

OREGON WILDLIFE

AUGUST 1980

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OREGON FISH AND WILDLIFE COMMISSION

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Ron E. Shay, Editor
Ken Durbin, Managing Editor

THE COVER — Trooper Ray Grimsbo replaces a rifle to the "library" of firearms at the State Police Crime Lab. An extensive collection of confiscated guns are on hand for test firing to obtain sample bullets for comparison purposes. For more on the crime lab and fish and game law enforcement, see the feature article.

Photo by Ken Durbin

HUNTER EDUCATION PROGRAM INSTRUCTORS APPROVED

Month of June 14

Total Active 1,396

STUDENTS TRAINED

Month of June 288

Total to Date 272,466

HUNTING CASUALTIES REPORTED IN 1980

Fatal 0

Nonfatal 2

YOU CAN HELP!

In our feature article this month, we have written about one of the more intriguing aspects of law enforcement, the crime lab. The piecing together of bits of stray evidence and minute clues to convict a law violator has been the subject of many a novel and movie.

However, perhaps of more potential assistance to the game law enforcement officers is the violation report card printed on the back cover of this issue. This is not to minimize the importance of the crime lab. However, with some 100 men in the Fish & Game Law Enforcement Division of the Oregon State Police, additional eyes and ears are an important assist. Each officer in Oregon has to cover close to 1,000 square miles of territory. In addition, his responsibilities have increased to include the enforcement of nongame laws, some federal wildlife laws and various other statutes concerning pollution and related matters.

We have often been asked, "What should I do if I see a fish or game law violation take place?" The idea of making a citizen's arrest pops into the minds of many folks. This action, however, has a couple of inherent risks. The initial one is the risk of bodily harm. If the arrestee is bigger and more aggressive than the potential arrestor, disaster may ensue.

Regardless of the physical considerations, there are various legal problems. The most serious could be a false arrest suit; the other end of the spectrum could be the case being tossed out of court. Even experienced officers sometimes lose a case because of minor flaws in their techniques or procedures. The inexperienced person has little chance of doing everything right.

So what should one do when seeing a violation ... ignore it? Not at all. That's what the violation report card is for. Cut it out and tuck it into your wallet. If you don't want to cut up the magazine, let us know and we'll send you a copy of the form. If you see a violation occur, fill out as much of the information on the card as possible and get it to the Oregon State Police. Even if you don't want to testify, it helps if the police know who submitted the card so they can call to get more details if necessary.

The main thing to remember however, is to be as good a witness as possible and record every piece of information. Secondly, get the card to the Oregon State Police as soon as possible after you witness the violation. The more accurate and timely the information is, the better the chances of obtaining an arrest and conviction.

The poacher is not the colorful figure painted by writers describing the days of yore. He is a thief stealing from you as a member of the public and if you are a hunter or angler, may be jeopardizing your right to take a legal portion of the fish and wildlife resource. Aiding the police in stopping these scofflaws just makes good sense.□

R.E.S.

COMMISSION MEETINGS

The Oregon Fish and Wildlife Commission will conduct a general business meeting on Thursday, August 14, beginning at 8 a.m. The following day, August 15, the Commission will convene a public hearing at 9 a.m. to consider 1980 hunting seasons for upland birds and waterfowl. Seasons will be set following public testimony.

The Columbia River Compact will meet on Thursday, September 4 at 10 a.m. to consider a late fall gillnet season on the Columbia River.

All three meetings will be held in the main conference room at Fish and Wildlife Department headquarters, 506 S.W. Mill Street in Portland.□



Trooper Gary Knowles microscopically examines samples of wire fencing. Cut marks caused by a known pair of shears are compared to the marks found on wire cut by individuals forcing entry into an area. The picture on the television screen shows what is seen through the scope. The same procedure is used in matching the marks made by a gun barrel on a bullet. Note the line through the center of the screen where the surfaces of the two objects being examined can be shown side by side for comparison.

PARTS TO A PUZZLE

by Ron Shay

*Microscopic photos courtesy
O.S.P. Crime Laboratory.*

It's 11:00 p.m. on a cool spring evening. A pickup truck cruises slowly along a gravel road in the hills of Oregon. A bright spotlight pierces the blackness along the side of the road. The truck stops suddenly as two red spots show up in the beam of the spotlight. A shot shatters the silence and a man jumps from the pickup, jacks a new shell into the chamber of his .30-30 and takes off across the field to where the deer he shot has just dropped. Finding the deer dead, he hoists it onto his shoulders and starts back to the road.

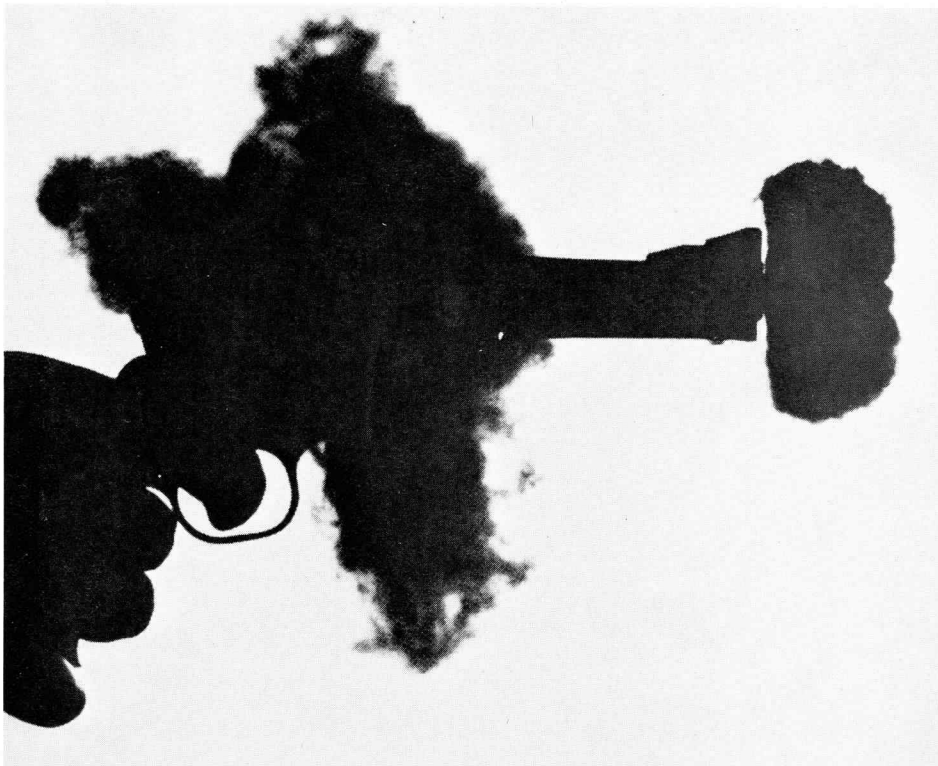
Just then lights appear around the bend of the road and the white pickup of an Oregon State Police Game Officer comes into view. The shooter

quickly tosses the deer into the nearby brush and beats a hasty retreat back to his truck. The rifle is quickly stowed in the gun rack behind the seat. As the officer pulls up, the shooter is casually sitting in his truck looking across the road. "Thought I heard a shot", he tells the officer, "so I pulled up here to look and listen."

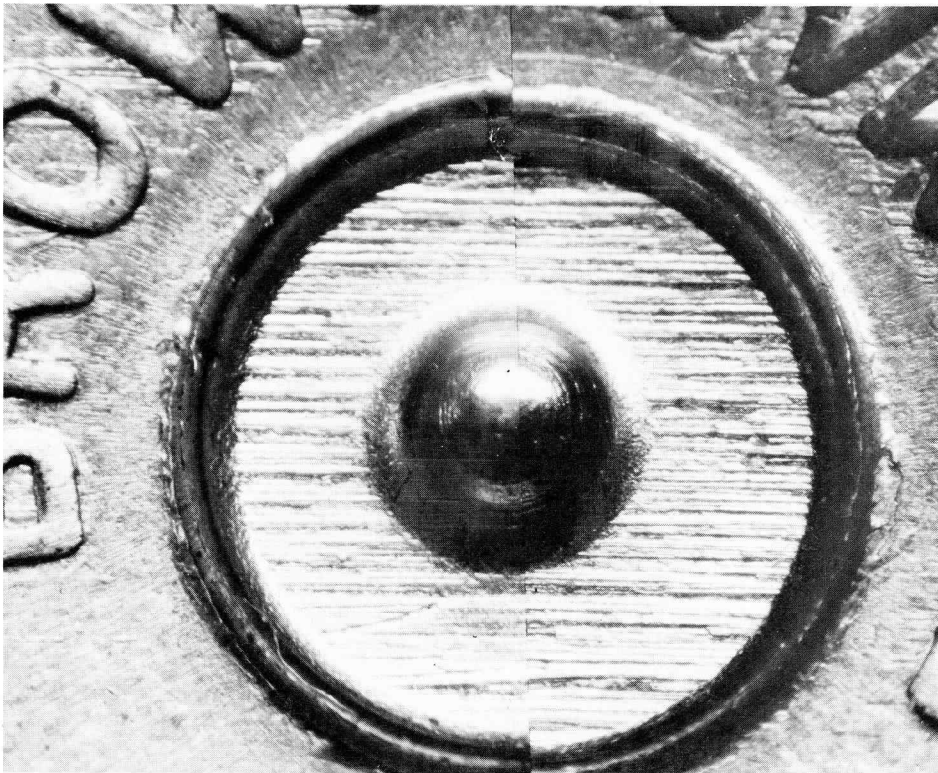
Though the officer saw the spotlight and heard the shot, he indeed had not been able to actually observe the shooting. Can he make a case? What does he have to go on? Are there pieces of evidence that will help carry the case in court, or perhaps convince the poacher that a citation is possible and that it probably will stick? There might be a sound case made with the

information that was apparent. However, let's look at the situation and see how crime lab techniques might be used in such an instance.

More and more in fish and wildlife violation cases, the Game Division officers are utilizing the expertise of the Oregon State Police Crime Laboratory. Set up as a service to the public of Oregon through the various police units, the OSP Crime Lab is financed from the state general funds. Its services are available to any of the various city, county, state or federal law enforcement agencies. The largest of the labs and the headquarters is located in Portland with other units in Eugene, Medford, North Bend, Pendleton and Ontario.



Even the best of guns leak gases and unburned powder when being fired. This special photo shows a .357 magnum pistol and the escaping materials as it was fired. The gun was in good condition. The escaping material that is deposited on the hand, or in the case of a rifle on the face, of the shooter may be detected through special procedures.



A close look at the primers of fired shells. Each gun makes distinctive firing pin indentations and the bolt face also marks the brass distinctively. By using a special microscope that shows half of each of two shells, markings may be compared as in this photo. A case fired by an unknown gun may be compared to one fired from a known gun as a test. The method is basically the same as comparing markings on the projectile part of the shell.

But let's go back to the case of the suspected poacher. Current technology would allow the officer, through the use of crime lab techniques, to build quite a good case against the illegal shooter.

Not wanting to get into all of the legalities of search and suspect rights in this article, we will assume the officer has acquired all of the necessary permission and cooperation of the suspect.

If the alleged shooter at first denies he has even handled the rifle recently, the officer can use a spray chemical to do a "trace metal" test. The liquid, when sprayed on the hand, shows two different colors. The parts of the hand that were in contact with metal turn dark while the rest of the hand is brownish. Assuming the rifle was held across the top of the receiver, the test would show a dark area matching this part of the rifle and the hand would also be dark where any other metal was touched. The technique will work for several hours depending on variables such as the type of metal and the moisture on the individual hand.

So the rifle had been in the suspect's hand. Had he actually fired the rifle? Another field test completed in the lab enables the officer to check the cheek and hands of the supposed shooter for blowback powder particles. Though it isn't noticeable to the shooter, even the newest and best gun leaks gasses and a certain amount of debris out of the action and other openings when it is fired. By swabbing the skin areas it is possible to pick up some of these particles to be shipped to the lab for examination and confirmation that the individual had fired a gun.

So a gun has been fired... but was it the rifle in the rack? The shell casing flipped out onto the ground tells a bit more of the story. By microscopic comparison of the marks on the primer it is possible to match the point of the firing pin with the indentation in the metal primer casing. If this doesn't prove entirely conclusive it is often possible to match the other portions of the casing around the primer with marks made by the face of the bolt as the shell is slapped back during firing. Also, the extractor and ejector leave their "fingerprints" on the spent shell casing.

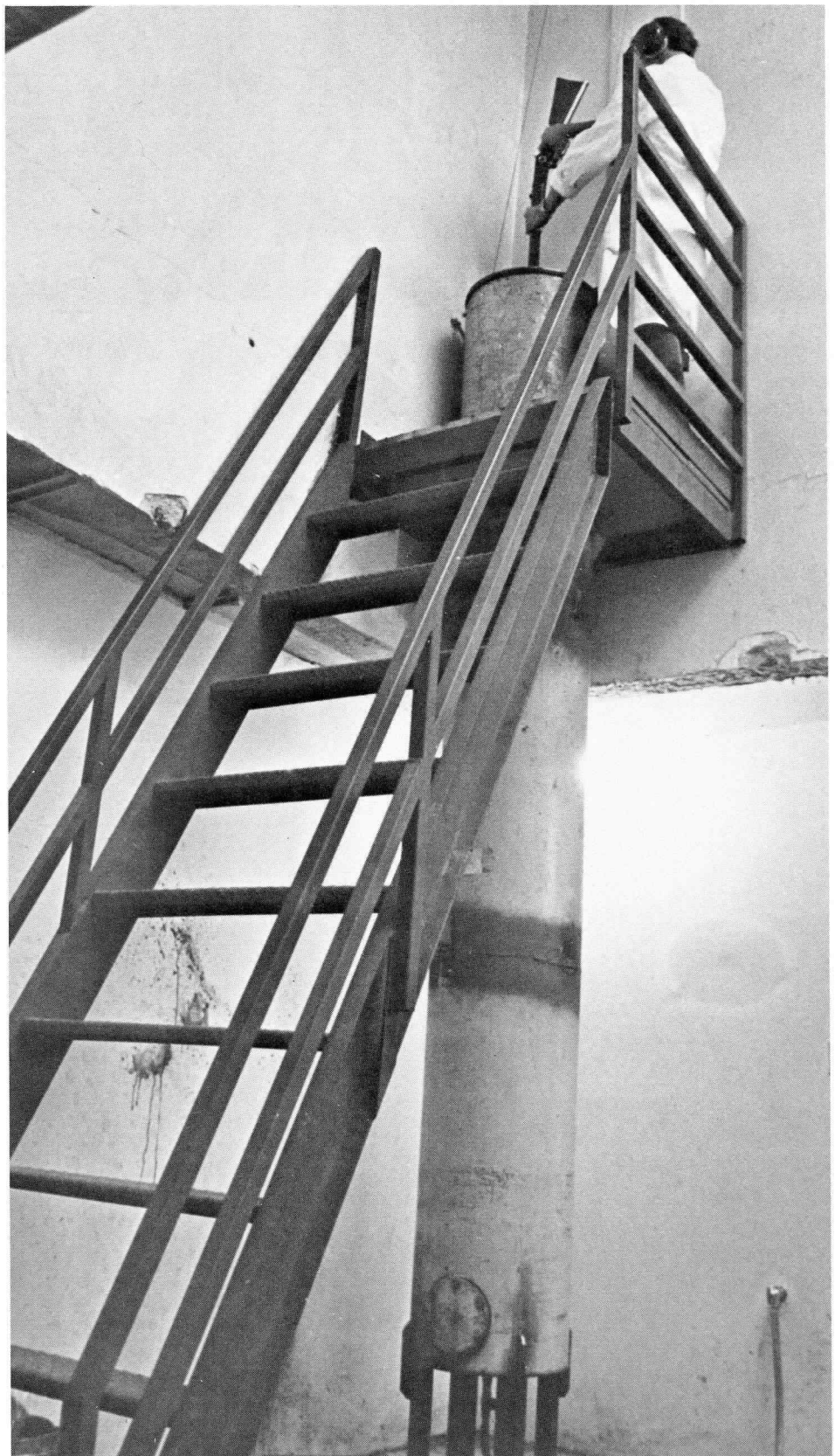
So, the pieces thus far have indicated the individual fired a gun, very possibly this one since it had been fired and he had had the gun in his hand in the not too distant past. But did this gun kill the deer that has been found in the brush?

The next bit of information gathering goes back to a jillion mystery movies — the ballistics test. First the bullet that killed the animal must be found. This may be done simply by cutting and probing in the animal or a sensitive metal detector may be brought into play. For comparison purposes, a bullet is fired from the suspected rifle. This is done at the lab and the bullet trap may be a long box full of paper and cloth or more preferably a 12 foot high tank filled with water with an open top to shoot into. The latter is preferred because it does less damage to the bullet and the bullet ends up on a screen platform at the bottom of the tank. Much digging is often necessary to find bullets fired into the long box of mixed paper and rags.

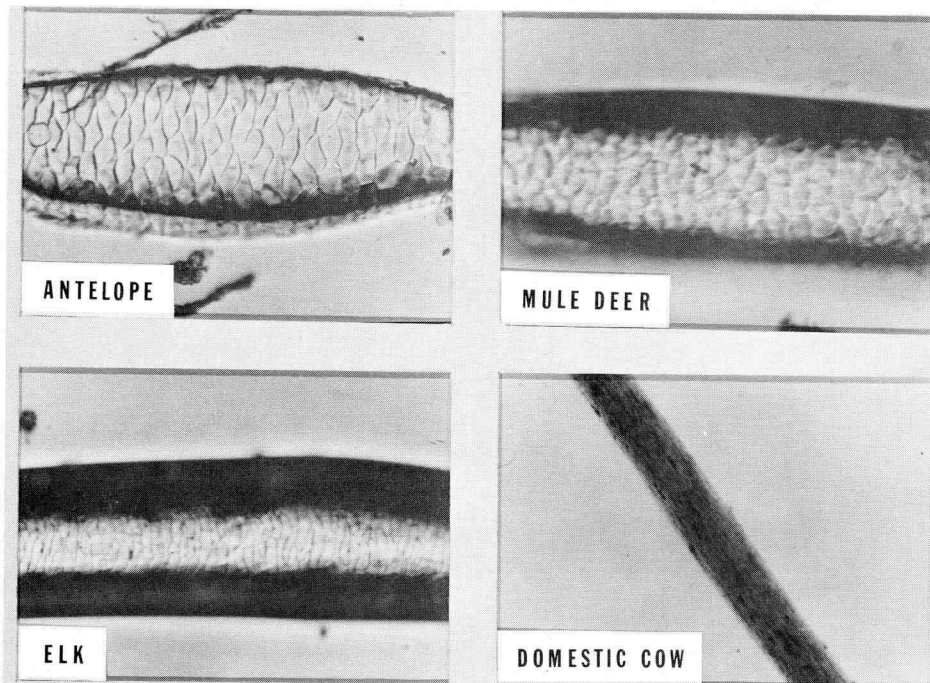
Special microscopes make it possible to look at sections of the two bullets side by side to match up the marks made by the inside of the barrel as the bullets went out. Not only the lands and grooves are distinctive, but each rifle has its own set of individual knicks, burrs and tool marks that leave their "print" on the slug. If the gun isn't available for firing, there still may be considerable information on the spent slug found in the carcass. It is often possible to tell the make and model of the gun by careful measurement of the depth of the lands and grooves, the number present, and how fast they twist. Determination of the caliber of the gun usually can be accomplished and often the brand of ammunition.

But so far, our suspect hasn't actually been shown to have been near the dead deer. His jacket gives up some samples of a blood stain and a few hairs that got caught under one of the buttons. It is very likely the lab will be able to tell if the blood is deer blood and combining this with the hairs it may even be possible to nail down what species was involved. Additionally, a sample of blood can reveal whether the creature has been frozen or not or how long it has been

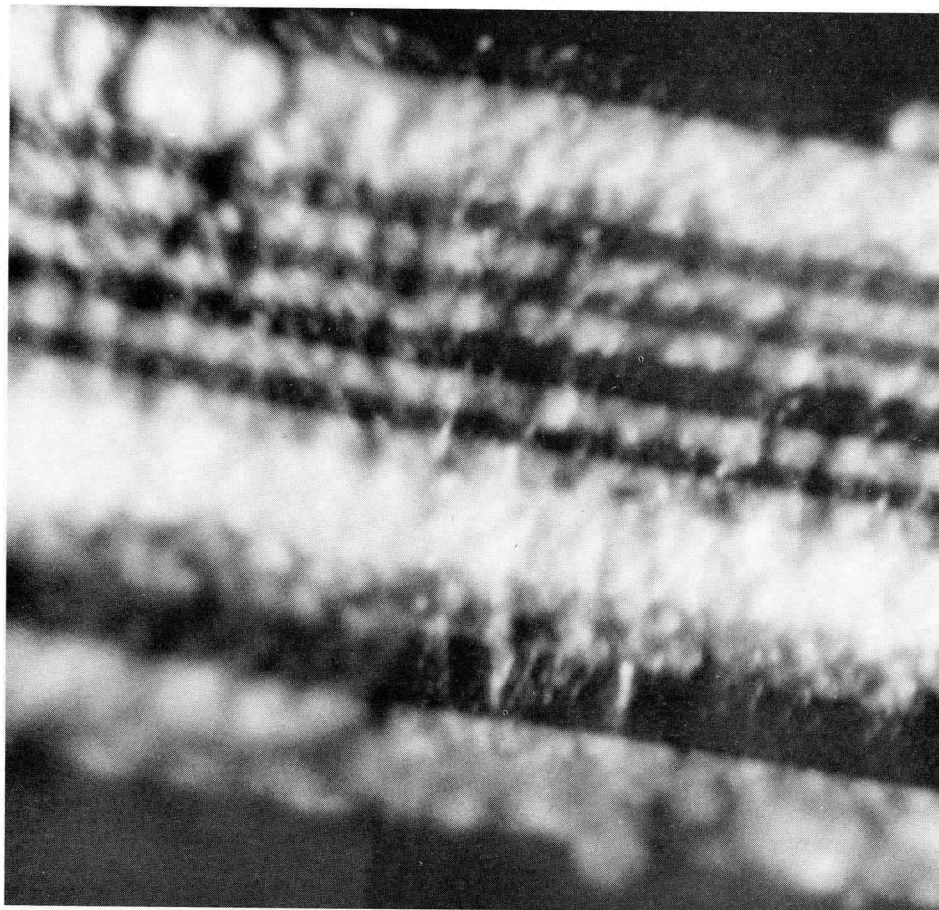
OREGON WILDLIFE



Trooper Grimsbo demonstrates the methods of obtaining a fired slug for comparison purposes. The cylinder is 12 feet tall and filled with water. This will stop a bullet without marring it so comparisons may be made to bullets fired from unknown guns. A wire basket on the bottom of the tank allows retrieval of the expended slug. The stains on the wall behind the stairway resulted from a test to determine how blood splatters from different distances and angles.



Microscopic examination of various types of hair. The scale pattern on the surface of the hairs varies considerably. Additionally, the hairs may vary internally and by focusing deeper into the hair, another set of characteristics can be examined.



Microscopic look at paint chips from a well painted vehicle. Here again, a comparison between two samples is shown. The division between the two of them is almost in the center of the photo, but the match is so good it is difficult to see. Each layer is another coat of paint. Both the color of the paint and the thickness of the layers aid in the match. Most vehicles do not have this many layers of paint.

dead. Though not important in this particular investigation, such information can be very important if valuable fish are discovered during a closed commercial season or game is being handled that may have been taken the night before the season opened.

On the limb of one of the bushes where the dead deer was dumped, there is a small bit of thread apparently torn from a garment. Again, microscopic examination, this time perhaps under polarized light, will reveal if the threads on the bush match samples obtained from the suspect's jacket. If the threads don't match there is a good chance that it will be possible to identify what kind of material the threads are made of by comparing them to standard samples on file.

Our case against the alleged poacher has many pieces that have fallen into place and most courts will accept virtually all of the evidence verified by the crime lab. Often the weight of the evidence prompts the violator to confess and take the citation rather than go to court and be involved in the time and expense of a court trial. On some occasions, the crime lab has ended up presenting evidence in court for the benefit of the accused after being directed to do so by the judge. Their job is to analyze and present scientific data for the use of the law enforcement and justice system of the state.

Another process at the lab has come into play recently when some pseudo-bowhunters have decided to drop their deer with a rifle and then shove an arrow into the bullet hole to give the appearance of a legal kill. In the past, this type of violation was hard to prove. However, now a method exists in the crime lab to take a small sample of the meat from along the path of the wound and through the use of an X-ray spectrometer determine if there are minute traces of bullet metal or chemicals indicating the hole was made by a bullet rather than an arrow.

This same \$70,000 machine can almost make a fingerprint of paint chip that may have come from a vehicle used during a violation. In one recent case involving a hit and run accident,

the lab was able not only to identify the make of truck involved, but also the year within about three years and the two basic colors of truck plus the color used for lettering or decoration.

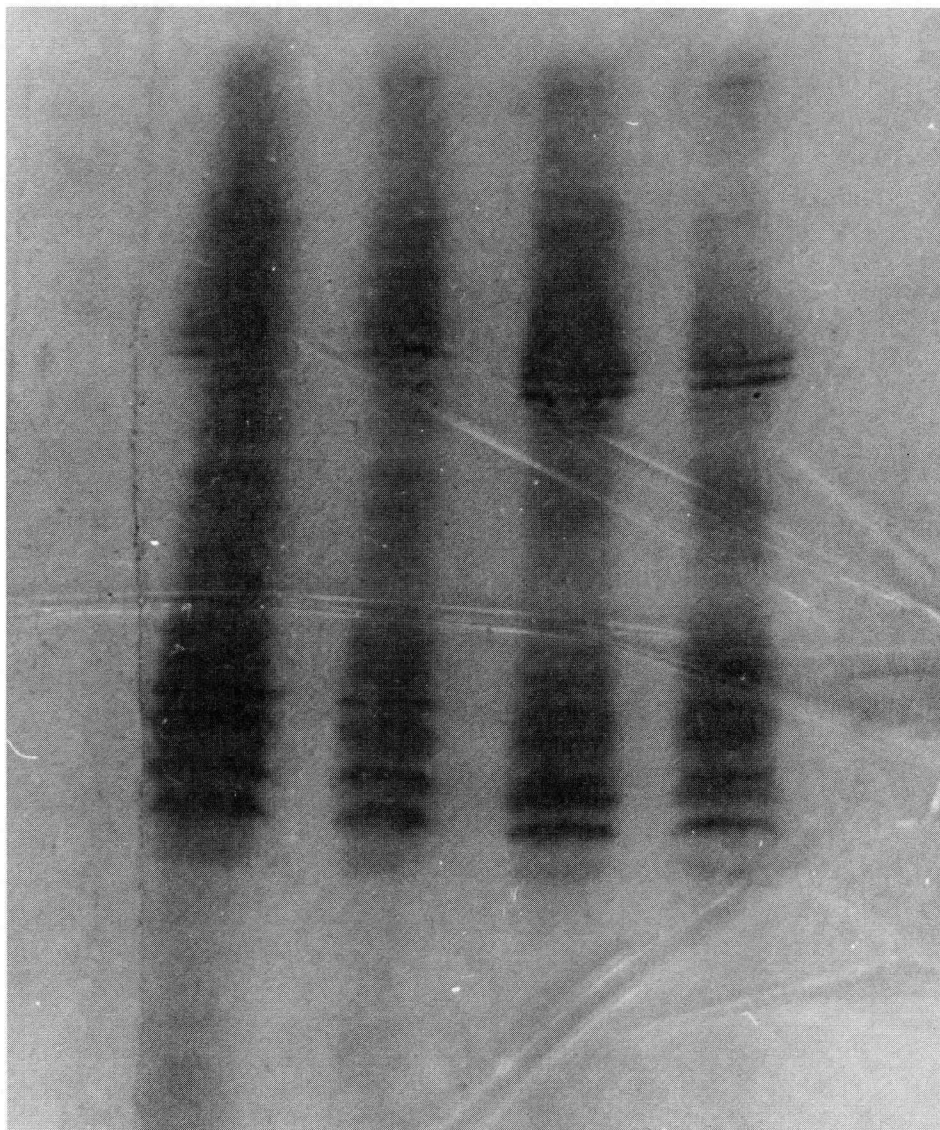
Though many of these techniques have been developed for use in cases such as hit and runs and other types of felonies, the applications for solving game cases are increasing. Standards have to be developed for items that apply specifically to fish and game. Standard ballistics tests and information may be used, but when it is necessary to use blood tests, special standards for wildlife must be established.

Trooper Ray Grimsbo of the lab has taken it upon himself to establish criteria and standards to be used in fish and game cases. Time and funding are not available for this, but working during off hours, he is building up a file of hair and blood samples from various Oregon species. Though there is some published material from other states, it has been found that in many cases the information isn't valid with Oregon species.

Anti-serums using the blood of local wild animals are being developed so that when an unknown sample is brought in, it is possible to test reactions with known samples. Eventually it will be possible to confirm what species the blood came from. Hair collections are being assembled, again for comparative purposes. As the files grow and the specialized data are collected, the crime lab will be able to assist in more fish and game cases. In this situation, the sportsmen of Oregon, who have contributed to the general good of wildlife for all of the public, are getting somewhat repaid by the work of the general fund supported Oregon State Police Crime Lab. Though the fish and game violator robs everyone, the hunter and angler probably suffers the most by loss of reputation and destruction of game that should be available for taking by legal means.

Captain Roger Dingeman who is in charge of this Division explained that in addition to the fixed stations we mentioned previously, the 22 men of his group have several mobile units to make it possible to do on site testing when it becomes desirable.

OREGON WILDLIFE



Electrophoresis of deer and elk blood. By placing blood samples in a gel and subjecting them to an electrical field, the proteins migrate to form different patterns for different species.

The types of investigation fall basically into Physical Evidence which includes bullets, weapons, etc.; Trace Evidence involving soils, hairs, etc.; Serology or various tests of the blood, and Chemistry which deals largely with the identification of various drugs.

The work of the crime lab goes largely unnoticed by the general public though smatterings of the work make the television police shows. Good basic police work is still essential. The work of the crime lab gives the officer a more acute set of senses to examine the evidence he is able to discover.□

TIP OF THE HAT

District Court Judge Charles Littlehailes of Newport gets our tip of the hat for this month. According to Lt. Hyder of the Oregon State Police a recent incident in the judge's area involved two men and two deer. The deer were taken out of season and wasted. One of the violators was involved with both deer, the other with only one.

Judge Littlehailes gave subject number one a \$500 fine plus 365 days in jail with 275 days suspended. The second individual also received a \$500 fine plus 180 days in jail with 135 days suspended.□



Controlled Burning as a Tool

by Gary Hostick
Assistant District Wildlife Biologist
Medford

Fire is being used as an experimental tool to "revive" unique black-tailed deer wintering areas located southeast of Medford in the popular Rogue wildlife management unit. Open brush-scrub oak-grassland hillsides on this winter range provide ideal south-slope habitat for hundreds of deer which summer at higher elevations.

Rick Werner, district wildlife biologist for the Department of Fish and Wildlife, and range and wildlife specialists from the U.S. Bureau of Land Management picked out areas of 10-40 acres within B.L.M. property lines which could be improved by the removal of dead and dying "buck brush", or wedgeleaf ceanothus.

The use of fire to clear away old ceanothus plants insures the sprouting of new plants at the same time, because the hard-shelled seeds are cracked or scarified by the heat. In addition, annual grasses grow more vigorously after a fire, a fact long known by livestock men. Other brush

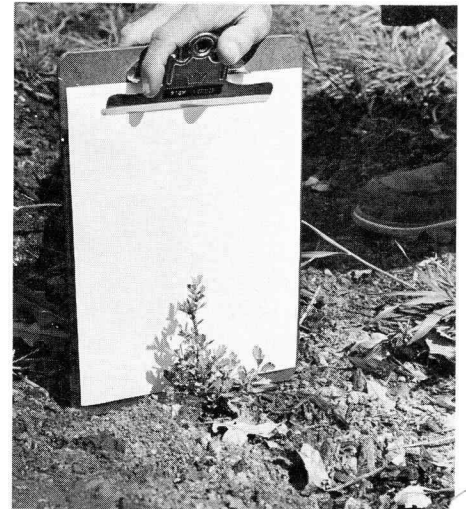
species sprout from the roots, producing new tender shoots for browse.

Once specific sites are chosen for burning, fire control specialists with the Oregon Department of Forestry and B.L.M. direct the construction of fire lines and the actual burning.

In years past, periodic wildfires removed old plants and gave winter ranges a new start. Wildfires are, of course, undesirable so it is hoped that smaller controlled fires will produce a better range, and at the same time reduce the possibility of wildfires.

So far, 178 acres have been burned during the last three years, and the results look promising. New wedgeleaf ceanothus plants are sprouting, and within about seven years will be tall enough to poke above the snow to provide feed during the coldest winter months. Annual grasses are growing vigorously. As an extra benefit, a mixture of perennial grasses are seeded immediately after the fires die down, and in some places these permanent grasses are doing well.

If summer grazing by livestock can be properly controlled to prevent over-grazing, burned areas will begin to provide high-grade winter feed almost immediately, and will continue to do so for at least 30 years without reburning. □



Controlled burning removes old vegetation and stimulates new growth more valuable as browse for deer. In this case the new sprout is bitterbrush.

THIS AND THAT

Compiled by Ken Durbin

FEAR NOT, FROGGIE

If you are a frog, there is good news. China's Ministry of Agriculture has declared you off limits to cooks. The Chinese have decided that frogs can reduce the need for agricultural pesticides by about 50 percent, and they say that 6,000 frogs per acre in a rice field will consume about 300,000 harmful insects a day. As a result, frogs are not to be bothered by the hungry.

Missouri Conservationist

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TAXIDERMISTS NABBED

Undercover work by the U.S. Fish and Wildlife Service recently was responsible for the bust of a large, illegal taxidermy operation in Michigan and Colorado. Two stores sold large numbers of federally protected birds. Most of the birds were raptors — hawks and owls — and sold for \$90 to \$100 each, with some bird mounts, such as an eagle, selling for as much as \$500. The birds were purchased by a variety of customers for use in interior decorating and as gifts and novelties. Many of the birds are thought to have been stolen from the University of Michigan's Department of Ornithology. At the operation in Colorado agents found over 800 birds, including 15 peregrine falcons, all mounted in display cases, and four freezers containing another 1,000 birds of various species.

Missouri Conservationist

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LANTERN PUMP CARE

The hole marked "oil" on your lantern and camp stove is a good reminder that the leather pump cup needs an annual shot of oil. But, only use an oil that is recommended for leather. Regular petroleum oils will form a glaze on the cup so use neat's foot oil, or in a pinch even some bacon fat. You may have to replace the leather gasket if it can't be lightly sanded and restored.

Outdoor Oklahoma

OREGON WILDLIFE

WILDLIFE TECHNOLOGY FINDS BODY

Radio telemetry, the process used to track wild animals, was pressed into service in Colorado recently to help find a dead body. The tale began when a dog returned recently to its owner's home on Lookout Mountain near Denver carrying a grisly gift — a human arm.

The Jefferson County Sheriff's Department was notified and officers speculated that if the dog could be equipped with a radio collar he just might lead them to the rest of the body. Gene Schoonveld, wildlife biologist with the Division of Wildlife, was called in to do the tracking.

Schoonveld attached the collar, normally used for mountain goats, to the dog and tracked the canine from the air via a police helicopter. The dog returned to the scene of the crime, and police found the body of a man partially sticking out of a snowbank. The circumstances surrounding the man's death still have not been determined.

Colorado Outdoors

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NEW BROOK TROUT RECORD SET

The Oregon brook trout record has been topped by more than two and one-half pounds, and the honor transferred from Hosmer Lake to the upper Deschutes River.

Burt Westbrook of Bend took a 27-inch brookie on June 21 that tipped the scale to 9 pounds, 6 ounces, handily beating the previous record of 6 pounds, 12 ounces taken in 1977 from Hosmer Lake. Westbrook saw the fish in clear waters of the Deschutes downstream from Little Lava Lake and cast a small minnow-imitating plug with his ultralight spinning outfit.

The fish was weighed the same day on state certified scales at Elk Lake Resort, and the species was verified by district fishery biologist Ted Fies of the Department of Fish and Wildlife's Bend office.

The largest brook trout, *Salvelinus fontinalis*, ever taken, according to International Game Fish Association records, was one weighing 14 pounds, 8 ounces. The fish was taken from the Nipigon River in Ontario, Canada, and the record has stood since 1916.

A SNAKE IN THE HAND . . .

Can you stuff 100 live rattlesnakes into a burlap sack in less than 28 seconds? If you can you might consider entering next year's National Rattlesnake Sacking Competition. Cotton Dillard of Brownwood, Texas took top honors for 1980 by doing the deed in just 28 seconds earlier this year in Austin, Texas.

Before you enter, though, he warned that four other competitors were bitten during the contest. One was hospitalized and the other three treated and released.

Colorado Outdoors

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Vigilantes in the Rice Field

The Chinese have discovered a surefire bug killer that doesn't need to be sprayed, spread or sprinkled. Just set it down in a rice field, and leaf hoppers and rice hoppers beware! The name of this revolutionary new product? A natural, old, eight-legged one: spider.

Chinese agricultural researchers began testing out spider species in 1973, discovering 115 passable eaters and 10 supergluttons. They found that a little hungry spider can go a long way: when outnumbered 20 to 1 by harmful insects, they're able to gobble up their enemies at the rate of one field every six days.

Other points in the spiders' favor: their growing periods match those of both the hoppers and the rice; they live one to two years; they can go months between meals; their use increases crop yields without a corresponding increase in farming expenses; and, best of all, spiders reduce the need for chemical pesticides. So far, more than 160,000 acres in southern China are patrolled by arachnid vigilantes.

Wildlife Digest

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CONSERVATION IS . . .

Here's a simple definition of conservation that came from the mouth of a five-year-old boy from Duluth, Minnesota.

"Conservation is what you eat and what you wear. And if you don't, you won't."

Think about it.

DOVE AND BAND-TAILED PIGEON SEASONS SET

A dove season similar to last year's and a band-tailed pigeon season starting two weeks later than usual were adopted by the Fish and Wildlife Commission.

Dove season will open September 1 and extend through September 30 with a daily bag limit of 10 birds and a possession limit of 20.

The band-tailed pigeon season will open September 13 and run through October 12 with a daily bag limit of five birds and a possession limit of five. Traditionally, pigeon season has run concurrent with dove season, opening on September 1 and ending on September 30.

Band-tail population trends have been generally downward for 20 years prior to 1975 when they began a very gradual upward trend. The upward swing coincides with a reduction in the daily bag limit from eight pigeons a day to five.

But the upward trend is still more gradual than biologists would like. Staff biologist Ralph Denney told the Commission that research by Dr. Robert Jarvis at Oregon State University has shown that older breeding pigeons are particularly vulnerable at mineral springs during the first two weeks of September.

Although they have reared their young to a stage of self-sufficiency, the process of lactation or "milk" production by the adult birds is still tapering off. And while they are lactating they continue to have a dependency on the natural mineral springs or coastal estuaries to replace the mineral drain.

The older or "experienced" breeding birds are more efficient than the younger breeders, commonly producing two young where the younger birds more often produce only one or none at all, Denney said.

Delaying the season for two weeks will admittedly handicap pigeon hunters, especially in northwest Oregon since the pigeons often begin



Band-tailed pigeons

moving south during this period in response to the earliest fall rains. But the delayed opening should save a significant number of the experienced breeding birds. Once the birds are no longer dependent on the mineral sources, they become harder to bag and the older birds cease to predominate in the harvest.

Several years with a delayed opening, Denney told the Commission, should see the beginnings of a more significant upward trend in band-tailed pigeon populations. This, of course, barring weather extremes or other natural disasters which could have a negative impact on populations.

Trends in Washington have been identical to those in Oregon, Denney said, and biologists there are also concerned by the pigeons' slow recovery following a bag limit reduction several years ago.

The Department of Fish and Game in California had considered an increase in the bag limit from five to eight this year. But the framework adopted by the U.S. Fish and Wildlife Service, within which states must set their seasons, does not allow for any increase.

Although there was no assurance that Washington and California would adopt more conservative seasons than they have in past years, several Oregon commissioners said Oregon should not wait for other states to move first when more restrictive regulations are needed for the welfare of the pigeon resource.

Printed regulations for doves and pigeons will be included with those for waterfowl and upland birds which won't be set until August 18. Printed regulations should be out before September 1. □

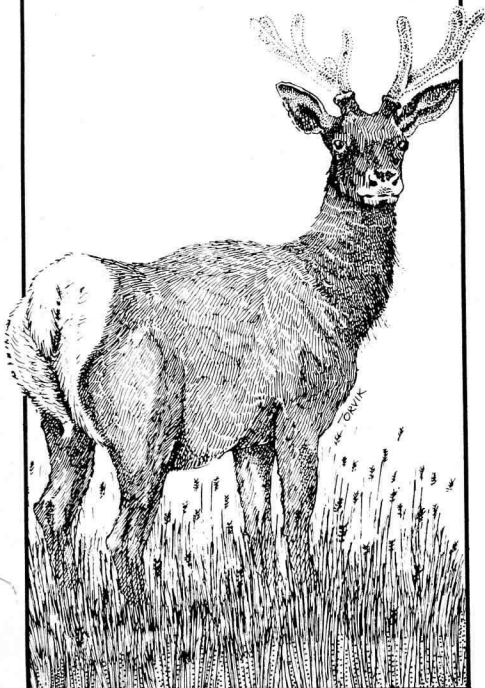
Ken Durbin
AUGUST 1980

JEWELL PAMPHLET AVAILABLE

A new pamphlet describing the Jewell Meadows Wildlife Area in Clatsop County has just been produced by the Fish and Wildlife Department. Included is a brief history of the area, kinds of wildlife to be seen there, general information about Roosevelt elk — the predominant species and the reason the area was established, information on management, a location map and an area map.

The pamphlets will be available to visitors at the area which is located just off Highway 202 about a mile west of Jewell. Single copies are also available by writing the Department at the address found on the back cover of this magazine.□

JEWELL MEADOWS WILDLIFE AREA



OREGON WILDLIFE



NIGHTHAWKS

At dusk, when the sun is down but light still fills the sky, people may observe dark, birdlike objects hurtling around in the air. As the onlookers watch this aerial display in the dimming light, some may be prompted to say the figures are bats. Chances are that those people are wrong.

While bats do come out at night to feed on insects and such, the much more common evening bug chasers are the nighthawk and its smaller relative, the poor-will.

Both are members of the bird family *Caprimulgidae*, commonly known as "goatsuckers". The family also contains the better known whip-poor-will, which is found east of the Rocky Mountains, and 66 other species throughout the world.

The name "goatsucker" probably originated in Europe where the birds frequently flew around grazing flocks of goats and sheep in search of insects. The superstition evolved that the bird sucked milk from the female goats. Although such a practice has been discredited, the name has stuck.

While sharing some characteristics, Oregon's two goatsuckers are quite different in many ways. The nighthawk is found throughout the state, while the poor-will prefers eastern Oregon. The nighthawk is larger, measuring about nine inches long compared to the seven inch length of the poor-will.

The nighthawk is distinctive among the goatsuckers because it is not completely nocturnal in its feeding habits. While the poor-will and its relatives almost all wait until dusk to feed, the nighthawk will sometimes be out at midday.

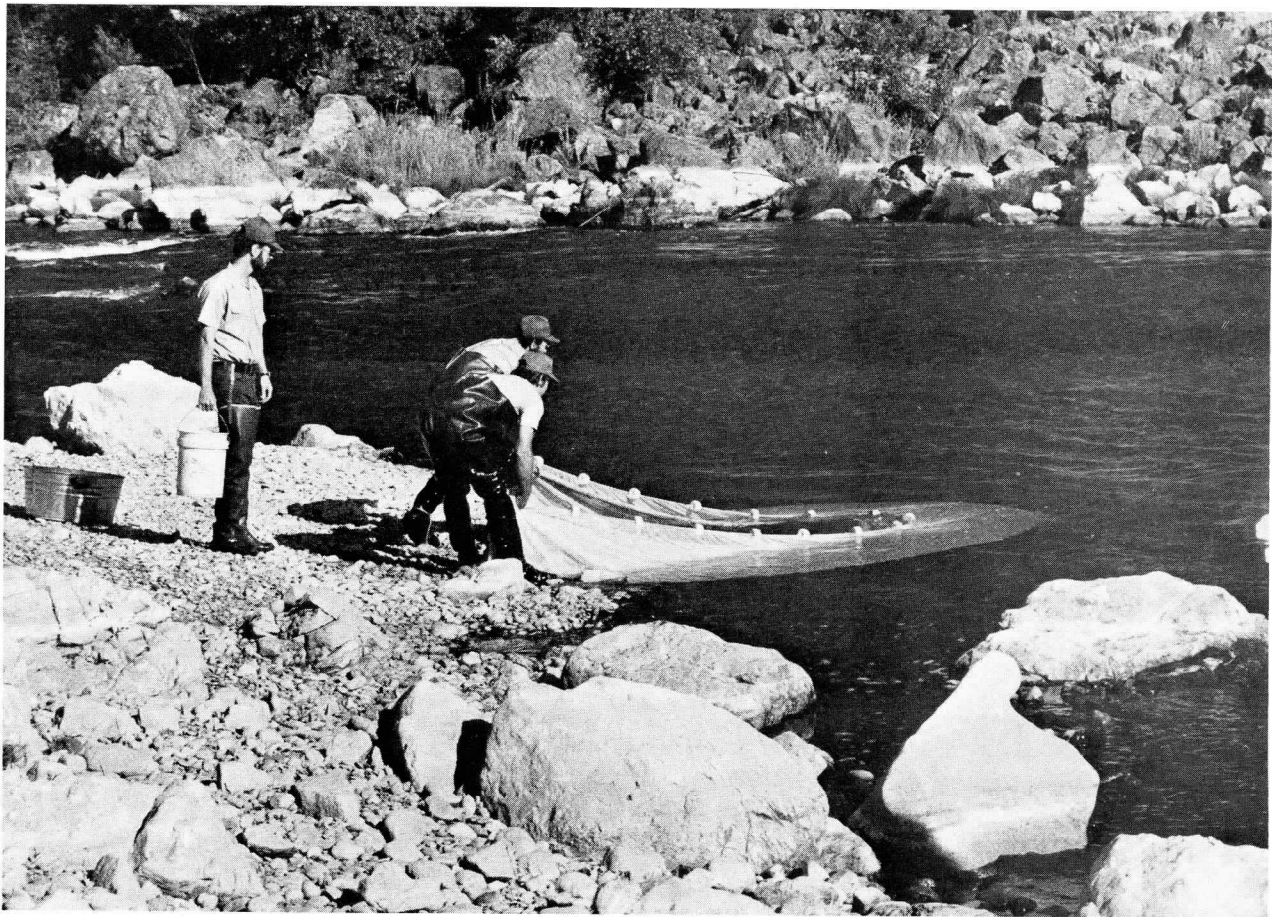
Food for these birds is flying insects. Like swallows, the nighthawk and poor-will catch their prey in flight. While their beaks are small, both species have a hinged jaw that allows the mouth to open very wide for prey.

The surest way to tell the difference between the nighthawk and the poor-will is the wing shape of each while in flight. The nighthawk wing is pointed, much like a swallow, while the poor-will wing is rounded. Both move through the air with the silence of an owl.

The poor-will does have one very interesting trait. It can enter a state very close to hibernation when food is not available and "wake up" when conditions are more favorable. A poor-will is thought to be able to stay in this "hunger sleep" for up to three months.

Nesting for both birds is very basic. They nest on the ground with no nest bedding. The chicks mature rapidly to avoid predators. Both young and adults are well camouflaged to blend with the forest floor.□

Jim Gladson



Seining for young salmon and steelhead on the Rogue. Data collected yields valuable information on the biology of wild fish populations.

ROGUE PROJECT UPDATE

by Tony Faast



Al Smith, Project Leader, takes a scale sample that will later be analyzed to determine the age of the young salmonid.

Page 12

Salmon and steelhead in Oregon's famous Rogue River have been the subject of intensive study in recent years by the Oregon Department of Fish and Wildlife. Begun in 1974, the Rogue Basin Fishery Evaluation Project was set up to monitor the effects of Lost Creek, Applegate and Elk Creek dams on the sport fishery in the Rogue and ultimately to make recommendations on how to operate those dams for the benefit of that fishery.

The Elk Creek project has been shelved for the time being, with the Applegate project scheduled for completion this Fall, but Lost Creek dam on the main stem of the Rogue, has been in operation since 1977. The before and after effects of the dam

on turbidity, flow and temperature have been monitored carefully over the years and have begun to yield some interesting information to aid in the management of salmon and steelhead.

Throughout the year at designated sites along the 157 mile length of the Rogue, young salmon and steelhead are collected by floating traps or by seining. The fish are then checked for length and weight and scale samples are taken to determine exact age. With this data, growth rates of these fish can be determined and compared with growth rates before the dam was operational.

The Lost Creek facility has the capability to raise or lower the temperature of the river by drawing water

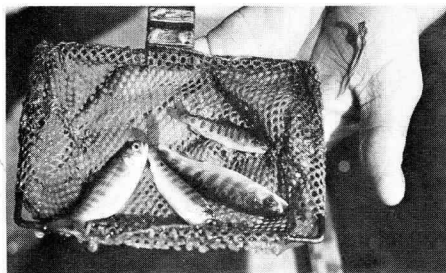
AUGUST 1980

from its reservoir at various depths. Various temperature and flow combinations have been tried and will continue to be monitored, in order to determine how the migration, range and timing of emergence of the juvenile wild salmonids respond to those changes.

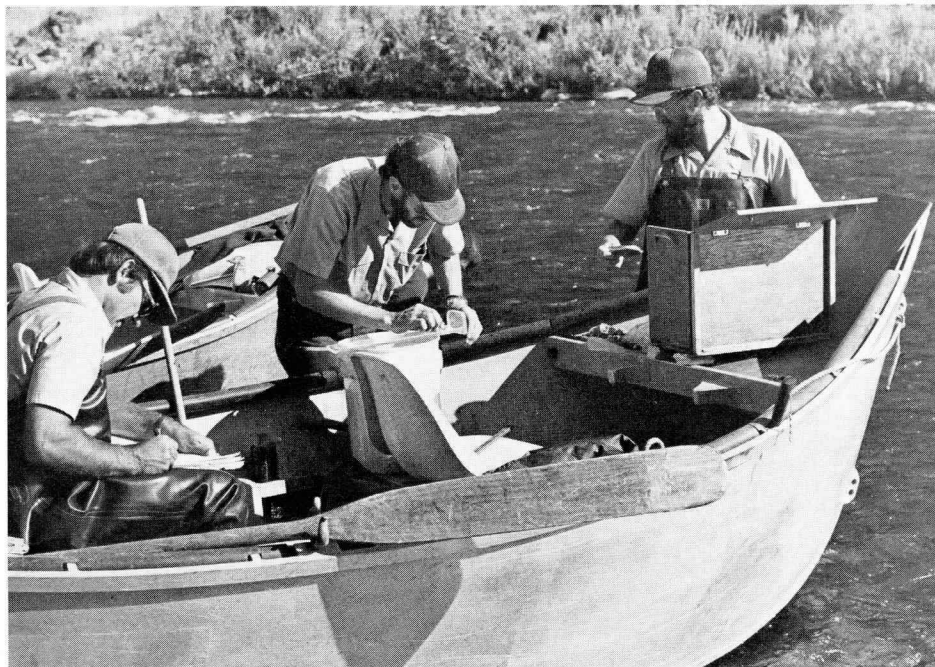
One of the projected benefits of the dam was to be the release of cooler water into the Rogue during the summer months to lessen the possibility of a disease outbreak among returning adult fish, especially spring chinook. A change of up to 10° lower temperature can be realized in the lower river, but the research team has revealed some problems associated with the lower temperatures. Growth of juvenile wild fish is reduced significantly in the cooler water. Returning chinook tend not to take lures as readily when cool water is released in the upper river bringing complaints from guides and fishermen, in addition to affecting the migration patterns of the fish.

Adults are trapped and tagged on their way upriver to determine any differences in timing and migration rates that occur as a result of river temperature and flow changes. It's still too early to tell if returning adult numbers have been affected, with only a few jacks expected to return this year from the first post-impoundment brood of wild chinook and steelhead. The Rogue system has a history of considerable natural variability in returns of adult fish and continued monitoring in the years ahead will be necessary to sort out the actual effects of the dams on the fishery.

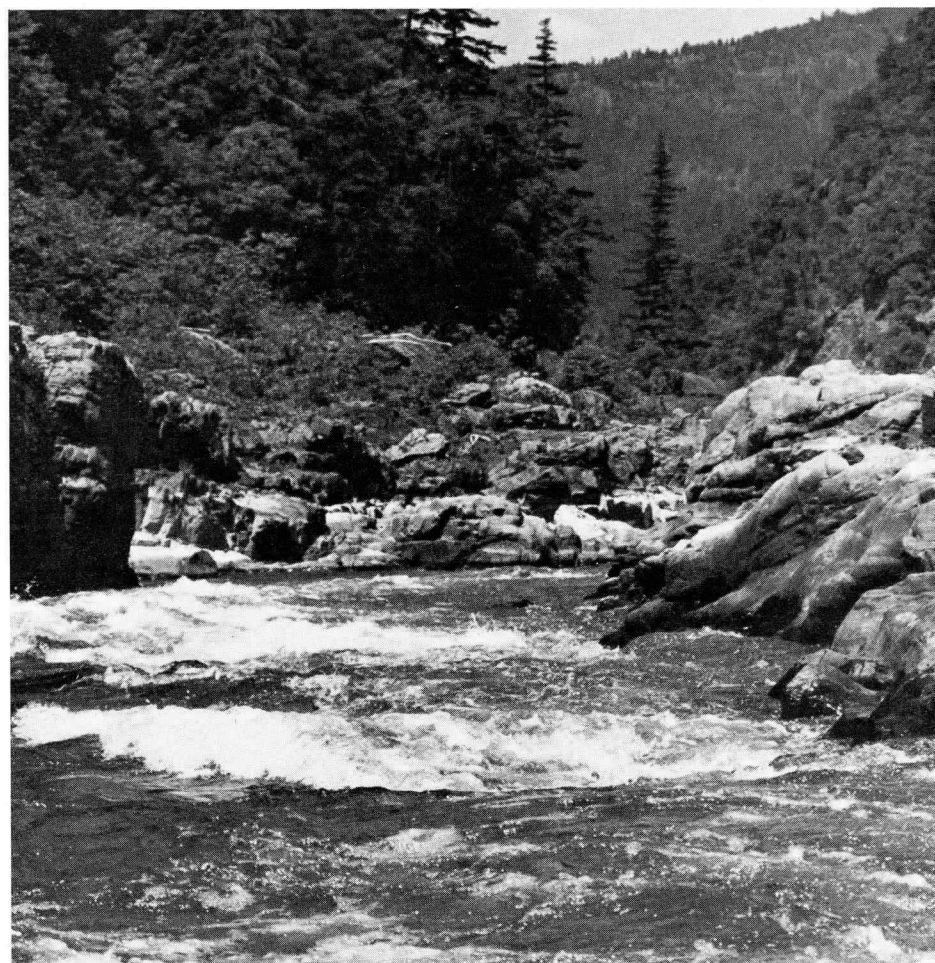
With much information collected and more to come as the Applegate Project comes on line this fall, biologists hope to be able to fine tune their recommendations on the operations of the dams for the benefit of the fishery on Oregon's wild and scenic Rogue River. □



OREGON WILDLIFE



Research crew obtaining lengths and weights of juvenile fish they've collected. The data will be used along with scale samples to compute growth rates of the fish in this particular stretch of the river.



On the Rogue Project, research crews navigate the Rogue River canyon every other week from June to October.

WHO PAYS FOR FISH & WILDLIFE?

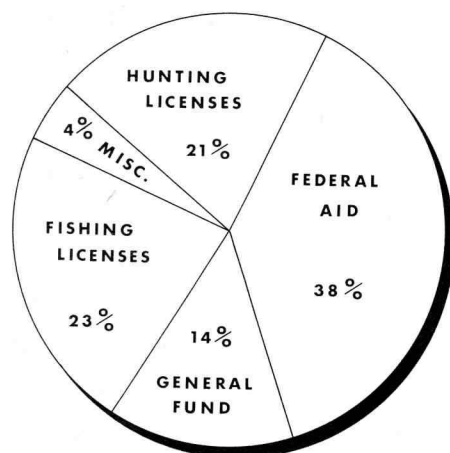
The state of Oregon has fallen on financial hard times. The Department of Fish and Wildlife will be expected to bear a share of the burden by reducing its general fund budget for the next year.

Cuts have already been proposed by the Governor's office and will be considered by the special session of the Legislature this month.

This period of crisis is a good time to take a look at where Department revenue comes from and how this income differs from many other state agencies.

Money flows into this Department from a variety of sources. Almost half

REVENUE SOURCES



Licenses and federal monies make up the largest slices of the Department revenue pie. These percentages are subject to change following action of the special legislative session this month.

the Department income comes from the sale of licenses and tags for angling, hunting and trapping.

Few other agencies have such a direct source of revenue. This money is earmarked specifically for use in fish and wildlife management, thus giving the Department the limited status of "dedicated fund" agency.

More than one-third of the two-

year budget is provided by federal dollars.

Uncle Sam's money flows from several sources. The largest federal contributor to the Department's 1979-81 budget is the National Marine Fisheries Service (NMFS).

NMFS is pouring almost \$7 million into Department coffers. Most of that money is used in Columbia River fish management and research.

The U.S. Army Corps of Engineers adds another \$5 million to pay for construction and operation of hatcheries plus research in areas such as fish passage at dams.

Much of the Corps money is for "mitigation" meaning the rearing of hatchery fish to compensate for fish and natural spawning habitat lost when dams are built.

Both the fish and wildlife divisions receive monies from special excise taxes on sporting equipment.

The Pittman-Robertson Act, named for its congressional sponsors, places a tax on sporting arms and ammunition. This tax is collected by the federal government and then parcelled back out to the states.

The money is used principally for habitat purchase and maintenance. Most Department management areas receive a large share of their budgets from P-R funds.

The Dingell-Johnson Act places a similar tax on angling gear. Like the P-R wildlife funds, the D-J money is used for fisheries habitat improvement and protection and acquisition of angler access sites.

Together, the two funds add more than \$4 million to Department revenues.

Another \$5 million is received from several other federal agencies and commissions for special uses.

General fund money comprises the third largest portion of Department income. Around 14 percent of the current budget is received from state tax revenue.

This figure is subject to change depending on the actions of the special legislative session this month.

Tax money is used primarily in salmon management, hatchery production and administration and monitoring of commercial fisheries.

More than half the tax money received from state coffers is replaced over the two year budget period. This is done by the transfer back into the general fund of commercial license payments and poundage fees collected on commercially caught fish.

It is from these general funds that the Department will be expected to cut some money.

The remainder of the Department's revenue is grouped in a "miscellaneous" category that includes money from such things as sale of spawned-out fish carcasses, salmon eggs and rents on Department owned housing.

Over the course of the two year period additional monies also come to the Department from federal agencies and other sources.

If the money is not already included in the budget approved by the Legislature, then the Department must go to the Emergency Board for permission to spend the funds.

The Emergency Board is a panel of legislators assigned to regulate state spending while the Legislature is not in session. □



Oregon's

WILDLIFE WINDOW

Birds do it. Bees do it. So do bats, butterflies, squirrels and fish. Flying comes in many forms. Some of it really is not true flying at all. Flying squirrels and flying fish cannot climb or maneuver. They are taking advantage of their design to get a small amount of glide or cushion out of the air but it is a one way trip down for the most part. Being picky about what is or is not true flying is not the point. Even the flying fish and squirrels are taking advantage of nature's design to use the air for travel to some degree.

Flying in the air requires a special kind of body design, yet few people would see much similarity between a flying fish and a bumble bee when placed side by side. You see little similarity between the design of a helicopter, a missile, and a biplane too but they all fly. Like the various flying creatures, these manmade machines apply some basic laws of physics in different ways. Sailplanes and soaring birds use some very similar designs and application of aerodynamics to get the job done. While the wings on a dragonfly do not rotate like the blades of a helicopter they too are applying some similar techniques to hover and climb. Neither will stay in the air long if they lose power however, for they are not designed for gliding like hawks and hang gliders.

In many ways, to flying squirrels, air is as much a liquid as water. It is just thinner. Penguins cannot fly in the air but in the thicker liquid called water they use the same techniques a swallow uses in the air to

climb, turn, dive, twist and dodge to catch their food. Penguins flap their wings in doing these maneuvers just like the acrobatic insect-eating birds. Smaller wing surfaces on the penguin that will not allow it to lift off in the thin "liquid" called air provide good results in thick liquid called water.

Flying creatures that have bones show some interesting adaptations in their design. Most are thinner, elongated and generally lighter in all respects. The dark breast meat of a duck and the light breast of a pheasant has something to do with their design for a different duration of flying. What do you suppose makes the color difference and how does this relate to their flying stamina?

Tails on animals, like those on air-

planes, make a difference in the ability to fly or perform certain acrobatics. Bees and butterflies have none. Hawks alone as a group show several types designed for different methods of living. See if you can decide what these are. A few birds have tails that get in the way of flying more than they help. Which ones can you name and what other use do they make of their tail?

Only recently has very high speed photography revealed how some insects manage to get a body that is much too big to fly off the ground. There is still much to learn about the way animals fly but we have already learned much from them. Flying animals first gave man the idea he could fly, too.□

THIS MONTH'S WINDOW

UP UP and AWAY

Investigate the various ways animals such as birds, bats, fish and insects fly.

What other uses do animals make of wings, feathers or tails that were designed to aid in flying?

The size of the wings to the amount of body makes a difference in flying. From books, pictures or by measuring actual animals, make some comparisons of these ratios. Just from the data, what would you infer about the creature's flying ability? Check your findings for accuracy.

PLEASE ACT IMMEDIATELY

With timely, accurate information, an arrest and conviction can often be obtained without it being necessary for you to appear as a witness.

If you are willing to appear and testify in court, please complete below.

Name _____

Address _____

City _____ State _____

Zip _____

Phone _____

Take immediately to the nearest
State Police office, or Mail to:

GAME DIVISION
OREGON STATE POLICE
107 Public Service Bldg.
Salem, Oregon 97310

VIOLATION REPORT CARD

It's Your Responsibility To Help:

- Enforce Fish and Wildlife Laws
- Protect Property from Vandalism
- Report Pollution and Littering

Everyone who uses or enjoys the outdoors has a responsibility to protect and maintain it.

Wildlife law violations, pollutions, littering and vandalism hurt all of us and cost everyone a lot of money. You can help prevent these acts and bring violators to justice by serving as an accurate witness.

It is not necessary or generally advisable to take the law into your own hands. Use this card to record important facts—then notify police.

OREGON DEPT. OF FISH & WILDLIFE
OREGON STATE POLICE

CHOPPER STOCKING

For many years the standard method of stocking trout in the many high lakes of the Cascade Range has been to drop them into the water from an airplane.

This method has been very successful on the larger lakes where the pilot has time to figure out when to pull the lever to release the fish.

But on smaller lakes, where there is little margin for error, a misjudgment on release means that part or sometimes all of the load of small fish ends up in the trees surrounding the lake instead of in the water.

To combat this problem, the Department began an experimental fish stocking program using a helicopter.

During one day in July, the chopper lifted almost 35,000 fingerling brook, rainbow and cutthroat trout into 50 mountain lakes. The jumpoff spot for the operation was a boat landing at Waldo Lake.

While the helicopter hovered over the desired spots, crewmen dumped the fish from premaked buckets.

The helicopter and crew were rented from the Willamette National Forest. The chopper was stationed at the fire control center in Oakridge.

Biologists on the scene noted that techniques for transporting and loading the fish need refining, but overall the job was a success.

If the program is continued in the coming years, the more precise stocking method should assure that more trout are available for the angler's hook and fewer expensive fish end up as fertilizer for pine trees.□

RECORD IMPORTANT INFORMATION

VIOLATION WITNESSED:

DATE _____ TIME _____ am _____ pm

VEHICLE DESCRIPTION:

LICENSE NO. _____ STATE _____

MAKE _____ MODEL _____

COLOR _____

UNUSUAL MARKS _____

DETAILS OF VIOLATION:

LOCATION _____

ILLEGAL SPECIES TAKEN _____

HOW TAKEN _____

DISPOSITION OF CARCASS _____

VANDALISM _____

POLLUTION OR LITTERING _____

DESCRIPTION OF VIOLATOR:

NAME, IF KNOWN _____

SEX _____ RACE _____ AGE _____

HEIGHT _____ WEIGHT _____ HAIR _____

BEARD/MUSTACHE _____

PHYSICAL MARKS OR SCARS _____

PECULIARITIES _____

(Clip out and fold to make a billfold sized card. If you don't want to cut the magazine, call or write, we'll send you a separate report card.)



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