

Oregon State GAME COMMISSION BULLETIN



Vol. V

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No. 1

Progress Report on Habitat Improvement

By FRANK STANTON, *Chief Biologist*

The habitat improvement activities of the game division, exclusive of Federal Aid, were consolidated in May 1948 into a department of habitat development.

The importance of this work was ably expressed by Dr. Ira N. Gabrielson who wrote, in part, in the March 1948 issue of this Bulletin, "The latest and, as far as it has been tried, the most effective method of producing game and fish is restoration of proper living conditions for them. . . . By development of new environment more game and fish can be produced each year at less cost than any other method yet found. . . . Wildlife is dependent entirely on the right environment; in other words, on suitable cover (living quarters) and food at all times of the year. Without such environment it cannot long survive; with it, annual crops of wildlife can continue to be produced. Therefore, the preservation of suitable environment and its restoration where it is now lacking are fundamental in any fish and game program."

This program, like others, required considerable time devoted to developing matters of policy and in formulating plans and procedures. There is much still to be learned regarding proper techniques and the economic soundness of various practices. Refinements of our habitat appraisals are made continually in the field. The various environments must be analyzed to determine limiting factors, and these conditions then remedied by the most expeditious means at our disposal. Probably no large area in Oregon is currently supporting the optimum habitat for all indigenous game species. It has been roughly estimated, for example, that not more than half of the cultivated lands in the state can be currently classified as "suitable" upland game habitat or productive of an annual game surplus for harvest.

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LOCKWOOD REAPPOINTED STATE GAME DIRECTOR

C. A. Lockwood, who had been previously appointed state game director for a term expiring on December 31 was reappointed to the position by the Game Commission when it held its regular meeting in December. P. W. Schneider was retained as assistant director.

Mr. Lockwood had served as state game supervisor since the fall of 1947, the title of the position being changed to state game director by the 1949 legislature.

He is the present president of the Western Association of State Fish and Game Commissioners, which will hold its 1950 meeting in Portland next May. He also is a member of the newly appointed resolutions committee of the International Association of State Game, Fish and Conservation Commissioners.



Construction of a self-filling watering device, commonly known as a "Guzzler," for upland game.

NEW LICENSE FEES NOW EFFECTIVE

The first increase in general hunting and angling license fees for residents since 1921 became effective with the issuance of the 1950 licenses. The hunting and angling license fees are increased from \$3 to \$4 each with the resident combination license up from \$5 to \$7.

A history of Oregon hunting and angling license laws shows that the license fees paid by sportsmen have been a small portion of their total hunting and angling expenses, and the increase in the amount has been low compared to the increase in the general cost of living. In 1905, when the first resident hunting license law was enacted, the fee was \$1. Resident anglers had to start paying a like amount in 1909. These fees remained unchanged until 1917, when they were raised to \$1.50. The \$3 fees were established in 1921. The first combination license fee at a reduced rate (\$5) was provided in 1936.

Other new fees are: juvenile
(Continued on Page 8)

☆ **THIS AND THAT** ☆

A fishery staff conference was held December 6, 7 and 8. All hatchery foremen and fishery field agents met to discuss developments and new techniques pertaining to the fishery management program.

* * *

Three new large trout liberation tankers and five small auxiliary tanks are being constructed by personnel of the Game Commission to provide additional equipment when next year's fish liberations start. The three large tanks being constructed are fully insulated with cork to maintain low water temperatures and are also equipped with aeration systems consisting of centrifugal pumps driven by power take-off equipment. This makes it possible to transport trout for maximum distances without injury to the fish. The tankers are similar in design to those now in use and have a capacity on an average run of from 350 to 400 pounds of trout. The five small tanks are designed so that they may be easily mounted on small trucks or large pick-up trucks. They will be stationed at some of the hatcheries to be used primarily for liberation of fry and for the supplying of trout to pack strings.

* * *

The Game Commission received a total of 3,134 applications for the 1,000 tags authorized for the taking of antlerless deer on the north side of the John Day river in Grant county from December 15 to 18. Results of the hunt indicated that 839 hunters checked into the area and killed 734 deer. Severe drought conditions during the 1949 summer, accompanied by a heavy infestation of grasshoppers depleted the range forage. Because of these conditions, it appeared probable that the deer herd would face a critical situation this winter.

* * *

Hunting license sales in the United States for the fiscal year ending June 30, 1949, rang up new record breaking totals both in the number sold and in revenue received, according to figures prepared by the U. S. Fish and Wildlife Service. Hunters paid \$34,966,687 for an all-time record total of 12,758,698 licenses. Compared with the preceding year, license sales increased 1,366,888 from the previous total of 11,391,810 while fees went up \$5,152,360 from the previous high record of \$29,814,327. The higher revenue can be attributed principally to increased hunting fees which many states put into effect.

The "big ten" in the license sales line-up are the following states: Michigan, 977,879; Pennsylvania, 878,669; New York, 847,314; Ohio, 718,292; Minnesota, 505,970; California, 504,450; Illinois, 470,855; Wisconsin 421,343; Indiana, 408,051; and Washington, 383,689. Oregon is in twenty-third place with a total of 217,403 license holders.

ANGLING REGULATION HEARING IN JANUARY

The annual hearing in regard to angling regulations will be held by the Oregon State Game Commission on Friday, January 13, 1950, at the offices of the Commission in Portland. At this time, the 1950 seasons and bag limits for the tak-

January Calendar

- Salmon and Steelhead over 20" — open season inland waters.
- Trout, Salmon, Steelhead (12" minimum) —open certain coastal waters.
- Spiny-ray Fish—open season.
- Predators—open season.
- Waterfowl—closes Jan. 7.
- Mink, Muskrat, Raccoon, Otter—open season.

NOTE: For exceptions consult Angler's and Hunter's Guides.

Oregon State Game Commission Bulletin

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November and December Commission Meetings

The Game Commission met in special session on November 18.

Consideration was given to the objections received to the proposed wildlife refuge and management area in vicinity of Ladd Marsh in Union county. It was decided to abandon the project because it was not economically sound and proceed to dispose of the land already acquired. It was ordered that bids be called for the meeting on December 9.

A delegation from Grant county was heard in regard to their complaint that damage was being done to forage by deer in the Northside area near John Day. It was recommended that the Commission hold a special season on antlerless deer to reduce the deer herd in the area. The Commission decided to hold a hearing on November 23 to consider the matter.

Several additional expenditures were authorized for the Rock Creek hatchery.

On November 23 the Commission held a hearing in regard to the Grant county deer situation. It was decided to issue 1,000 permits to take antlerless deer from December 15 to 18, inclusive, in a specified area of Grant county.

The Game Commission met in regular session on December 9 and 10 to consider the 1950 budget. Other business transacted included the following items:

The following bids were received and opened for the purchase of Ladd Marsh: D. Smutz and Frank Counsell,

- La Grande\$30 an acre
- Green & Muilenburg, La Grande..\$30.50
- Paul Timm, Portland.....\$2.00

All bids were rejected on the basis of being too low and the Director was authorized to negotiate for the sale of the property at a price to cover purchase costs.

The Director's negotiations for the sale of the Brush Creek hatchery property to the State Highway Commission for \$11,000 were confirmed.

Invitation was accepted from the Washington State Game Commission to meet jointly with the Idaho and Washington departments sometime in February at Walla Walla, Washington.

C. A. Lockwood was reappointed state game director at a salary of \$7,200 a year, and salary of P. W. Schneider, assistant state game director, was fixed at \$6,600.

It was ordered that the Corvallis and Eugene game farms be transferred to the property acquired at Camp Adair and be operated as one unit.

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PROGRESS REPORT ON HABITAT IMPROVEMENT

(Continued from Page 1)

Game animals are a product of the soil and its vegetation; therefore, the most logical and basic approach to the problem of producing optimum game populations is through the encouragement of better land use. This implies a long-range program coupled with results which are seldom spectacular. Other conservation agencies are actively engaged in the task of fostering proper land management. Opportunities to work cooperatively should be mutually beneficial. Public agencies, however, cannot and should not be expected to accomplish the job alone. Because of the magnitude of this type of operation, habitat improvement cannot be entirely financed or conducted on the necessary scale by a government agency. It can show the way, but successful accomplishment of the task ahead will largely result from efforts of the individual owners and operators of the land. Experience elsewhere has shown that not much effort is forthcoming unless the landowner is offered an economic incentive. In commending the Commission for authorizing its new habitat improvement program in his report to the Legislative Interim Committee, Dr. Gabrielson said, in part, "It is obvious that the only method of increasing habitat in intensively cultivated districts is to find game food and cover plants that will also meet some needs of the landowner." This approach is constantly kept in mind as the department develops its program for upland game.

Upland Game

A resume of habitat improvement activities for upland game was presented in the August 1949 issue of the Bulletin. Cover, food and water were discussed as the essential factors in upland game habitat. The department, to date, has undertaken a total of 210 small projects, the majority of which belong in this category.

A general deficiency of living space in the critical winter season is of primary concern. The carrying capacity of any given area is determined by the distribution, as well as the amount, of acceptable cover. It is a well-known fact that wildlife generally is most abundant along the junction or edge between diverse types of vegetation. Thus, small unused spots and fencerows are of far more importance than is indicated by their acreage measurement. As previously pointed out, the preservation of existing vegetative cover ordinarily is preferable to undertaking measures for its restoration following unnecessary destruction. Most farms have small areas unsuited to crop production which could be preserved for wildlife; for example, field corners, steep banks, creek bottoms and badly eroding gullies. Oftentimes protection from grazing or burning is the only measure needed to in-

"JOE BEAVER"

By Ed Nofziger



Forest Service, U. S. Department of Agriculture

"Just think, this was once a river when we had better forest cover!"

crease productiveness of the land. If landowners would refrain from unnecessary burning or spraying operations, much valuable wildlife cover would be saved. Where obnoxious weed species must be removed, it often could be done selectively. The quality of existing cover can be improved by planting varieties recommended for multiple uses including wildlife habitat and soil conservation.

Railroad rights-of-way passing through potential habitat offer an excellent opportunity for improvement activities. Realizing this, the Commission approached the Southern Pacific and Great Northern railways and has secured permits to develop specified portions for upland game cover. The Oregon Northwestern railway has agreed to protect vegetation on its right-of-way in Harney Valley, and the Union Pacific has recently approved shrub planting within their right-of-way in Wallowa county.

The Commission has recently entered into a program of cooperation with soil conservation districts in support of certain mutually beneficial practices advocated by the Soil Conservation Service. Working agreements are in effect with three districts located in the Columbia Basin. The practices currently agreed upon include the preservation of existing unused sites for wildlife, and the planting of living fences, windbreaks, woodlots and on eroded areas. Thousands of shrubs are being planted at this time in the North Wasco district under such agreement. The extent of participation by any district member is entirely voluntary. If landowner interest warrants it, the Commission plans to assign to these districts next spring one or more crews equipped to establish and maintain plantings and conduct other conservation practices. Additional field crews may operate in other areas if justified by landowner cooperation and provided that adapted planting stock is available as anticipated.

Testing its feasibility, the Commission raised 15,000 to 20,000 multiflora rose at the Eugene Game Farm during the past season. A good strike was obtained from cuttings at a cost below the lowest market prices. These plants are among 60,000 others currently being set out in the Willamette and Umpqua Valleys. It is planned to raise increasing proportions of the stock required by utilizing available space and equipment on Game Commission property. Propagation from seed when an adapted supply becomes available may further reduce costs.

All shrubs used in the habitat improvement program have been varieties recommended for soil conservation and other direct farm uses as well as for upland bird cover. It is a primary matter of policy to use only plants to which there is no objection by the State Extension Service. Field personnel customarily consult with the local County Extension Agents prior to introducing any variety of plant life.

The first 100,000 shrubs set out under this program last spring were widely planted throughout Oregon. Multiflora rose, which is widely recommended for use as a stock-tight pasture fence, comprised approximately 90 per cent of the total lot planted by Game Commission personnel. This rose planted in the Willamette Valley has produced very satisfactory growth. This species has been raised here commercially for many years for rootstock on which to bud garden varieties of roses. Apparently it has never been tested to any extent under the comparatively restrictive environmental conditions of eastern Oregon. None of the planting stock used by the department was acclimated to that region; all the rose came from the Willamette Valley. Initial success has been encouraging for irrigated projects generally and for a substantial percentage of others in the Columbia Basin. Losses were heaviest on the dry lands of the southeastern counties. Demonstration plantings of selected varieties together with efforts to develop acclimated stock will gradually guide the course of action for expanding the program under the more difficult situations.

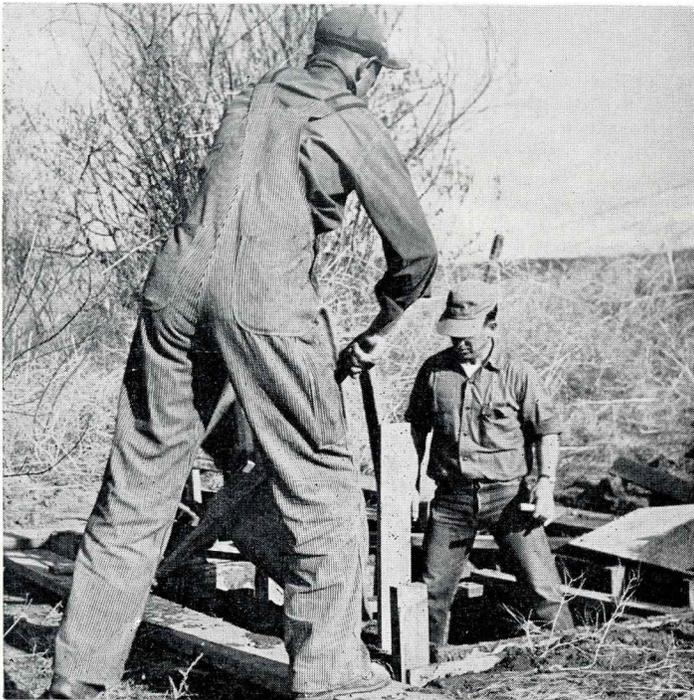
Areas supporting grasses and legumes, if protected, provide choice nesting sites. There is a potential opportunity to cooperate with irrigation districts in the seeding of canal banks and wasteways. The Commission has in effect a permit from the Bureau of Reclamation to plant perennial grasses or other plants on all rights-of-way along irrigation canals, laterals and drains within its Klamath Project. The development of grasses or other soil-binding plants, which will compete with and replace weed growth and more nearly stabilize erodible canal banks, is advantageous to water users through decreased operation and maintenance costs. This type of vegetation is preferred for nesting and being adjacent to water and secure from the mowing

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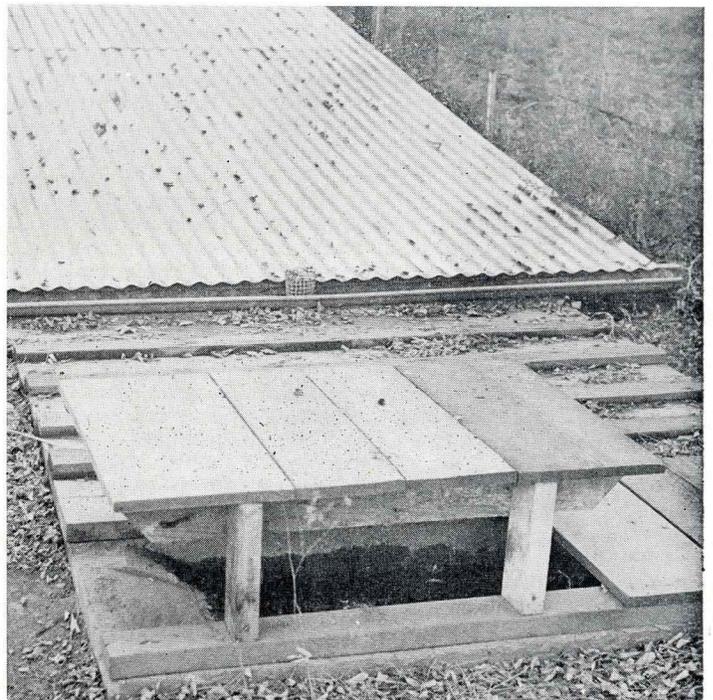
FOOD • WATER • COVER



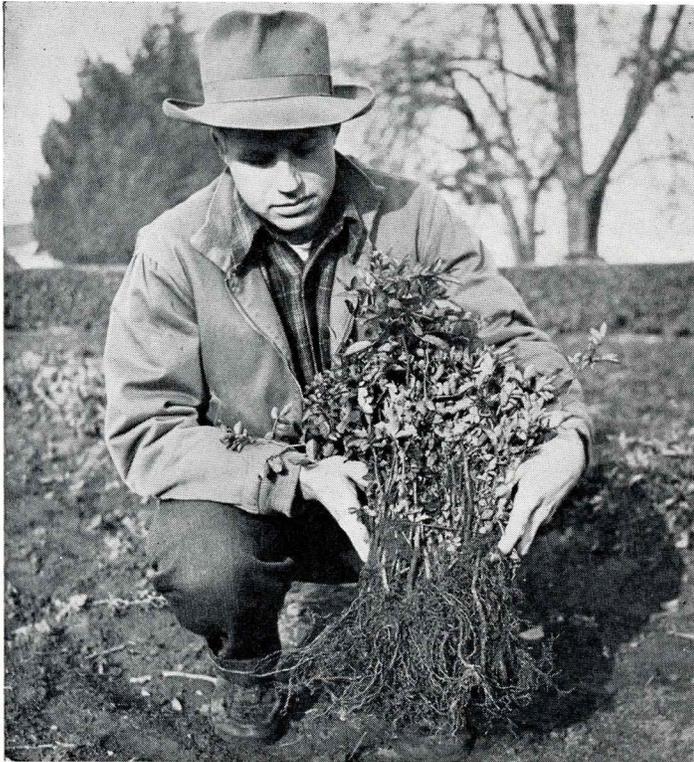
A small resting pond constructed as part of the habitat improvement program for waterfowl.



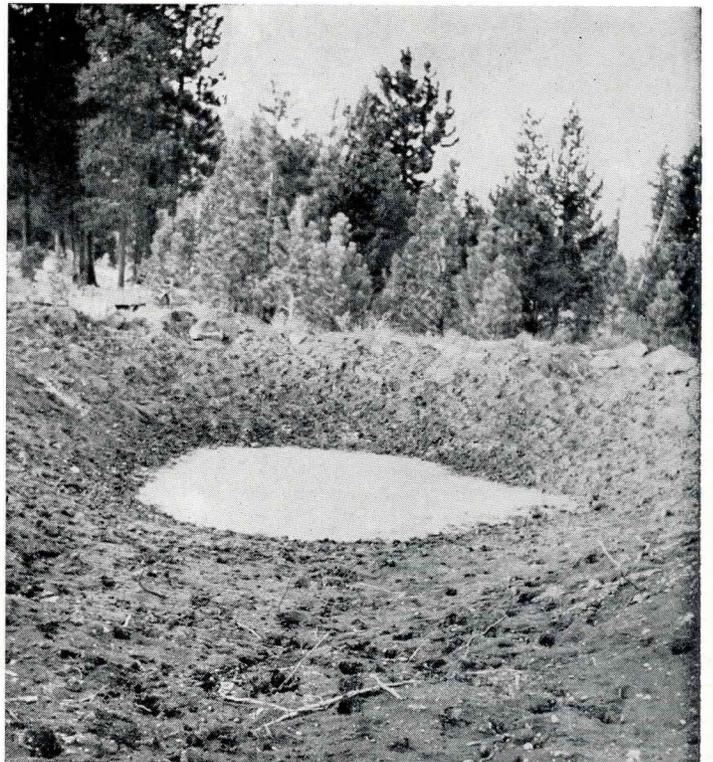
Pouring the concrete for a guzzler in the dry wheatlands of Umatilla county.



Completed guzzler showing cistern with access ramp and collecting apron.



Multiflora rose cuttings, rooted at the Eugene Game Farm, ready to be transplanted for future living fences.



Deer tracks indicating use of a new waterhole in the Deschutes Game Reservation constructed in cooperation with the Forest Service.



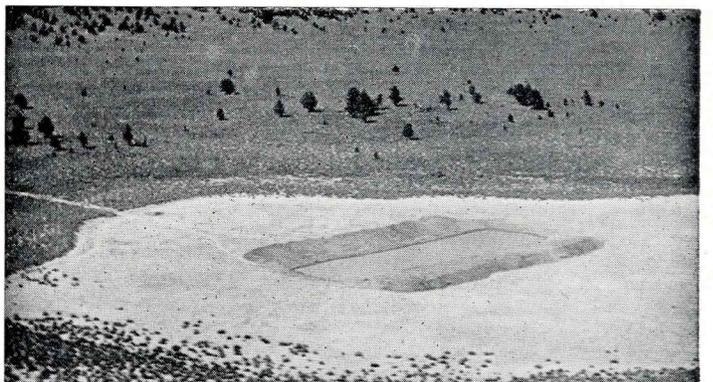
Mature multiflora rose field border planting at the Pullman (Washington) Nursery of the Soil Conservation Service.



Construction of waterhole for deer on dry, summer browse range in the Paulina Mountains in Deschutes National Forest.



Ponds and irrigation ditch banks seeded to grass serve both to hold the soil and provide nesting cover.



Reservoir in antelope country typical of those being constructed cooperatively by the Game Commission and the Bureau of Land Management.

PROGRESS REPORT ON HABITAT IMPROVEMENT

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machine and livestock grazing, such sites should be ideal.

Most of the shrub species planted primarily to provide cover will also produce fruits acceptable as emergency food. The multiflora rose, snowberry, dogwood and black locust are particularly valuable for this purpose, for they retain their fruits late into the winter.

Two other methods of providing food were tried last winter where the natural available supply was limited during severe weather. Most district game agents east of the Cascades purchased quarter-acre strips of unharvested grain and also operated feeding stations. These food supplies were readily used by the wildlife, as was reported in a previous article, but the advisability of continuing the artificial feeding devices is questionable from the viewpoint of permanent management. Continued observations will be recorded this winter to provide additional facts for guiding future activity. The eventual establishment of adequate permanent vegetation would largely eliminate winter food deficiencies for most game species.

The water development commonly known as a "guzzler" constructed in Umatilla county a year ago has filled and held water very satisfactorily all summer and was used to some extent by pheasants and other wildlife. Where farm ponds, springs, wells or other multiple use developments are not available, the construction of these underground cisterns appears to be the most practical means of providing water for upland game. Four additional guzzlers were constructed this fall in the Umatilla wheat country; others are planned for similar water deficient habitats.

Waterfowl

Projects of this department designed to benefit waterfowl have so far been undertaken only in the Willamette Valley. The basic development plan is a proposal to establish a series of small resting refuges well distributed throughout the valley. Properly located sites of five to ten acres or more are to be leased and intensively developed for both waterfowl and upland game. The development practices include the construction or improvement of a shallow water area of several acres; the planting of grain or other food crops, or the purchase of some adjoining crop; the introduction of aquatic plants where advisable; the clearing of undesirable vegetation, or the planting of shrub cover if needed; and the fencing of the entire tract. A number of such refuges strategically located along the flight lanes extending the length of the valley would serve several useful functions. A percentage of the fall migrating waterfowl would find safe resting spots where they could remain undisturbed by hunters. Perhaps they would be encouraged to remain longer in

the vicinity. Some nesting sites would be found by resident ducks. A nucleus of pheasants, quail and other upland species would be provided with year-around suitable habitat protected from many of the decimating factors which contribute particularly to nesting losses. Such populations would overflow to help stock surrounding areas. Game Commission field agents are actively seeking potential refuge sites available for lease. Low-lying tracts unsuited to high agricultural production may be well adapted to this purpose. This phase of the program has not progressed as rapidly as desired. The public response to announcements in the press has been encouraging; however, most acreages have not been acceptable when measured by the many factors which must be considered to insure a successful unit. To date, two units are in operation, both of which are functioning as designed. Ducks were using one pond two days after it was constructed. At least four other available tracts are currently under consideration.

Supplementing these small refuges, the Commission plans to provide larger acreages of wheat, barley, sudan grass, and similar crops for waterfowl. Two tracts comprising approximately 90 acres located at Fern Ridge reservoir were secured under permit from the Army Engineers. One field, spring seeded, produced a good stand of grain and sudan grass; the other on Gibson Island has been fall seeded to grain.

Big Game

Projects in the big game category normally are of greater magnitude than for other game species. They ordinarily require more planning and greater expenditure of funds. They are usually located on public lands and necessitate a degree of cooperation with the administering agency. The cooperation of bureaus contacted to date has been readily secured because the proposed developments are mutually beneficial.

Improvement of habitat for big game has so far consisted primarily of water developments. In the dry Fort Rock district of the Deschutes National Forest, the construction of small reservoirs to catch spring run-off water is part of a larger management plan to improve the summer distribution of resident deer which concentrate along the one stream in the entire Paulina range with resultant serious over-utilization of the browse forage. Six water holes with a minimum capacity estimated at 6,000 gallons have been completed with the active cooperation of the Forest Service. The porous "soil" of volcanic origin must be treated; application of Bentonite, a clay-like material, produces an effective seal. As a result of a rainstorm this fall, puddles collected in the holes just excavated and when photographed a few days later numerous tracks proved that deer had found them acceptable.

The scattered lake beds on the antelope's high desert ranges usually dry

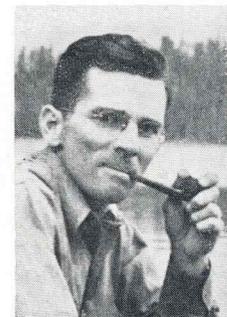
up completely by early summer, leaving stock tanks and dug reservoirs as the only available water. Desiring to secure better distribution of the antelope herds as part of its management program, the Commission is participating in the construction of strategically located reservoirs. Such construction can be costly and it appeared that the most satisfactory procedure would be through cooperative agreements with the Bureau of Land Management which is actively engaged in similar work and whose consent is required in any event. Each grazing district, with its own personnel and equipment, annually constructs a group of waterholes for livestock on some particular range within its boundaries. Upon request the Bureau readily agreed to extend its operations to include a few additional reservoirs on sites selected by Game Commission personnel and lying within the general work area. For these the Commission agreed to pay the actual expense of wages and equipment operating cost. At this writing, six such waterholes, approximately 75x200 feet and 8 feet deep, have been constructed in Malheur county and four in Lake county. Additional units are anticipated as appropriate sites are located.

Several other practices concerning big game are underway on a demonstration scale. It is too early to predict whether or not these activities should be expanded.

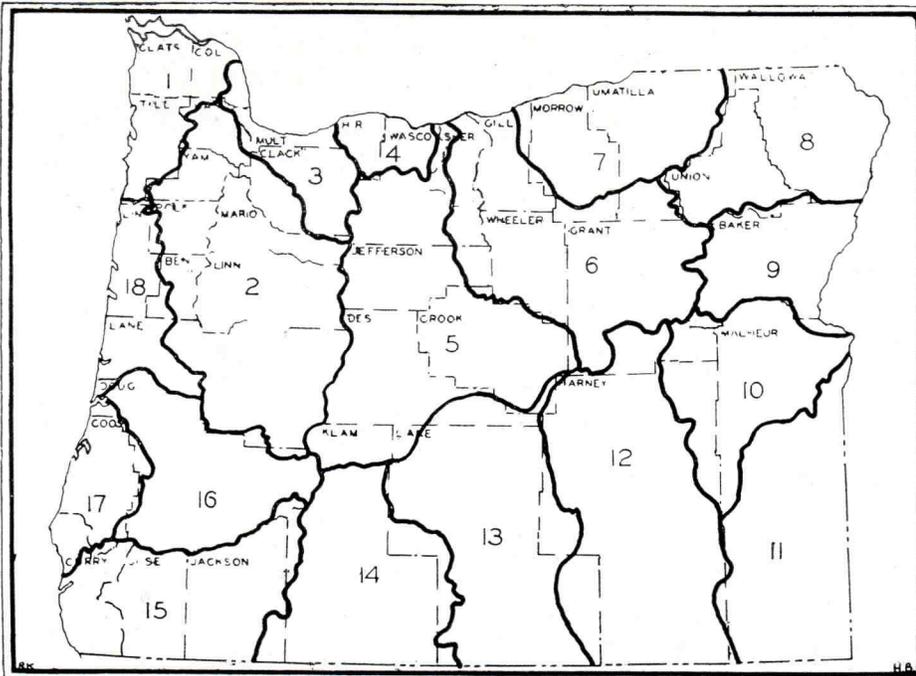
The Grant county district agent for the past few seasons has tested several methods of topping high-skirted mountain mahogany and juniper stands on

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ABOUT THE AUTHOR



Frank Stanton, who prepared the foregoing article on habitat improvement work, is typical of the well trained administrative personnel on the Game Commission staff. His basic training includes a B.S. degree in botany and zoology cum laude from Montana University and a M.S. degree from Oregon State College, where he served as graduate assistant in the Cooperative Wildlife Research Unit studying predation on the ringneck pheasant. His practical experience, obtained over a sixteen year period, has led directly to his being selected as Chief of Habitat Improvement. He has been with several federal agencies, including the Forest Service, Park Service, and A.A.A. With the Game Commission he has been in Federal Aid work and has served as district game agent in Central Oregon. His war service was in the field of chemical warfare.



Watersheds of Oregon.

150 Tons Fish Released In State Waters

Tabulation of the 1949 fish releases by the liberation department of the Game Commission reveals that more than 150 tons (301,685 pounds) of fish were released in the lakes and streams of the state. In numbers this consisted of approximately 21,974,909 fish running in size from fry to 19 inches. The fry were used chiefly to stock the high mountain lakes by pack string while the streams received most of the legal sized fish.

Rainbow trout made up the bulk of the plantings, accounting for 229,504 pounds of the total. Eastern brook came second with 32,438 pounds and cutthroat trout third with 21,259 pounds. Steelheads, chinooks, silvers and chums were included in the balance.

The fish were allocated to the 18 watersheds (see accompanying map) on the basis of the amount of available water suitable for stocking and the angling stress involved.

The leopard never changes his spots. But the leopard frog does.

1949 FISH LIBERATIONS*

Watershed	Rainbow	Cutthroat	Eastern Brook	Steelhead	Chinook	Silvers	Chum	Totals
1.....		1,247,065		592,032	7,375	237,993	1,500	2,085,965
		4,500		2,313	59	849	8	7,729
2.....	3,691,187	217,309	456,007	35,125				4,399,628
	53,430	2,578	2,912	86				59,006
3.....	696,713	2,664	59,290					758,667
	17,491	1,680	702					19,873
4.....	272,214		83,487					355,701
	6,237		2,321					8,558
5.....	2,961,519		2,684,697					5,646,216
	69,998		18,584					88,582
6.....	15,500							15,500
	2,452							2,452
7.....	112,360		3,800					116,160
	6,010		610					6,620
8.....	573,828		14,105					587,933
	10,974		2,570					13,544
9.....	79,075	7,315	5,550					91,940
	1,360	133	1,110					2,603
10.....	20,960							20,960
	150							150
11.....	8,250							8,250
	765							765
12.....	16,524		59,325					75,849
	1,042		245					1,287
13.....	39,496							39,496
	946							946
14.....	1,095,360		398,381					1,493,741
	6,574		3,300					9,874
15.....	1,561,418		15,840	246,000		597,467		2,420,725
	18,656		60	82		6,132		24,930
16.....	1,184,938	10,679	13,982					1,209,599
	23,334	1,456	24					24,814
17.....	744,348					15,290		759,638
	5,613					778		6,391
18.....	40,534	1,055,192		277,215	516,000			1,888,941
	4,472	10,912		5,597	2,580			23,561
TOTALS.....	13,114,224	2,540,224	3,794,464	1,150,372	523,375	850,750	1,500	21,974,909
	229,504	21,259	32,438	8,078	2,639	7,759	8	301,685

*Through November 21, 1949.

NOTE: Figures in black indicate poundage.

Oregon State Game Commission Bulletin

1634 S. W. ALDER STREET
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PORTLAND 8, OREGON



"I guess we shouldn't have shot at them."

PROGRESS REPORT ON HABITAT IMPROVEMENT

(Continued from Page 6)

heavily used deer winter ranges. The work has indicated that top pruning of these species results in stimulation of basal twig production, thus providing an increase in available food.

A local problem on a southwest coastal deer range concerns an abnormal infestation of liver fluke in domestic sheep and black-tailed deer. The treatment as applied by stockmen is to break the parasite's cycle by killing the host snail with copper sulfate spread on the infected wet areas. At the district agent's suggestion, bluestone was applied to three wet meadows not reached by the stockmen. Another application may be given this winter.

Small areas on depleted game ranges have been seeded in both eastern and western Oregon. A 35-acre plot on the Keating deer winter range in Baker county has been seeded to selected grasses. Approximately five acres of private forest land in the coast range was seeded to a mixture of grasses and legumes immediately after it burned this fall. A similar project is underway in the old Tillamook Burn. Five test plots selected with the approval of the State Board of Forestry are being seeded to various grasses and herbs grazed by big game animals. Results regarding both vigor of plant growth and utilization by the game compared with availability and cost of the seed, will prepare the Commission for larger projects which

1949 HUNTING ACCIDENTS

The total number of accidents with firearms among hunters during 1949 was less than 1948 but the fatalities ran higher. Of the 15 accidents listed in the Game Commission records (not official), 10 were fatal. In 1948, there were 22 accidents, of which 7 resulted in fatalities.

Deer hunters had 7 accidents, 5 of which ended in death. One elk hunter was killed and other accidents occurred among small game and nongame hunters.

Five of the accidents occurred through careless handling of guns, resulting in accidental discharge.

A tabulation of accidents listed with the Game Commission follows:

Game Season	Cause of Accident	Fatal	Non-Fatal
Deer	Mistaken for deer	1	
Deer	Wounded in leg when victim ran into line of fire . .		1
Deer	Shot by unknown hunter	1	
Deer	Raised up into line of fire	1	
Deer	Shot in head by another hunter	1	
Deer	Loaded revolver slipped from victim's holster, struck a rock and was discharged. Victim was bending over a spring to drink at the time	1	
Deer	Load gun discharged when knocked from a leaning position		1
Elk	Mistaken for elk when hunting in a very isolated area	1	
Pheasant	Shot in head when partner fired once without aim	1	
Pheasant	Wounded by unknown hunter		1
Pheasant	Injured by hunter hunting across drain ditch		1
Duck	Gun accidentally discharged when being reloaded	1	
Nongame Bird	Gun accidentally discharged as hunter was taking aim	1	
Nongame Animal	Shot by partner who was unloading his gun	1	
Birds	Shot by hunting partner		1
TOTAL		10	5

it may wish to undertake in the future.

Furbearers

The only practice attempted thus far particularly for this group concerns beaver rehabilitation. Many streams in eastern Oregon which formerly were good beaver habitat are now completely devoid of food trees. The Commission and other agencies, such as the U. S. Forest Service, realizing the conservation values of maintaining beaver on mountain streams, have in years past made extensive plantings of willow, cottonwood and aspen cuttings. While it is generally believed that these species are easily grown, most of the plantings have produced discouraging results. The department is now trying different techniques and using both native and introduced tree varieties on a demonstration scale to develop a reliable planting method before expanding this activity.

Habitat improvement is a long-range program. Immediate results will not be

conspicuous, for the reaction of wildlife to changes in habitat is seldom spectacular. Furthermore, a directional change in a long-established trend of thought must be accomplished. This phase of the program can be done only through education procedures which will guide the public thinking around to a conservation attitude.

"A long-range program for saving our national heritage is needed badly, but there is no reason for individual landowners to wait for it. Like charity, conservation should begin at home." (Pennsylvania Forests & Waters, June, 1949)

New License Fees Now Effective

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hunting and angling, \$2 each; nonresident hunting, \$35; nonresident angling, \$15; nonresident 7 day angling, \$5.