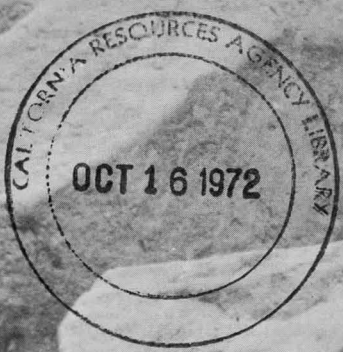


OREGON STATE  
GAME COMMISSION

# BULLETIN

October 1972



# OREGON STATE GAME COMMISSION BULLETIN

OCTOBER 1972

Volume 27, Number 10

RON E. SHAY, Editor

HAROLD CRAMER SMITH, Staff Artist

A. L. MILLER, Photographer

*Published Monthly by the*  
**OREGON STATE GAME COMMISSION**  
1634 S.W. Alder Street — P.O. Box 3503  
Portland, Oregon 97208

JOHN W. McKEAN, Director

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## The Cover

Fur seals in the Pribilof Islands. They are included in the controversial marine mammal bill discussed in our feature article.

*Photo by William Finley*

## HUNTER SAFETY TRAINING PROGRAM

### Instructors Approved

Month of August ..... 76

Total to Date ..... 2,802

### Students Trained

Month of August ..... 587

Total to Date ..... 182,192

### Firearms Hunting Casualties Reported in 1972

Fatal ..... 2

Nonfatal ..... 11

## GUEST EDITORIAL

The gray gloom of sky pressed down as I drove into the Center at seven. As I nearly always do on such drear mornings, I toyed for just a moment with the hope that some legitimate excuse would pop into my head for not emerging into the damp morning outside the warmth of my car, or at least for finishing the tape of Brahms's Fourth Symphony. No rationale for truancy presented itself, so I turned off the ignition and stepped out.

Even before I shivered, a loud, clear bird song cleaved the air, and suddenly the world seemed more friendly. The unseen bird repeated his little ditty over and over, scarcely varying the melody. Unable to recognize the song, I circled around the white birch in search of its source. So loud was the song that I guessed it must be emanating from a large bird, when there, halfway up, near the trunk, I saw at last a tiny brown creature with a long beak and a nervous tail. A Bewick's wren! So much resonance coming from such an insignificant apparatus.

As I marveled at the volume, and perhaps the message of the tiny performer, the screeching of the Japanese macaques in the corral an eighth of a mile away diverted my attention and started a train of reflections. Our campus is beautiful, especially now that the woods are taking over once again and the new fir trees, the pines, and the spruce are growing unmolested. We can walk around now knowing that fox and deer, pheasants and quail are once again making their homes among us and are beginning to trust us.

What disturbs me is that whereas only seven short years ago the rest of the country around us was lush and indistinguishable from this lovely campus, now all those once incredibly beautiful fields of red clover, wheat, and vetch have almost disappeared. Gone are the wonderful clumps of firs that studded the countryside around us. Gone, too, are the bobwhite, valley quail, and pheasants which made each day cheerful and colorful and even worth living for. Gone is the small pond at the corner of Cornell and 185th where ducks and teal used to swim and boys fished for catfish. Houses, condominiums, trailer camps, and lumber yards are steadily encroaching and choking Nature. Soon the Center will be an island in the midst of a congested area full of angry people, useless household items, old tires, beer cans, and other refuse — sorry witnesses to the depredations of man.

Here, then, is one more small part of the world that was once beautiful but is gradually being reduced to still another potential slum. In ten years time, who will hear Bewick's wrens singing and bobwhites and meadowlarks proclaiming their territory? Perhaps too few are aware of trees and birds and white clouds, just as too few seem to care about the poisons that are being spewed into our rivers and belched into our once-clean air by industry. Perhaps too few care about the empty cigarette packs, the plastic bags, the discarded beer bottles that litter our roads, highways, and communities and assault our sensibilities. If man does not care about this pollution, if he is indifferent to the sad reminders of his own inhumanity to himself, then he has lost, perhaps forever, one of the noblest attributes—his sense of atonement to and at-oneness with the world around him, his appreciation of beauty and order. *This* is the stuff that gives man his yearning for spiritual experience and a moral sense, and I wonder, with Sir Peter Medawar, how long he can survive in a "condition of moral weightlessness."

When the last orangutan dies in Borneo from the loss of his once natural environment, how many will care enough even to record the event? Only those of us who are concerned about and hold ourselves somehow responsible for the conservation of that environment. For let us not forget that when species of animals perish because we have destroyed their natural settings, nature has lost something forever and our own life becomes impoverished. If this impoverishment were a discrete and individual experience, perhaps we could absolve ourselves from a corporate shame. But this is the responsibility of everyone alive, not of a few sentient beings alone, and therefore everyone alive is

*(Continued on Page 11)*



# There Should Be a Law ... But What Kind?

JAMES A. HARPER, Assistant Chief  
Environmental Management Section



Public hearings held by the Game Commission bring forth many conflicting ideas on various regulations. When laws are discussed in the state legislature and national Congress, the lawmakers are often caught in the middle of highly emotional debates.

Picture yourself sitting at the breakfast table, sipping coffee and reading the morning paper. Turning a page you find, staring you straight in the eye, a picture of a one-week old baby seal. In bold letters above the picture, the caption reads "THEIR LAST CHANCE". Reading on, you find that these defenseless babies are being clubbed to death and their skins removed to become coats and other garments for the rich women in New York City. In the process, the seal population is in danger of extermination.

Would you take time to sit back and consider whether the newspaper article was based on fact? Probably not; your emotions being stirred, your first thought would be that something must be done. You would pick up a pen, grab a piece of paper, and begin to write, Dear Senator . . .

It was newspaper articles such as this, plus slanted television documentaries that triggered a reaction in Congress that has continued for 21 months. Between January, 1971 and September, 1972, 14 bills and 2 resolutions concerning marine mammals were introduced in the hallowed halls of Congress. These bills ran the gauntlet of public hearings, subcommittees, committees, consideration on the floor of both House and Senate, and finally, to a joint committee to iron out differences. Tracing these bills through Congress not only gives us an insight into the legislative process, it also brings to light the many problems that face legislators as they consider natural resource issues.

Several factors combined to bring marine mammals to the attention of the public. For years, seal populations have been controlled by the removal of a set number and sex of animals on

*(Continued on Next Page)*

**EDITOR'S NOTE:** As we go to press, the fate of the marine mammal bill discussed here is still in doubt. This bill was chosen for this article since it encompasses about all of the complications a bill can have. Our intent was not to single out the subject of this bill but to use it as an example of the complexities of enacting wildlife legislation.

## LAW

(Continued)

the rookeries or pupping areas. Under this controlled harvest, combined with the elimination of sealing operations on the high seas, northern fur seals have flourished. Studies have shown that the method of harvest is humane. However, a couple of years ago, one of the magazines, with national circulation, ran a story on the harvest program, complete with colored pictures and descriptive narrative of how animals were being clubbed and then skinned before they were dead. The reaction by the public was immediate and intense. Cries of outrage were voiced through letters to the editor, to Congress, and to wildlife management agencies.

On the heels of the seal episode came one on walrus. This story described the great white hunter as he, with his powerful rifle and sophisticated equipment, laid waste to the walrus population. By some oversight, the article failed to mention that white hunters actually accounted for less than 2 per cent of the total number harvested, with the rest being taken by natives for subsistence. Again came an outcry of indignation from the public.

Finally, in early 1971, came the last straw. An emotional television program on animals, including the polar bear, was broadcast from coast to coast. One episode showed a mother bear being shot from a helicopter while her cubs watched in dismay. In reality, the copter was a research plane and the female bear was anesthetized with a dart gun, tagged and released. By failing to mention this fact, the film left the impression that the bear was shot by hunters and the cubs deserted.

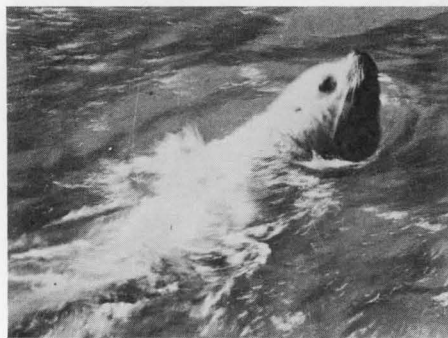
The tidal wave of emotion which was started by the seals, gained momentum with the walrus and reached full scale with the polar bear. One legislator stated that in 24 years in Congress he had never experienced the volume of mail that he had received on ocean mammals. His office alone received an average of 200 letters and telegrams daily for several weeks.

Immediately, wildlife management agencies were placed in a

defensive position with nothing but cold, hard biological facts to support their programs. There is very little emotion about trend counts, sex ratios and reproductive rates. Also, every management program must make allowances for the removal of surplus animals.

With the teams chosen and the ground rules set, the game was on. On one side, mass public concern based on emotion and on the other, a scientific approach to management based on biological knowledge and statistics. Congress was to serve as the referee.

The kickoff occurred on September 9, 1971, when public hearings began on marine mammal legislation. Imagine how the legislators felt as the parade of witnesses began. The first day of testimony was primarily from animal protection groups as they urged Congress to ban



A sea lion, little concerned with the commotion he and his fellow marine mammals have brought on.

all killing of ocean mammals. On the second day came the representatives of the governmental agencies with the plea that such a ban would lead to overpopulations and eventual starvation of large numbers of animals.

After three months of committee action in which the bills were considered and amended, then reconsidered and reamended, the issue came to a vote in the House of Representatives. The committee had tried to include both sides of the issue, but in the process, failed to please either side. The bill was defeated.

Back to committee and the process began again; public hearings, amendment, consideration and resubmittal for vote on the House floor and finally, passage.

Meanwhile, in the Senate, legislators were receiving full benefit of both arguments. Dozens of letters, cards and phone calls daily were received with pleadings ranging from "Save the animals from extinction" to "Don't prevent the scientific management of a natural resource." Coastal states were claiming jurisdiction for resident wildlife while animal protectionists were charging these same states with mismanagement. Out of these conflicting views, the subcommittee, committee and finally the full Senate agreed on a bill and passage was obtained.

Because of differences in the House and Senate versions, a joint committee was appointed to iron out problems and ready the bill for final approval and the President's signature. Although all details have not been agreed upon, one factor appears definite; there will be a moratorium on the taking of marine mammals, with the federal government authorized to waive this moratorium when necessary.

The finger of blame should not be pointed at any one individual or group. Certainly the public who responded to the magazine and newspaper articles and to the television program are not at fault. Marine mammals have long been fascinating to people. "Moby Dick", the novel of the great white whale, was a best seller for years. Sea lions, the trained "seal" of the circus, have brought hours of amusement to millions. "Flipper", the television dolphin and the variety of animals that perform in Marineland and other aquashows have made these critters appear almost human. After this exposure, people can't help but get excited when informed that marine mammals may be driven to extinction, regardless of the validity of the charges.

The animal protectionist groups had some reason for being alarmed. The 1968 listing of rare and endangered species of the United States contains 6 whales, 3 seals, the southern sea otter and the Florida sea cow. However, to completely protect all ocean mammals because a few need consideration is like placing a ban on all logging because the Cedars of Lebanon are in short supply.

(Continued on Next Page)

## LAW

The advocates of scientific management programs have experience and history to back up their claims. Through carefully planned management programs the following has been accomplished:

Walrus numbers have increased to between 60,000 and 100,000 and the only major hauling ground in Alaska has been designated a refuge.

Northern sea otter numbers have increased from near extinction to between 40,000 and 50,000 and populations have been re-established in Southeast Alaska, British Columbia, Washington and Oregon.

Southern sea otter, under protection of California law, is not only increasing in number but also extending its range.

The marine mammal situation is unique in that some of the species are pelagic, spending most of their time outside the territorial limits of the states. On the other hand, the sea otter, sea lion and harbor seal are species resident within state coastal waters. This dual residency complicates an already complex problem and adds to the confusion in the halls of Congress. However, the various interests voiced in marine mammal hearings brings to light the many views people have on the way a wildlife resource should be managed.

State wildlife agencies have the responsibility of managing fish and resident wildlife and providing wildlife-oriented recreation, yet they are faced with the same complexities that confronted the legislators while considering the marine mammal bills. Desires of the public range from the angler or hunter who enjoys the consumptive value of wildlife to the person who appreciates knowing a wildlife species exists in its native habitat, even though that species may never be observed. The American public is becoming more urbanized and wildlife management is viewed in a different light than it was even a decade ago. It will take a great effort by the states to meet all of the needs and desires of the public while maintaining fish and wildlife populations at optimum levels.

## GAME BULLETIN

## FROM OUT OF THE PAST



A dusky horned owl. Printed from a glass plate negative taken in 1909 by William Finley.

### *Excerpts from letters written by Oregon emigrants.*

John Boardman, July 17, 1844 — Concerning the lower Willamette Valley "This country is not capable of half as large a settlement as people represent; there is much timber, and it cannot be cleared in many years, so as to be capable of great production."

Talmadge B. Wood, February, 1846—

"I have been compelled to (by) hunger to eat mules, horses, dogs, wolves, badgers, ground hogs, skunks, frogs, crickets, ants, and have been without food of any kind for six days and nights. Cats, dogs, or anything else, is right good meat at such times."

"... early in the morning, when the crickets (which are in some parts very numerous and as large as the end of your thumb) by the coolness of the air and dew are very stupid, and climb to the top of weeds in great numbers that the sun may get a fair chance at them; they are at such times easily captured by jarring them off into a basket and then roasting them with hot stones—feathers, guts, and all,—and make very good eating when one gets used to it."

S. M. Gilmore, March 15, 1845—"Make no calculation on getting buffalo or other wild meat, for you are only wasting time and killing horses and mules to get it."

—Compiled by J. HARPER



# '72 BIRD PROSPECTS

by CHESTER E. KEBBE  
Biologist, Small Game

Following a public hearing on August 12 the Game Commission adopted generous game bird seasons which provide continuous hunting opportunities from September 1, when the pigeon and dove seasons opened, until the brant season closes on February 20. During the six-month period, 11 species of upland game birds and 38 species of ducks, geese, coots, and snipe will become legal game.

A brief summary of game bird populations and hunting prospects for 1972 follows.

## Upland Game

Production surveys conducted in early August revealed a statewide pheasant population slightly greater than in 1971. The picture varied by area, however, with an increase in production observed in the Columbia Basin, Rogue and Willamette Valleys, but a decline recorded in central Oregon and the popular hunting areas in Malheur County. In spite of fluctuating populations, a fair crop of birds is available in most areas and hunters can expect a little better success than last year.

There was some decline in valley quail in northeastern and southeastern Oregon as the result of winter losses but the birds showed a remarkable ability to bounce back with a good nesting season. Good numbers of quail should be available in all parts of the state, with brushy habitats in Crook, Deschutes, Malheur, and Jackson Counties containing the heaviest densities. Since a good crop is available and experience indicates that birds cannot be stockpiled from one year to the next, a lengthy hunting season was authorized. It extends from 8 a.m. October 21 through January 20 in eastern Oregon and runs concurrently with the pheasant season in western Oregon, closing on November 26.

Mountain quail are included with valley quail in the general season due to the difficulty in distinguishing between species where ranges overlap.

The partridge hunter should find conditions quite similar to last year. Chukar production declined slightly along the Deschutes and lower John

Day Rivers and in Malheur County but increased in the northeastern part of the state. Canyons and rim-rock areas in the Snake, Owyhee, Malheur, and John Day River drainages will provide the best hunting spots for this wary game bird.

With a good population of birds available and relatively light hunting pressure, the Commission again established a long season, opening with the deer season on October 7 and extending through January 20.

Little change was noted in the status of the Hungarian partridge. While not plentiful in any part of eastern Oregon, their close resemblance to the chukar and the overlapping of ranges makes it advisable to include both species under the same regulations.

Blue and ruffed grouse production was good throughout the state and generous hunting seasons are provided. In the western part of the state grouse seasons were authorized to run concurrently with the buck season in the High Cascade Area (September 16-24) and during the general deer season throughout all of western Oregon. Favored hunting areas are in the foothills of the Coast and Cascade Ranges.

Hunters will again have an opportunity to bag a Thanksgiving turkey with a five - day season set for that portion of the state lying north of U. S. Highway 26 and east of the Cascade summit. Turkeys are well dispersed through forested regions in this area but the chance of bagging one of the wary birds is quite slim. Following the general fall hunt, a spring gobbler season will be held in the same area for 250 permit holders from April 28 through May 6.

## Waterfowl

Another good water year in the prairie provinces of Canada created ideal nesting habitat for a large breeding population of ducks. Production surveys in late July indicated the number of ducklings raised was even higher than in 1971, with mallards and pintails being the most successful. As a result, large flights of these birds are expected to funnel

down the flyway to provide good hunting opportunities for Oregon sportsmen.

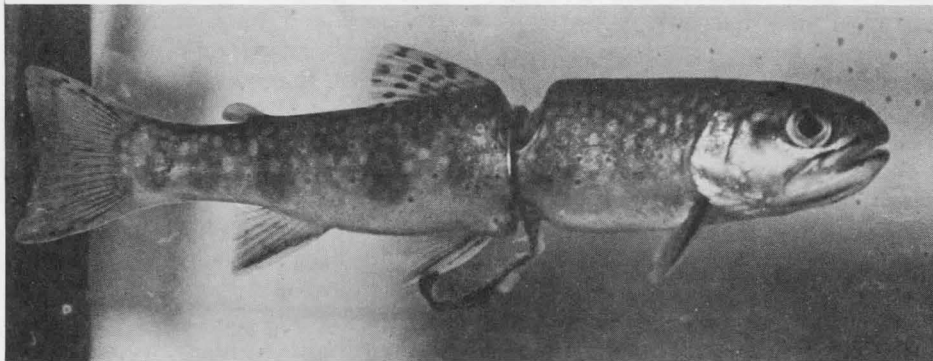
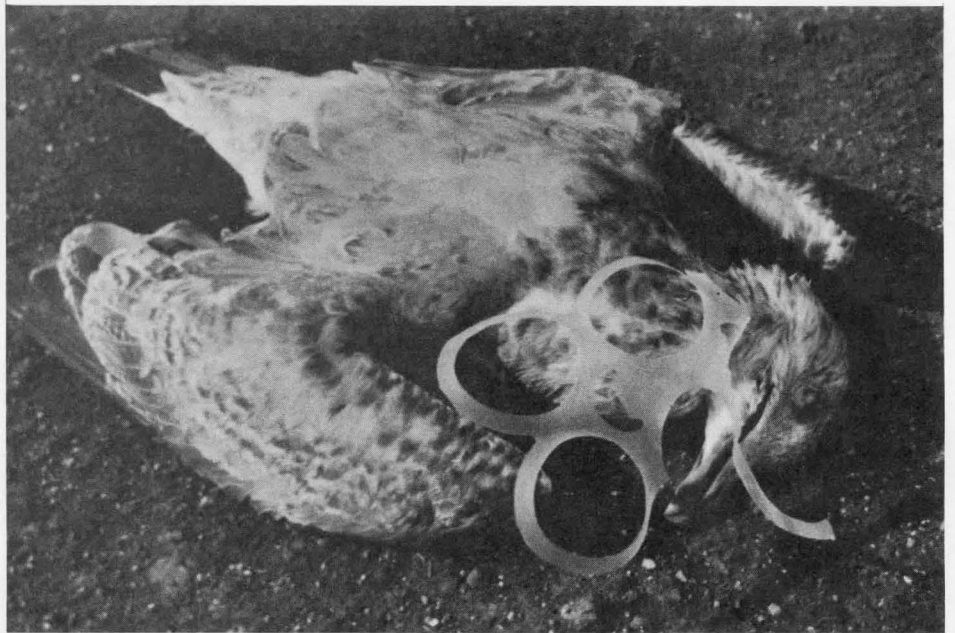
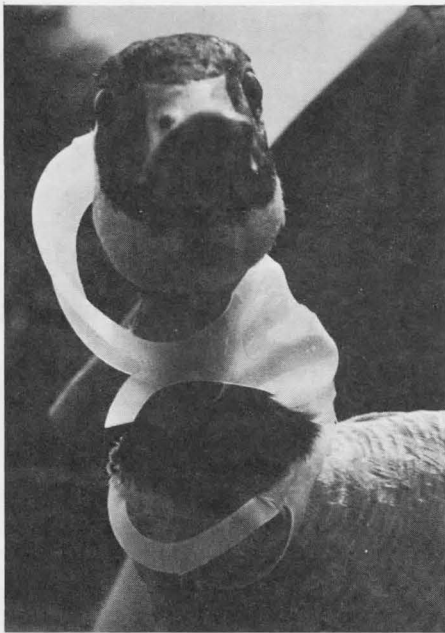
The anticipated increase in the fall flight prompted the U. S. Bureau of Sport Fisheries and Wildlife to again provide the states in the Pacific Flyway with a 93-day season, with species restrictions only on the canvasback. Because of the dwindling population of these birds, they will be provided complete protection.

The Game Commission selected a duck and goose season extending from October 14 to January 14 with a bag limit of 6 ducks a day and 12 in possession. In the nine Columbia Basin counties the season runs through January 20 with a bag limit of 7 ducks per day and 14 in possession.

Much of the goose production takes place north of the Arctic Circle where changing weather frequently determines success of the breeding season. Severe weather during the nesting period affected production and reduced the prospects of large fall flights of snow and white-fronted geese through Oregon. Production from two races of Canada geese was also considerably below normal and because of these declines smaller limits and shorter seasons were authorized for geese in Baker, Malheur, and five south Willamette counties. The bag limit on geese in these areas was reduced to two and the season shortened to December 24 in the five Willamette Valley counties and to December 31 in the two eastern Oregon counties.

During October and early November, hunting for both ducks and geese should be good in the large marshes of Harney, Lake, and Klamath Counties and should remain good until cold weather forces the birds to continue south.

In the remainder of the state waterfowl numbers will remain low until wintering birds arrive in November. As populations increase, hunting success will also improve. By early December, the best duck and goose hunting can be found in the Willamette Valley and along the Columbia and Snake Rivers.

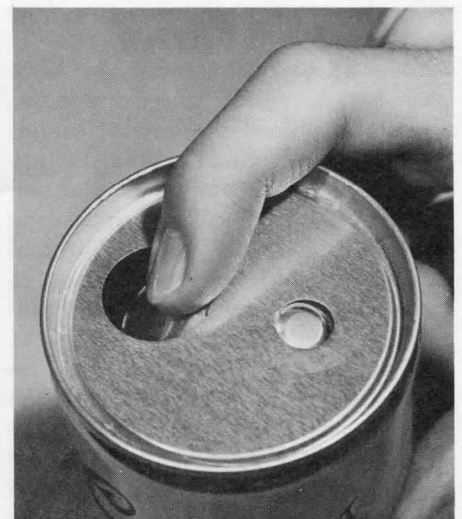
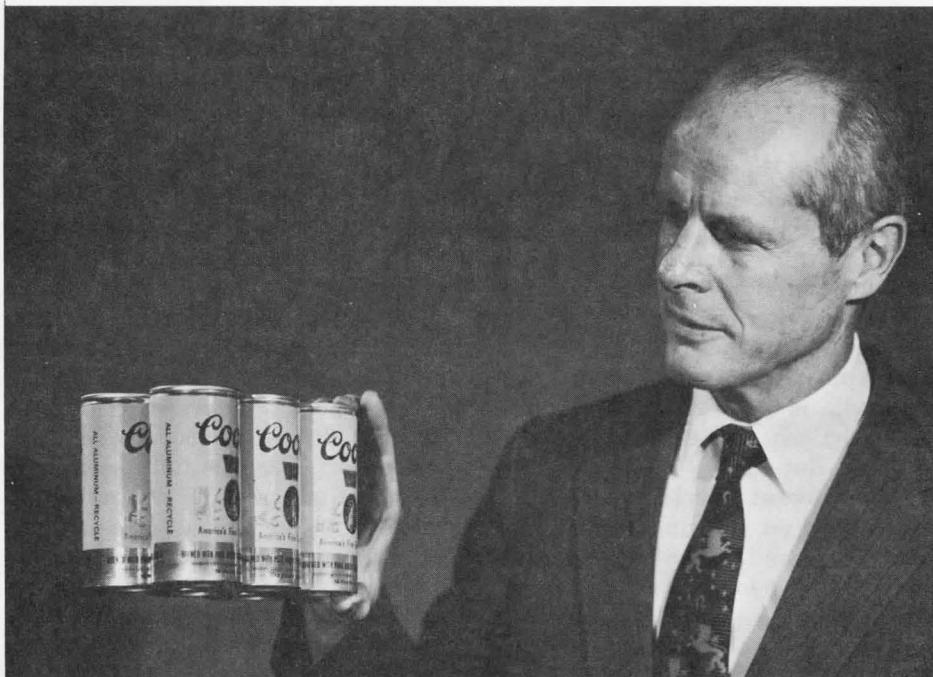


#### PHOTO CREDITS

Goose photo: Massachusetts Division of Fisheries and Game  
Gull and Fish: Michigan Department of Natural Resources.

New packaging and can designs by a Rocky Mountain brewery may be a step toward freeing wildlife from the problem shown above and to the left. The Canada goose and gull were victims of the plastic rings used to hold six-packs together while the fish picked up a girdle of a can pull-tab.

The new cans shown below have no pull tabs and are glued together to form the six-pack, thus eliminating the litter-making plastic rings.





# Bats

by HARRY H. GOEHRING

No common animal is more misunderstood, feared, disliked — and victimized by pure folklore and superstition — than the common bat. While literature of Western culture has usually portrayed bats as “omens of evil”, LIFE magazine states that the Chinese welcome bats into their homes and look upon them as happy symbols of luck and good times. Students of “batology” recognize these creatures as important elements of the ecosystem, serving to limit and control night-flying insects.

Bats are the only mammals capable of genuine flight (the flying squirrel merely glides, landing at a lower level than the take-off point). The anterior limbs, modified for flight by the elongation of the forearm and fingers, are connected with a thin leathery membrane. This membrane is extremely flexible and elastic.

What corresponds to the thumb on other mammals is modified into a hook-like claw in bats. These appendages are used for clinging or climbing on a surface after a flight landing. The five claws on each of the bat's hind feet are well developed. They are utilized for hanging, head downward, during the bat's periods of rest or sleep. (It is, after all, more comfortable to hang by ten toes than by two thumbs.) In this position, in case of necessity, the bat can drop quickly and be in full flight.

Not all bats eat insects. The vampire bat, a small tropical species, feeds on the blood of animals. It lands on the ground and cautiously approaches the sleeping animal on which it intends to feed, retreating or hesitating if the sleeping animal moves. This is why naturalists, to protect themselves, sleep in hammocks instead of on the ground.

Contrary to popular legend, no doubt helped by horror movies, the vampire bat does not suck blood. With two closely set, sharp teeth, the bat cuts the skin and laps up blood with its tongue. An anti-coagulant in



its saliva provides the bat with an adequate flow of blood for one meal. A great deal of the folklore, fear, and superstition associated with bats may be traced to the activities of, and the supernatural powers accredited to, the vampire bat.

A species of Southern California bat drags its hind feet in the water to catch small fish for food. One species is known to catch and eat small mice.

The biggest bat of all is called the Flying Fox. This tropical fruit-eating bat has a body slightly larger than a gray squirrel and a wingspread of some five feet. A few tropical plants appear to depend in part, or perhaps in some cases chiefly, on certain species of bats for pollination. The “bat flowers” of these plants bloom at night, are large enough to admit the head and shoulders of the bat, and produce more nectar and pollen than would be required for insect pollination. Bats that visit these flowers for the nectar or pollen are small in size, some only slightly larger than moths. One of the smaller fruit bats, in fact, is known as a “blossom feeder”.

It is a mistake to call the bat “a flying mouse.” The bat is more closely related to the insect or the worm-eating shrew than it is to the rodent. Fossil bat skeletons dating back 50 million years have been found to be very similar in design and proportions to present day bats. Rodents arrived on the scene as relatively recent editions of the mammals. There is very little relationship between mice and bats except in size.

The concept that bats bring fleas and bedbugs into the home to feed on people is more fiction. It is true that most bats have fleas, lice, and bedbugs. But these parasites are entirely different species than those which feed on human blood. These “bat” fleas and bedbugs have lived on bat blood so long that they “would rather fight than switch” to polluted human blood — polluted by the “odd” foods and liquids of man.

# The Bat & The Moth

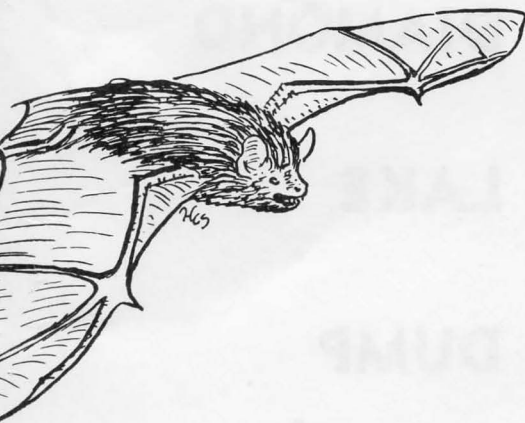
by RUSSELL McKEE

The bat and the moth—partners in an ancient ritual — have each worked out fascinating mechanisms for survival. Those of the bat are designed to catch the moth; those of the moth, to avoid the bat. The game is played like this:

Fairly recently, it was realized that bats send out continuous sonar signals that bounce back off nearby objects. These signals, continuous high-frequency squeaks above the range of human hearing, help bats grope their fluttery way through the air. The bats are so sensitive to these returning signals that they can easily fly back and forth through a completely darkened room strung criss-cross with fine, nearly invisible wires and not hit any of them. Bat sounds are ultra-high frequency, of 100,000 or more vibrations per second. The lesser horseshoe bat sends these sounds out through his nose. The nose is shaped like a shallow dish—actually like a radar screen—which focuses the sounds and aims them along the path of flight. At night, when the sky might be filled with hundreds of bats all dashing about at random, the screams of aerial dogfights must be a din to the bat's sensitive ears. Yet he is able to know from this tangle of sounds which are his, which stronger bats should be avoided, and whether a weaker bat nearby may be driven off the track of a tasty moth. During all of this, the bat's sensitive ears move back and forth, sometimes in unison, sometimes in opposite directions. They flutter back and forth up to six times per second. If caught in a tight corner, sound bouncing off near and distant walls gives the bat a complete picture of all his surroundings. Nearby objects return the strongest sounds, distant objects send back weaker signals. The bat's seemingly fluttery flight, a rapid response to all these incoming signals, is actually a carefully designed part of his survival equipment.

More than that, however, both the bat and the moth use a tumbling, erratic flight pattern. From this it





would almost seem that any aerial meeting between the two would be merely accidental. But as usual, nature provides more subtle answers than meet the human eye. Bats have been chasing moths for a long time. Moths have been avoiding bats for a long time. Over the centuries, each has developed his own defenses, and the moth's equipment is just as fascinating as the bat's.

Moth collectors have long known that a moistened cork run around the rim of a wine glass makes a useful high-frequency ringing sound, audible to human ears. When this sound is made at night, moths nearby fold their wings and drop to the ground. However, it was not known until recently why this happened. Researchers began to investigate and found that many moths are sensitive to a whole range of musical notes. Further investigation showed a pair of "ears" located near the moth's mid-section. Each ear was constructed like a tiny drum-head, with a thin membrane stretched over an enclosed air space. Inside the ear were three nerve cells which captured the vibrations on the "drum-head" and sent signals to the moth's "brain." To learn how these three cells work, live moths were carefully strapped on an operating table where microscopically small needles were attached to each cell. The signals sent to the moth's "brain" were then recorded on electrical apparatus. A curious but highly sensible pattern now presented itself. When bat-like sounds were made at a distance of 30 yards, the first of the three nerve cells began to transmit vibrations. As soon as moths hear such sounds, they take evasive action. In the raucous screaming of many

bats at night, moths constantly shift their flight patterns in this way. However, in the laboratory, as the sound moved closer, the nerve - cell transmitter became more insistent. It sent faster and faster and stronger and stronger vibrations along the nerve fiber to the moth's brain. As this happened, the moth's behavior became more frantic. When the bat sounds came within six feet, the second nerve cell went into action like an alarm, causing immediate and violent changes in the moth's behavior. Wings were suddenly folded, and the moth would have tumbled to earth had it been free. At that range, the moth's nervous system is telling it danger is locked on its track, and it's time either to play dead or be dead. Meantime, throughout all this, the third nerve cell was continuously sending signals which seemed to have no relation to this whole survival pattern.

Under a controlled situation, moths and bats were then placed together. Bats hunted and moths tumbled. Hundreds of films were made of this action, and an even more curious relationship now became apparent. It was seen that on the average, six times out of ten the bat would catch the moth as it tumbled to earth. The bat either caught the moth in its mouth, or netted it with a wing and ate it in flight. The bats seemed able to measure the trajectory of the falling insects, compensate accordingly and come up with the catch.

Six hundred is a pretty good batting average. It was, however, the moths that escaped that carried the answer to this whole game. They were the ones that carried evolution forward. By having and using slightly more superior equipment, their margin of survival was a thread better. As the centuries pass, if bats continue to hunt moths, both will be seen to improve their abilities, one to dodge, the other to catch.

Of course it's tempting to believe that an actual thought process takes place within moth and bat as the hunting and dodging goes on. Moths, however, respond by reflex, and bats with their tiny brains also depend basically on patterns of reflexes, with some small measure of learned behavior thrown in. Bats, for example,

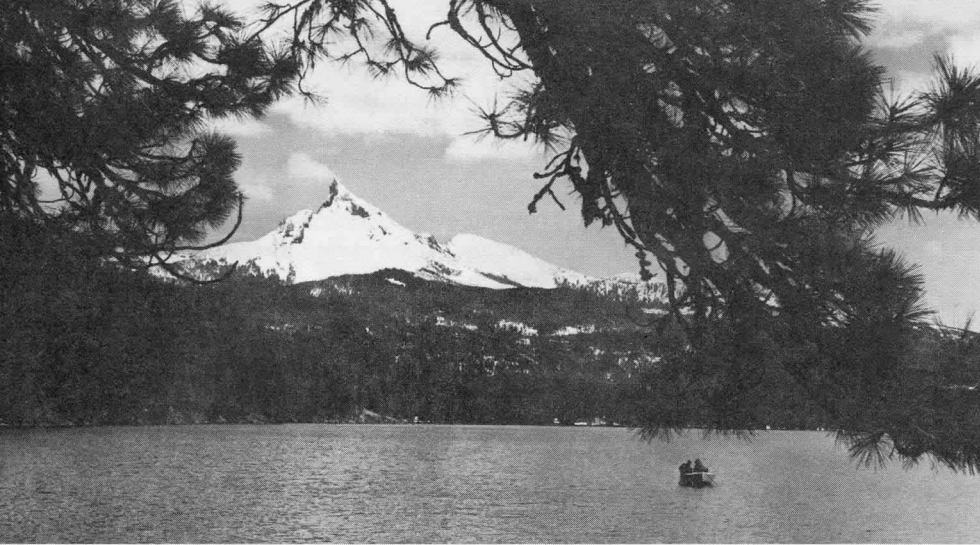
learn familiar surroundings by heart and then quit using their sonar equipment. One research worker had a cage in which he kept a somewhat domesticated bat. The cage door was always open, and the bat left at night to hunt, then returned to sleep in the day. To enter the cage, he had to fly a tricky course past some obstacles, then suddenly push his feet forward and grab a landing bar on which he hung at sleep, wings folded. One night the researcher removed all the obstacles. In the morning the bat returned, flew the same tricky course, and landed. Flying out that night, he reversed the pattern. This continued for weeks until one day the researcher removed the landing bar. Next morning, the bat returned, flew its tricky inbound flight pattern, reached for the landing bar — and fell flat on the cage floor! Only then did it send out a mass of transmitter signals to learn that the flight obstacles and hanging bar were gone. That night, the tricky outbound flight pattern was gone, too, as the bat flew straight away from the cage. He had learned from his sonar what to expect and returned next morning on the same straight course.

Nature provides hundreds of examples of such plant and animal behavior and wonder lies in their tangled web of strategies and counter strategies. This unseen network surrounds us constantly and works with absorbing efficiency. And so one wonders what would happen if one of the threads was removed? Suppose we killed off all the bats? They're pretty homely little fellows, sort of no - account types. Wouldn't the result be interesting? Or would it?

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*Dr. Harry Goehring is a retired professor of biology at St. Cloud State College and is recognized as Minnesota's foremost authority on bats. His article first appeared in the Minnesota Department of Natural Resources "Volunteer."*

*Russ McKee edits the Michigan Natural Resources magazine in which "The Bat & the Moth" was published.*



# DIAMOND LAKE DUMP

*EDITOR'S NOTE: A recent report from Dan Carleson, fishery biologist for the Game Commission, makes one think that at the rate it is going, Diamond Lake may eventually become a landfill. Carleson, submitting a report to the Portland office of the Commission, chronicled a recent project at the famous lake. Following are excerpts from that report.*

From: Dan Carleson

Subject: Diamond Lake Bottom Survey with SCUBA

On August 30 and 31, Dave Anderson and I scuba dived in Diamond Lake to count chum containers and other litter on the bottom of the lake. We examined the bottom for 130 minutes in depths from 15 to 30 feet deep. Visibility through the water was limited to about 10 feet due to a heavier plankton bloom than during our dive July 6.

In order to count a known area we tied a 100-foot-long string to the anchor and swam in a circle using a compass to designate our starting point. The material counted was divided into the following categories: chum containers; beverage containers; litter intentionally dumped in the lake and litter not intended to be thrown over the side of a boat, i.e., anchors, sunglasses, and unopened beer cans. Cigarette butts and old band-aids were not counted.

Approximately 2.4 acres of the lake were examined and only those pieces of litter resting on top of the detritus could be counted. We found that as our knees and swim fins sank into the ooze we bumped into a tremendous amount of litter that settled into the bottom. By knifing through the sludge with a broken fishing rod conveniently found on the bottom, I counted at least one piece of litter per four square feet at location #4.

What counts did we make? Beverage cans and bottles topped the list numbering 37. Chum containers added up to 33; all but one were found in the two areas of bottom fishing. Dead fish took third place at 12, all of which were found in the "chum hole". Other litter such as broken fishing rod, rusty bucket, and plastic gadgets totaled 5. Unintentionally dumped litter came to 3 and included an unopened 12-ounce can of beer, an anchor with frayed rope attached, and a weather recording device from a weather balloon.

Chumming substances most popular were sardines, tuna, cat food, corn, and cottage cheese. We surmised that the smaller cans would be most easily seen because the large cans would be so heavy that they sink into the muck and out of our sight. We tried to prove the theory of the sinking can by having the summer helper toss an unopened can of hominy over the side of the boat while Dave and I waited at the bottom of the lake. We never saw the can hit the bottom nor did we find it at all. As an interesting sidelight, we found the store at Diamond Lake has a much wider selection of canned corn than it does of any other vegetable. Hominy was chosen for our experiment because of price -- 19 cents compared to 29 cents for corn.

To expand our findings directly would bias heavily the less popular angling areas. So let's take the data for dive numbers 1, 2, 4, and 5 and apply that to the 30 acres of prime stillfishing area and we come up with 480 chum containers, 465 beverage cans and bottles, and 180 dead fish. Take the data from dive number 3 and multiply it by the remaining 2,963 acres and we have 7,500 chum containers and 44,500 beer and pop cans.

The figures are surely minimal since only 0.08% of the bottom was sampled and the distribution of litter is uneven. A more accurate determination of litter buried in the muck would be interesting!



# Whitefish In Oregon

by JACK BLISS

On October 31 most trout fishermen close up shop and put the fly rod and light spinning rod away until spring. A small, slowly growing group thinks this is the time to start fishing for whitefish, Oregon's most neglected game fish. Whitefish (*Prosopium williamsoni*) are found in most streams and some lakes in the Columbia River Basin and are very plentiful in the central and northeast section of the state. The Grande Ronde River and the Wenaha near Troy are probably the best whitefish streams in the United States, if not the world.

At present there are no bag or size limits on whitefish and they may be fished for in any water that is open for steelhead, salmon, or trout. They are not too hard to catch but they are no pushover either. Light tackle is a must. Any leader over 4-pound test will reduce your chances of success drastically. Hook size 10 to 16 and small baits work well in winter and summer. Small (12 to 16 size) gray, brown, or black flies fished dry in the summer are good. A school of 1 to 2-pound whitefish and a size 14 dry fly will test any angler's skill and assure some great sport and good eating. Most of the aquatic insects found in our streams are used as food by whitefish but stone fly nymphs are a favorite. Used as bait and properly presented, they are deadly. Catches of 50 or 60 fish per day are common and in streams like the Grande Ronde and Wenaha it is not

the number you can catch but the number you can use that governs your catch.

Late winter and early spring are excellent times for whitefishing. Water is low, clear, and cold. Fish are prime and hungry. Use stone fly nymphs, mayfly nymphs, horsefly larva, or wax worms for bait. Drift the bait along the bottom. Look for long pools with a smooth bottom 4 or 5 feet deep and not too swift water, the same type of water that makes a good steelhead drift. Actually it is surprising how often steelhead are hooked (not necessarily landed) by people fishing for whitefish. This happens quite often when wax worms or horsefly larva is used for bait.

Whitefish tend to stay in large schools and use the same water year after year and when one fish is caught, usually more are caught in the same pool. It is perfectly normal to see several people fishing the same pool every day for weeks. In our neighbor states Washington, Idaho, and Montana, where whitefish are carefully regulated and eagerly fished for, it is not uncommon to see 10 to 14 people fishing on each side of a good pool and everyone catching fish.

To prepare whitefish for cooking or smoking, it's best to remove the scales. This is a very simple job but if the skin of the fish dries, it is more difficult. Use some type of container that will keep the skin slightly moist until the fish are dressed. In winter a plastic bag is fine but in spring or summer use a cloth bag or creel. Cooked in any way trout are cooked, whitefish are excellent eating, and smoked they are supreme.

## CAMPBELL HEADS A.F.S.

Chuck Campbell, head of the Game Commission's Fishery Division, was installed as national president of the American Fisheries Society at its meeting in Hot Springs, Arkansas in September.

Campbell, born in Canada but raised in the state of Washington, graduated from Washington State College in 1938 with a degree in fish and wildlife management. He started his career with the Commission in 1941 as a fishery biologist in the field. He headed the Commission's River Basins Section prior to his promotion in 1959 to his present position.

He has been a member of the American Fisheries Society throughout his professional career and has held a series of offices in that organization. The Society is one of the oldest professional societies in North America, having served the field of fisheries since 1870. It can count more than 60 countries represented in its 6,000 membership. The objectives of the Society are to promote the conservation, development, and wise use of all fisheries.

## Antelope Hunters Have Fun

Oregon's first archery antelope hunt was a huge success, according to reports of field biologists of the Oregon Game Commission. Fifty tags were issued and the holders of some forty of them arrived in the limited area of southern Oregon to try their prowess at stalking the fleet-footed pronghorn Indian fashion.

The final tally when the dust cleared was 40 hunters who had a good time, much hunting pleasure, and who didn't have to worry about keeping the meat fresh. Unless report cards coming in later indicate otherwise, the score stands at hunters - 0. There were no reports of any of the bow-twanglers managing to outwit the wary pronghorns.

Though a detailed tally of the success of the rifle hunters will not be available for a numbers of weeks, field checks indicated a success about the same as in past years and it appears that about 50 percent of the hunters did manage to bag a buck pronghorn.

## GUEST EDITORIAL

to blame. What a sad commentary on mankind it is to sit back unmoved while witnessing the painful effects of our continued and thoughtless onslaught on the world about us.

Man needs hope to live by, hope of progress and of a better life. He cannot survive, as Medawar warns, "without a firm foothold in the world of grass and trees and clean water." The time for hope, the time to make that hope materialize, is *now*. Tomorrow will be too late.

William Montagna

*Dr. Montagna is director of the Oregon Regional Primate Research Center located near Beaverton. His article appeared in a recent issue of the Primate News.*



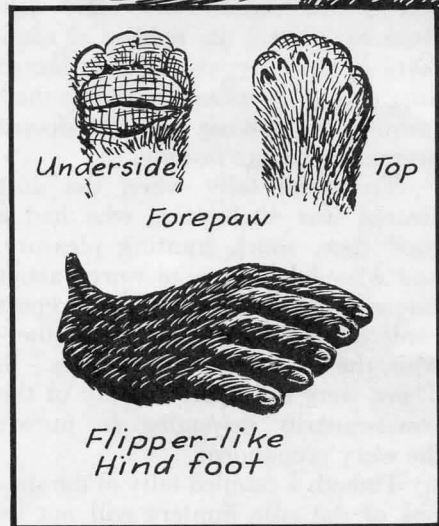
# SEA OTTER

*Enhydra lutris*

Once inhabited the coast & offshore islands of North America from southern Cal. to central Bering Sea. Also among the Kurile & Commander Islands & along the coast of Kamchatka. Last recorded sea otter from Oregon taken off Cape Blanco in 1876.\*



Color a deep glossy brownish-black with white tipped hairs. Head & neck grayish or yellowish white. Sexes alike, males weigh up to 80 lbs., females smaller. Body 3½ to 4, tail 12" long. Hind feet flipper-like, 4" wide by 6" long.

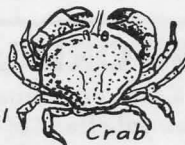


Like rocky, broken coastline with kelp beds & abundant food. The "seaweed" bed breaks the sweep of the waves & forms a protective screen. Single pup born at any time of year. Nine month gestation period. Pup nurses for a year. Young born every other year.

Sea urchins main diet. Break shellfish by striking shells together with forepaws. Crabs, sea-squirts, rockfish, mussels, clams are also eaten.



Mussel



Crab



Sea-Squirt

\* Several transplants of sea otter from Amchitka Is., Alaska in 1970-71, to Simpson's Reef and Port Orford area.



1634 S. W. ALDER STREET  
P. O. BOX 3503  
PORTLAND, OREGON 97208

CAL RESOURCES AGY LIB  
1416 9TH ST RM 117  
SACRAMENTO CA 95814