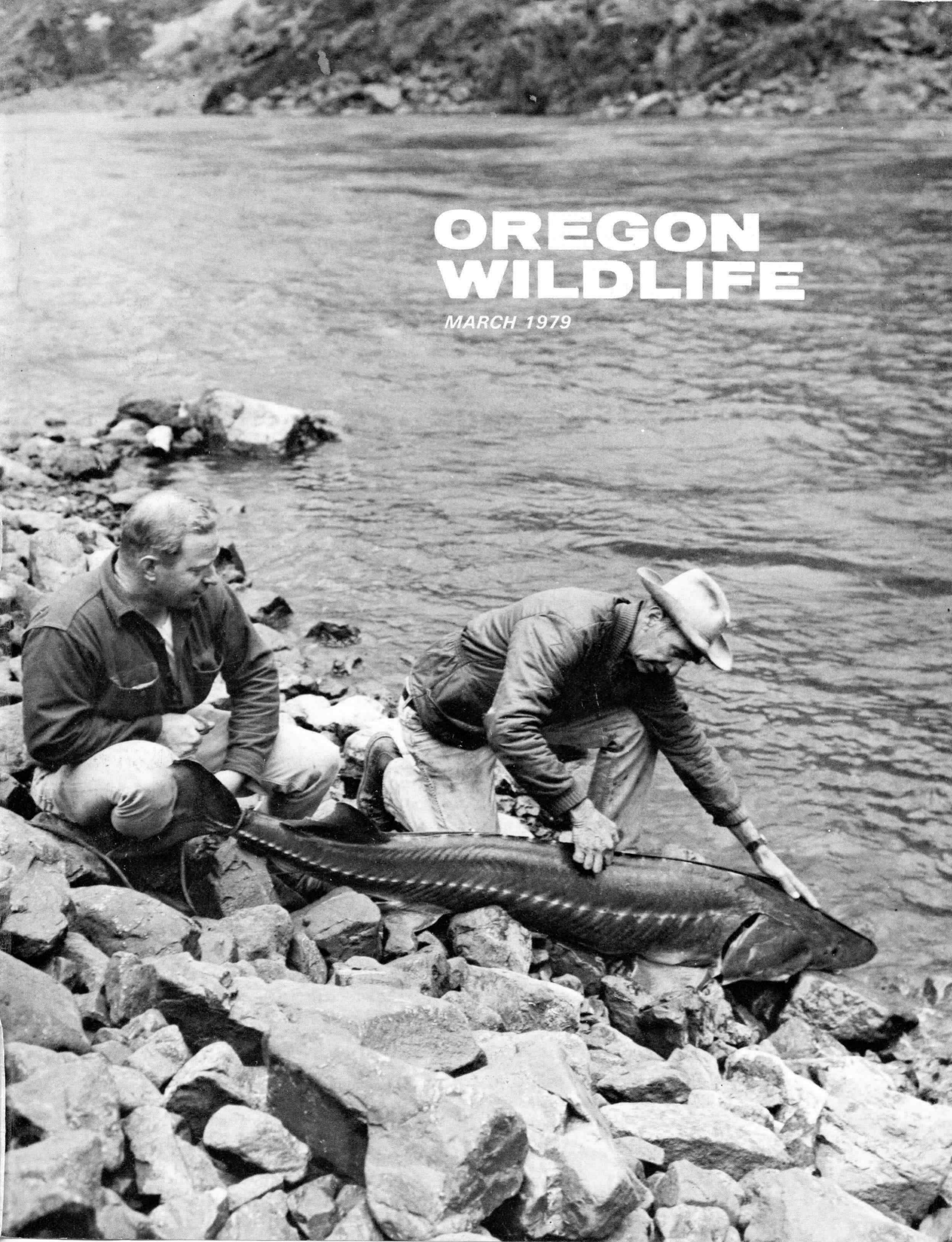


# OREGON WILDLIFE

MARCH 1979



# OREGON WILDLIFE

MARCH 1979  
Volume 34, No. 3

## OREGON FISH AND WILDLIFE COMMISSION

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Oregon Wildlife is published monthly by the Oregon State Department of Fish and Wildlife. Volumes 1 through 28 were entitled Oregon Game Commission Bulletin.

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Permission to reprint is granted; credit would be appreciated.

Oregon Wildlife is circulated free of charge. Please report change of address promptly giving both new and old addresses and zip codes.

Second-class postage paid at Portland, Oregon.

### All correspondence:

Oregon Department of Fish & Wildlife  
P.O. Box 3503  
506 S.W. Mill  
Portland, OR 97208  
Telephone: 229-5551  
Information 229-5403

**Cover photo** — The sturgeon offers the Oregon angler his only chance to catch a fish in freshwater that is larger than himself. Anglers must release those smaller than 3 feet and longer than 6 feet. See Jim Galbreath's article in this issue and learn a lot about this interesting creature.

*Photo by Milt Guymon*

## HUNTER EDUCATION PROGRAM

### INSTRUCTORS APPROVED

Month of January ..... 14  
Total Active ..... 1,540

### STUDENTS TRAINED

Month of January ..... 340  
Total to Date ..... 262,074

### HUNTING CASUALTIES REPORTED IN 1979

Fatal ..... 1  
Nonfatal ..... 1

## With Friends Like These ...

Back in 1937 the hunters of the U.S. voluntarily shouldered the cost of research to enhance wildlife, to buy critical habitat and improve that habitat. They did so by paying a federal excise tax on sporting arms and ammunition.

The money collected has been apportioned back to the states via a complicated formula based on the number of hunting licenses sold and the state's area. To receive the funds, the states must agree to put up \$1 for each apportioned \$3 of the excise tax funds. The legislation that established this federal aid to wildlife program was called the Pittman-Robertson Act, and the funds have come to be called "P-R Funds."

In the 1930s, wildlife management was in its infancy and the federal funds made it possible for states to hire qualified wildlife biologists to study wildlife's needs, to purchase critical habitat (101,200+ acres in Oregon) and to provide qualified managers to improve that land. It is almost certain that without P-R funds, wildlife would be much worse off than it is today. Much of the public land that Missourians use today for hunting, fishing, nature study and photography simply would not exist if it were not for P-R funding.

Over the years a number of messiahs, trying to make names for themselves, have proposed doing away with the excise tax. On every such occasion, the sportsmen of America have turned them down and insisted on paying the tax. They are only too aware of the value to wildlife — ALL wildlife, not just huntable species.

Last March, two groups who profess concern for wildlife and the environment — the Committee for Humane Legislation (CHL), and Friends of Animals — combined to file a suit in federal court against the U.S. Fish & Wildlife Service, which administers P-R funds, for noncompliance with the National Environmental Policy Act (NEPA), which requires an environmental impact statement on any federal projects having a major or significant effect on the human environment. A draft statement was submitted by the Wildlife Service, but was attacked by the groups as "grossly inadequate."

Last month, the U.S. Fish & Wildlife Service signed an agreement to freeze any P-R projects coming up for renewal "in the next 60 days," effectively bringing P-R projects to a standstill. Later, the federal judge may freeze them permanently.

Friends of Animals and Committee for Humane Legislation make no secret of the fact that their aim is to stop sport hunting in the United States. They have chosen the NEPA route to stop sportsmen's taxes from being used to help wildlife under the claim that the projects might be harmful to the human environment. It is claimed that wildlife management techniques "threaten the survival of nongame species..." although knowledgeable people recognize that were it not for management of game species, nongame species would be in even worse condition. And to thwart the sportsman, Friends of Animals and the Committee for Humane Legislation would topple the entire structure.

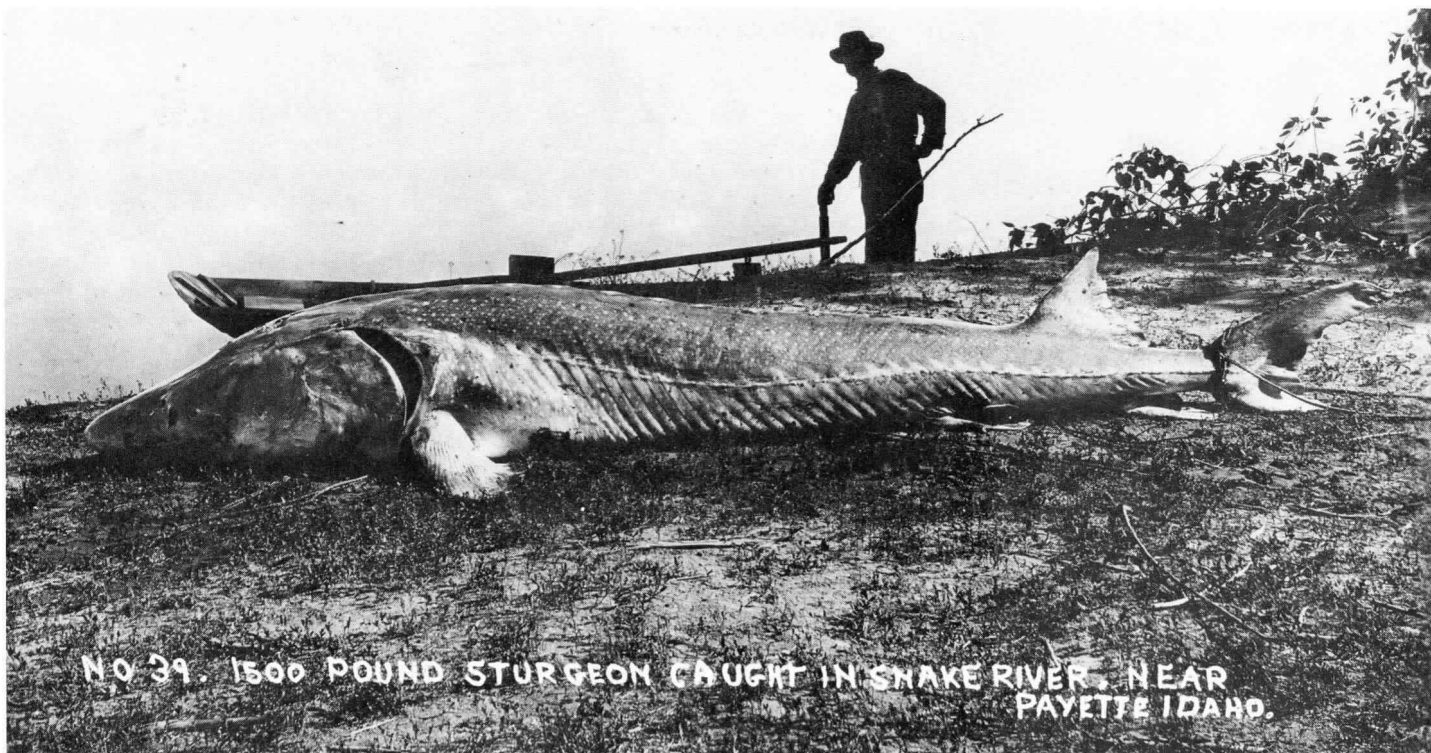
With "friends" like these, wildlife has no need for enemies. The various groups — birders, sportsmen, nature lovers, scientists — those who really care for wildlife, don't need the tactics of these "friends" either. □

James F. Keefe  
*the Missouri Conservationist*

## COMMISSION MEETINGS

*The Fish and Wildlife Commission will conduct a public hearing beginning at 9 a.m. on Thursday, March 15, to take testimony on antelope, cougar and bighorn sheep seasons for 1979, the opening date for bowhunting seasons, and a bowhunting tag for deer. The seasons will be adopted after the public hearing and the bowhunting deer tag will be considered for adoption.*

*On Friday, March 16, another public hearing on ocean commercial and sport salmon seasons will be held and seasons considered. Both meetings will take place in the conference room at Fish and Wildlife Department headquarters, 506 S.W. Mill Street, Portland. □*



Oregon Historical Society photo

## Columbia River Colossus The White Sturgeon

by Jim Galbreath  
Fishery Biologist  
Anadromous Fish Section

For entertainment some people turn on their T.V. sets to watch the "Incredible Hulk". The more adventurous go out on the Columbia River to try to hook it!

The sturgeon is the largest freshwater fish in the world and the subject of many stories among fishermen. Also, probably more misinformation has been circulated and published concerning this behemoth of our rivers than any other fish. Its size and appearance dazzle the imagination and its flesh, cooked or smoked, is preferred by many over salmon. Sturgeon roe or caviar, of course, demands a gourmet price. In times past the notochord was used for soup and its swim bladder was used in manufacturing isinglass.

OREGON WILDLIFE

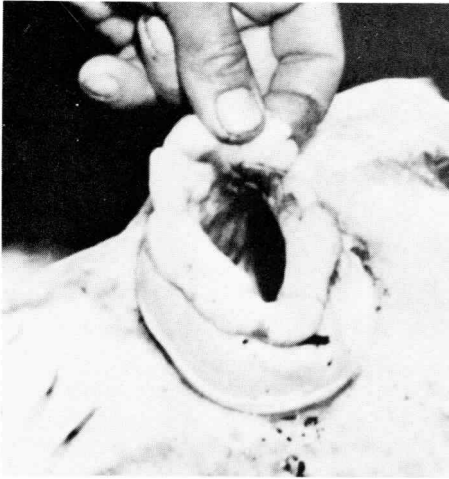
### DESCRIPTION

There are twenty-three species or subspecies of the Sturgeon family (Acipenseridae) that occur in Asia, northern Europe and North America. On the Pacific Coast we have two species, the white or Columbia River sturgeon, *Acipenser transmontanus*, and the green sturgeon *A. medirostris* which range from central California to northwestern Alaska.

The green sturgeon spends most of its time in a marine or brackish water environment and is considered by most to be an inferior food fish and is of little commercial importance. This article primarily concerns the white sturgeon that is by definition an anadromous fish (goes from ocean to fresh water to spawn) although

some never go to the ocean.

This prehistoric fish originated in the upper Cretaceous period in the Mesozoic Era from 1-2 million years ago. Like sharks, they have remained relatively unchanged to the present. In this respect, we must consider them a very efficient organism. The body is long and cylindrical and bears 5 widely separated rows of pointed, bony shields called scutes. Scutes are recurved and extremely sharp on young fish, becoming worn and smooth in older fish. The head is covered with bony plates joined by sutures, the mouth is on the underside like a shark's only toothless, and is protrusible like a vacuum cleaner hose. The snout is flattened and below it are 4 sensory barbels or



A movie thriller about the sturgeon might appropriately be titled "Lips!"

whiskers used to detect food. The skeleton is cartilaginous except for membrane bones of the skull, jaw and pectoral girdle, and has no spinal vertebrae (instead it has a rod-like notochord). The back is grey, pale olive, or grey-brown; the underside a pale grey to white.

The largest white sturgeon officially recorded in the Northwest came from the Fraser River, B.C. weighing 1,800 pounds. A close second was the estimated 1,500 pound behemoth caught in the Snake River in 1928. Number three was a tie between the 1,285 pounder taken in Astoria and one 1,287 pound fish caught near Vancouver, Washington. Tales abound of huge sturgeon as long as commercial fishing boats (26 ft.), but these always got away! Several fish in the 900-1,000 pound category have been taken through the years, but must now be considered rare.

One of the largest taken recently was by a bank angler immediately below Bonneville Dam. It took 4½ hours to land and was 10½ feet in length (est. 500-600 lbs.) It now resides in the sturgeon pool at Bonneville Hatchery. Russia has recorded the largest sturgeon *Huso huso* at 3,221 pounds, with some reports of fish up to 3,500 pounds. Green sturgeon do not attain a size much greater than 350 pounds (7 ft.).

#### HISTORY OF EXPLOITATION

Sturgeon were dominant when white man first arrived on the Columbia River. In some places they were so numerous they caused con-

siderable damage to salmon gill nets. For years sturgeon were deliberately killed in attempts to eradicate them. Sturgeon were caught in all major types of salmon gear including gill nets, seines, fish wheels and traps, as well as Chinese gang lines and set lines. Sturgeon found limited use as food by early white settlers.

About 1800 a commercial fishery commenced and in 1888, a rail shipment of 94 tons of frozen sturgeon to the East marked the beginning of an important industry. Quick acceptance of smoked sturgeon and caviar stimulated rapid development of the fishery. By 1892, a peak production of 5.5 million pounds was reached. Despite heavy fishing effort in the next seven years, landings fell to 73,000 pounds and the fishery became an incidental one. Depletion was rapid because sturgeon were slow-growing and as large fish were taken, the average weight soon dropped from 150 pounds to 40 pounds.

Wherever commercially exploited sturgeon have been studied, there has been a history of great depletion, or virtual extinction. Because of their economic importance, their penchant for damaging nets, and man's ignorance of sturgeon biology, irrational utilization was seen worldwide. Pollution and dam construction further depressed stocks until emergency measures were needed to build up populations. Pollution clean-up, size regulations, complete fishing closures, and artificial culture (Russia) were instigated. Russia was so desperate for caviar that a plant was

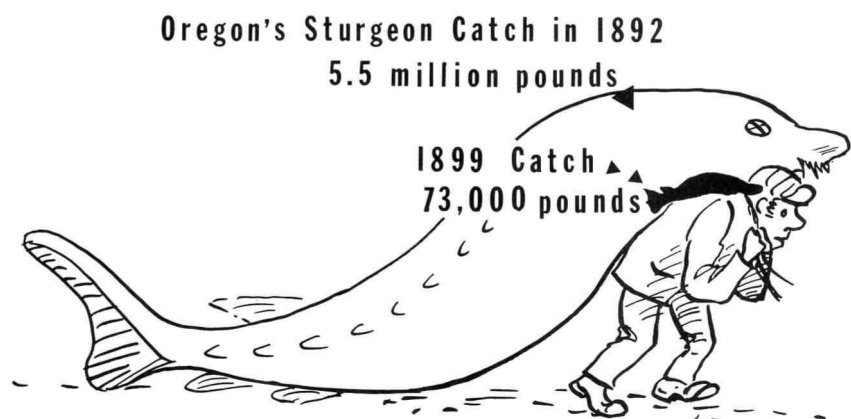
even constructed to produce artificial caviar from gelatin.

#### REGULATIONS

The sturgeon population in the Columbia River appears to be thriving under present fishing regulations. The Legislature, in 1920, established a minimum commercial size limit of 4 feet. The maximum limit of 6 feet was set in 1950 by joint administrative order of the Fish Commission of Oregon and the Washington Department of Fisheries. These limits were imposed on the fishery for two reasons. The lower limit allows a segment of the population to survive to become a replacement group in the stock. The male sturgeon matures at about 10 years of age (4 ft.) and females at 15-20 years (5-6 ft.). The upper limit provides protection to the larger fish, and the larger the fish, the more eggs they produce.

One of the *great myths* heard on the river is that sturgeon start out as males and change into females. This is true with shrimp, but *not* with sturgeon! This idea may have been fomented by the fact that the really large sturgeon are always females. The largest male ever recorded from the Columbia River weighed 267 pounds.

Commercial fishermen have advocated reducing the legal length to 3 feet. This would encompass age groups 8-11. Currently legal fish are in age groups 12-20, so the fishery has ample time to diminish their numbers. Reduction to 3 feet would result



Early day exploitation caused sturgeon declines in many parts of the world.

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in a smaller annual recruitment of weight increase between 3 and 4 feet than at the 4-foot limit (average of 5 pounds vs. 8 pounds). Commercial fishermen have also suggested a 42-inch limit. This would, of course, provide a few more fish to the catch. However, the problem of numerous 2-3 footers tangling in the nets would not be solved, and 42-inch fish would be available anyway in a year or two at a greater weight.

Our records indicate that most of the fish that are legal now (95%) are not mature. Therefore, the brood stock producing this abundance of small sturgeon is not being affected by the fishery.

The minimum size limit of 3 feet for sturgeon caught by anglers was established by the Oregon Game Commission. Their data showed that sport gear was quite effective on sturgeon 3-4 feet. At present there is an adequate supply of this size fish, but such might not be the case if both sport and commercial groups harvested them simultaneously.

## LIFE HISTORY

### Reproduction

Sturgeon are a relatively slow maturing fish. Maturity is delayed even further in colder areas such as the Fraser River, B.C. where females do not reach maturity until 26-34 years. Sturgeon spawn primarily in May-June when temperatures reach between 48 and 62 F. Adults survive spawning but repeat only after increasing intervals of 2-11 years. One female was reported to have contained 250 pounds of eggs. Females do not build nests, but seek fast flowing rocky areas of river of at least 10 feet in depth to broadcast their eggs in large grayish masses. The eggs become sticky when exposed to water and adhere to any material contacted.

A sturgeon can produce several million eggs and as the fish grows larger, the number of eggs produced increases in geometric progression. For example, in a similar species, investigators found that a 25-year-old fish produced 665,000 eggs, a 40-year-old produced 1,978,000 and a 50-year-old, 4,120,000, hence the need for protection of the large fish as brood stock. Large numbers of eggs are needed as probably less than 0.1% of

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Relatively little is known about favoured spawning areas in the Columbia River, but biologists hope to learn more in the near future.

the young survive their first year.

Only minor success was achieved during earlier investigations in the 1950's to determine spawning areas on the Columbia. A 2½-inch sturgeon and 5 larvae were found in the vicinity of Dodson, Oregon. Washington and Oregon biologists plan to search further this summer in an attempt to find eggs, larvae and fingerlings.

## FOOD HABITS

Sturgeon fry begin to search for small planktonic crustaceans as soon as their yolk sac is absorbed, then seek various aquatic insect larvae as they become larger. When about 7-9 inches (one year old) they become bottom feeders, eating mollusks, crayfish and fish. Sturgeon have very poor eyesight and feed by touch and smell. They are equipped with 4 sensitive barbels (whiskers) and when feeding, root in the mud with their snouts. When something resembling food is located, the sturgeon automatically protrudes its vacuum cleaner mouth and sucks the item in.

Although food consists mainly of animal matter, sturgeon are opportunistic and will try anything.

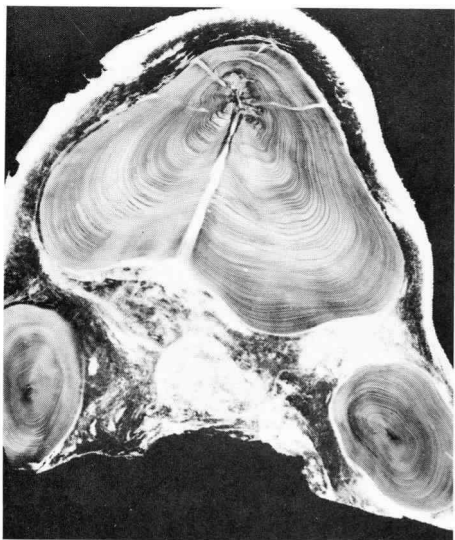
Sturgeon living near grain elevators or barges have been reported with stomachs full of wheat or corn. The stomach of one now famous stur-

geon on the Snake River contained half a bushel of onions. That is one fish that probably wished for a pack of antacid tablets. Fine gravel and coarse sand are swallowed for use in grinding other food items. Fragments of freshwater clams are ingested for the same purpose but can be partially digested to provide calcium.

Food availability changes by season according to runs of various anadromous species. When smelt appear in the winter and spring in the lower Columbia River, they constitute the most important food item. The largest number of smelt recorded was 109, taken from the stomach of a 50-inch, 58-pound sturgeon. These oily fish add great quantities of fat to sturgeon which makes the flesh strong tasting to some people.

Shortly after smelt, the Pacific lamprey enter the river and since lampreys attach to rocks, sturgeon have no trouble catching them, or devouring them dead after they have spawned. Lamprey larvae remain burrowing in the mud for several years and provide sturgeon with good pasture throughout all seasons.

Sturgeon also feed heavily on carcasses of salmonids. Unfortunately, (fortunate for the sturgeon) upstream adult and downstream juvenile migrants are killed at dams



Microscopic examination of a fin-ray cross-section gives information about sturgeon growth and age. This section came from the 82-year-old sturgeon shown below. It was taken near The Dalles in 1951 by a Yakima Indian.



and provide food. Sturgeon have also been reported to lie off mouths of hatchery streams and eat released fingerlings. Probably most of these are weak or injured as healthy fish can usually escape from a fish adapted for scouring the river bottom.

### AGE AND GROWTH

Sturgeon do not have scales so we determine their age by removing a small portion of the first ray of the pectoral or front fin. This does not harm the fish when carefully removed a short distance from its attachment with the body. If the fish is dead, the entire fin is removed. A portion of the fin is placed in a vise and a cross section is cut with a jeweler's saw. This section is polished and placed under a binocular microscope at about 3X magnification using polarized light.

In the accompanying photograph one can see the center of ossification followed by the first winter ring, second ring and so on. These narrow zones correspond to the period of metabolic inactivity during the winter. The wide zones are the result of an abundant formation of connective tissue during the spring and summer (food abundant) months which is converted later into bone tissue. Time of spawning can also be determined on sections. This classic photograph was taken from a fin section of a 900-pound, 11½-foot sturgeon caught by a Yakima Indian at The Dalles in 1951. This fish was determined to be 82 years old and contained 150-200 pounds of caviar (eggs).

Because of lesser quantities of food available, sturgeon grow more slowly above Bonneville Dam than below. A fin section taken from a 10-foot sturgeon from below Bonneville last summer showed relatively rapid growth. The fish was only 30 years old. Based on information collected in the 1950's, we had expected it to be about 40-50 years of age. This is probably due to larger smelt runs and increased mortalities on salmonids providing more food.

Tag returns from several tagging studies indicate that sturgeon grow about 3 inches per year. During the first year of life he grows about 7-9 inches, then growth slows. There is considerable variability in growth of

individuals within age groups. Many factors, including food, environmental changes, and variations in genetic characters is involved in the physiology and behavior of the fish.

### PARASITES AND DISEASES

Two parasites are common in Columbia River white sturgeon, one small round worm and an oval-shaped cestode. The latter resemble liver flukes but are cream to lemon-colored and are found in the body cavity. These parasites concern anglers but are harmless to humans. In Italy and southern France, similar parasites were considered a delicacy and were known as "macaroni". Due to their high price, the Italians developed a substitute and began to make macaroni from flour which is now used all over the world — I prefer that kind! I have seen a few small sturgeon with *Cystoopsis* (roundworm) blister — like cysts along the lateral line. These blisters look like those formed on salmonids by nitrogen supersaturation, but contain a male and a female roundworm in each.

Sturgeon also have fatty lesions or tumors composed of mature fat cells and fibrous connective tissue. These are not harmful to man but obviously tumors are cut off and thrown away before eating the fish. Field studies on carcinogenic chemicals and their effects on sturgeon are being conducted on the Columbia by the U.S. Fish and Wildlife Service.

### TAGGING

In the fall of 1949, Oregon Fish Commission biologists under the direction of Dr. Alex Bajkov began studies to obtain life history information on Columbia River sturgeon. Over 7,000 sturgeon were tagged and fin samples were taken to determine ages. The Washington Department of Fisheries and Oregon Department of Fish and Wildlife have, during recent years, tagged several thousand sturgeon to obtain more applicable data on a changing river system. The U.S. Fish and Wildlife Service is tagging sturgeon in pools behind Bonneville, The Dalles and John Day dams. Idaho is conducting studies on the Snake River using radio tags. Additional information derived from these programs will enhance our knowledge of sturgeon. Unfortunately the

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Oregon and Washington studies are "in addition to other duties" type of projects with no full-scale funding available.

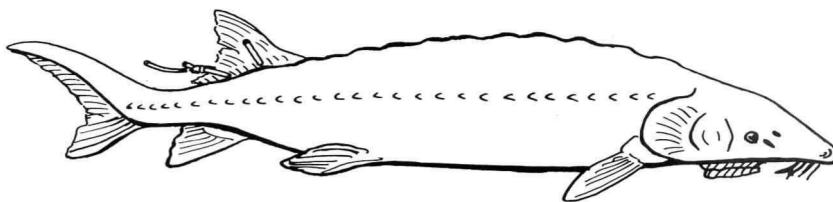
Several types of tags have been used, the most recent being a plastic tube lock-on tag which is easy to apply. Recoveries have been about ten percent of those released, with most recoveries being turned in by anglers below Bonneville. A recovery from Grays Harbor, Washington, about 150 miles away, was a modern record for travel. It was topped recently by an Oregon State University professor angling for sturgeon to tag in the Yaquina Bay estuary. He captured one of our tagged fish which had traveled 300 miles.

Fishermen are asked to return all tags from legal size fish to the address on the tag. If an illegal sized sturgeon is caught with a tag in it, the angler should leave the tag, or tags, in the fish, record the number and notify an agency.

Studies have revealed the following:

1. Sturgeon migrate upstream during the fall of the year and beginning of winter.
2. They change course and begin to move downstream during the second part of winter and spring.
3. Some sturgeon do not migrate at all. However, it is often difficult to tell whether a fish has moved. It may be captured in the vicinity of tagging, but may have made several trips up and down the river.
4. These migrations are undoubtedly connected with feeding habits. Sturgeon meet the smelt and follow salmon and lamprey later in the year.
5. The above mentioned migrations are very pronounced in the 140 miles of river between Astoria and Bonneville.
6. We know that many sturgeon migrate to and from the ocean, but many never reach the ocean.
7. Bonneville Dam represents a nearly impassable barrier to migrating sturgeon. A few are able to pass and in the past, several hundred were trapped at elevators and put above Bonneville. Bonneville Dam essentially separates white sturgeon into a

**OREGON WILDLIFE**



## ATTENTION FISHERMAN

**Sturgeon Have Been Tagged in the Columbia & Willamette Rivers. In Some Cases Two Different Types of Tags are on a Fish.**

IF YOU CATCH A TAGGED FISH & IT'S NOT OF LEGAL SIZE (3'-6'), PLEASE DO NOT REMOVE TAG! Please record:

1. Tag Number & Color
2. Date and Location Caught
3. Length & Weight (if possible)
4. RETURN THE FISH TO RIVER
5. Return Information to Department

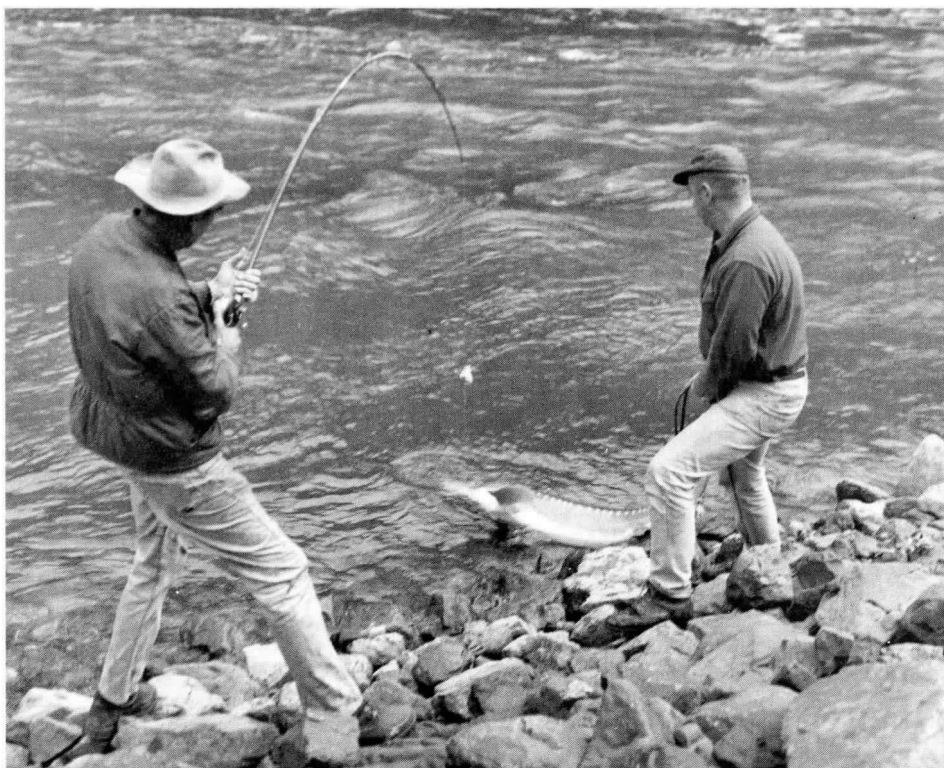
IF THE TAGGED FISH IS OF LEGAL SIZE & YOU WISH TO KEEP IT, PLEASE RETURN THE TAG WITH THE ABOVE INFORMATION TO:



OREGON DEPT. OF FISH AND WILDLIFE  
P. O. Box 3503  
Portland, OR 97208



WASHINGTON DEPT. OF FISHERIES  
2300 East Second St.  
Vancouver, WA 98661



Forget the net. Sturgeon this size are landed by roping the tail and dragging them ashore. Those smaller than three feet and larger than six must be released.

lower stock, and an upper one composed of several isolated populations in pools above each dam.

8. There are indications, based on several recaptures, that seasonal migrations also take place above Bonneville Dam.

Hydroelectric projects have isolated the middle Snake River sturgeon population by restricting movement into or out of the Hells Canyon area. These same projects have drastically reduced the abundance of anadromous salmonids and lampreys which diminished the food supply. In addition, power peaking may have reduced the usable habitat for aquatic insect larvae and freshwater mussels. Researchers in Idaho fitted ten sturgeon with radio transmitters before the filling of the reservoir behind Lower Granite Dam. Nine of ten moved upstream about 25 miles where there is considerable current, showing a preference for river rather than reservoir environment. The primary holding habitat for sturgeon was in deep holes between rapids. Small sturgeon preferred large sandy bottomed holes in the downstream section of the river. Middle size and large fish, which were better able to swim in turbulent water, were found near rapids in the canyon.

Studies also indicated that sturgeon are reproducing successfully in part of the Snake River. Areas containing small sturgeon show that adult sturgeon continue to find areas to spawn in spite of dam construction. Small sturgeon are reported to go over spillways adding strength to the theory that these areas are helping to "seed" some of the lower reservoir pools. Most of the environmental factors and fish preferences described in the Snake River studies can be applied to lower Columbia areas.

### THE FISHERIES

Sturgeon are taken commercially by gill nets and set lines. Modern day landings below Bonneville have fluctuated between 140,000 pounds and the record high of 732,000 pounds (14,000 fish) taken in 1976. The treaty Indian set net and set line fisheries harvest about 600-1,000 sturgeon per year. The sport fishery for sturgeon has been increasingly good for the last seven years. Sport

catch estimates are minimal as they are based on a 7-9 month sampling program and sturgeon are caught all year.

Year	Sport Catch	Commercial Landings
1972	5,000	7,600
1973	9,800	10,700
1974	9,900	10,700
1975	10,800	14,000
1976	14,800	22,500
1977	22,300	9,000
1978	29,200	est. 7,000-9,000

The recreational catch has been sampled more intensively in recent years, but data are adequate to demonstrate a marked increase in numbers caught.

### OUTLOOK

Factors which appear responsible for an improved sturgeon population

are (1) length limits of 36"-72" for anglers and 48"-72" for commercial which protect small fish and fish of spawning ages; (2) improved smelt and shad runs, abatement of pollution; (3) and changed attitudes by most commercial and sport fishermen.

Adherence to regulations by those individuals who still insist on taking or destroying under- or oversized fish would make things even better for future users of this resource. At this writing, the Columbia River is considered to have the largest population of sturgeon in the world — exclusive of Russian waters. Russia has found it necessary to go to artificial production, i.e. fish farms and hatcheries to rebuild sturgeon populations. We have our hands full enough with salmonid hatcheries. □

## Hunting Dates Update

The schedule for setting hunting regulations this year is a bit different than it has been in past years, and a number of hunters have been left in confusion. A review of what seasons and dates have been set and of the schedule for setting other regulations may help.

The only seasons that have so far been set in their entirety are the bear seasons. The season for taking bear is shorter than it has been in past years and runs from September 1 through November 30. Bear tag sales will end August 31.

Two pursuit seasons which will permit training of dogs and photography of bears but in which bears may not be killed or harmed were also set. The first will take place from April 1 through April 30 in Alsea, Saddle Mountain, Stott Mountain, Trask and Wilson units. The second will run July 1 through August 30 statewide.

A printed bear regulations flyer will be available from license agents by about March 15 and seasons will also be listed in the general season big game hunting regulations to come out later in the year.

Dates for general bull elk hunting regulations have been set, and the determination has been made that

there will be no quota on general season bull elk hunting at least for this year. *But all other regulations pertaining to elk hunting* will not be set until late May when big game hunting rules have been traditionally set. The early setting of dates was done because a decision was needed whether there would be a split season or not so that tags could be ordered from the printer.

There will be split seasons for both Roosevelt and Rocky Mountain elk hunting (that is, two seasons for each species with the hunter to choose one when he purchases his tag at a license agency). Dates are, for Rocky Mountain elk, October 27 through October 31 for the first period and November 3 through November 11 for the second period. Roosevelt elk season will run November 10 through November 13 for the first period and November 17 through 23 for the second.

There may still be special regulations relating to antler points, quotas in some units and other restrictions, but that has not been determined at this time and any staff or Commission proposals will be publicized prior to the May hearing.

Opening dates have been set for some other major seasons. They are August 18 for antelope, September 29

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for deer (both black-tailed and mule) and October 13 for pheasants. Opening date setting for deer and elk bowhunting was delayed until March 15. At that time, the Commission will also be considering a bowhunting deer tag similar to the one now available for elk hunting. If adopted, it would make the hunter choose whether he would hunt deer with a bow or with a rifle, not both. The Oregon Bowhunters are expected to discuss this measure at their annual meeting in Bend on March 10.

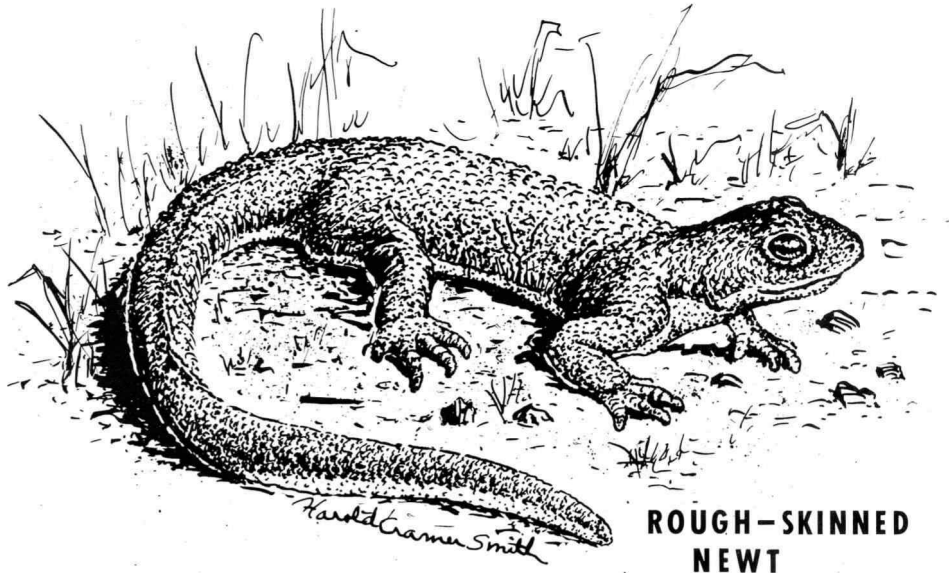
The seasons for hunting antelope, cougar and bighorn sheep will also be set following a public hearing on March 15. Traditionally these seasons have been set in late May. The earlier regulations hearing will enable printed regulations to become available earlier, move drawing dates up, and give the Department more time to get tags to hunters well in advance of season openings. Printed regulations for these hunts are expected to become available at license agents by about the first week in April. The application deadline would be late in April and the drawing would take place in about mid-May.

The public hearing and regulations meeting for setting remaining big game hunting seasons is scheduled for May 26. At that time, remaining elk regulations, deer hunting season regulations, seasons for muzzleloading rifles and bowhunting, road closures, firearms regulations, seasons for hunting silver gray squirrels, etc. will be set.

This year an attempt will be made to include both general season and controlled hunt regulations for deer and elk, along with other rules pertaining to big game hunting in one regulations publication. Plans call for a management unit map with boundary descriptions to also be included in this publication, which should become available at license agents about mid-June. Application deadline for deer and elk controlled hunts would probably be about the first week in July with the drawing in early August.

Upland bird, waterfowl and furbearer seasons will be set following a public hearing on August 17, and printed regulations will be available from license agents before September 1. □

## OREGON WILDLIFE



**ROUGH-SKINNED  
NEWT**

## THE PACIFIC NEWTS

An amphibian is a creature of both land and water. It lives two lives and is perfectly adapted to neither existence. Among the animals caught between the worlds of fish and reptiles are the salamanders.

In Oregon, the most common member of the salamander family is the rough-skinned newt. The newt may best be described as a lizard that swims. Born as a gill breathing fish creature, the newt develops into an air breathing adult able to move on land for extended periods.

Preferred land habitat is dark moist places such as rock crevices, under rotten tree bark or beneath logs and rocks. Newts must return to water to reproduce, however, and the water is where these animals are most often seen, many times in very large numbers.

Oregon's newt, like much of the human population, is found mostly west of the Cascades. Pond margins and the shallows of slow moving streams will reveal many of these creatures during the December to July breeding season. Newts are especially common on the well watered Oregon coast.

Where habitat is suitable, the newts will prosper with little competition from other creatures and only minor disturbance from predators. The reason for the success is a nerve poison many of the salamanders contain beneath the skin. The poison is thought to effectively prevent potential predators from developing an appetite for newts.

The rough-skinned newt is also the most widely distributed of the Pacific Coast newts. Its range extends from southern California to southeastern Alaska. Two other west coast species are found mainly in California.

The state's only newt is a basic two-tone model with the back and side color ranging from black to olive and the belly varying from bright orange to yellow.

The newt is a relatively long-lived animal with a life expectancy of up to 12 years. Food may be any animal matter available. Of special interest are eggs of other water creatures such as frogs, fish and mosquitoes. The latter choice of diet makes the newt an ally of man.

Newts may be kept in an aquarium. The recommended diet, according to one reference book, is raw hamburger on the end of a toothpick or a dangling thread. □

*Jim Gladson*

# Support Watchable Wildlife

"I support watchable wildlife." With that slogan and a poster, the Fish and Wildlife Department has launched a new program to benefit the nonhunted species of wildlife in the state and provide more opportunities for the public to view and learn about them.

Through the Watchable Wildlife Program, the Department is attempting to enlist the financial support of the public — hunters, non-hunters and even anti-hunters — in an effort to create more habitat for those species we all enjoy seeing and having around.

For many years the funds for wildlife management have come entirely from hunters through licenses, tags and taxes on sporting equipment they use. Because of this, most of the work has been directed toward game species. Although a great many nongame species have benefited from habitat improvement accomplished for game species, little has been done directly for nongame.

Since most everyone — not just hunters — enjoys and benefits from having nongame wildlife around, attempts have been made in the past to obtain some revenues from general state tax monies for support of nongame wildlife programs. But in times of other priorities, these attempts have essentially failed.

Through the Watchable Wildlife Program, contributions from the general public are being solicited to be spent on projects aimed directly at improving habitat for nongame or "watchable" wildlife and also to provide places and opportunities for people to see wildlife.

The Watchable Wildlife Program is an avenue for those with an interest in wildlife, whether they hunt or not and regardless of their views on hunting, to do something in a positive way for those species that have received relatively little direct management attention in the past.

An attractive 8½ by 14-inch poster with a pen and ink drawing of a raccoon by artist Sharon Torvik has been printed. The back of the poster



## SUPPORT WATCHABLE WILDLIFE

contains information about the program and a coupon to aid in making contributions. Official kick-off of the program will come during National Wildlife Week March 19-24.

So where will these projects take place? All over the state. Here are a few of the projects that have been designed.

- Northern Willamette Valley - Construction of trails through habitat planted to attract a wide variety of birds. A viewing and interpretive center on land owned by the Department of Fish and Wildlife on Sauvie Island.
- Southeastern Oregon - Development of water holes and cisterns for bird and small animal use and creation of nearby viewing opportunities.
- Northeastern Oregon - Publication of bird and wildlife lists, self guiding trail directions, and necessary signing on existing trails on Ladd Marsh and Sumpter Valley areas.
- Southern Willamette Valley - Construction of osprey nesting structures at Fern Ridge Reservoir.
- Central Oregon - Development of trails and guides for viewing on the National Grasslands at Rim Rock Springs.
- Southwestern Oregon - Development of trail guides and bird lists for Denman Wildlife area.

These are just a few of the projects that have been proposed. More projects have been suggested in all areas of the state. The opportunities are virtually limitless.



OREGON WILDLIFE

# OREGON HUNTING ACCIDENTS — 1978

by Tony Faast  
Hunter Education Coordinator

Oregon hunters were involved in 50 firearms accidents last year with five of them fatal. While this total is up from the 1977 total of 41 accidents, it is still remarkably low considering the number of hunters in the field each year.

Over 400,000 hunters annually take to the field with firearms in hand. This year those hunters had longer seasons and more hunting opportunity than in any of the last 10 years!

Predictably, a majority of the 1978 accidents were self-inflicted (52%) while those involving a hunting partner add another 36%. It's still true that you and your hunting partner are your own greatest potential threat. If you both practice basic safe gun handling rules, your chances of having a firearm accident in the field are almost nil. The chances of an unknown hunter wounding another at long range are extremely low, as most of the accidents (78%) occurred at a range of less than 3 yards.

Handguns took their usual toll (24%) in these accident statistics. While no game animal, except the silver gray squirrel can be hunted with a handgun, many of them are being carried by hunters, with a number of accidents occurring as a result.

Reasons for these casualties are many, but most occur from lack of attention to the basics of safe gun handling. If only the basic rule of WATCH THAT MUZZLE were followed, most of these accidents would never have occurred. It's that momentary lack of concentration when entering or leaving a vehicle, negotiating an obstacle, loading or unloading a firearm that causes most accidents.

The treatment here of these accidents in terms of percentages and averages sometimes seems rather cold. A realization that each of these accidents caused considerable pain and suffering to each victim is often overlooked. The accompanying anguish and sorrow wrought on the family, friends and hunting companions is also very real. We can all use

a reminder that *everytime* we pick up a firearm there is a potential for a serious accident, but if we watch out for ourselves, our hunting partners and the muzzle of our firearm, we are well on our way to becoming safe and responsible hunters, not a casualty statistic.

## Oregon's 1978 Hunting Casualties

<b>Total Casualties</b>	<b>50</b>	
FATAL	5	10%
NONFATAL	45	90%
Self-inflicted	26	52%
Hunting partner	18	36%
Other shooter	6	12%

## Ages Of Shooters (Including Self-Inflicted)

- 19	26	52%
20 - 29	14	28%
30 - 39	2	4%
40 - 49	2	4%
50 - 59	0	0%
60 - 69	1	2%
Unknown	5	10%

## Distances

Less than 3 yards	39	78%
3 - 25 yards	5	10%
26 - 50 yards	3	6%
51 yards and farther	3	6%
Unknown	0	0%

## Hunting Equipment Involved

Handguns	12	24%
.22 caliber	11	
other	1	
Rifles	25	50%
.22 caliber	8	
High power	17	
Shotguns	11	22%
Muzzleloaders	2	4%



In Union County alone, more than 41,000 pounds of alfalfa hay and nearly 39,000 pounds of specially formulated deer pellets were fed by mid-February.

## A COLD DAY IN HELL

In northeast Oregon it's been cold. And it's been hell for the deer, elk, birds and other wildlife trying to survive weeks of continuous below freezing weather, deep snow and frequent winds which cause the cold to be even worse than the mercury indicates.

The weather moderated during February, but December and January took their toll of wildlife populations. The strong animals got weak and the weak ones simply died. What the losses will amount to when the spring tallies are made is unknown at this point, but there have been heavy losses in some areas and the winter is not over yet. At this writing, there

are deer fawns which will die before spring no matter what the weather because they have reached a condition from which they simply cannot recover.

Massive feeding programs took place during the cold weather in the worst hit areas. The Department used nearly all available funds for hay and deer pellets, and many citizens groups pitched in to raise more money to buy additional food. Still, feeding programs can only help the animals that can be reached, and those amount to a small percentage of the total.

In weather such as was felt in the Powder River drainage and in other

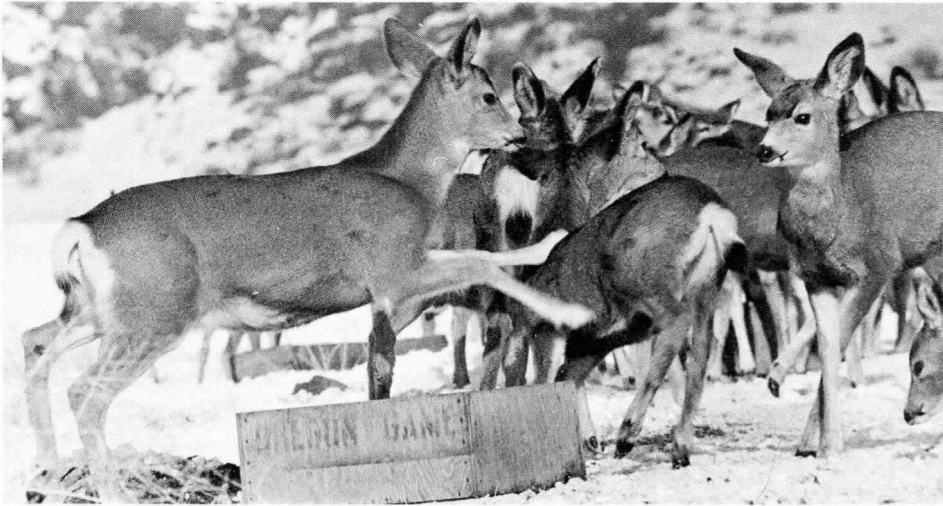
areas, even feeding programs cannot stop the deterioration in an animal's physical condition, but can only slow it down as the bitter cold saps reserves of fat. An animal's energy is simply tapped faster than calories can be replaced.

Wallowa, Union, Baker and Grant counties are apparently the hardest hit. There have been isolated problems elsewhere, and some winter loss throughout all of eastern Oregon as there is during the pinch period every winter. □

*Ken Durbin*



When deer are in trouble, the partridge aren't having any fun either.



Disney never showed you this. A doe kicks a fawn away from the feed box. Survival is the game and motherly love goes out the window.

Photos by  
Mike Kemp and  
Mark Henjum



Feeding helps only those deer that can be reached; a small percentage of the total.



Examination of the leg-bone marrow tells the biologist that this fawn was near starvation.

MARCH 1979



# THIS AND THAT

*compiled by Ken Durbin*

## Wild Smarts

This comes from Colorado Outdoors, and it's a sobering bit of information for smug hunters.

Do calf-roping freaks know more about wildlife than trophy hunters? Well, according to a recent study by Stephen R. Kellert of Yale University's School of Forestry and Environmental Studies, they sure do.

In part of his study, Kellert divided Americans into eleven interest categories, such as bird watchers, backpackers, antihunters, animal raisers and three groups of hunters, depending on reasons for hunting — communion with nature, sport or meat. Then, they were exhaustively tested on their knowledge of wildlife.

Bird watchers scored nearly twice that of any other group. Next, unexpectedly, came rodeo enthusiasts, followed closely by nature hunters. The two groups with the least wildlife knowledge? Antihunters and sport hunters.

*Outdoor Oklahoma*

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## Do It Yourself

A new publication that describes how to create and maintain wildlife habitat in urban and suburban areas has been released by the U.S. Fish and Wildlife Service and the Urban Wildlife Research Center.

"Planning for Wildlife in Cities and Suburbs" is a 64-page manual which explains how to include wildlife considerations in development planning programs.

Copies are available from the Information Transfer Coordinator, Office of Biological Services, U.S. Fish and Wildlife Service, Washington, D.C. 20240. Copies may be purchased for \$2.40 from the U.S. Government Printing Office.

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## Hawaiian Bird Joke

Condominiums are springing up all over Hawaii and sprawling developments are displacing pineapple and sugarcane fields. Worried conservationists there say Hawaii has a new unofficial state bird: the building crane.

*Audubon Leader*

## Speedy Sex Changes in Fish

Many fish are capable of making a complete sex change while adults. One of the speediest examples is the Pacific wrasse. After a two-year study on the Australian Great Barrier Reef, researchers have documented such changes which take only two weeks. Male wrasses guard territories with harems of from three to six smaller females. If the guardian male dies, neighboring males try to take over. If the dominant female is able to rebuff the males she will begin to change her sex from female to male within less than one hour of the death of the original male. Within two weeks the change is complete and the new male is capable of producing viable sperm. Such a sex reversal seems to be controlled socially. Each male controlling a harem suppresses the subordinate females' tendency to change sex by actively dominating them. Males are produced only when a fish can successfully establish itself as a harem owner.

*Texas Parks & Wildlife*

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## Man-Of-War Serum Being Developed

The University of Southern Florida is seeking to isolate the toxin contained in the man-of-war's venom and use it to develop a serum for treatment of stings.

*Texas Parks & Wildlife*

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## Save Energy, Eat Cottage Cheese

If your New Year's resolution was to shed those nasty pounds added during the holidays, you may be unconsciously aiding the nation's energy-saving campaign. Although the Yule season may have outdated their figures, two nutrition and energy specialists at the University of Illinois say that Americans, as a whole, are 2.3 billion pounds overweight. Nine hundred thousand cars could be fueled for a year on the gasoline that might be saved if Americans ended their gluttony and maintained their optimum weight. Using data from the Public Health Service, the two calculated the national calorie savings that would result if the estimated 110 million overweight adults dieted for six months — a scale breaking 5.67 trillion calories.

*Conservation News*

## City is a Sanctuary

With the aid and encouragement of the Blue Mountain Audubon Society, Walla Walla, Washington, has officially designated itself a bird sanctuary. It was the first city in that state to take this action to promote interest in wildlife and remind people of the laws protecting birds.

*Audubon Leader*

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## Nebraska Habitat Program Grows

The Nebraska Game and Parks Commission is making good progress protecting wildlife habitat with funds provided by a 1977 law which requires sportsmen to purchase a Habitat Stamp along with hunting and trapping permits. Thus far the stamp has raised \$1.6 million and consequently 30,000 more acres are managed for wildlife.

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## Alternative to Pesticides Described

Insect pests cause considerable trouble, destroying crops and carrying disease. But the chemical poisons used to kill them can be just as harmful to the air, water, and people.

There is a safer, more natural way to control insects, according to a new publication from the National Wildlife Federation. "Fighting Pests with Pests" — available free for the first copy and 20 cents for each additional copy — is designed to show children why more and more farmers in the United States are using the natural enemies of pests instead of harmful chemicals to protect their crops.

This new method is called "pest management" and relies on the "three Ps" — insect predators, parasites, and pathogens. "Someday pest management may make most poisons unnecessary," the eight-page illustrated pamphlet suggests.

Included in the National Wildlife publication is a chart that lists 34 common insect pests and natural ways to control them. For example, chinch bugs can be kept away from corn by planting soybeans nearby as a "trap plant".

To order copies of "Fighting Pests with Pests" write the National Wildlife Federation, Dept. PW, 1412 — 16th Street NW, Washington, D.C. 20036.



*Oregon's*

# WILDLIFE WINDOW

March marks the birthday of spring. Days are noticeably longer. Warm ones are more common. Even without a calendar to remind us of the date, we would still feel the restlessness spring brings and know it is time to get busy. Like the animals, man also senses the awakening of a new season.

Hibernation is coming to an end for many creatures. Frogs are already singing their evening melodies around some of the ponds. There seems to be a distinct order in which animals emerge from their winter sleep too. Frogs appear early and seek out the open water so breeding can begin before the snakes appear. There is a distinct survival advantage in getting the eggs laid before predators arrive.

Outside our window, the birds are already claiming territories. Northward migration has begun for others. Most of the secrets to why and where birds migrate have been learned. Precisely what mechanism triggers migration and how birds navigate between summer and winter homes is not well understood. Photoperiod or length of day has much to do with regulating life cycles. Progressive changes in day length remain constant even though spring weather may vary greatly from year to year. It is not uncommon for birds to encounter severe weather conditions during migration because it was not weather that governed their urge to move.

Experiments with photoperiod indicate it stimulates a number of both  
**OREGON WILDLIFE**

plant and animal activities. Certain flowers can be "pushed" into bloom in the spring by use of artificial light and warm temperatures. Animal species can be made to show migration, breeding or nesting activity when subjected to additional light also. Simple experiments on the effect of photoperiod can be designed for the home or classroom. Remember the effect in nature is a gradual and steady change. Include some form of timer or measuring method to insure a progressive increase for plants or animals whose timing you may wish to alter.

You will be noting some new species of birds arriving outside your window in the next few weeks if you have not already. Give them a hand by providing a comfortable nesting box. You will also gain hours of educational pleasure from watching activity around the birdhouse. Don't delay in building however. Claiming of nesting areas is already under way. If your house is not ready soon, they will go elsewhere. An information leaflet on birdhouses you can build is available free from the Department of Fish and Wildlife. Write us at the Wildlife Window for your copy. □

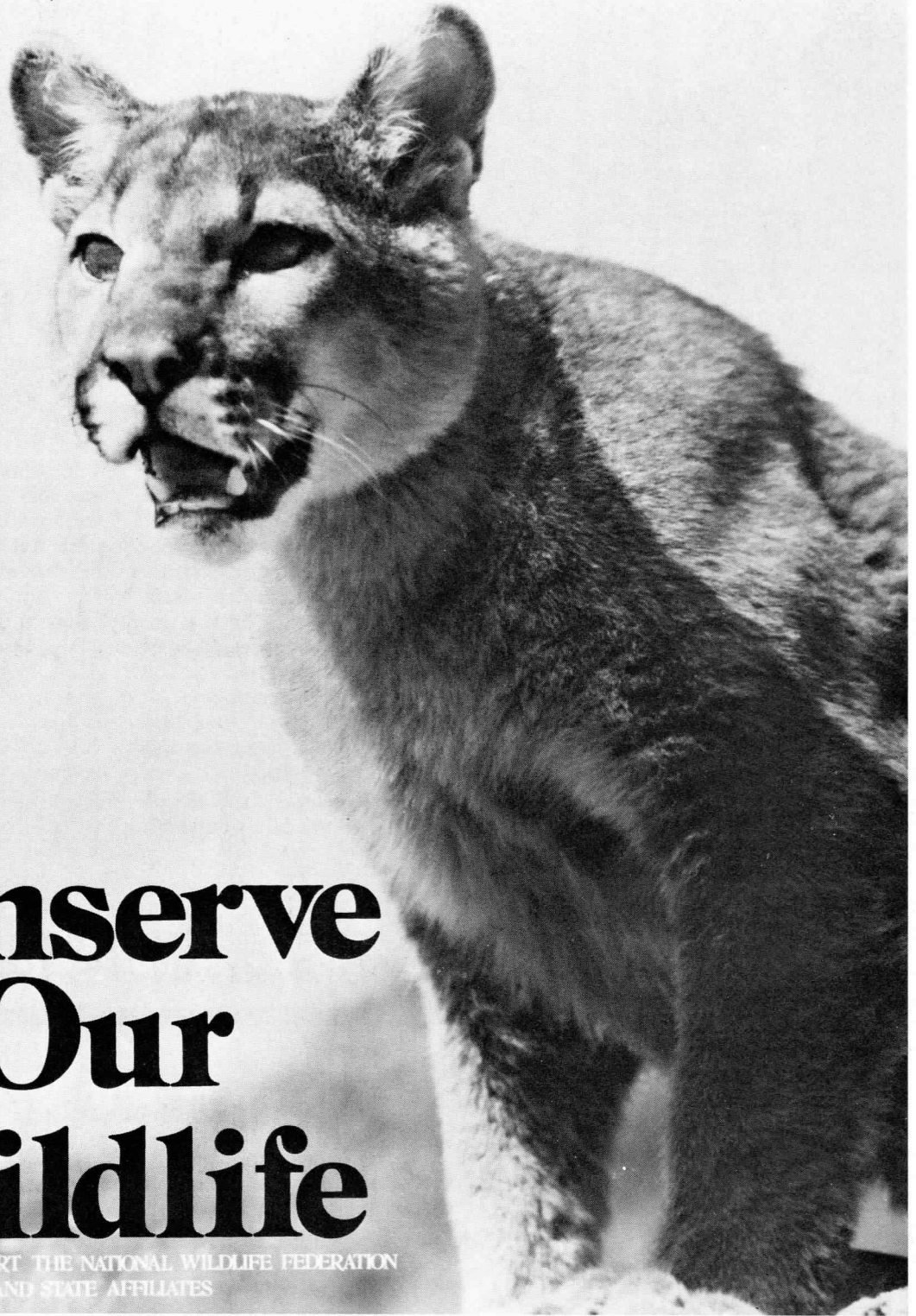
## *THIS MONTH'S WINDOW*

### **Homemaking**

**Study about the various kinds of nests birds make. Select a favorite bird. Using the back of a wooden clothespin or tweezers, simulate the bird's bill. Now construct a nest like your bird would make out of materials in your area. Do it outside or gather necessary materials and try it indoors.**

**Find some scrap lumber if possible. Cedar is best. Recycle it into a birdhouse. Place it where you can observe and study the birds using it. □**

**NATIONAL WILDLIFE WEEK MARCH 18-24, 1979**



# **Conserve Our Wildlife**

JOIN AND SUPPORT THE NATIONAL WILDLIFE FEDERATION  
AND STATE AFFILIATES



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

