

OREGON STATE
GAME COMMISSION

BULLETIN

NOVEMBER-DECEMBER 1966

OREGON STATE GAME COMMISSION BULLETIN

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The Cover

This late winter shot of Rocky Mountain elk in the Chesnimus area is not what the November hunter is likely to see in his annual trek after the elusive elk. (Photo by Robert Mace)

BULLETIN HUNTER SAFETY TRAINING PROGRAM

Instructors Approved

Months of August and September 93
Total to Date 3,834

Students Trained

Months of August and September 6,358
Total to Date 101,290

Firearms Casualties Reported in 1966

Fatal 2
Nonfatal 24

1967 ANGLING RULES CONSIDERED

Anglers may expect to obtain printed copies of the 1967 angling synopsis soon after the first of January at license agencies or Game Commission offices.

The Commission had two sessions of its hearing on angling rules scheduled for Portland, the first on November 7 and the second on November 21, the date set for final adoption of the regulations.

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Cole M. Rivers

Following an extended illness, Cole M. Rivers, long-time employee of the Game Commission, died at his home in Beaverton on October 19.

Born and raised in Milwaukie, Cole was a fish and game graduate of Oregon State University. He was first employed on a seasonal basis with the 1941 Rogue River survey crew. He returned the next year as assistant fishery biologist, and from 1943 through 1963 served as district fishery biologist in the Rogue River basin with his headquarters at Grants Pass. His reputation for a thorough knowledge of the Rogue River area was enhanced by his skill as a white-water boatman. Those fortunate enough to run that famous stream with Cole experienced a never-forgotten thrill.

Cole moved to Portland in 1964 upon his transfer to the Lands Section. In this assignment he was involved in land acquisition negotiations, especially stream access for anglers.

Courageous and cheerful in spite of failing health, Cole was extremely popular with his colleagues and the general



public. His loss will be felt by all who had any association with him.

His survivors include his wife, Miriam; two daughters, Claudia and Rene; and his parents.

Little Mysis Grow Bigger Fish

Mysis came to Oregon a year ago. They came to help the fish and fishermen. More of their family arrived last month; and, we hope, more will come next year.

You don't know what mysis are? Guess I'd better tell you, then. They are a freshwater relative of salt-water shrimp, and their full Latin name is *mysis relicta*. They are about as long as their first name. No, they're not people food, just fish food. Common name for mysis is opossum shrimp, called so for the fact that the female has a brood pouch—opossum style—in which she carries her eggs and developing young.

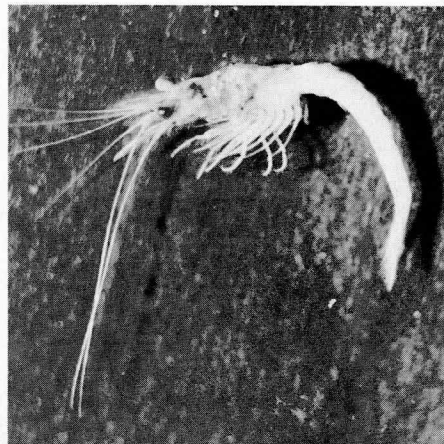
Our opossum shrimp came from 150 feet deep in Waterton Lake in Canada's Waterton Park. That's just across the line from Glacier National Park. Last year 320,000 changed residence; this year 640,000 moved. These are well-traveled mysis. We used a boat-pulled trawl net to pick them from the black, cold depths; put them aboard an airplane that flew them home; hauled them by boat out on the lakes; and unceremoniously dumped them out in the strange, new places.

You bet they are tough; they have to be. And their hardihood is reflected in the choice of living space. These transparent, fragile, and delicate-looking animals live in dark, deep water where it

is bitter cold—39 degrees Fahrenheit—and their sex life takes place in the winter. Each female shrimp produces 40 young. They stay in her pouch till they're about an eighth of an inch long, then depart in the cold and on their own. A life span is two years, with reproduction at one and two years of age.

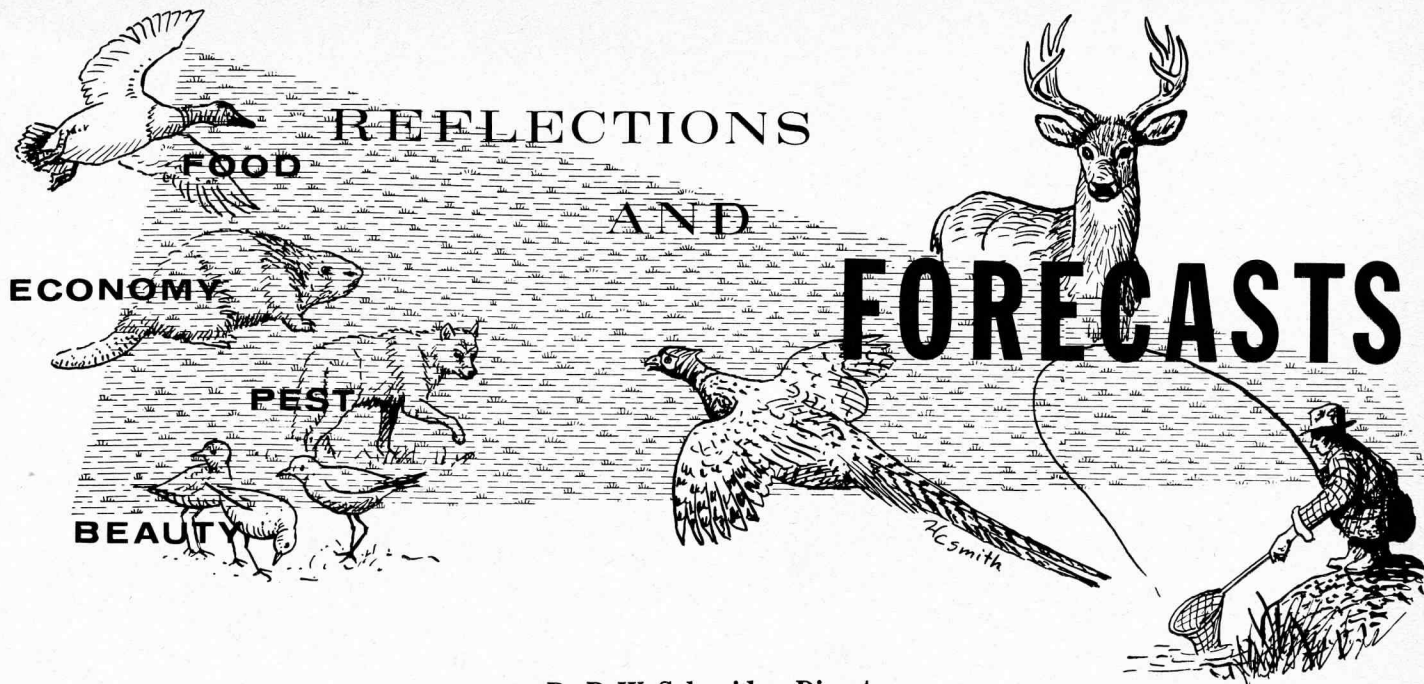
It's a hard life, but the most intriguing part of mysis' cycle-of-life happens each day, or rather night. Opossum shrimp hate light. During the daylight hours, they are piled up on the dark lake bottom, usually

(Continued on Page 7)



Mysis relicta.

NOVEMBER-DECEMBER 1966



By P. W. Schneider, Director

THE EVOLUTION OF CONCEPTS toward a state's natural renewable resources is frequently worthy of review. It reveals both the attitude of a people toward such resources and a measure of their stewardship.

From the earliest recorded activities of man in what is now Oregon, reference to fish and wildlife can be found. From the late 18th century, when Captain Robert Gray visited the Columbia River, to modern times, written record attests to interest in the wild fauna of our state. These resources were a part of the natural environment found here then as now. They were recognized either as a source of food, as a commodity of economic value, as a pest to be destroyed, or as a thing of interest or beauty to be enjoyed. As the first pioneers began settling the Oregon Country, the place of fish and wildlife during a rugged era of struggle for survival was one of rather surprising importance.

The state constitution recognized the problems of fish passage by requiring provisions to enable salmon movement above obstructions. Early scientists collected, described, and catalogued many species of birds, mammals, and fishes from the Oregon Country. The state legislature, as early as 1872, began passing laws designed to perpetuate and protect big game, fish, and certain birds. By 1878 the beginning of an organization for fisheries management was created by law. Rapidly thereafter, legislative concern was manifest through the enactment of a series of laws modifying the organization to meet changing times and a better

understanding of the needs of this diversified resource. Fish and wildlife was being recognized as an important value which the people of the state wished preserved. Eventually a basic code or set of laws evolved strongly enunciating a public policy to provide for the preservation and promotion of the fish and wildlife resources of the state.

Companion development with this legislation was the evolution of concepts, principles, and techniques considered essential in perpetuating and improving the status of the fish and wildlife resources. This is reflected in a number of eras when first one type of effort or another was regarded as a panacea to diminishing abundance.

The first effort was the passage of protective laws. With this accomplished, however, it soon became apparent that the enforcement of such laws was necessary if they were to be truly effective. Following rapidly on the heels of the early legislation and a meager effort at enforcement, there developed an enthusiastic conviction that artificial propagation to replace or supplement nature in reproducing desired species was very nearly a solution to all the problems of the times. This was first reflected in the fisheries conservation field when fish hatcheries were operated as early as the 1880s. The same enthusiasm was soon developed for terrestrial game resources, primarily upland game birds, when game farms became a popular and extensively used device. The establishment of large numbers of game refuges embracing thousands of acres was for some time employed

as the assumed answer to big game abundance. Unfortunately, little thought was directed at the carrying capacity of these ranges for the maintenance of these browsing and grazing mammals. The introduction of non-native species of wildlife or fish also was a popularly recognized and promoted method of improving the abundance of this resource. The ring-neck pheasant and European carp are good examples of these efforts. Some were fortunate and others tragic in results.

Following the early emphasis on the passage of laws, artificial propagation, the introduction of exotic species, and an extensive system of refuges, the need was recognized for both a better knowledge of the requirements of each species and the necessity of monitoring the annual status if the resources were to be properly managed. This became popularly identified as scientific management and has received vigorous support and occasional opposition in recent years. There also has developed a myriad of specialized fields of knowledge, techniques, materials, and policies all bearing an essential part in the management of the resources. These embrace many disciplines and fields—from engineering to nutrition, from public policy to automation.

In contrast to earlier days when emphasis on one or another program was felt to be the primary means of achieving abundant stocks of fish and wildlife, contemporary programs must employ all means in proper balance. The failure to employ any one of them will result in lost ground. Above all else, fish and wild-

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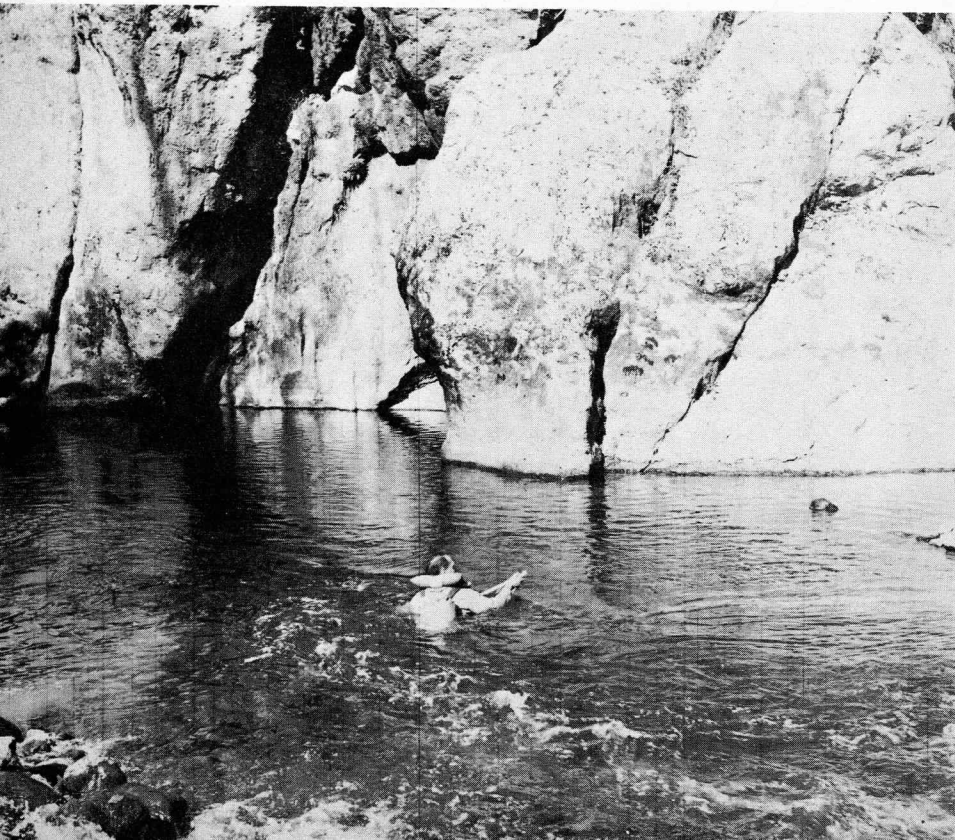


A major rehabilitation project this fall was undertaken on the south and middle forks of the Santiam River prior to filling the pools of Green Peter and Foster Dams. Game Commission crew sprays rotenone to kill undesirable species while water level is low.

Fish Habitat Improvement

By C. J. Campbell, Chief, Fishery Operations

Swimming down the Santiam, rugged biologist, Francis Ives, sprays rotenone into small potholes of water in the cliff to make sure that no trash fish are left behind when water level comes up. This method proved quicker than taking a boat but also was chillier.



"WELL, JOE, this beauty makes our limit. Let's go back to camp for lunch."

"Okay, Bill. Sure is different from the time we were here three years ago. Remember how hard we worked for two or three fish from this lake?"

This hypothetical conversation between two fishermen might have taken place many times on numerous Oregon lakes and reservoirs in recent years. The background of events that makes it possible is a part of the fish habitat improvement program of the Game Commission. Fish, like any other product of the land and water, are dependent upon their habitat or living area. Their abundance and quality are a reflection of the productivity of this habitat.

Since this is true and because we have a continually increasing army of anglers looking for more and more fish from a relatively fixed amount of habitat, something must be done. Manipulation of the available habitat to make it more productive of fish desirable to the angler is one approach. It has been found to be a rewarding one and the habitat improvement program is the result.

Habitat improvement for fish can take a number of forms. One is the chemical treatment of waters to remove undesirable fish. The available productivity formerly utilized by the rough fish can then be turned to raising game species. Diamond Lake is Oregon's classic example of this and its story is well known. This is the technique that made the difference in the two trips of Bill and Joe to their lake.

Similar techniques can be applied to streams. Test work on parts of the John Day watershed has shown that chemical

Stream clearance plays an important part in m



treatment to remove rough fish can result in vastly increased production of both resident and sea-run trout.

Projects of this nature return benefits far exceeding their actual costs—but the cold hard dollars must be available if they are to be accomplished. The rehabilitation of the Tenmile Lakes complex, whose total cost is estimated at over \$240,000, is one such project waiting in the wings for adequate financing. It is only one of the many stream and lake situations that can and one day will benefit from chemical treatment. Some could be done almost immediately while others will require considerable preliminary work, study, and development of new chemicals and techniques.

Another fertile field for fish habitat improvement lies in various physical manipulations of the environment. There are vast areas with productivity potential for migrating fish existing above presently impassable barriers. Sufficient money could assure fish passage and provide chemical treatment to remove competition from undesirable species. Such projects are exciting and can add much to fish production.

Preliminary and exploratory work with streambed improvement through use of gabions (large rock-rilled wire baskets) and distribution of gravel shows promise. Such work should be expanded over hundreds of miles of streams that now have marginal productivity. Resting holes and spawning areas for both chinook salmon and summer steelhead could be provided in much greater abundance in our north-eastern Oregon streams. Also, a number of coastal streams could benefit from such stream improvement activities.

The screening of diversions to prevent

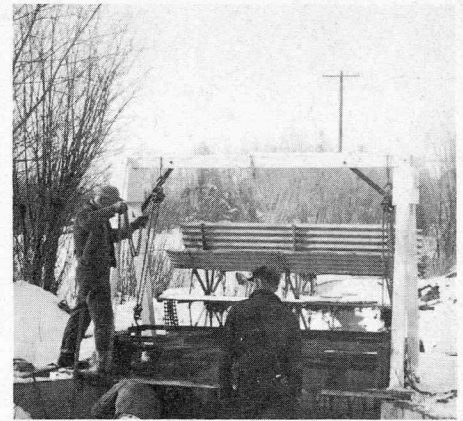
loss of young downstream migrant salmon and steelhead is a necessity and a never-ending job. New diversions must be screened and the older installations are in need of maintenance and repair.

Maintenance of migration routes for sea-run fish by the removal of log and debris jams is another continuing habitat improvement activity. Where responsibility for jams can be demonstrated, those responsible are required to take care of the problem, but there are many other instances requiring the state and other public agencies to do the job. Since storms, floods, fires, and logging are continually going on, the accumulation of debris never ceases and the resulting jams must be removed.

One of the most spectacular and rewarding areas of habitat improvement is the construction of new impoundments. These provide fish habitat where little or none existed and are a complete new addition. It is one of the few areas where new productivity for a natural resource can be added.

Bull Prairie impoundment near Heppner is one such lake. Here are 26 acres of productive fishing water that didn't exist before. It is estimated that about 30,000 man-days of fishing per year are provided here. Certainly this is worthwhile. There are other examples of either construction of completely new lakes or improvement of existing ones, but they are all too few. Potential sites for future development far outnumber those already constructed.

Unfortunately, the Commission does not presently have the resources to develop these potential sites. Jubilee Meadows Lake, being developed in cooperation with the U. S. Forest Service, will cost



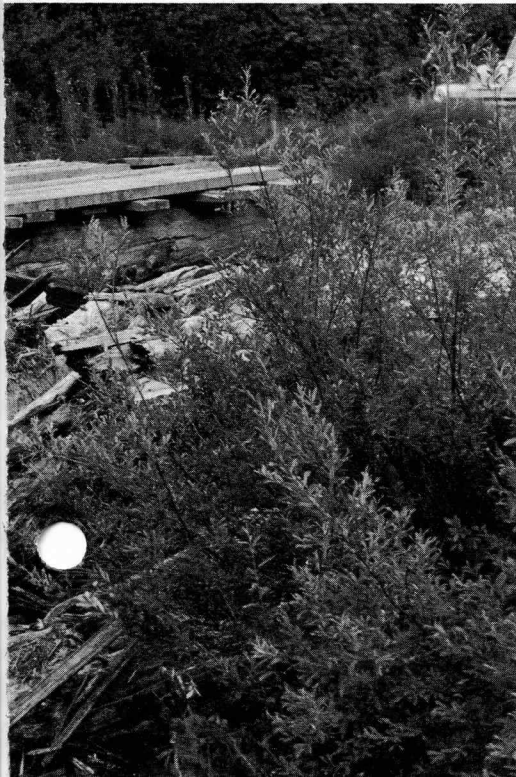
Fish screens save thousands of migratory fish from loss in irrigation ditches. Through the years the program has been expanded until most diversions in the state have been screened.

around \$150,000 for dam construction which the Game Commission will do. We know of over a hundred other sites around the state that may or may not prove feasible when more detailed examinations can be made, and we know this is probably only a drop in the bucket.

Fish habitat improvement, through chemical treatment of lakes and streams, manipulation of physical characteristics of water, and the construction of new fishing opportunities, is one of the best tools we have for fish management. It is essential to keep the waters we have producing, and it is our only means of actually increasing the amount of environment.

We have the raw materials of streams, lakes, impoundment sites, and basic knowledge. With adequate funds they can be employed to your benefit and many future generations will enjoy Oregon's fishing.

aining good habitat for migratory fish.



Picture at left shows log jam; below is same spot after removal of jam.





Proper management of fishing waters produces better recreation for more people, as evidenced by this group along the outlet of Unity Reservoir.

REFLECTIONS AND FORECASTS

(Continued from Page 3)

life management must be based upon fact, rather than assumption, and in concert, not in conflict, with other activities.

The foregoing is an abbreviated resume of transition and developments during the past century in the management of our state's fish and wildlife resources. Much could be written about each era of this development. Suffice it to say here that the objective of each phase was to achieve a continued abundance of these resources. Indeed, there was cause for concern in many instances.

It is one thing to talk about programs and ideas without relating them to the end product. It is another thing to relate these efforts to accomplishment as measured by the condition of the resource. In the final analysis the relative abundance and yield of the resource is one reliable yardstick which, although over-simplified, displays an accounting of stewardship.

Space does not permit a detailed recitation of the many problems that developed years ago with some species and the ensuing efforts and results. A few examples, however, are worthy of mention.

The 1902 report of the Game and Forestry Warden states: "There being no question that thousands of trout lose their lives annually in ditches used for irrigation . . ." Today most but not all diver-

sions are screened to avoid such losses. In the 1904 report is the following assertion: "The pheasants of the state are fast passing away. Elk closure law must be continued or elk will be a thing of the past." In connection with elk, it bears mentioning that the state was closed to all elk hunting in 1898 and no further seasons permitted until 1933 and then only in three counties. Less than 1,000 elk were harvested per year for the next five years. Current yields range in the order of 14,000 head per year. The February 1914 issue of the **Oregon Sportsman** reports: "There were 9,000 deer killed in Oregon last year." Today's deer seasons are yielding about 125,000 head a year. The Oregon legislature as early as 1899 imposed a state-wide closure on the taking of any beaver to last until 1923—and this in the Beaver State. It then was necessary again to close completely large sections of the state, with no general trapping permitted until 1945.

Some thirty years ago the last bighorn sheep was gone from Oregon. Beginning in the 1950s reestablishments have been accomplished in three separate locations within the sphere of their range in Oregon. The chukar partridge and Atlantic salmon were not available to the Oregonian in his own state until after World War II. On the other hand, the last smelt run to appear in the Sandy River was in 1957, and the Columbian sharp-tail grouse occur in remnants only in part of

their original range although a related subspecies has recently been reintroduced.

The preceding sketch of examples of custodianship is recited simply to put into proper context the relationship of our perspective to the facts as the record reveals them. The last quarter century or so reflects a remarkable record of accomplishment when it is realized that we passed through an era of rapid development with a dearth of the knowledge and techniques which only recently have become available. Furthermore, massive changes in our stream and land areas had a direct bearing, some detrimental and some beneficial, upon their carrying capacity for fish and wildlife.

Where do we go from here? What are the opportunities of maintaining and enhancing the status of these resources in the foreseeable future? The task is frighteningly more complicated and exacting. The obstacles are far more formidable. On the other hand, the opportunities are far more encouraging; the tools, knowledge, policies, and coordination more effective than any time in the past. The demand of our society for the maintenance of these values will grow and the ability to do the job necessary is a demonstrated fact. We shall perhaps employ methods and materials differently and certainly with more precision. We shall be doing some things tomorrow that we are not considering or do not even know about today. Fundamentally, fish and wildlife are renewable resources if provided with the proper environment. This understanding, when applied to associating the needs of these resources with other land and water use activities, is now with us in varying degrees. The realization on the part of resource-based industry and land-administering agencies that a continuing obligation to fish and wildlife resources is part and parcel of their affairs is emerging as a positive policy.

The contemporary national movement in the so-called outdoor recreation field is triggering more active attention to these values. It is a symptom of an urbanizing society which will in the course of time require more opportunity to fish a trout stream or enjoy in some way the wild creatures of our fields and forests. Emerging social, technical, economic, and philosophical factors will tend to enhance the opportunities of the future. Those of us directly associated with this mission are encouraged with the future possibilities and are confident of our ability to sustain and improve the status of this important part of our natural resource wealth. Afforded adequate financing and continuity of program, much more will be accomplished during the next quarter century than in any comparable era of the past.

WANTED! REPORTS ON MARKED DEER

Did you shoot a tagged deer, or see one carrying an ear streamer or a small numbered sheep bell?

If so, the game department wants to hear about it. Winter deer tagging projects continue to trace summer distribution of the various deer herds. Such work has been done particularly from the John Day country south through the desert and Klamath ranges.

GAME ENFORCEMENT REPORT ISSUED

The increased number of hunters and anglers in the field is reflected in enforcement activity of the game division of the Oregon State Police during the 1965-1966 fiscal year.

The recently issued annual report of the State Police shows that officers made 7,472 arrests and issued 3,031 warnings for game law violations. Fines imposed totalled \$162,121.60 but the record does not show the percentage suspended.

Most common violations for which arrests were made are:

| | |
|---|-------|
| Angling prohibited areas, hours, or methods | 1,921 |
| Angling without license | 1,014 |
| Failure to tag properly | 898 |
| Hunting prohibited areas, hours, or methods | 761 |
| Hunting without license | 286 |
| Motor boat violations | 262 |
| Exceeding bag limit | 256 |
| False application for license | 241 |
| Possession of game animals | 222 |
| Hunting closed season | 202 |

LITTLE MY SIS

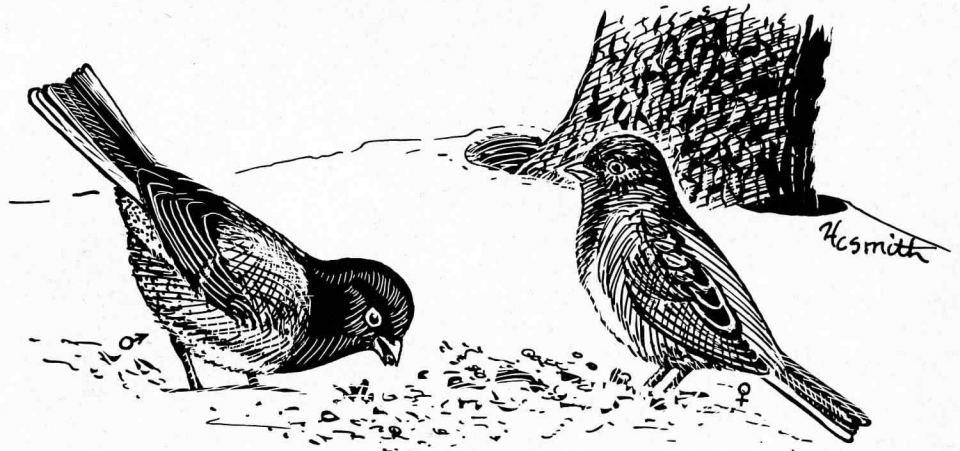
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in the first three feet of water. At sunset they head for the surface waters to feed on plankton. Think of it—every night for two years these inchlings go up and then back down to the bottom. That's a round trip of say 300 feet or about 3,600 body lengths. For you, at six feet tall, that's a little over four miles. Quite a swim in anyone's book—and they've been found in 2,000 feet of water!

Remarkable creatures are mysis, and do fish ever enjoy them. In Kootenay Lake, Canada, the average weight of kokanee jumped from one-half pound, before mysis, to three pounds after mysis were introduced. So you see, little mysis will grow bigger fish—and help you, Mr. Angler.

—Ralph Grenfell, Fishery Biologist

GAME BULLETIN



The Oregon Junco

During the spring and summer months, Oregon juncos are well distributed throughout the state. However, with the first signs of winter these snowbirds, as they are commonly called, migrate down from the mountains and out of the north to our valleys and lowlands. Here they gather in small flocks and remain through the winter, even though severe weather may set in and snows blanket their feeding areas.

The Oregon junco belongs to the family of sparrows and is frequently found in close association with other members of this group. It is slightly smaller than most species of sparrows and more distinctively marked and colored. The male has a black head, pink bill, pinkish sides, white underparts, and white outer tail feathers. The female is similarly marked but the coloration is much lighter.

One other species, the slate-colored junco, regularly visits Oregon in very small numbers each winter. It does not wear the bright colors of the Oregon junco but is entirely gray except for its

white underparts and white outer tail feathers.

In Oregon, juncos nest in timbered and brushy habitat from timberline down to sea level. Usually the nest of grass is built in a slight depression in the ground but occasionally unusual sites are chosen. One pair found a hanging basket of fuchsias on the back porch of an Oswego home an ideal site to raise a brood, while a two-foot cavity in an ash stump on Sauvie Island was selected for a home by another pair. Four bluish eggs, spotted with brown and lavender, comprise the normal clutch.

To the farmer the snowbird is a highly beneficial species, for much of its natural diet consists of weed seeds which it gathers from gardens and brushy areas. When snow covers its feeding ground for extended periods, it becomes quite tame and is easily attracted to feeding stations for bread crumbs, cracked grain, or small seeds placed on or near the ground.

—C. E. KEBBE

1965 NATIONAL SURVEY OF FISHING AND HUNTING OUT

In 1965 throughout the country 33 million sport fishermen and hunters spent \$4 billion to fish and hunt, according to a survey recently issued by the U. S. Fish and Wildlife Service. The survey covers only persons who "substantially" participated in these sports by spending at least three days or \$5 just to hunt or fish.

Sport fishermen numbered 28,348,000 and spent \$2,925,304,000, using up 522,759,000 recreation days. They travelled 22,719,918,000 passenger miles, mostly by automobile.

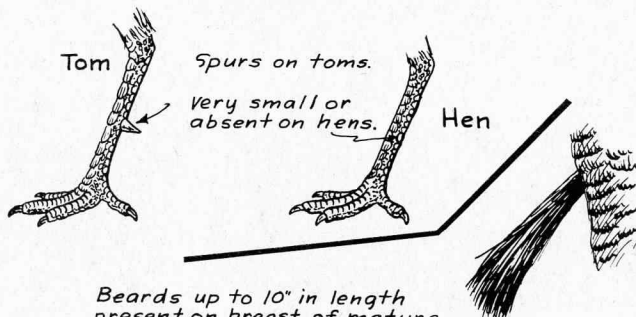
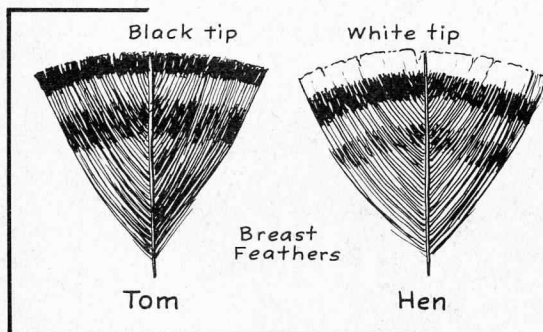
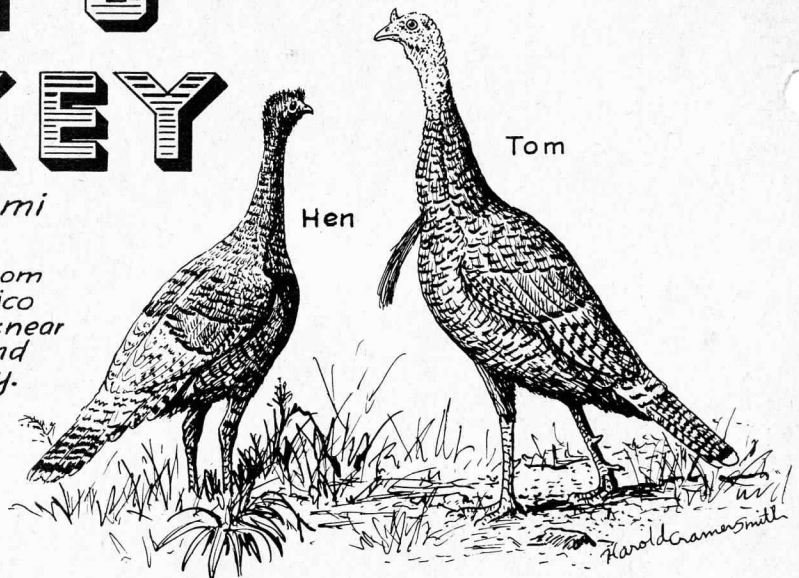
Hunters numbered 13,583,000 with a total expenditure of \$1,121,135,000. They spent 185,819,000 recreation days and travelled 8,659,034,000 passenger miles, again mostly by car.

For the first time information is available on the extent of non-consumptive uses of wildlife. A general recreation survey published by the Bureau of Outdoor Recreation shows there were over 8 million people participating in bird watching and over 3 million photographing wildlife.

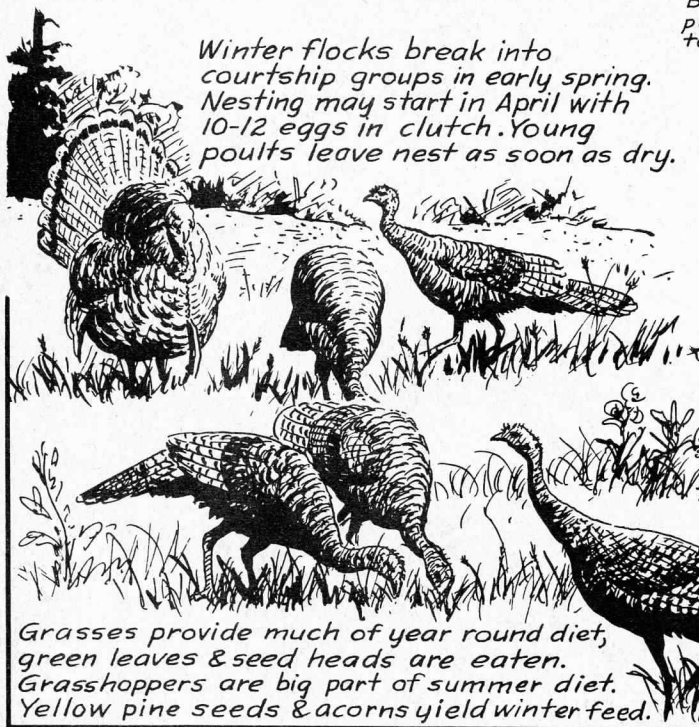
MERRIAM'S TURKEY

Meleagris gallopavo merriami

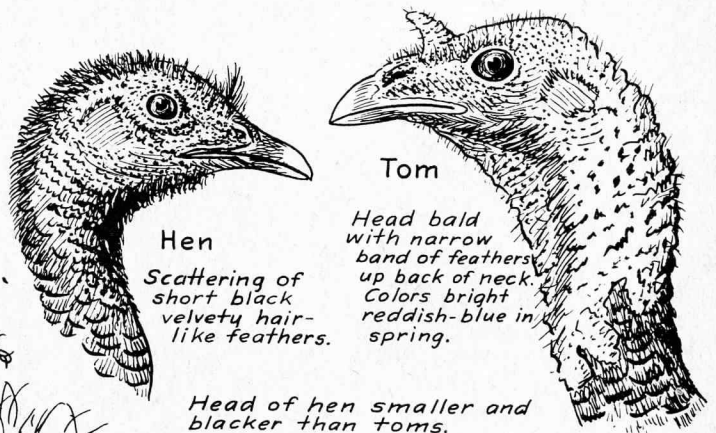
In February 1961 transplants from Colorado, Arizona & New Mexico were made in eastern Oregon: near White River, Metolius River, and near Troy in Wallowa County.



Beards up to 10" in length present on breast of mature toms. Short in length or absent on hens.



Winter flocks break into courtship groups in early spring. Nesting may start in April with 10-12 eggs in clutch. Young poults leave nest as soon as dry.



Head of hen smaller and blacker than toms.

Grasses provide much of year round diet, green leaves & seed heads are eaten. Grasshoppers are big part of summer diet. Yellow pine seeds & acorns yield winter feed.

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1634 S.W. ALDER STREET
P.O. BOX 3503
PORTLAND, OREGON 97208

