



OREGON WILDLIFE

FEBRUARY 1982

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Cover — Oregon's timber is one of its most valuable assets. How it is managed and harvested has a major impact on fish and wildlife. See Dan Carleson's story on the facing page.

Photo by Dan Carleson

HUNTER EDUCATION
PROGRAM
INSTRUCTORS APPROVED
Month of December 6
Total Active 1,607
STUDENTS TRAINED
Month of December 408
Total to Date 289,952
HUNTING CASUALTIES
REPORTED IN 1981
Fatal 4
Nonfatal 33

Page 2

IRRUPTIONS

No, we're not going to talk about Mount St. Helens and the recent eruptions. Instead a look at what has happened in one of our neighboring states. One edition of Webster says that irrupt means, "to undergo a sudden upsurge in numbers, especially when natural ecological balances and checks are disturbed." This business of natural balances and the beliefs that they are neat, stable, predictable things is what prompted our comments.

If you have been paying any attention at all to the news media recently, you have probably heard about the Idaho ranchers and their jackrabbit roundups. We note that the most recent development is a lawsuit by one of the preservationist groups to have the courts stop the actions of the ranchers. But that is another story.

We were asked by one individual if this great irruption in rabbit numbers could be attributed to the continuous trapping and killing of coyotes in the area. This question harks back to the idea that the balance of nature is a stable thing with every creature having just the right number of prey species to feed on. In a recent Wildlife Window in this magazine, Cliff Hamilton pointed out that this balance is no such thing, but more akin to a teeter-totter or a wildly gyrating mobile hung from the ceiling of a drafty room.

However, it seems to bear repeating that natural populations of animals fluctuate up and down even in situations where man has not exerted any influence. Jackrabbits are known to be cyclic. As is the case with a number of other species, their populations fluctuate rather dramatically for reasons not completely understood.

The predator populations utilizing these outbreaks are always a generation or two behind the rabbits. It has been found that coyotes that have plenty to eat will have larger litters, while those on slim rations will have smaller families. So with average numbers of rabbits, the coyotes will have average sized litters. As the rabbit numbers increase, so does the size of coyote litters. However, there is a lag in the buildup of coyote numbers.

Gradually, the coyotes might increase enough to have an impact of sorts on the rabbit populations. By the time such an impact occurs however, the rabbits may already be on a downward spiral because of disease or other factors. The result then may well be too many coyotes for the rabbit food supply. In that case, the coyotes may turn to other less available sources of food and some of the excess coyotes will starve. Gradually the coyote population declines as the litter size drops and the cycle is back to the starting point eventually.

It is rather unfortunate that the phrase "balance of nature" was coined. The basic idea that there is a great amount of interdependence between species is a valid one. But the idea that has been accepted by many that this is a smooth, unchanging arrangement is simply not the case. Rabbits have irruptions, droughts and winter conditions kill untold numbers of birds and animals and all sorts of natural causes change animal numbers. The change in prey numbers causes a subsequent change in predator numbers. It is a complex, never ceasing milieu of change . . . anything but a stable balance.□

R.E.S.

COMMISSION MEETING

The Fish and Wildlife Commission will conduct a meeting on Friday, February 19 at Fish and Wildlife Department headquarters, 506 SW Mill Street in Portland. Public hearings will be held on falconry regulations and on the Department's proposed coho plan. The meeting will begin at 8 a.m.□

FEBRUARY 1982



Unmerchantable logs left on-site after logging make good wildlife habitat for many years.

FORESTRY AND WILDLIFE HABITAT

by Dan Carleson
Environmental Management Section

When the early settlers arrived in western Oregon much of the land was covered with dense forests. Fish were abundant in the cold, clear streams. Deer and elk were common near the forest openings caused by wildfires.

A seemingly endless supply of trees was cut to provide lumber for construction projects and housing, and firewood for heat. Thousands of acres were permanently cleared to be replaced by agricultural crops and more forest lands were repeatedly set afire to create grazing lands.

As Oregon and the rest of the nation grew, the demand for lumber increased. Employment in the woods and mills flourished. Huge log rafts were towed down the Columbia to markets in the southwest and trainloads of lumber were shipped toward the east.

Game animals were more abundant on the recently logged lands and there was little concern then for the nongame populations since so much of the forests remained wild and untouched.

Times have radically changed forestry management. The forests

are intensively managed to increase wood fiber production. The use of fertilizer, herbicides, genetically superior tree seedlings, and thinning are practices that hurry the forest back into the production of wood products. In the effort for efficient timber management wildlife habitats need to be recognized and considered if we are to have stable wildlife populations in the future.

What happens to fish and wildlife when our forests are managed to produce timber? The correct answer is that some species become



Snags and live trees left standing after logging can help perpetuate those species living on dead trees.



Scattered clearcutting contributes to habitat diversity and stable wildlife populations.

more abundant while others can be eliminated. Fish can either be wiped out or not affected at all. The result depends on how timber and logging practices are managed.

To better understand the plus and minus impacts of timber management on wildlife, let's break the question down and consider part of the problem at a time.

Salmon and steelhead require clear and cool water as well as clean gravel of the proper size for spawning. Those conditions usually exist naturally in the streams flowing through forest land.

In the late 1960's forest industry leaders and the public recognized that some timber management practices could seriously impact fish production. Research studies were made to find ways to modify logging practices so fish values could be maintained. With the passage of the Oregon Forest Practices Act in 1971 the Oregon Departments of Forestry, Fish and Wildlife, Environmental Quality, the forest industry, environmentalists and state legislators cooperated to develop forest management rules. Since then the enforcement of those rules has allowed fish habitat to be maintained during and after such forestry operations as logging, road construction and herbicide applications.

Oregon has more than 500 species of wildlife within its borders. With that many species it becomes a monumental task to measure how populations change after logging. Some critters are difficult to find because they come out only at night or live in treetops. Others hide under rotten logs, or roam over an expansive territory or fly away before they can be counted.

Wildlife habitat however is much easier to inventory. We know, for instance, that woodpeckers live on snags (dead and decaying trees) and by counting the number of snags we can get an idea how many woodpeckers can be expected to live there. If all the snags get cut down during a logging operation then no woodpeckers would be expected there until trees grow back and get big

enough to create snags again, a process that takes decades.

Because habitat is simpler to inventory and identify and habitat conditions usually limit wildlife populations this article will discuss wildlife in terms of habitat. A forest contains a diversity of habitat such as old growth, riparian (that associated directly with water), snags and downed logs. Maintenance of those and other habitat types is essential to maintenance of diverse animal populations.

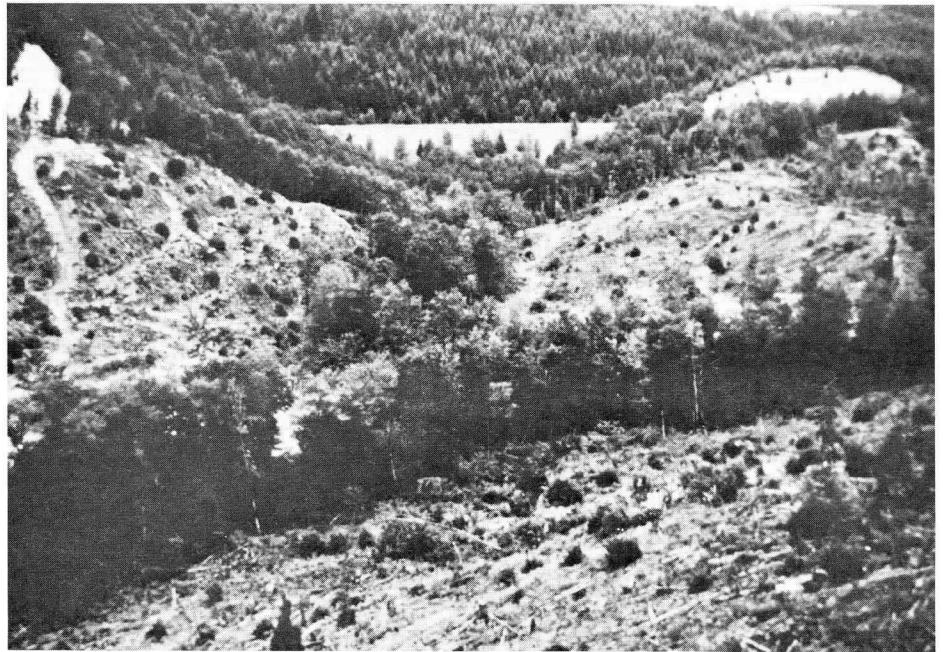
Old growth habitat is a highly complex stand of conifer trees where most of the space is taken up by big trees (between 200 and 1,000 years old). Younger, shade tolerant trees are also present but growing at a slow rate. Dead trees are evident, both standing as snags and fallen down as rotting logs. Many species of wildlife use old growth forests to meet some of their needs and a few species seem to require old growth habitat in order to survive.

Almost all the old growth forests on privately owned commercial timberlands in western Oregon have been logged. But there is enough old growth available on public forest lands to meet the needs of old growth dependent wildlife provided enough of those lands are managed to maintain old growth into the future.

Just how much forest should remain as unlogged old growth to maintain those animal species? No one knows for certain. But the best estimate is 5 to 15 percent of the forest land needs to be left as old growth in blocks at least 300 acres in size and along stream-sides in the riparian zone.

The riparian zone is the vegetation next to streams, lakes or wet meadows. The riparian zone is the most productive habitat for animal species diversity and density and is essential for high quality fish habitat. The zone may be only a few feet wide on headwater streams and can be hundreds of feet wide on the floodplains of the Columbia and Willamette rivers.

To maintain all the wildlife values in the riparian zone a buffer strip would remain along the creek with an abundance of big old trees,



The riparian zones in this logging area were left uncut thereby protecting fish as well as wildlife habitat.



This old growth stand has 400-year old fir trees, mid-age to young hemlock, low brush and ground cover.

snags, broadleaf vegetation and rotten logs left intact. Trees being harvested next to the riparian buffer can be cut so they fall away from the creek leaving the riparian zone undamaged. When a stream flows between the logging access road and the trees being harvested, special equipment can be used to lift the logs up and over the creek with no significant impact to the riparian zone.

The last habitat provided during the life of a tree is when the tree dies, decays, falls to the ground and rots back into the soil.

Standing dead trees, called snags, are used by more than 60 different species of birds and mammals in the Blue Mountains of northeast Oregon. The animals build nests and reproduce in cavities in the snags or between the bark and trunk of the dead tree. Some animals feed on insects that are usually abundant in the dead tree and others use the snag for perching while resting or hunting for food. As a rule, the bigger snags serve more species of animals.

Many snags are cut down during logging operations to provide

wood products. Snags can be safety hazards to workers or, in areas subject to electrical storms, snags can start fires if struck by lightning. During logging, snags can usually be left around the edges (and corners) of a clearcut where no safety hazard exists, and below ridgetops where lightning is less likely to strike.

Snags will eventually rot and fall down so it is desirable to leave live trees to turn into future snags. Deformed or defective live trees that have low economic value can be left unharvested to meet the need for snags in future years.

After a snag falls to the ground it can serve as wildlife habitat for perhaps 200 years when it will be fully decomposed. More than 179 species of vertebrates make some use of fallen logs. Hunters, for example, are well aware of the ability of a deer to hide behind a fallen log. The space under a log provides small animals a shady spot in summer and a protected site in winter. Hollow logs make ideal nesting spots for still more species.

Timber harvest routinely leaves lots of logs and other large wood debris laying on the ground. While the logs and debris may be un-

sightly to some people until vegetation recovers the sites, the larger leftover material is definitely beneficial to wildlife. The logs and debris do the most good for wildlife when left scattered around the logging site.

Roads are necessary to haul logging equipment to the harvest area, to take logs to the mills and for fire protection. Hunters and fishermen also make good use of roads by being able to drive into areas that used to be difficult to reach. In a typical area of intense logging the network of roads may equal four miles of road on each square mile of forest. The roadways and traffic use of the roads can have a severe impact on deer and elk.

Research in eastern Oregon forests shows deer and elk avoid areas within a quarter to half a mile of a road. The impacts can be reduced by blocking vehicle use on roads during times the road is not used for forestry purposes. Some road closures are established on a year-round basis, while others are seasonal. Winter ranges are particularly sensitive and the benefits of a gate across the road are significant.

It is apparent that timber harvest can be either beneficial to wildlife habitat or can cause severe reductions and eventual elimination of other wildlife habitats. Timber management is becoming more intensive and the forest manager must carefully consider wildlife habitat needs if timber and wildlife objectives are to be compatible.

There are many other forest management operations that are beneficial or not so beneficial to wildlife populations that cannot be discussed because of limited space. For the reader who wants to explore the impacts of timber harvest in greater detail the author has two recommendations. One is to read *Wildlife Habitats in Managed Forests*, Agriculture Handbook No. 553, edited by Jack Ward Thomas. The second recommendation is to get involved in the land use planning presently underway on National Forests and Bureau of Land Management Districts in Oregon. □



Gates on roads provide security to game animals. In this case the road closure protects elk on winter range of the Cascade Mountains.

OREGON'S 1981 HUNTING CASUALTIES

By Tony Faast
Hunter Education Coordinator

Hunting accidents in Oregon during 1981 followed the downward trend experienced in recent years. Thirty-seven hunting mishaps were recorded this past year, a total slightly below the five-year average of 40.

Review of the accompanying statistics help reveal the "why and how" of some of these accidents. Bird hunters accounted for nearly half (46 percent) of last year's accidents. Their carelessness is reflected in the "reason for casualties" breakdown with "swinging on game" and "in line of fire" accounting for the majority.

Most bird hunting accidents violate a basic rule of hunting safety — "know where your hunting partners are at all times!" In the excitement of birds flushing in all directions, it takes an extra measure of personal discipline to hold fire if a bird flies in the direction of a companion. Half of the accidents this year resulted from violation of this basic rule.

While these statistics focus on the hunting accident picture, it's also important to keep them in perspective. A listing of sporting activities ranked according to the number of deaths incurred per thousand participants is included with the hunter casualty statistics.

OREGON'S 1981 HUNTING CASUALTIES

<i>Total Casualties</i>	37	
Fatal	4	11%
Nonfatal	33	89%
Self-inflicted	14	38%
Hunting partner	15	41%
Other shooter	8	21%

<i>Ages of Shooters</i> (including self-inflicted)		
-19	12	33%
20-29	9	24%
30-39	7	19%
40-49	3	8%
50-59	2	5%
60-69	0	0%
Unknown	4	11%

Animals Being Hunted

Deer	8	21%
Upland game birds	15	41%
Elk	4	11%
Migratory birds	2	5%
Rabbits	3	8%
Squirrels	0	0%
Predators	0	0%
Other species	5	14%

Reason for Casualties

Insecure rest	1	3%
Defective firearm	1	3%
Mistaken for game	2	5%
Loading and unloading	2	5%
In or on a vehicle	4	11%
In the line of fire	9	24%
Horseplay with firearm	0	0%
Drawing or holstering handgun	3	8%
Swinging on game	8	22%
Negotiating obstacle	4	11%
Unclassified	3	8%

Distances

Less than 3 yards	17	46%
3-25 yards	6	16%
26-50 yards	7	19%
51 yards and farther	7	19%
Unknown	0	0%

Comparison Statistics

Year	Total Casualties	(Fatal)
1980	35	(6)
1979	39	(3)
1978	50	(5)
1977	41	(6)
1976	50	(4)
1975	58	(7)

DURING THE PAST FIVE YEARS HUNTING LICENSE SALES HAVE AVERAGED APPROX. 400,000 PER YEAR.

DID YOU KNOW? In sport-related deaths, hunting ranks near the bottom of the list, as shown in the following chart.

Type of Activity	Number of Participants	Annual Deaths	Per 1,000
1 Home-built aircraft	8,000	226	28.2
2 Horse racing	1,800	23	12.8
3 Sky diving	30,000	370	12.3
4 Sprint-car racing	8,500	75	8.8
5 Powerboat racing	6,500	42	6.5
6 Hang gliding	30,000	169	5.6
7 Mountaineering	60,000	308	5.1
8 Glider flying	18,000	72	4.0
9 Boxing	5,500	21	3.8
10 Formula-car racing	5,000	18	3.6
11 Stock-car racing	26,000	91	3.5
12 Sports-car racing	11,000	29	2.6
13 Scuba diving	1 million	1,099	1.1
14 Motorcycle racing	115,000	77	0.7
15 Ballooning	40,000	24	0.6
16 Drag racing	145,000	66	0.4
17 College football	40,000	11	0.3
18 Hunting	20 million	6,300	0.3
19 Skiing	80,000	18	0.2
20 High school football	1 million	116	0.1

Motor vehicle statistics for 1967-75; all others for 1970-78. Sources were: Metropolitan Life Insurance Co., National Safety Council, National Transportation Safety Board, sport organizations. Reprinted from Pennsylvania Hunter Education Newsletter.

THIS AND THAT

Compiled by Ken Durbin

Japanese Tag Adds Piece to the Puzzle

Little is known about where steelhead go during the one, two or three years they spend at sea. They don't seem to follow the same patterns as salmon, and since they do not support a commercial fishery there is little data available on their travels. A program to conduct research on this part of their life history would be a major undertaking and prohibitively expensive. Yet information does trickle in.

Jim Hardesty of Portland helped add one more piece of information to the puzzle when he landed a 32-inch, 11-pound hen steelhead on November 17 in the West Fork of Hood River. Attached to the fish was a disc tag and on it were Japanese figures.

Subsequent inquiries through the Pacific Marine Fisheries Commission to Japan resulted in the information that the fish had been tagged in the Ocean as part of Japan's High Seas Salmon Tagging Program.

The fish had been tagged on May 31, 1980 at a site off the western end of the Aleutian Islands. At that time it measured slightly more than 22 inches in length. Age was not determined because the scales taken were later determined to have been regenerated and thus did not show full life history information.

Although data on steelhead at sea is meager, cooperation by a variety of countries in recent years has added to the information base on many species of fish and wildlife.

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Always Hungry

If you had an appetite as big as a shrew's, you'd have to eat at least 400 quarter-pound hamburgers every day! The mouse-like shrew, the world's smallest mammal, must gobble down its own weight in food every day of its life. No wonder it has a reputation as a fierce hunter!

Outdoor California

New U.S. Bird Species Recorded in Oregon

To say that Bob Loeffel, supervisor of the Department's Marine Region in Newport, is an avid birder would be quite an understatement. Bob has been a jogger since long before it became the current rage. He has always kept detailed records of his sightings on his favorite ocean-side jogging routes.

Last year he found a dead bird that most of us would not have given a second look. But Bob knew he had something unusual. It was later positively identified as a Murphy's Petrel, *Pterodroma ultima*, and Bob has received confirmation from the Smithsonian Institute's Museum of Natural History, that this is the first confirmed find of this species anywhere in North America.

Murphy's petrel breeds in the Austral, Tuamotu and Pitcairn island groups in the southeast Pacific and relatively little is known about the extent of its at sea distribution away from the breeding islands. The confirming letter from George E. Watson, the Smithsonian's curator of birds, says that because Murphy's petrel was not known to exist off North America that petrel sightings which may have been Murphy's could well have been misidentified as other petrel species. Loeffel's find will cause U.S. birders to look more closely for this species in the future.

*

If You Help, Help All Year

Winter feeding can be an enjoyable and educational experience for attracting birds and other small animals to your window during the cold winter months. But once winter feeding is started, it should not be stopped.

Birds and mammals that have remained in your area for the winter because winter feeder food has been provided may starve if feeding is suddenly cut off. Feeding should continue until warm weather arrives and natural foods such as insects, buds and shoots appear. If you have provided suet for the insect eaters, that, too, should be continued.

New Furbearer Book

Leonard Lee Rue III is possibly the most active wildlife photographer in the United States. Besides that, he is a prolific author, with at least 14 wildlife books to his credit. *Furbearing Animals of North America* is his latest effort, and it is a fine compendium on about 30 furbearing species. The make-up of the book is faintly reminiscent of Ernest Thompson Seton's books, with excellent treatment of the various species from a scientific point of view, but with a lot of personal anecdotes thrown in.

Furbearing Animals of North America by Leonard Lee Rue III is published by Crown Publishers, Inc., New York, and sells for \$19.95. Autographed copies may be ordered from the author at R.R. 3, Box 31, Blairstown, NJ 07825, for \$21.45 including shipping.

Missouri Conservationist

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Population Planning

Senator Mark O. Hatfield is being widely applauded by conservationists for sponsoring legislation to establish a global foresight capability and encourage population stabilization in the United States. His bill S.1771 would speed the attainment of a balance between human population, natural resources and the environment, both nationally and globally. It sets up an interagency council to provide the president, executive agencies and the Congress with accurate and timely projections of short- and long-term trends in population change, the availability of natural resources, and environmental problems.

International Wildlife

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Recycling Advice

"A Guide to Saving & Sorting" describes how to prepare paper, glass, motor oil and metal for recycling, and provides information on other ways to reduce our waste. It also includes phone numbers for getting information on locations of recycling drop-off depots and recycling pick-up services in Oregon.

To order copies, contact the DEQ Recycling Information Service toll free at 1-800-452-7813.



Keno Dam on the Klamath River is under study to determine feasibility of retrofitting for hydropower generation.

FISH, WILDLIFE AND HYDROPOWER

*by Jim Haas, Chief
Environmental Management Section*

Brought about by a real or imagined energy shortage, increased energy rates, and new state and federal tax write-offs, the resurging interest in hydropower poses many unknowns concerning Oregon's fish and wildlife resource.

Licensing by the state is required for all hydroelectric projects constructed in Oregon except those federal projects authorized by Congress. Additionally, a federal government license is required if a project is located on federal lands, uses water from a federal dam, affects interstate commerce or is on a navigable stream.

The number of applications for hydroelectric licenses received by the state has soared from 22 during the period from 1970 to 1979 to 102 in 1980 and the first 10 months of 1981. Most of the applications being received are for small "backyard" projects with a capacity of 100 theoretical horsepower or less (about 75 kw). Such projects are typically located on small tributary streams.

In addition, applications to the federal government have jumped.

The Department of Fish and Wildlife has recorded some 68 applications for projects in Oregon in 1981 through September. Federal applications are usually for larger projects with a majority ranging from 1 to 10 megawatts and a few exceeding 25 megawatts. Thus, most of these projects would be on medium to large sized streams.

Many of the federal applications come from out of state whereas most of those to the state are from parties residing in Oregon. These applicants vary from individuals seeking small backyard projects to municipalities, irrigation districts, utilities, electric co-ops and private corporations seeking larger projects.

A good number of both state and federal applications are for preliminary permits which establish a priority date and provide from one to three years to conduct a feasibility study. Such studies are underway at a number of locations. If, following study, an applicant actually desires to build a project, state and federal construction and operating licenses are required.

Hydro projects may impact the fish and wildlife resource in a variety of ways. The actual impact will depend mainly on three factors:

- 1) the particular species of fish and wildlife in the project area;
- 2) quality of the habitat in the project area; and
- 3) the design and operating mode of the project.

Migratory fish are obvious species that may be impacted by such projects, however resident fish plus deer, elk and other terrestrial species may be displaced by flooding of habitat. Each project has its own characteristics and has the potential for affecting a variety of fish and wildlife.

Projects on major anadromous fish streams may be totally incompatible with the continuing existence of various species. Technology does not exist to pass downstream migrating fish in such locations without considerable risk of failure. The Rogue and many of our coastal streams fall into this category. Not building dams on these streams is the only

safe alternative if fish and wildlife are to be protected.

Although the Department believes that permitting hydroelectric development on highly productive streams would not be sound resource management, such development can sometimes be accommodated on smaller streams with fish and wildlife populations. Losses can be lessened by modifying locations, shape, size and operations of the structure. Fish ladders and turbine screens can help overcome fish passage problems. Generally, "river run" dams without large reservoirs lessen the ef-

fects on migratory fish and big game.

Some small streams do not support species of fish and wildlife that are very susceptible to damage from dams. Such a situation might occur in a small stream in eastern Oregon where anadromous fish no longer exist, the flooding of wildlife habitat is minimal and resident fish and wildlife might benefit from the pool created.

It can easily be seen that the protection of the fish and wildlife resource in light of the great dam rush is no simple operation. How-

ever, there are state and federal laws that give the appropriate agencies authority to monitor what goes on.

The Federal Fish and Wildlife Coordination Act and Federal Power Act require that hydroelectric projects authorized or licensed by the federal government protect and maintain affected fish and wildlife resources. Other federal acts complement these acts.

State law requires that man-made stream obstructions be laddered, turbines or power canals screened, and fish hatcheries provided to compensate for fishery losses. All state licenses are subject to the rules of the Water Resources Department to assure conservation and use of water for power purposes and other beneficial public uses. This may include flow releases to protect fish.

The question may then be asked, "How well do these and the other laws on the books protect fish and wildlife?" In recent years, the federal laws have improved, whereas they were grossly inadequate in the pre-environmental concern period. State fish passage laws are effectively administered by the Fish and Wildlife Department. The state hydro licensing laws are quite general, but appear to be adequate when effectively applied.

What the future holds is still cloudy. The State Energy Facility Siting Council is responsible for determining the energy needs of the state. The Council has estimated that hydroelectric facilities will be called on to supply some 200 megawatts of power by 1990. That amount could be supplied by one or two large projects, or by several smaller ones. Enough sites probably exist in low value fish and wildlife areas to supply this need without seriously impacting fish and wildlife.

Although a flood of preliminary applications has been received for hydroelectric projects, some of the projects will never be built because they are not economically feasible. The statutory requirement to maintain the fish and wildlife resource will affect the economic feasibility of some of the projects since the developer must assume the cost of environmental assess-



This is a micro-hydro or "backyard" project on Bear Creek, a tiny tributary in the Clackamas drainage.

ment and mitigation. Therefore, it is advantageous for the developer to work on sites that have the least environmental impact. This obviously works to the benefit of fish and wildlife also.

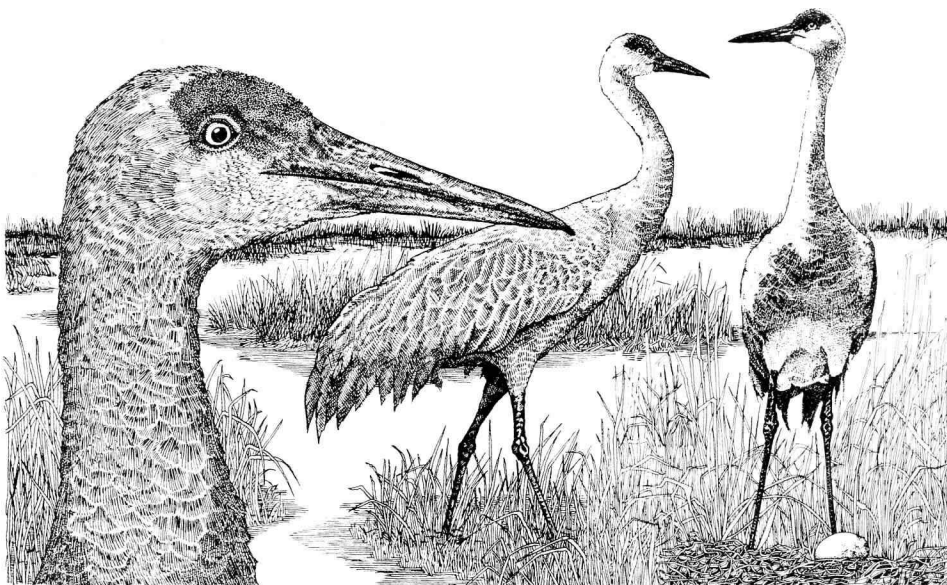
Much of our quality anadromous fish habitat is already out of production or has seriously impaired production. The upper Columbia and Snake rivers are prime examples of this. Sound natural resource management does not sacrifice one resource for the development of another. In this light, we must be selective in developing future hydroelectric sites and demand adequate protection of the fish and wildlife resource at those that are developed. If we want to maintain our valuable fish and wildlife resource we must place a limit on the ultimate amount of hydroelectric development permitted on Oregon streams. The Fish and Wildlife Department will continue to do its job in speaking for this resource, but all citizens must be concerned. Hopefully we can have balanced quantities of fish, wildlife and hydropower in the future.□

LAMPREY ADDENDUM

While writing the short feature on the Pacific Lamprey in December's OREGON WILDLIFE, we failed to bring up one important point; that this particular species is not parasitic in fresh water. Dale Snow, the Department's Assistant Marine Region Supervisor, points out that the Pacific lamprey in Oregon's coastal streams is parasitic only in the ocean.

"Certain environmental groups continually build up the importance of seals and sea lions eating lamprey and reducing salmon predation. This is not true. The animals are eating lamprey that have already done their damage to the fishery resource," Snow says. "However, predation of lampreys by seals and sea lions does have two good points. While feeding on lamprey they are leaving the salmonids alone, and at the same time they are reducing the spawn population of lamprey."□

OREGON WILDLIFE



SANDHILL CRANE

Birdwatchers in Oregon marshes do not have to see a sandhill crane to know it's there. The bird, known scientifically as *Grus canadensis*, has a distinctive rolling call that once heard is not easily forgotten.

Stately is the best word to describe a sandhill. Its long legs and neck make it one of the tallest birds in North America. An average bird may weigh around 10 pounds and have a wing spread of up to seven feet.

Although this bird is an impressive sight, it usually takes second billing to its endangered relative, the whooping crane. The whooper is the tallest bird in North America and also one of the rarest. Attempts to breed whooping cranes in the wild have enlisted sandhills to serve as foster parents.

While the whooper is mostly white with black wing tips, the adult sandhill sports a slate gray body with a patch of red skin on its head. The feathers may take on a rusty appearance. In flight the sandhill can be distinguished from herons and geese by the outstretched neck and wing beats at or above body level. The heron pulls its neck into an "S" shape against its body and takes deep, low wing strokes. Cranes fly in goose-like V formations.

The sandhill crane is a migratory bird. Some of the species may nest in Siberia, Canada or Alaska and migrate to wintering grounds in the southwestern U.S. and Mexico.

These birds are fairly common in Oregon during migration periods, especially in the marshes of southern and southeastern Oregon. Some birds also nest in these areas.

Sauvie Island, in the north Willamette Valley, is another major stopover for migrating cranes. Whooping cranes do not migrate through Oregon.

The cranes are perhaps best known for their unique mating dance. During the breeding season the birds hop about on their long legs and take flying leaps into the air.

Sandhills must have marsh habitat to survive. While they feed on almost anything from bugs to seeds in open fields, their nests are usually stick mounds on or near water. Usually the birds lay only two eggs.

Crane numbers have varied greatly over the years. Currently their numbers are steady or increasing, but the draining of swamps and marshes has hurt crane populations in the past and may again. Loss of habitat is singled out as the major cause in the decline of the whooping crane.□

Jim Gladson

Page 11



SNOW CAN BE
FRIEND
OR
FOE



SNOW CAN PROVIDE PROTECTION
FROM SEVERE COLD - SAGEGROUSE
PTARMIGAN, SHARPTAIL AND PRAIRIE CHICKEN
BURROW BENEATH SNOW
TO GET SHELTER.

SNOW CONCEALS - OUT OF
SIGHT OF ENEMIES, MICE
LEAVE GRASSY LOWLANDS TO
FEED ON UPLAND WOODY
PLANTS (INCLUDING FRUIT
TREES).



OUR CALENDAR
MUST BE
FAST!

SOME ANIMALS ESCAPE WINTER'S
SNOW AND HARDSHIPS BY SLEEPING.

SNOW IS A SOURCE OF WATER
FOR FISH — SPRING RUNOFF
PLUS ADDITIONS TO GROUNDWATER
SUPPLY A LARGE PORTION OF
THE TOTAL SUPPLY.



IN CLEARED AREAS
SNOW DEPTHS ARE
INTERMEDIATE, SOIL
FREEZING MAXIMUM,
SNOWMELT RAPID.

UNDER ASPEN
AND
OPEN CONIFEROUS FOREST
SNOW IS DEEPEST, SOIL
FREEZING IS PREVENTED
OR MINIMUM, SNOW-
MELT MODERATE.

UNDER DENSE
CONIFEROUS FORESTS
SNOW ACCUMULATION
IS LEAST, SOIL
FREEZING MODERATE,
SNOWMELT SLOWEST.

PLANT COVER ON WATERSHED INFLUENCES SNOWMELT RUNOFF

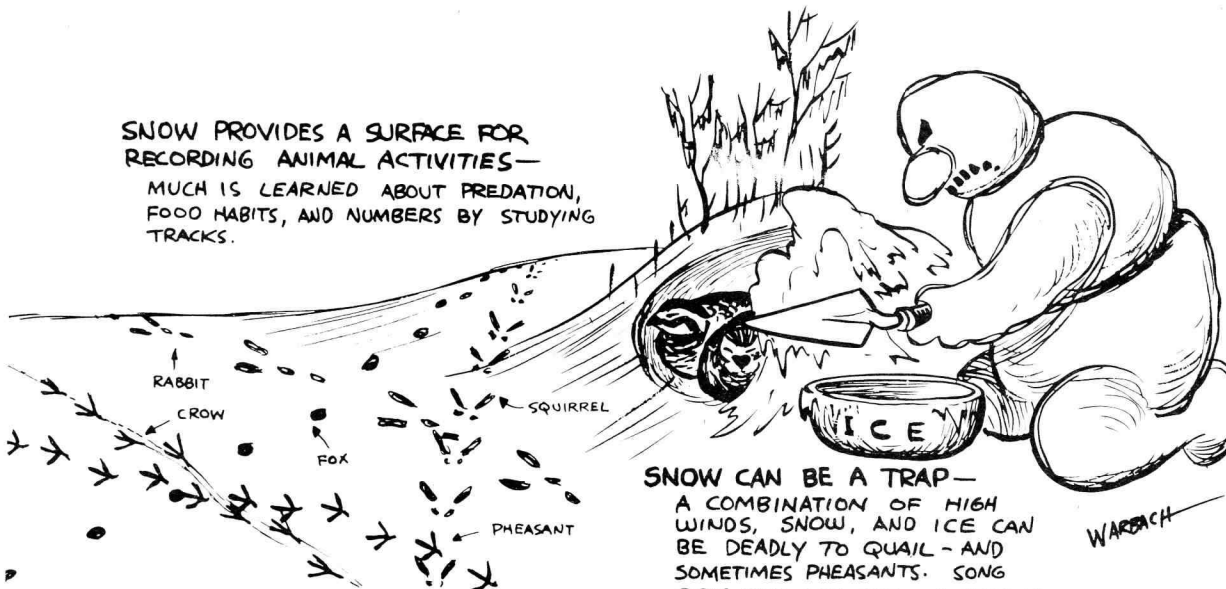


SNOW SHRINKS FOOD SUPPLY—
IN WESTERN MOUNTAINS, DEEP SNOWS
CONFINED DEER TO SHELTERED AREAS
THAT COVER ONLY $\frac{1}{5}$ OR LESS
OF THE TOTAL RANGE.



SNOW CAN SUFFOCATE —
SNOW ON ICE PREVENTS
SUN'S RAYS FROM REACHING
OXYGEN-PRODUCING
AQUATIC PLANTS.

SNOW PROVIDES A SURFACE FOR
RECORDING ANIMAL ACTIVITIES—
MUCH IS LEARNED ABOUT PREDATION,
FOOD HABITS, AND NUMBERS BY STUDYING
TRACKS.



SNOW CAN BE A TRAP —
A COMBINATION OF HIGH
WINDS, SNOW, AND ICE CAN
BE DEADLY TO QUAIL - AND
SOMETIMES PHEASANTS. SONG
BIRDS TOO CAN BECOME VICTIMS.

SOME HUNT SEASON DATES SET

Opening dates for most 1982 hunting seasons have been set by the Fish and Wildlife Commission. The starting dates are established early in the year as a convenience to hunters who need to plan or commit themselves to vacation dates. Season lengths, bag limits and other regulations will not be set until later in the year after biological data on animal numbers and population trends has been gathered in the field.

No major departures were made in 1982 big game opening dates from those which occurred in 1981. Deer season will open statewide on October 2. Rocky Mountain elk season will open in eastern Oregon on October 30 for the first hunt period and November 6 for the second hunt. Roosevelt elk season will open November 13 for the first hunt and November 20 for the second.

The rifle season for pronghorn antelope will begin August 21, six days later than last year, and the statewide early bowhunting season for deer and elk will begin August 21.

Upland bird hunters will also have starting dates similar to 1981. The statewide blue and ruffed grouse season will open August 28 and the season for chukar and Hungarian partridge will open October 2 — concurrent with deer season — in eastern Oregon, and October 16 in areas where these birds are released in western Oregon.

Pheasant season will open statewide on October 16 as will seasons for valley quail statewide and mountain quail in eastern Oregon. Western Oregon mountain quail season will open August 28 concurrent with grouse seasons.

Dates for waterfowl cannot be set until later in the year after the federal framework of dates has been received.

Closing dates and other regulations are scheduled to be set March 20 for antelope, cougar and bighorn sheep; May 22 for deer and elk; and August 20 for upland birds and waterfowl.

The Commission also established 1982 hunting season for

black bears. This year's season will open September 4 and continue through November 30, statewide except for a closed corridor along the lower Rogue River. Bag limit is one bear excluding cubs and sows with cubs.

Also set was a statewide bear pursuit season from July 15 through August 29. The pursuit

season requires that the owner or handler of the dogs obtain a \$5 permit and no bear may be killed or captured. All bears cornered or treed must be released unharmed. Permit holders are required to file a report on their pursuit activities which gives the Department valuable information on bear populations and distribution.□

COLUMBIA GILL NET PERMIT BUYBACK PROGRAM ADOPTED

The Fish and Wildlife Commission has adopted a program to begin reducing the size of the Columbia River commercial gillnet fleet using federal money to buy vessel permits from fishermen who want to leave the fishery. The permits that are purchased under the program will be retired.

The Oregon program follows a fleet reduction program implemented by the State of Washington in 1976 due to the effect of the Boldt decision on non-Indian salmon fishermen. Since then Washington has spent some \$3.5 million to purchase commercial vessels and gear licenses.

Just prior to the 1981 legislative session Oregon received word that the Washington Department of Fisheries was to receive a federal grant to enable them to continue their buyback program. By congressional directive a portion of the funds could be used by Oregon to reduce numbers of Columbia River gillnet salmon fishermen who had been affected by the Belloni court decision which specified a large portion of the run go to treaty Indian fishermen.

Enabling law was passed by the Oregon Legislature permitting the Fish and Wildlife Commission to enter a fleet reduction program involving Columbia River gillnet fishermen.

Some \$250,000 will be available for the program through a contract with the Washington Department of Fisheries. In Washington, the buyback program has involved purchase of boats and fishing gear

licenses. In Oregon a different licensing procedure is in effect, and the Oregon program will buy Columbia River gillnet vessel *permits*.

Fishermen who want to sell their permits will make an offer by sealed bid with the state buying permits beginning with the lowest offers and working upward. Any offers of more than \$1,000 must be approved by the Fish and Wildlife Commission. About 530 Oregon gillnet vessels had permits assigned to them in 1981.

To be eligible in the Oregon buyback program fishermen must have been active in the gillnet fishery prior to February 25, 1977, the date of the Judge Belloni court decision.

All eligible fishermen will receive notification in the next few months and details of the program by mail along with the necessary materials for submitting bids if they wish to participate.□

TIP OF THE HAT

Douglas County District Court Judge Ronald Poole receives our tip of the sportsman's hat for this month.

One of two subjects cited for dynamiting salmon in the Umpqua River was sentenced by the judge. A fine of \$310 was imposed, the violator was sentenced to 30 days in jail and had his angling privileges suspended for two years. Additionally, the boat used in the violation was forfeited to the court. The boat had a value of \$400.□



Oregon's

WILDLIFE WINDOW

Everyone responds to weather. It is perhaps the one thing we all share in common. The same goes for wildlife. They too find a common denominator in the weather or climate of their habitat. Humans for centuries have relied on wildlife to predict or protect themselves from weather. Wildlife, or more exactly their remains, have been used to study weather and climates of prehistoric times.

A number of old wives tales, superstitions and myths exist regarding weather prediction by observing wildlife. Some of these have some basis in scientific fact. They involve changes in barometric pressure, shifts in the jet stream, metabolic rate and perhaps gravitational effects caused by the moon. The height of bird flight and feeding rate of fish supposedly predicted a coming storm. Early migration of certain birds or thickness of color bands on some caterpillars were thought to foretell the severity of the coming winter. A sort of biological thermometer has also been noted for telling temperature by counting the number of times a cricket chirps in a given time period.

Besides providing observant humans with a "prediction" of weather, wildlife itself prepares for and responds to weather. Much of the response is not as directly linked to predicting a temperature change as it is to the changing day length or photoperiod. Lengthening days indicate coming spring and the likelihood of warmer

weather in the same way that shorter days mean colder times ahead. Migration or preparation for breeding are responses we observe. Hibernation is another obvious response to weather. Some responses are the result of changing photoperiod alone. In other cases only the preparation is stimulated by day length with the actual event triggered directly by a weather condition. Aestivation or summer "hibernation" to escape hot weather is another direct response to temperature. In a specific case, ground squirrels go into aestivation when daytime temperatures reach a known level. This

weather-related activity causes a secondary effect as predator birds like falcons and hawks must quickly depart the area in search of another food source.

In other ways, humans take advantage of animal responses to weather by waiting until thick fur grows before collecting pelts for use. Duck and goose down for warm clothing is best and most available after these birds have put on their winter clothing, too. Migration to lower elevations or to other climates also provides humans with access to wildlife for food and recreational uses.

THIS MONTH'S WINDOW

Weather or Not

From books or resource people, seek out weather predicting methods or myths. Use some of the methods to make your own predictions. Check with the weather service to see how accurate you were.

Choose an animal and design adaptations the animal would have to develop to live in a completely different climate.

Bring some soil inside during the winter and warm it. Examine samples to see what tiny creatures were spending the winter there. Repeat with some rotting wood, old grass clippings and similar materials.

GYPSY MOTHS ON THE MOVE

by John Mellott, Entomologist
Oregon Department of Agriculture

The gypsy moth, *Lymantria dispar*, is one of the most destructive pests of trees and shrubs in the United States. It occurs in epidemic proportions in parts of Maine, New Hampshire, Vermont, Rhode Island, Massachusetts, Connecticut, New York, New Jersey, Pennsylvania, northern Delaware, northern Maryland, northern Virginia and eastern Ohio. During 1980 gypsy moth caterpillars defoliated over five million acres of trees in these states while this past summer they stripped over 10 million acres. Many of these trees will die.

Gypsy moths are now finding their way into Oregon. This insect travels from the northeastern U.S. to Oregon primarily 1) when people move here from one of the infested states, 2) when people drive here on vacation from one of these states in summer and 3) when people from Oregon drive to an infested state in summer and then return to Oregon. Gypsy moth caterpillars often pupate on and females lay their eggs on such things as the undersides of vehicles, picnic tables, swing sets, toys and lawn furniture and are transported to Oregon on these items.

Gypsy moths were first trapped in Oregon in 1979. Pheromone (sex lure) traps, put out by the Oregon Department of Agriculture, captured several male moths in Lake Oswego and Milwaukie. In 1980 several additional males were taken in Lake Oswego, Happy Valley and Salem. This past summer the traps revealed the presence of moths in Lake Oswego, Happy Valley, Salem, Airlie and Albany. Ground searches of properties in south Salem have revealed that at least six families may have brought the moth from the north-



Female gypsy moths laying egg masses in New York state. Gypsy moths have found their way to Oregon and if they become established could pose major problems here. The Department of Agriculture is asking citizens to help them locate budding populations.

east.

Female gypsy moths lay their eggs in masses of 50 to several hundred eggs, usually in August and early September. These eggs can be found on just about any substrate, such as rocks, trees, fences, lawn furniture, vehicles, buildings, inside of birdhouses, on sandbox toys and on basketball backboards. Caterpillars hatch in the spring and are often carried by the wind to new sites. The caterpillars feed voraciously on leaves of trees and shrubs during April, May and June and then form a resting stage called a pupa. The adult moths emerge from the pupa

in late July and during August, mate and lay a new batch of eggs.

Keeping the gypsy moth out of Oregon is a very difficult task. The Department of Agriculture is requesting the help of Oregonians in this effort. If you, or someone you know, have moved to Oregon from one of the states mentioned above, have had visitors here from one of these states or have vacationed in one of these states, please call the Department of Agriculture, Plant Division, 378-6458 or toll free 1-800-452-7813, Extension 8-6458. A department entomologist will help you check your property to see if the moth is present. □



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