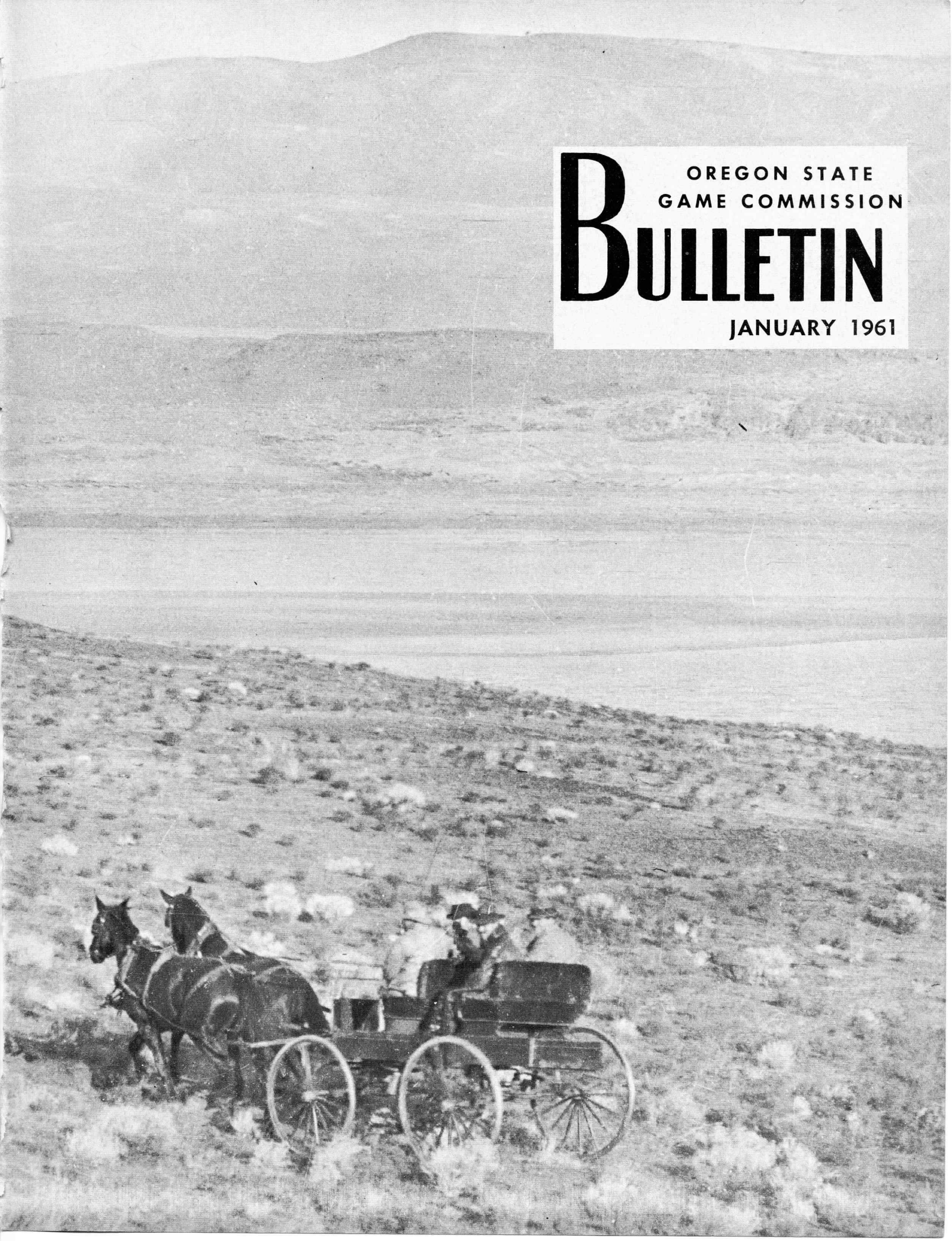

OREGON STATE GAME COMMISSION BULLETIN

JANUARY 1961

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BULLETIN

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MIRIAM KAUTTU SUHL, Editor
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At the present time the Bulletin is circulated free of charge to anyone forwarding a written request.

the cover

Goose hunting in the Arlington area in the 1920s or 30s. (Photo by William Finley)

BULLETIN HUNTER SAFETY TRAINING PROGRAM

Instructors Approved

Month of November	17
Total to Date	1,259

Students Trained

Month of November	167
Total to Date	5,757

Firearms Accidents Reported 1960

Fatal	13
Nonfatal	52

DEADLINE NEAR FOR EMERGENCY HUNT APPLICATIONS

Hunters who wish to take part in possible emergency big game hunts during 1961 have until January 15 to get their names on the county eligible lists.

Interested persons should apply by post card, mailing it to the Portland office of the Game Commission with the following information: name, address, telephone number and the county applied for (one county only). Persons 17 years or older are eligible to apply.

A drawing will be held on January 19 to determine the listing order of applicants for each county. If and when an emergency big game hunt is ordered for a county for purposes of damage control, hunters will be notified (on short notice) in the order their names appear on the county list.

HEARING ON 1961 ANGLING RULES

Friday, January 13, is the date of the Game Commission's hearing on the angling regulations for 1961. Seasons, bag limits and methods of angling for game fish will be considered and tentative regulations announced. The Commission will adjourn its hearing for two weeks and the final rules will be adopted on January 27. Both hearings will be held at the Portland office of the Commission, at 1634 S. W. Alder Street.

DO YOU KEEP A FISHING DIARY?

Are you one of those anglers who likes to keep a record of everything that happens on a fishing trip? There are some individuals who have kept diaries of their fishing experiences for many years, putting down information as to when and where they caught their fish; size and number; condition of stream; number of people; in fact, almost anything of interest at the time.

The fishery division of the Game Commission believes that some of these records might have information of considerable value and would appreciate their loan. After the pertinent data is extracted, the records would be promptly returned to the owner. If you have anything you think might be of interest, please get in touch with Fred Locke, chief of lake and stream management, at the Game Commission office in Portland.

Net samples from Antelope Reservoir show trout averaging 15.6 inches in length and weighing 26 ounces.

Four bighorn sheep, in the second attempt at trapping, were captured at Hart Mountain and transported to the east face of the Steens Mountain in November. The small herd included a ram, two ewes, and a ewe lamb.

* * *

For the third year the fall run of steelhead in the Rogue River has produced some out-of-this-world angling, judging from the reports of those anglers lucky enough to try it. This fall between September 1 and October 11 over 6,000 steelheads were taken by anglers in the lower section of the Rogue.

* * *

Scuba was used by fishery personnel to check the use by kokanee of the various gravel spawning areas prepared for them this fall. At one site about 200 mature fish were observed.

* * *

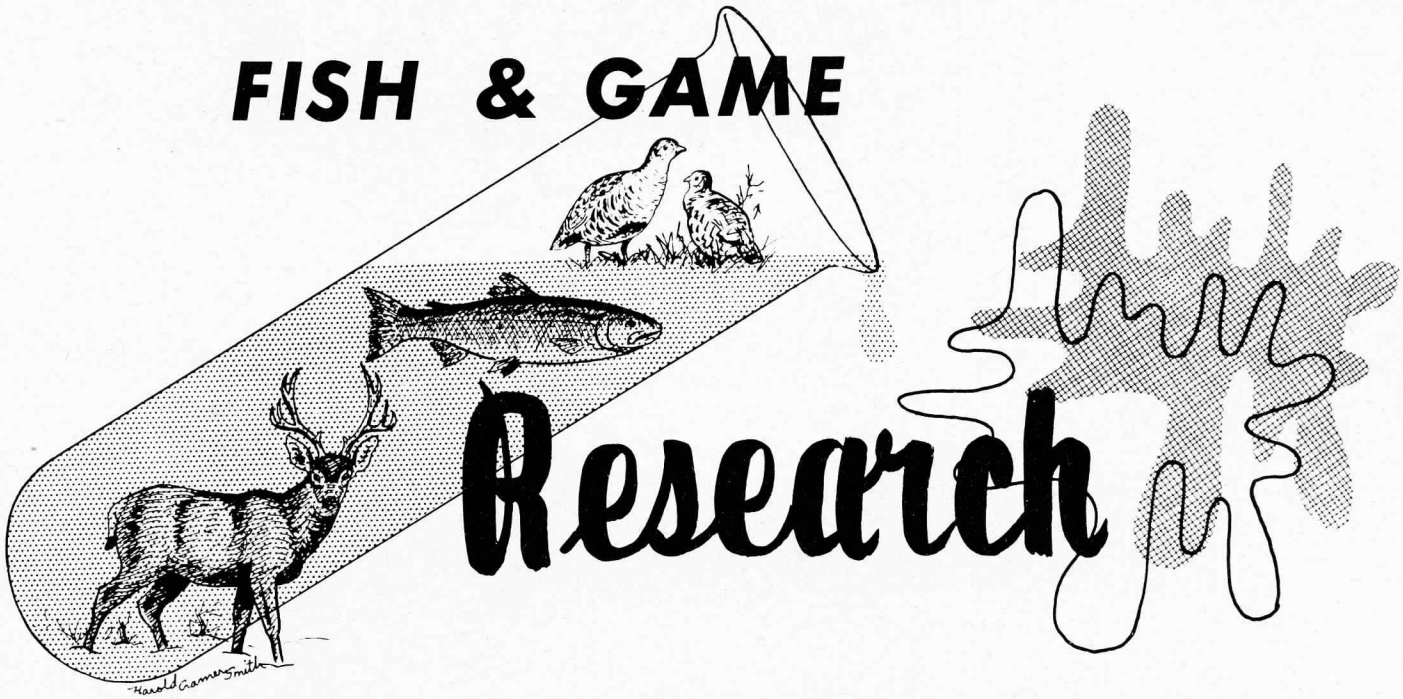
Game bird liberations for 1960 came to 18,838 pheasants and 1,712 grey partridge from the Corvallis game farm; and 14,818 pheasants and 5,116 chukar partridge from the Hermiston game farm.

* * *

A cooperative agreement between the Game Commission and the Georgia Pacific Corporation provides public access to the company's Olallie Creek Reservoir for the 1961 season. The 40-acre impoundment has been stocked with 22,000 cutthroat trout fingerlings which should be legal size by opening of the angling season. The reservoir is a few miles upstream from the mouth of Olallie Creek, which empties into Yaquina Bay.

* * *

The 30 fish a day bag limit on Pamelia Lake last summer attracted more than 2,400 anglers to the lake. An estimated 24,700 small cutthroat trout were taken. The lake was heavily overpopulated with small trout and by increasing the bag limit, the fishery division hopes that the supply of fish will be reduced to a point more in balance with the available food supply.



By H. J. Rayner, Chief, Research Division

TWENTY-FIVE YEARS AGO the Game Commission inaugurated a research program in cooperation with the Fish and Wildlife Service, Oregon State College, and Wildlife Management Institute. Through the years there has been a continuous production of information useful in fish and game management. The program has not been static and only recently ties with Oregon State College have been strengthened because of the extensive research facilities, the library, and other equipment as well as its outstanding reputation in such technical subjects as biometry, engineering, aquatic biology, range management, physics, chemistry, and parasitology — fields of much assistance in wildlife research.

The support of long-term research projects has been given impetus through the recent establishment of a research division within the Game Commission and the placement of additional Commission research personnel at the College. These members of a newly organized research division are in charge of projects which include some requiring extended periods of inquiry.

Graduate students of superior academic standing are being encouraged to apply for assistantships sponsored by the Game Commission in matters concerning fish and game.

The Cedar Creek Study

The Oregon State Board of Forestry and the Game Commission are cooperating in the study of deer damage to hand-planted conifer seedlings. The project is located in the Tillamook Burn on the Cedar Creek drainage. There, living quarters and a 330-acre deer enclosure have been established and the measurement of the mortality and survival of planted Douglas fir exposed to known deer populations is being undertaken. Mechanical tree protectors are being tested and the degree of animal damage resulting from variance of site of plantings is being investigated. It has been determined that black-tailed deer are much more numerous in the Tillamook Burn environment than had been previously estimated and that the effect of deer on conifers is not necessarily in proportion to animal density. Changes in deer number in the enclosure may reveal the deer populations that can be maintained without serious conflict with reforestation programs. Variance in planting by site show promise of indicating areas of least potential in terms of deer damage. The effect of chemical repellents and physical protectors will continue to be part of the program.

Silver Lake Study

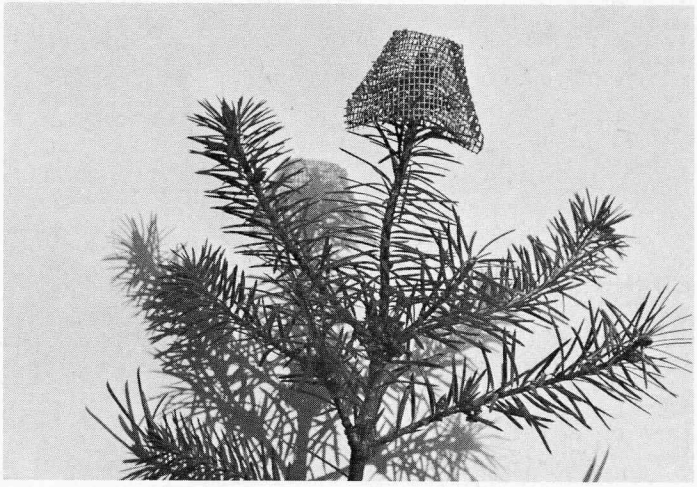
In northern Lake County the U. S. Forest Service and the Game Commission are studying the interaction between livestock and mule deer on a typical central Oregon range near Silver Lake. Deer studies are under the direction of the Game Commission and the Forest Service is handling most of the plant studies. Assessment of the plant and animal populations present is the initial work now under way. A range survey has been made, several deer census methods have been tested and a large scale deer marking and recovery program has been started. Deer enclosures are to be used to make determinations concerning deer and livestock food preferences and to determine the extent of use that the range can endure successfully. The ranging habits of the deer, the effect of several different types of hunting seasons on the deer herd, and the reaction and opinion of hunters to hunting season types are presently under investigation.

The Effect of Logging on Aquatic Resources

In the upper reaches of Drift Creek on the Alsea River the relationship of embryonic survival of young salmon to conditions in the gravel such as oxygen concentration, water velocity, and permeability is being studied. Three small streams where logging has not yet taken place are being used. The characteristics of salmon spawning areas prior to logging are being calibrated for comparison with post-logging conditions. The survival of steelhead and silver salmon eggs under such before-and-after conditions is also part of the investigation. Experiments now under way suggest that steelhead eggs are detrimentally affected when oxygen concentrations in the gravel are less than seven parts per million. Recorded thus far has been a wide range of gravel permeabilities and oxygen content in the subsurface environment under normal conditions.

(Continued on Page 4)

A Douglas fir terminal bud protected by a polyethylene wrap to determine if such a physical protector will alleviate big game browsing on seedling conifers.



A fiberglas screen physical protector used on an experimental basis to determine if such a bud shield will provide protection from winter mammal damage.

Fish&Game Research

(Continued from Page 3)

Steelhead Research

The assessment of the contribution that hatchery-reared steelhead make to the sport fishery is being investigated on the Alsea, Sandy, and Wilson Rivers. Sampling programs designed to provide the highest precision in relation to available time and personnel have been established with the assistance of Dr. Lyle Calvin, Agricultural Experiment Station Statistician. Thus far it has been determined that the return of adult hatchery-reared steelhead to the Alsea River in three seasons has been quite variable. It can, for the most part, be related to the time and size at release. The largest number of returnees has been obtained from fish liberated at a size of 10 to the pound or somewhat larger and at the peak of the downstream migration of wild steelhead.

The seaward movement of wild and hatchery juveniles is being studied. It is quite apparent that the migration phenomenon of wild fish is dependent upon size to a great extent. Fish with a rapid growth rate are able to obtain a physiological condition enabling them to move into salt water at slightly over one year of age while other fish of the same birth period require a longer time. Wild fish in their second year are the predominant group moving out of the stream during the spring migration and might be considered normal in respect to growth.

Hatchery steelhead that are stocked prior to the time that they reach the optimal size for downstream movement, as determined by recovery studies in the lower river at traps, do not move out but tend to remain in the stream during the summer and fall following release from the hatchery.

Exploratory attempts to induce early migration in steelhead, that do not grow as fast as their brothers and sisters, through the use of thyroid material in food has been tried with indifferent success. A change in the design of the experiment has been made and further studies are under way. Small non-migratory fish released from the hatchery may undesirably influence a program of utilizing the stream as an avenue of seaward escape, placing an excessive load on the food supply of the stream and subjecting the fish to severe competition in a limited environment.

Parasite Investigation

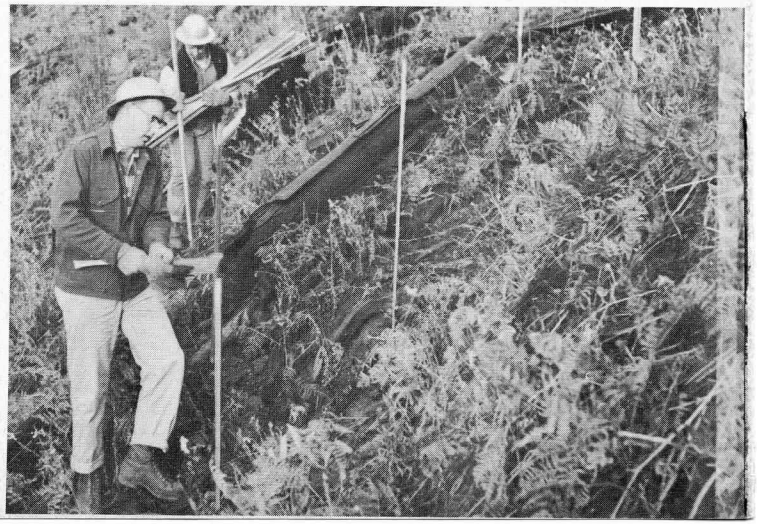
Owing to a serious loss of trout in Cascade mountain lakes in the past two years, a survey of the lakes was undertaken in the summer of 1960. The parasites present and their life histories were determined. Control possibilities were developed and recommendations will be submitted to the management section of the fishery division of the Game Commission.

New Projects

Planning is being carried on for the measurement of the downstream movement of fall chinook salmon in coastal streams, determination of the best method of utilizing rearing ponds for the natural production of the salmon, steelhead and cutthroat trout, an assessment of the efficiency of the salmon-steelhead punch card, and a measurement of the economic value of the steelhead trout in Oregon.

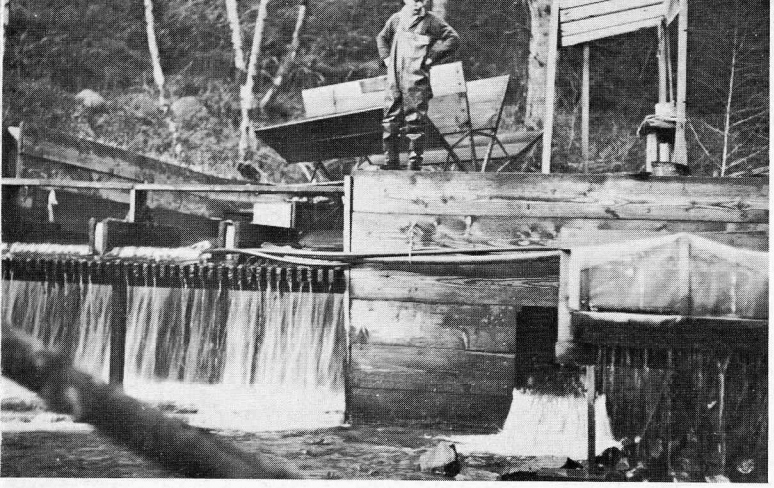
Fifty-five acres of two-year-old Douglas fir seedlings are being planted each year within the Cedar Creek deer enclosure for the purpose of studying tree growth, tree damage, and tree survival.

Bill Hoskins, forester with the Oregon State Board of Forestry, aiding in the establishment of Douglas fir sample plots to assess black-tailed deer tree damage within Cedar Creek enclosure.

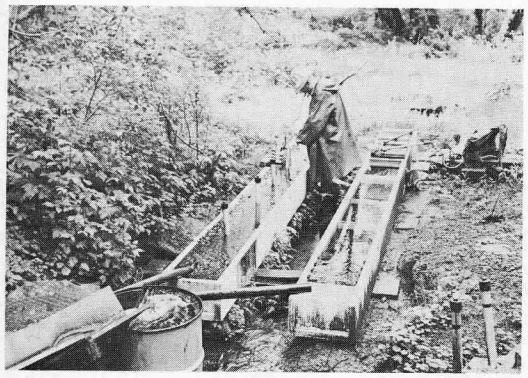


Drift Creek Study

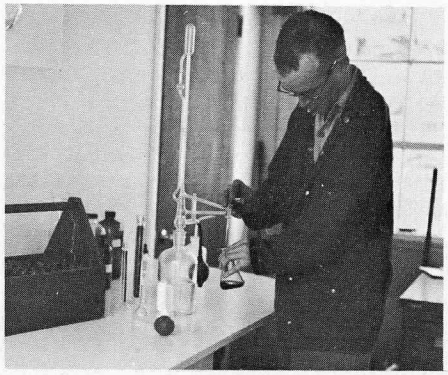
Effect of Logging on Aquatic Resources



An upstream-downstream trap on upper Drift Creek used to capture and mark all salmon and steelhead ascending the stream as spawners and leaving it as fingerlings bound for the ocean.

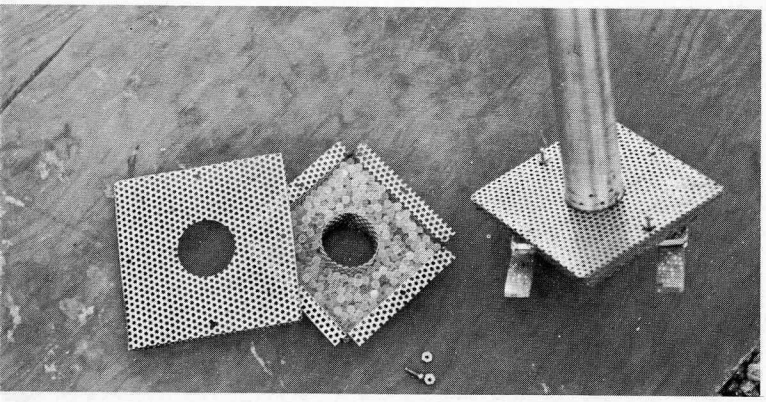


Biologist draws water sample from artificial spawning gravel trough to test oxygen content. Troughs used in field as controls in egg survival work.



Research biologist, Bob Phillips, making chemical determination of oxygen content in water taken from gravel beds in salmon spawning areas.

Standpipe with perforated box of eggs is lowered into gravel. Development of eggs at hatching will be compared with oxygen content and velocity measured through the pipe.



Stainless steel perforated box with glass beads used in salmon embryo survival studies under gravel. The beads keep eggs separated. Assembled box at right is in place on a standpipe.

Headquarters and laboratory for Drift Creek logging-fish survival study.

Research biologists measuring subsurface velocity in spawning gravel by means of dye dilution rates and standpipe. Color comparator is being used by scientist on the right. (Long rods are needle pointed dye injectors and samplers.)

Biennial Highlights

Importance of habitat in the management of our fish and game resources is the theme of the report the Oregon State Game Commission has just submitted to the legislature on its activities for the 1959-1960 biennium. Copies may be obtained from the Portland office as long as the limited supply lasts.

The following is excerpted from the report.

A Place to Live

VARIETY CHARACTERIZES the habitat harboring Oregon's valuable wildlife resource. Tidal estuaries, lush green valleys, tree-clad mountain slopes, rich farm lands, ageless desert, range lands, and alpine peaks make possible a wide diversity of fish and game animals and afford unequalled fishing and hunting opportunities for our citizens.

The task of protecting and enhancing this resource and promoting such recreational opportunities is a responsibility of the Game Commission. In discharging this responsibility the Commission is faced with many complex problems associated with the growth of the state. Changing land and water use patterns demand a flexible management program to cope with new situations. Techniques suitable yesterday may be neither adequate nor desirable tomorrow.

Not the least perplexing of the problems confronting the Commission is that of maintaining a sufficient amount of habitat of suitable quality to maintain fish and game populations at a satisfactory level. It is often said, and rightly so, that the key to fish and wildlife abundance is habitat. If habitat is deficient in quality, fish or wildlife populations suffer. If it is lacking in quantity, a similar situation prevails. On the other hand, where it is adequate in both respects and other elements of management are prudently employed, fish or wildlife generally flourish.

This concept of the importance of habitat has, for many years, guided the management operations of the Commission. In this report an effort is made to point up the variety of ways in which habitat affects fish and game abundance and to display the activities of the Commission directed toward habitat improvement.

A primary management objective is to maintain a balance between wildlife populations and available food, water, and shelter. This may involve, on the one hand, the necessity of reducing populations, at least temporarily, where there may be no immediate prospect of improving the habitat. On the other hand, the application of a variety of techniques to provide living quarters suitable to the needs and to afford an increase where desirable is essential.

The Commission has approached the problem both qualitatively and quantitatively. Let's look at some of the qualitative aspects. It is perfectly obvious that range lands denuded of vegetation, dry stream and lake beds, polluted waters, eroded hillsides, and drained marsh areas provide substandard housing for wildlife. Streams infested with coarse fish or subject to low flows, yearly floods, or high temperatures and silted over or choked with impassable log jams are not capable of producing desirable fish at an optimum level. No amount of artificial stocking can make such lands and waters productive.

Habitat improvement operations of the Commission, for both fish and game, are aimed at correcting these deficiencies. The planting of food and cover crops, construction of quail roosts and wood duck nest boxes, development of watering sites for upland game and big game, installation of water controls to benefit ducks and geese, screening of irrigation and power diversions, rough fish control, log jam removal and laddering of barriers—these and other means are used to improve the quality of fish and wildlife habitat.

In addition to the qualitative problem, the Commission is faced with constant attrition of wildlife habitat, resulting in a reduction in the total amount available. This trend must be overcome by more intensive wildlife production on remaining habitat and by acquisition and development or outright creation of additional habitat. Factors having a negative impact on quantity include highway construction, elimination of essential fish requirements by flooding of spawning grounds, and suburban residential developments and changes associated with industrial and defense developments. Countering this to some extent have been certain water developments having a beneficial effect on fish or wildlife. The Commission's recently adopted program of creating new fishing impoundments is one answer to the problem. The acquisition of winter range and operation of management areas offer other solutions.

Habitat improvement is only one of many management activities in which the Commission engages. It is, however, one of the most important elements in the total effort to provide a maximum amount of fish and game commensurate with other land and water uses.

Game Resources

Game management is the art of making land produce sustained annual crops of wild game. This definition implies that management of game requires manipulation of the land and its many products.

In the process of utilizing land and its resources to meet human needs, some species of wildlife have benefited and others have suffered. Oregon's game management program has adjusted to meet these changing conditions and demonstrated an ability to accommodate increasing public demand for outdoor recreation without jeopardizing wildlife resources or other uses of the land.

Systematic inventories of trends and limiting factors of all game species have provided knowledge essential for the design of sound management programs. These findings have indicated many opportunities to increase distribution or density of wildlife by developing food, cover, or water; by transplanting native or exotic species; or by providing increased protection of established populations.

In addition to aggressive pursuit of all opportunities to enhance game production, Oregon's game management program has endeavored to achieve a more efficient utilization of the available game crops and maximum recreational benefits for the people of Oregon. Initiation of a unit management program for deer in 1958 marked a forward step in the management of that species.

Prompt attention has been given to all land use conflicts and several improved methods of controlling damage to agricultural lands were developed during the biennium.

The public demand for hunting continues to increase at a much faster rate than the population. In 1959, 295,312 persons were issued hunting licenses representing an increase of 10 per cent during the biennium and 35 per cent since 1950.

Hunters harvested approximately 262,500 deer, 15,900 elk, 765 antelope, and 3,838,000 game birds in the biennium.

Translation of these statistics in terms of man days of healthy outdoor recreation and tons of palatable game meat illustrates the substantial contribution wildlife resources make to the health and welfare of the people of Oregon.

Public Access and Lands

Whereas habitat of sufficient quantity and quality provides the key to fish and game abundance, access provides the key to fishing and hunting opportunities. Ac-

(Continued on Page 7)

Biennial Highlights

(Continued from Page 6)

cess is not merely a convenience to the sportsman; it is an important management tool in balancing fish and game harvests to available supply. Publicly owned lands, comprising 52 per cent of the land area of the state, afford excellent recreational opportunities where accessible. The constitutional provision giving public ownership status to internal waters makes such waters available for fishing if accessible.

A great potential exists for increased fishing and hunting opportunities through the development of access to public lands and waters and through permissive privileges granted by private landowners.

Basin Investigations

Wildlife habitat is closely dependent on water quantity and quality. As the human population increases, demand for domestic, industrial, irrigation, and hydroelectric uses of water increases. The Commission is concerned with the effects water manipulations and management for these purposes will have on fish and wildlife resources.

There has been a great increase in the number of water development projects within the biennium. Flood control, irrigation, navigation, and hydro-electric projects are proposed, authorized, under construction, or completed on most of the important streams.

Fishery Resources

Oregon enjoys a progressive and enlightened program of sport fish management as any state in the Union. This is made possible by and is based solidly upon the excellent fish habitat that exists here.

Because of this, the habitat itself is always foremost in the minds of fishery agents and administrators. They are alert to recognize and act upon opportunities to develop access to productive habitat, to maintain existing habitat, and to provide new habitat.

Anadromous fish are dependent upon the maintenance of a wide range of habitat types as the life cycle of these fish includes phases located from headwater streams to the open ocean. They are particularly susceptible to activities in streams which block their access to upper watershed areas.

Resident fish are more adaptable to artificial propagation, but here also much of the angling, particularly in streams, is maintained by naturally produced fish. This requires the maintenance of natural habitat in productive condition. The product of the hatcheries must also have a suitable environment if it is to survive and provide angling.

Because the welfare of all of our fish —migratory and resident species—is so dependent upon the habitat, elements of the fishery program dealing directly with its maintenance are of great importance. Broadly, this includes chemical rehabilitation of lakes and streams, construction of new impoundments for public fishing, screening of diversions and laddering of falls, developing of access to existing good habitat, and protection of habitat in areas undergoing development for other purposes.

A continuous inventory of fish populations in streams, lakes, and reservoirs is maintained by test netting and creel census. This provides the basic information which, related to habitat conditions, forms the basis for the total fish management program including stocking rates and locations, regulation changes, and other management procedures.

Regulation of the sport fishery is a necessary tool, with the ever-increasing demand. When desirable, changes in angling rules are made to aid in maintaining the resource and to make it available to as many anglers as possible. The Commission has continued to regulate the sport fishery for salmon and steelhead to a degree more stringent than in other coastal states.

The hatchery system greatly extended its utilization of pelleted dry feeds during the biennium, permitting a greater degree of automation. Because of this, substantial savings in the cost of feed and of feeding fish are beginning to be realized. Progress was also made toward a start in the promising area of natural pond rearing of salmon and steelhead. One new steelhead hatchery was completed and put into operation.

Information and Education

The Commission has continued to address itself to the task of responding to a broad range of inquiries on Oregon's wildlife resources and through various processes of communication to advise the public of Commission policies, programs, and objectives. Two principal avenues of approach are followed. One is of a broad informational character, involving communications media such as press releases, still pictures, motion pictures, radio and television programs, public appearances, and information literature, not to mention thousands of letters and telephone calls. The other is more specifically educational in design including school and summer camp programs and participation in teacher workshops and outdoor education projects.

Engineering and Construction

Engineering surveys and design and construction of a variety of facilities and equipment play a key role in implementing many of the Commission's field activities. Remodeling, new construction, fish passage facilities, screens, access sites, boat ramps, management areas, hatchery ponds, lake and reservoir surveys, and other items demand the attention and assistance of the Engineering Section.

Marked Fish — Banded Birds Have You Reported Them?

Considerable time is spent by game department personnel in marking fish and banding waterfowl but the effort is all wasted if you do not cooperate in reporting when you take fin-clipped fish or a banded bird. For instance, since 1957 the Sandy, Alsea, and Wilson Rivers have been stocked heavily with winter steelhead fingerlings. All the fish have been marked by removal of various fins or combination of fins so that the year of release may be readily determined. This is a part of an experiment on managing several key streams for steelhead.

Your help is needed. Following is the information desired. Just send it in to the Game Commission or any local fishery or game agent:

FISH

_____

Species Length Weight Sex

_____

How marked Location of catch Date of catch

BIRDS

_____

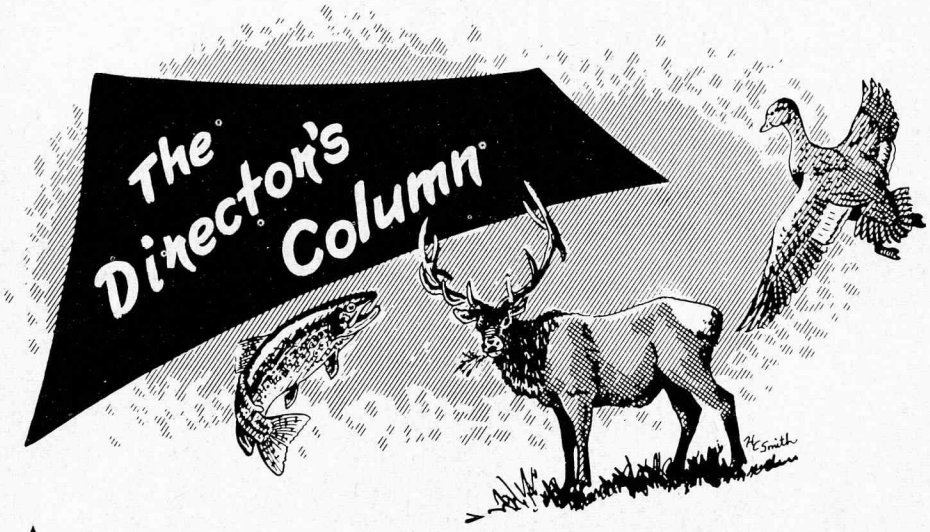
Species Sex Band Number

_____

Location of kill Date of kill

Name .....

Address .....



A basic financial characteristic of the Game Commission's program is the fact that revenues available to it arise from non-general fund sources. Whereas most government agencies are maintained either in part or entirely by general tax sources, the Game Commission operates through funds arising from license fee revenues and some federal grants. Furthermore, this Commission pays taxes upon certain real properties owned and operated by it as a part of its fish and game management program.

This fiscal characteristic of the Commission is an important factor in program planning and therefore budget allocation. The Commission's program is, of necessity then, projected upon historical experience of the number of citizens hunting, angling and trapping correlated with general economic conditions and predictable areas of stress within the total fish and wildlife resource base. General economic conditions influence the program in two ways; first, by influencing the total number of license holders and, second, by its influence upon the cost of doing business. The Commission's program is no different than any other private or public enterprise in that prevailing costs of supplies and services reflect costs to the consumer. From the above it can readily be seen that resource needs can only be met to the extent of revenues available.

The Commission must prepare every other year a biennial budget covering every detail of both its operating and capital construction programs. This document must be completed by the Commission, as the first formal step, approximately one year before the beginning of each new biennium. Detailed preparation of the budget is accomplished through extensive staff planning but final review and approval, reflecting broad policy considerations, is a Commission function.

This action by the Commission does not, however, mean that this will be the final budget. Two successive steps are necessary before the funds become available to the Commission for expenditure.

The first of these is the submission of the budget to the Executive Department where careful review is made of it along with all other state agency budgets. This entails consultation with the Department of Finance and Administration.

The second post-Commission approval action on the budget is its submission to the legislature. Here, review and consultation with the appropriate Ways and Means Subcommittee is carried out prior to legislative consideration of the budget. Upon the completion of this phase of budget consideration, a bill embracing the Commission's budget must be passed by the legislature and signed into law by the Governor.

During the course of either of these two steps, the budget submitted by this Commission can be modified. Therefore, the final budget normally is not formally authorized for expenditure until about two or three months before the effective date of the new biennial period.

Because of the limited and essentially stable source of revenues available, the budget submitted by this Commission for the biennial period of 1961-1963 calls substantially for a continuation of its present program. A modest increase is being requested in four program activities. The first of these is in water resources analysis. More intensive pressures upon basic surface water supplies are creating formidable problems in maintaining fish habitat for native anadromous species, as well as some resident forms. This requires us to engage in much more detailed assessment of fish habitat. Funds for this are requested following extensive consultation with the State Water Resources Board, whose schedule of watershed studies imposes an additional obligation upon this Commission.

The second is in basic research. The 1961-1963 biennium will be the first full biennium of operations in our reorganized Research Division. Project planning and execution is well under way and an orderly development of the research program has been accomplished. In addition, those funds arising from the salmon-steelhead tag are now available and, in keeping with the statute establishing this fund, badly needed research is being undertaken.

The third expansion, primarily in the nature of capital costs, will be in connection with lake construction. One phase of this is the construction of supplemental rearing ponds for salmon and steelhead and the other for fishing lakes in water-deficient areas of the state. Some change in our operations program is also being effected to supplement the fishing lake program, particularly with warm-water species.

The fourth item embraces an increase over the currently budgeted item for game lands and developmental work for game resources. In this connection, the two major resource categories of fish and game are being brought more into balance fundwise. At the same time we are continuing to recognize the peculiarly pressing problem facing aquatic resources because of massive water development projects.

With only one minor modification in our basic license structure in over a decade insofar as cost to the angler or hunter is concerned, exacting planning and limitations of Commission programs have been necessary. The budget submitted is a thoughtful and careful proposal for expenditure in the best interest of an important resource. —P. W. Schneider

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OREGON STATE GAME COMMISSION