

OREGON STATE
GAME COMMISSION
BULLETIN
JANUARY, 1957





"Geese of Oregon," Information Leaflet No. 8 prepared by the information and education division, is now available for distribution from the Game Commission offices.

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"Angling Anew" is the new film that Game Commission personnel will be showing this winter at meetings of sportsmen and other groups. The film tells the story of rehabilitation of Diamond Lake.

* * *

Matson Creek elk season in Coos county turned out to be unusually successful as 117 hunters killed 115 elk during the two-day season in December. Number of permits for the hunt was limited to 125.

* * *

Trapping license and beaver tag sales appear normal despite the fact that the fur market opened weaker than last year on most fur species. During November 1,300 licenses and 9,000 beaver tags were issued by the game department.

* * *

Boners will creep in despite all proof-reading efforts and so by transposition of the captions we called the mountain goat a sheep and the bighorn sheep a goat in last month's Bulletin picture spread. We apologize to both the goat and the sheep and assure them we really know the difference. And we appreciate the trouble some of you have taken to call this to our attention for then we know you are reading our Bulletin. We particularly enjoyed the letter from one of our readers who ended his comments with this verse:

"Now look ye here, my fine friend,
if ye please:
Don't tell me that the moon is made
of cheese.
If that we find one black bird in a nest,
We straightway kill for black birds
all the rest;
So this last being anything but true,
I think you've lied the whole way
through."

DECEMBER MEETING OF THE GAME COMMISSION

The Oregon State Game Commission met in Portland on December 7. The following business was conducted:

Sandy River Access: Exercise of option was authorized to acquire Hossner tract on the Sandy River which would provide one-half mile of river frontage for use by anglers.

Management Area Acquisition: Exercise of option was authorized to acquire Rosentreter tract on Sauvie Island Management Area and the McKenzie tract on Government Island.

Leaburg Hatchery Screen: Bid of Inter-City Sand and Gravel Company was accepted for removal of silt at Leaburg hatchery screen with total cost not to exceed \$6,000.

Capital Outlay: Construction was authorized for an additional room to Alsea hatchery residence, and interior improvements to Southeast Regional headquarters building.

Screen Repair: Repair of Stanfield ditch screen was ordered to prevent further loss of fish and it was further ordered that the irrigation district be billed for the cost.

COVER

The crew taking eastern brook eggs at East Lake find it cold, wet work. Over 2,000,000 eggs were taken this fall and sent to the Fall River Hatchery. (Photo by Ron Shay)

To determine the age and growth of channel catfish in the Snake River, studies are being made of pectoral spine sections. One specimen, weighing about 17 pounds, was in its 13th year. This is the largest and oldest catfish taken to date. Two other specimens, 9 and 13 pounds, were both in their 10th year of life.

MARKED FISH—REPORT THEM

IF YOU find you have landed a salmon or steelhead with its fins clipped or bearing a tag, don't just eat it. Write a note to the Game Commission describing the kind of marking and giving date and place of catch. This winter, as for the past several years, thousands of salmon and steelhead are being marked at Game Commission hatcheries to obtain information as to results of hatchery releases. Some of the reports are downright interesting like the one about the travels of an Umpqua fall chinook of the 1953 brood caught last June in the Port Houghton area of Alaska. The fish had grown to 27 inches in length and dressed out, weighed 8 pounds.

Steelheaders fishing the Alsea River and tributaries are asked to report all steelheads caught, marked and unmarked. A thorough study of the Oregon steelhead is being conducted in this stream system by the Oregon Cooperative Wildlife Research Unit. Facts collected will be used in determining the best way to manage and maintain this popular game fish. Besides marking hatchery raised fish, wild fish will be trapped and marked. So if you want more and better fishing, do your share and report *all* the fish you take. Mail your information on Alsea catches to the Oregon Cooperative Wildlife Research Unit, Oregon State College, Corvallis.

ANGLING REGULATION HEARINGS

Final angling regulations for 1957 will be adopted by the Commission following its public hearing on January 25. This will be a continuation of the hearing started on January 11, at which time tentative regulations were formulated and announced.

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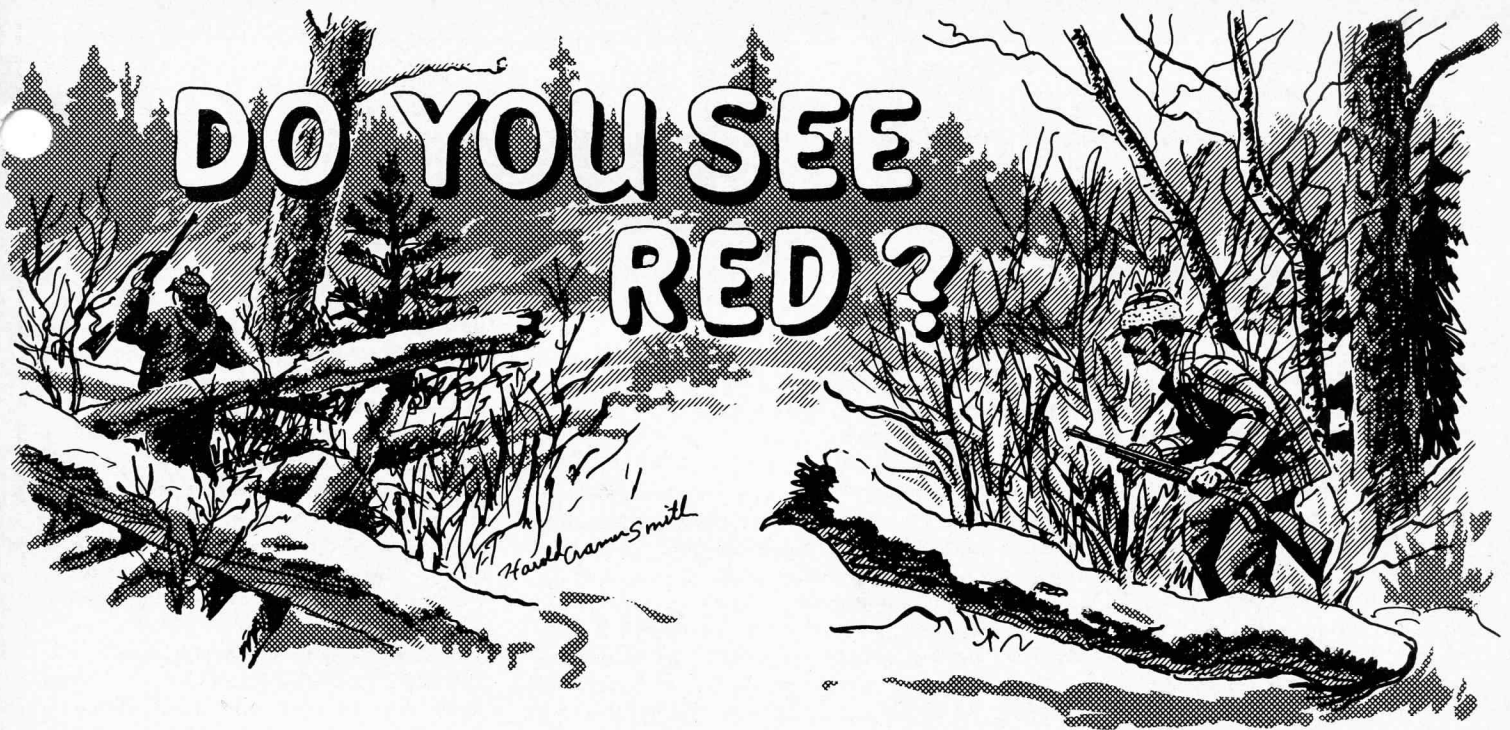
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DO YOU SEE RED?



By CLARK B. WALSH, Assistant Director

DID YOU wear a red shirt or a red hat while you were deer hunting this year? Most of us did and we felt we could be easily seen by all the other hunters in the nearby country while we were wearing our red hat and red shirt. Unfortunately that might not have been true. For many years it has been a well-known fact that 8 per cent of the male population of the United States has difficulty in seeing colors. This difficulty is often called either color deficiency or color blindness. That number may not seem like many people but 8 per cent of our 250,000 deer hunters which we have here in Oregon is 20,000.

A careful study of hunting accidents, both in Oregon and in other states, reveals that in a number of the accidents each year, where the victim was mistaken for game, surprisingly the victim was wearing red clothing of some type. Could it be that some other color would be a better color to wear? Right now, carefully conducted tests are being carried out to find out the answer to this very vital question.

The National Rifle Association of America has been quite interested for a number of years in hunting accidents and how they could be prevented. It was through their initiative that the tests were started. Some months ago carefully controlled tests were conducted in a typical desert-type background at Ft. Ord, California. Last month similar tests were conducted at Ft. Lewis, Washington, in country that is very similar to the

type of country that we hunt here in western Oregon. In fact, two series of tests were carried out—one at Ft. Lewis and one on the Olympic Peninsula against a snow background. Before any final answers are found, one more series of tests will be conducted. This will quite possibly be done next fall and will be carried out in a country that has a typical yellow background such as in an aspen or tamarack country in the fall.

The Ft. Lewis tests were conducted with a number of agencies cooperating. These agencies included the 4th Infantry Division of the U. S. Army, the California Optometric Association, the Washington Optometric Association, the National Rifle Association, the Washington Department of Game, the Oregon Game Commission, and the California Department of Fish and Game. Before the tests started, the Army had screened 15,000 men. From this group, 10 were selected who had normal color vision and 10 were selected who had a color deficiency in their vision. These 10 color deficient were classified as to degree of color deficiency and represented a good cross section of the 8 per cent of the normal male population. The tests were under the direct supervision of Dr. Arthur C. Heinsen, Jr., President-elect of the California Optometric Association; Dr. Harold Anderson, Safety Director of the California Optometric Association; Major Fredrick Jones of the U. S. Army; and Colonel E. F. "Todd" Sloan, representing the National Rifle Association.

The colors tested were red, fluorescent red, fluorescent orange, yellow, fluorescent yellow, green, blue and plaid. These colors were painted on panels approximately 18x24 inches in size. The panels, however, were irregular in shape. It had been previously learned that color deficient people, although having difficulty in seeing certain colors, were highly efficient in observing straight lines.

The first series of tests were called the time tests. Panels were exposed one at a time at 200, 150, and 50 yards. The test group stood facing the location of the panel with eyes covered. Then upon command, the eyes were uncovered and each member of the group, stop watch in hand, recorded the time it took him to locate and identify the colored panel. This test, as were all the tests, was conducted with both the normal color vision group and the color deficient group.

The second series of tests were called the precedent tests. In this series four panels were exposed simultaneously and the test group recorded which colored panel they saw first, which they saw second and which they saw third. This test again was repeated at 50, 150, and 200 yards.

This was the series of tests that impressed the writer the greatest. It was necessary for those of us who were assisting with the test to work very closely with the color deficient group because if you just took their written

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Biennial Highlights

Just off the press is the Game Commission's biennial report of its activities for 1954-1956 prepared for submission to the Governor and the Legislature.

Excerpts from the report are presented here. A limited number of copies of the complete report will be available for general distribution for those who are interested in more detailed information.

FOREWORD

The two-year period covered by this report is one in which much progress has been made. New fish and game species have been introduced; streams, lakes, and reservoirs have been reclaimed and stocked with suitable species; fish and game habitat has been improved in many ways; new and improved methods of fish distribution have been developed; the state has witnessed some of the finest big game hunting in the nation; the screening of irrigation diversions in the John Day River System is almost an accomplished fact; public hunting areas have been expanded; public access to streams and lakes has been improved; the problems associated with the passage of migratory fish in the Columbia and in other streams have been met with courage and resourcefulness; research and experimentation have provided new techniques and improved facilities to do a better job of managing the fish and game resources; and finally great progress has been made in gaining further recognition of fish and game as a valuable resource, of fishing and hunting as a tremendous economic and social factor in the state's economy and of the importance of recognizing and considering fish and game in all land and water use planning.

The record of the past two years is one of which we can feel justly proud. The management of fish and game in Oregon is not standing still; it is advancing to meet changing times and conditions.

The Commission is proud of these achievements. True, there have been mistakes, and matters to which an insufficient amount of time and effort have been devoted. But these are part and parcel of any imaginative, dynamic program. Much of the credit for these accomplishments must go to the staff who have worked tirelessly, often under hazardous and exhausting conditions, to improve the fishing and hunting opportunities for the citizens of this state. They are dedicated people who combine a common sense knowledge of the outdoors and wildlife with a professional and trained approach.

But there is more to this picture of progress. There is one factor overshadowing all others that has contributed to the success of these past two years. That factor is COOPERATION: Cooperation with landowners, cooperation with legislature, other state agencies and with counties, cooperation with private industry, cooperation with sportsmen, cooperation with other states, and cooperation with federal agencies concerned with natural resource conservation and development. This fact has been so notable and so encouraging that "cooperation" has been selected as the central theme of this report.

One of the most outstanding cooperative programs in which the Commission has participated in the biennium is that known as "RED HAT DAYS." This unique endeavor has brought together many diversified and at times conflicting interests in a unified move to bring about improved relations between sportsmen and landowners. In this we have seen timber, agricultural, and livestock interests working closely with sportsmen and resource management agencies to attain a common objective.

The day-to-day activities of the Commission have been filled with examples of cooperation at both planning and execution levels with other groups. The Commission has worked closely with the Fish Commission of Oregon, the United States Fish and Wildlife Service and with the fish and game management agencies of Washington and Idaho in connection with fishery problems associated with the Columbia River Development Program. The magnitude and complexity of these problems has necessitated almost constant liaison with these other agencies as well as with other federal agencies and private power companies.

The Commission has worked closely with many other state agencies including the Water Resources Board, the State Forestry Department, the Oregon State Police, the State Highway Department, the State Sanitary Authority and others. The management of fish and game is so closely tied in with other land and water uses that planning must involve diversi-

fied interests. County authorities in several counties have worked with the Commission in providing for and developing public fishing access sites. The State Highway Commission has cooperated in the fishing access program and in providing adequate fish protection in highway construction where culverts, channel changes and fills occur.

New laws governing Oregon's water resources demonstrate a growing recognition of the importance of fish and game in the state's economy. These laws are the result of months and even years of consultation and work in which cooperation and mutual understanding played a vital role.

Much progress has been made in the biennium in opening up privately owned land to public hunting. Many farmers are cooperating in this by posting "Hunting by Permission" signs on their property. More than 200,000 acres of privately owned land have been opened to hunting in this manner. Unfortunately, other lands have been posted against entry through the careless and negligent actions of a small number of hunters. Many tree farm operators have encouraged hunting on their lands.

The introduction of new species of fish and game or the supplementing of native species always involves cooperation on the part of another agency. The Commission has taken advantage of every opportunity to work with other states in a mutual improvement of fish and game resources. Often an exchange has been made that is beneficial to both parties.

These are but a few examples of the pattern of cooperation that has marked progress in the biennium. There are many others of equal significance, some of which are mentioned later.

GAME RESOURCES

With the cooperation of landowners, sportsmen, and allied agencies, Oregon's game management program has accommodated successfully the growing demands of the public without jeopardizing wildlife populations or primary land uses.

License sales indicate that the number of licensed hunters increased by ten per cent in the biennium and has tripled since 1940.

The game resources were favored by moderate winter weather in the biennium which stimulated game production and contributed to a phenomenal harvest

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Biennial Highlights

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of game. Hunters reported a total harvest of 247,002 deer, 11,498 elk, 692 antelope, 570,750 pheasants, 299,092 quail, 69,809 grouse, 1,559,872 ducks, 212,358 geese, and an undetermined number of pigeons, doves, squirrels, rabbits, and other game and nongame animals. Collectively, this harvest provided over thirty million pounds of palatable game meat and at least five million man days of healthy outdoor recreation for the public. Application of national standards indicates that hunters spent over fifty million dollars in pursuit of game during the biennium. These facts reveal the importance of the game resources to the health and welfare of the people of the state.

Early recognition of the need for factual information to serve as a basis for regulations and management of the game resources led the Commission to initiate a systematic inventory program in 1946. Annual measures of wildlife population trends and limiting factors have provided a basis for new concepts of management designed to sustain game production at a high level and provide a more efficient utilization of surpluses.

Recognition of the fact that wildlife production is in direct proportion to the quality of habitat for any given species has led the Commission into broad soil and water conservation programs and placed emphasis on development of essential requirements of wildlife upon potential game producing areas.

Conflicts with primary land uses, arising from depredations by wildlife and the public, continue to be an acute problem. However, aggressive action has been taken to alleviate such conflicts and maintain compatible relationships. Acquisition and development of lands for primary use by wildlife has been necessary in some sections of the state; however, no large projects of that nature were initiated in the biennium.

More intensive use of all lands and waters to meet the demands of the state's growing human population is reducing the quantity and quality of habitat for wildlife. With vigilant management and efficient utilization of all available land, the department is confident that the increasing public demand for outdoor recreation can be accommodated without jeopardizing the wildlife resources or primary land uses.

FISHERY RESOURCE

The management of Oregon's game fish resources was highlighted by several important developments in the biennium; however, routine management

activities including population inventories, improvement of habitat, and fish rearing and liberation continued to receive major attention.

One of the most important advancements has been in the acquisition and development of public fishing and boat launching sites. Many of these projects have been undertaken cooperatively with the county authorities or with the State Highway Department. Several of the counties have initiated public access projects of their own. Included in this program are sites that have been developed on the Wilson River, the Little Nestucca River, the Clackamas River, the McKenzie River, the Siuslaw River, the Rogue River and several other streams.

The large scale screening project on the John Day River System was nearing completion as the biennium ended. The total number of screens to be installed in this system will exceed 400. Significant progress was made toward obtaining proper screening of power diversions on the Rogue River. Construction has started on screening of the power diversion at Gold Hill and the diversion at the Savage Rapids Dam.

The Commission's efforts to develop a satisfactory warm-water game fish management program were enhanced in the biennium when a unit of eight private ponds was made available for experimental work on these species.

Several major lake and reservoir reclamation projects were undertaken in the biennium. Diamond Lake was chemically treated in the fall of 1954, was restocked with Canadian rainbow in the following year, and angler catches early in the season of 1956 rivalled those of the mid-forties. This was the largest chemical treatment project ever attempted of which we have knowledge. Other major chemical treatment projects included Lake of the Woods and a sizable portion of the Malheur River system as well as several reservoirs in that system.

The channel catfish which has been resident to the Snake River for a number of years was introduced into other waters in eastern Oregon. Several races of inland cutthroat trout were introduced into chemically treated lakes and reservoirs in the arid, southeast region of the state. Smallmouth and largemouth bass, obtained through the cooperation of outside sources, were planted in suitable water, in the eastern part of the state.

Of particular interest is the fact that for the sixth consecutive year spring chinook counts on the Umpqua River

have indicated an increase in numbers over the parent run.

Fish rearing facilities have been expanded and modernized in order to meet, as efficiently as possible, present-day planting demands.

The fish management program of the Commission is designed to meet the needs of an expanding population, to provide a diversified fishery, and to encourage natural fish production whenever and wherever possible.

INFORMATION EDUCATION

Information and education activities were expanded in the biennium to meet a need for improved communication between the public and the Commission.

Work of the division logically falls into two major categories: information services in which all media of mass communication are used, and educational services provided primarily through the schools, youth groups, and selected adult groups. The educational approach is aimed at acquainting the public with basic concepts of wildlife conservation and the interdependency of the wildlife resource and other natural resources.

The greatest expansion during the biennium in the field of information services was in radio and television. Number of radio programs was increased considerably and television stations found the subject of fish and wildlife has great appeal and cooperated in furnishing time.

Conservation education in public schools and colleges, and in youth activities and teacher training programs has made remarkable strides forward during the past two years. This progress can be credited in large measure to excellent spirit of cooperation between private organizations, state and federal agencies, individuals and the Game Commission.

WATER USE

Water is essential to all fish and wildlife, just as it is essential to industry, agriculture, and man's very existence. Because of this, almost all governmental agencies and private organizations are deeply concerned in its manipulation and management.

The primary responsibility of the Department of Basin Investigations is to keep the Commission informed of water use activities by public and private agencies; to determine the effect these activities may have on fish and wildlife; and to plan measures that would minimize detrimental effects and take full advantage of beneficial ones.

This biennium has been particularly full of hydroelectric proposals and starts.

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Do You See Red?

(Continued from page 3)

word, you could never be sure which color they saw first for they often would write down purple, green, black or some other color when they were trying to describe a red panel. The four panels that were exposed at one time were each placed in different sections, the one to the left being in section 1, the one next to it in section 2, the next 3 and so forth. At the order to open their eyes, they immediately wrote down in sequence what color they saw first, what second and which one third. Then in order that those who were working up the information later could know which panel they were looking at, they would write down which section this particular panel happened to be in that they saw first and second and third. For example, one of the men with whom we were working wrote down on one of the tests that he observed the yellow panel first, the green panel second, and the purple panel third. He then stated that the green panel was in section No. 1, the purple panel in section No. 2, and the yellow panel in section No. 3. It so happened in this particular test that there was a green panel in No. 1, a red panel in section No. 2, a fluorescent orange panel in No. 3, and the yellow panel was in section No. 4. It would have appeared on the surface that he had observed the green panel correctly but we asked him to point out the green panel and he pointed directly at the red panel which was in section No. 2. We then asked him to point at the purple panel and he pointed at the fluorescent orange panel that was actually in section No. 3 and, of course, he had put down the yellow panel was in section No. 3 because he had only seen three panels. We tried to

point out the green panel to him that was in section No. 1 but try as he would, he was unable to see it at all. On another similar test the man saw only one panel although four of them were exposed. It happened to be a blue panel that he had seen and, of course, he had no idea what section it could have been in. After carefully pointing out the location of the other panels, he was finally able to see one of them. In fact, he said, "Oh, now I begin to see it; it's that black one just to the left of the little fir tree." The panel was just to the left of the fir tree but it was bright red, just the red of the color of that hunting shirt that you wore last year during the deer season.

One of the amazing facts about these people who have a deficiency in their color vision is that in general they are excellent observers and are able to pick up movement very readily. It doesn't take much theorizing that if they see a red shirt looking exactly black to them or brown, as the case was in some instances, and they see it move, some hunters at least might think it was the game they were looking for rather than another hunter.

The third series of tests were termed the "Easter-egg Hunt." Here the panels were placed along a trail that wound through typical hunting country. This trail was approximately a mile long and was divided into 14 evenly spaced intervals. Each interval's beginning was well marked by a letter of the alphabet on a white card. Some intervals had one colored panel, a few had two and some of them had none. Each member of the test group walked along this trail at a hunting pace, observing as carefully as he could. After moving through each interval, he recorded on a sheet the colors of panels that he had seen in the interval.

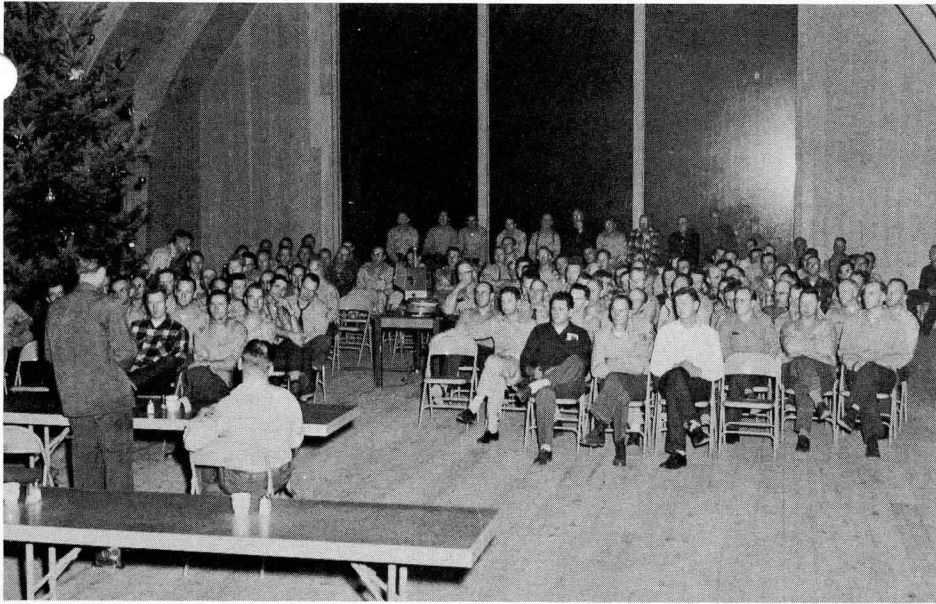
The panels were all in plain sight but varied in distance from the trail from 6 feet to 25 paces. This test was run three times—one in early morning light, one at dusk and once during the daytime.

Actually, on all three tests there were two of the sections that did not have panels in them and it was quite surprising to discover many of them listed as many as five blank spaces. Now bear in mind that all of these panels were in clear view of the trail and were set no farther than 25 steps from the trail.

This "Easter-egg Hunt" also brought out another interesting fact and that was that with both the color deficient and normal vision people the fluorescent colors, although excellent during the mid-day test, lost out very badly at dusk and at dawn. In fact, even such a bright color as fluorescent yellow was very hard to distinguish even by the normal vision people during the dusk tests.

As was stated in the beginning, the tests are not as yet complete and the information, even from the Ft. Lewis test, has not been completely reviewed but several very important things were so noticeable while the tests were being conducted that they bear passing along at this time. The first of these is that early indications put yellow far ahead of the other colors for recognition by both the people who have normal color vision and those who are color deficient. But probably the most shocking development to come from these tests is that red is the poorest of all the colors tested with the color deficient group. Red is not only very difficult for the color deficient people to see but it has the unfortunate quality that at some distances with some color deficient people it appears black. This possibly explains why all western states have at some time recorded hunting accidents when the victim was wearing red clothing and the shooter explained that he thought the man was a bear.

Many of the qualities of color deficient people have been known for years but these recent tests are the first time that these colors have been tested in actual hunting conditions with the single purpose of attempting to determine which color is the safest for a hunter to wear in the field. Just as soon as all the data has been analyzed and the relative score of all the various colors has been determined, it will be publicized and hunters can act accordingly. But in the meantime, it quite possibly will be better to wear a yellow shirt or jacket than a red one if you want to feel safe in the woods.



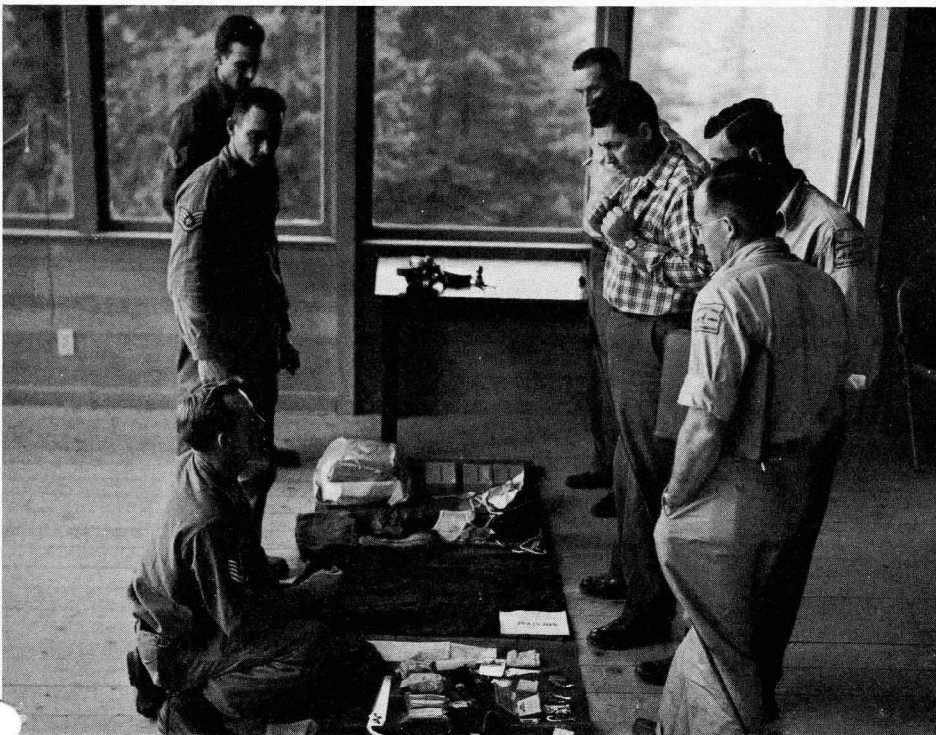
Game Commission staff gathered together for one of the few general sessions at the training school. Most of the time was devoted to classwork and technical sessions.

Training Conference Held

School bells rang recently for more than 140 employees of the Oregon Game Commission. December 12, 13 and 14 were the dates when game and fish biologists from all corners of the state gathered for their annual training conference to review the latest technical

developments in the conservation and management of Oregon's wildlife.

Through the generosity and cooperation of the Portland Council, Boy Scouts of America, the conference was held at the boy scout training center located near Mt. Scott.



U. S. Air Force Survival Unit from Fairchild Air Base, Washington, demonstrated outdoor survival equipment as part of course on survival presented at Game Commission training school.

It was indeed a strange sight to see the graying and balding heads of the older wildlife technicians, along with younger members of the staff, hurrying from classroom to classroom with pad and pencil in hand. No time was spent on light activities; the training schedule was far too tight for that. From 8:00 a.m. to 10:00 p.m. each day the men toiled over the problems at hand. The only breaks came during the chow-down periods.

All staff members attended the main technical sessions which covered a general review of fish and game management applied to Oregon's wildlife. In addition, groups were assigned special courses including fish diseases and nutrition, wildlife statistics, aquatic plants, mapping and surveying, game law enforcement and supervision. Seemingly unrelated to game management were such subjects as report writing, news writing and public speaking. Of keen interest to all personnel, and especially those who spend days alone in the field under all weather conditions, was a special course in outdoor survival.

Specialists in all fields were called in to lead discussion groups. Art Einarsen, research unit leader at Oregon State College, outlined the latest developments in game research. Portland State College furnished Dr. Frank Roberts, professor of speech; Dr. Quentin D. Clarkson, professor of biology; and Anthony Netboy, English professor in report writing.

Fishery biologists heard Dr. R. R. Rucker, U. S. Fish and Wildlife Service, in the course in fish diseases. The University of British Columbia, Institute of Fisheries, sent Dr. P. A. Larkin to present the latest in wildlife statistics. News writing and press relations were led by Robert Mansfield, professor of journalism, University of Washington. A survival training crew under Master Sgt. Al Pakros, Fairchild Air Base, instructed the fish and game men on how to stay alive under all weather conditions if they ever happened to become lost or injured.

And so went the third annual training conference for fish and game men of the Oregon Game Commission. All who attended agreed it was the best yet held, and the objective for which the conference was planned was more closely reached than ever before.

What was this objective? To equip each man with the latest, most modern tools of his trade. For only with the latest tools, the most modern technical know-how, can these men do a better job of managing Oregon's wildlife.

1956 CHUKAR PARTRIDGE LIBERATIONS

Region— County	Adults	Young	Ship- ping Loss	Total
Northeast:				
Baker.....	653	396		1,049
Gilliam.....		286		286
Grant.....	288	756		1,044
Morrow.....		482		482
Umatilla.....	488	992		1,480
Wallowa.....	450	432		882
	1,879	3,344		5,223
Central:				
Crook.....	300	432		732
Deschutes.....	200			200
Jefferson.....	736	432		1,168
Wasco.....	500			500
	1,736	864		2,600
Southeast:				
Harney.....	384	540	1	923
Lake.....		560		560
Malheur.....	400	540		940
	784	1,640	1	2,423
Totals....	4,399	5,848	1	10,246

Biennial Highlights

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Among the most time-consuming for the Commission have been the Pelton Dam on the Deschutes, and the Idaho Power Company dams on the Middle Snake. While these projects have been most widely publicized, there have been others during the biennium of varying degrees of magnitude on nearly every major stream system in the state.

RESEARCH

In order for the Game Commission to manage Oregon's fishery and game resources properly, it must be provided with sound information pertinent to all aspects of maintaining, restoring or otherwise handling the various species assigned to its jurisdiction. To secure such facts, funds and staff members are delegated to an organization located at Oregon State College known as the Oregon Cooperative Wildlife Research Unit.

Detailed inquiry was directed into following fishery and game problems: Delayed Mortality of Transported Hatchery-reared Trout; Steelhead Trout Study; Relationships Between Logging and Fish or Game Production; Columbia Black-tailed Deer Inquiry; Introduce and Establish the European Gray Partridge in the Willamette Valley; The Measurement of Salt Use by Big Game and Domestic Animals; The Pronghorn

1956 PHEASANT LIBERATIONS

Region—County	Adult Spring	Young Summer	Adult Fall	Total Shipped	Shipping Loss	Total Liberated
Northwest						
Benton.....	540	90	40	670	0	670
Clackamas.....	472	0	192	664	1	663
Clatsop.....	200	0	384	584	0	584
Lane.....	528	1,530	768	2,826	6	2,820
Linn.....	1,046	360	430	1,836	0	1,836
Marion.....	768	720	382	1,870	1	1,869
Multnomah.....	0	480	0	480	0	480
Polk.....	192	270	0	462	0	462
Tillamook.....	184	0	0	184	0	184
Washington.....	608	0	384	992	1	991
Yamhill.....	456	0	728	1,184	0	1,184
Total Northwest.....	4,994	3,450	3,308	11,752	9	11,743
Southwest:						
Coos.....	48	0	0	48	0	48
Douglas.....	384	720	0	1,104	2	1,102
Jackson.....	224	720	384	1,328	1	1,327
Josephine.....	160	720	0	880	1	879
Total Southwest.....	816	2,160	384	3,360	4	3,356
Western Oregon Totals.....	5,810	5,610	3,692	15,112	13	15,099
Central:						
Crook.....	0	990	0	990	6	984
Deschutes.....	0	810	0	810	2	808
Jefferson.....	0	495	0	495	0	495
Klamath.....	0	900	0	900	2	898
Sherman.....	0	405	0	405	0	405
Wasco.....	0	500	0	500	0	500
Total Central.....	0	4,100	0	4,100	10	4,090
Northeast:						
Baker.....	400	400	0	800	1	799
Gilliam.....	161	405	0	566	1	565
Grant.....	0	1,400	0	1,400	3	1,397
Morrow.....	0	495	0	495	1	494
Umatilla.....	400	600	0	1,000	11	989
Union.....	400	400	0	800	5	795
Wallowa.....	0	500	0	500	0	500
Wheeler.....	216	0	0	216	0	216
Total Northeast.....	1,577	4,200	0	5,777	22	5,755
Southeast:						
Harney.....	0	800	0	800	0	800
Lake.....	0	940	0	940	1	939
Malheur.....	315	0	0	315	0	315
Total Southeast.....	315	1,740	0	2,055	1	2,054
Eastern Oregon Totals.....	1,892	10,040	0	11,932	33	11,899
State Totals.....	7,702	15,650	3,692	27,044	46	26,998

Kid and Adult Survival Study; miscellaneous studies on the E. E. Wilson Game Management Area, including work on availability of food for pheasants during the critical winter and spring months; and effectiveness of an insecticide as a repellent to pheasants feeding on newly sprouted corn and peas.

ENGINEERING AND CONSTRUCTION

The Engineering Department is re-

sponsible for the design and construction of all major projects from inception to final completion.

Major projects during the biennium included planning and design of expanded facilities at the Oak Springs fish hatchery on the Deschutes, design and construction of a fishway at the South Umpqua Falls; boat launching ramp at Owyhee reservoir and new regional headquarters building in the southeast region.

Oregon State Game Commission Bulletin

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