

Oregon State GAME COMMISSION BULLETIN

Vol. III

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No. 5

Waterfowl Hearing Held In Seattle

Another of the series of regional hearings being held by Albert M. Day, director of the U. S. Fish and Wildlife Service, to discuss the waterfowl situation prior to setting the 1948 regulations took place in Seattle, Washington, April 13, with sportsmen and representatives of the game departments from Washington, Oregon, Montana and Idaho attending. The meeting was presided over by Leo L. Laythe, regional director of the Fish and Wildlife Service headquartered at Portland. Those representing the Oregon Game Commission were Commissioner Kenneth S. Martin, C. A. Lockwood, state game supervisor; P. W. Schneider, director of Game; F. B. Wire, secretary; A. V. Meyers, chief biologist in charge of waterfowl.

Management of waterfowl on a flyway basis was strongly emphasized and the Fish and Wildlife Service requested to proceed toward this end as fast as possible. The Pacific Flyway takes in Oregon, Washington, Idaho, California, Nevada and western Montana. Eastern Montana is in the Mississippi Flyway so that state is confronted with two sets of problems.

Although it was realized that it was too early for either the federal government or the state departments to have sufficient information to make final recommendations for the 1948 hunting regulations, the states of Montana, Washington, Idaho and Oregon, did offer tentative suggestions to Mr. Day, these being subject to further consideration when the annual meeting of the Western Association of the State Game and Fish Commissioners is held at Salt Lake City in June. The tentative recommendations were as follows:

Bag Limits: Ducks, 6 a day, 12 in possession. (California has recommended a straight daily bag limit of 8.) Geese: 5 a day, 10 in possession.

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Game Division Program

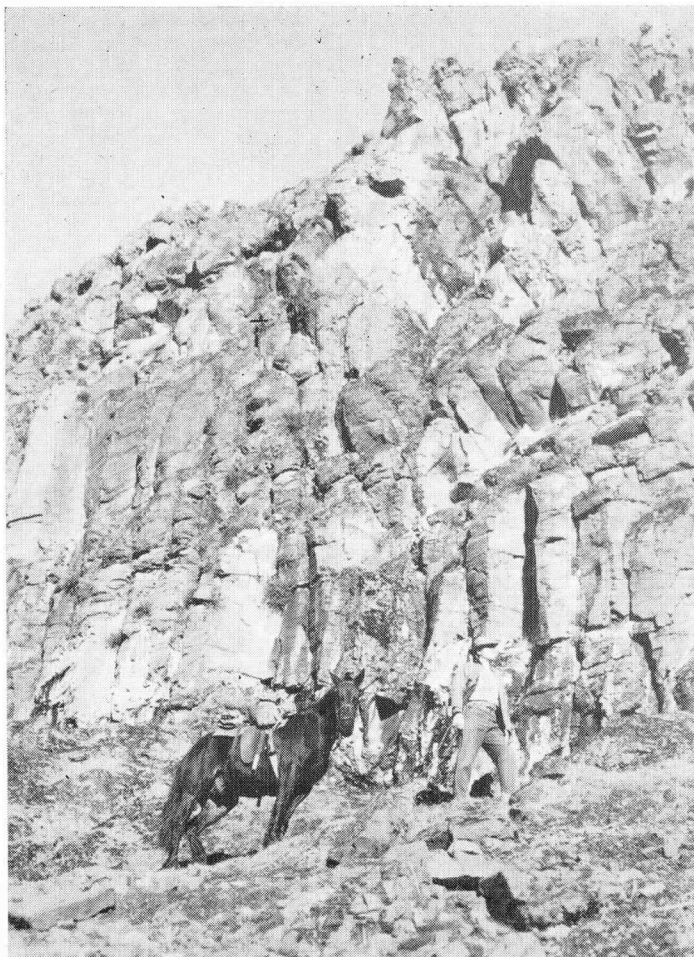
By P. W. SCHNEIDER, Director of Game

The Oregon State Game Commission during the past two years has inaugurated extensive expansions in its program. The two major divisions, insofar as the resources are concerned, are Fisheries and Game, and the purpose of this article is to discuss briefly the activities and objectives of the Game Division. It deals chiefly with the game birds, and game and fur-bearing mammals of the state, and the maintenance of these resources to maximum levels of abundance, compatible with available habitat and their wise utilization, is of first consideration. In addition, however, it is a major precept that continuous effort be directed to the preservation of all the natural fauna of the state to the end that this heritage shall be preserved in perpetuity. An orderly program, competently carried out in detail, is essential.

During the past decade the responsibility of effecting a sound program of management of our game resources has become extremely difficult to fulfill. There are many reasons for this, some obvious and others less apparent. From 1936 to 1946 there was an increase in utilization of our game resources by the people of over 163 per cent as expressed in terms of licenses sold. At the present time, over one-fourth of our total citizenry participate in the direct harvest of game.

Other less obvious factors are probably contributing even more problems in maintaining game populations. Land use, both in intensity and manner, affect directly the habitat in which the various game species must exist. The use of newly developed insecticides and herbicides potentially presents a hazard of far-reaching proportions to upland populations if generally accepted in extensive weed and insect control programs. Abuse of regulations designed to provide a reasonable but safe cropping from year to year adds a loss which is formidable. We now have some areas revealing a substantial increase in certain

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Craggy cliffs along the North Fork of the John Day river provide rough travelling for both horse and field agent while on a game survey.

☆ THIS AND THAT ☆

Two new trout lakes along the Columbia river highway below Multnomah Falls are in the offing when plans of the fisheries staff materialize. The lakes are being formed out of the present shallow water area as a result of the construction of the new highway. Game Commission personnel recently poisoned all the trash fish in the area so that rainbow trout could be released when the lakes were ready.

* * *

The second and last beaver sale of the season was held on March 25, when 2,290 beaver pelts, 114 muskrat pelts and 289 pounds of beaver castors were sold. A gross of \$66,695.98, with an average of \$29.12, was realized from the beaver pelts. All dead-trapping has been completed for the season except when acute damage complaints are received.

* * *

Anglers are warned that the tick season is on, particularly in the eastern part of the state, and that precautionary measures might be advisable before taking that fishing trip.

* * *

This is also the season for warning people not to pick up those "cute, deserted" fawns for nine chances out of ten the mother is nearby and planning to retrieve her offspring. It is far better to give a fawn the benefit of the doubt and a chance to live in the wild state. Fawns raised in captivity are attractive pets only a short time for as they grow older, they can become mean and dangerous.

* * *

Whether or not blacktail and whitetail deer ever cross has been the cause of discussion among hunters off and on through the years. Proof that this does happen was recently received when the State Police brought in a confiscated deer shot in Columbia county that showed characteristics of both deer. The skull and antlers were forwarded to the Museum of Vertebrate Zoology, University of California and their report confirmed the opinion of Game Commission personnel that the animal was a cross.

* * *

The Pacific Fisheries Biologists annual meeting held at Quinault Lake, Washington, late in March was attended by eight of the Game Commission's fisheries staff. The sessions covered stream and lake improvement, lake fertilization, spawning bed surveys, hatchery techniques and allied topics.

* * *

Index to Volume II (1947) of the Bulletin now is available and a copy will be mailed to anyone upon request as long as the limited supply lasts.

* * *

The wolf spider, only about an inch long, often carries its young on its back until they can fend for themselves. A brood will sometimes number as many as one hundred and twenty-five.

Public Relations Office Created

To carry out an expanded public relations and educational program, the Commission announces the employment of Clark B. Walsh as public relations director.

Mr. Walsh is a former employee of the Commission, serving with the department from 1936 to 1943. In recent years he has been editor of Western Outdoors and also has had varied radio and newspaper experience.

Aside from doing general public relations work, he will have charge of developing an educational program to promote more interest in wildlife conservation in schools and other groups.

MAY-JUNE CALENDAR

Open season both months for:

Trout
Salmon and Steelhead
Jack Salmon
Spiny-rayed fish
Predatory animals

NOTE: For specific exceptions, consult official synopsis of hunting or angling regulations.

Oregon State Game Commission Bulletin

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April Meeting of the Game Commission

The Oregon State Game Commission held its regular monthly meeting on April 9 and 10 at its offices in Portland and conducted the following business:

Bids were opened for the purchase of pasture land at the Hermiston game farm and all bids were rejected. It was then decided that the land would be leased for the current pasture year to Stephen Spike of Echo.

The following bids were received for another segment of construction at the Wizard Falls trout hatchery:

John Kovytynich\$53,200
Carl M. Halvorsen..... 44,979
Ken Ward Construction Co.. 44,040
A. Wilson Benold..... 53,100

The bid of Ken Ward Construction Company was accepted and the Supervisor authorized to execute the contract.

Advertisement for the sale of the Pendleton game farm was postponed until after the property had been inspected by the Commission.

It was decided that the matter of introduction of cottontail rabbits be brought up for consideration at the May meeting of the Commission and all interested parties notified.

Resolutions received from the Western Oregon Livestock Association were read.

It was ordered that the daily shooting fee for all public shooting grounds under the jurisdiction of the Commission be \$2.

The Supervisor was instructed to negotiate for the purchase of three additional hatchery sites along the coast after the sites had first been approved by the fisheries staff.

The Supervisor was asked to contact the Washington State Game Commission in regard to the possibility of obtaining some mountain goats. (See story on page 4).

The Supervisor was instructed to formulate a program for improvement work on the Sandy river to the extent of funds available from the sale of smelt licenses.

Commissioner Martin was authorized to represent the Commission at the waterfowl hearing in Seattle scheduled by the Fish and Wildlife Service for April 13.

James J. Washburn, Heppner, was added to the recommended list of applicants for membership in the game division of the State Police.

P. W. Schneider and A. S. Einarsen outlined the work in connection with upland game that was being done in the Madras area and explained that a progress report would be submitted later.

John West appeared before the Commission with reference to his application for a guide's license. The matter was held up for the May meeting.

It was decided that the next meeting would be held in Portland on May 7 and 8.

Marked Trout Planted In the McKenzie

During the month of April approximately 50,000 marked native rainbow trout were planted in the McKenzie river, the fish ranging from 6 to over 20 inches in length.

One lot of fish numbering about 24,400 and ranging in size from 6 to 8 inches has been marked by clipping off the left ventral fin, which is one of a pair of fins located immediately under the belly of the fish. This group was planted in the main McKenzie from Leaburg dam to Paradise recreation area, a distance of about 35 miles.

Another lot of approximately 6,700 fish which have been held at the McKenzie hatchery for two years was liberated from the town of Blue River to a point 12 miles upstream. These fish can be identified in that both ventral belly fins have been removed plus the removal of the small adipose fin immediately in front of the tail.

The largest fish liberated before the opening of the season consisted of approximately 1,000 six year olds ranging in size from 15 to 23 inches. These fish have been marked by clamping a small metal strap tag in the left hand side of the lower jaw.

In an effort to remedy the mid-season slump in fishing which often occurs on this river in July and August, the Game Commission will plant during that time 27,000 legal sized fish which have been marked by clipping off the right ventral belly fin.

Later on this summer 100,000 fingerlings will be marked. Half of them will be liberated in a suitable tributary while the other 50,000 marked in a different manner, will be released in the main river within a mile on either side of the tributary selected.

The purpose behind the planting of marked fish in the McKenzie river are several. First it will help to determine the return to the angler from plants of

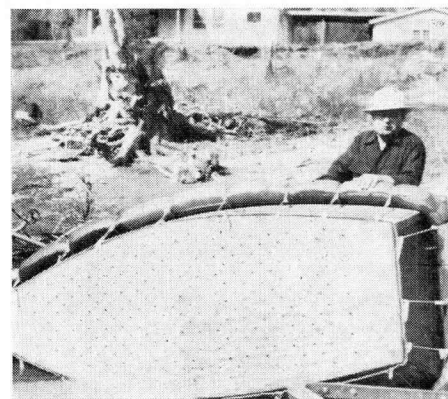
legal sized hatchery fish placed in the main stream. Secondly it is hoped that the return from mid-season plantings can be learned and that the best place to plant fingerlings, main stream or tributaries can be ascertained. The program will also furnish material for the study of trout migrations and will offer a comparison of results from each type of planting. Once learned this can be applied to all future trout liberations in the river.

Because the area is too large to successfully make a 100% creel census, the Commission is asking each fisherman to record his daily catch on report cards provided for the purpose. These cards will be available at all sporting goods stores in Eugene and Springfield and in all resorts, eating places, stores, service stations and forest service recreation sites throughout the McKenzie area.

No Live Bait! No Chumming!

Live minnows or bait fish may not be used while angling for game fish in any waters except under one condition. They may be used in waters known to contain bass or crappies but even then the minnows have to be taken from the same waters in which they are being used as bait. The law also prohibits the transporting of live fish from one body of water to another. Strict adherence to the intent of these regulations is necessary by anglers if they wish to prevent the spread of trash fish in trout waters. As has been pointed out in various articles before, many of the better known mountain trout lakes now have trash fish problems which require drastic control measures on the part of the Game Commission in order to maintain the trout fishing.

The practice of chumming or baiting a hole with salmon eggs, corn, or other substances, likewise is outlawed.



Bottom view of the McKenzie fish planting boat.

Fish Planting Boat Used

The new fish planting boat designed for use on the McKenzie river, after successfully passing its test early in April, is now being used extensively in stocking that stream with trout.

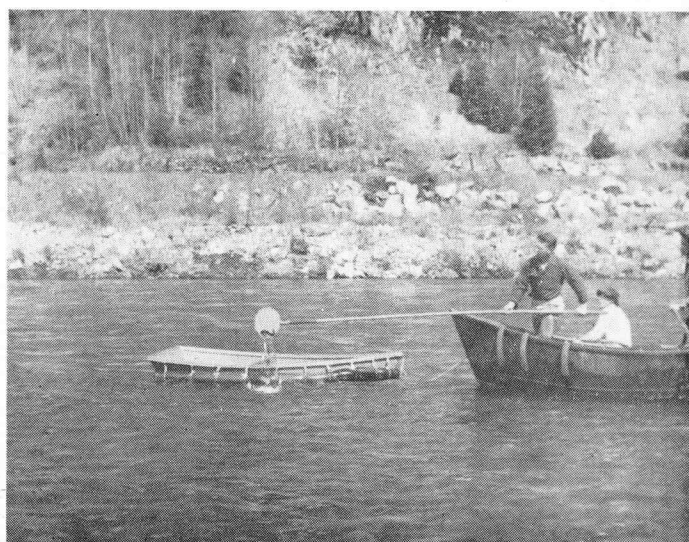
The boat is approximately 10 feet long and over 4 feet wide. Its bottom and sides are drilled full of holes to allow free circulation of water. Two compartments in the boat, which are separated by a plywood wall, will hold about 3,000 legal-sized fish.

Actually, the planting boat is merely a floating livebox which, when filled with fish, is roped downstream in front of a McKenzie river boat. As the boat moves down the river, a man standing in the stern of the river boat dips fish out of the planting boat with a long handled dip net. Its use in the McKenzie river will enable the Game Commission to liberate fish in sections of the stream that have been impossible to reach by tank trucks.

The planting boat was designed from a similar model used by Dr. Paul R. Needham in the state of New Jersey. It was built by Woodie Hindman in Springfield.



The live box boat is loaded with fish by hose from the tank truck.



Fish are dipped out of boat as it is towed down the McKenzie river.

Mountain Goats in Oregon?

Oregon may yet have mountain goats in some of its wilderness areas if present plans with the state of Washington materialize. At its April meeting, the Washington State Game Commission promised to try to trap 25 adult goats next winter for transplanting to Oregon. It is planned to release the goats in the high craggy areas of the Willowa and Cascade Mountains.

As an experiment, five or six young kids will be trapped this spring and raised by the Oregon game department.

As far as can be determined by wildlife authorities, the mountain goat never existed in Oregon although mountain sheep did in certain sections.

Refuges for Deer In Western Oregon

A flexible refuge system in western Oregon is recognized to be of value from a black-tailed deer production standpoint.

Because of inaccessibility due to heavy brush and timber, much of the area in western Oregon has not been attractive from the hunter's standpoint. This is especially true in recent years when a shift in hunting pressure from western to eastern Oregon occurred. An increase in mule deer numbers, rapid means of transportation, improved roads, and accessibility of deer on more open ranges were felt to be responsible for this very noticeable change in hunting habits on the part of an increasing number of sportsmen.

Mule deer numbers apparently reached a peak in the late 1930's but the hunting pressure continued to increase until a record high was reached during the 1947 season. In order to prevent a decrease in mule deer numbers as a result of this heavy pressure, steps must be taken to improve hunting success in other sections.

The Oregon Game Commission is anticipating this chain of events and hopes to meet a part of the increased demand by encouraging a shift of hunting pressure from eastern to western Oregon. A shift is possible only when hunting conditions in the Coast and Cascade ranges improve over those present eastward.

It is evident that little increase in the use of dense timber and brush areas by hunters can be expected.

During the war a boom in logging and sawmill operations occurred. This accelerated activity is expected to continue for some time as a result of construction demands for lumber. Under these conditions many areas which would not be considered economically sound to log during normal times are being cut at present.

As logging is carried on, many of the deer leave the areas because of the disturbance. After logging, the section can produce a very desirable deer density in a comparatively short time. The success of this improvement depends on recognizing a few sound management principles.



A mountain goat and its kid.

Continued hunting immediately following logging will discourage an increase in deer numbers. However, if the area is closed for a period of a few years and a breeding herd is built up, populations will increase to a point where a very desirable surplus of bucks exists. Of course, cooperation of landowners and sportsmen with law enforcement agencies is essential in order to reduce poaching loss. Since a recently logged area generally produces poor hunting success, a closure will affect very few hunters and offers a desirable premium when again opened.

Any section to be considered must possess certain basic features. In the first place, it must be fairly large in order to provide an abundance of protected habitat upon which the breeding herds can increase. Also, the boundary must be definite in order to facilitate posting and patrol. A most important condition is the removal of enough of the tree cover so that large portions of the ground are exposed. This will encourage growth of an abundance of palatable ground forage which becomes the main inducement for deer to use the area. A closure based upon the presence of these conditions will result in better hunting of bigger bucks.

After the occurrence of fires the same condition of exposed ground surface exists as after logging. Fires are recognized to be undesirable from the timber loss standpoint, destruction of humus, and loss of game but do offer an opportunity for practical game management which should not be overlooked. Protection of the area for a period of years will encourage high deer densities as was evidenced by excellent hunting after the Tillamook Burn was opened in 1943.

A noticeable decline in hunting success occurs after several years when the brush again grows up and reverts to dense stands. This trend takes place on both logged and burned over areas but can be offset by rotating closures as new sections become available.

It is the purpose of the Game Commission to appraise all areas which may offer possibilities for increasing black-tailed

Tillamook Burn Deer Losses

Field agents of the Oregon State Game Commission, during the past two months have been investigating deer losses in the Tillamook Burn area. For a number of years periodic small losses have occurred in the coastal area of Oregon. To determine the causes of these losses a long term study has been made. This study has been conducted by the Game Commission and the Oregon Cooperative Wildlife Research Unit.

Each year, including the present one, autopsies have been performed by the Veterinary Department of the State College. In no case have the deer been found to be victims of any type of infectious disease. The cause of death has been a plant toxemia and some have shown signs of malnutrition. In most cases parasites were present.

In view of the fact that feed is ample in quantity a series of plant studies has been carried on to determine the quality of the feeds. It has been discovered that in the period from October to April the protein content of the feeds drops off in excess of 50 per cent. This is more pronounced when a rainy spring brings a lack of sunshine to these plants. A few toxic plants are present and are fed upon to some extent by the deer.

Two years ago when a loss occurred in the Cook Creek section of the coastal area, feeding was tried as a test. Hay, rolled barley and salt were tried, but due to the presence of quantities of succulent feed the deer could not be induced to eat the offered feed.

The ultimate solution is still in the future and continued study is being given the problem.

Winter Steelhead Season on Umpqua

Intensive creel censusing operations in the upper and lower Umpqua River areas indicate that approximately 2,400 winter steelhead were taken as a result of 12,500 days of angling effort from November 1 through February 29. Excellent cooperation on the part of many sport fishermen has made possible this type of study by Game Commission fishery biologists.

Comparisons with data obtained during the previous run of winter steelhead show a marked decline in the rate of catch, going from 0.37 fish per angler in 1946-47 to 0.2 in 1947-48. The distribution of average angler success has remained about constant, with the lower river anglers taking 0.23 fish and upriver sportsmen getting an average of 0.155. Last year the relationship between lower

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deer numbers. A system of closures on suitable exposed areas appears to offer practical potentialities and it is expected that the present program will result in an increase in deer surpluses for harvesting.

The Sandy River Smelt Run

After skipping the 1947 season, the Sandy River smelt run again made its appearance on March 27, Easter weekend, to the thrill of thousands of smelt dippers and spectators. The run, while not as heavy as some in previous years, stretched out for a two week period, the Game Commission personnel ceasing to sell licenses on April 11.

The biggest license sale in history was recorded, with 32,422 individuals purchasing noncommercial dipping permits at 50 cents each. Total revenue received, exclusive of administration expenses, amounted to \$16,211. People from all sections of the state were among license purchasers as well as quite a number from out of the state. Dippers worked day and night, necessitating keeping license sellers on duty almost 24 hours a day.

By law the Game Commission is required to disburse the moneys received from smelt licenses for the "improvement of the Sandy River for angling and smelt fishing purposes." Prior to the 1948 season, the Game Commission had received a total of \$33,239.50 since 1929 from the sale of smelt licenses and had disbursed \$44,463.63 for work done on the Sandy. With this season's sales, a surplus of funds will be on hand and the Commission has instructed C. A. Lockwood, state game supervisor, to formulate a plan for further improvement work on the Sandy River to use up the funds available.

Winter Steelhead Season

(Continued from Page 4)

and upper river angling success was 0.4 and 0.33 respectively. Despite the sharply decreased steelhead escapement above tidewater during the open season of 1947-48 and the much slower rate of migration due to prolonged periods of low, cold water, the ratio of catch to escapement at Winchester Dam counting station was only slightly less than a year ago.

The most interesting change taking place since last year is that concerned with the distribution of fishing effort. Compared to the number of fisherman days on the lower river in 1946-47, there was an 18 per cent decrease during the season just terminated while the upper area experienced an amazing 74 per cent increase in angling effort. A portion of this phenomenal increase may be explained by the fact that part of the run came exceptionally early this season and consequently upper river anglers were out for a longer period. Even so, about 87 per cent of this increase covered comparable periods in both years. Instead of a high concentration in the lower river as was the case last year, there was a fairly uniform spread of anglers. The total angler effort was 13.6 per cent greater than during the previous year.



Smelt fishing on the Sandy river.

Eastern Oregon Lake Season Open

The angling season for lakes in Grant, Baker, Union and Wallowa counties opened on May 1, the same time as the general trout season for the state, instead of opening in June as in previous years.

This was done in order to have a uniform opening date wherever possible, and exceptions have been provided only for those lakes and streams requiring special regulations because of specific conditions. These exceptions are listed by county in the official angling synopsis.

While the lake season legally opened on May 1, many of the high mountain lakes still are inaccessible and actual opening will be regulated by the weather.

Ten Mile Lake Creel Success

Members of the Ten Mile Lake Sportsmen's Club are planning to conduct a creel census of lake fishermen this year in cooperation with the Game Commission to determine as closely as possible the number of anglers visiting the lake and the kinds and numbers of fish caught.

Notices will be posted on the various boat docks to explain the program to fishermen and request their assistance in this survey by reporting catches to the dock operators or other club members who will gather daily records.

Studies have revealed that a pair of bluegill sunfish will produce as high as 17,000 young a year.

Hunting Regulations To Be Considered At July Hearing

The date of the Game Commission's annual hearing on hunting regulations is Friday, July 9, the time set by statute for setting the seasons, bag limits and methods of taking game birds, game and fur-bearing animals.

The hearing will convene at 10 o'clock in the forenoon in the Portland offices of the Commission at 1634 S. W. Alder Street.

After the regulations are adopted and the hearing adjourned sometime before the end of July, no changes can be made until the following year except in the case of an extreme emergency.

Mercer and Sutton Lakes Receive Tagged Fish

Mercer and Sutton Lakes, located on the coast near Florence, received a planting of 600 tagged cutthroat trout in February. Small, metal, numbered tags were attached to the right gill cover of the fish which were released with other six to nine inch trout from the Bandon hatchery.

Anglers are requested to send tags and report the date, place captured, and length of tagged fish to the Game Commission. The tag returns and desired information are essential to establish future fish planting and other management policies for these lakes.

Muskrats (marsh hares in Louisiana) prefer swimming to walking.



Bitterbrush study plot.

Game Division Program

(Continued From Page 1)

species, which is a reflection of management procedures, favorably altered environmental conditions or a combination of these two factors. Unfortunately, other areas, more numerous than desired, reveal steadily declining or inadequate populations. The importance of habitat improvement work is emerging as a major activity in management but this must be preceded by rather complete knowledge of all other aspects if such work is to be valid.

It is an accepted fact that rarely do game populations present a static picture. Rhythms of population densities and composition vary from year to year for various reasons. Some of these reasons are well known and can be controlled to varying degrees but others are not so well understood. The present program of the Game Division is premised on maintaining a continuous availability of facts regarding each game species to be managed. This means a year-round appraisal of the various species; maintaining cognizance of the summer, winter, autumn and spring status of each game group as to composition and trends in numbers; and the determination of a factual picture regarding the environment in which our wild game resources must thrive and be maintained. It is a complex picture with many ramifications to confuse one in obtaining a clear and concise knowledge necessary for applying the simply husbandry which would be exercised.

The field of game management is not, as yet, a full-fledged science but it is rapidly becoming one. The determination of the many unknowns and the development of new and reliable techniques is the province of fundamental research. The premise of management is in the application of the facts to efficiently and

judiciously administer the utilization of the resource. It is the latter with which we are basically concerned here.

Game Districts Established

In order to initiate a program on a statewide basis it is first necessary to set up machinery which can function in an orderly and systematic manner and this step was taken in January of 1946 (an earlier start at the beginning of the war had to be curtailed). Eleven game management districts (later increased to 12), were established to which experienced and qualified personnel were assigned on a permanent basis. These men, called District Agents, are responsible for the carrying out of present and long range management programs for each game species in their respective districts as determined by actual facts existing in the field at all seasons of the year. Their work is of a practical and highly responsible nature. As each game group, i.e., Big Game, Upland Game, Fur-bearers, Waterfowl, Federal Aid and Predator Control, presents a particularly specialized field, a chief has been assigned out of the Portland office to develop and coordinate on a statewide basis the particular specialty for which he is responsible and assemble all facts being secured.

In discussing the statewide program, these major groups can be most clearly presented as separate entities.

BIG GAME

In Oregon, we are concerned chiefly with two species of deer (Rocky Mountain Mule Deer and Columbian Black-tail), two species of elk (Rocky Mountain or Nelson Elk and Roosevelt Elk) and the fleet and unique antelope. A few whitetail deer persist in limited areas. To our knowledge no mountain sheep remain in Oregon, although reports from Wallowa county indicate a few may still be in that area; and the bear is not protected as a game animal.

Original field work in connection with big game consisted of intensive surveys for brief periods on various winter ranges of eastern Oregon. It was soon realized, that although much important information was secured in this manner, a more comprehensive picture was necessary. In addition, more attention had been devoted to local over-stocked ranges than to ranges which were under-stocked.

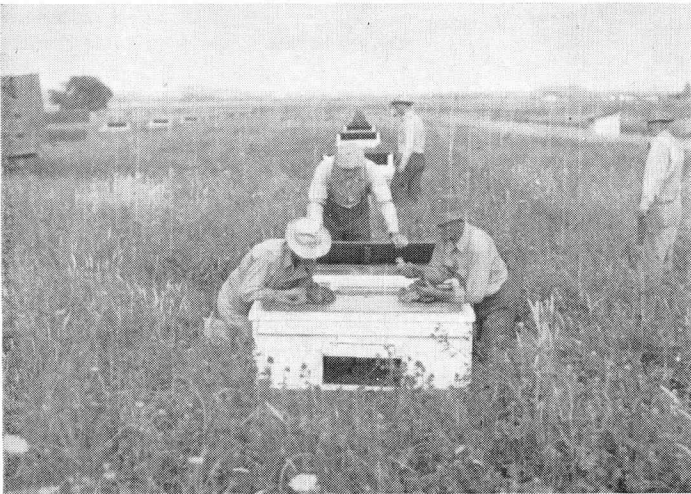
Classification of all available habitat has been started and is expected to be completed by 1950. This will permit a gross analysis of responses of various herds to habitat changes and management procedures. In most instances, big game, particularly deer, are known to utilize certain geographical areas which we call herd ranges. A specific herd, therefore, is appraised on its year-round circuit of a given area and indexes secured on annual reproductive success, sex ratios, age classes, migration habits and so on. The long range objective is to secure sufficient data to permit practical delineation of each big game herd range and to apply management on the basis of herd ranges.

We recognize the impracticability of determining total numbers of big game on a statewide basis. However, orderly sampling of available habitat provides a reasonably accurate measure of game population trends. To date, over 600 permanent census sample sites have been established on summer as well as winter ranges. Additional population sample sites are to be established until a sufficient number to represent a satisfactory cross-section of all big game habitat of the state is in effect.

Population densities in themselves are insufficient for management. The matter of composition of the herds is highly important. During November and December, sex ratios and fawn-doe ratios are secured at a time when migratory and breeding are underway and before



A one-day old mule deer fawn is tagged by field agent and then left to be reclaimed by its mother.



Trapping pheasants for release from the open field at the Eugene game farm.



Sage grouse are released in new location after being trapped from another area.

the males have lost their antlers. For example, we now know the average buck-doe ratio throughout the mule deer ranges is approximately 1 to 5 although a few herd ranges reveal seriously distorted ratios of 1 to 12 and 1 to 13. The fawn-doe ratios secured during the past season reveal a marked improvement in 1947 over 1946.

Measure of Kill Necessary

In order to use this data to maximum effectiveness, a measure of the magnitude, location, time, and composition of the kill is necessary, but so far we have not had adequate information regarding the annual deer harvest. District agents make as many checks of hunters as time permits but only a relatively small sample is secured. During the 1947 deer season, over 4,300 individual hunters were checked at random and from the data obtained, it was revealed that 48 per cent of the deer taken were forked antlered animals. This indicated approximately a 10 per cent increase of forked antlered deer being taken over a somewhat smaller sample obtained in 1946. The proportion of forked antlered deer in the annual kill is significant. Fortunately, the use of a separate deer tag is being inaugurated in 1948 and more information will be available.

With big game, the matter of range management, particularly east of the Cascade Mountains, has become an integral and highly important phase of the management program. Each district has established forage study plots for the continuous determination of condition of the major forage species used by big game and total utilization 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. Once it is realized that the forage is the basic resource upon which our big game herds

depend, the importance of good range management is manifest.

With antelope, because of the habits and range on which the species occur, a somewhat different procedure is being followed than with the deer and elk. Complete aerial censuses are conducted in September and February of each year and intensive studies of antelope kid survival in May and June. Recent tabulations of kid-doe ratios show a marked improvement in the survival of antelope kids over the past several years. Because of the extensive movement of some of the herds, an interstate complex is involved, which indicates the necessity of cooperative work with Idaho, Nevada and California. An elaboration of the antelope work is underway throughout its range in Oregon.

Habitat Improvement

Facts secured in the above briefly outlined procedure is the basis on which recent and future regulations are established from year to year.

The department has long recognized the essentiality of habitat maintenance in both fisheries and game management. However, any habitat improvement work must first be premised upon a clear understanding of ecological complexes if such work is to be valid. In addition, statewide habitat improvement work presents a formidable picture when costs are considered and a hit-or-miss method is inexcusable in present day programs. We are, at present, engaged in certain habitat improvement activities, which are designed on a demonstrational basis to test their feasibility, before launching on a large scale. Of these, water development, coordinated salting, and range improvement are examples. Some of these activities are being conducted in cooperation with other land use agencies, from whom excellent cooperation is being received. The trapping and transplanting of big game, although an expensive procedure, has been under experimentation

for some time. It is believed that substantial savings will be effected in such investments if the validity of each type of development work is appraised on a small scale before large investments are made.

The matter of big game winter range presents an acute problem in eastern Oregon and at present is receiving close scrutiny.

UPLAND GAME

The upland game resources are considered to comprise the various quail, grouse, partridge, pheasant and small mammals. At the present time the bulk of attention is being directed toward the ringnecked pheasant and valley quail, as these two species have responded most favorably to management procedures and are at present supporting the bulk of upland hunting pressure.

The statewide upland game field program is a long range, comprehensive undertaking, comparable to the big game program. Certain basic procedures were initiated to establish an orderly and systematic appraisal of the upland game situation.

It was first necessary to determine total optimum habitat available, additional habitat potentially available if one or more of the essential needs of each species could be provided, and to establish a systematic procedure for securing field data. This phase has been completed and the securing of statewide indexes of population trends is conducted annually. We know that we have approximately 2,750,000 acres of upland game habitat providing essential requirements for upland game species, particularly pheasants, on a year-round basis. We have, in addition, another 3,000,000 acres which is potentially optimum habitat if one or more essential requisites now lacking could be seasonally supplied.

Two statewide censuses are now taken by the district agents to determine population densities. The first is taken in late

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winter to determine the number and composition of breeding birds available to go into the breeding season. The second consists of brood counts conducted during June and July to secure an index of nesting success. In addition, in those areas in which the season is open, a pre-season and post-season sample of populations is secured to determine the immediate effects of hunting drain. Thus a sufficiently critical appraisal of population trends is maintained to avoid over-shooting of breeding stock. In general, the pheasant population must exceed 15 birds per hundred acres of available habitat before an open season is declared. By exercising regulations on the above basis during the past several years, we have been able to support reasonably good shooting in most of the major pheasant areas in the state while reports from some parts of the United States reveal marked declines in pheasant numbers.

Artificial Propagation

Four pheasant farms are being operated and are located at Corvallis, Eugene, Ontario and Hermiston. The Hermiston farm, a completely new unit, is going into production for the first time this year and replaces the old farm at Pendleton. As a distinct policy it is recognized that natural reproduction is the basis for maintenance of upland game populations. Artificially reared birds are used chiefly to provide additional seed stock and to expedite natural reproduction in the wild. Insofar as physical plants permit, the so-called "open field system" of rearing game farm birds is used to assure as far as possible the preservation of the wild and natural instincts of the birds. Several field rearing projects also are operated in various sections to expedite the recovery of population levels in localities or to establish quickly a breeding stock in a new area. This consists of placing day-old chicks in suitable habitat and maintaining food, water, brooding hens and caretaker until such time as natural dispersal takes place. All pheasants raised for release west of the Cascades are from stock having dominant characteristics of the Chinese ringnecked pheasants, while those for release east of the Cascades are from dominantly Mongolian brood stock.

A systematic procedure for allocation and liberation of game farm pheasants has been established and the basis for liberation being determined by the pres-

ence, quantity and quality of available habitat the year around. Food or cover which may be in relative abundance in October may present a drastically changed picture in February or March, and water plentiful after early fall rains may be lacking in July or August. In addition, consent of the landowner is first secured, the site must be sufficiently removed from heavily traveled roads to reduce this loss to a minimum and no birds are released on private shooting preserves.

In upland game management, as in other categories of game, the matter of habitat development and maintenance appears of greater importance as demand for the resource continues to increase and agricultural practices become more intensive and specialized. A statewide perusal of the possibilities of such endeavor has recently been made. Small scale demonstrations in the nature of water development have been completed and several small projects for establishment of additional cover and food are being initiated.

In areas having unusually high concentrations of hunters during the open season, it is necessary to provide islands of escapement to small numbers of birds in order to assure a residue of breeding stock for subsequent years. At the present time, we have under five-year easement approximately 50,000 acres in small refuges, and this system is being expanded. Some trapping and transplanting of quail has recently been completed to establish populations in new areas. This activity will be elaborated as soon as additional information is secured on the taxonomy and adaptability of the various varieties of valley quail. Additional habitat improvement, which is considered of high priority, is to be pursued with all possible dispatch.

(Editor's Note: The last half of this article, discussing Waterfowl, Furbearers, Federal Aid and Predator Control, will be printed in the June issue.)

Waterfowl Hearing Held in Seattle

(Continued from Page 1)

Season: Allow states to set own season dates within the period from October 5 to January 5, either a 50-day season or two split periods of 21 days each. (Montana wants a later closing date than Jan-

uary 5 on account of different conditions in the eastern part of the state.)

Shooting Hours: Sunrise to sunset.

Jacksnipe: Open season this year on this species.

Representatives of Idaho, Washington and Oregon expressed the desirability of having the same season dates for these three states if possible.

Natural feeding of waterfowl also was stressed and in the discussion held it developed that Oregon was pretty well ahead in this phase of management due to such work as has been done at Summer Lake where for several years grain has been planted for waterfowl.

Mr. Day pointed out that Canada had been following the United States pretty closely in restricting the take of migratory waterfowl. Mexico has no regulations on seasons and bag limits, which attracts wealthy United States hunters who are capable of paying the extremely high tariffs charged for hunting. The unrestricted slaughter by these hunters is doing far more damage to the waterfowl supply than the Mexicans themselves, who have little interest, time or ammunition to partake in this sport.

Fresh Water Anglers Spend Nearly \$23,000,000 For Licenses

Devotees of the sport of fresh-water fishing in the United States purchased 12,620,464 anglers' licenses during the fiscal year ended June 30, 1947, at a cost of \$22,667,301, according to a recent report released by the Fish and Wildlife Service.

Compared with the previous year when 11,068,717 licenses were sold by the various states for \$15,003,796, the 1946-47 season totals show an increase of 1,551,747 in licenses and \$7,663,505 in revenue, and break all previous records.

California exceeded all other states in revenue received with \$1,718,066. Minnesota ranked second with \$1,328,316, followed by New York with \$1,316,513; Missouri, \$1,095,219; Michigan, \$1,094,694; Wisconsin, \$1,093,082; Washington, \$1,064,993; Pennsylvania, \$978,315; Oregon, \$831,696; and Ohio, \$680,364.

The world's largest rodent is the Capybara rat. It often grows to a length of four feet and sometimes weighs as much as seventy pounds. It is web-footed.