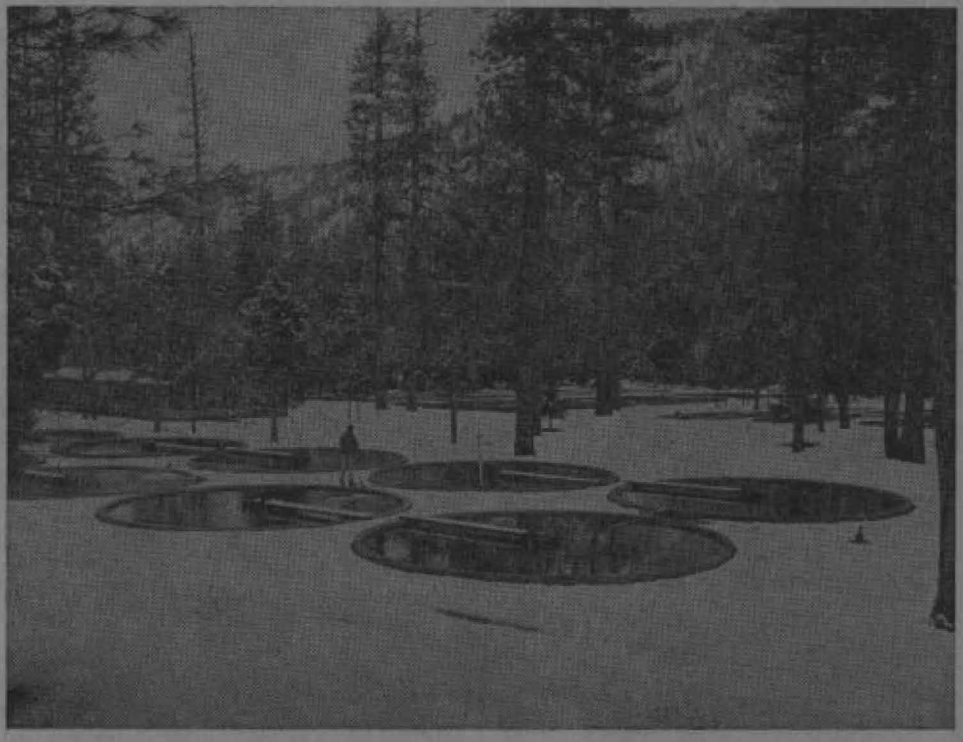
Biennial Report

of the

Oregon State Game Commission



View of the Circular Ponds at the Wizard Falls Hatchery on the Metolius River.

1947-1948

Biennial Report

of the

GAME COMMISSION

of the

State of Oregon

to the

GOVERNOR

and the

FORTY-FIFTH LEGISLATIVE
ASSEMBLY

1947-1948

STATE PRINTING DEPT.

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* Cathey resigned December, 1947, and Hilaire appointed in his place.
† Resigned November 1, 1948.

To His Excellency The Governor,
and the Honorable Members of the
Forty-fifth Legislative Assembly:

Gentlemen:

The Oregon State Game Commission herewith presents for your information a report of its transactions during the biennium ending June 30, 1948, with a general resume of the operations of the Commission during the years 1947 and 1948 and partial mention of work contemplated for the immediate future.

Faced with a continued increase in pressure on the fish and game resources of the state of Oregon and with a prognosis of continuing increases in the future the Commission has spared no effort to increase the scope of its operations and continue a refinement of its organization and management practices. The biennium has been definitely marked as one of enlargement and development. As stated in the last biennial report construction work of all types was seriously handicapped and curtailed during the war and immediate post war years. Although many materials are still critical the Commission during the past biennium has completed a tremendous program of additions to the physical plants. The work accomplished represents three-fourths of the work referred to in the Conclusion section of the last biennial report. The Commission anticipates that it will be able to complete the program in the year 1949.

New additions to the plants are listed in another section of this report. It will be noted that several new residences have been built. This became necessary because of the acute housing shortage. Formerly employees of hatcheries and game farms were able to rent houses in the neighborhood, but as houses became more difficult to obtain, it became necessary in order to retain the necessary help, to provide places for them to live.

The scope of the activities of the various departments operating under the Commission has been at a maximum contingent with the available income. Tables in the second half of this report show numbers of fish produced and liberated, game fish salvaged, number of pheasants produced and released, and comparative statements of licenses issued since 1915. An accurate picture of the increased pressure on fish and game resources of the state can be drawn from this comparison of license sales. It is of interest to note that in 1938 there were 173,996 hunting and fishing licenses issued. In 1948, as nearly as can be determined at the time of this report, there will be in excess of 417,000. In other words pressure has increased 2.4 times in the last ten years.

ADMINISTRATION

The administrative machinery of the Oregon State Game Commission has been substantially the same for some years. The Commission, however, felt that as conditions changed to keep abreast of modern advancements, adjustments and refinements should be made. This has been done. A brief outline is as follows.

Working directly under the Commission and directly responsible to the Commission for all operations is the State Game Supervisor. Responsible to the Commission through the Supervisor are the various departments: (1) Department of Fisheries, (2) Department of Fishways, Screens and Stream and Lake Improvement, (3) Department of Game, (4) Department of Engineering, (5) Department of Finance and Accounting, (6) Department of Secretary, (7) Department of Supplies and (8) Department of Public Relations.

The Department of Fisheries is further sub-divided into the following divisions: (1) Research, (2) Hatcheries, (3) Diseases, Parasites and Nutrition, (4) Survey and Salvage and (5) Liberations.

The Department of Game is sub-divided into the following divisions: (1) Research, (2) Federal Aid and Waterfowl, (3) Fur-bearers and Predatory Animal Control, (4) Big Game, (5) Upland Game and (6) Habitat Improvement. The functional units of the Commission through the various departments are the field agents. Geographically situated over the state these men are carrying on the fact finding and operational activities on a year around, on the ground basis. These operations will be explained in more detail later in this report. A diagramatic presentation of the administrative machinery will be found on page —.

DEPARTMENT OF FISHERIES

A completely modern new fish hatchery has been built and placed into operation at Wizard Falls on the Metolius River. This hatchery was designed with special emphasis on efficiency of operation, and it is considered on a par with the finest hatcheries in the United States.

As a result of additions and improvements that are listed under construction on page 11 the capacity of the Roaring River Trout Hatchery has been increased 33 per cent, the Butte Falls Hatchery 33 per cent, and the McKenzie Hatchery 20 per cent. New ponds at other hatcheries have been completed and may be used at times as rearing ponds but have been constructed primarily to enlarge capacity for brood fish and must be considered as egg producing units rather than rearing capacity increases.

In attempting to follow out the best known management policies in fisheries the Commission has made a concerted effort to protect and abet natural propagation through stream improvement such as removal of barriers that barred fish from spawning areas, trash fish control, screening and other practical measures. This work with special emphasis on the large scale screening program that will be discussed in this report, not only aids natural propagation but is definitely needed to insure greater survivals from artificially propagated fish. To derive a balance in the whole fisheries program the Commission hopes to enlarge these operations as rapidly as finances are available. In view of the steadily increasing pressures it is obvious that every foot of spawning area must be taken advantage of for natural reproduction and every means known must be applied to insure the greatest possible survival of artificially propagated fish.

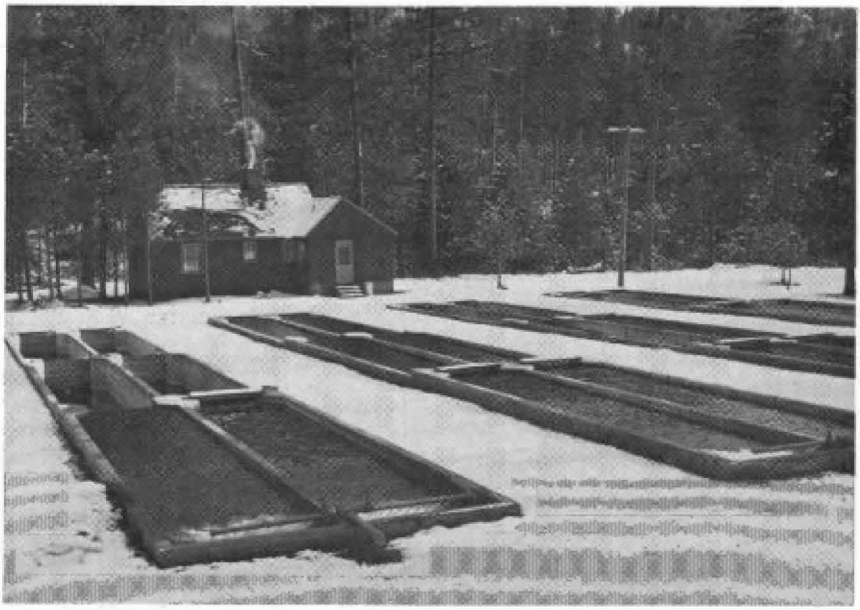
Trout production in hatcheries was maintained at a high level in spite of the major difficulty that was encountered, that of the increasing demands and increasing costs of fish foods. In pre-war years little competition was experienced in bidding for the meat and fish by-products that are used for fish foods. Since that time many other markets have been developed for these products and the purchasing competition has become increasingly acute as well as resulting in price increases. During the biennium 37,873,130 fish were liberated. In the year 1948 2,500,000 of the fish liberated were of legal size. The weight of fish liberated was 291 tons. Disposition of these fish as to watersheds is recorded elsewhere in this report. More detailed information will be supplied upon application to the office of the Commission at 1634 S. W. Alder Street, Portland, Oregon.

Considerable time has been expended by the technical staff of the fisheries department in basin studies relative to effects on fisheries by reclamation, power, and flood control projects that are both in the planning and the construction stage within the state. The major one of these was the Willamette Valley Project. This is of such importance as affecting the fisheries resources of the state that the work of the Commission will be briefly explained.

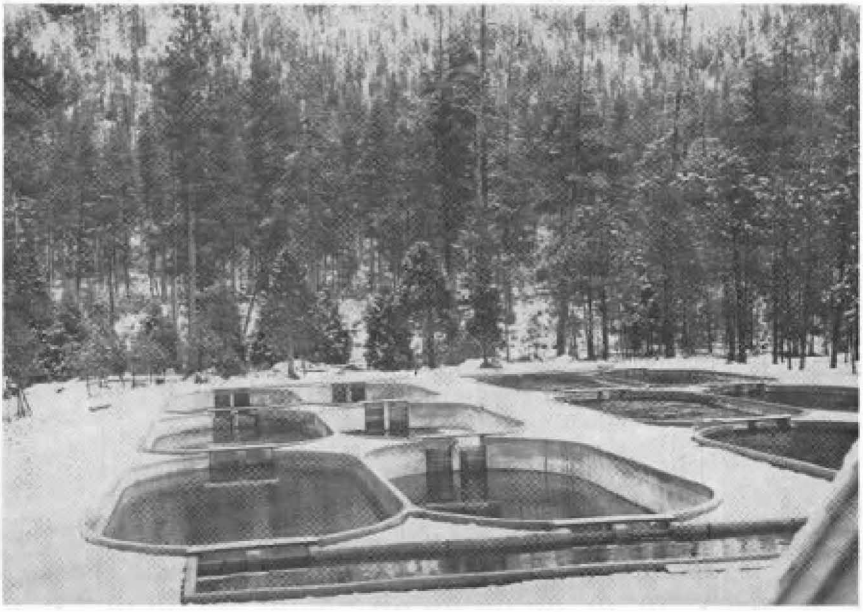
WILLAMETTE VALLEY PROJECT. Included in the plans of the Willamette Valley Project is the construction of several dams on the Willamette River and its east side tributaries. The proposed dam at Detroit on the North Santiam will be 371 feet high and the dam at Meridian on the Middle Fork of the Willamette will be 236 feet high. At these heights it is impossible to construct fish ladders that will accommodate the passage of fish over the dams. In view of the fact that these streams have a migratory fish population that ascend the streams to spawn it is apparent that the dams will prevent the passage of fish up and down stream with the consequent prevention of all spawning above the dams and the ultimate elimination of these fish from that part of the streams.

In constructions of this nature by the government a federal law provides that the state agency exercising administration over the wildlife resources of the state where the work is being carried on, shall make surveys and investigations for the purpose of determining the possible damage to wildlife and report the means and measures to be adopted to prevent or mitigate such loss and damage.

Acting in conformity with this law the Fisheries Department of the Game Commission has for some time been engaged in making such surveys and investigations and has filed its report with the government engineers in charge of the work. According to this report the Fisheries Department finds that the only thing that can be done to mitigate the loss or damage to the fisheries resources in these streams with the high dams will be to construct and operate fish hatcheries and artificially produce fish with which to stock the streams above the dams. For this purpose three hatcheries will be required each with sufficient capacity to rear approximately 514,000 legal sized fish each year.



Some of the raceway ponds and the bachelor quarters at the new Wizard Falls trout hatchery.



Brood fish ponds at the Wizard Falls hatchery completed in 1948.

The estimated cost of construction and equipment of these three hatcheries is placed at $1,248,545 with annual operating cost for each hatchery estimated to be $59,695.

The findings of the Commission embodied in this report have been accepted by the engineers in charge and the work of construction and equipment will be undertaken by the government as a part of the construction of the project.

OTHER FISHERIES INVESTIGATIONS. The marking, tagging and creel census work has been expanded. Several sportsmen's groups have cooperated closely with the Commission personnel in this work. The result has been the gathering of greatly needed information as to the migratory habits of the various fishes, the greatest returns to the angler from the liberation of different sized fish and from liberations at different times during the year. This type of investigative work also points the way for various operations, as mentioned before, to insure a greater survival from artificially propagated fish. Intensive work has been carried on in the past biennium on the following waters: The Upper and Lower Umpqua River, the Rogue River, Sand Creek, the McKenzie River, Diamond Lake, East Lake, Paulina Lake, South Twin Lake, Crescent Lake, Odell Lake, Wallowa Lake, Lake of the Woods, and the Clackamas River.

TRASH FISH CONTROL. One aspect of fish management work has been concerned with trash fish control. The rapid spread of trash fish, especially in the lakes and reservoirs of the state has posed a serious problem to the maintenance of game fish. The rapid multiplication of these rough fish, that are competitors with game fish for food, has been so severe in some cases as to completely eliminate game species. This condition could happen in a number of lakes if control work is not vigorously applied. For this reason trash fish control has been greatly intensified and would be further amplified if sufficient funds were available. In some cases the complete poisoning of fish life has been necessary. In other waters partial poisoning, mainly on the rough fish spawning areas, has proven successful as a control. Although this work has been carried out so extensively that a complete report of all waters worked on would involve too much space, a few reports will give an idea of the work and the extent of the problem. At Diamond Lake in Douglas County, a three thousand-acre lake that receives heavy fishing pressure, partial treatments have been applied. In 1947 an estimated 8,500,000 roach were eliminated from the lake. At Lake of the Woods in Klamath County both rotenone and trapping were used in rough fish control. In 1947, 50,000 roach, 625 suckers and 1,100 carp were eliminated.

In the last biennial report mention was made of the South Twin Lake experiment. This was a lake that had suffered practically complete annihilation of game fish through the competition of rapidly multiplying trash fish. In 1941 the lake was poisoned and an experiment of complete checks was inaugurated. Since the start of the work 114,044 rainbow trout weighing 5,396 pounds have been planted in the lake. The lake has produced to the anglers 27,852 fish weighing 23,251 pounds or a little more than 11½ tons. From the material knowledge

gained by the department an accurate picture can now be seen for the best stocking policies for this and similar bodies of water.

The dominant aspect of the studies has been to measure success of stocking and management policies in terms of return to the angler's creel and the seeking of methods to increase these returns.

Lake fertilization, a practice that has been successful in other states for increasing the available fish food for warm water species of fish, is being investigated for trout lakes. As this field is new, the work conducted so far has been of an investigative nature to discover methods and times of year to operate. This work, which really amounts to habitat improvement for trout, will be furthered and if proven practical it will be greatly amplified.

DISEASE CONTROL AND NUTRITION. One of the most troublesome of the parasites causing fish loss in broodfish has been the copepod. This parasite attaches itself to the fish's gills and prevents normal breathing. A series of experiments designed to control this parasite has been conducted with some success. The work has been done with insecticides of recent discovery. Because of the seriousness of the problem the work will be continued.

A research tool of considerable aid to the fishery worker has been tested with marked success during 1948. Essentially, it is a method of collecting fish through the use of direct electric current which possesses the unique property of attracting fish to the positive electrode without killing them. The possibilities of the collecting device are many, and thus far, it has been used to salvage stranded trout from irrigation ditches and to collect wild trout from streams for experimental purposes.

LIBERATIONS. Fish liberations during the past biennium were in the main carried out by four large tank trucks. A fifth smaller tank truck was added in the spring of 1948. This truck was designed and used to service the pack strings and for routine liberations over more inaccessible roads of a type that made the operation of a large truck impractical. Pack strings were again employed for the stocking of lakes not reached by the use of roads. There were more than 500 lake stockings by pack string during the biennium. These lakes located mainly in the Cascade and Wallowa Mountains are mostly of glacial formation and as a result very few of them have inlet or outlet streams to serve as spawning areas for natural reproduction. The lakes were originally barren of fish life and since the first stocking they have provided angling for a greater number each year. Without any natural reproduction the maintenance of the fisheries in these lakes must rely upon stocking of artificially reared trout. A second method of liberation that was used in stocking this type of lake during 1948 employed the use of an airplane. Thirty-five inaccessible lakes in the Cascades were stocked by this method in 1948. Preliminary cost studies show a decided saving in this method of liberation. This operation, however, will be limited to the larger lakes as flying liberations on small lakes are hazardous. Checks at the lakes showed mortalities less than those normally present in horse packing similar fish.

WEED CONTROL. An aquatic weed control project was set up by the Commission upon direction of the State Legislature after passage of House Bill No. 433 during the 1947 session. As this subject will be presented to the Legislature in a separate report it is only mentioned here.

DEPARTMENT OF FISHWAYS, SCREENS AND STREAM AND LAKE IMPROVEMENT

In the last biennial report attention was called to the considerable loss of fish occurring each year through fish entering irrigation ditches. The establishment of a factory to build screens and the installation of these screens by the Commission was also pointed out and described. During the past biennium as critical materials have eased this work has been greatly amplified. The Commission now holds the patents on the type of screen used. Oregon has been the leader in this field of fish conservation work and it will be continued until this great statewide loss can be controlled. Many inquiries have been received from other states concerning the program and it is now being widely followed throughout the country.

Following is a list, by watersheds, of the number of screens installed during the biennium. (See watershed map page 27.) Revolving type screens installed, watershed No. 5, 13; watershed No. 7, 46; watershed No. 8, 35; watershed No. 9, 76; watershed No. 15, 148; total, 318. Stationary screens installed, watershed No. 5, 2; watershed No. 7, 1; watershed No. 9, 1; watershed No. 15, 14; total, 18. Fish grills completed and installed, watershed No. 5, 1; watershed No. 9, 1; watershed No. 15, 1; total, 3. Boxes poured and ready for screen installations, watershed No. 8, 29; watershed No. 15, 1; total, 30. Fish ladders installed and repaired, watershed No. 7, 3; watershed No. 8, 1; watershed No. 15, 3; total, 7.

Extensive work in the removal of log jams and other barriers to migratory fish was carried out on the following streams:. Yachats River, Floras Creek, Coquille River, Sixes River, Nehalem River, Rock Creek, Jordan Creek, Schooner Creek, Cedar Creek and Drift Creek. A greatly increased emphasis has been placed on this type of work. Due to logging operations having been carried on for years near coastal streams and the increased tempo of logging in recent years many log jams have blocked access to spawning areas. Although this work is in its early stage, numerous improvements have been made in the above mentioned streams.

REPAIRS, IMPROVEMENTS AND NEW CONSTRUCTION

During the present biennium the Commission has been actively engaged in improving the physical plants at the fish hatcheries and the game farms. This work has included the repair of buildings, repair of equipment, purchase of new equipment and the construction of new buildings, rearing ponds and other facilities, all of which was necessary not only to maintain production but to

New 48-trough trout hatchery building at Diamond Lake.

One of the fish screens now being installed by the Game Commission

increase the production of game fish and game birds consequent upon the increased demand. There was included the construction of one new fish hatchery and one new game farm. This work was accomplished almost entirely through the use of the funds on hand accumulated during the war period as above referred to and was planned, designed and supervised by the Department of Engineering.

The following is an itemized list of the work:

Alsea Hatchery. New refrigeration plant, food grinding room, new fish trap and ladder, remodeling of residence to accommodate two families, new residence and domestic water supply for residence.

Bandon Hatchery. Concrete bottom in upper pond, two new dams and water control structures, new concrete wall in hatchery building to replace section that had rotted away, retaining wall replaced with 280 feet of 48-inch corrugated pipe, remodeled dwelling house.

Butte Falls Hatchery. New food preparation and grinding room, four new concrete rearing ponds, renewal of 150-foot 30-inch pipeline, new two-bedroom residence.

Cedar Creek Hatchery. New hatching troughs, new concrete floor hatchery building, one new three-bedroom residence, one new two-bedroom residence, new domestic water supply.

Diamond Lake Hatchery. New 48-trough hatchery building including bachelor quarters and light plant, new water control structure and filter, new pipeline from water control structure to new hatchery, new concrete fish trap in Lake Creek, 48 new hatching troughs.

Fall River Hatchery. New 460-foot pipe line to replace old line, new domestic water supply in bachelor quarters, including pump, hot water tank, shower, lavatory and toilet complete with septic tank.

Hood River Hatchery. New brood fish pond complete with fish trap and spawning shed, assistant's dwelling remodeled adding two bedrooms.

Klamath Hatchery. Two new three-bedroom residences, new domestic water supply including new pump.

McKenzie Hatchery. Rehabilitated 7 ponds at Gate Creek for rearing of fish, new food preparation and grinding room, new 4-car garage and shop, new dam and water control structure, 1900-foot new pipe line, new three-bedroom residence.

Roaring River Hatchery. Twelve new concrete rearing ponds, new water intake structure, new pipe line, new refrigeration building and grinder room, new four-car garage and shop, new two-bedroom residence, hatchery building remodeled including new concrete floor, sealed inside and new chimney, new concrete floor in basement of residence, new well and pump for domestic water supply.

Rock Creek Hatchery. New refrigeration plant and grinding room.

Wallowa Hatchery. New 2000-foot 24-inch pipe line including new intake structure, nine new concrete brood ponds, seven new concrete rearing ponds.

Wizard Falls Hatchery. Complete new hatchery consisting of the following: .6 mile entrance road, 84-foot bridge across Metolius River, three water control

structures, 2000-foot pipe line for water distribution, two three-bedroom residences, one two-bedroom residence, 32-trough hatchery building, four-car garage and shop, refrigeration building including grinding room and power house, gas and oil house, 56 ponds consisting of 20 circular, 24 raceways and 12 brood ponds, electric power and light generating equipment consisting of one 20-KW generating unit and one 30-KW generating unit, light and power distribution, domestic water pressure system, two outdoor toilets, landscaping, gravelling of all roads, drives and walks.

East Lake Egg Taking Station. Cabin remodeled.

Fish Ladders. One new ladder was constructed on the North Fork of the Necanicum River, one new ladder was constructed on the Calapooya River above Sutherlin.

Hermiston Game Farm. New machinery and storage shed, new grainery, new chicken house, 60 acres braill pens, 40 hatching yards, new three-bedroom residence, including new well and pressure system domestic water supply, 20 acres land levelled for irrigation.

Summer Lake Waterfowl Management Area. New machine shed and shop, 10.5 miles of road constructed, 6 miles of road gravelled, seven water controls installed, dikes built and repaired, ten miles of boundary and cross fence.

DEPARTMENT OF GAME

In the last biennial report there was a preliminary explanation of the District Manager Program for game. Since that time the program has been continued and advanced. The structure and operation of this program for the game department, it is thought, warrants description and explanation.

The state has been divided into thirteen game districts. In each of these districts there is located a resident district agent with headquarters as follows: North Coastal District, headquarters at Nehalem; South Coastal District, headquarters at Coos Bay; Willamette District, headquarters at Corvallis; Southwest District, headquarters at Grants Pass; Columbia District, headquarters at Wasco; Central District, headquarters at Bend; Lake-Klamath District, headquarters at Lakeview; Harney District, headquarters at Burns; Malheur District, headquarters at Ontario; Northeastern District, headquarters at La Grande; Wallowa District, headquarters at Enterprise; Grant District, headquarters at John Day; Umatilla District, headquarters at Pendleton.

The resident district agent is the fact finding and operational unit for all game work in his district. This gives a four seasonal and twelve month a year approach to all measurements, operations and management programs. This year around basis provides for a continuity of information impossible to procure in any other manner and establishes a systematic procedure for determining the facts on a permanent basis. The work of these district agents is of a practical and a highly responsible nature. It develops resident, on the ground knowledge.

For each game group a specialist or chief has been assigned out of the Portland office who develops and coordinates on a statewide basis the specialty for

which he is responsible. These men assemble the facts being secured by the district agents. The groups are as follows: Big game, upland game, furbearers and predatory animal control, waterfowl and federal aid, and habitat improvement.

One of the routine operations of the department is the taking of basic inventories. Inventories of the various game species represent densities, composition, distribution and quality. To date over 600 permanent sample sites for big game have been established. These sites are on both winter and summer ranges. With big game, the matter of range management is also of utmost importance in the district management program. Each district has established forage study plots for the continuous determination of the condition of the major forage species used by big game and total use by livestock as well as game. In addition, enclosures have been established to reveal the results of complete protection, and photographic sites have been located where annual photographs are taken to provide a permanent pictorial record. At the present time there are 192 permanent forage study plots and fifteen enclosures. Many of the enclosures are being built and maintained through the cooperation of the U. S. Forest Service.

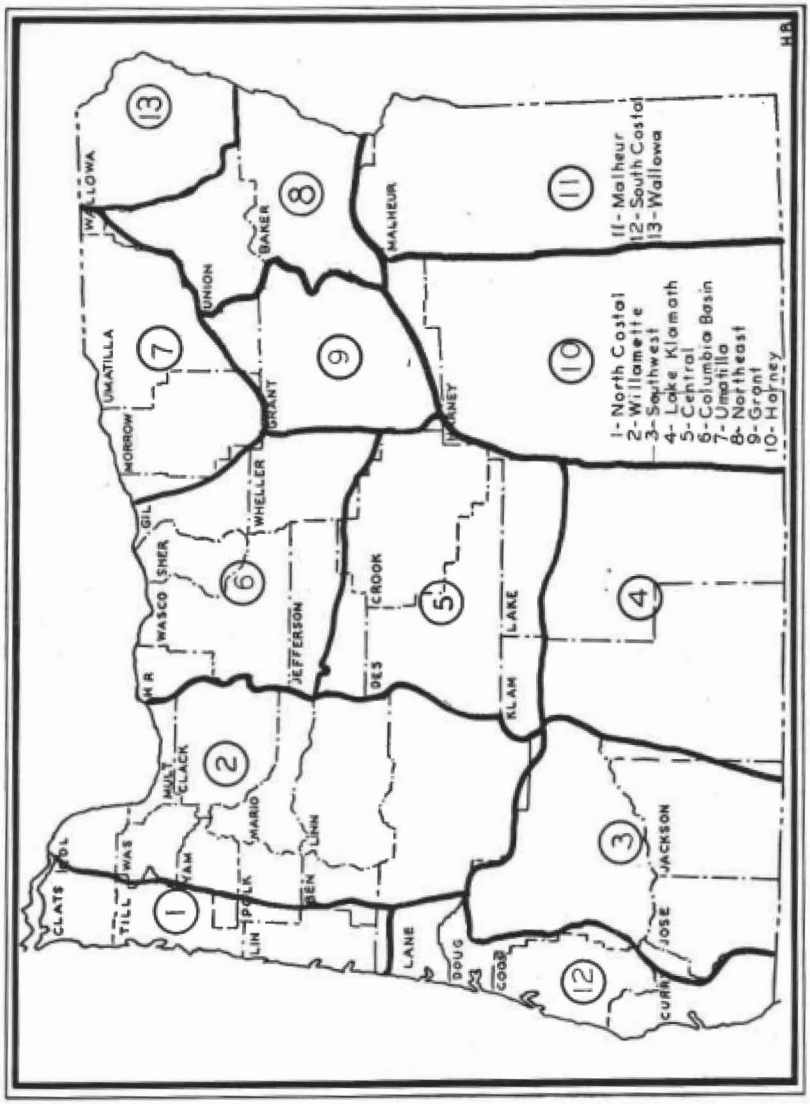
The Commission believes that such a systematic procedure of operation must be strictly adhered to in order to effect sound husbandry. This whole district field program is designed and operated to function on a permanent basis for all major activities of the Game Department.

RESEARCH. Today many problems of game management require work of a research nature. All problems requiring basic inquiry or development of a research nature are turned over to the Oregon Cooperative Wildlife Research Unit at Oregon State College. This is an organization supported by the Oregon State Game Commission, Oregon State College, The Wildlife Management Institute, and the U. S. Fish and Wildlife Service. The Unit has rendered valuable service to the Commission in many ways, its work on pheasants and antelope being especially noteworthy.

One of the first subjects for research requested of the Unit was that of antelope. These animals are typical western, are limited to a few states and exist only as a remnant. While Oregon had a population of something like seventeen or eighteen thousand animals, it was evident the herds were decreasing and that unless given proper management, they were threatened with ultimate extinction. The Commission had little conception of how to attack the problem and there was practically no source of reliable information for guidance in the formation of a program to maintain the species.

The Unit, through its leader, A. S. Einarsen, gave the study of the antelope painstaking study and from time to time has furnished the Commission progressive reports that have served as a guide in the formation of regulations affecting antelope. So outstanding has been the work of the Unit in this respect that the Wildlife Management Institute requested the leader to write a book on the subject of the "Pronghorn Antelope and Its Management," which the Institute has published at its expense. This book will now serve the Commission as a guide for future management of this animal.

OREGON GAME MANAGEMENT DISTRICTS



The Chinese ring-necked pheasant was first introduced in Oregon in 1881. They were protected for ten years and in that time increased at a phenomenal rate, reaching an estimated population as high as one bird to each acre in some parts of the Willamette Valley. Then began a steady decline until in 1935 a survey disclosed an average of only about 1.3 birds to the 100 acres remained, notwithstanding the thousands of birds that had been reared at the game farms and released in the meantime.

This subject was referred to the Cooperative Research Unit for study. After some years of research the Unit reported its conclusion that the decline was almost entirely due to hunting pressure. This conclusion was later verified by an experiment conducted on an isolated area fully protected where two cocks and six hens increased in six years to 1898 birds. This is another case that calls for pioneering, for as yet there is no comprehensive compiled knowledge of the life history and management of this pheasant. The Unit is still carrying on with the study, being primarily concerned at this time with research to develop better technique in game farm management and insure greater survival of artificially hatched pheasants.

Another research problem referred by the Commission to the Cooperative Research Unit is that of the depredations of foxes in the Willamette Valley. The gray fox is a native; the red fox was introduced by private parties in Yamhill County in 1929. Both species have recently been increasing in numbers and are charged with being material factors in the decline of the pheasant population. While predators the year round foxes have been found to be particularly damaging to pheasants during the nesting and brooding months due to the fact that at this time the foxes have young and are seeking food of such bulk that it can be carried to the den.

Before the decline in the market price of furs, trappers accounted for a considerable number of foxes, thus holding them in check, but in the absence of a demand for fox fur there is no organized control. Thus fox damage is becoming a serious problem. Valuable suggestions have been made by the Unit to reduce the number of foxes and the Commission will follow up these suggestions in an effort to perfect plans for coordinated action to reduce fox depredation.

At the request of the Commission the Cooperative Research Unit is carrying on research work in investigating the living conditions of the black tailed deer, with special reference to the causation of a periodic loss of life of these deer. Autopsies do not reveal any indication of disease being the cause of the deaths. There is an inclination to believe a toxic condition has arisen and a search for food plants that may be a factor has been initiated. The Unit is presently engaged is sampling and analyzing deer foods during the times the losses occur in an effort to solve this very vexing problem or at least to gain sufficient experience to better cope with the situation.

BIG GAME. Although many of the routine operations of big game activities have been mentioned above it is well to mention that a classification of all available habitat has been started and is expected to be completed by 1950. Considerable work has been done to attract mule deer from overgrazed ranges to more

favorable ones through the use of salting and water development. A start has been made to introduce Roosevelt elk into an area of the Cascades at the upper end of the North Umpqua drainage. Seven head have been successfully trapped in a damage area near Dora in Coos County. These elk have been transported and liberated in this new area which has little or no elk population at the present time.

Arrangements have been completed with the state of Washington to secure a stock of mountain goats for the state of Oregon. The site surveys for the location of liberation of these animals are now underway and it is expected that the introduction will be made early in 1949.

One of the chief advancements in big game management has been the result of the authorization by the last Legislature of the issuance of the separate deer tag. These tags that embody a return report card fill one of the greatest needs for the proper management of Oregon's deer herds. Returns from the hunters have been excellent and it is now possible to determine the exact number of deer hunters, the kill, the age class of kills, location of kills and hunting pressures.

GAME DAMAGE CONTROL. Extensive work has been conducted to meet the severe game damage problem that was dealt with to some extent in the last biennial report. The use of limited special seasons has gone far in solving the most severe cases. A full time man has conducted exhaustive tests on all known types of mechanical and chemical controls. A summary of this work indicates that the deer or elk proof fence is so far the most effective and the cheapest over a period of years. It was early found that each problem had to be handled on an individual basis as no single control measure could be expected to work under all conditions and on all types of crops. In a few cases where relatively few animals were involved trapping and transplanting has worked to a limited extent but it is too expensive to be widely used. Work is being continued in an effort to discover new and practical solutions to this problem.

WATERFOWL. In the last report there was given a description of the Summer Lake Waterfowl Management Project. This project that was begun in 1943 has been carried on with the operation of the public shooting ground, and extensive construction with special emphasis on nesting and feeding areas. The public shooting grounds had 5,206 hunter days use in 1946 and 2,670 hunter days during the 1947 season. The greatly shortened season accounts for the drop in usuage in 1947. To aid hunters in abiding by set shooting hours an air raid siren was installed to signal the opening and closing of legal shooting time.

Development has been begun to bring well over 2,500 acres of alkali flats back into marsh area. In all work attention has been given to nesting areas. This has had very satisfactory results as an estimated 10,000 ducks and 3,000 geese were hatched on the area in the spring of 1948. Fields of grain have been planted in refuge areas and left standing for winter feeding. The additional use of the area for muskrat fur crops has served a second purpose, that of providing excellent waterfowl nesting sites on muskrat houses throughout the marsh.

More than 75 per cent of the hunters using the Summer Lake Public Shooting area in the past two years were residents of the portion of the state west of

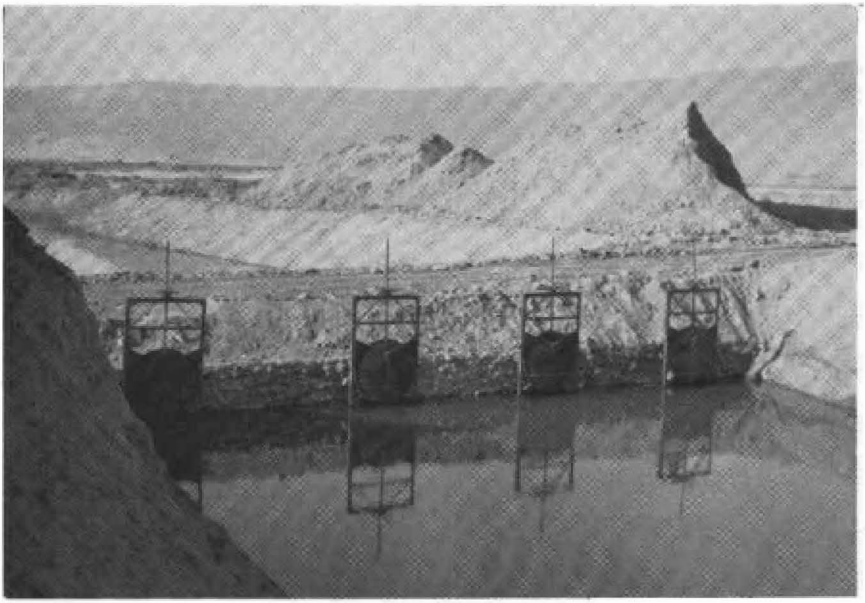
the Cascades. This fact and the general success the Summer Lake Public Shooting Grounds caused the Commission to search for a location close to the center of population of the state. A site on Sauvies Island near Portland, Oregon, was studied and approved as a Waterfowl Management area. The project is now in the acquisition stage and it is not planned to instigate management until 1949 at the earliest. When the purchase is completed the Commission will have control of 9,852 acres. This land will then be improved in a manner to make it more attractive to ducks and geese and will be managed as refuge and public shooting grounds. Under a federal law the Commission receives an appropriation each year from the tax imposed by the government on the sale of arms and ammunition known as the Pittman-Robertson Fund. This money is applicable to the purchase of land to the extent of three-fourths of the purchase price and it is in this manner that the Sauvies Island tract is being purchased.

An orderly method of waterfowl inventory has been placed into operation with a cooperative program, being established for the Pacific Coast Flyway. This makes for a pooling of information which is considered vital and essential to proper management of migratory birds. Weekly inventories are taken in ten key areas over the state of Oregon to give a year around, statewide picture. Five banding traps have been constructed and are operated by the district agents. At the Summer Lake trap alone 500 ducks and 30 geese have been banded. Kill records have been obtained on waterfowl and preliminary studies have been inaugurated on band-tailed pigeons.

BEAVER. The history of the beaver in the state of Oregon was gone into in some detail in the last biennial report. The policy and operations of the Commission have remained the same as reported at that time. The following quotation from that report will clarify activities.

In 1939 the Game Commission took over completely the trapping of all beaver doing damage and employed experienced trappers to do the work. The objective has been (1) to protect landowners from damage by beaver and (2) conserve this fur resource as far as reasonably can be done consistent with affording protection from damage, and (3) to utilize this mammal in water and soil conservation wherever possible. The procedure followed is whenever complaints of beaver damage are reported to the Commission, a trapper is sent to remove the animals. If in the winter when the pelts are prime, the animals are dead trapped and the pelts sold to help defray the expense. In 1945 the Commission inaugurated a new policy under which each pelt taken is labeled with the name of the owner of the land on which it was taken; then when the pelt is sold one-third of the amount received is paid to such owner. . . . During the summer months a comprehensive live-trapping program is maintained whereby beaver are trapped from areas in which they are doing damage and transplanted to the high reaches of the watersheds throughout the mountainous sections of the state.

OTHER FURBEARERS. One man has recently been employed full time and has begun work on a basic inventory of the fur resources and habitat of the state. To the present time he has been occupied mainly on Coastal and Cascade Lakes. The



Main water control headgates at the Summer Lake Waterfowl Management Area.

Hunters checking in at the Summer Lake Public Shooting Grounds.

initial objective of this work has been to secure a basic inventory of the state's fur resources and to find suitable habitat in wild lands that have no conflict with agricultural or industrial development and to increase the value of such lands to the economy of the state by the establishment of a fur resource.

A critical analysis of the fur catch returns is being made to supply information to be used in wisely regulating future harvests.

PREDATOR CONTROL. The bulk of the work in predator control has been carried out by the U. S. Fish and Wildlife Service with the Commission furnishing slightly in excess of $26,000 to support this work during the biennium. Over and above this the Commission has done extensive work on magpie and crow control. Aerial coyote hunting as outlined in the last report has been successfully continued, with a kill of 1,826.

UPLAND GAME. During the past biennium emphasis has been placed on three things in the upland bird program. These are seed stock refuges, open field rearing and habitat improvement.

The seed stock refuge program has been developed from research work of the Oregon Cooperative Wildlife Research Unit. The plan briefly stated consists of blocks of upland bird habitat that are closed to all hunting through cooperative agreements with landowners. This is not only a positive aid to natural production but is of aid in getting game farm birds established and thereby promotes survival. This program in the Willamette Valley now includes 43,214 acres of choice habitat, which represents approximately 3 per cent of the suitable habitat available in the area. An additional twenty refuges have been established in the Columbia Basin counties and a few refuges have been set up in other districts.

Open field rearing is another practice that has been studied by the Oregon Wildlife Research Unit. The plan calls for the setting down of day old chicks with a hen in a coop on the area to be stocked. The chicks have free access in and out of the coop and are, as a result, reared in a semi-wild manner. This is to alleviate losses during the period of adjustment after release. The birds are acclimated and disperse themselves as they mature. Two of these projects were operated in 1947 and seven in 1948. The results of this new method have been highly encouraging. The projects have not only proven highly successful in producing a bird better adapted to his surroundings but they also have proven to be extremely economical. Preliminary cost studies show that birds put into the field in this manner show a saving of nearly a dollar a bird when compared with the costs of other methods. For these reasons this method of pheasant production is being enlarged. The year 1948 saw 16,496 birds reared in this manner.

Research and investigations of the Commission have pointed up the poor survival of artificially propagated game birds when they are released in areas that do not have sufficient feed, cover and water. It is known that these elements that go to make up proper game habitat are also necessary for good returns through natural propagation. With intensive farming practices becoming more and more pronounced, good habitat has been seriously depleted. In fact habitat improvement has been deemed so essential to upland game as well as other game

species that the Commission has set up a division of the game department to deal exclusively with this segment of the program. This will be mentioned later in this report.

The Hermiston game farm, which was mentioned in the last report, has been completed and placed into operation. Game farms have continued to use the open field rearing system to preserve the natural instincts and assure vigor in pheasants produced. There were 59,166 pheasants in 1948 and 48,189 pheasants in 1947 liberated.

HABITAT IMPROVEMENT. As has been pointed out game birds need a balance between escape and winter cover, as well as a year-round supply of food and water. To obtain this balance of necessities for both game birds and animals the Commission has instituted a section of habitat improvement in the game department. Recognizing the adverse effects of current land use trends and the limitations which render nearly half of the available habitat for both upland and big game in the state unproductive the Commission intends to expand this work as rapidly as possible. This section operates through the district agent program with a chief in the Portland office who directs and coordinates the activities. Although the move was initiated at the close of the biennium, a good start has been made in this field. The first Multiflora roses, the living fence that has proven so successful in the middle west for bird habitat restoration, have been received and are being planted on a demonstrational basis. Numerous grain strips have been purchased and left standing for both cover and winter feeding. Water development projects for game birds have been started. Water developments have also been begun for big game.

It is believed that this program can be looked to as one of the major developments in wildlife work in the state. Although habitat improvement work is necessarily by the very nature of the operation a slow development, the Commission feels that more and more emphasis must be placed upon it. It is not a spectacular phase of game management, but for a long range approach to the maintaining of adequate game birds and animals it must be carried on and increased as rapidly as funds will allow.

The section has four main fields of approach, upland game, big game, waterfowl and furbearers. Plans for the immediate future call for the following: Primarily for upland game the long range plans are directed toward the development of both marginal and suitable habitat to the point where they will sustain optimum game populations. Cover planting programs will be carried out to demonstrate to landowners the multiple benefits to all concerned. Plans for the Willamette Valley call for the establishment of a series of small, highly developed areas designed to attract both upland game and waterfowl. In eastern Oregon, plans call for early concentrated work in the wheatland areas. The lack of winter cover adjacent to the vast wheat fields where food abounds at most times is believed to have had an extreme limiting effect on game birds in the past. Water development is also to be pressed in many of these fine areas that suffer from serious lack of water supplies for birds. Each district will receive suffi-

cient material to establish at least two demonstration areas. In addition to this a crew will be placed in the field to concentrate on various sections of the state from year to year. Habitat improvement for big game has large scale possibilities. This will probably be concentrated on development and improvement of winter ranges. Water development for both antelope and mule deer has been started and will be increased. As with some game bird areas it is also true that lack of water has been a limiting factor in the utilization of range by big game animals. Furbearers and waterfowl will also receive attention through the planting of food plants both on a demonstration basis and on small intensively managed areas.

PUBLIC RELATIONS

The Game Commission Bulletin, explained in the previous report, has been exceedingly well received and the press run has been increased to 37,000 monthly. Encouraged by the success of this move to better acquaint the citizens of Oregon with its work the Commission established a Department of Public Relations in the spring of 1948. The work of this department is to use all possible means to disseminate to the interested public information concerning the activities and programs of the Commission. This is being done through the mediums of the press, motion pictures, color slides, personal contacts, radio, and special publications. In addition, the public relations department is to investigate the possibilities of future work in the conservation education field as it affects the work of the Commission. The Commission realizes that the success of all programs of fish and game management are dependent to a great extent upon the cooperation of the public. The Commission also feels that the only way to secure this cooperation is to keep the public completely informed as to the various activities and the reasons for them. This is the work of this new department.

Public appearances have been made before numerous sportsman's groups, civic organizations, schools, and other interested bodies, by all members of the staff. So that these staff members can be better informed as to the overall picture of operations and thereby carry them to the public, they attend whenever possible all business sessions of the Commission. Color slide illustrated talks are being prepared on all activities. These will be used along with motion pictures before interested organizations. News releases are sent out to wire services, all newspapers of the state and to many radio stations.

The hunting and angling regulations are being set out in a more simplified form with the inclusion of material explaining the necessity for certain ones. Two extensive campaigns were carried on during the fall of 1948, the first to acquaint the public with the new deer tag and its purpose and the second to educate the public to the necessity of pheasant hen protection. The results have proven promising.

The department, although still in the formative stage, will be expanded and developed rapidly.

Liberating black-tail fawns in a new deer habitat area.

One of the new type field rearing projects for pheasants.

CONCLUSION

Following the crippling effects of the war years and the immediate post-war years the past biennium has been one of expansion and construction. To this has been added extensive work on refinement of programs and operations.

The tremendous increases in pressure on the fish and game resources of the state during the past two years, coupled with expectant future increases, have caused the Commission to believe that future planning is of the utmost necessity. With this in mind all departments of the Commission's operations have developed future plans that are projected for a period of five years.

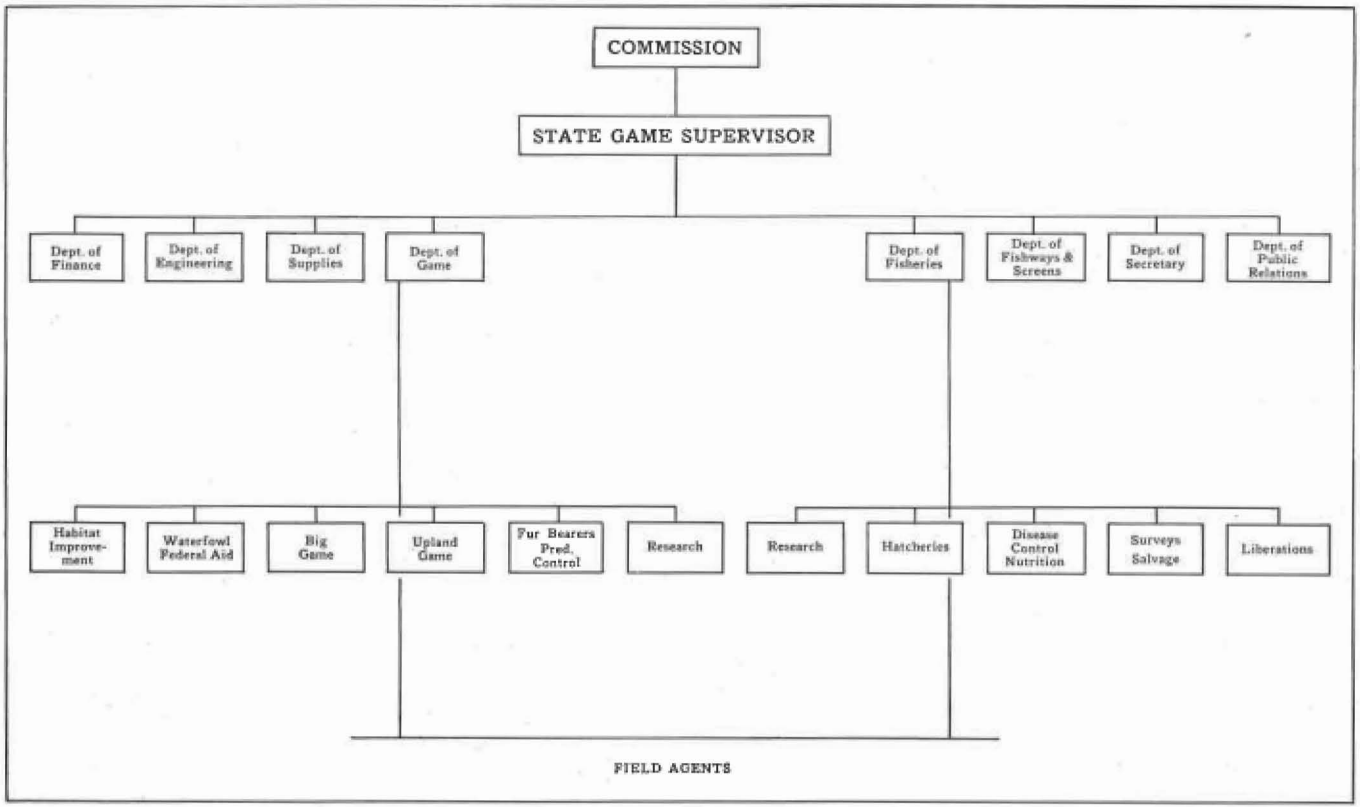
With adequate future planning, efficient administration and constant refinement and development of programs the Commission hopes to be able to meet the unprecedented demands on the resources that it is charged with protecting and maintaining. Planning has been completed and if adequate financing can be obtained the programs can be maintained.

Respectfully submitted,

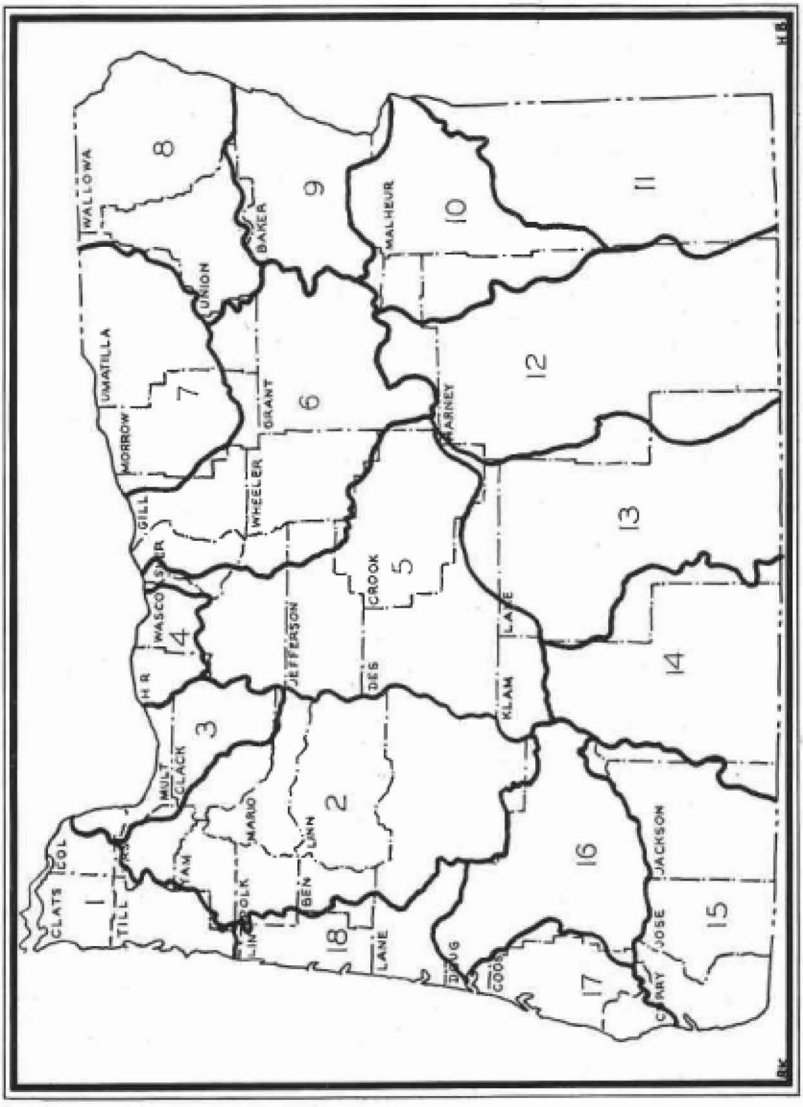
OREGON STATE GAME COMMISSION,

E. E. Wilson, Chairman
Theodore R. Conn
R. D. McClallen
Kenneth S. Martin
Larry Hilaire, Members

ORGANIZATION CHART



WATERSHEDS OF OREGON



STATEMENT OF FINANCIAL TRANSACTIONS OF THE GAME PROTECTION ACCOUNT

Biennium July 1, 1946, to June 30, 1948

	Fiscal Year Ended June 30, 1947		*Fiscal Year Ended June 30, 1948*		*Total for Biennium*	
BEGINNING BALANCE:						
United States National Bank — revolving fund	$ 7,744.68		$ 7,744.68		$ 7,744.68	
State Treasurer—game protection account	1,710,105.60		1,958,330.06		1,710,105.60	
Miscellaneous accounts receivable and deferred charges	7,963.76				7,963.76	
Inventories—feed and expendable supplies	34,544.23		48,766.04		34,544.23	
Obligations outstanding	(153,531.10)		(144,239.57)		(153,531.10)	
		$1,606,827.17		$1,870,601.21		$1,606,827.17
Gross receipts from all sources—Schedule "A"	$1,584,493.49		$1,626,649.08		$3,211,142.57	
Less:						
Tithing	(50,936.98)		(51,131.23)		(102,068.21)	
State police appropriation	(163,233.82)		(293,364.50)		(456,598.32)	
Net receipts for period–Schedule "A"		$1,370,322.69		$1,282,153.35		$2,652,476.04
Surplus adjustments affecting prior periods		799.36		15,119.39		15,918.75
Total to account for		$2,977,949.22		$3,167,873.95		$4,275,221.96
Expenditures for period—Schedule "B"		1,107,348.01		1,912,496.28		3,019,844.29
ENDING BALANCE		$1,870,601.21		$1,255,377.67		$1,255,377.67

ANALYSIS OF BALANCE OF GAME PROTECTION ACCOUNT

June 30, 1948

United States National Bank—revolving fund	$ 7,744.68
State Treasurer—game protection account	1,379,595.01
Inventories—feed and expendable supplies	71,402.49
Outstanding obligations	(203,364.51)
BALANCE	$1,255,377.67

The above statement and accompanying schedules constitute a summary report of the financial transactions of the Oregon State Game Commission for the biennium beginning July 1, 1946, and ending June 30, 1948. Complete detailed, classified records and books of account supporting this statement and the schedules published herewith are available at the office of the Commission, 1634 S. W. Alder Street, Portland, Oregon.

SCHEDULE "A"

OREGON STATE GAME COMMISSION

STATEMENT OF RECEIPTS

Biennium July 1, 1946 to June 30, 1948

	Fiscal Year 1946-1947 as of June 30, 1947	*Fiscal Year 1947-1948 as of June 30, 1948*	*Total for Biennium*
Licenses			
Hunters and anglers	$1,423,274.00	$1,405,815.06	$2,829,089.06
Oregon guides	1,023.00	2,676.00	3,699.00
Game breeders	312.00	364.00	676.00
Private trout hatchery	80.00	85.00	165.00
Taxidermist	105.00	85.00	190.00
Alien gun	450.00	350.00	800.00
Fur dealers	520.00	510.00	1,030.00
Storage permits	3.50	.75	4.25
Scientific permits	10.00	11.00	21.00
Trappers	8,225.00	6,804.00	15,029.00
Permits to hold—revocable	81.00	112.00	193.00
Smelt	49.00	16,211.00	16,260.00
Total licenses	$1,434,132.50	$1,433,023.81	$2,867,156.31
Other Receipts:			
Chewaucan permits	$	$ 790.00	$ 790.00
Summer lake refuge	5,510.50	5,734.50	11,245.00
Camas swale refuge	1,976.00	.....	1,976.00
Sale of confiscated property	97.00	234.50	331.50
Fines: Game law violations	24,891.62	35,853.53	60,745.15
Tagging fish and game	1,623.68	198.73	1,822.41
Gas tax refund	237.13	.....	237.13
Sale of fixed assets	100.00	22,591.30	22,691.30
Fur sales	91,577.27	77,694.41	169,271.68
Sundries	13,000.33	26,656.20	39,656.53
Total other receipts	$ 139,013.53	$ 169,753.17	$ 308,766.70
U. S. Government Pittman-Robertson	$ 11,347.46	$ 23,872.10	$ 35,219.56
Total Receipts—gross	$1,584,493.49	$1,626,649.08	$3,211,142.57
Less:			
Tithing due general fund	$ 50,936.98	$ 51,131.23	$ 102,068.21
State police appropriation	163,233.82	293,364.50	456,598.32
Total receipts, net	$1,370,322.69	$1,282,153.35	$2,652,476.04

SCHEDULE "B"

OREGON STATE GAME COMMISSION

STATEMENT OF EXPENDITURES

Biennium July 1, 1946 to June 30, 1948

	Fiscal Year 1946-1947 as of June 30, 1947	*Fiscal Year 1947-1948 as of June 30, 1948*	*Total for Biennium*
Administrative:			
Commission	$ 3,501.77	$ 3,690.05	$ 7,191.82
Supervisor	5,718.87	6,043.30	11,762.17
Assistant Supervisor	5,806.40	1,080.23	6,886.63
Secretary		3,194.15	3,194.15
Administration	97,851.23	110,338.66	208,189.89
Total administrative	$ 112,878.27	$ 124,346.39	$ 237,224 66
Game Bird Propagation:			
Director of game	$ 7,279.73	$ 6,776.42	$ 14,056.15
Corvallis pheasant farm	19,072.75	28,985.57	48,058.32
Eugene pheasant farm	18,259.66	21,203.63	39,463.29
Hermiston pheasant farm	11,839.48	25,502.31	37,341.79
Ontario pheasant farm	32,874.28	31,270.56	64,144.84
Pheasant liberation	2,443.60	1,354.79	3,798.39
Salem game farm	797.35	162.10	959 45
Total game bird propagation	$ 92,566.85	$ 115,255.38	$ 207,822.23
Protection and Promotion:			
Publicity	$	$ 10,145.85	$ 10,145.85
Protection and promotion—general	37,735.41	32,041.42	69,776.83
Pittman-Robertson 6-R	4,936.21	532.26	5,468.47
Pittman-Robertson 9-D-1	(262.25)		(262.25)
Pittman-Robertson 9-D-3	401.45	3.43	404.88
Pittman-Robertson 9-D-4		54.45	54.45
Pittman-Robertson 9-D-5		11.19	11.19
Pittman-Robertson 11-R-1	2,744.05	316.70	3,060.75
Pittman-Robertson 11-R-2		1,787.07	1,787.07
Pittman-Robertson 12-R-1	855.24	31.80	887.04
Pittman-Robertson 12-R-2		770.22	770.22
Pittman-Robertson 14-L-1	350.00		350.00
Pittman-Robertson 14-L-2		350.00	350.00
Pittman-Robertson 17-C		3,506.95	3,506.95
Pittman-Robertson 17-C-1		3,656.44	3,656.44
Pittman-Robertson 18-R		434.69	434 69
Pittman-Robertson 18-R-1		1,570.97	1,570.97
Pittman-Robertson 20-M-1		985.40	985.40
Big game	48,484.35	53,946.35	102,430.70
Beaver	48,310.88	40,819.29	89,130.17
Furbearers	58.91	409.23	468.14
Upland game	14,148.22	16,197.71	30,345.93
Waterfowl	138.06	5,241.80	5,379.86
Summer lake	10,750.27	12,004.65	22,754.92
Camas swale		1,925.62	1,925.62
Chewaucan		406.62	406.62
Predator control		22,237.00	22,237.00
Sauvies island		1,352.50	1,352.50
Game protection	24,444.03	30,520.53	54.964.56
Habitat improvement		1,102.47	1,102 47
Engineering	995.51	1.926.25	2.921 76
Warehouse	13,164.57	16,659.47	29,824.04
Total protection and promotion	$ 207.254.91	$ 260.948.33	$ 468.203.24

SCHEDULE "B"

OREGON STATE GAME COMMISSION

STATEMENT OF EXPENDITURES

Biennium July 1, 1946 to June 30, 1948

	Fiscal Year 1946-1947 as of June 30, 1947	*Fiscal Year 1947-1948 as of June 30, 1948*	*Total for Biennium*
Department of Fisheries:			
Director of fisheries	$ 11,101.10	$ 16,178.83	$ 27,279.93
Alsea hatchery	27,227.82	39,871.59	67,099.41
Bandon hatchery	9,602.83	19,623.82	29,226.65
Brush creek hatchery	5,277.04	9,982.98	15,260.02
Butte Falls hatchery	21,233.72	25,195.29	46,429.01
Cedar creek hatchery	14,198.45	20,863.12	35,061.57
Diamond lake hatchery	6,386.05	10,202.29	16,588.34
Fall river hatchery	15,369.03	16,366.23	31,735.26
Hood River hatchery	9,992.17	18,607.36	28,599.53
Klamath hatchery	32,588.11	35,549.17	68,137.28
McKenzie hatchery	12,183.38	21,951.26	34,134.64
Oak Springs hatchery	31,639.15	57,324.78	88,963.93
Roaring river hatchery	24,674.15	31,493.77	56,167.92
Rock creek hatchery	19,353.84	32,963.61	52,317.45
Wallowa hatchery	14,066.82	16,928.21	30,995.03
Willamette hatchery	12,667.91	18,267.41	30,935.32
Wizard Falls hatchery	.....	863.71	863.71
Fall River-East Paulina egg take	5,078.39	4,212.96	9,291.35
Klamath egg take	869.96	936.28	1,806.24
Smith river egg take	.....	2,000.80	2,000.80
Fish salvage	5,803.70	5,833.99	11,637.69
Fish liberation	24,860.31	35,994.61	60,854.92
Stream and lake management	18,082.81	10,139.86	28,222.67
Stream and lake improvement	.....	3,027.65	3,027.65
Fishways and screens	111,987.00	118,383.19	230,370.19
Scientific research	62,073.16	73,164.83	135,237.99
Total Department of Fisheries	$ 496,316.90	$ 645,927.60	$1,142,244.50
Special Requests:			
Pension and claims	$ 1,200.00	$ 1,200.00	$ 2,400.00
Agricultural research foundation	6,000.00	6,000.00	12,000.00
Predatory animal control	12,000.00	12,000.00	24,000.00
Oregon State College	900.00	900.00	1,800.00
Total special requests	$ 20,100.00	$ 20,100.00	$ 40,200.00
Total operation	$ 929,116.93	$1,166,577.70	$2,095,694 63
Capital outlay	$ 178,231.08	$ 745,918.58	$ 924,149.66
Total expenditures	$1,107,348.01	$1,912,496.28	$3,019,844.29

PHEASANT LIBERATIONS

	July 1, 1946 to June 30, 1947	*July 1, 1947 to June 30, 1948*
Baker	2,307	1,819
Benton	1,497	2,128
Clackamas	720	1,378
Clatsop	....	....
Columbia	591	720
Coos	....	573
Crook	1,326	680
Curry	....	....
Deschutes	359	338
Douglas	2,160	3,311
Gilliam	748	599
Grant	1,203	1,200
Harney	1,638	596
Hood River	1,194	596
Jackson	720	1,532
Jefferson	418	599
Josephine	720	768
Klamath	1,803	1,800
Lake	1,041	400
Lane	1,549	2,158
Lincoln	....	....
Linn	3,173	3,536
Malheur	50	660
Marion	2,811	3,510
Morrow	1,780	1,607
Multnomah	....	60
Polk	2,471	2,081
Sherman	446	890
Tillamook	....	....
Umatilla	3,267	2,392
Union	3,655	2,620
Wallowa	2,249	1,499
Wasco	2,059	2,296
Washington	1,532	2,758
Wheeler	446	....
Yamhill	2,522	1,742
	46.455	46.846

SOURCE OF PHEASANTS RELEASED

	July 1, 1946 to June 30, 1947	*July 1, 1947 to June 30, 1948*
Pendleton	6,284	3,571
Ontario	19,705	13,394
Corvallis	8,267	13,283
Eugent	11,394	10,926
Special projects	805	3,746
Hermiston	....	1,926
	46.455	46.846

SUMMARY OF GAME FISH LIBERATED

July 1, 1946, to June 30, 1947

Watershed	Rainbow	Eastern Brook	Steelhead	Cutthroat	Silvers	Chinook	Chum Salmon	Yanks	Total
1	.....	.....	101,926 *15,227*	226,497 *7,089*	282,200 *88*	.....	52,540 *16*	.....	663,163 *22,420*
2	2,787,905 *40,814*	18,876 *78*	.....	118,863 *2,561*	.....	.....	.....	.....	2,925,644 *43,453*
3	322,586 *8,484*	.....	.....	7,750 *250*	.....	.....	.....	.....	330,336 *8,734*
4	427,843 *5,481*	.....	.....	.....	.....	.....	.....	.....	427,843 *5,481*
5	3,256,595 *32,934*	570,564 *6,365*	.....	.....	.....	.....	.....	.....	3,827,159 *39,299*
6	427,561 *2,737*	36,660 *130*	.....	.....	.....	.....	.....	.....	464,221 *2,867*
7	101,798 *3,661*	.....	.....	.....	.....	.....	.....	.....	101,798 *3,661*
8	665,647 *6,145*	.....	.....	.....	.....	.....	.....	180,800 *56*	846,447 *6,201*
9	46,130 *1,105*	29,580 *102*	.....	.....	.....	.....	.....	.....	75,710 *1,207*
10	4,400 *200*	.....	.....	.....	.....	.....	.....	.....	4,400 *200*
11	23,400 *390*	.....	.....	.....	.....	.....	.....	.....	23,400 *390*
12	156,210 *813*	33,840 *120*	.....	.....	.....	.....	.....	.....	190,050 *933*
13	252,335 *3,937*	26,600 *290*	.....	.....	.....	.....	.....	.....	278,935 *4,227*
14	875,514 *9,527*	68,920 *174*	.....	.....	.....	.....	.....	.....	944,434 *9,701*
15	1,209,232 *18,765*	.....	236,350 *815*	5,920 *40*	390,953 *10,473*	243,600 *609*	.....	.....	2,086,055 *30,702*
16	5,055,757 *10,886*	.....	238,000 *1,863*	11,000 *500*	.....	.....	.....	.....	5,304,757 *13,249*
17	.....	.....	.....	154,969 *3,834*	.....	.....	.....	.....	154,969 *3,834*
18	34,750 *665*	.....	351,186 *9,902*	100,901 *6,317*	.....	.....	.....	.....	486,837 *16,884*
Total	15,647,663 *146,544*	785,040 *7,260*	927,462 *27,807*	625,900 *20,591*	673,153 *10,561*	243,600 *609*	52,540 *16*	180,800 *56*	19,136,158 *213,443*

Figures in *italics* indicate poundage.

SUMMARY OF GAME FISH LIBERATED

July 1, 1947, to June 30, 1948

Watershed	Rainbow	Eastern Brook	Steelhead	Cutthroat	Silvers	Chinook	Chum Salmon	Yanks	Total
1	.....	.....	363,193 *7,691*	1,246,624 *30,715*	669,764 *408*	.....	42,615 *13*	.....	2,322,196 *38,828*
2	2,484,147 *50,715*	342,887 *2,032*	.....	173,276 *7,800*	.....	.....	.....	.....	3,000,310 *60,547*
3	359,581 *11,325*	107,522 *579*	.....	27,760 *1,028*	.....	.....	.....	.....	494,863 *12,932*
4	179,788 *7,120*	57,680 *286*	.....	.....	.....	.....	.....	.....	237,468 *7,406*
5	2,296,951 *55,761*	894,785 *16,503*	.....	.....	.....	547,400 *504*	.....	.....	3,739,136 *72,768*
6	96,900 *3,295*	47,600 *112*	15,120 *378*	.....	.....	.....	.....	.....	159,620 *3,785*
7	102,930 *6,606*	15,300 *30*	30,300 *120*	.....	.....	.....	.....	.....	148,530 *6,756*
8	580,530 *9,779*	90,570 *179*	.....	23,723 *41*	.....	.....	.....	219,200 *68*	914,023 *10,068*
9	201,605 *2,512*	50,880 *96*	.....	.....	.....	.....	.....	.....	252,485 *2,608*
10	.....	.....	.....	.....	.....	.....	.....	.....	.....
11	51,850 *1,805*	.....	.....	.....	.....	.....	.....	.....	51,850 *1,805*
12	60,450 *1,134*	27,720 *90*	.....	.....	.....	.....	.....	.....	88,170 *1,224*
13	140,116 *5,884*	.....	.....	.....	.....	.....	.....	.....	140,116 *5,884*
14	693,912 *15,170*	64,755 *3,430*	.....	.....	.....	.....	.....	.....	758,667 *18,600*
15	580,484 *29,209*	311,810 *701*	502,695 *1,428*	104,840 *2,490*	686,130 *6,038*	492,338 *715*	.....	.....	2,678,297 *40,581*
16	828,076 *21,484*	.....	827,709 *813*	246,127 *3,017*	.....	.....	.....	.....	1,901,912 *25,313*
17	.....	.....	.....	449,979 *18,549*	.....	.....	.....	.....	449,979 *18,549*
18	4,950 *300*	.....	604,996 *12,061*	389,404 *29,957*	.....	.....	.....	.....	999,350 *42,318*
Total	8,662,270 *222,099*	2,011,509 *24,038*	2,344,013 *22,491*	2,661,733 *93,597*	1,355,894 *6,446*	1,039,738 *1,219*	42,615 *13*	219,200 *68*	18,336,972 *369,972*

Figures in *italics* indicate poundage.

GAME FISH SALVAGED

July 1, 1946, to June 30, 1947

Shipped and Transferred	*Catfish*	*Black Bass*	*Calico Bass*	*Warmouth Bass*	*Crappies*	*Bluegills*	*Sunfish*	*Ring Perch*	*Salmon*	*Shad*	*Bull Frogs*	*Crawfish*	*Total*
Clackamas county	8,000	15,000	.....	1,000	.....	500	500	.....	.....	.....	.....	.....	25,000
Clatsop county	5,000	5,000	.....	2,000	.....	2,000	.....	1,000	.....	.....	.....	.....	15,000
Columbia county	36,000	23,250	17,500	.....	111,400	5,000	.....	30,700	206	1,900	50,000	1,000	276,956
Multnomah county	148,295	180,500	20,000	600	614,525	59,250	25,750	4,525	346	4,100	122,100	4,500	1,184,491
Polk county	8,000	500	.....	1,000	.....	500	.....	.....	.....	.....	.....	.....	10,000
Umatilla county	10,000	14,500	.....	250	11,000	1,250	.....	500	.....	.....	1,000	.....	38,500
Yamhill county	12,000	12,750	.....	250	.....	250	500	250	.....	.....	.....	.....	26,000
Grand totals	227,295	251,500	37,500	5,100	736,925	68,750	26,750	36,975	552	6,000	173,100	5,500	1,575,947

July 1, 1947, to June 30, 1948

Clackamas county	2,700	3,005	5,500	1,010	10,406	1,012	12	102	300	.....	70	.....	24,117
Columbia county	25,700	12,350	5,000	.....	109,000	2,000	.....	.....	.....	.....	37,000	.....	191,050
Klamath County	1,000	1,000	2,000	2,000	.....	1,000	250	250	.....	.....	1,000	.....	8,500
Multnomah county	772,426	230,025	224,500	9,250	1,066,200	89,200	5,051	100	13	.....	375,200	.....	2,771,965
Tillamook county	1,000	3,000	750	50	10,000	200	.....	.....	.....	.....	.....	.....	15,000
Yamhill county	4,000	1,000	500	250	6,000	250	.....	.....	.....	.....	.....	.....	12,000
Grand totals	806,826	250,380	238,250	12,560	1,201,606	93,662	5,313	452	313	....	413,270	.....	3,022,632

BOUNTIES

	July 1, 1946, to June 30, 1947						July 1, 1947, to June 30, 1948					
	Cougar		*Wolf*		*Bobcat*		*Cougar*		*Wolf*		*Bobcat*	
Baker	3	$ 150.00		$	59	$ 147.50	3	$ 150.00		$	70	$ 175.00
Benton												
Clackamas	10	500.00			41	102.50	16	800.00			66	165.00
Clatsop					120	300.00	1	50.00			175	437.50
Columbia					64	160.00					33	82.50
Coos	4	200.00			109	272.50	7	350.00			106	265.00
Crook					44	110.00	2	100.00			133	332.50
Curry	2	100.00			65	162.50	19	950.00			63	157.50
Deschutes					32	80.00					52	130.00
Douglas	47	2,350.00			171	427.50	33	1,650.00			146	365.00
Gilliam												
Grant												
Harney												
Hood River							1	50.00				
Jackson	13	650.00			193	482.50	7	350.00			218	545.00
Jefferson					15	37.50					20	50.00
Josephine	13	650.00			41	102.50	4	200.00			98	245.00
Klamath												
Lake							4	200.00				
Lane	20	1,000.00	1	30.00	151	377.50	29	1,450.00			92	230.00
Lincoln	4	200.00			52	130.00	1	50.00			84	210.00
Linn	14	700.00			16	40.00	31	1,550.00			25	62.50
Malheur												
Marion	3	150.00			2	5.00	2	100.00			1	2.50
Morrow												
Multnomah	5	250.00			4	10.00	8	400.00			15	37.50
Polk					16	40.00	6	300.00			28	70.00
Sherman												
Tillamook					116	290.00	1	50.00			154	385.00
Umatilla												
Union	1	50.00					1	50.00				
Wallowa	1	50.00			36	90.00	10	500.00			60	150.00
Wasco	1	50.00			36	90.00					16	40.00
Washington												
Wheeler					41	102.50					46	115.00
Yamhill												
Total	141	$7,050.00	1	$ 30.00	1,424	$3,560.00	186	$9,300.00		$	1,701	$4,252.50

SUMMARY OF HUNTING AND ANGLING LICENSES SOLD

1915 to 1947, Inclusive

	1915		1916	
	Number	*Fees*	*Number*	*Fees*
Resident hunters	45,601	$ 45,601.00	36,336	$ 36,336.00
County hunters	.....	.....	.....	.....
Nonresident hunters	97	970.00	102	1,020.00
Resident anglers	47,379	47,379.00	45,304	45,304.00
County anglers	.....	.....	.....	.....
Nonresident anglers	.....	.....	.....	.....
Resident combination	6,336	12,672.00	5,913	11,826.00
Total		$106,622.00		$ 94,486.00

	1917		1918	
	Number	*Fees*	*Number*	*Fees*
Resident hunters	27,325	$ 37,576.00	30,409	$ 45,613.50
County hunters	.....	.....	.....	.....
Nonresident hunters	90	900.00	88	880.00
Resident anglers	43,650	51,566.00	43,420	65,130.00
County anglers	.....	.....	.....	.....
Nonresident anglers	.....	.....	.....	.....
Resident combination	8,901	19,663.00	5,432	16,446.00
Total		$109,705.00		$128,069.50

	1919		1920	
	Number	*Fees*	*Number*	*Fees*
Resident hunters	41,875	$ 62,812.50	45,146	$ 67,749.00
County hunters	.....	.....	.....	.....
Nonresident hunters	179	1,790.00	304	3,040.00
Resident anglers	52,743	79,114.50	57,245	85,867.50
County anglers	.....	.....	.....	.....
Nonresident anglers	122	404.25	661	2,186.65
Resident combination	7,434	22,302.00	8,641	25,923.00
Certificates	.....	.....	746	186.50
Total		$166,423.25		$184,952.65

	1921		1922	
	Number	*Fees*	*Number*	*Fees*
Resident hunters	29,983	$ 85,912.50	28,908	$ 86,724.00
County hunters	1,789	2,683.50	2,552	3,828.00
Nonresident hunters	319	3,190.00	404	4,040.00
Resident anglers	34,716	94,723.50	31,204	93,612.00
County anglers	1,349	2,023.50	1,613	2,419.50
Nonresident anglers	878	3,401.75	1,103	4,078.50
Resident combination	14,780	65,818.00	15,630	78,150.00
Certificates	939	234.75	1,093	273.25
Total		$257,987.50		$273,125.25

SUMMARY OF HUNTING AND ANGLING LICENSES SOLD—Continued

	1923		1924	
	Number	*Fees*	*Number*	*Fees*
Resident hunters	28,229	$ 84,687.00	32,045	$ 96,135.00
County hunters	2,661	3,991.50	2,920	4,380.00
Nonresident hunters	552	5,520 00	638	6,380.00
Resident anglers	37,552	112,656.00	42,847	128,541.00
County anglers	2,031	3,046.50	2,339	3,508.50
Nonresident anglers	1,876	6,648.40	2,869	10,040.50
Resident combination	17,719	88,595.00	18,519	92,595.00
Certificates	1,246	311.50	1,404	351.00
Total		$305,455.90		$341,931.00

	1925		1926	
	Number	*Fees*	*Number*	*Fees*
Resident hunters	31,695	$ 95,085.00	34,440	$103,320.00
County hunters	3,031	4,546.50	3,090	4,635.00
Nonresident hunters	715	7,150.00	748	7,480.00
Resident anglers	43,723	131,169.00	45,988	137,964.00
County anglers	2,533	3,799.50	2,603	3,904.50
Nonresident anglers	4,055	12,475.00	4,639	13,917.00
Resident combination	18,627	93,135.00	17,392	86,960.00
Certificates	1,431	357.75	1,437	359.25
Total		$347,717.75		$358,539.75

	1927		1928	
	Number	*Fees*	*Number*	*Fees*
Resident hunters	35,641	$106,923.00	36,895	$110,685.00
County hunters	3,650	5,475.00	4,222	6,333.00
Nonresident hunters	702	6,871.50	849	8,242.25
Resident anglers	46,197	138,591.00	46,795	140,385.00
County anglers	2,920	4,380.00	3,458	5,187.00
Nonresident anglers	4,613	16,349.20	5,368	17,574.70
Resident combination	18,116	90,580.00	19,155	95,775.00
Nonresident combination	77	862.25	77	904.00
Certificates	1,433	358.25	1,496	374.00
Total		$370,390.20		$385,459.95

	1929		1930	
	Number	*Fees*	*Number*	*Fees*
Resident hunters	36,458	$109,374.00	40,661	$121,983.00
County hunters	4,679	7,018.50	4,590	6,885.00
Nonresident hunters	527	6,997.00	563	8,445.00
Resident anglers	48,096	144,288.00	49,543	148,629.00
County anglers	4,371	6,556.50	4,628	6,942.00
Nonresident anglers	6,536	20,105.00	6,654	19,962.00
Resident combination	19,681	98,405.00	19,063	95,315.00
Nonresident combination	66	991.00	.....	.....
Certificates	1,329	332.25	1,333	333.25
Total		$394,067.25		$408,494.25

SUMMARY OF HUNTING AND ANGLING LICENSES SOLD—Continued

	1931		1932	
	Number	*Fees*	*Number*	*Fees*
Resident hunters	41,975	$125,925.00	33,647	$100,941.00
County hunters	4,864	7,296.00	3,895	5,842.50
Nonresident hunters	445	6,675.00	342	5,130.00
Resident anglers	46,327	138,891.00	36,262	108,786.00
County anglers	4,251	6,376.50	3,580	5,370.00
Nonresident anglers	6,449	19,347.00	4,281	12,843.00
Resident combination	17,217	86,085.00	13,326	66,630.00
Certificates	1,404	351.00	1,012	253.00
Total		$391,036.50		$305,795.50

	1933		1934	
	Number	*Fees*	*Number*	*Fees*
Resident hunters	34,941	$104,823.00	40,367	$121,101.00
County hunters	3,774	5,661.00	4,584	6,876.00
Nonresident hunters	257	3,855.00	376	5,640.00
Resident anglers	32,811	98,433.00	42,166	126,498.00
County anglers	3,234	4,851.00	4,386	6,579.00
Nonresident anglers	3,978	11,934.00	5,804	17,412.00
Combinations	11,848	59,240.00	14,890	74,450.00
Elk tags	2,523	6,307.50	3,140	7,850.00
Specials and renewals	1,825	912.50	2,776	1,388.00
Certificates	766	325.75	1,067	533.50
Total		$296,342.75		$368,327.50

	1935	
	Number	*Fees*
Resident hunters	44,760	$134,280.00
County hunters	550	825.00
Juvenile hunters	2,573	2,573.00
Nonresident hunters	499	7,485.00
Resident anglers	43,970	131,910.00
County anglers	3,833	5,749.50
Juvenile anglers	1,951	1,951.00
Nonresident anglers	5,411	16,233.00
Vacation anglers	4,855	4,855.00
Resident combination	16,964	84,820.00
Elk tags	2,743	8,405.00
Specials and renewals	3,073	1,536.50
Certificates	935	567.50
Total		$401,090.50

SUMMARY OF HUNTING AND ANGLING LICENSES SOLD—Continued

	1936		1937	
	Number	*Fees*	*Number*	*Fees*
Resident hunters	48,459	$145,377.00	51,218	$153,654.00
Juvenile hunters	3,530	3,530.00	3,529	3,529.00
Nonresident hunters	637	9,555.00	612	9,180.00
Resident anglers	49,234	147,702.00	54,182	162,546.00
Juvenile anglers	8,590	8,590.00	9,822	9,822.00
Nonresident anglers	6,822	20,466.00	7,291	21,873.00
Vacation anglers	8,490	8,490.00	10,546	10,546.00
Resident combination	19,576	97,880.00	22,026	110,130.00
Certificate of lost license	1,091	545.50	1,221	610.50
Resident elk	2,936	8,808.00	3,061	9,183.00
Nonresident elk	11	275.00	3	75.00
Veterans, pioneers, and specials	3,465	1,732.50	3,899	1,949.50
Total		$452,951.00		$493,098.00

	1938		1939	
	Number	*Fees*	*Number*	*Fees*
Resident hunters	52,337	$157,011.00	55,673	$167,019.00
Juvenile hunters	3,481	3,481.00	3,102	3,102.00
Nonresident hunters	654	9,810.00	752	11,280.00
Resident anglers	55,452	166,356.00	58,536	175,608.00
Juvenile anglers	10,451	10,451.00	10,061	10,061.00
Nonresident anglers @ $3.00	8,043	24,129.00	2,541	7,623.00
Nonresident anglers @ $5.00	.....	.....	3,005	15,025.00
Vacation anglers @ $1.00	11,593	11,593.00	1,655	1,655.00
Vacation anglers @ $2.00	.....	.....	4,463	8,926.00
Resident combination	21,930	109,650.00	23,763	118,815.00
Certificate of lost license	1,238	619.00	1,252	626.00
Resident elk	3,860	11,580.00	3,872	19,360.00
Nonresident elk	7	175.00	6	150.00
Antlerless deer	270	1,350.00	.....	.....
Antelope	274	1,370.00	293	1,465.00
Nonresident antelope	2	50.00	3	75.00
Cow elk	.....	.....	500	2,500.00
Grant county doe	.....	.....	14,324	14,324.00
Lake-Klamath counties doe	.....	.....	488	2,440.00
Nonresident Lake-Klamath counties doe	.....	.....	1	25.00
Veterans, pioneers, and specials	4,404	2,202.00	4,833	2,416.50
Total		$509,827.00		$562,495.50

SUMMARY OF HUNTING AND ANGLING LICENSES SOLD—Continued

	1940		1941	
	Number	*Fees*	*Number*	*Fees*
Resident hunters	58,967	$176,901.00	73,854	$221,562.00
Juvenile hunters	3,287	3,287.00	4,311	4,311.00
Nonresident hunters	1,015	15,225.00	1,243	18,645.00
Resident anglers	61,419	184,257.00	67,013	201,039.00
Juvenile anglers	10,002	10,002.00	10,622	10,622.00
Nonresident anglers @ $5.00	5,182	25,910.00	3,911	19,555.00
Vacation anglers @ $2.00	5,610	11,220.00	1,673	3,346.00
Vacation anglers @ $3.00			7,259	21,777.00
Resident combination	25,504	127,520.00	31,209	156,045.00
Certificate of lost license	1,223	611.50	1,452	726.00
Resident elk	4,142	20,710.00	9,110	45,550.00
Nonresident elk	11	275.00	39	975.00
Resident cow elk	2,000	10,000.00		
Special elk			54	135.00
Antelope	554	2,830.00	2,998	2,998.00
Tags			6,585	197.55
Lake-Klamath doe-deer @ $2.00			791	1,582.00
Lake-Klamath doe-deer, non. resident @ $5.00			9	45.00
Grant doe-deer @ $2.00			2,977	5,954.00
Grant doe-deer . . $5.00, non-resident			23	115.00
Special combination	5,264	2,632.00	6,999	3,499.50
Total	184,180	$591,380.50	232,132	$718,679.05

	1942	
	Number	*Fees*
Resident hunters	68,647	$205,941.00
Juvenile hunters	4,750	4,750.00
Nonresident hunters	1,225	18,375.00
Resident anglers	69,414	208,242.00
Juvenile anglers	10,503	10,503.00
Nonresident anglers	3,338	16,690.00
Vacation anglers	5,214	15,723.00
Resident combination	26,675	133,375.00
Certificate of lost license	1,059	529.50
Resident bull elk	7,040	35,200.00
Nonresident bull elk	34	850.00
Resident cow elk	2,000	10,000.00
Special elk	79	197.50
Resident antelope	1,054	3,689.00
Nonresident antelope	54	270.00
Special combination	6,128	3,064.00
Pioneer renewals	311	155.50
Veteran renewals	516	258.00
Resident doe	2,977	10,419.50
Nonresident doe	23	115.00
Total	211,041	$678,347.00

SUMMARY OF HUNTING AND ANGLING LICENSES SOLD—Continued

	1943		1944		1945	
	Number	*Fees*	*Number*	*Fees*	*Number*	*Fees*
Resident hunters	75,249	$225,747.00	75,467	$226,401.00	81,320	$243,960.00
Juvenile hunters	3,585	3,585.00	4,665	4,665.00	4,629	4,629.00
Nonresident hunters	1,418	21,270.00	1,952	29,280.00	3,086	46,290.00
Resident anglers	76,082	228,246.00	74,188	222,564.00	80,518	241,554.00
Juvenile anglers	11,934	11,934.00	12,379	12,379.00	13,515	13,515.00
Nonresident anglers	2,547	12,735.00	2,875	14,375.00	4,661	23,305.00
Vacation anglers	3,000	9,000.00	3,357	10,071.00	6,361	19,083.00
Resident combination	38,633	193,165.00	49,149	245,745.00	64,116	320,580.00
Certificate of lost licenses	1,143	571.50	1,333	666.50	1,609	804.50
Resident bull elk	11,206	56,030.00	9,838	49,190.00	12,392	61,960.00
Nonresident bull elk	32	800.00	65	1,625.00	135	3,375.00
Resident cow elk	1,998	9,990.00	505	2,525.00	.....	.....
Nonresident cow elk	2	50.00	1	25.00	.....	.....
Special elk	127	317.50	104	260.00	98	245.00
Resident antelope	1,170	2,925.00	1,824	4,560.00	767	1,917.50
Nonresident antelope	38	190.00	70	350.00	34	170.00
Special combination	5,796	3,353.50	4,647	4,647.00	5,538	5,538.00
Special hunters	587	293.50	989	494.50	501	250.50
Pioneer renewals	314	157.00	258	129.00	.....	.....
Veteran renewals	565	282.50	568	284.00	2	1.00
Grant county doe—resident	2,481	8,683.50	2,980	10,430.00	.....	.....
Grant county doe—nonresident	22	110.00	18	90.00	.....	.....
Hart mountain doe—resident	326	1,141.00	293	1,025.50	.....	.....
Hart mountain doe—nonresident	10	50.00	6	30.00	.....	.....
Hart mountain buck—resident	242	847.00	194	679.00	.....	.....
Hart mountain buck—nonresident	8	40.00	6	30.00	.....	.....
Special anglers	207	103.50	1,269	634.50	841	420.50
Lake-Klamath doe—resident	5,947	20,814.50	.....	.....	.....	.....
Lake-Klamath doe—nonresident	51	255.00	.....	.....	.....	.....
Steens mountain doe—resident	982	3,437.00	.....	.....	.....	.....
Steens mountain doe—nonresident	21	105.00	.....	.....	.....	.....
Resident doe	.....	.....	.....	.....	789	2,761.50
Nonresident doe	.....	.....	.....	.....	10	50.00
Total	245,723	$816,229.00	249,000	$843,155.00	280,922	$990,409.50

SUMMARY OF HUNTING AND ANGLING LICENSES SOLD—Continued

	1946		1947	
	Number	*Fees*	*Number*	*Fees*
Resident hunters	91,837	$ 275,511.00	96,156	$ 288,468.00
Juvenile hunters	4,623	4,623.00	5,097	5,097.00
Nonresident hunters	4,831	72,465.00	5,518	82,770.00
Resident anglers	103,484	310,452.00	115,836	347,508.00
Juvenile anglers	14,494	14,494.00	15,881	15,881.00
Nonresident anglers	8,926	44,630.00	10,089	50,445.00
Vacation anglers	17,464	52,392.00	21,460	64,380.00
Resident combination	91,118	455,590.00	94,636	473,180.00
Certificate of lost license	2,051	1,025.50	2,378	1,189.00
Resident elk	16,164	80,820.00	15,882	79,410.00
Nonresident elk	316	7,900.00	546	13,650.00
Resident doe deer	1,819	9,095.00	.....	.....
Nonresident doe deer	5	125.00	.....	.....
Resident elk—Troy and Ukiah	282	1,410.00	98	490.00
Nonresident elk—Ukiah	.....	.....	2	50.00
Special bull elk	232	580.00	261	652.50
Special annual hunting	500	250.00	480	240.00
Special annual angling	838	419.00	928	464.00
Special annual combination	6,111	6,111.00	6,733	6,733.00
Duplicate elk tags	.....	.....	2	1.00
Total	365,095	$1,337,892.50	391,983	$1,430,608.50