275	380,750

STATE NURSERY TREE DISTRIBUTION—Continued

County	*State Forests*	*County Forests*	**Extension*	***Private*	*Highway*	****General*	*Totals*
Shawano			41,550	107,350			148,900
Sheboygan	67,500		10,100	25,075		2,400	105,075
St. Croix			12,600	29,700			42,300
Taylor		18,100	20,200	7,250			45,550
Trempealeau			18,600	88,925		1,000	108,525
Vernon			22,350	3,000			25,350
Vilas	248,500	201,000	15,900	101,100	1,000	428,300	995,800
Walworth			6,100	18,850			24,950
Washburn		29,500	17,750	13,150		16,900	77,300
Washington			14,100	19,550		2,700	36,350
Waukesha	108,000		18,850	72,725			199,575
Waupaca			103,300	250,900			354,200
Waushara			85,100	484,425		12,550	582,075
Winnebago			5,200	18,700			23,900
Wood		73,000	35,300	189,575		751,700	1,049,575
States							
Illinois						1,200	1,200
Indiana			15,000				15,000
Iowa						100	100
Minnesota				3,000			3,000
Tennessee						50	50
Utah						150	150
TOTALS	1,257,500	5,237,590	1,948,075	5,360,265	31,000	2,069,695	15,904,125

*Extension—Stock distributed through the State Extension Forester, the Assistant State Club Leader and the County Agricultural Agents.

**Private—Individual purchasing under the Tree Application and Agreement Form.

***General—Trees transferred to the other State Nurseries and other agencies not covered by the above headings, i.e., Gordon Nursery, Soil Conservation Service, Parks, Clubs, Institutions, etc.

STATE NURSERY TREE DISTRIBUTION

By County

All Nurseries—State and County **Year of 1950**

County	*State Forests*	*County Forests*	**Extension*	***Private*	*Highway*	****General*	*Totals*
Adams			22,850	253,775		67,000	343,625
Ashland		37,700	9,400	7,825			54,925
Barron			44,925	58,400		3,000	106,325
Bayfield		857,000	4,750	34,700			896,450
Brown			146,750	28,800		500	176,050
Buffalo			11,950	73,275		9,000	94,225
Burnett		594,500	8,200	29,875		14,500	647,075
Calumet			8,600	27,925		5,600	42,125
Chippewa		60,000	82,500	104,050		3,000	249,550
Clark		205,670	45,650	65,425		304,500	621,245
Columbia			23,600	121,875		500	145,975
Crawford			15,100	8,000			23,100
Dane			12,250	73,900		65,225	151,375
Dodge			27,500	27,950		10,000	65,450
Door			51,650	23,850		10,000	85,500
Douglas	505,500	1,089,000	15,675	770,375		96,100	2,476,650
Dunn			25,850	163,050		13,000	201,900
Eau Claire		95,835	80,000	100,600		32,350	308,785
Florence		167,000		1,050	3,000	2,500	173,550
Fond du Lac	73,295		10,200	12,000		20,000	115,495
Forest		39,625	10,800	61,050	10,000		121,475
Grant			11,400	93,225		2,000	106,625
Green			46,750	66,500		11,000	124,250
Green Lake			12,150	84,675		13,000	109,825
Iowa			28,600	82,350			110,950
Iron		49,500	5,000	24,150			78,650
Jackson	42,290	151,480	41,625	66,200	10,200	500	312,295
Jefferson			15,250	240,300		9,500	265,050
Juneau		126,175	123,675	125,525		7,000	382,375
Kenosha			3,200	19,900		4,000	27,100
Kewaunee			27,250	18,850			46,100
La Crosse			55,900	68,350		21,000	145,250
Lafayette			9,950	7,100			17,050
Langlade		45,000	52,600	66,600	15,000		179,200
Lincoln		15,000	41,450	122,475	7,000	15,600	201,525
Manitowoc	2,000		46,175	104,100		1,750	154,025
Marathon			146,650	128,175		172,200	447,025
Marinette		645,900	57,250	175,175		1,000	879,325
Marquette			26,600	195,125		103,000	324,725
Milwaukee			10,750	32,425		8,150	51,325
Monroe		15,000	45,400	120,600		2,725	183,725
Oconto		176,100	266,900	93,000		4,500	540,500
Oneida	97,000	10,000	20,500	271,425	7,000	22,100	428,025
Outagamie			40,175	69,450			109,625
Ozaukee			7,650	25,075		750	33,475
Pepin			21,875	13,650			35,525
Pierce			35,150	25,775		4,000	64,925
Polk			41,900	66,275			108,175
Portage			74,300	502,350		24,700	601,350
Price	74,000	55,000	47,550	98,525	5,000	2,000	282,075
Racine			500	10,850		1,000	12,350
Richland			24,200	20,325			44,525
Rock			19,750	134,700		2,700	157,150
Rusk		55,000	27,150	20,800		4,000	106,950
Sauk			98,850	251,800		15,000	365,650
Sawyer	75,150	85,000	9,000	60,525		751,850	981,525

STATE NURSERY TREE DISTRIBUTION—Continued

County	*State Forests*	*County Forests*	**Extension*	***Private*	*Highway*	****General*	*Totals*
Shawano			47,650	190,975		1,000	239,625
Sheboygan	35,210		10,350	61,975		4,350	111,885
St. Croix			10,800	49,250		24,800	84,850
Taylor		25,000	24,150	12,000		5,000	66,150
Trempealeau			43,600	117,150			160,750
Vernon			55,150	34,750		10,500	100,400
Vilas	321,000	233,000	12,150	213,300	14,000	159,700	953,150
Walworth			5,300	37,525		1,500	44,325
Washburn		71,500	5,350	28,700		22,000	127,550
Washington			16,250	19,750		500	36,500
Waukesha	22,500		25,700	118,500		16,700	183,400
Waupaca			129,830	372,450		34,100	536,380
Waushara			111,650	511,400		65,550	688,600
Winnebago			13,100	26,725		6,000	45,825
Wood		30,000	86,000	253,650		1,000,450	1,370,100
Territory of							
Alaska						2,000	2,000
States of							
Illinois				5,000		1,000	6,000
Iowa						5,000	5,000
Michigan				1,000		1,000	2,000
Oklahoma						450	450
TOTALS	1,247,945	4,934,985	2,798,305	7,608,175	71,200	3,223,400	19,884,010

*Extension—Stock distributed through the State Extension Forester, the Assistant State Club Leader and the County Agricultural Agents.

**Private—Individual purchasing under the Tree Application and Agreement Form.

***General—Trees transferred to the other State Nurseries and other agencies not covered by the above headings, i.e., Gordon Nursery, Soil Conservation Service, Parks, Clubs, Institutions, etc.

STATE PARKS

The main purpose of state parks is to preserve the unusual and unique scenic or historic places of the state for all time in a manner consistent with the legitimate use of such areas by the public. It is, therefore, necessary that the use of these parks be regulated in such a manner as to preserve the qualities that justified the selection of the area for state park purposes.

State parks fill a very definite need in the complicated life of today in that they provide a wide variety of recreational opportunities for all of the people.

The State Parks Proper are relatively large scenic areas. Each has a distinctive feature of state-wide significance. Thus, Devils Lake (2,465 acres) is the most outstanding bit of mountainous scenery in Wisconsin; Pattison Park (1,160 acres) contains the highest waterfall (165 feet) in the state; Rib Mountain Park embraces the highest official geographic point (1,940 feet above sea level) in the state.

The facilities for picnicking, camping and all outdoor activities as well as policing and regular management reach their highest development on these areas.

Excavation at the site of the old Indian stockade, Aztalan State Park.

The State Historic and Memorial Parks are strictly what the name implies. They are relatively small in size but each possesses a distinctive and interesting historic story. These sites represent an important element in the cultural background of the entire state, their preservation in the case of notable sites is a public rather than semi-public or private responsibility.

The Roadside Parks are of lesser acreage and are intimately associated with the main permanently located trunk line highways. They constitute places where the traveler can turn off the pavement and find a safe and attractive spot for a picnic lunch, for a rest, or for an overnight stop with tent or trailer. For relatively short stops one will find adequate sanitary facilities, picnic tables, good drinking water and similar improvements.

State Monuments or Natural Areas are those areas of unusual distinction or notable examples of geology, biology, or botany, possessing intrinsic scientific or scenic value of state-wide significance. These areas are usually small, being only of such size as may be required to preserve the integrity of the feature and protect it from detracting influences.

A tabulation showing the state parks by classification, location, dominant features and other information follows:

WISCONSIN STATE PARKS

Name	Location and State Highway Connection	Dominant Features	Swimming	Camping	Electrical Outlets	Store	Address of Park Manager	Water Frontage	Number of Acres	Picnic Area
SCENIC PARKS										
Big Foot Beach*	Lake Geneva, T.H. 120	Beach Park	Yes	No	No	Nearby	Lake Geneva	Lake Geneva	119	Yes
Brunet Island	1 mi. W. of Cornell, T.H. 27	River Island Park	Yes	Yes	Yes	Nearby	Cornell	Chippewa River	179	Yes
Copper Falls	4 mi. N. of Mellen, T.H. 13	River gorge, water falls, canyons	No	Yes	Yes	In Park	Mellen	Bad River—Tyler's Fork	1,200	Yes
Cox Hollow*	2 mi. N. of Dodgeville, T.H. 18	Wooded bluffs, valleys	No	No	No	Nearby	Baraboo	Mill Creek	775	No
Devil's Lake	3 mi S. of Baraboo, T.H. 123	Bluffs, mountain scenery	Yes	Yes	Yes	In Park	Baraboo	Devil's Lake	2,465	Yes
Interstate	St. Croix Falls, T.H. 8	River gorge, rocky bluffs	Yes	Yes	Yes	Nearby	St. Croix Falls	St. Croix River	581	Yes
Merrick	1 mi. N. of Fountain City, T.H. 35	A river park	Yes	Yes	No	Nearby	Fountain City	Miss. River	133	Yes
Pattison	10 mi. S. of Superior, T.H. 35	Highest waterfall in state, river gorge	Yes	Yes	No	In Park	Superior	Bad River, Innerfalls Lake	1,160	Yes
Peninsula	Fish Creek, T.H. 42	Green Bay, limestone bluffs	Yes	Yes	No	Nearby	Fish Creek	Green Bay	3,656	Yes
Perrot	1 mi. N. of Trempealeau, T.H. 35	River scenery, wooded bluffs	No	Yes	No	Nearby	Trempealeau	Miss. River	937	Yes
Potawatomi	2 mi. NW. of Sturgeon Bay, T.H. 42	Sturgeon Bay, limestone bluffs	No	Yes	No	Nearby	Sturgeon Bay	Sturgeon Bay	1,046	Yes
Rib Mountain	4 mi. SW. of Wausau, T.H. 51	Highest point in state, rock outcrops	No	Yes	No	Nearby	Wausau	None	498	Yes
Terry Andrae	4 mi. S. of Sheboygan, T.H. 141	Lake Michigan, sand dunes	Yes	Yes	Yes	Nearby	Sheboygan	Lake Michigan	167	Yes
Wildcat Mountain	T.H. 33 near Ontario	Bluff lands, upper Kickapoo River	No	Yes	No	Nearby	Ontario	Kickapoo River	559	Yes
Wyalusing	4 mi. S. of Prairie du Chien, T.H. 35	Junc. Wis. and Miss. Rivers, wooded bluffs and valleys	No	Yes	Yes	Nearby	Wyalusing	Miss. River	1,671	Yes

*Sites approved for acquisition during biennium.
Acquisition or development incomplete.

Name	Location and State Highway Connection	Dominant Features	Swimming	Camping	Electrical Outlets	Store	Address of Park Manager	Water Frontage	Number of Acres	Picnic Area
HISTORICAL-MEMORIAL PARKS										
Aztalan	4 mi. E. of Lake Mills, T.H. 30	Site of Ancient Indian Village	No	No	No	Nearby	Eagle	Crawfish River	126	No
Cushing	Delafield, T.H. 30	Historic shaft	No	Yes	No	Nearby	Eagle	Bark River	10	Yes
First Capitol	3 mi. N. of Belmont, T.H. 151	First territorial capitol	No	No	No	Nearby	Belmont	None	2	Yes
Lizard Mound	2 mi. NE. of West Bend, T.H. 144	Indian mounds	No	No	No	Nearby	Campbellsport	None	16	Yes
Nelson Dewey	1 mi. N. of Cassville, T.H. 35	Home of first governor, river bluffs and valleys	No	Yes	No	Nearby	Cassville	Miss. River	579	Yes
Tower Hill	3 mi. S. of Spring Green, T.H. 14, 23	Historic shot tower, river bluffs	No	Yes	No	Nearby	Spring Green	Wis. River	108	Yes
Lost Dauphin	5 mi. E. of DePere, T.H. 41	Eleazer Williams home	No	No	No	Nearby	Fish Creek	Fox River	19	Yes
ROADSIDE PARKS										
Castle Mound	1 mi. S. of Black River Falls, T.H. 12	Roadside bluffs	No	Yes	No	Nearby	Black River Falls	None	222	Yes
*Lucius Woods	Solon Springs, T.H. 53	Pine Woods, beach	Yes	Yes	No	Nearby	Solon Springs	St. Croix Lake	38	Yes
Mill Bluff	4 mi. W. of Camp Douglas, T.H. 12 and 16	Rocky Bluff	Yes	Yes	No	Nearby	Black River Falls	Roadside Pond	78	Yes
New Glarus Woods	1 mi. S. of New Glarus, T.H. 69	Wooded valleys	No	Yes	No	Nearby	New Glarus	None	43	Yes
Ojibwa	1 mi. E. of Ojibwa, T.H. 70	River scenery	No	Yes	No	Nearby	Ojibwa	Chippewa River	353	Yes
Roche A Cri	T.H. 13 near Friendship	Woodlands, rocky bluffs	No	Yes	No	Nearby	Friendship	Carter Creek	259	Yes
Rocky Arbor	1 mi. NW. of Wis. Dells, T.H. 12	Rocky ledges, wooded valley	No	Yes	No	Nearby	Wis. Dells	None	227	Yes
NATURAL AREAS										
Cedarburg Bog	3 mi. W. of Saukville, T.H. 33	Rare Flora	No	No	No	None	Campbellsport	Mud Lake	729	No
Parfey's Glen	Devil's Lake	Botanical Associations, Geological interest	No	No	No	None	Baraboo	Creek	88.6	No
Pine Hollow	Devil's Lake	Botanical Associations, Geological interest	No	No	No	None	Baraboo	None	w/ Devil's Lake	No

*Sites approved for acquisition during biennium.
Acquisition or development incomplete.

NEW PROPERTIES

Three new sites were approved for acquisition as additions to the state park system during the biennium.

Big Foot Beach—A beach park on beautiful Lake Geneva in Walworth county was acquired late in 1949. The tract of 116 acres is attractively oak wooded in part and includes more than 2,000 feet of good beach. Acquisition was accomplished through the cooperative efforts of Walworth county, the town of Linn, and the conservation commission. The area will be developed and managed by the conservation department as part of the Kettle Moraine Forest and Park properties.

Cox Hollow Area—The Cox Hollow site, a few miles north of Dodgeville, in Iowa county, was approved as a state park project in October of 1948. The area embraces one of the most scenic of the many valleys of southwestern Wisconsin's deeply dissected peneplain. Here are joined two major and two minor drainage valleys with their smaller tributaries. The narrow valleys are broken along the sides with picturesque sandstone bluffs rising 40–60 feet above the stream beds. The steep sides of the valleys are well covered with a mixture of hardwood and white pine forests. A variety of unusually attractive views may be enjoyed from the tops of the surrounding bluffs and from within the valleys.

Acquisition work began with an initial gift of 160.5 acres from Iowa county, and additional lands totaling 614.4 acres have already been acquired or are in the process of being acquired. Plans for access roads and other developments are in progress. This area has not yet been officially named.

Lucius Woods—An attractive woods and fine beach on St. Croix Lake along Highway 53 in Douglas county is the most recent roadside park addition. Acquisition of this 38 acre tract was completed in late April of 1950.

Nicolas Lucius, the previous owner, had held and saved from the axe these fine old white and Norway pines during his 58 years of ownership. With his kind permission, many persons enjoyed this natural park for over half a century.

The area has every feature desirable for a roadside park—manageable yet sufficient acreage, location along a major trunk highway not already provided with roadside park facilities, 1,300 feet of unexcelled frontage on a good lake with more than 500 feet of sand beach, rolling topography and scenery, and forest cover that is unique.

Changes in Existing Properties

Work continued over the biennium in the acquisition of private owned parcels of land within existing park boundaries so that administrative problems might be simplified and additional public use areas be made available.

The following parks have added acreages during the biennium:

Merrick Park	9	(acres)
Peninsula Park	5	
Wildcat Mountain Park	108	
New Glarus Woods Roadside Park	35	
Roche A Cri Roadside Park	222	
Total	379	

At Nelson Dewey Memorial State Park the acreage was reduced by the sale of 141 acres to the Village of Cassville. These were a part of the Mississippi River bottom lands, west of the Chicago, Burlington and Quincy Railroad, unsuited for park purpose. This sale was authorized by the legislature under chapter 295, Laws of 1947.

Park Improvements

In addition to the General Operation and Maintenance of 27 state park properties over the biennium, progress was made in the further development or improvement of facilities as follows:

Improvements were made to potable water supplies at	11	sites
Parking areas constructed or improved	4	
Sanitary facilities constructed or improved	10	
Combination buildings improved	1	

Seven rooms of the Museum building at the Nelson Dewey Farmstead were refinished and decorated.

Erosion control work, 1,000 feet of ditching rip-ropping and number of erosion control devices installed.

Residences remodeled	1	
New picnic tables constructed	230	
Rustic benches constructed	30	
Rustic carved signs made	200	
Outdoor fire places constructed	22	
Buildings salvaged	3	
Buildings repaired	9	
Trees planted	34,500	
Trails constructed or improved	1½	miles
Bathing beach improvements	1	
Ski hills improved	2	

(10,000 Cubic yards of fill on slopes and slopes seeded)

Golf course improvements to tee and greens at Peninsula Park and a Creeping Bent Nursery started.

Boat landing facilities improved	1	
Bridge improvements	1	
Guard rails constructed	600	feet

Mosquito control work on all public use areas was carried on.

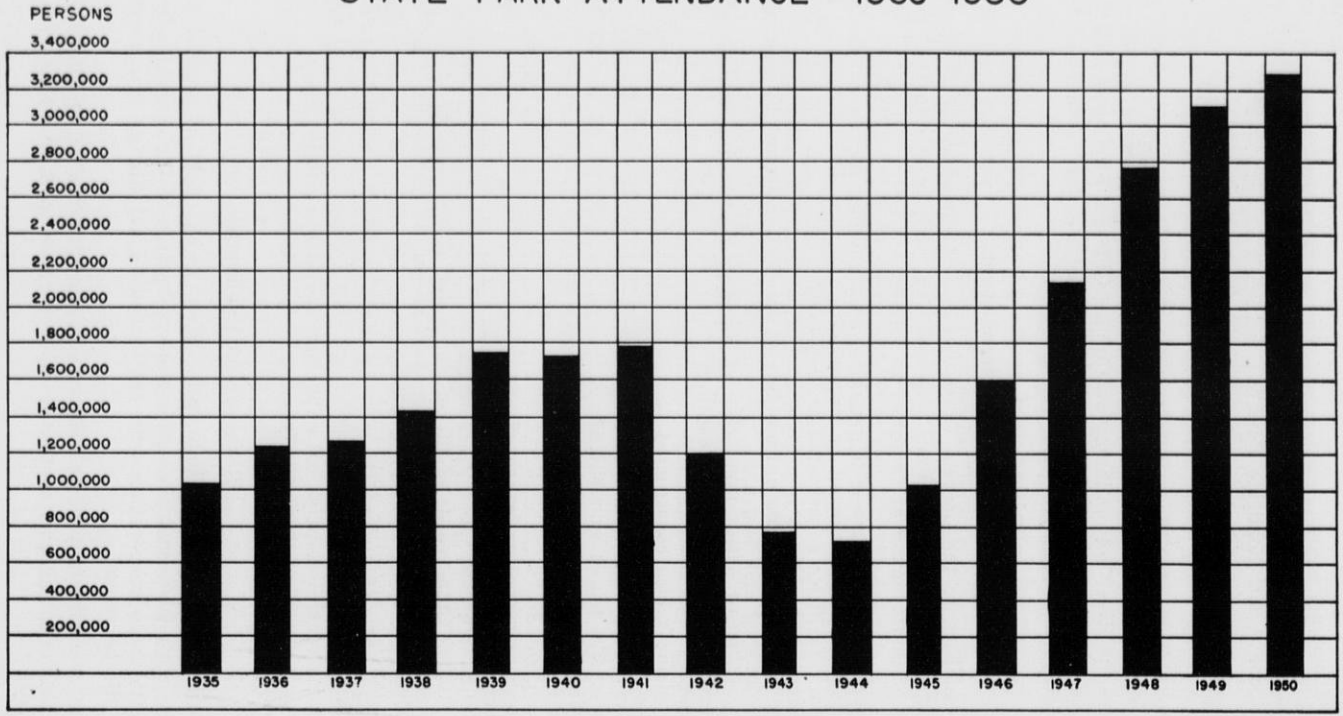
Poison Ivy control work started.

Planning and Exploration

Work with the State Historical Society in the field of applied history on the state historical park sites and exploration of the Archeological site at Aztalan in cooperation with the Archeological Survey was carried on over the biennium.

The over-all study of the state park program and of specific locations and master plans was continued in cooperation with the State Planning Board.

STATE PARK ATTENDANCE — 1935-1950



PARK ATTENDANCE

During the seasons of 1949 and 1950, visitors at the state parks totaled more than 6,390,000. As compared with the preceding biennium this was an increase of more than 1,500,000 visitors, or 32 per cent. However, in 1950 there were in round numbers only 185,000 more visitors than in 1949, an increase of 6 per cent. The 1950 attendance record includes partial figures from three new properties reported on for the first time, while eight parks show fewer visitors than in 1949. This may be an indication that the spectacular annual increases in numbers of state park visitors, noted since 1944, are gradually leveling off.

STATE PARK ATTENDANCE RECORD

1949–1950

Name of Park	*1949*		*1950*	
	Cars	*Visitors*	*Cars*	*Visitors*
Big Foot Beach			4,448	21,319
Brunet Island	34,183	136,833	34,398	139,156
Copper Falls	12,109	55,400	17,778	82,855
Cushing Memorial	10,059	40,556	8,994	35,471
Devils Lake	245,585	864,470	236,984	844,621
First Capitol		10,775	2,775	11,100
Interstate	87,656	394,078	93,740	421,630
Lucius Woods			2,859	13,300
Merrick	23,487	93,205	35,600	135,984
Nelson Dewey Memorial	7,672	34,206	7,982	40,110
New Glarus Woods	4,442	15,740	3,066	10,685
Ojibwa	1,800	7,226	1,953	7,801
Pattison	44,989	176,520	47,790	191,597
Peninsula	106,674	548,836	161,717	608,809
Perrot	5,885	27,980	6,210	22,400
Potawatomi	68,371	273,462	65,962	262,815
Rib Mountain	43,294	147,135	51,009	182,608
Rocky Arbor	10,094	36,388	7,614	26,525
Terry Andrae	25,291	111,219	18,130	83,891
Tower Hill	10,540	37,649	7,592	27,718
Wildcat Mountain			3,275	13,539
Wyalusing	20,857	92,348	21,946	106,364
Totals	762,988	3,104,026	841,792	3,290,298

Clerical

The primary function of the clerical division is to serve other divisions of the department through its various sections—stenographic, typing, mail and supply, and filing. The receptionist, who is a member of the clerical division, also serves all divisions.

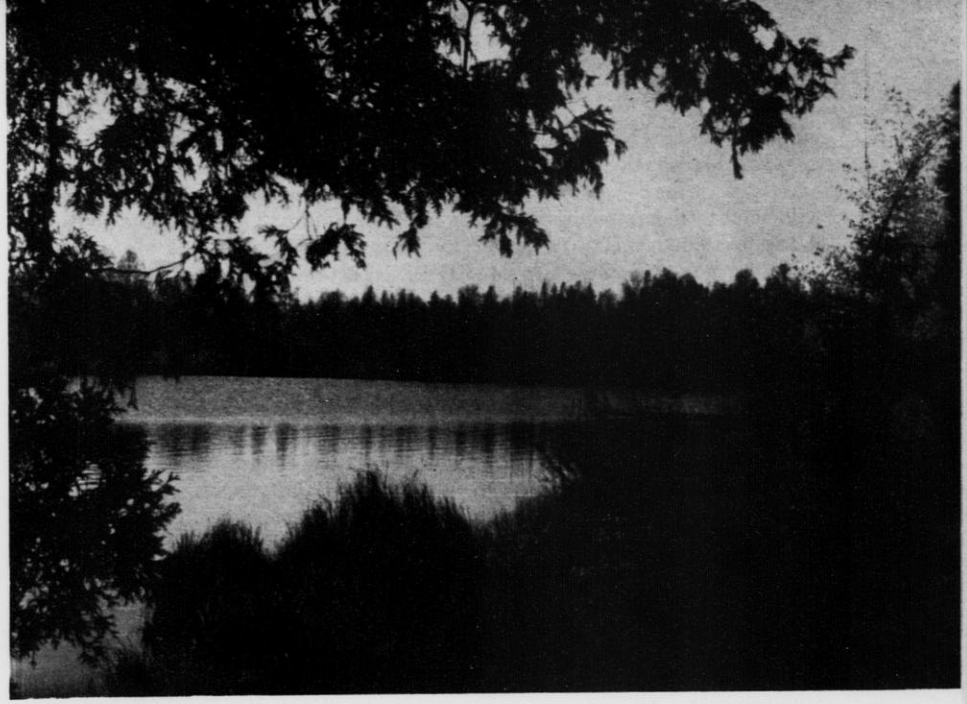
As other divisions expand, clerical division must expand. Administrative personnel increased to the extent that office space was not available in the main office and quarters were established at the Nevin hatchery. This necessitated stationing fourteen clerical employees in that office. A number of small buildings were moved to the hatchery from Truax field and were remodeled into one large administration building 150′ x 26′. Clerical division employees were housed in an office in this building. A supervising clerk, responsible to the chief clerk, was appointed to correlate the clerical work.

The circulation of the Conservation Bulletin increased considerably during the biennium as did the circulation of the Activities Progress Report. To provide the additional filing space necessary for the increased number of addressograph plates and to provide room for preparing the Bulletin for mailing, the addressograph unit and the two clerical employees who operate it were transferred to an office in the stone garage at the hatchery.

Considerable reorganization has been done within the division during the biennium. A typing section, which is the nucleus for all reproduction work of the department, including mimeograph, multigraph and ditto work and the majority of the typing of reports, news releases and informational material which is sent to the field force, was set up and is supervised by one person. A procedure was established whereby all reproduction work, with the exception of routine items, is approved by the division chief concerned, the head of the typing section, the chief clerk, and the chief of the information and education division before it is reproduced. The head of the typing section indicates on the approval form, the proper method of reproduction to best meet the needs of the entire department.

To meet the needs of the typing section, two Vari-typers, which are a type of composing machine, were purchased. They are used to prepare forms and to type booklets and reports of various kinds, particularly those which are reproduced by the multigraph process.

The system of maintaining mailing lists was completely revised. A card index carries the names of all persons on the many lists of the department. The lists include department personnel, conservation congress members, legislative members, county agents, county clerks, clerks of Circuit Courts, district attorneys, daily and weekly newspapers, radio stations, conservation clubs, subscribers to the Conservation Bulletin and the Activities Progress Reports and the high schools, elementary, state-graded and rural schools. These lists comprise a total of 56,836 addressograph plates.



Little Cedar lake in Fond du Lac county, Kettle Moraine State Forest.

Addresses are corrected daily as notices of changes are received. With this system in operation, it is felt that the amount of mail returned because of incorrect addresses is reduced to a minimum.

Area headquarters were established at the Nevin hatchery, at Black River Falls, Spooner, Woodruff and Oshkosh and coordinators of the game management and fish management divisions, law enforcement supervisors, district foresters, CWCA and River Survey personnel and other field supervisors were located at these stations. To make it possible for them to devote their time to field studies and research work, stenographers and typists were employed to do the clerical work for them.

In addition to the fourteen clerical employees at the Nevin hatchery, there are four each at Woodruff and Spooner, three at Black River Falls and one at Oshkosh. The forest protection headquarters at Tomahawk has four clerical employees; the Experimental Game and Fur Farm at Poynette, two; and there is one each in the department offices at Antigo, Wausaukee, Wisconsin Rapids, Sturgeon Bay, Campbellsport, Horicon, Mercer, Trout Lake, Park Falls and Ladysmith. There is a total of twenty-eight employes in sixteen field offices, all of whom are under the supervision of the chief clerk.

During the biennium it was increasingly difficult to recruit employees as state wages were not on a par with those of private industry. There was a tremendous turnover of personnel, many GI's wives resigning when their husbands completed their college training and accepted positions out of town, and others leaving for better paying positions. This condition

made it imperative that whenever possible labor-saving machines be purchased. Among these was a folding machine used to fold the thousands of sheets of paper on which letters, news releases and other information was sent to department personnel and the public. This machine folds from 5,000 to 19,000 sheets of paper an hour depending on the size. The mail and supply section was provided with a postage meter machine and a late model scale for weighing letters and parcel post which speeded up the work in that section considerably and eliminated stamping and sealing mail by hand.

A survey was made of the typewriters owned by the department, through which we learned that we still had on our inventory one typewriter manufactured in 1908; 12 in 1919; 1 in 1922; 4 in 1923; 1 in 1925; 1 in 1926; 9 in 1927; 8 in 1928; 8 in 1929; and 8 in 1930. These 53 typewriters were traded out and replaced with new models. The new typewriters were assigned to the clerical employees and the older models still retained in the service were transferred to men employees in the various field offices. The policy of trading out worn-out typewriters will be continued for another two or three years until all machines which have outlived their usefulness are written off our inventory.

Wood desks in the main office were transferred to the field offices as desks were needed in those offices and steel desks were purchased for replacements.

Steel shelving is on order to provide needed storage space in the supply vault. Department forms will be stored on these shelves in their various categories in numerical order so that they may be easily located by office personnel. Booklets will also be placed on shelves so they will be easily accessible for distribution.

Under authority of a legislative act, correspondence and other department records which have accumulated over the past ten years and which have no further value have been disposed of. Records which must be maintained permanently have been placed in files so that they can be referred to readily. To provide more filing space, four-drawer units which were formerly used have been replaced with five-drawer units. The four-drawer units have been transferred to field offices to fill the needs there.

Finance

General Accounting

1. The maintenance of general accounting records covering funds, appropriations, allotments, receipts, disbursements and encumbrances.
2. The preaudit and coding of vouchers.
3. Payroll auditing and preparation including the necessary individual and withholding tax records.
4. The preparation of unemployment compensation, Wisconsin retirement fund and hospitalization and surgical benefit insurance reports.
5. The preparation of financial statements.
6. The reconciliation of accounts with supporting detail and also to the records of the State Department of Budget and Accounts.
7. Accounting systems work and other miscellaneous matters relating to the operation thereof.

Cost Accounting

Expenditure records are maintained in the general accounts in accordance with the object classification or the nature of the expenditure item. Cost accounting considers these same expenditures from the standpoint of the cost of producing the items produced, in the case of the production of tangibles, or the cost of the services rendered by gathering together the various elements of cost relating thereto.

Cost information is now being obtained by the finance division on the following budget activities:

1. Fish Propagation
2. Rough Fish Control
3. Fishery Biology
4. State Nurseries
5. Experimental Game & Fur Farm
6. Law Enforcement
7. State Parks
8. State Forests
9. Forest Protection
10. Great Lakes Commercial Fishing

License Sales

License sales include the procurement, distribution, and sale of all departmental licenses including the maintenance of necessary accounting records and the collection of accounts receivable.

Procurement

The purchasing of all departmental materials and supplies are centralized under this activity. Procurement includes the maintenance and development of specification and vendor files of active purchased materials, sup-

Shelter at the picnic area, Wyalusing State Park.

plies and equipment needed by the various divisions. Also included are the efforts to control inventory stocks through salvage and material listings, the preparation and placement of departmental requisitions with the Bureau of Purchases and the follow through on orders placed for the purpose of expediting delivery of material and equipment to meet requirements.

Statistical

The Finance division undertook during the 1948–1949 fiscal year to provide a departmental wide statistical service. The development of this service has not been as rapid as was hoped for due to unavoidable personnel difficulties encountered. It is still felt that the plan has merit and provision for the continuation and expansion is thereby included.

1948–49 FISCAL YEAR BEGINNING AND ENDING FUND BALANCES OF THE OVER-ALL CONSERVATION FUND AND THE TRANSACTIONS TO THE FUND DURING THE YEAR

	(1) Balance Forwarded From 1947-48	Plus Receipts 1948-49	Minus Disbursements 1948-49	Plus Transfers	Minus Transfers	(2) Balance Forwarded to 1949-50
Fish and Game	$569,721.18 56,875.00*				(f) $ 58,000.00	
	$ 512,846.18	$ 2,486,401.18	$ 2,332,881.58	(a) $ 7,846.01	(b) 7,838.01 (g) 211,557.50	$ 396,816.28
Deer Feed and Deer Yard Acq.	63,704.78	110,327.64	91,286.46			82,745.96
Public Hunting and Fishing Grounds	346,275.47	253,486.95	346,579.66			253,182.76
C.W.C.A.—Black River Falls	10,940.19	17,506.73	16,857.51	(b) 7,838.01		19,427.42
C.W.C.A.—Meadow Valley	1,358.47	4,233.66	4,983.02			609.11
C.W.C.A.—Northern Conservation Lands	7,846.01				(a) 7,846.01	—0—
Recreational Advertising	.18	50,000.00	49,983.88			16.30
Rough Fish Control	30,489.19	221,669.32	176,315.31			75,843.20
Forestry:						
Forestry	635,537.68	2,014,363.51	1,716,447.03	(c) 99.41	(d) 150,000.00 (e) 180,000.00	603,553.57
So. Wis. Forests (Kettle Moraine)	169,015.51		195,311.95	(d) 150,000.00		123,703.56
County Forestry Aid	99.41		179,944.88	(e) 180,000.00	(c) 99.41	55.12
Forestry Reserve Fund	300,000.00					300,000.00
Bear and Deer Damage	6,578.24		52,245.22	(f) 58,000.00		12,333.02
Raccoon Propagation	16,879.64	6,156.75	10,072.41			12,963.98
Parks	33,468.20	60,159.26	219,205.70	(g) 211,557.50		85,979.26
Total Conservation Fund	$ 2,135,039.15	$ 5,224,305.00	$ 5,392,114.61			$ 1,967,229.54

*Adjustment of opening balance so that premium paid on investments purchased on 10–17–47 be considered as an expense rather than as an investment.
(1) Balance 6–30–48 less 47–48 disbursements paid in 1948–49 from 7–1–48 through 10–31–48.
(2) Balance 6–30–49 less 48–49 disbursements paid in 1949–50 from 7–1–49 through 8–31–49.
(a) Discontinued as separate revolving appropriation and transferred to Fish and Game Appropriation.
(b) Revenue originally credited to Fish and Game in error instead of C.W.C.A. Black River Falls.
(c) Transferred to Forestry in accordance with statutes.
(d) Transferred to Kettle Moraine in accordance with statutes.
(e) County Forest Aids in accordance with statutes.
(f) Transfer for Bear and Deer Damage in accordance with statutes.
(g) Transfer for Park purposes in accordance with statutes.

RECEIPTS

Fish and Game

	1948-49 Receipts	*Less Prior Fiscal Year Refunds*	*Net Revenue Received in 1948-49*
Fish			
Fish Shipping Coupons	$ 4,003.10	$ 22.50	$ 3,980.60
Nonresident Family 10 day Licenses	69,400.60	9.00	69,391.60
Nonresident Fishing Licenses	737,648.65	98.70	737,549.95
Resident Fishing Licenses	660,034.90	75.50	659,959.40
Miscellaneous Fishing:			
Clamming Licenses	95.00		95.00
Great Lakes Comm. Fishing Licenses	7,583.75		7,583.75
Miss. River Comm. Fishing Licenses and Tags	4,776.00		4,776.00
Private Fish Hatchery Licenses	155.00		155.00
Slat Net Licenses and Tags	1,266.50		1,266.50
Wholesale Fish Dealer Licenses	3,425.00		3,425.00
Bank Pole Fish Licenses	156.21		156.21
Cisco Licenses	542.00		542.00
Set Line Licenses and Tags	4,575.70		4,575.70
Sturgeon Tags	595.75		595.75
Game			
Deer Tags	110,020.50	12.15	110,008.35
Nonresident Hunting Licenses	91,525.00		91,525.00
Nonresident Hunting Licenses—Archers	6,420.00		6,420.00
Nonresident Shooting Pres. Hunting Licenses	450.00		450.00
Shooting Preserve Licenses and Tags	987.59		987.59
Resident Hunting Licenses	351,135.00	67.50	351,067.50
Settlers Hunting Licenses	366.00		366.00
Beaver Pelt Licenses and Tags	16,763.04		16,763.04
Trap Tags	34,819.68	9.45	34,810.23
Trapping Licenses	16,317.00	5.40	16,311.60
Deer Farm Licenses	1,025.00		1,025.00
Dead and Live Deer Tags	735.75		735.75
Resident Fur Dealer Licenses	5,920.00		5,920.00
Game Farm Licenses and Tags	995.24		995.24
Muskrat Farm Licenses and Tags	4,801.64		4,801.64
Beaver Farm Licenses and Tags	274.61		274.61
Otter-Rac.-Skunk Farm Licenses and Tags	442.71		442.71
Voluntary Sportsmen's Licenses	81,132.00	12.00	81,120.00
Pittman-Robertson Receipts	103,892.06		103,892.06
Other Licenses			
Christmas Tree Dealer Licenses and Tags	6,885.33		6,885.33
Duplicate Licenses	1,526.20		1,526.20
Guide Licenses	1,021.00		1,021.00
Scientific Certificate	48.00		48.00
Taxidermist Licenses	550.00		550.00
Miscellaneous			
Rent and Rentals	306.75		306.75
Accommodation Services	602.40		602.40
Activity Services	820.06		820.06
Supervision Services	3,361.30		3,361.30
Convenience Services	359.86		359.86
Sale of Resources	15,653.53		15,653.53
Sale of Confiscations and Seizures	33,865.92		33,865.92
Sale of Produced or Processed Items	53,188.85		53,188.85
Sale of Other Equipment	561.25		561.25
Sale of Supplies	225.05		225.05
Sale of Signs	1,051.85		1,051.85
Sale of Salvage and Scrap	193.15		193.15
Sale of Other Products	175.00		175.00
Other Revenue	2,043.40		2,043.40
Gifts and Donations	72.50		72.50
Occupational Tax—Mink	3,958.19		3,958.19
Interest	35,335.94		35,335.94
Cancelled Drafts	1,123.39		1,123.39
Fire Loss	1,503.48		1,503.48
Total	$2,486,713.38	$ 312.20	$2,486,401.18

RECEIPTS

	1948-49 Receipts	*Less Prior Fiscal Year Refunds*	*Net Revenue Received in 1948-49*
Deer Feeding & Deer Yard Acq. Receipts			
Deer Tags	$ 110,020.50	$	$ 110,020.50
Sale of Resources	307.14		307.14
Total	$ 110,327.64		$ 110,327.64
Public Hunting & Fishing Grounds Receipts			
Resident Hunting Licenses	$ 196,429.40	$ 9.50	$ 196,419.90
Settlers Hunting Licenses	546.50		546.50
Sale of Products	83.00		83.00
Other Revenue	30.92		30.92
Civil Action Rec.	571.50		571.50
Sportsmen's Licenses	55,054.88	12.00	55,042.88
Rent and Rentals	100.00		100.00
Sale of Resources	15.00		15.00
Sale of Other Equipment	675.25		675.25
Sale of Salvage and Scrap	2.00		2.00
Total	$ 253,508.45	$ 21.50	$ 253,486.95
C. W. C. A.—Black River Falls Receipts			
Convenience Service	$ 33.77	$	$ 33.77
Other Service	200.00		200.00
Sale of Resources	17,120.02		17,120.02
Sale of Other Equipment	23.70		23.70
Sale of Salvage and Scrap	127.50		127.50
Other Revenue	1.74		1.74
Total	$ 17,506.73		$ 17,506.73
C. W. C. A.—Meadow Valley Receipts			
Sale of Resources	$ 4,224.66		$ 4,224.66
Sale of Salvage and Scrap	9.00		9.00
Total	$ 4,233.66		$ 4,233.66
Recreational Advertising Receipts			
Revenue from Other Sources	$ 50,000.00		$ 50,000.00
Rough Fish Control Receipts			
Accommodation Services	$ 5,010.60		$ 5,010.60
Activity Services	170.62		170.62
Supervision Services	8,579.81		8,579.81
Sale of Rough Fish	182,799.04		182,799.04
Comm. on Sale of Rough Fish	19,016.70		19,016.70
Sale of Other Equipment	612.00		612.00
Sale of Supplies	5,252.25		5,252.25
Sale of Buildings and Structures	60.00		60.00
Sale of Salvage and Scrap	168.30		168.30
Total	$ 221,669.32		$ 221,669.32

RECEIPTS

Forestry Receipts

	1948-49 Receipts	*Less Prior Fiscal Year Refunds*	*Net Revenue Received in 1948-49*
Sale of Produced or Processed Items	$ 1,259.42		$ 1,259.42
Campsite Fees	560.40		560.40
Rent and Rentals	6,604.51		6,604.51
Accommodation Services	5,712.53		5,712.53
Fire Suppression	30,269.68		30,269.68
Activity Services	554.92		554.92
Convenience Services	714.01		714.01
State Parks and Forest Roads	19,234.94		19,234.94
Other Services	199.55		199.55
Sale of Resources	10,225.73		10,225.73
Sale of Equipment	103.54		103.54
Sale of Supplies	39.70		39.70
Sale of Buildings and Structures	1,280.75		1,280.75
Sale of Salvage and Scrap	496.59		496.59
Sale of Other Products	87.08		87.08
Other Revenue	139.87		139.87
Lanham Act	940.48		940.48
2/10 Mill Tax	1,575,512.81		1,575,512.81
4/5 Severance Tax	88,034.33		88,034.33
Withdrawals	2,164.74		2,164.74
Clarke McNary Rec.	270,360.03		270,360.03
Timber Harvest Receipts	267.00		267.00
Total	$2,014,363.51		$2,014,363.51

Raccoon Propagation Receipts

Raccoon Tags	$ 6,159.75	$ 3.00	$ 6,156.75

Park Receipts

Campsite Fees	$ 7,579.82		$ 7,579.82
Rent and Rentals	21,905.69		21,905.69
Convenience Services	1,433.93		1,433.93
State Park and Forest Roads	11,368.77		11,368.77
Other Services	123.95		123.95
Sale of Resources	2,920.00		2,920.00
Sale of Other Equipment	200.00		200.00
Sale of Buildings and Structures	35.00		35.00
Sale of Salvage and Scrap	443.00		443.00
Gifts and Donations	200.00		200.00
Other Revenue	31.00		31.00
Golf Fees	13,918.10		13,918.10
Total	$ 60,159.26		$ 60,159.26
GRAND TOTAL	$5,224,641.70	$ 336.70	$5,224,305.00

DISBURSEMENTS

Fish and Game

		1948-49 Disbursements
General Administration		$ 42,295.89
Finance		75,109.12
Clerical		54,433.64
Fish Management:		
Administration	$ 38,932.21	
Propagation	502,516.72	
Biology	83,044.05	
Rough Fish Control	30,000.00	
Great Lakes Commercial Fishing	9,613.92	664,106.90
Game Management		389,325.79
Pittman-Robertson		132,978.56
Law Enforcement		614,502.29
Information and Education:		
Administration	3,567.26	
Information	25,905.52	
Education	25,500.70	54,973.48
Miscellaneous:		
Land Purchase	346.22	
State Employees Retirement Fund	3,539.64	
Wisconsin Retirement Fund	147,632.59	
Contribution to Conservation Warden Pension Fund	25,836.99	
Compensation Awards	1,290.13	
Unemployment Compensation	4,893.37	
Rivers Survey	5,839.03	
Insurance on Bank Deposit	640.43	
Dodge County Fur Farm Purchases	5,770.44	
Transfer to General Fund	6,000.00	
Miscellaneous	35,865.58	236,961.98
Cancelled Drafts		71.02
Bounties—Fox		29,567.50
Fire Loss		1,629.21
Transfer to General Fund		36,926.20*
Total		$2,332,881.58
Deer Feeding and Deer Yard Acquisition		91,286.46
Public Hunting and Fishing Grounds		346,579.66
C.W.C.A.—Black River Falls		16,857.51
C.W.C.A.—Meadow Valley		4,983.02
Recreational Advertising		49,983.88
Rough Fish Control		176,315.31

Forestry

General Administration		$ 30,402.35
Finance		26,107.00
Clerical		46,861.77
Forest Protection		876,816.28
Fire Suppression		119,515.67
Cooperative Forestry		116,915.46
Nurseries		216,495.85
State Nurseries		143,793.10
Forestry Research Projects:		
Blister Rust	$ 11,399.69	
Tree Disease Res.	17,290.90	
Forest Soils Res.	13,145.79	
Forest Insect Res.	9,631.15	
Forest Genetics	5,902.26	57,369.79

*Reimbursement to Emergency Board for money advanced to pay Bear and Deer Damage Claims.

EXPENDITURES

Forestry

		1948-49 Disbursements
Information and Education:		
Administration	$ 2,600.24	
Information	20,136.00	
Education	18,782.44	$ 41,518.68
Land Purchase		18,237.18
Miscellaneous and Other:		
Workmen's Compensation Awards	1,822.00	
Unemployment Compensation	13,220.57	
Rivers Survey	3,170.48	
Miscellaneous	72.60	18,140.45
Timber Harvest		4,273.45
Total		$1,716,447.03
Southern Wisconsin Forests (Kettle Moraine)		195,311.95
County Forest Aid		179,944.88
Bear and Deer Damage		52,245.22
Raccoon Propagation		10,072.41
Parks		219,205.70
GRAND TOTAL		$5,392,114.61

REFORESTATION FUND

	Balance Forwarded from 1947-48	Plus Receipts 1948-49	Minus Disbursements 1948-49	Plus Transfers	Minus Transfers	Balance Forwarded to 1949-50
Reforestation $128,582.74						
Plus: 470.00*	$129,052.74	$76,317.41	$ 8,127.08	-------	-------	$197,243.07
Total Reforestation Fund	$129,052.74	$76,317.41	$ 8,127.08	-------	-------	$197,243.07

*Refund of receipts erroneously considered as both deduction from receipts and disbursements in 1947–48.

RECEIPTS

Reforestation Fund

	1948-49 Receipts	*Less Prior Fiscal Year Refunds*	*Net Revenue Received in 1948-49*
Interest on Fund	$ 160.86		$ 160.86
Rent and Rentals	1,724.82		1,724.82
Sale of Resources	25,753.60	$ 60.23	25,693.37
Nursery Stock	48,737.36		48,737.36
Cancelled Drafts	1.00		1.00
	$ 76,377.64	$ 60.23	$ 76,317.41

DISBURSEMENTS

Reforestation Fund

	1948-49 Disbursements
Reforestation	$ 8,127.08
Total	$ 8,127.08

GENERAL FUND

	Appropriation or Allotment	*Minus Disbursements 1948-49*	*Balance 6-30-49 Less 48-49 Disbursements Paid in 1949-50 From 7-1-49 Through 8-31-49*
Lapsing:			
Forest Crop			
Administration	$ 4,340.00	$ 3,956.72	$ 383.28
Payments to Towns	190,000.00	189,776.48	223.52
Withdrawals	195.55	195.55	
Severance Tax	2,158.68	2,158.68	
State Parks	109,020.89	109,020.89	
Bounties	88,580.25	88,580.25	
Advertising Wisconsin	61,356.25	60,288.33	1,067.92
Continuing			
Wildcat Mt. $65,120.63			
Plus: 220.00*			
Plus: 1,315.21**	66,655.84	30,459.67	36,196.17

*1947–48 Bonus.
**1948–49 Bonus.

BEGINNING AND ENDING FUND BALANCES AND TRANSACTIONS OF THE OVER-ALL CONSERVATION FUND FOR THE FISCAL YEAR 1949–50

	Balance Forwarded From 1948-49	*Plus: Receipts 1949-50*	*Minus: Disbursements 1949-50*	*Plus: Transfers*	*Minus: Transfers*	*Balance Forwarded to 1950-51*
					(g)$ 40,000.00	
					(c) 50,000.00	
					(h) 212,138.00	
Fish and Game	$ 396,816.28	$ 2,700,879.43	$ 2,294,862.11	(a)$ 5,861.04	(b) 23,004.23	$ 483,552.41
Deer Yard Acq. and Feed	82,745.96	132,181.92	87,856.17			127,071.71
Public Hunting and Fishing Grounds	253,182.76	276,723.05	467,490.02	(b) 23,004.23		85,420.02
C.W.C.A.—Black River Falls	19,427.42	21,927.25	26,982.22			14,372.45
C.W.C.A.—Meadow Valley	609.11	947.19	1,479.16			77.14
Recreational Advertising	16.30		49,950.84	(c) 50,000.00		65.46
Rough Fish Control	75,843.20	106,592.24	175,123.95			7,311.49
Forestry:					(f) 180,000.00	
Forestry	603,553.57	2,201,870.97	1,902,611.74	(d) 179.44	(e) 150,000.00	572,992.24
So. Wis. Forests (Kettle Moraine)	123,703.56	12,164.30	219,334.17	(e) 150,000.00		66,533.69
County Forestry Aid	55.12		179,875.68	(f) 180,000.00	(d) 179.44	—0—
Forestry Reserve Fund	300,000.00					300,000.00
Bear and Deer Damage	12,333.02		46,471.98	(g) 40,000.00	(a) 5,861.04	—0—
Raccoon Propagation	12,963.98	7,579.59	8,160.56			12,383.01
Parks	85,979.26	165,074.82	404,711.65	(h) 212,138.00		58,480.43
Total Conservation Fund	$ 1,967,229.54	$ 5,625,940.76	$ 5,864,910.25	$ 661,182.71	$ 661,182.71	$ 1,728,260.05

(a) To transfer unexpended balance of $5,861.04 in Bear and Deer Damage Approp. to Fish and Game Approp.
(b) To transfer reimbursement of $23,004.23 from Federal Government under Pittman–Robertson to Public Hunting and Fishing Grounds under which appropriation money was expended.
(c) $50,000.00 transferred from Fish and Game Approp. to Recreational Advertising Approp.
(d) Transfer $179.44 lapsing balance of County Forestry Aid Approp. to Forestry Approp.
(e) $150,000.00 transferred from Forestry Approp. to So. Wis. Forests (Kettle Moraine) Approp. in accordance with statutes.
(f) $180,000.00 transferred from Forestry Approp. to County Forestry Aid Approp. in accordance with statutes.
(g) $40,000.00 transferred from Fish and Game Approp. to Bear and Deer Damage Approp. in accordance with statutes.
(h) $212,138.00 transferred from Fish and Game Approp. to Parks Approp.

RECEIPTS

CONSERVATION FUND

	Net 1949-50 Receipts
Fish and Game	
Fish	
Fish Shipping Coupons	$ 2,834.80
Nonresident Family Fishing Lic.	77,908.25
Nonresident Fishing Lic.	785,839.30
Resident Fishing Lic.	617,404.57
Miscellaneous Fishing:	
Clamming Lic.	55.00
Great Lakes Commercial Fishing Lic.	17,188.75
Miss. River Commercial Fishing Lic. and Tags	6,146.75
Private Fish Hatchery Lic.	115.00
Slat Net Lic. and Tags	1,242.00
Wholesale Fish Dealer Lic.	4,300.00
Bank Pole Fish Lic.	137.16
Cisco Lic.	592.00
Set Line Lic. and Tags	3,190.75
Sturgeon Tags	4,013.40
Game	
Resident Hunting Lic.	391,102.43
Deer Tags	105,448.50
Nonresident Hunting Lic.	107,035.75
Nonresident Hunting Lic.—Archers	8,077.00
Nonresident Shooting Preserve Hunting Lic.	690.00
Shooting Preserve Lic. and Tags	684.60
Settlers' Hunting Lic.	440.00
Trapping Lic.	18,420.30
Trap Tags	45,268.68
Beaver Pelt Lic. and Tags	18,818.50
Deer Farm Lic.	1,300.00
Dead and Live Deer Tags	791.30
Deer Dealer Lic.	50.00
Resident Fur Dealer Lic.	4,643.00
Game Farm Lic. and Tags	1,185.35
Muskrat Farm Lic. and Tags	7,219.68
Beaver Farm Lic. and Tags	248.37
Otter–Raccoon–Skunk Farm Lic. and Tags	539.97
Sportsmen's Lic.	84,340.00
Pittman–Robertson Receipts	199,454.50
Other Licenses	
Christmas Tree Dealer Lic. and Tags	6,752.05
Duplicate Lic.	1,989.75
Guide Lic.	956.00
Scientific Certificates	68.00
Taxidermist Lic.	530.00
Miscellaneous	
Interest on Fund	44,750.25
Warden Fees	5,409.43
Rent and Rentals	375.70
Accommodation Services	79.00
Activity Services	1,020.17
Supervision Services	3,488.77
Convenience Services	15.12
Other Services	308.98
Sale of Resources	36,922.54
Sale of Confiscations and Seizures	7,944.74
Sale of Produced or Processed Items	7,735.80
Sale of Equipment	2,066.39
Sale of Supplies	78.42
Sale of Buildings and Structures	1,758.50
Sale of Signs	622.63
Sale of Salvage and Scrap	214.15
Sale of Other Products	5.40
Gifts and Donations	1.00
Other Revenue	50,338.17
Occupational Tax—Mink	6,437.20
Cancelled Drafts	2,019.61
Fire Loss	2,266.00
Total	$2,700,879.43

RECEIPTS (cont'd)

CONSERVATION FUND (cont'd)

	Net 1949-50 Receipts
Deer Yard Acquisition and Feed	
Deer Tags	$ 131,734.40
Sale of Resources	370.00
Other Revenue	77.52
Total	$ 132,181.92
Public Hunting and Fishing Grounds	
Resident Hunting Lic.	$ 217,241.87
Settlers' Hunting Lic.	220.00
Civil Action	66.00
Sportsmen's Lic.	52,266.94
Rent and Rentals	521.90
Sale of Resources	1,045.00
Sale of Equipment	353.00
Sale of Buildings and Structures	4,078.74
Other Revenue	929.60
Total	$ 276,723.05
C.W.C.A.—Black River Falls	
Sale of Resources	$ 21,833.75
Sale of Equipment	11.00
Sale of Salvage and Scrap	82.50
Total	$ 21,927.25
C.W.C.A—Meadow Valley	
Sale of Resources	$ 947.19
Total	$ 947.19
Rough Fish Control	
Accommodation Services	$ 978.00
Supervision Services	6,770.76
Sale of Rough Fish	87,752.87
Commission on Sale of Rough Fish	5,961.47
Sale of Equipment	727.09
Sale of Supplies	4,038.75
Sale of Buildings and Structures	232.50
Sale of Salvage and Scrap	130.80
Total	$ 106,592.24
Forestry	
Campsite Fees	$ 534.50
Rent and Rentals	942.71
Accommodation Services	5,438.07
Fire Suppression	30,415.74
Convenience Services	15.64
State Park and Forest Roads	4,805.09
Other Services	294.10
Sale of Resources	1,253.45
Sale of Produced or Processed Items	82,201.03
Sale of Equipment	5,680.08
Sale of Buildings and Structures	150.00
Sale of Salvage and Scrap	337.12
Other Revenue	417.92
2/10 Mill Tax	1,691,503.30
Lanham Act	1,637.95
4/5 Severance Tax	61,899.61
Withdrawals	980.25
Clarke–McNary Receipts	313,188.16
Timber Harvest Receipts	176.25
Total	$2,201,870.97

RECEIPTS (cont'd)

CONSERVATION FUND (cont'd)

	Net 1949-50 Receipts
So. Wisconsin Forests	
Campsite Fees	$ 1,145.90
Rent and Rentals	5,922.15
Accommodation Services	30.00
Convenience Services	94.04
State Park and Forest Roads	3,261.02
Sale of Resources	1,243.09
Sale of Supplies	7.00
Sale of Buildings and Structures	230.00
Sale of Salvage and Scrap	173.80
Other Revenue	57.30
Total	$ 12,164.30
Raccoon Propagation	
Raccoon Tags	$ 7,577.59
Gifts and Donations	2.00
Total	$ 7,579.59
Parks	
Campsite Fees	$ 8,905.54
Golf Fees	14,106.15
Rent and Rentals	24,398.34
Accommodation Services	48.00
Convenience Services	1,261.48
State Park and Forest Roads	13,102.50
Other Services	92.05
Sale of Resources	2,691.24
Sale of Supplies	1.35
Sale of Buildings and Structures	60.00
Sale of Salvage and Scrap	155.05
Other Revenue	100,253.12
Total	$ 165,074.82
Grand Total Conservation Fund	$5,625,940.76

DISBURSEMENTS

CONSERVATION FUND

		1949-50 Disbursements
Central Administrative Transfers		$ 48,563.84
General Administration	$ 90,596.28	
Less: Admin. Disbursements pro-rated to Deer Yard Acq. and Feeding, Public Hunting and Fishing Grounds, C.W.C.A.—Black River Falls, C.W.C.A. Meadow Valley, Rough Fish Control, Raccoon Propagation and State Parks Appropriations	55,072.69	35,523.59
Finance	171,016.32	
Less: Admin. Disbursements pro-rated to Deer Yard Acq. and Feeding, Public Hunting and Fishing Grounds, C.W.C.A.—Black River Falls, C.W.C.A.—Meadow Valley, Rough Fish Control, Raccoon Propagation, and State Parks Appropriations	40,490.32	130,525.91
Fish Management:		
Administration	42,448.99	
Propagation	536,646.96	
Biology	83,594.55	
Rough Fish Control	30,000.00	
Great Lakes Commercial Fishing	10,817.08	703,507.58
Game Management		388,779.11
Pittman–Robertson		177,930.11
Law Enforcement		659,537.81
Information and Education Transfers		68,850.93*
Miscellaneous:		
State Employee's Retirement Fund	3,494.64	
Wisconsin Retirement Fund	62,536.35***	
Workmen's Compensation Awards	2,288.18	
Unemployment Compensation	7,699.66	
Rivers Survey	5,194.05**	
Insurance on Bank Deposits	818.06	
Investment Expense	72.47	
Dodge County Fur Farm Purchases	5,553.58	
Wildlife Research and Education	9,500.00	
Water Regulatory Board	6,000.00	
Water Pollution Committee	25,000.00	
Chapter 400, Laws of 1949	315.06	3,399.35
Cancelled Drafts		848.33
Fire Loss		2,965.11
Bounties—Fox		33,772.50
Conservation Warden's Pensions		40,657.94
Total		$2,294,862.11
Deer Yard Acquisition and Feeding		$ 81,849.07
Plus: Admin. Disbursements pro-rated from General Administration, Finance and Clerical		6,007.10
Total		$ 87,856.17
Public Hunting and Fishing Grounds		$ 443,164.80
Plus: Admin. Disbursements pro-rated from General Administration, Finance and Clerical		24,325.22
Total		$ 467,490.02
C.W.C.A.—Black River Falls		$ 25,935.55
Plus: Admin. Disbursements pro-rated from General Administration, Finance and Clerical		1,046.67
Total		$ 26,982.22
C.W.C.A.—Meadow Valley		$ 1,217.67
Plus: Admin. Disbursements pro-rated from General Administration, Finance and Clerical		261.49
Total		$ 1,479.16

DISBURSEMENTS (cont'd)

CONSERVATION FUND (cont'd)

		1949-50 Disbursements
Recreational Advertising		$ 49,950.84
Rough Fish Control		$ 165,138.62
Plus: Admin. Disbursements pro-rated from General Administration, Finance and Clerical		9,985.33
Total		$ 175,123.95
Forestry		
Central Administrative Transfers	$ 121,962.16	$ 66,670.49
Clerical		
Less: Administrative Disbursements pro-rated to Deer Yard Acq. and Feeding, Public Hunting and Fishing Grounds, C.W.C.A.—Black River Falls, C.W.C.A.—Meadow Valley, Rough Fish Control, Raccoon Propagation, and State Parks Appropriations	73,328.89	48,633.27
Forest Protection		892,741.32
Fire Suppression		15,673.06
Cooperative Forestry		191,408.20
Nurseries		179,015.39
State Forests		151,916.97
Forestry Research Projects:		
Blister Rust and Forest Insect Survey	11,135.83	
Tree Disease Research	15,474.71	
Forest Soils Research	12,901.56	
Forest Insect Research	10,591.60	
Forest Genetics	5,351.46	55,455.16
Information and Education:		
Administration	3,830.72	
Information	29,881.09	
Education	41,355.99	75,067.80*
Miscellaneous:		
Land Purchase	52,451.20	
Wisconsin Retirement Fund	150,733.96	
Workmen's Compensation	2,491.00	
Unemployment Compensation	15,052.34	
Rivers Survey Transfers	5,188.73**	225,917.23
Timber Harvest		112.85
Total		$1,902,611.74
Southern Wisconsin Forests (Kettle Moraine)		$ 219,334.17
County Forestry Aid		$ 179,875.68
Bear and Deer Damage		$ 46,471.98
Raccoon Propagation		$ 7,899.07
Plus: Admin. Disbursements pro-rated from General Administration, Finance and Clerical		261.49
Total		$ 8,160.56
State Parks		$ 392,941.38
Plus: Administrative Disbursements pro-rated from General Administration, Finance and Clerical		11,770.27
Total		$ 404,711.65
Grand Total Conservation Fund		$5,864,910.25

*Total Information and Education Disbursements: $143,918.73.

**Total Rivers Survey Disbursements: $10,382.78.

***Total 1949–50 Disbursements of $59,626.50 minus disbursements in amount of $122,162.85 charged to Fish and Game Appropriation during prior years but transferred to appropriation from which salaries of employees were paid to comply with Section 20.90(2)(c) of the statutes.

REFORESTATION FUND

	Balance Forwarded from 1948-49	*Plus: Receipts 1949-50*	*Minus: Disbursements 1949-50*	*Plus Transfers*	*Minus Transfers*	*Balance Forwarded to 1950-51*
Reforestation	$197,243.07	$58,926.29	$14,304.58			$241,864.78
Total Reforestation Fund	$197,243.07	$58,926.29	$14,304.58			$241,864.78

RECEIPTS—REFORESTATION FUND

	Net 1949-50 Receipts
Reforestation	
Interest on Fund	$ 766.62
Rent and Rentals	2,144.00
Sale of Resources	56,008.17
Cancelled Drafts	7.50
Total Reforestation Fund	$ 58,926.29

DISBURSEMENTS—REFORESTATION FUND

	1949-50 Disbursements
Reforestation	
State Aid	$ 14,002.04
General	163.49
Investment Expense	139.05
Total Reforestation Fund	$ 14,304.58

GENERAL FUND—DISBURSEMENTS

	Appropriation	*Minus Disbursements 1949-50*	*Balance*
Lapsing:			
Forest Crop Administration	$ 4,364.00	$ 4,035.53	$ 328.47
Forest Crop Aid	225,000.00	224,919.60	80.40
*Forest Crop Withdrawal	267.66	267.66	—0—
*Forest Crop Severance Tax	2,064.02	2,064.02	—0—
State Parks	100,000.00	100,000.00	—0—
*Bounties	94,249.75	94,249.75	—0—
Advertising Wisconsin	61,758.06	56,994.10	4,763.96
*Sum Sufficient.			
Non-Lapsing:			
Wildcat Mountain $36,196.17			
Plus: 1949-50 Bonus 1,534.91			
	37,731.08	18,867.78	18,863.30

Non-Appropriated Receipts

Forest Crop	
Forest Crop Withdrawals	$ 129.19
Forest Crop Severance Tax	21,245.18
Total	$ 21,374.37
Fox Bounties	$ 612.75