

OREGON WILDLIFE

AUGUST 1982

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Cover — With Mt. Thielson as a scenic backdrop, Diamond Lake offers postcard views as well as good fishing.

Photo by Jim Gladson

HUNTER EDUCATION PROGRAM INSTRUCTORS APPROVED

Month of June 19
Total Active 1,522
STUDENTS TRAINED

Month of June 357
Total to Date 292,988

HUNTING CASUALTIES REPORTED IN 1982

Fatal 0
Nonfatal 7

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A TIME FOR JUDICIAL SUPPORT

For a number of months we have been running short stories pointing out the activities of some judges in dealing with fish and wildlife law violators. This was somewhat prompted by comments from many concerned folks regarding what they perceive as lack of severe enough penalties on such violations. Obviously, some judges are showing more concern, but we still see reports where judges treat fish and wildlife violations as something of little importance. Also, we still hear from individuals who blame the Department and the Oregon State Police for the small penalties. This is, of course, without basis since fines are levied by the courts.

On July 15, a coordinated enforcement effort was kicked off to protect Columbia River fish runs now starting into the river. Personnel from this Department, the Oregon State Police, Washington Department of Fisheries, Washington Department of Game, Idaho Fish and Game Department, National Marine Fisheries Service, US Fish and Wildlife Service, US Coast Guard, and the Bureau of Indian Affairs are concentrating on following the fish from the sea to the spawning beds. Local enforcement agencies are being asked to provide as much information as possible. Also, all concerned sportsmen and other citizens are being urged to help by reporting all violations to the law enforcement people.

Not only will the river be checked from boats, aircraft, and the shore, but also fish buyers, docks and other possible landing places will be under surveillance. Both uniformed and undercover officers will be used.

Early reports indicate the effort has started to pay off. Some errant anglers without licenses and with undersized fish were caught during the first weekend. Also, at least one individual, who had 14 fish over the bag limit and was trying to sneak them past the checkers, was apprehended.

The public has been losing fish to illegal fishermen. Some of the work done earlier on the upper river indicates the fish poaching has international ties. The public has said it wants poachers rapped soundly. The management and enforcement agencies have launched a concentrated effort in at least one area where runs have dwindled . . . the Columbia. Most of the cases will be taken to judges within the various jurisdictions along the river. The next step is sound judicial support of the effort. □

R.E.S.

COMMISSION AND COMPACT MEETINGS

The Columbia River Compact will meet on Wednesday, August 11, at 9 a.m., in the Vancouver City Council Chambers, 210 East 13th, Vancouver, Washington, to consider fall salmon seasons in the Columbia River and Youngs Bay.

On Friday, August 20, the Fish and Wildlife Commission will meet, beginning at 8 a.m., to consider 1982 waterfowl, upland bird, and falconry regulations. The Commission meeting will be held at Fish and Wildlife Department Headquarters, 506 SW Mill Street in Portland. □

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THE SMALL-MOUTH BASS

By
Larry Bisbee
Staff Fishery Biologist

Black bass, bronzeback, redeye, brown bass or tiger bass Whatever you call him, he is, inch for inch and pound for pound, the gamest fish that swims. At least that is the general opinion held by most smallmouth bass anglers.

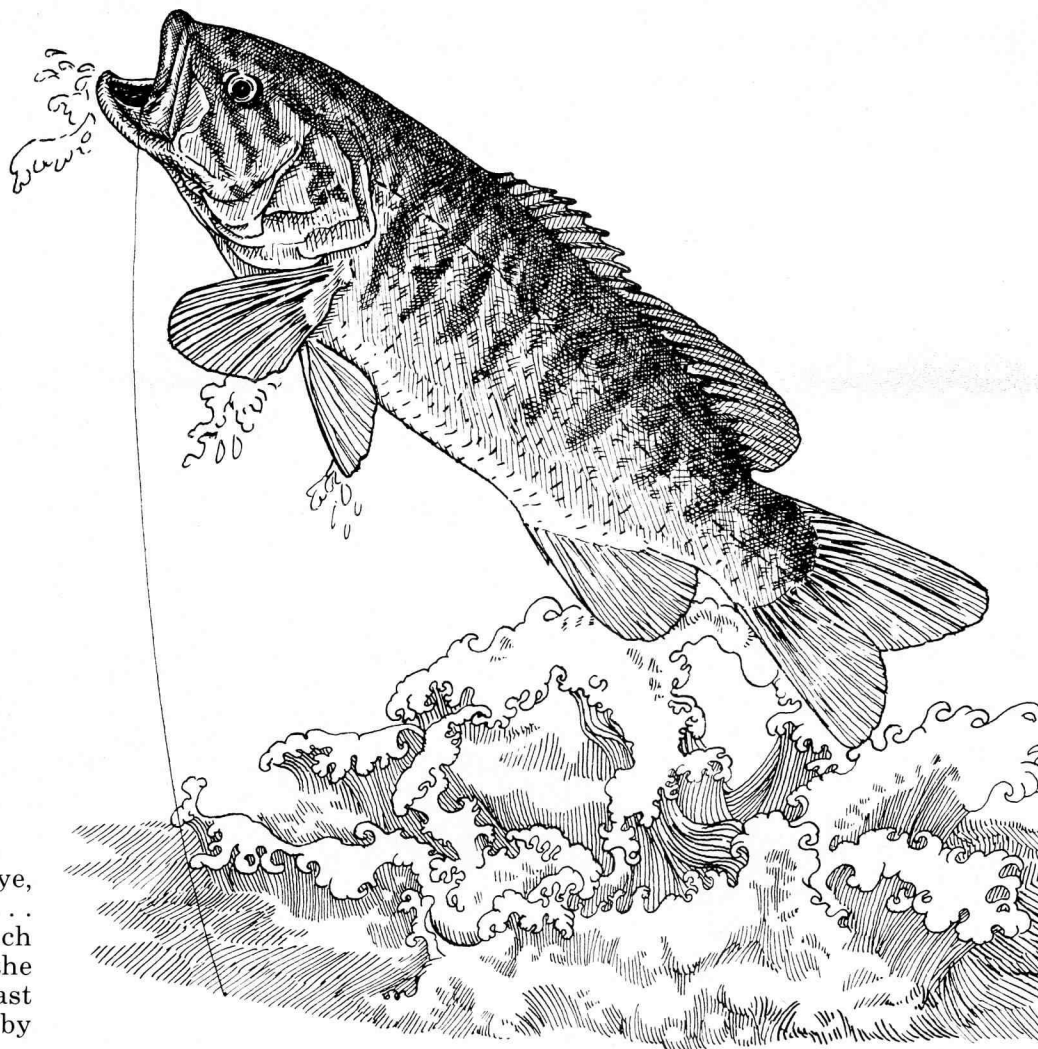
The smallmouth bass, *Micropterus dolomieu*, is one of America's prized game fish and is one of the best known and most sought after members of the sunfish family.

The *Centrarchidae*, a group commonly called the sunfish, are spiny-rayed fishes native only to the North American Continent. The smallmouth and the largemouth basses are the largest members of this family. The other smaller species are commonly known as panfish. The panfish group includes the black and white crappie, the bluegill and the pumpkinseed as well as several other minor species.

IDENTIFICATION

In general appearance, the largemouth and smallmouth bass resemble one another. But there are distinct identifying marks that separate them. Both bass have two dorsal fins on their backs, a spiny

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one in front and a soft-rayed one behind. On the largemouth, the spiny front one is separated from the back one, while on the smallmouth bass these two fins merge as though they were one continuous fin.

Coloration may be similar in the two species, but the smallmouth has a red eye and lateral tiger stripes on its cheek. The largemouth has a more or less distinct dark bar running along its side from the eye to the tail. The smallmouth lacks this bar and has, instead, a series of vertical dark bars along its flank. In the largemouth bass the upper "lip" or maxillary extends rear of the eye while in the smallmouth this is rarely true. The belly of the largemouth bass is usually silvery white while on the smallmouth it is more brown with salt and pepper highlights. The rear dorsal fin of the largemouth bass contains 13

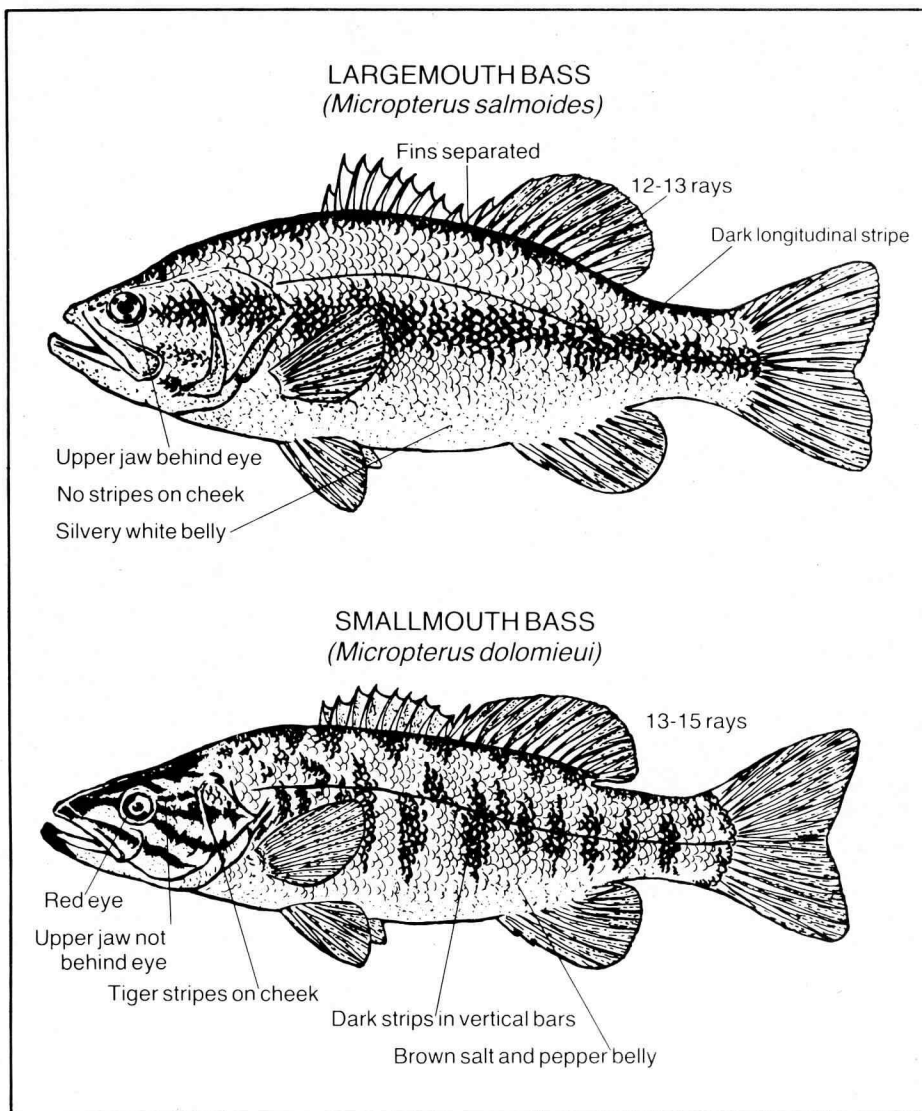
rays or fewer while on the smallmouth there are usually 13 or more.

NATIVE DISTRIBUTION

The native distribution of the smallmouth bass is in the central and northeastern United States in the Great Lakes Basin, the St. Lawrence River system, and the upper Mississippi, Ohio and Tennessee River systems. The smallmouth bass has been widely introduced throughout the United States.

HISTORY

The smallmouth bass is an introduced fish in Oregon and according to Ben Hur Lampman's book, *THE COMING OF THE POND FISHES*, the first smallmouth were imported into Oregon in 1923 by Warden Burghduff.



Pam Wood

Brownlee, Hells Canyon and Oxbow Reservoirs. It is also a major species in Prineville Reservoir. The John Day and McNary pools on the Columbia River have well established populations of smallmouth bass, and an increasing population is developing in Owyhee Reservoir.

The distribution of the smallmouth bass in western Oregon waters has been curtailed primarily because of its potential as a predator on rearing anadromous fish and trout. The smallmouth bass distribution in western Oregon is currently limited to parts of the upper Willamette River drainage including Thomas Creek and parts of the lower Santiam River. An effort has been made to establish a population of bass in the lower Coast Fork of the Willamette River.

Several years ago a well established population of smallmouth was found in the South Fork of the Umpqua River. This was the result of an illegal introduction by some angler about 1972. An illegal introduction of smallmouth was also found in Emigrant Reservoir in 1981. In most of these instances it is felt that the smallmouth bass fills a special niche in the lower drainages and is largely compatible with anadromous fish.

The bass take up residences in large, deep pools where cover is adequate. These areas are seldom used by anadromous fish except as highways to get to and from the spawning grounds. The smallmouth bass has the curious habit of not eating when water temperatures drop much below 50 degrees Fahrenheit and the bass more or less go into hibernation. Juvenile anadromous fish migrate downstream with the spring freshets when water temperatures are generally cold. The bass have not begun to actively feed yet leaving the anadromous fish free to move about without fear of being preyed upon by the bass. It is felt that this phenomenon protects the smolting salmonids migrating out of the South Umpqua River and the John Day River drainages. By the time the bass are actively feeding, the anadromous smolts have been

Illustration courtesy of WASHINGTON WILDLIFE MAGAZINE.

This shipment included 425 smallmouth six to nine inches in length from Wisconsin which were released in Lake Oswego. Again in 1924 Warden Burghdoff secured five cans of smallmouth bass from the Puget Sound area. Some of these fish were held in ponds at the McKenzie Trout Hatchery. Two hundred of the smallmouth were taken by Matt Ryckman and released in the upper Willamette River.

A well established population of smallmouth bass was reported in Tahkenitch Lake in the early days which probably originated from the stock held at McKenzie Hatchery in 1924.

Today there is no trace of this species in either Lake Oswego or Tahkenitch Lake. Smallmouth found in the upper Willamette

River system today probably have originated from subsequent plantings.

OREGON DISTRIBUTION

The largest distribution of the smallmouth bass in Oregon today is found in the major tributaries of the Columbia River located east of the Cascade Mountains. These waters include the Middle Fork of the Malheur River including Warm Springs Reservoir, the upper Owyhee River, the lower John Day River, the Crooked River and the Snake River. According to Ben Hur Lampman, the smallmouth bass in the upper Columbia River system probably originated from plants made in the Yakima River in Washington. The smallmouth bass is an important species in the Snake River impoundments of

long gone. This leaves the bass to feed largely upon numerous rough fish which thrive in these areas.

FEEDING

Once the water temperature begins to warm above the 50's, however, the bass become real predators on small fish of all species. Crayfish, small fish and insect larvae comprise the most important food items in the diet of the smallmouth bass.

HABITAT

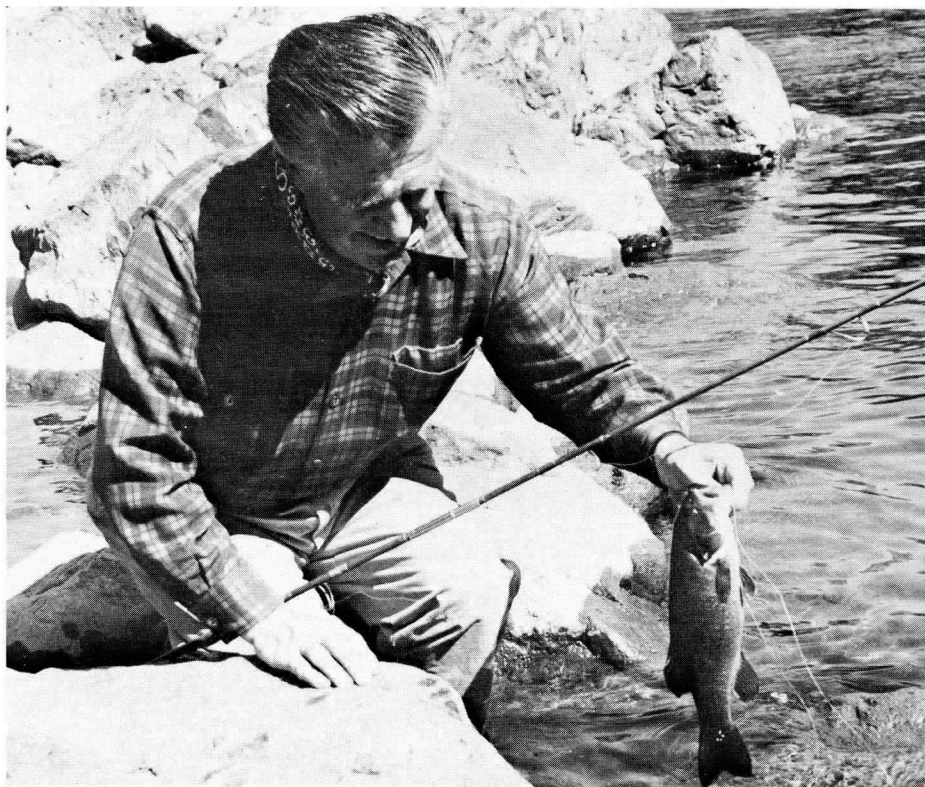
Although the smallmouth bass is placed in the general category of warmwater game fishes, its preferred habitat is the cool, clean waters of the better streams and larger deeper lakes. In Oregon, the smallmouth bass is primarily a stream inhabitant. Smallmouth are intolerant of polluted water, or water that is continually turbid. These bass prefer water temperatures around 68 degrees F., but are active in water ranging from 50 to 80 degrees.

They adapt very well, however, to larger deep lakes and suitable reservoirs. A good example is Brownlee Reservoir on the Snake River. In streams the bass have a marked preference for moderately swift water flowing over the rocky portions of the stream. This is in sharp contrast to the habitat preference of its near relative, the largemouth bass. The largemouth bass is a pond fish and prefers the shallow weedy areas of lakes and river backwater sloughs. Adult smallmouth bass generally avoid the shallow weedy areas and are more commonly found over rocky bars and ledges.

SPAWNING

Smallmouth bass are spring spawners generally spawning in Oregon in May or June depending upon water temperatures. They are very sensitive to sudden changes in water temperature. Preferred spawning water temperatures range from 60 to 70 degrees.

A sudden decrease in water temperature during the spawning period will cause the male bass guarding or tending a nest or school of fry to abandon his family duties. This can be disastrous to a



A fat smallmouth from the Snake River.

bass population since it leaves the eggs and fry unprotected and open to predation by other fish.

The bass, as all other members of the sunfish family, are nest builders. All the chores of building the nest and guarding the eggs in the nest and later the fry, fall upon the male fish. Nest construction requires from four to 48 hours or more depending on water temperatures and bottom type.

The completed nest is a circular, concave, saucer-shaped depression which is generally two to three feet in diameter. The nests are normally about twice in diameter the length of the male fish. Nesting sites are usually selected in quiet water areas out of the main stream flow. All nests generally have several characteristics in common. The nest is formed on bottoms of gravel or small rubble ranging up to five inches in diameter, and at water depths of one to one-and-one-half feet deep. The rubble in the nest is kept highly polished and so sediment free by the male fish that the nest location becomes a very conspicuous structure, often visible for considerable distances in clear water.

The male fish usually selects his nest site next to a larger single boulder or stump for protection. This phenomenon was observed on the John Day River in 1973. That year in July the river above Service Creek was investigated for spawning bass. The highly polished structures were visible clear across the river in the shallow backwater areas. Numerous old nest sites were also visible in the clear water but the eggs had long since hatched and the male fish had departed. Each nest structure invariably had the larger boulder near at hand.

With the conclusion of nest building, the male bass remains on or near his nest lest it be appropriated by another spawning male bass looking for a new nest site. Actual spawning may take place immediately after the redd is completed provided water temperatures are suitable and a ripe female is lurking nearby. A ripe female is selected and lured or driven to the nest. The eggs are fertilized as they are deposited. They are adhesive and stick to the rocks in the nest. Ripe bass eggs are fairly large, about the size of medium-

sized shotgun pellets. The female may deposit from 2,000 to 10,000 eggs in the nest at one time. Generally from 2,000 to 3,000 fry per nest are produced.

Once the female is through spawning, she leaves or is driven from the area by the male. Additional eggs within her body will ripen subsequently and she may spawn again in several more nests before she is completely finished. Once the spawning is completed the male assumes all duties, and the female leaves the area for good and has no further association with the nest or fry. The male stations himself over the nest and through the movement of his fins washes away the wastes of the developing eggs and keeps them free of silt and surrounded with fresh oxygenated water.

Under suitable temperature conditions, the eggs will hatch in three or four days. The tiny transparent fry fall among the crevices in the rubble where they continue their development on the egg yolk for another three or four days. During this period their color darkens and they finally arise from the gravel as a swarm of small jet-black fry. The male bass continues to guard the school four or five days after they have risen from the gravel. Each day they spread farther and farther along the shoreline of their birth until they finally are able to shift entirely for themselves. At this stage they inhabit the very shallow, warm, backwater areas near shore feeding on tiny aquatic organisms.

By the time the fry have grown to one or two inch fingerlings their diet has shifted mainly to aquatic insects and small fish fry. Crayfish when present become a favorite food item as the bass grow.

As the fry grow, their black color changes to a bronze or green. The fingerling smallmouth bass are easily identified as they lie in the shallow water along shore. They show a strong curiosity. They will swim ahead of a person but will suddenly stop short, turn about and face back toward their follower. The tail fin has developed a conspicuous orange base which is separated from the whitish tip of each lobe by a dark band.

Smallmouth Bass					
Fork Length at each Annulus (inches)					
Water	Year	I	II	III	IV
John Day River (Wheeler Co.)	1977	2.4	6.6	10.6	13.6
	1978	2.4	6.8	11.1	13.3
Santiam River (Marion Co.)	1977	3.1	7.0	11.0	
South Umpqua River (Douglas Co.)	1977	4.0	9.0	12.6	16.0
Statewide Average 1977-1978	3.4	7.2	11.3	13.7	
Statewide Average 1953-1962	2.8	6.9	10.4	12.5	

This banner-like characteristic of the young smallmouth's tail is easily observed and recognized as the young fish swims about in the shallows. It remains visible until the fingerling reaches two years of age.

GROWTH

The average growth rate of fingerling smallmouth bass in the first year of life has averaged 2.8 inches from nose to fork of tail. At the end of the second year the average fork length is 6.9 inches while at three years of age they average 10.4 inches fork length. Average growth rates for several important smallmouth bass waters in Oregon are presented in the accompanying table. The smallmouth bass matures at three years of age.

ANGLING

Smallmouth bass may be taken by many methods. Often they may be caught by trolling lures close to rocky shorelines or by casting lures from a boat or the bank. In some instances still fishing night crawlers on the bottom is productive. The smallmouth is a very curious fish and the secret is to let the night crawler or lure settle to the bottom and lie motionless for a minute or so. Every several minutes the bait is twitched slightly and this slight action attracts the attention of the bass.

Since the bass feeds on live food, the angler must attempt to imitate the action of these food organisms with his lures and baits.

In shallow water down to about

a ten foot depth, crankbaits are excellent. The angler should vary his retrieve from a normal speed to a slow-one, and then try a fast stop and go type retrieve. At any given time the bass will prefer one retrieval speed to another. Normally lures should be fished close to the bottom or along the rocky shore where the bass are most likely to be hiding. Some suggested crankbaits are those which resemble small fish in form and action. A perch or silver scale pattern, or purple, crawdad, brown or green color is often best.

Some fishermen favor small jigs in a black and brown color while a few favor the white or yellow colored jigs. A combination jig with plastic grub tail or a four inch plastic worm can also be excellent baits for smallmouth bass.

Small spinner type baits and spoons are effective as well. Normally the spinners must be fished down near the bottom crevices which provide hiding cover for the smallmouth.

An element of surprise is always present when fishing smallmouth bass as their lightning-quick hits often leave a frustrated angler setting the hook into nothing. Oftentimes a smallmouth will make a surprising jump the minute the hook is set.

Warmwater fish have been largely overlooked by many anglers intent after trout and salmon. But these fish have a lot to offer in the way of angling recreation, and among warmwater fishing enthusiasts, many consider the smallmouth to be tops! □

NEW FISH RECORDS

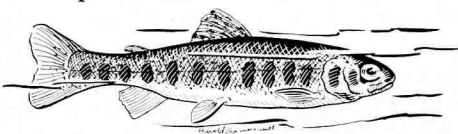
Three new entries have been recorded this summer on the list of state record fish kept by the Department of Fish and Wildlife.

The first was a 28-pound rainbow trout taken by Mike McGonagle of Trail, from the upper Rogue River on May 19. McGonagle's fish measured 37 inches in length, 27 inches in girth and substantially topped Oregon's previous record rainbow which weighed 24 pounds, four ounces. The previous record was taken from Klamath Lake in 1956.

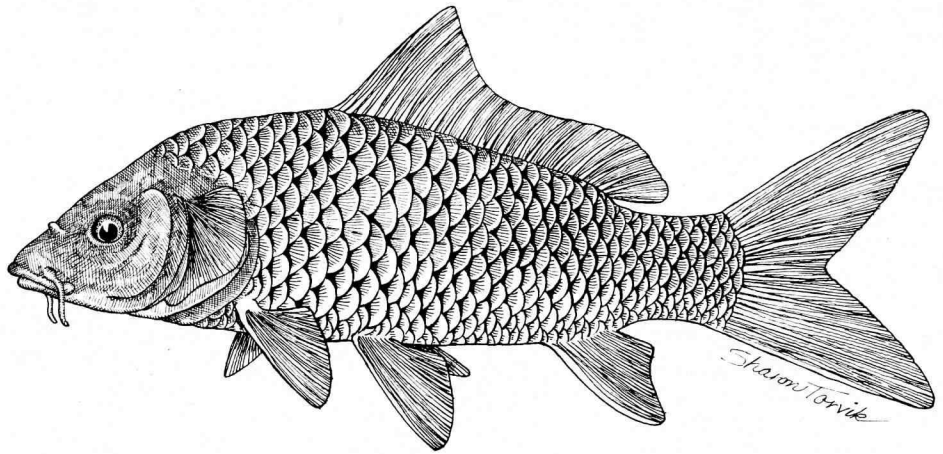
District Fishery Biologist Bill Haight confirmed the fish was indeed a resident rainbow and not a migratory steelhead. It was thought the fish may have been a hatchery brood fish released in the river several years ago. This could not be confirmed, but if true, the fish has since grown substantially in the river.

The second new record was a brown bullhead weighing two pounds, four ounces, caught June 10 in Eckman Lake by Joshua Spulnik of Waldport. The fish measured 15 inches in length, 10.5 inches in girth and was positively identified as to species by Department personnel in the regional office at Newport. Although many other, and perhaps larger, brown bullhead have been taken in the state, the Department had no previous record listing.

The third new entry was a 12 pound, 12 ounce walleye taken July 10 from the Columbia River below John Day Dam. It was caught by Eric Huffman of Lexington, Ohio. Eric was fishing with his uncle, John Huffman, of Bend. Huffman's fish was a six ounce improvement on a 12 pound, six ounce specimen taken last year. The new record measured 32 inches in length and 18½ inches in girth. It is believed that substantially larger walleye have been caught in the Columbia River but not reported. □



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THE CARP

Carp . . . a meal fit for a king. Some people would disagree, but carp were introduced to England during the reign of King Henry VIII for just that purpose. The carp, known scientifically as *Cyprinus carpio*, was introduced to North America by the US Fish Commission in 1876. Again, the object was to encourage the growth of a food fish that required little care, reproduced prolifically and grew to large size.

This giant member of the minnow family is native to Asia and Europe, but it has readily adapted to any region that offers warm, slow-moving water. Carp are found throughout most of the U.S. In Oregon, favored habitats include the Columbia River and some waters in eastern Oregon.

While not so popular in the Northwest, the carp is a sought after food fish in the South and Midwest. It is a good fighter on sport tackle. These fish are also grown commercially in some areas of the country.

Carp body colors vary, but generally the coarse-scaled back is olive green while the sides and belly are yellowish. An average-sized carp may weigh ten to 15 pounds while lunkers reaching three feet in length and weighing 50 pounds are not uncommon.

This cousin of the goldfish is primarily a bottom feeder. It sucks up mud from the bottom, spits it out, then picks its meals of vegetable and animal matter from the resulting cloud. Since its life is spent in murky water, special feelers, called barbels, on either side of its mouth help guide the fish to food. Carp may also pick algae and plants from the surface of the water.

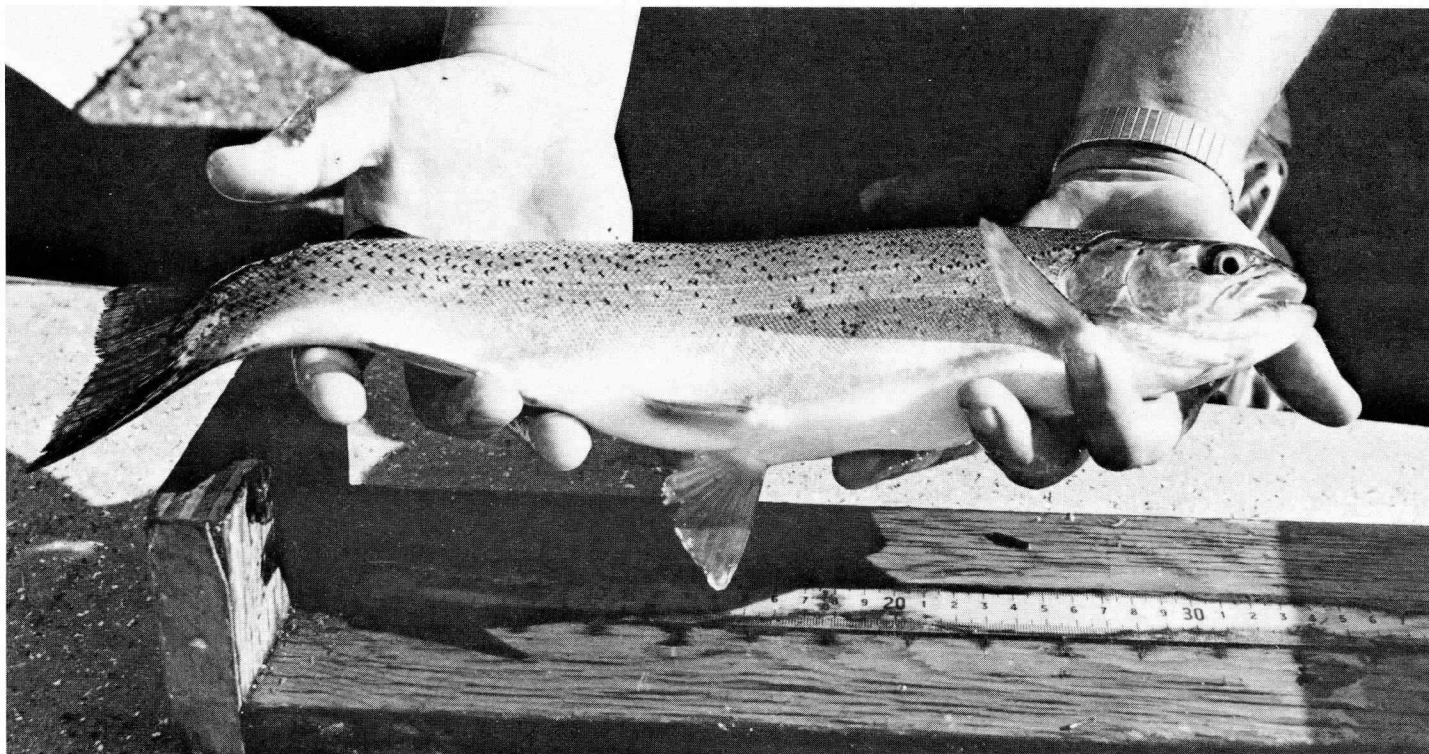
The collective bottom feeding activity of carp creates problems. The constant stirring of the bottom can quickly turn a clear pond into a mud-hole. Carp also uproot and destroy aquatic vegetation that provides spawning habitat for other fish and surface cover for waterfowl.

Because they can survive where few other fish can live, and because they can reproduce in such large numbers, carp can quickly take over a body of water.

A single large female carp can produce up to two million individual eggs. When spawning, carp congregate in groups and move into weedy shallow water. The adhesive eggs attach to grass, weed stems and roots. The young hatch in about six days. A juvenile carp may grow more than seven inches in its first growing season. The fish mature at about four years of age. Carp may live to be 20 years old. □

Jim Gladson

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A typical rainbow trout from Diamond Lake.

Diamond Lake

*Story and Photos
By
Jim Gladson*

Diamond Lake is one of the most productive of Oregon's high mountain lakes. The lake is relatively shallow, about 50 feet at its deepest point. But the nutrient-rich waters allow fish to grow rapidly.

Each May the Department of Fish and Wildlife stocks 350,000 fingerling rainbow trout. These fish start their life in the lake when they are about three inches long. They reach catchable size about mid-summer and average about 10 inches long by fall.

The lake freezes over every winter, but the fish survive well. Ice fishing is a popular winter sport in years when ice still remains for the April opening. By its second year, a Diamond Lake rainbow will measure about 16 inches and ultimately may grow to over 20 inches

in the next few years.

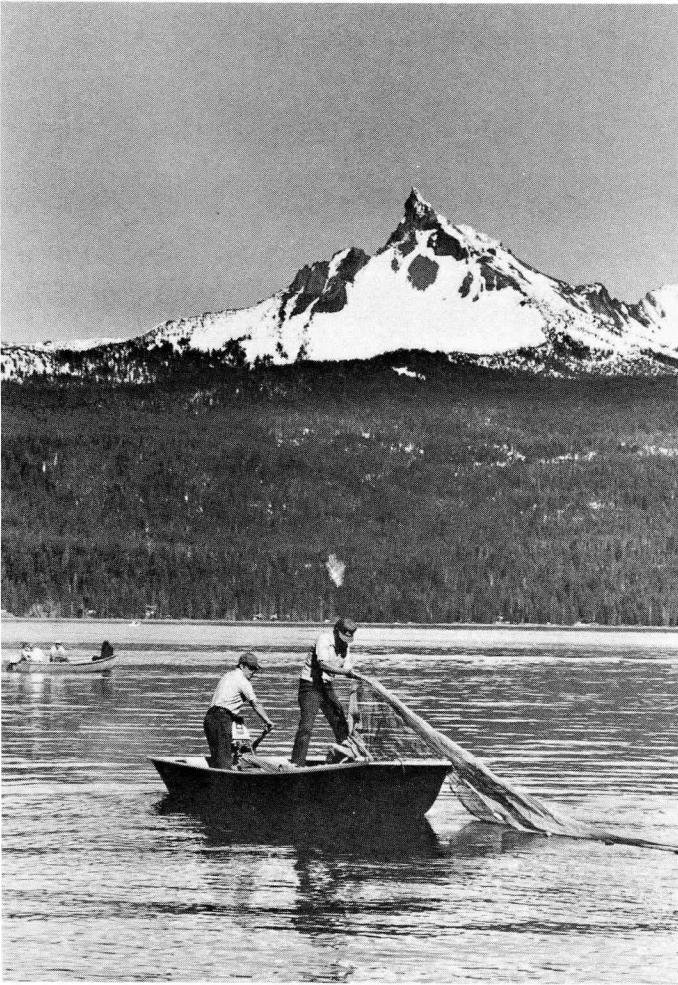
Department biologists sample fish at the lake at least once a year. By weighing and measuring the fish they land in trap nets, biologists can keep track of growth rates and condition of the fish. This information allows the fine-tuning of stocking rates to achieve maximum fish growth and abundance. The sample fish are released unharmed after examination.

Fishing was not always good at Diamond Lake. In the 1940's, anglers using a rough fish called the Klamath Lake roach as live bait, introduced the fish to the trout filled waters. By the early 1950's, the lake was overrun with roach. Trout had been all but eliminated by the competition.

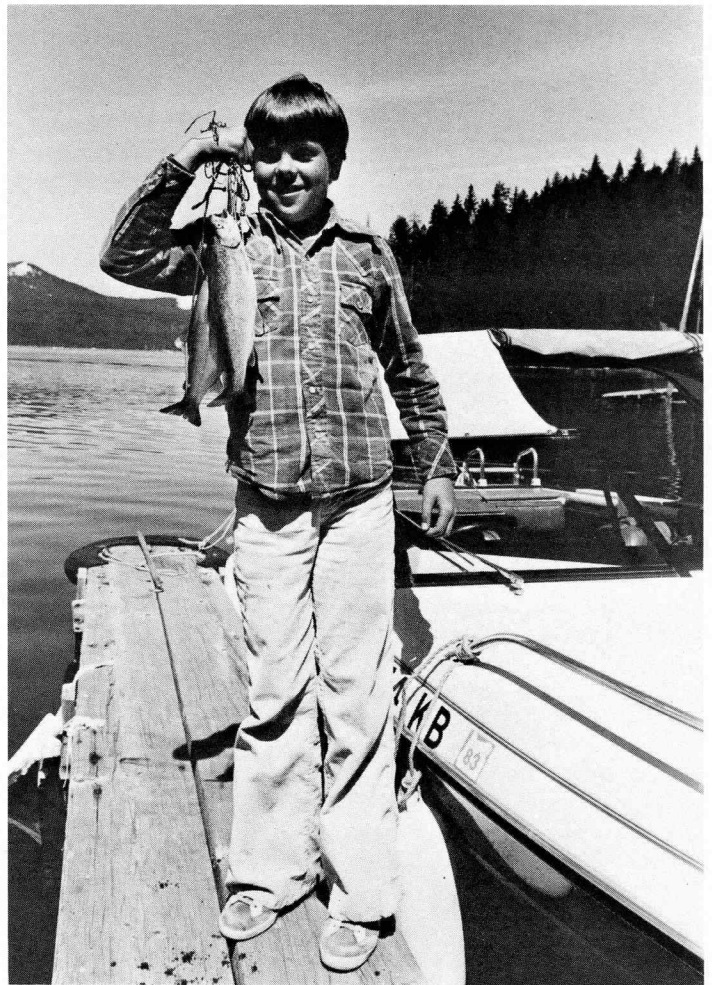
In 1954, the Department then known as the Game Commission, chemically treated the lake and killed all of the fish. This treatment operation was one of the largest such jobs of that kind ever done by the Department. Trout were restocked after treatment. The roach have not returned.

Trout do reproduce naturally in the lake, but stocking has been the mainstay of the fishery since the early 1900's. A hatchery and egg-taking facility were operated at the lake for many years.

Because of a change in spawning habits and conditions, eggs are no longer taken from fish at the lake. Trout stocked at Diamond Lake are raised at the Department's hatchery near Klamath Falls. □



Biologists sample fish populations at least once each year. They use a trap net that catches the fish alive.



This proud angler has landed a pair of good-sized rainbows. The average Diamond Lake trout measures about 10 to 12 inches. Older fish may grow to 20 inches or more.



These rainbow are dipped alive from a trap net and put into an anesthetic bath. The drugged water calms the fish and makes them easier to handle. The trout are returned to the water unharmed after examination.



The beaver, once quite rare in Oregon, has been restored through live trap and transplant programs, and through regulatory management, to all available habitat.

OREGON'S FURBEARERS

By
Ralph Denney
Staff Biologist

Oregon has a greater variety of furbearing mammals than nearly any state in the nation, twenty in all. Three categories or classifications divide the furbearers of the state. First are those classed by Administrative Rule as protected non-game species. Second are those classified by the legislature as furbearers, and last are those that are not protected, but which have fur value.

Total protection was given the fisher, ring-tailed cat, kit fox and wolverine when it was determined that populations were so low that harvest of any kind would be detrimental to their survival. Even with total protection for the past 50 or so years, populations have remained at low but stable levels. It has been determined that the quality and quantity of habitat necessary to meet the requirements of these species, and allow increases is not available in Oregon.

The list of those mammals classified as furbearers continues to grow. Within the past ten years, the bobcat, gray fox, red fox and

raccoon have been moved from the non-protected list and given status as furbearers by the state Legislature. This classification provides the protection of seasons and bag limits to these species along with beaver, marten, mink, muskrat and river otter which were formerly classed as furbearers.

Those non-protected furbearing mammals include the badger, coyote, nutria, opossum, spotted skunk, striped skunk and weasel. The nutria and opossum, as well as the red fox, are species introduced into the state in the 1930's and 1940's by unknowing people who thought their presence would be beneficial and provide additional variety. All three species have caused considerable problems.

Management

Through the years, furbearer management has taken a back seat compared to big game, upland birds and waterfowl. An aggressive program of live trapping and transplanting beaver in the 1940's and 50's resulted in the reestab-

lishment of this species in every available habitat niche in the state. General seasons with restricted bag limits began in 1952 and have continued with beaver being one of the major species harvested.

The high demand for fur in the 1940's and early 50's resulted in relatively heavy harvest pressure during that period. Trapping license sales averaged near 1,800 with as many as 2,500 licenses issued in 1947. During the period 1961-1972 participation dropped to a consistent 700 to 800 license holders. The Department's furbearer program was also deemphasized, and was confined to answering damage complaints, mainly caused by beaver, and setting regulations. It should be remembered that only five species were classified as furbearers, four as totally protected, and the remaining one as non-protected requiring no management.

Beginning in the early 1970's, fur values began to increase. Demand for fur by the garment industry, especially in Europe, be-

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1981-1982 HUNTERS: TRAPPERS FUR HARVEST

County	Trappers	Beaver	Bobcat	Gray Fox	Red Fox	Marten	Mink	Muskrat	Otter	Raccoon	Badger	Coyote	Nutria	Opossum	Spotted Skunk	Striped Skunk	Weasel	Total
Benton	54	186	23	3	30	0	9	237	3	283	0	46	970	251	1	17	0	2,059
Clackamas	77	211	75	30	93	0	12	145	14	667	21	109	428	361	5	82	2	2,255
Clatsop	54	361	33	0	0	0	56	1,797	14	264	0	21	1,701	67	5	0	0	4,319
Columbia	60	186	40	0	5	0	55	1,315	4	404	0	55	621	182	19	6	1	2,893
Coos	55	136	106	0	2	0	21	440	24	276	0	12	0	41	113	11	1	1,183
Curry	20	37	67	2	1	0	3	17	3	163	0	8	0	3	69	15	0	388
Douglas	127	302	407	52	113	20	42	197	36	968	3	95	168	618	91	229	3	3,344
Jackson	77	53	141	43	1	0	56	1,253	1	604	0	107	0	0	34	216	0	2,509
Josephine	60	41	27	41	3	0	12	1,062	4	502	0	26	0	0	25	119	0	1,862
Lane	175	586	243	38	95	0	104	992	57	877	1	101	941	678	476	49	11	5,249
Lincoln	63	251	180	0	0	0	22	300	10	385	3	113	251	39	12	1	1	1,568
Linn	127	185	138	13	65	1	63	706	6	423	0	93	2,272	457	20	31	6	4,479
Marion	103	122	90	5	66	0	35	658	22	510	2	55	1,248	445	10	78	3	3,349
Multnomah	16	40	1	0	2	0	11	564	0	123	1	2	160	101	0	8	0	1,013
Polk	35	64	29	0	24	0	14	114	3	150	0	111	210	75	5	10	0	809
Tillamook	66	197	202	1	0	1	15	235	27	240	0	120	108	86	30	0	2	1,264
Washington	53	142	5	10	5	0	10	701	7	220	0	49	184	243	0	25	1	1,602
Yamhill	57	78	17	15	11	0	19	169	1	436	0	29	262	285	18	16	3	1,359
WESTERN	2,348	3,178	1,824	253	516	22	559	10,902	236	7,495	31	1,152	9,524	3,932	933	913	34	41,504
Baker	73	62	55	0	0	0	89	2,431	7	88	47	371	0	0	3	13	8	3,174
Crook	50	33	65	0	0	0	20	270	0	13	54	468	0	0	0	0	0	923
Deschutes	41	43	40	3	0	8	32	27	18	26	14	266	0	14	3	0	0	494
Gilliam	6	4	9	0	0	0	4	0	1	10	7	99	1	0	0	0	0	135
Grant	54	115	72	0	0	1	37	340	0	41	29	275	0	0	5	1	1	917
Harney	78	43	103	0	0	0	15	173	0	17	70	1,214	0	0	4	0	2	1,641
Hood River	23	60	23	0	0	0	11	259	2	42	3	48	0	9	0	17	6	480
Jefferson	26	14	49	0	0	0	41	176	8	32	8	113	0	0	2	9	6	458
Klamath	153	65	91	0	0	6	297	16,293	13	140	5	267	0	0	24	34	7	17,242
Lake	83	6	93	0	0	0	3	2,062	0	9	53	827	0	4	1	35	0	3,093
Malheur	103	70	80	1	20	0	31	4,846	1	39	115	1,175	4	0	0	3	2	6,387
Morrow	13	10	4	0	0	0	7	23	0	18	24	179	0	0	0	0	0	265
Sherman	10	4	8	0	1	0	0	0	0	17	5	32	0	0	0	0	0	67
Umatilla	46	174	41	0	0	1	91	1,474	2	201	44	239	0	0	0	13	1	2,281
Union	56	29	42	0	0	0	32	1,295	0	37	7	137	0	0	0	0	4	1,583
Wallowa	42	24	47	0	0	1	70	1,085	3	58	10	140	0	0	0	4	20	1,462
Wasco	33	54	28	0	0	0	6	50	4	80	21	219	0	3	3	0	0	468
Wheeler	21	11	25	0	0	0	4	8	0	19	7	187	5	0	0	1	0	267
EASTERN	1,682	821	875	4	21	17	790	30,812	59	887	523	6,256	10	30	45	130	57	41,337
TOTALS	4,030	3,999	2,699	257	537	39	1,349	41,714	295	8,382	554	7,408	9,534	3,962	978	1,043	91	82,841

1949 HUNTERS & TRAPPERS REPORTED SUCCESS OUT OF 3069 HUNTERS & TRAPPERS REPORTING

gan to have its impact, and created a dramatic increase in the number of harvesters. Added to this demand was more free time for more people, and an opportunity to combine recreation with a chance to help defray the costs of that recreation. Harvest pressure created on species such as the bobcat, raccoon and fox caused legislative reclassification so that those species were offered protection through much of the year.

In addition, the Department's furbearer program needed revitalization. With only the few hundred harvesters of the 1960's, little emphasis was placed on management strategies. The five dollar trapper's license provided the Department with only \$4,000 per year to finance the program. Basically, there was a need to start from

ground zero, with inventories, population estimates, compilation of harvest data, special studies of major species, and an analysis of all past information available. To do this, since the harvester realizes a profit from his activity, the license and tag fees were restructured to finance the program.

Trappers were assessed ten dollars for a license, while those who hunted furbearers were charged five dollars. Tag fees for bobcat and river otter were set at six and three dollars respectively. With this income the furbearer program was initiated with the fur harvester paying the bill. Income for the program has averaged \$92,000 over the past three years.

Compilation of past data, with habitat and population estimates has been a major undertaking. Lit-

erature and research data from other states was reviewed, and where possible, applied to species in Oregon. Trappers were also interviewed and their best estimates on species density were applied. All information was carefully analyzed to determine that seasons were set so that increased pressure would not jeopardize base breeding populations of any species.

Additional studies were initiated that apply to the wide range of habitats in Oregon. Those species of greatest concern were chosen. With high pelt prices on bobcat, and its listing under the Convention for International Trade for Endangered Species, this species was chosen as a priority one. It should be emphasized that the bobcat in Oregon is not endangered, but because it is similar to other cat species that are endangered in other nations, international trade of cat pelts is controlled by a treaty involving all nations.

Three bobcat density studies were initiated to determine animal numbers in different habitat types. These studies, in the Blue Mountains, high desert plateau, and westside Cascades, will measure movements, distribution, and home range of bobcat in those habitats so that densities by habitat type can be computed.

In addition, with the cooperation of the harvesters, a statewide age class study is taking place. By extracting and sectioning a lower canine tooth, the annual growth rings can be identified allowing us to determine the annual replacement of young into the population. In eastern Oregon, bobcat reproductive potential is being measured to determine annual recruitment into the population of eastern Oregon bobcats. With this information, at a cost of approximately \$50,000 annually for three years, we will be able to determine annual population numbers and safe harvest levels.

The raccoon is sought by more harvesters than any furbearing species in Oregon. Concerns have been expressed about overharvest of this furbearer. A study has been initiated in the lower Willamette



The raccoon is sought by more harvesters than any furbearing species. Studies are underway to learn more about this widespread species.

Valley to determine age class and reproductive rates, which determine population numbers of this popular species.

Live trapping and transplanting of different species is an ongoing program. The transplant of fisher from British Columbia and Minnesota into the high Cascades of southern Oregon was completed two years ago. Plans for moving river otter into the Blitzen and Silvies River drainages of Harney County are underway. District biologists continue to move beaver and raccoon from damage complaint areas to other sites where conflicts with man will not take place. Census information is being gathered by district biologists throughout the state. In all, the program is moving and will continue to do so.

Harvest

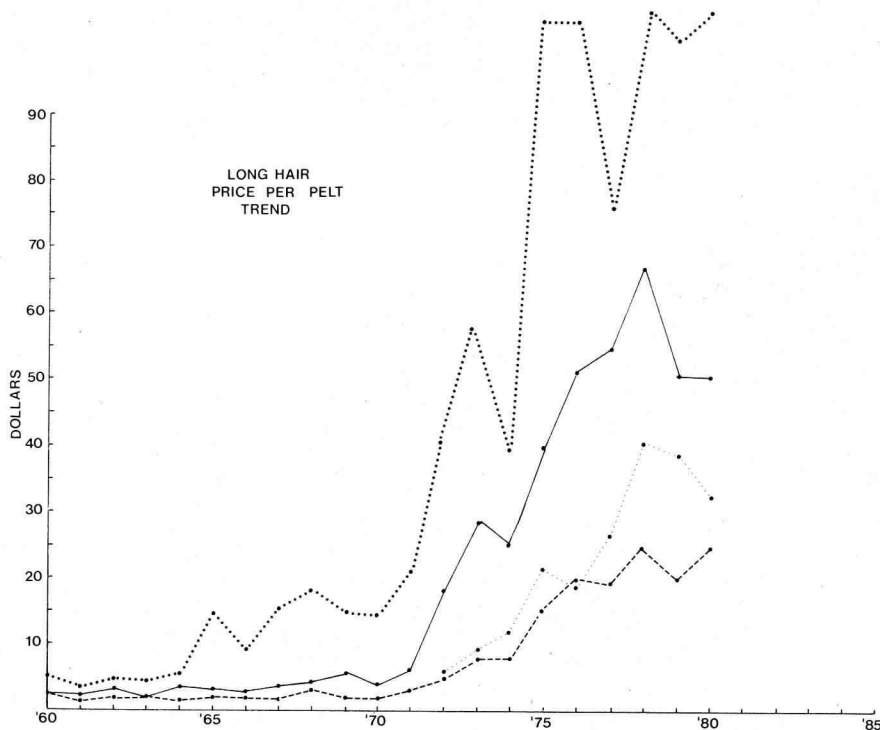
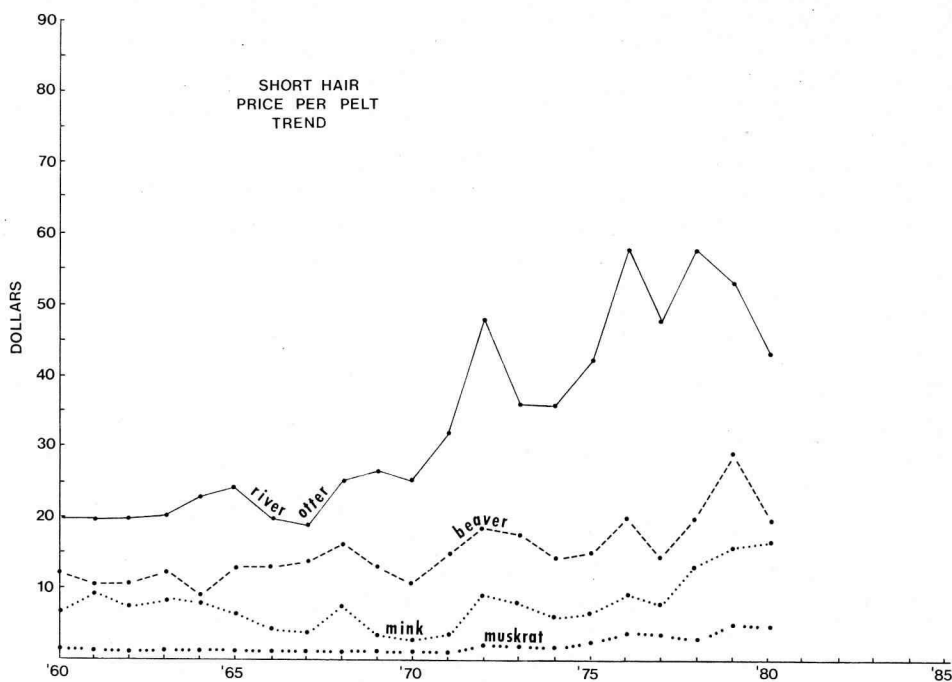
Sustained harvest of annual surpluses is the major objective of all wildlife management. This objective is also foremost with furbearers, but in addition, the harvest must take place during the period when pelts are in prime condition so that full value can be realized.

Most furbearing species are prolific producers of young with annual recruitment usually exceeding four young per year, with some species producing as high as twelve young each year. To maintain healthy populations, seasons are generally four months long with unrestricted bag limits. The one major exception is the bobcat with seasons two months in length in western Oregon and one month in eastern Oregon with a three cat eastern Oregon annual bag limit. Underharvest of populations is the rule in Oregon, due mainly to the limited number of furtakers and great expanse of the state.

Harvest varies each year due mainly to prices, weather conditions and furtaker participation. Reports are required by the furtaker each year so that an accurate measure of harvest is available to provide comparative information through the years.

The total average harvest for the past five years is near 104,000 furbearers.

OREGON WILDLIFE



bearers by 3,500 furtakers. The 1982 harvest of 82,841 was considerably below that average due to severe weather conditions and high water throughout the season. In addition, pelt prices were the lowest in several years. The table shows a breakdown of species harvested by county while accompany-

ing figures show pelt price trends.

Economically, the furbearer resource adds greatly to the furtaker's income. Furtakers reported an income in excess of two million dollars in 1981, while reports show more than one and one-quarter million dollars in 1982. □

THIS AND THAT

Compiled by Ken Durbin

PROOF AGAINST WINTER

Frogs don't freeze in freezing weather because they synthesize alcoholic antifreeze in their body fluids with the onset of winter temperatures. William Schmid, a zoologist at the University of Minnesota, found three species that produce glycerol, which enables them to hibernate beneath leaves in very cold weather.

Wildlife Digest

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BLM WILDLIFE PUBLISHED

The Bureau of Land Management has published a four-color booklet describing the diverse wildlife and habitat on the 327 million acres of public lands administered by that agency.

The 26-page publication graphically portrays wildlife and habitat in the West which is available for free public use. These lands and animals are the ones that conservationists fear may be primary targets in the Administration's alleged program to sell \$17 billion in public lands over the next five years. Copies of "Wildlife On The Public Lands" are available for \$3.50 each from the Superintendent of Documents, Washington, D.C. 20402.

Wildlife Management Institute

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TO KILL A FEW MAY SAVE THE BUNCH

The Office of Endangered Species in the Department of the Interior has changed the status of leopards in 18 African countries from "endangered" to "threatened." That means that American sportsmen can now legally hunt leopards, and the Fish & Wildlife Service hopes they will do just that. As a spokesman for the agency explained, leopards have little value in Africa because the U.S. bans import of leopard skin products. But if hunters begin bagging them, Africans will see the animals as a "potential business and take better care of them."

Virginia Wildlife

STEP FORWARD FOR D.J. EXPANSION

The Senate Finance Committee has added language to this year's tax bill that would significantly expand the Dingell-Johnson (DJ) fisheries program, according to the Wildlife Management Institute. The effort to get this much-needed financial help for state fisheries management was headed by Senator Malcolm Wallop (Wym.) and Interior Secretary James Watt.

The legislation would place a three percent manufacturers' excise tax on boats used primarily for recreational fishing. It would tax, at the 10 percent rate, sport fishing equipment not presently subject to the DJ tax. And it would allow manufacturers to delay payment of the taxes until the end of each quarter so they would not have to borrow money and pay the taxes when shipments are made. The provision also would place a 10 percent tariff on imported sport fishing equipment and dedicate the income to the DJ program.

Conservationists are working to get the DJ provision approved by the full Senate as soon as possible. Sources report that the House likely will approve a similar measure if the Senate passes its bill.

Excise taxes going to the DJ program are collected by the federal government and apportioned by the US Fish and Wildlife Service to state fisheries agencies for sport fisheries conservation and recreation efforts.

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HEED THE WARNING

If you've ever heard a ringing in your ears after firing a rifle or shotgun, you should pay attention. Your ears are trying to tell you something.

Ringling in the ears is a signal that you are subjecting yourself to potentially damaging sound levels. Numerous tests conducted over the past 30 years have revealed that continued exposure to gunfire can cause gradual — and permanent — hearing damage. The ringing will go away. The damage will not.

Although many forms of hearing protection are available, the

most effective of all practical protectors are the muff-type devices worn by some airline ground crews. In addition to the protective qualities of muffs, serious firearms enthusiasts who have started wearing muffs often notice that their marksmanship scores improve. They reason that the muffs help them overcome a natural avoidance reaction to the ear pain produced by certain shooting. The routine use of hearing protectors is certainly less of an annoyance than the ringing in the ears — not to mention the hearing loss — that the muffs prevent.

A 12-page booklet highlighting the importance of hearing protection and numerous other aspects of firearms safety is available for only 25 cents from the National Shooting Sports Foundation, 1075 Post Road, Riverside, CT 06878.

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THE NATURAL ZAP

Those electronic insect-zappers used to kill mosquitoes and other insect pests may seem a modern triumph, but two Canadian researchers have discovered that Nature, as usual, was already way ahead.

Members of the sunflower family, including daisies, black-eyed Susans and marigolds, have chemicals known as polyacetylenes, and as these chemicals sop up sunlight they become toxic to insects; their poison loses its punch in the dark. Researchers say they do not yet know precisely how the plants convert the sun's energy into a chemical insect-zap, but they do know that the zaps can be powerful. Says one; "We have found one compound to be more toxic to mosquito larvae in the light than DDT."

Carrots and wild parsnips contain similar chemicals that can kill caterpillars which feed on them during daylight hours. Researchers hope some of these compounds will be useful for crop protection and provide more environmentally acceptable alternatives to agriculturists.

Wildlife Digest
AUGUST 1982



Oregon's

WILDLIFE WINDOW

Wildlife of some kind is visible almost everywhere we go. No matter what the occasion, whether a parent pointing out a bird in the tree or a fisherman exclaiming, "Look what I caught!", the next words are always the same — What is it? Often the reply goes something like, "I don't know. Some kind of a ____ I guess." For most people there are a lot of creatures named "I don't know."

Many naturalists will tell you that "identifying wildlife is not difficult." Baloney! Separating the more than 550 species of vertebrate animals we have in Oregon is difficult. This is especially true for people who have little background in this activity or little opportunity to practice. Some identification skills are important to outdoor users for a number of reasons. Aside from curiosity, the hunter or fisherman needs to know if the fish in hand or the duck in flight is legal or good to eat. It also helps anyone from backpackers to those on a casual outing to know if the small creature over there should be of concern.

If we were to offer one basic rule for wildlife identification it would be *know what to expect in that location*. One would not expect to find a seal in an Eastern Oregon mountain stream. You would expect an otter, though. An antelope would not be expected in a coastal forest. But black-tailed deer and Roosevelt elk live there. Knowing generally what to expect helps eliminate a lot of creatures from

the list of possibilities. Having a sense of what kind of habitat certain species use also helps narrow the expectation further. For example, a chicken-sized bird seen in a forested area is probably a grouse since pheasants prefer the more open agricultural lands.

In the end, accurate identification still requires looking closely at details such as size, body shape, particular markings, types of bills, length of tail, color, call or song, and perhaps behavior patterns.

Any bookstore can provide a range of field guides to various wildlife. Some are even limited to certain sections of the state to reduce the "what to expect" problem.

The range of guides available are too numerous to list here. One that does include literally all of the vertebrates except fish is the *Complete Field Guide to North American Wildlife* by Jay Ransom and published by Harper and Row, 1981. *Fish and Fishing*, published by Better Homes and Gardens, is still perhaps the best fish identification book we have seen that is non-technical and easy to use. The Department of Fish and Wildlife also provides 22 different leaflets on various fish and wildlife of Oregon. They are not in color and each is only four pages in length, but they are free. Write us at the window for information on species of interest to you.

THIS MONTH'S WINDOW

What is it?

Pick and list a group of animals from a book or other source. Design a key to separate and identify them. Let someone else try to use the key.

Develop a game using flash cards of various wildlife and a system for scoring based on difficulty. Make your own cards by cutting pictures from old books and magazines.

Play animal charades. Act out behaviors and movements of selected animals. Have the rest of the group try to identify the animal you are portraying.

BLM IDENTIFIES 255,000 ACRES AS POSSIBLY SUITABLE FOR SALE

About 255,000 acres of land, administered by the Bureau of Land Management in Oregon and Washington, are being studied for possible inclusion in President Reagan's plan to sell unneeded federal properties.

The figure includes about 190,000 acres identified through the BLM land use planning process as suitable for sale or exchange, and an estimated 65,000 acres which appear to be logical candidates for disposal after appropriate land use planning review is completed.

William G. Leavell, BLM state director for Oregon and Washington, emphasized that no decision has been made on which of the lands ultimately will be sold under the Interior Department's "Asset Management Program."

"We don't anticipate offering land for sale under this program until late in 1983. Public participation procedures and other requirements of the Federal Land Policy and Management Act and the Na-

tional Environmental Policy Act will be followed in the disposal of public lands," Leavell said.

Identifying these lands is the first step in a long-range program to dispose of federal lands which are scattered, isolated or otherwise difficult to manage. Certain categories of land will not be sold, such as lands within the National Park System, National Wildlife Refuge System, Indian Trust Lands, and other lands with unique characteristics and national values, such as wilderness areas, designated wild and scenic rivers, national or historic trails, national conservation areas, national or research natural areas designated for cultural or natural history, areas of critical environmental concern, wild horse management areas, and any other special areas having a Congressional designation. Proceeds from the land sales will be used to help retire the national debt.

The eleven BLM district offices in Oregon and Washington estimated this spring that 65,000 acres

which have not been so identified in the land use planning process might possibly be suitable for disposal. "This rough estimate was based on quick preliminary review of land ownership maps and was not a specific, tract-by-tract analysis," Leavell explained.

The district offices had previously identified 190,000 acres as suitable for sale or exchange in land use plans developed in the past few years. These include lands with residential or commercial value and lands with potential for cultivated agriculture.

The land initially identified amounts to approximately 1½ percent of the 16 million acres BLM manages in Oregon and Washington.

"We will analyze these lands carefully for public values before any property is sold," Leavell said.

HELP SOUGHT IN SNAKE STUDY

A study contracted with the Department of Biology at Portland State University, through the Department's nongame wildlife program, is attempting to learn more about the occurrence and status of three species of rare, harmless snakes in the Hood River and lower Deschutes River basin.

Efforts will focus on the sharp-tailed snake, ring-necked snake, and California mountain king snake. Participants in the study are asking the help of those whose outdoor activities take them into these areas. Information needed includes date, location, and surroundings where any of these snakes are

seen. A one page flier which tells more about the program and which gives information helpful in identifying these species is available on request from participants in the work. Requests may be sent to Dick Forbes, Stan Hillman, or Phil Withers, Department of Biology, Portland State University, Portland, Oregon 97207. Or further information may be obtained by calling 229-3851 in the Portland area. Fliers and information are also available from Jim Torland, District Wildlife Biologist, Oregon Department of Fish and Wildlife, 2701 West 13th, The Dalles, Oregon 97058.□

TIP OF THE HAT

A Lane County individual was stopped by Senior Trooper Ed Casciato and was found to have a freshly killed, ungutted doe deer in the vehicle.

The man was found guilty in Lane County District Court and sentenced by District Judge Bryan T. Hodges. The sentence was five years on probation with the following provisions:

(1) He violate no laws, (2) pay \$300 in restitution to the Oregon Department of Fish and Wildlife, (3) pay a fine of \$500 plus \$5 court costs and a \$25 assessment, (4) serve five days in jail, (5) not hunt or possess any hunting weapons in any public area, and (6) shall not apply for or possess any hunting license or tag.

A tip of the sportsmen's hat to Judge Hodges.□



506 S.W. MILL STREET
P.O. BOX 3503
PORTLAND, OREGON 97208