

OREGON STATE  
GAME COMMISSION

# BULLETIN

JUNE 1969

# OREGON STATE GAME COMMISSION BULLETIN

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June 1969

RON E. SHAY, Editor  
H. C. SMITH, Staff Artist  
A. L. MILLER, Photographer

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JOHN W. McKEAN, Director

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## The Cover

Bob Ramsey pitches a net full of legal-sized fish into Benson Lake prior to the opening of trout season. Distributing the product of hatcheries is a big chore. See feature article.

Photo by Al Miller

## HUNTER SAFETY TRAINING PROGRAM

### Instructors Approved

Month of April \_\_\_\_\_ 21  
Total to Date \_\_\_\_\_ 3,795

### Students Trained

Month of April \_\_\_\_\_ 918  
Total to Date \_\_\_\_\_ 137,847

### Firearms Casualties Reported in 1969

Fatal \_\_\_\_\_ 0  
Nonfatal \_\_\_\_\_ 5

## UPLAND BIRD RULES AND OTHERS TO BE DISCUSSED

At 10 a.m. on August 16 the 1969 upland bird, waterfowl, and furbearer regulations will be discussed at Game Commission headquarters in Portland. Following the public hearing the Commission will set the seasons for the fall and winter.

Fall hunting seasons depend largely on the crop of young birds hatched each spring, and brood counts being carried on in July and August by field biologists will provide much information for consideration at the August meeting.

Upland bird spring inventories indicated improved pheasant breeding populations in western Oregon but an eight per cent decline in eastern Oregon adult breeders surviving the winter. Quail and partridge populations declined throughout the state.

## BIG GAME RULES SET

Following public hearings on May 24 and June 7 the 1969 big game regulations were set by the Game Commission.

As previously established, the opening date for general deer season is October 4. Also established earlier were the elk season opening dates of November 1 for eastern Oregon and November 15 for western Oregon.

The printed synopsis of the regulations will be available statewide about the third week in July.

## NEW FILM AVAILABLE

A new 16mm, sound, color motion picture entitled "High Lakes" is now available to Oregonians from the Game Commission film library.

Filmed in the Oregon Cascades, the 18-minute film shows the activities of Game Commission fishery biologists in managing the high mountain lakes of the state to provide a continuing fishery.

A scene from the new High Lakes movie.



## Editor's Note

Our revision of the mailing list has caused some confusion, as might be expected. Some readers have written in saying that they have been getting two copies of the Bulletin. This can happen if the same person submitted his name in two different ways, such as Mrs. John Smith and Mary Smith. The machines can't recognize that this is the same person even though the address is the same.

So if you are getting two copies, send in the mailing label from the copy you wish dropped and we'll oblige. You may receive an additional double copy, but we should get the situation remedied before two issues pass.

We appreciate your patience in helping with the list revision and hope you'll let us know if further corrections need to be made. We don't want to lose any interested readers, but at the same time we don't want to waste copies of the Bulletin.

## WE GOOFED

Those of you keeping sets of the Bulletin may have noted that the issue before last one was misnumbered. The big game harvest issue should have been Number 4, Volume 24, April 1969 in the masthead on page 2. The date of April on the front cover was correct.

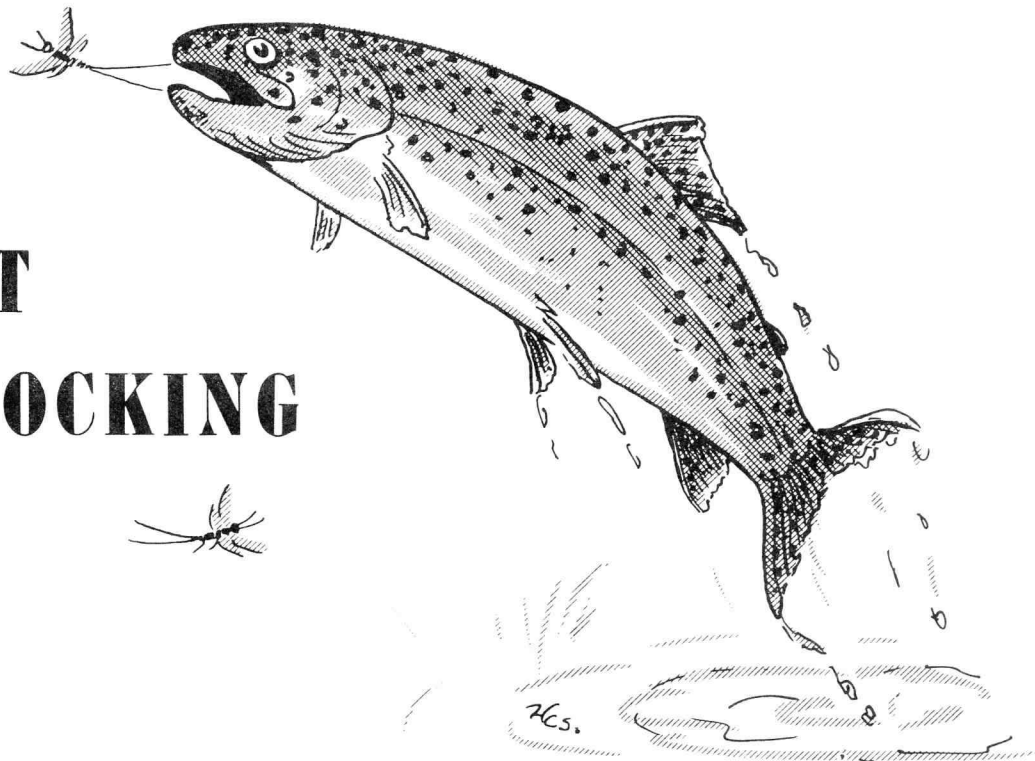
The film is designed not only to show biological sampling of the lakes and fish stocking but to also give the viewer colorful glimpses of the magnificent scenery of Oregon's mountain country.

Prints are available for in-state showing at sportsmen's clubs, civic clubs, and other organized groups and may be scheduled through the Portland film library of the Game Commission or through the regional offices.



# ALL ABOUT FISH STOCKING

by Reino Koski  
Chief, Fish Liberations



Many years ago when fishery management was in its infancy, it was common practice for hatcheries to rear all the fish they could handle and then dispose of them as quickly and easily as possible. This practice resulted in poor survival with few fish returning to the hatchery streams.

Today hatchery production is geared to needs—determined by scientific investigations. **Stocking of fish, using the correct species or strain, at the proper time, and using the correct size and numbers for best results,** is providing excellent angling in the majority of Oregon waters.

In 1968 approximately 22,700,000 fish were stocked in Oregon waters. The total weight of these fish amounted to 1,377,239 pounds, which is the highest weight ever recorded.

Leading the group of resident-type fish is the popular rainbow trout. They are used in all parts of the state, and most of the legal-sized trout, also termed "catchables" or "legals," are rainbows. These are reared in about one year's time to an average length of nine or ten inches. This size of fish provides a good return to the creel and is over legal minimum in zones where the eight-inch limit prevails. In the coastal streams and lakes the coastal cutthroat is also used as a "catchable." Kokanee, brook trout, brown trout, and sometimes golden trout are stocked at a fingerling size, running from three to five inches in length.

**Steelhead and salmon stocking has increased tremendously** in the last few years. Most of the weight shown for anadromous fish is represented by several million steelhead and salmon which are

released at about one year of age and termed "smolts."

In western Oregon there are about 20,000 miles of streams used by salmon and steelhead. Only about 1,000 miles of this habitat, spread over 30 streams, received anadromous fish reared in Game Commission hatcheries.

**Each year additional streams receive salmon and steelhead.** Enough of the young fish are stocked in the hatchery streams to provide returning adults for egg-taking purposes, but far more of the "smolts" are trucked to other areas to provide more widespread angling opportunities.

Several hundred streams and just over a hundred lakes receive the legal-sized trout. Most of the larger lakes and reservoirs are stocked only with fingerling trout. The smaller, isolated lakes in the mountain areas are kept supplied by airplane with fingerling trout. The more popular small lakes are stocked annually, while others receive fish only every two or three years. Brook trout predominate, with rainbows used in some lakes. Golden trout and cutthroats are used in a few lakes. Although these are colorful and unique fish, they do not grow to as large a size as brookies or rainbows and are difficult to catch, even by experts.

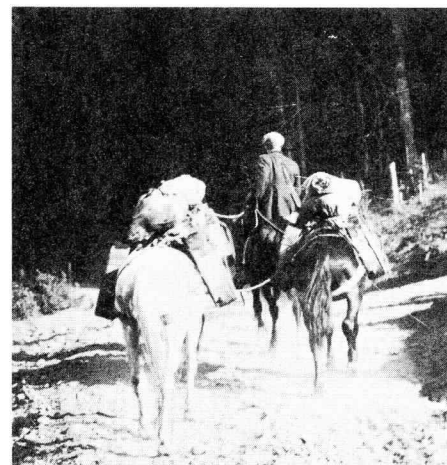
The process of allocating numbers of fish to the various areas may be of interest. First one must understand that the number of fish reared is limited by funds available and hatchery space. At present the Commission's 15 hatcheries are carrying the maximum amount of fish that can be handled. This requires much manipulation of stocks. With about 100 sep-

arate lots of fish under rearing, a pond is no sooner emptied than a new batch of fish is ponded. No space is wasted, and long-range plans determine the exact use of any series of ponds. If a hatchery will have room for a million fall chinook fry, which are fed only a short time before release, then fish will be transferred to that station to take advantage of the available space. Careful planning must prevail to eliminate the danger of transferring diseases or parasites from one station to another. With modern drugs, most fish diseases can be controlled or eliminated before fish are released, and it should be pointed out that there is no danger in consuming such fish if properly cooked.

It is easy to see that terrific angling for catchable trout could be created in an area if unlimited numbers of fish were available. These expensive fish must be rationed to the various streams and lakes commensurate with the available water,

**(Continued Next Page)**

Horse packing of fish is a thing of the past with airplanes having taken over the chore. Over 350 lakes per year are stocked through the use of aircraft.



(Continued from Page 3)

angling pressure, access, and other factors. Of the 2½ million catchables being released this year, about one-half will be needed in the populous northwest part of the state which contains many accessible streams and lakes. The dry, arid south-east portion of Oregon will receive only a little over 100,000 of the large fish. Much of the angling here is confined to the large reservoirs, which are restocked with fingerlings.

In lakes and reservoirs, care must be exercised to neither overstock nor understock in numbers. If too many fingerlings are released, they will reduce the available food supply and not reach a desirable size. If too few are used, angling will be poor, as the few large fish will have sufficient fare without attacking the angler's bait.

Waters are sampled periodically by nets, the captured fish examined for growth rates, and the food situation studied. Proper size and numbers of fish required can often be determined by fin-clipping a portion of various lots to find the best combination. In fluctuating reservoirs it is difficult to predict fish populations very far in advance. A considerable number of reservoirs are treated periodically when they have become overrun with scrap fish. Restocking with large fingerlings usually produces good angling the following year and for many future seasons.

In the case of anadromous fish, very specific rules are followed as to the size of fish and time of stocking. Steelhead must be stocked when they are ready to migrate, at which stage they are termed "smolts." Many years of research has produced well-understood factors which provide excellent returns of these fish as adults. The same situation holds true for most classes of salmon.

At meetings held at the five regional offices biologists and staff specialists analyze and review data on each major body

of water. In the case of catchable trout, if a stream has not received angling pressure or if the water quality has deteriorated, the stream is no longer stocked. Loss of public access to a major part of a stream would be responsible for a reduction in numbers stocked or perhaps cessation of planting.

Completed recommendations are then reviewed further and presented to the Commission. After approval, allocation sheets are provided to all hatcheries and biologists. These list the numbers of fish destined for a particular lake or stream. At this point the scheduling is only on a monthly basis. Further breakdown to the week or day of stocking is coordinated by the regional offices. In some cases, weekly schedules are prepared, but these are difficult to follow exactly.

As a general rule, the smaller streams which receive just a few thousand trout are stocked just prior to the season and again a week or two later. Large streams such as the Clackamas may receive 25,000 to 30,000 per month. This may require seven or eight separate tanker trips. Each load is deposited in as many places as practical in areas accessible to the public.

The Commission must maintain considerable equipment in order to complete scheduled releases. The large 1,000-gallon tankers rolled over 300,000 miles last year. Fourteen of this size are in use, with two new 1,300-gallon tankers added this year. Eleven of the units are refrigerated, and five are equipped with oxygen aeration.

The present design of the tankers was developed by our personnel and has been copied by several other agencies. Each of the large tankers can safely transport from 5,000 to 10,000 legal-sized fish, or up to 200,000 small fingerlings, for several hundred miles. Studies by research personnel of the Commission proved



Handing down a net full of "legals."

many years ago that fish transported in water of lower temperature, approximately 42 degrees F., suffered little or no mortality after stocking.

In addition to the large tankers which are located strategically around the state at hatcheries or regional offices, small portable tanks mounted on pickups are used.

Boats are used in many areas of the state for more equitable distribution. The

## SUMMARY OF 1968 FISH STOCKING, RELEASE BY RESIDENT AND ANADROMOUS TYPES

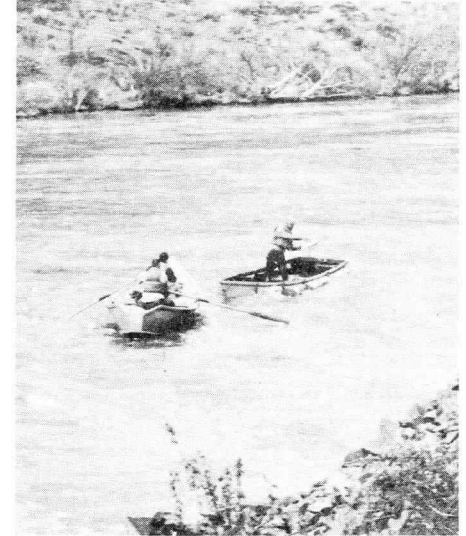
Species	Number	Pounds
Rainbow .....	14,434,474	942,485.3
Cutthroat .....	607,900	69,673.0
Brook Trout .....	1,422,216	6,342.6
Kokanee .....	1,100,560	5,166.5
Brown Trout .....	366,822	5,227.4
Atlantic Salmon .....	205,504	3,729.2
Dolly Varden .....	1,897	21.8
<b>Total Nonanadromous .....</b>	<b>18,139,373</b>	<b>1,032,645.8</b>
Steelhead, Summer .....	839,615	102,836.0
Steelhead, Winter .....	1,457,183	157,472.6
Chinook .....	1,786,310	81,342.4
Coho .....	490,328	2,943.0
<b>Total Anadromous .....</b>	<b>4,573,436</b>	<b>344,594.0</b>
<b>GRAND TOTAL .....</b>	<b>22,712,809</b>	<b>1,377,239.8</b>

Weighing a net full of "legals" for loading into the liberation truck. Sample counts are made first, then the number of fish loaded is calculated by weight.





One of the newest of the Game Commission's fish liberation trucks. The 1,300-gallon refrigerated truck can haul up to 10,000 legal-sized fish for several hundred miles.



Planting fish by boat. In some streams the planting boat is controlled by another boat so the fish liberator can concentrate on releasing trout. This gives better distribution of the fish being hauled in the "floating live-box."

## Fish Stocking

(Continued from Page 4)

specialty-built craft have extra flotation, with a water circulation arrangement. They are loaded from the large tankers and are used in places like the Deschutes and McKenzie Rivers to spread the fish over large areas of stream.

The airplane has supplanted the old-time mule pack string in stocking the high isolated lakes. Since the late forties the system has been improved to a highly efficient operation. In restocking about 350 lakes a season the airplane has cut down what used to be a four-month operation to about 10 or 11 days of actual flying. In the Cascades, as many as 40 lakes have been stocked in one day. The average cost per lake stocked approximates \$18. Virtually all of the 1,000 or more lakes in the mountain ranges have been stocked by this method.

Some comments are due regarding the costs of stocking. Under average conditions a nine-inch trout costs about 16 cents to rear and two cents to stock. We have said that catchable trout are expensive. One limit of trout will have cost the Commission \$1.80, but in streams only 30 to 50 per cent of stocked fish are caught, so the limit catch rises to a value of \$3.60. Obviously, at these rates the license fees cannot provide many limit catches for everyone. The use of finger-

ling trout in lakes is a much more economical way of providing sport.

It is apparent that a straight fingerling program in a productive lake is the best bargain. Some smaller popular lakes cannot be supported entirely with fingerlings, so some catchables must be used. The return of catchables to the creel in lakes is sometimes double the return in streams. The highest return in streams from catchable releases is in the slower, stable, meandering waters. Swift, cold, mountainous streams such as the upper Sandy River tributaries provide few returns. The release of fingerling trout in streams, except those which have been rehabilitated, is a worthless practice. Many studies have shown surviving trout to be worth \$25 per pound! However, excellent angling has been developed in long stretches of some treated streams, like the Umatilla, John Day, and Malheur Rivers, with the use of small fish.

Anadromous fish stocking, following proper techniques, provides excellent results. The table showing fin - marked hatchery steelhead in the returning runs to the Sandy River bears this out.

Note that until the research findings were put in effect in 1961, hatchery fish were scarce. In some coastal streams, hatchery steelhead have contributed more than 80 per cent of the reported catch. New release techniques can even increase the catch, by holding the fish in open areas for longer periods of time. A

few years ago it cost the Commission about \$3 to put a steelhead in the angler's hand. This has been reduced to half of that and soon should drop to \$1 per harvested ironhead. The stocking of salmon smolts, using latest techniques, has provided almost identical spectacular results, contributing heavily to both sport and commercial fisheries.

### STEELHEAD COUNTS AT MARMOT DAM

Run Year	% Marked Fish
1959	3
1960	2
1961	12
1962	4
1963	27 (from diff. stock)
1964	42
1965	38
1966	37
1967	51

Anglers have increased more than 50 per cent in the last ten years. The table Fish Production per Licensed Angler shows the factors involved with providing fish for the increasing number of fishermen. The pounds per angler is a useful index, and the latest figure for 1968 reflects increased production made possible by the license fee increase.

In summary, we'll try to provide answers to questions which may have arisen. Notification to the public of recently-stocked catchable trout is usually given in a general way. Weekly news releases carried by most papers provide information that a stream or lake was or will be stocked. This information is also carried on radio broadcasts. People calling in for specific detailed information are usually disappointed because they cannot find out exactly at what hour a certain area will be stocked. Even if schedules could be more tightly controlled, the ava-

(Continued Next Page)

### A COMPARISON OF STOCKING COSTS AND RETURNED VALUE TO ANGLERS FOR VARIOUS SIZES OF FISH

Type of Stocking	Clackamas River Legal Size	Detroit Reservoir Fingerling & Legal	Diamond Lake Fingerling
Pounds Stocked .....	36,050	37,000	6,328
Pounds Harvested .....	14,400	155,000	244,000
Stocking Cost .....	\$ 27,037	\$ 27,750	\$ 4,746
*Value to Anglers .....	\$ 10,800	\$116,250	\$183,000

\*Comparable cost of pounds harvested at average production and liberation costs.



## FISH PRODUCTION PER LICENSED ANGLER, 1958 THROUGH 1968

Year	Number Anglers	Pounds of Fish Stocked	Pounds of Fish per Angler
1958	400,044	713,806	1.78
1959	440,522	703,007	1.59
1960*	451,015	766,310	1.70
1961	474,900	976,917	2.06
1962	504,771	954,838	1.89
1963	531,118	1,093,532	2.06
1964	585,118	1,097,731	1.87
1965	624,412	995,172	1.54
1966	622,332	1,123,183	1.80
1967	648,379	1,224,856	1.89
1968	649,117	1,377,239	2.12

\*\*Includes daily anglers after 1960.

## Fish Stocking

(Continued from Page 5)

lanche of anglers calling for specific details would flood Commission office phones all over the state.

As noted earlier, most streams are stocked in many areas from one load. The released fish spread both up and down, depending on velocities and temperatures, but generally drop downstream, sometimes for several miles in a few weeks' time. Catchable trout generally provide returns for periods up to six weeks. They cannot compete for living space with native trout, especially where natives are abundant. Under present catchable stocking programs, the stream normally contains many more trout than it could naturally produce.

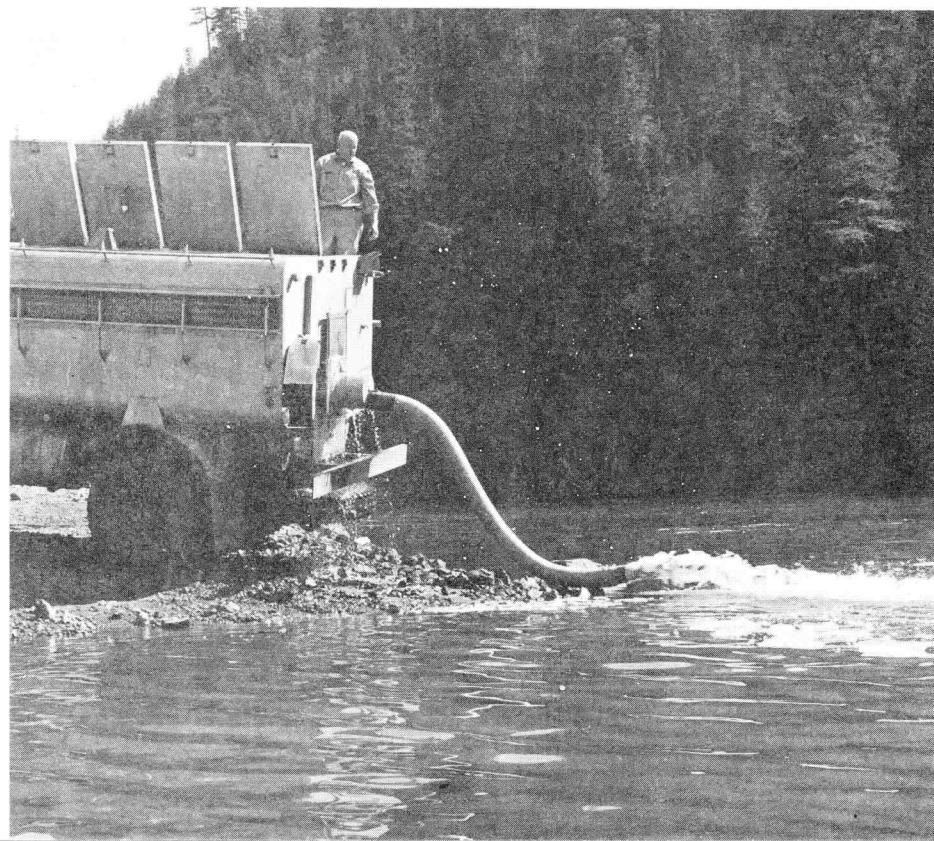
**Trout do not always feed after being released,** due to the stress of loading and

being transported. Fish stocked in extremely cold water are very inactive and will not feed. Consequently, areas like the upper Sandy River, where temperatures in early season may be less than 40 degrees F., are not stocked until the water warms.

**Hatchery trout do not taste like liver.** New feeds are a balanced mixed diet of necessary wholesome ingredients, and liver is rarely used except as a supplement to the diet of very small fish. The flesh of hatchery fingerling trout reared in lakes will soon color up like a native trout. Catchable trout generally do not acquire a pink flesh color.

If you happen to see a fish tanker delivering a load to your favorite area, stop and chat with the driver a few minutes. He'll be happy to answer further questions relative to the stocking program.

Hosing out the last of the load. Legal-sized fish take a fast ride out and down. Partial liberations are made with nets; the final release of the trip utilizes the pipe from the rear of the truck.



## YOU CAN'T STOCKPILE GAME

Although some hunters and other well-meaning individuals believe that all you have to do to have deer or other wildlife behind every bush is to provide these animals with full protection, the truth is—you can't stockpile game.

This fact was dramatically demonstrated during the past winter at the Game Commission's blacktail deer research center located on Cedar Creek (Wilson River tributary) in the old Tillamook Burn.

According to Bill Hines, research biologist who has been stationed at the Cedar Creek deer enclosure since the project began ten years ago, the deer herd in this study area has suffered a 56 per cent loss since last June, with 45 per cent of the mortality occurring during the winter months. He said the die-off took place in spite of intensive supplemental feeding.

Hines said that last June, following a very mild winter and an exceptional fawn crop, the deer herd totaled 96 animals. Summer mortality took a few old animals as well as some of the newborn fawns, but at the onset of winter the herd numbered 77 head. The last count in early April showed 42 animals remaining, and several of these were in very poor physical condition. He thought a few of these were too weak to recover.

Hines has accounted for all of the animals which have died during the winter, and all deaths point to malnutrition as the cause. Specimens were taken from many of the dead animals for laboratory analysis.

Of the 77 deer within the enclosure at the start of the winter, 21 were fawns born last spring. The winter took all of these, and mortality was quite heavy on young and old bucks. Mature does, yearlings, and medium-age bucks survived the winter, although all of them show poor body condition.

Since the study began back in 1958 with a known wintering deer population of 43 animals, the herd has fluctuated widely from a low of 15 wintering animals to the high of 77 this past winter. The previous high winter herd was 60 head tallied two years ago.

Hines made the point that in the Cedar Creek enclosure, where the herd was allowed to regulate itself (no hunting), the number of deer going into the spring breakup is almost identical to the number of animals in the enclosure when the project began ten years ago.

—Milt Guymon

JUNE 1969

## NEW BIRDS RELEASED

In late April, several areas of the state received plants of exotic birds being raised at the E. E. Wilson Game Farm. Excess brood stocks of pheasants and chukar partridge were released in Lake County.

Other releases during the month included 118 Hungarian partridge in Jefferson County; 442 pheasants, 238 bamboo partridge, and 8 Kalij pheasants in the Willamette Valley; 48 Kalij pheasants and 21 tinamous in the Florence sand dunes; and 28 tinamous on the Tillamook Air Base.

These birds were adults that were no longer needed for egg production, and it is hoped they will nest in the wild. The Kalij pheasant is a native of India, slightly smaller than a ringneck but with an overall bluish-gray appearance. The female is more brownish appearing, and both have head plumes.

The tinamou is grouse size, comes from Chile, and is shaped somewhat like a kiwi or guinea fowl. Coloration is brownish with lighter specks.



A bamboo partridge.

Bamboo partridge were released last year in the southwestern part of the state. They are natives of China. About the size of Hungarian partridge, these birds are bluish-gray on the back with orange sides and flanks.

Production of these birds has been rather small at the game farm thus far, but it is hoped they will establish themselves enough to provide additional hunting opportunities in the western part of the state.

## GAME BULLETIN



## AMERICAN GOLDFINCH

The American goldfinch, or wild canary as it is frequently called, is one of the most conspicuous and well-known finches in North America. It occupies a broad range which extends from ocean to ocean and from southern Canada to the Mexican border. In Oregon it can be found everywhere in open country from sea level to the highest mountains but is most abundant along the coast and in inland valleys.

In its summer dress the striking male goldfinch differs sharply from all other small songbirds. The body is brilliant yellow while the wings, tail, and forehead are black. The female is similarly marked but with colors greatly subdued. By late fall the plumage of the male has changed to the drab coloration of the female and the sexes can no longer be distinguished.

Even while the goldfinch is in flight its identity is unmistakable. The rhythmic, undulating flight, punctuated with a musical "perchickaree" on every dip is like no other western bird.

Open farm country with a scattering of trees or brush is the favorite breeding

ground for the goldfinch. Its nesting site is most often the fork of an elderberry or maple tree, 10 to 20 feet above ground, and generally adjacent to a large weed patch. Nesting occurs late in the spring and at a time when an abundance of weed seeds is available to feed the five or six fast-growing young.

The nest is a compact cup of plant fibers lined with thistledown and other silky strands. It is so tightly woven that water will not soak through, a feature which occasionally results in drowning of the nestlings during heavy rainstorms.

The goldfinch is a great lover of fluffy white thistle and dandelion seed heads and may often be seen plucking the down, cutting off the fruiting end, and letting the airy tops float away on the wind. The seeds are shucked of their hard shells and the insides swallowed for later regurgitation as "cereal" into each youngster's throat.

The beneficial feeding habits of this beautiful bird, as well as its pleasing songs, make the goldfinch a welcome bird in any farmyard.

—C. E. Kebbe

## DRAWING DEADLINES

Though we don't have details of the big game seasons to include in this issue of the Bulletin, here's a reminder. The deadline for applying for antelope, big-horn sheep, and early deer season tags will be July 22.

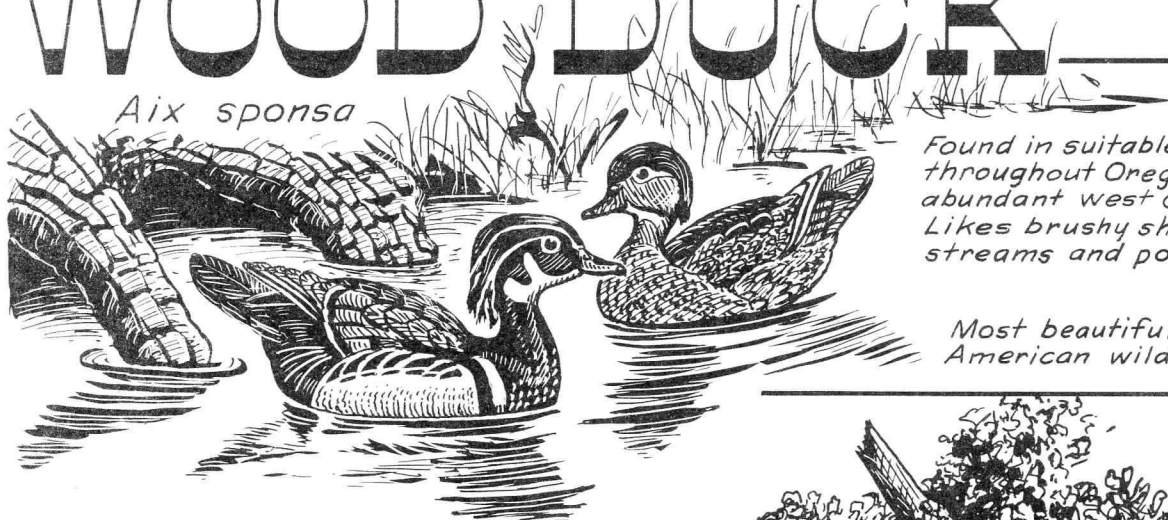
We cannot give any of the details of these seasons. In fact, there might not

even be a sheep season. However, if you are interested in participating, check with your local hunting license agency about the middle of June. He will receive the necessary information for you to apply with.

Other deadlines will be listed in the big game regulations synopsis which should be available throughout the state by about the third week in July.

# WOOD DUCK

*Aix sponsa*



Found in suitable habitat throughout Oregon. Most abundant west of Cascades. Likes brushy shore lines of streams and ponds.

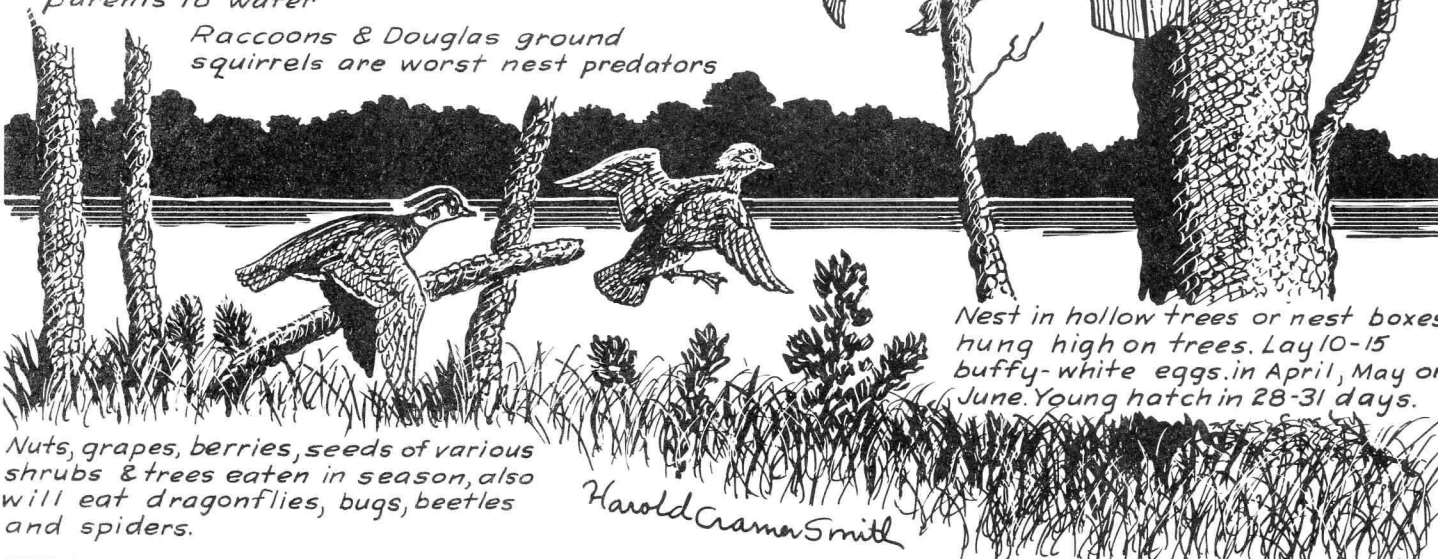
Most beautiful of all North American wildfowl.

Male is a small, gorgeously colored, strikingly marked duck. Iridescent colors on crested head, body & wings. Feet: dull yellow; hind toe without lobe. Female is drab, grayish-brown with white breast & large white eye patch.



Young use claws & hooked nail at end of bill to climb out of nest. Jump out of opening to ground & follow parents to water

Raccoons & Douglas ground squirrels are worst nest predators



Nest in hollow trees or nest boxes hung high on trees. Lay 10-15 buffy-white eggs in April, May or June. Young hatch in 28-31 days.

Nuts, grapes, berries, seeds of various shrubs & trees eaten in season, also will eat dragonflies, bugs, beetles and spiders.

Harold Crama Smith

