

OREGON WILDLIFE

NOVEMBER 1979



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OREGON FISH AND WILDLIFE COMMISSION

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Cover — "The lordly Rocky Mountain elk proudly surveys his domain and dares man to outwit him," is how the caption read when we ran this photo on the cover in 1957. The photo was taken in Wallowa County in the mid-1950's.

Photo by Nils Nilsson

HUNTER EDUCATION
PROGRAM
INSTRUCTORS APPROVED
Month of September 28
Total Active 1,660
STUDENTS TRAINED
Month of September 3,219
Total to Date 268,423
HUNTING CASUALTIES
REPORTED IN 1979
Fatal 1
Nonfatal 6

SUGGEST A BETTER WAY

Recently, the angling regulations for 1980 were set by the Fish and Wildlife Commission. Shortly before the public hearing was held, we attended a service club meeting to discuss current Department activities and mentioned the hearing coming up. One of the club members came up after the meeting and asked an often heard question, "Can't the angling regulations be simpler?"

We discussed the subject for several minutes explaining that indeed, the staff of the Department tries to keep the rules as simple as possible. Often the rules of some of the midwestern states are pointed out as examples to follow. If one has mainly warm-water fish in lakes and reservoirs, the simpler rules can suffice.

In looking at the Oregon regulations it is readily apparent that much of the verbage concerns migratory fish. In attempting to protect adult fish on the spawning areas, downstream fish on their way to the sea with several such runs present plus resident fish in the same stream, things do become involved. Superimposed on all of this is the attempt to allow the angler as much fishing as possible without jeopardizing the resource.

Another cause of complicated regulations is the angler himself. This occurs in two ways. Personal desires cause the Commission to adopt various rules. One group wants fly fishing only . . . the other doesn't. One group wants late opening in certain areas, others don't want it in their area and on and on. The Commission attempts to accommodate as many interest groups as possible without risking the future of any of the stocks. Behind all of the rules has to be the basic consideration for the future of the fish involved.

Another group of anglers causes complicated rules because they have to try to figure out every angle there is to get around a simple statement. The intent of a rule may be obvious, but it has to be written so there are as few ways as possible to get around it. Some of the most complex of the rules have evolved from simple ideas that are difficult to enforce.

Individuals working close to anything sometimes find it difficult to look at things from an outside viewpoint. It is easy to write a rule that you think means exactly what you have in mind, but that means something entirely different to another person. Such is true of any kind of writing.

So to the point of all this. We've always felt that if you damn something as wrong, it is a responsibility to suggest what is right. There are biological factors behind some rules, sociological considerations behind others. However, if the words and phrases don't make sense or don't seem to mean what they should we urge you to come up with a better way. It is too late to affect the 1980 angling regulations, but there is always next year's booklet. Not every idea can be adopted. There are legal limitations and printing constraints. However, if you have a better way to express a rule don't just gripe to your partner . . . send the idea along. You may just strike a blow for clarity!□

R.E.S.

COMMISSION MEETINGS

The Fish and Wildlife Commission will conduct a general business meeting on Friday, November 16, beginning at 9 a.m. at Department headquarters, 506 SW Mill Street in Portland.□



A cow elk with radio collar attached, ready for release.

NORTHEAST OREGON ELK RESEARCH

*by Dick Pedersen
Research Biologist*

Forest lands in northeast Oregon provide much of the living space for Rocky Mountain elk and hunting space for Oregon elk hunters. These same lands produce saw timber for industry. Timber harvest results in removal of the forest canopy by one of several cutting methods; clear-cut, shelterwood, seed tree, or sanitation salvage. Roads are constructed to provide access to the logging site, slash remains after logging is complete, and vehicle use occurs on the roads after the sale is finished.

All of these changes in the forest environment affect elk habitat. Until recently, following the results of research efforts in five western states, the effects of these changes on elk production were not documented.

The Department began a research project in 1969 to study the effects of logging and vehicle access on Rocky Mountain elk. The study, now

completed, was conducted within the Mt. Emily game management unit located on the Umatilla National Forest. The prime objective of the study was to document elk habitat use in the forest environment before logging, during logging, and after logging. Data from this study have been used to construct a management system that can be applied to achieve the goal of producing both elk and timber on public forest lands of northeast Oregon.

The question is often asked, why are game managers concerned about logging and roads, when just 20 years ago these forest activities were considered beneficial. To answer this question we must review the history and development of northeast Oregon's elk population.

During exploration and settlement of the Blue Mountains, elk were present in scattered, low density pop-

ulations. Elk were hunted for food, hides, "tusks", and their antlers. By 1899 few elk remained and elk hunting was stopped from 1899-1903 and 1909-1932. It was during this period that elk were transplanted from Wyoming to Billy Meadows near Enterprise. The elk population responded to protection and habitat changes, and in 1933 an elk season was established resulting in 2,440 hunters bagging 579 bull elk. An elk season has occurred annually each year since 1933.

The elk population increased mainly because of changes in the structure of the forest plant communities. Logging created openings in the forest allowing forage plants to grow. As the ratio of forage areas to cover increased, the elk population increased. Roads constructed to harvest the timber provided better hunter access and distributed hunters over

a larger area allowing harvest within isolated elk herds and relieving hunter congestion.

By 1960 northeast Oregon district biologists noted a decline in elk production where herd ranges overlapped areas of intense forest harvest and road construction. The primary reasons for the decline were thought to be a reduction in forest cover below a minimum number of acres needed to produce elk and from increased harassment by vehicles traveling the extensive road systems. Research has been able to identify some of the habitat needs of elk and some of the cause and effect relationships between elk, timber harvest, and vehicle disturbance.

From 1971 through 1978 some 248 elk were trapped on the study area and radio transmitters placed on 149 animals. Movements and habitat use by these elk were monitored 24 hours a day each year from June through September. Data from tags returned by elk hunters and visual sightings by project personnel were also recorded and analyzed to determine movements of elk within the study area.

Sixty-five yearling bulls were marked during the study and 45 (69%) were reported bagged by hunters. Forty (94%) of the 45 bulls were bagged the same year they were marked and 35 (77%) were taken on the study area. One hundred adult cow elk were marked and 9 percent were reported harvested. Sixty-nine percent of the cows bagged were also taken on the study area. Marked elk have been bagged on the study area six years after being tagged. Seventy-eight (52%) of the 149 radio equipped elk were observed on the study area in successive years after being tagged. These data demonstrate the fidelity elk develop for a specific area, returning year after year to the same range.

Four hundred and ninety elk groups were observed during the study and the number of elk in each group recorded. The largest elk group contained 116 animals. The average elk group was smallest in June during calving with seven elk, reached a high in July with 14 elk and diminished to 11 elk in August and eight elk in September.

The 149 radio tagged elk were located 7,383 times and data derived



These two elk were immobilized with tranquilizers so radio collars could be fitted. Author helps two-year-old cow as she begins to recover. In photo below research biologist "Bud" Adams records data on tagged bull.



from these locations included time of day, slope, aspect, habitat type, distance to the nearest road and distance to the nearest logged unit. Ninety-seven percent of the recorded elk use was found in eight (44%) of the 18 habitat types defined.

Elk use was highest in the riparian habitat type. This plant community

is found in conjunction with canyon bottoms, stream courses, springs and moist sites. A multi-layered canopy structure of conifers, deciduous trees and tall shrubs provide high quality hiding and thermal cover. Abundant forage consisting of low shrubs, grasses and forbs is available for elk feed.

The dense canopy in the riparian type provides elk protection from the high summer temperatures. The abundance of forage in this habitat also allows elk to conserve energy that would otherwise be expended searching for food in other habitats.

The research data showed that elk used the riparian type extensively both day and night with adult cow elk using the habitat more than yearling cows or yearling bulls. The high use by adult cows is believed to be partially due to their increased energy need while raising a calf.

The riparian habitat type is very critical to elk production and extremely sensitive to disturbance. Less than five percent of the Blue Mountains are classed as riparian habitat. It is imperative that future land management practices identify this important land type and that steps be taken to insure the productive nature of this habitat type is not lost.

Elk use was very high in the north slope forest type composed of white fir, larch and spruce. A closed canopy in this habitat prevents growth of abundant forage, but the north aspect creates a micro climate which enables elk to find a comfort zone on hot summer days. Elk bed grounds are frequent in this habitat and extensive trail systems are used to move up and down the slope and remain under constant cover. Elk frequently use these trail systems to move from one canyon to the next or from ridge line to canyon bottom. Air temperatures will often be ten degrees cooler in this habitat than air temperatures in adjacent habitats. This habitat type is frequently used by elk as hiding cover during the hunting season.

Six additional habitat types were used extensively by elk for feeding areas, thermal cover, travel routes and resting areas. Within each of the eight habitat types, vegetation structure played an important role in supporting elk use. Dense canopy timber stands with a minimum understory of shrubs were used as shelter from the summer heat. Timber stands with less dense crown cover were used as forage areas. The open crown structure allowed sunlight to reach the forest floor and produce forage plants. Openings in the forest with no over-story canopy were used as forage

areas where the distance to hiding cover was not too great. Approximately 600 feet is the maximum distance elk will move away from cover to feed.

Elk habitat use was also found to change within the various summer months. Ridge top habitats were used during May-June when green feed was available in the meadows and daytime temperatures were moderate. Canyon habitats became important during July-August after forage on the ridges dried out and summer temperatures exceeded 75 degrees. When temperatures moderated in September-October elk moved back to the ridges and used the nontimbered canyon walls as forage areas. Perennial grasses put on regrowth following early September rain and elk moved to the canyon walls and ridge tops to feed on this new growth.

Roads and the associated vehicle traffic were found to affect elk in two ways. The roadbed removes 2.7 to 4.1 acres of land from production for each one mile of road, depending on roadbed width. In some forest areas there are 6-8 miles of road per square mile of land. This represents a significant and permanent loss of elk habitat. During this study, elk were found to avoid the habitats within 820 feet of roads open to vehicle traffic. Elk used habitats that were protected from vehicle disturbance by dense vegetation or topographic barriers. Elk preferred canyon habitats during this study to escape from vehicle dis-

turbance. The results of constant vehicle disturbance on an elk herd's productivity may not be detectable for several years. Elk crowded into remaining unroaded habitat are subject to more disease risk, less available food and poor quality cover.

The effectiveness of elk habitat adjacent to roads is adversely affected by vehicle traffic. Present research data indicates elk habitat effectiveness is reduced by 69 percent where one mile of main road and one mile of secondary road per square mile of habitat is open to traffic. The standard of road, location and degree of use markedly influences elk use in adjacent areas. Cooperative road closure programs between the Department, federal land management agencies and private landowners are currently helping to improve elk habitat.

The biological needs of elk can be achieved using a variety of timber stand management systems and rotation schedules. The ratio of feeding areas to forested areas can be used as an index to coordinate timber management with elk management. Within this basic framework of habitat management there are a number of additional ways to enhance elk habitat and mitigate adverse impacts.

Timber management and elk habitat management are generally compatible, but only if the needs of elk are recognized and considered along with the planning that precedes timber harvest.□



Research assistant Larry Bryant uses a special radio receiver to pick up signals from elk fitted with radio collars.

ROCKY MOUNTAIN ELK —

by

THE OTHER 50 WEEKS

*Donavin A. Leckenby
Research Biologist*

Many Oregonians know the Rocky Mountain elk for two weeks or less in the fall of the year. When the hunting seasons close, we journey home perhaps with meat and antlers, perhaps with nothing but memories.

Our exodus from the elk's summer home occurs at the time when cows, calves, and bulls are beginning to migrate toward their winter range. Few of us are privileged to continue our contact on other days in other seasons. What may we learn of the elk these other fifty weeks? Let the reader be an observer in these brief glimpses during winter, spring, and summer.

WINTER

The cow elk is motionless on her bed of snow in the predawn. Her methodical chewing stops as the stars fade. Coyote yips contrast sharply with the deep notes of a horned owl up the ridge. She lunges up from the icy bed, shakes violently and stretches. Her hooves sink just above the dew claws in the old snow. She turns to face the pale January horizon, and lies back in the bed beneath overhanging pine boughs.

Later as blue shadows stretch across the snow, the cow again lurches up. She begins to feed, circling small pines with up-stretched muzzle pulling every wisp of hanging lichen from the branches. Her feeding trail encompasses each tree near the edge of the overhanging crowns. She walks straight between the black trunks, circles each one in turn, and leaves a chain-like trail along the contour of the ridge. Globes of snow drop onto her forehead when she pulls long bundles of pine needles in half. Then most of this snow slides over her nose when she reaches down to yank cured wheatgrass from a hole melted beneath a scraggy bitterbrush.

She continues to feed along the slope, just below the edge where bitterbrush and bunchgrass are all but buried by a smooth blanket of snow.

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Pacing deliberately, the cow crosses a finger which angles down from the open flat. Here the crusty snow reaches above the scent gland. The foot sinks nearly to the hock at each step. Large flakes of snow begin to drift down as the cow trudges through the open. Her dark head and mane become dappled gray with trapped flakes, but she is quickly beneath the trees again as the smokey clouds close off the last fragment of blue sky.

The feeding cow rounds a sharp corner where the slope abruptly steepens and turns west. Scattered young pine gives way to a thicket of Douglas fir which is overtopped by the tall orange trunks of ponderosa pine. Facing the steep pitch under this denser canopy, she strikes at the fluffy snow, cascading it downslope with her hoof. Several strikes uncover elk sedge in a thin patch half as long as her body. The green, wiry leaves squeak before they break when she pinches them between upper jaw pad and lower teeth. She chews the scant mouthful gleaned from among the ninebark and snowberry stems and resumes pawing away the snow. The

only sounds for an hour are of scraping, squeaking and the snapping of sedge leaves. Elsewhere in the thicket other elk in the group echo the noises of feeding.

They feed for two hours, then bed on a ridgelet. Each cow and calf lies under the tree canopy just back from its overhanging edge. All ruminates and drowse with half closed eyes for an hour while flakes of snow continue to float straight down. The new blanket later muffles their movements as the elk repeat the feeding cycle of their daily routine.

SPRING

A vee of noisy geese pass across the indigo dawn. On the ridgelet crest, winter elk beds have melted out and the last patch of snow resembles a salt block sculptured by the tongues of range cattle. A grouse struts on the snow patch. Neck sacks wink like purple irises as the cock sends his ventriloquist call into the canyon.

Contrasts between the timber and grassland patches sharpen in No-name Basin as the sun climbs over

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Dead Horse Saddle. In the gathering light a cow elk awkwardly rises from her bed as the sun warms the trunks of pine. In the warmth a faint scent of vanilla floats from the bark's black fissures. The cow pulls bunches of green grass, and soon other elk rise to feed among the large pines scattered along the crest of the hogback.

Two magpies noisily alight in a nearby hawthorn clump and watch the feeding cow. She violently shakes, creating a halo of droplets about her body. One bird swoops toward her and lands on the ragged winter coat of her motionless back. Peering with each eye in turn, the magpie strides between the ears and out onto the cow's forehead. The bird examines within and about each brown ear and begins to probe at their bases. The tail flips from ear to ear as the magpie probes beak-deep down the black mane. Eventually the bird flops into ragged flight back to the hawthorn. There it preens and scrapes its shiny beak among the purple thorns.

The cow resumes feeding on the abundant green blades of bunchgrass as she catches up to last year's calf and a two-year-old cow. Where the three feeding trails converge, the cow leads and all three elk pant in the warm sun. They walk single file and pass by a sapling pine at the edge of a Douglas fir thicket. The bared yellow wood of a fresh scar on the small tree is covered with amber beads of pitch in which several bundles of elk hair are stuck.

The animals file into the coolness of the thicket. The yearling and younger cow immediately settle in well used hollows on a flat area within the cover. The cow stands, raking off gobs of winter hair while snapping dead twigs from a Douglas fir sapling. She methodically skins strips of green bark with her teeth and piney scents float in the quiet air. The bark shavings fall around the base of the tree until bare wood nearly encircles the trunk. Then the cow slides her muzzle, face and neck over the skinned wood. She rubs for several minutes and twice reaches back to run her muzzle across flank and hip. She stands staring at the sleeping yearling while the breeze vibrates three hairs where they stick out of the ragged bark at the top of her fresh rub.

SUMMER

The July moon casts shadows of alpine fir across the clear-cut where an elk stands flank deep in bracken fern. She has a slick reddish coat and, though still dark, the mane hair is also short and shines in the moonlight. The cow plucks and chews tender leaves of Jacob's Ladder and orchard grass that stick above the red and green mat of wild strawberries in an opening between clumps of fern. Pinching a bedstraw, she pulls and munches.

Shadows fade with the paling moon and sky. Elk scent is strong in the clear-cut where dark feeding trails break through the glistening layer of dew. Dawn brings another day of heat, and the group feeds toward the spruce and fir which stand between the clear-cuts. Cows, calves and spike bulls, amid frequent calling, move into the dense cover of yew trees beneath the forest canopy. The herd is shaded before the sun has climbed above the trees to shine fully into the open spaces. Last year's calf starts to lie down in an old bed in the duff between two red yew trunks. But the cow lays back her ears, and, with a partial kick, chases it off. The yearling then moves to another old bed nearer to the edge of the thicket. The cow scrapes with her hind feet and scatters needle litter and loose soil until firm and moist earth is exposed in her chosen bed. She lies down and shakes

the biting flies from her head and neck.

The dark firs shimmer through the heat in the clear-cut. Aroma of baking fern prevails. But under the firs and yew it is still cool. The cow finishes chewing. She rests her chin on the ground and her eyelids droop. Nearby, noisy children play in a campground and logging trucks roar by stirring up road dust that filters through the trees. The herd sleeps for a quarter of an hour. Then the cow stands, turns in her bed, stretches and paws away the dry soil again before lying back down. This time she puts both front legs out on the fresh bare earth and stretches her head and neck flat between them on the cool surface. The only motions of the group are constant ear flapping, occasional chewing, and frequent flickering of eyelids. This continues until the breezes of evening signal that the forage area is cooling. Then the group rises and begins to feed out into the clear-cut again.

These are only brief glimpses in the lives of elk in the Blue Mountains of Oregon. Each observation of the interplay between elk and the surrounding habitat helps us to understand how the herds cope with their many environments. What happens for fifty weeks has a great influence on the sizes of the herds we find during those other two weeks in the fall. □



ANGLING REGULATIONS SET FOR 1980

Angling regulations for next year were set following a public hearing by the Fish and Wildlife Commission which met in Portland October 20. Changes to the 1979 regulations were relatively few this year and most fisheries staff recommendations were adopted by the Commission.

Anglers are reminded that these changes do not take effect until January 1, and the regulations in the 1979 synopsis remain in force through the end of the year (except for coastal salmon rules which were modified during the year). Printed regulations will be available from license agents throughout the state in the latter half of December.

A listing of the major changes to regulations in effect now follows:

GENERAL REGULATIONS

- * Prohibit the use of treble hooks larger than 9/16-inch (3/0) for salmon or steelhead except in the Ocean.
- * Extend the single point hook regulation to include the entire Chetco River above Hwy. 101 bridge through December 31.
- * Prohibit cutting or angling through a man-made hole in the ice larger than 12 inches in diameter (for safety reasons).

SALMON AND STEELHEAD REGULATIONS

- * Setting of ocean salmon regulations delayed until next spring.

Zone 1

- * Reduce salmon bag limit from 3 to 2 per day.
- * Close Chetco River to salmon angling upstream from Hwy. 101 bridge January 1-March 31.
- * Close Kilchis River to salmon angling April 1 through September 15, to protect spring chinook needed for spawning.
- * Close to salmon angling from August 1 through September 15: the Nestucca River above Cloverdale bridge, the Trask River above Hwy. 101 bridge, and Wilson River above the railroad bridge near head of tide.



Staff wildlife artist Harold Cramer Smith puts the finishing touches on the cover illustration for Oregon's 1980 Sport Fishing Regulations. Smith's artwork has appeared on the regulations since 1952. Fifty-five tons of newsprint are required to print the 650,000 booklets which should be available about Christmas time.

- * Three Rivers closed to all angling June 15-October 31 below Alder Creek.
- * On Wilson River move summer angling closure deadline one mile downstream from Lee's Camp bridge to Jones Creek Camp bridge.

Zone 2

- * Close hole at powerhouse on Bull Run River (extreme safety hazard).
- * Establish 400 foot closure at new salmon hatchery on Clackamas River.

Zone 3

- * Reduce salmon bag limit from 3 to 2 per day.
- * Require use of fly fishing tackle only on fly area of North Umpqua.

Zone 4

- * Establish Rogue River salmon bag limit of 3 per day above tide, 2 per day below head of tide.
- * Increase areas and times when jack salmon may be taken on Rogue and Illinois rivers.

Zone 5

- * Increase steelhead bag limit on the Deschutes River to 2 fin-clipped hatchery fish per day; 4 in possession or in 7 consecutive days.

Zones 6-9 — No major changes

Zone 10

- * Close Columbia to angling for jack salmon downstream from Astoria-Megler Bridge June 1 through September 15. (Many small salmon are immature ocean salmon rather than mature jack salmon).
- * Drop fall closure on Eagle Creek (Columbia River system) below railroad bridge. Extend closure in spawning streams between Bridal Veil and Bonneville Dam through November.

TROUT REGULATIONS

Statewide

- * Reduce daily trout bag limit to 5 fish per day on streams and bays (with some exceptions) but maintain 10-fish daily bag limit on lakes, ponds and reservoirs (except where individually speci-

fied differently).

- * Establish general trout season opening dates of April 26 and May 24.

Zone 1

- * Libby Pond opened year around.

Zone 2

- * Drop winter trout season November 1 through April 20 (for 2 fish 12 inches and over) in salmon and steelhead streams.
- * Willamina Pond opened year around.
- * Open the Clackamas River below River Mill Dam with late (May 24) trout opening to protect out-migrating young steelhead and salmon.
- * Drop "juveniles only" provision on Mill Creek in Marion County.
- * North Fork of the Middle Fork Willamette restricted to fly angling only.
- * Open Hood River below the forks with late (May 24) trout opening.

Zone 3

- * Ben Irving Pond (new water body) opened year around.

Zone 4

- * Willow Creek Reservoir opened year around.

Zone 5 — No major changes.

Zone 6

- * Establish a five fish bag limit on Ana, Cottonwood Meadows and Lofton reservoirs, and on Heart Lake.
- * Establish a common trout bag limit for the Williamson River below Silver Lake Road of 2 fish 12 inches or over per day.

Zone 7

- * Establish a trout bag limit of 2 fish daily for Aldrich Ponds and Jump-off Joe Lake.
- * Add upper Butter Creek and McKay Creek to those streams which open with the early (April 26) trout season. (Streams drop sharply when irrigation withdrawals begin in late spring).
- * Extend the trout season on the lower Umatilla River (up to Mission Bridge) through December 31.

BILL TO PROVIDE FISH FUNDS

A bill pending in the U.S. Congress could mean a healthy financial shot in the arm for state fisheries management programs.

S. 1631 would add a three percent manufacturer's excise tax to recreational boats, motors and boat trailers, and extend the current ten percent tax on some fishing tackle to all items not now covered. The receipts would be used by states to improve fishing.

The Federal Aid in Sport Fish Restoration Program, also known as the Dingell-Johnson or D-J Program, now imposes a ten percent manufacturer's excise tax on fishing rods, reels, creels, and artificial lures. These receipts, paid by fishermen, are apportioned to the states on a three to one matching basis. In 1978, \$28.5 million in D-J taxes were collected.

S. 1631 would expand the D-J tax by adding fishing lines, tackle boxes, and other accessories at ten percent, plus boats (25 feet or less), motors, and trailers at three percent, with exemptions for kayaks, hydroplanes, sailboats and commercial craft. This would add an estimated \$100 million annually to D-J.

State Fish and Wildlife departments, of course, are behind the legislation. Other organizations taking part in the campaign are the American Fisheries Society, International Association of Fish and Wildlife Agencies, Izaak Walton League of America, Bass Anglers Sportsman Society, American League of Anglers, National Wildlife Federation, Federation of Fly Fishermen, Trout Unlimited, Northwest Steelheaders and

other groups interested in the nation's fishery resources.

Dingell-Johnson funds can be used for public access, habitat improvement, research and fish management projects. The Oregon Department of Fish and Wildlife and its predecessor the Oregon Game Commission have used the fund since it was established in 1951. Virtually all of the chemical rehabilitation of lakes and streams to remove rough fish has been conducted with D-J funds. Numerous access sites and lands have been purchased and several reservoirs have been constructed for the angling public. A big share of the Department's fishery research program is funded under D-J. Last year more than \$681,000 was apportioned to Oregon from D-J revenues.

If the legislation is passed it will help the state offset some of the inflationary crunch that has been felt in the budget in recent years and will enable expansion of existing programs of habitat improvement, management and research.□



We introduce our readers to Fred A. Phillips, newest Commission member appointed by Governor Vic Atiyeh. A photo was unavailable to go with a story on his appointment last month. Phillips' appointment and those of two other new appointees is pending Senate confirmation later this month.

- * Add Wallowa Lake to waters open entire year.

OTHER FISH REGULATIONS

- * Prohibit angling for sturgeon with artificial lures in waters closed to salmon and steelhead angling.
- * Open St. Louis warm-water fishing complex to angling in 1980, with a 5 fish aggregate bag limit and a 12-inch minimum length on bass and catfish.
- * Drop the requirement for a permit to take abalone.□



The mild-mannered porcupine uses his prickly equipment only for defense.

THE PORCUPINE

ITS LIFE, LOVES AND DISTRIBUTION

by Jim Gladson

An observer of nature can pass a lot of time in the forests of Oregon. The trees and woodland floors are home to a fascinating variety of animals and birds. Most sightings are likely to be brief, because only the quick and the quiet can stay alive.

The porcupine, however, is an exception to the formula that says stealth and speed equal survival. Anyone wishing to inspect a porcupine at close range can do so at his leisure for this member of the rodent order is a real slowpoke.

But quick escape is unnecessary for the porcupine because nature has provided a more formidable defense; a carpet of quills that can make the

slightest touch a painful experience.

The face and belly of the porcupine are the only areas that do not sport a shield of barbed spines. This imposing defense system more than makes up for the slow, waddling gait.

Thousands of these quills are firmly attached to a muscle layer beneath the skin. Quill sizes range from one-half inch on the cheeks to three or more inches on the back.

When a porcupine is threatened it tucks its head under, hunches up its back and uses the muscle to stand the quills on end. With back turned to its attacker the porcupine thrusts upward with its tail and hind legs, driving the quills home.

Contrary to popular belief, the porcupine does not throw its quills. That theory probably came from the fact that looser quills are sometimes "thrown" off the animal during its thrashing defense. Even if these shallow quills hit point first, they lack the weight to penetrate skin.

Contact with quills driven home by the thrashing tail or back is another matter. An animal stabbed by these spines faces a painful and sometimes fatal problem.

Porcupine quills are designed to go only one way; in. Two or three dozen overlapping barbs do not allow the spines to be removed easily. Animals attempting to scrap them out usually

push them deeper.

The quills, once implanted, often cause infection and may sometimes work into vital organs or blood vessels. Research has shown that in many cases the quills will soften and present only a temporary, but nonetheless painful problem.

Regardless of the ultimate damage the quills can discourage most would-be attackers. Only the fiercest predators apparently have any success at breaching the porcupine's protective coat. In Oregon, the cougar, bobcat, fisher, and wolverine are the most consistent consumers of porcupine flesh. Of these four predators, the latter two are rarely sighted and the two cats are not numerous. For porcupines, these statistics make life easier.

There is one other predator in the woods against which the porcupine has no defense. That creature is man. It seems the "porkie" has earned a bad reputation because of its food habits. It eats trees.

The preferred food for porcupines during the fall and winter is the tender inner bark of pines and firs called the cambium layer. The porcupine will climb a tree and gnaw off a patch of bark leaving a "blaze" on the trunk. Removal of protective bark leaves the tree vulnerable to disease or parasites and also may reduce the future market value for lumber.

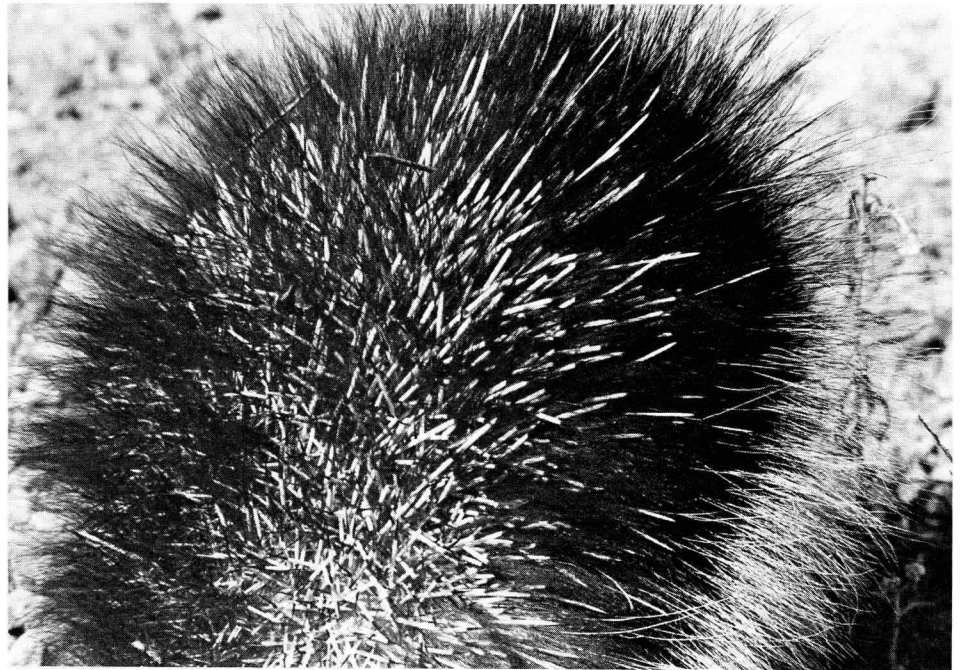
In extreme cases, porcupines may eat entirely around a tree, thus "girdling" the trunk, a condition that often kills the tree.

According to one source a single porcupine in a stand of timber may do several thousand dollars worth of damage in its lifetime. Damage problems have been recorded in Klamath and Douglas counties and other areas of the state. On three occasions, fishers have been imported from British Columbia to help reduce porcupine numbers in some places. Results of these transplants have not been determined.

Because of this tendency to damage trees, the porcupine is considered a pest by the forest industry. With any animal and resource conflict there are usually two views of the same events. People not so close to the timber interests acknowledge that porcupines eat trees, but feel the



Above we see the cuddly end of the porcupine, and below we see the business end. An old wife's tale says porcupines can "throw" their quills. Although this is not true the needle-sharp quills can be driven home deeply and forcefully.



damage is more nuisance than outright threat to commercial forests.

The "porkie" does not eat bark all the time. The urge for wood and salt also draws the porcupine to eat such things as axe and shovel handles, gun stocks, leather saddles and other objects that may acquire a salty coating of human perspiration.

During the spring and summer the porcupine often shifts entirely to

other available plants and herbs. In any case, the porcupine is a solitary animal for much of the year so damage problems are not often concentrated to a disastrous level.

Usually, the only time one sees two or more porcupines at the same time is during the winter when they may share shelter in rocky slopes or hollowed trees and stumps, or during the fall breeding season. (continued p. 12)

This raises the sticky question: "How do porcupines mate?" The fact is that the female simply lays down her quills flat against her body and moves her tail aside to accommodate the male. Obviously, the male can only consider breeding when the female is "in the mood".

Once bred, the gestation period for young is about seven months. In Oregon, the young usually enter the world during May. The female delivers only one young. Twins are rare.

This new "porkie" arrives surprisingly well equipped with eyes open and teeth already showing. It also has a set of tiny quills about one inch long and sharp as needles. By the second day the youngster is climbing trees and within a few weeks is feeding on its own.

The parent/young relationship grows steadily more distant and by six months the young porcupine is out in the world. During that period it will grow from a birth weight of about one pound to over three pounds. Within one year the animal will weigh around seven pounds and measure almost two feet long. The porcupine will ultimately reach an adult weight of 15 pounds or more.

The adult porcupine takes a place that is unique among North American rodents. The porcupine of Oregon, *Erethizon dorsatum*, also called the yellow-haired porcupine, is the only native representative of its scientific family in the country. The theory is that long ago the porcupine moved up into North America along the Isthmus of Panama, leaving other species similar to itself behind in South America. The porcupine is thus more closely related to such animals as the guinea pig, capybara and fine-furred chinchilla than it is to other rodents of the U.S. The porcupine has been joined in recent decades by an imported relative, the nutria.

Early studies of the porcupine in Oregon concluded that it was a creature of eastern and southern Oregon and not inclined to visit the more humid areas of the state. Recent history has shown that the "porkie" is found generally throughout the state, including west of the Cascades and on the coast. So the alert observer is likely to see this "quill pig" taking a walk in just about any likely wooded area. □

ELECTROFISHING ON COASTAL RIVERS PART OF WILD FALL CHINOOK RESEARCH

This fall, crews from the Oregon Department of Fish and Wildlife will begin another year of collecting wild fall chinook from four coastal river systems.

Eggs taken from the chinook will be reared in hatcheries and used as part of a coast wide fish stock assessment program being carried out by the Department.

The river systems involved include the Yaquina and its tributary Elk River, the Siuslaw system, the Coos and Millicoma rivers, and Lobster Creek, a tributary of the Rogue.

A collection goal of 1,050,000 eggs has been set for 1979. The eggs will be incubated and reared at four private hatchery facilities on the coast. The participating operations are Oregon Aqua Foods, Inc. at Newport; Domsea Farms, Inc., on the Siuslaw; Anadromous, Inc. on Coos River and Burnt Hill Salmon Ranch on Lobster Creek.

These four private hatcheries are financing a large share of the program and will release a portion of the reared fish from their own facilities.

Project plans for this year call for the insertion of coded wire tags in 200,000 of the salmon smolts prior to release next year. A total of 100,000 smolts will be released in the streams where the adult fish were originally taken. Smolts grown from eggs taken in 1978 will be tagged and released in late October and early November this year. Chinook return from the sea to spawn in four years.

According to Harry Wagner, assistant chief of the Fish and Wildlife Department's fish division, the expected return of adults from smolts released in the study streams should exceed the number of adult fish that would have returned had the captured fish been allowed to spawn naturally.

Wagner emphasized that the total adult fish collected in the program make up only a small portion of the fish that move on up the rivers and spawn naturally.

"In no way does taking these fish endanger the existing stocks. In fact, this program will ultimately improve

natural returns to these river systems," Wagner said.

The other 100,000 fish, with coded wire tags inserted, plus any further surplus, will be released from the private hatcheries.

Once in the ocean all of these tagged fish will provide much needed information. Tag recovery from ocean caught fish will tell biologists where the fish go once at sea and who catches them.

At this time, according to Wagner, little is known about wild fish distribution in the ocean. Statistics from tag recoveries will help biologists develop workable management plans for ocean salmon fisheries. These plans will help assure that Oregon fishermen, both offshore and inland, will get the best possible opportunity to catch Oregon grown fish.

Tag recoveries may answer another question. Do wild fish use the same areas of the ocean as the hatchery fish? If studies reveal they do not, then biologists can manage ocean fisheries to avoid target fishing in areas known to be used primarily by wild stocks.

The other objective of the program is to "develop a native hatchery brood stock for use in private hatcheries. We believe that Oregon stocks should contribute best to Oregon fisheries," Wagner said.

Oregon's young private hatchery industry has, up to now, reared and released primarily coho and chum salmon. Few fall chinook have been raised by private operators because a seed stock of eggs has not been available.

In recent years, state owned hatcheries on the coast have had no surplus eggs to sell to private operations. The Fish and Wildlife Department has also limited importing of outside stocks fearing introduction of disease and unhealthy competition with existing native fish.

By allowing private hatcheries an opportunity to rear and release fall chinook in return for financing of essential research, the Department is fostering development of both public

and private future benefits, Wagner said.

Wagner added that the private hatcheries are taking a financial risk since the 100,000 smolts earmarked for return to streams of origin are taken off the top of final smolt production. Only the surplus above that number are available to private operations for release.

The best possible result from this program would be a significant increase of native fall chinook returning to coastal streams, both at the hatchery and in the rivers being studied, according to Wagner.

Future fish rearing by the Department could also be influenced by using these newly developed brood stocks in the state hatchery system.

This will be the third year of the project on the Yaquina, the second year on the Siuslaw and Coos systems and the first year on Lobster Creek.

Most fish captured for the study last year were taken alive by electrofishing from boats. The same method will be used on all but Lobster Creek this year, Wagner said.

Electrofishing involves using a boat with a generator that puts an electrical current into the water. Fish are stunned briefly when they make contact with the electrical field and float to the surface. The fish are taken from the water and placed in a live box on the boat. After that, the chinook are transferred to the hatchery by tank truck for later spawning.

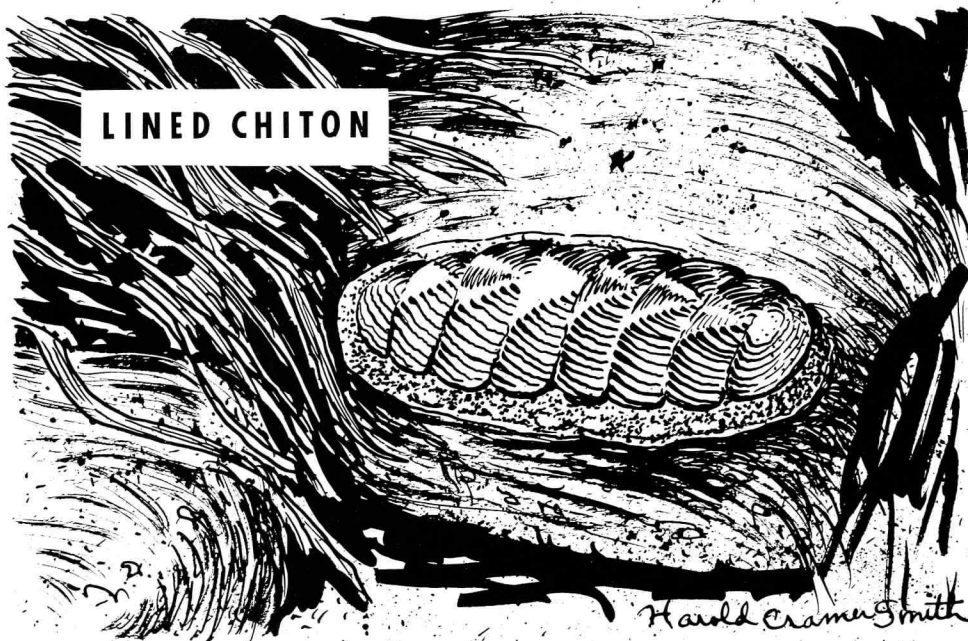
Fish collection on Lobster Creek will not be done by electrofishing. Fish weirs and a trap will capture fish for spawning.

A Department report on last year's project logged 225 fish taken during the study from September through November. Almost 650,000 eggs were taken from the captured fish last year. □

WOOD RAT CORRECTION

A recent Oregon Wildlife article (September, 1979) on wood rats contained an error. The white-throated wood rat, *N. albigula*, is not found in Oregon.

OREGON WILDLIFE



CHITONS

Like snails that produce the familiar seashells, chitons are mollusks that move about on a "stomach foot" and have backs covered with shelly armor. Unlike the snails, the chitons' shells are composed of eight overlapping plates which give the chitons' bodies a flexibility similar to that of the armadillo. Most species can be recognized by the shape, texture, and color of the plates.

Unfortunately for the beachcomber, the tissue that joins the segments of the chiton shells deteriorates when the animal dies. Any handful of gathered shells is apt to include a colorful flattened V-shaped segment, but seldom a complete set. To collect a complete set from a chiton freshly consumed by its enemy the starfish, the beachcomber should look around rocky tidepools. Starfish do not normally consume the tough gristly girdle that forms the outer edge of the chiton body and binds the plates together. Since the girdle takes several days to decompose and soften, the remains of freshly consumed chitons retain all of the shell segments in place. Collectors usually remove each plate from the girdle, clean and dry them, glue the segments in position, and restore their color and lustre with a light coating of mineral oil. Some prefer to mount the complete girdle and plates on a flat stick (like a tongue depressor) until it has dried. In that method the dried girdle holds the shell segments in place.

The Oregon coast has many chitons. The little (one-inch) red-striped lined chiton, the textured green mossy chiton with its bristly girdle, and the white-striped woody chiton are among the most common. They are apt to be encountered in nearly any rocky tidepool area of the open coast where there is enough shelter from the surf. Some outcroppings, particularly those of black basalt and containing abundant seaweed, harbor populations of black leather chitons. These chitons have only the black central humps of their shell plates showing on backs nearly covered by a girdle that looks and feels like black wet leather. Black leather chitons are usually larger and may reach four inches in length.

In deeper tidepools the eight-inch-long giant chitons are to be found, though their white shells are covered by a rough red-brick colored skin. Like their smaller relatives, giant chitons are herbivores that eat seaweeds. Despite their size, they are, in turn, consumed by predators, leaving white butterfly-shaped shells for beachcombers to find and wonder about. □

James Seeley White

THIS AND THAT

compiled by Ken Durbin

Penalties Were Stiff

Years ago those caught poaching were meted penalties that offered far more cause for thought than even the stiffest fines handed down today. In 1615, for example, poaching was a problem in Sweden. King Gustav II Adolf stated the fine for poaching in the royal park was three pair of oxen for a deer and one ox for a hare. Fines apparently were not effective and in 1620 capital punishment was introduced as the ultimate penalty for poaching. While never applied, a few offenders were sent to exile in the Swedish colony in North America.

In 1722 the English Parliament passed an Act which declared deer poaching with weapons or blackened faces to be a felony. Under this act four poachers were hanged and 36 transported, a revision to Norman severity which was to be characteristic of game preservation in the eighteenth and early nineteenth centuries. This act was followed by an Act of 1771 which prescribed a year's imprisonment and a whipping for a second offense. Later the Ellenborough Act of 1803 proclaimed that anyone offering resistance to arrest would be hanged as a felon and in 1817 any poaching was made punishable by seven years transportation, from which no one ever returned.

Proceedings,
31st Annual Conference
SE Association of
Fish and Wildlife Agencies

Minnesota Protects Wetlands

The Minnesota Legislature has passed a law which eliminates property tax on all privately owned wetlands in the state and established a property tax credit for every acre of wetland that the landowner agrees not to drain for a one-year period. The tax credit program will be administered by county officials and each county will be reimbursed by Minnesota's general revenue fund for all costs.

Texas Parks & Wildlife

Wetlands Damage

Losses of wetlands amount to some 300,000 acres per year, and as much as 40 percent of the original wetland acreage of the lower 48 states has been irreversibly altered or destroyed, according to a report published by the President's Council on Environmental Quality. Copies of the report, which describe these problems and steps being taken to protect the wetlands, may be obtained free of charge from the Environmental Protection Agency, Office of Printing and Management (PM-215), 401 M Street SW, Washington, D.C. 20460. Enclose a self-addressed mailing label.

Texas Parks & Wildlife

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Woodcutting Program to Get More Study

A request for up to \$138,000 in federal funds will be made to finance the Oregon State Department of Forestry's program to allow the public to cut firewood in state forests.

The Board of Forestry's Land and Practices Committee made the recommendation at their Aug. 10 meeting in Salem. The funds would be sought for one year only to support up to six full-time employees to set up a comprehensive woodcutting program. After that year, a more permanent financing program would be developed. The committee considered charging the public a small fee for woodcutting permits, about \$5, but postponed making that decision. Permits are now free.

Further discussion of the woodcutting program and its financing is tentatively scheduled for a December committee meeting in Salem.

Forest Log

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Popular Booklet Updated

The U.S. Fish and Wildlife Service has updated and republished its popular booklet "Migration of Birds".

Originally published in the early 1930s and revised in 1950, the new edition summarizes data collected since that time. The booklet is available for \$4.25 each from the Superintendent of Documents, U.S. Government Printing Office, North Capitol and H Streets, Washington, D.C. 20402.

Wildlife Management Institute

Nongame Know

A University of Arizona study should give sportsmen reason to pull for nongame bills in state legislature. Entitled "Birdwatchers', Hunters' and Wildlife Professionals' Beliefs About the Importance and Management of Wildlife," the study tries to discover why members of the three groups mentioned haven't united in their efforts. Not all results were available in our source, but one topic was emphasized.

Birders responding did not perceive public agencies as active representatives of their interests. However, the report also points out that most birdwatchers neither placed high value on sport hunting nor opposed it strongly. From this, one may postulate that state wildlife agencies could provide a common ground for sportsmen and nature lovers, if funds become available for nonconsumptive wildlife programs.

This means sportsmen would suddenly find some former critics on their side. Not a bad idea at that.

Outdoor Oklahoma

*

Tax Benefits for Property Donations Possible

Proposed legislation before the U.S. House of Representatives would allow property owners who donate land for conservation purposes to receive increased tax benefits. The bill would remove a long-standing impediment to the donation of land in need of protection by allowing property owners to receive a federal tax deduction while retaining the subsurface mineral rights.

Texas Parks & Wildlife

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Flying with Firearms

It is a violation of Federal Aviation Regulations to check loaded firearms through the baggage system at air terminals, but it is not against the law to check sporting arms as baggage if all ammunition is removed before going to the airport. Any magazines or clips containing ammunition must be removed from the firearm. It's a good idea to let the airline know you'll have ammunition and unloaded guns at the time you make your flight reservation, and again when you get to the airport.

Texas Parks & Wildlife

NOVEMBER 1979



Oregon's

WILDLIFE WINDOW

Fall is a time to harvest. It is also a time to plant, especially new trees and shrubs. This allows them to begin growing a good root structure before the heat of next summer.

Landscaping around parks, schools, and even homes can be done with a variety of very attractive plants that will also benefit a number of birds and other wildlife. What better project for a classroom, youth group or other organization than planning and planting for future wildlife.

Your landscaping may be done with either native plants or introduced ones suited to your area. In some areas of eastern Oregon where cold weather begins earlier than on the west side, it may be necessary to wait until spring so new plantings do not suffer from freezing temperatures.

Now is the time to plan in either case. Check with local nurseries about plants they have available. Catalogs of nursery stock are another source of materials for wildlife landscaping. In some situations plants may be dug from public land but only by permit! Check with the agency that administers the land such as the Oregon Department of Forestry, U.S. Forest Service or Bureau of Land Management.

Several publications will be useful in deciding what to plant. An attractive booklet called "Invite Birds to Your Home" is available from the Soil Conservation Service, 16th Floor, 1220 S.W. 3rd Ave., Portland, Oregon 97204. Single copies are free. The booklet contains information on

specific plants that attract birds in the northwest as well as colored pictures of some common birds.

"Plants Attractive to Wildlife in the Pacific Northwest", Extension Circular 853, will provide an extensive listing of both native and introduced plants that may be used in a number of wildlife-landscape efforts. Single copies are free from Extension Service Publications, Oregon State University, Corvallis, Oregon 97331.

Your classroom, school or other group can earn a Wildlife Certificate suitable for framing by developing or maintaining a haven for wildlife. This

program to promote mini "refuges" is sponsored by the National Wildlife Federation. Write for an application at 1412 Sixteenth St. N.W., Washington, D.C. 20036. While doing that, include 25 cents and ask for a copy of the colorful booklet called "Invite Wildlife to Your Backyard". This will guide your layout of wildlife plantings in excellent fashion and assure a pleasing design.

Habitat loss is the major problem facing wildlife. You can help. Now is the time to begin planting for the future. □

THIS MONTH'S WINDOW

PLANTING

Gather information about the best shrubs, trees and other plants that provide food and cover for wildlife in your area.

Encourage local park managers or those in charge of landscaping schools or other public areas to use such plants whenever possible.

Design and plant part of your school yard, backyard, or perhaps a donated vacant lot with plants beneficial to wildlife. □

ATTENTION:

SALMON GILLNETTERS COMMERCIAL SHRIMP FISHERMEN COMMERCIAL SALMON TROLLERS CHARTERBOAT OPERATORS DISABLED VETERAN LICENSE HOLDERS

IF YOU ARE ANY OF THE ABOVE THERE ARE SOME NEW LICENSING PROVISIONS GOING INTO EFFECT THE FIRST OF THE YEAR!

SHRIMP FISHERMEN, SALMON TROLLERS AND GILLNETTERS are going to have to have a new vessel permit to participate in the fishery after the first of the year. This is not the regular license, which is still needed, but in addition a \$1.00 vessel permit.

As a result of moratoria bills enacted by the last legislature, there will be restrictions on which vessels participate in these three commercial fisheries in 1980. Eligibility for permits to take part in the fishery will depend on participation in the specific fishery at certain times in the past, or preparation to do so. For detailed information on the moratorium permits and the requirements, contact Elmer Case at the Portland office of the Department.

THERE ARE DEADLINES FOR APPLYING FOR THE NEW PERMITS. SHRIMPERS must apply before February 1 or they will be ineligible to receive the permit. TROLLERS have until March 1 to apply for their permit. GILLNETTERS have a cutoff date of April 15 for permit application. These deadlines for application are part of the law as enacted and cannot be waived!

As the result of another bill passed by the legislature, CHARTERBOAT OPERATORS will no longer be licensed as guides, but instead their boats will be licensed for charter use. This is a \$25.00 annual license available from the Portland office of the Department.

Individuals eligible for the DISABLED VETERAN'S LICENSE will have it easier starting in 1980. As a result of legislation suggested by the Department, this license will be free and permanent in the future. Previously this license was an annual affair and cost \$1.00 for hunting and \$1.00 for angling.

To qualify for the free, permanent license, a veteran must have a letter from the Veteran's Administration certifying he is currently 25 percent disabled. This is the same requirement that has been in effect in the past. The license is available only to residents of the state.

These licenses are issued only through the Portland office of the Department and are not available from the regular license outlets. This means mailing time unless you go to the Portland office in person. So, if you want to use your license to go fishing or hunting on New Year's Day, be sure to apply well in advance. Applications for these licenses will be accepted starting December 1.□



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