



JAN 12 1972

OREGON STATE
GAME COMMISSION

BULLETIN

January 1972

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JANUARY 1972

Volume 27, Number 1

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

Mule deer in the snow. A special status report on this page discusses Oregon's deer herds and our feature tells about animals in the winter.

Photo by John McKean

HUNTER SAFETY TRAINING PROGRAM

Instructors Approved

Month of November	17
Total to Date	2,565

Students Trained

Month of November	1,166
Total to Date	177,471

Firearms Casualties Reported in 1971

Fatal	3
Nonfatal	38

The Status of Oregon's Deer Herds

The current decline in mule deer numbers, not only in Oregon but in other western states, is of concern to game managers and hunters alike. To shed some light on this situation, it is necessary to give a brief rundown on the history of deer hunting in Oregon and then touch on the possible causes of the reduced population.

In 1899 the first deer law was passed in Oregon. The regulation provided for an 82-day season with a bag limit of five deer, regardless of sex. The buck-only law came into being in 1923 and a number of large refuges were also created by the legislature during this period. Most of the deer refuges were in eastern Oregon.

The buck law and the refuge program, while established to increase deer numbers, nearly resulted in widespread catastrophe. Deer numbers increased to the point that by the mid-1930s an overpopulation problem became evident in Grant, Lake, Klamath, and other eastern Oregon counties. In 1939 the legislature authorized a special antlerless deer season in Grant County and 10,881 animals were taken to ease that problem. In 1941 the legislature granted regulatory authority to the Game Commission and directed the agency to conduct investigations to determine proper levels of populations and harvest.

Meanwhile, the black-tailed deer in western Oregon continued to make his presence known. Extensive logging following World War II provided excellent forage conditions and the deer responded. Complaints by foresters of damage to conifer regeneration increased annually. Again, special seasons were applied but it soon became evident that other regulations were necessary to keep up with the number of problem areas.

From 1952 through 1957 the "hunters choice" season was used to hold deer numbers in balance with their food supplies. During this period an average of 250,000 hunters participated and bagged about 110,000 deer yearly, a third of which were antlerless. However, the lack of control of distribution of hunters soon became a problem. Excessive pressure was being exerted on the more popular hunting areas, particularly on mule deer ranges in central Oregon.

Big game management units were created in 1958 to better control the distribution of hunting pressure and harvest. Since the unit program has been in effect the number of deer hunters has increased to about 300,000. Average harvest has been 135,000 deer annually with less than a third of the total being antlerless animals.

This brings us to the current situation, a decline in deer numbers, especially mule deer. What has happened to cause this decline? One of the most popular explanations offered is overharvest of antlerless deer. On the surface, an understandable conclusion but one not substantiated by fact. In 1968, the year prior to the decline in deer, over 151,000 animals were taken. This was the third highest tally on record. However, only 21 percent of this total, or 31,500, were antlerless animals.

Deep snow and low temperatures during the 1968-69 winter created emergency conditions for deer in most of the state and, in spite of efforts to feed and care for the animals, heavy losses did occur. Recognizing this loss, no antlerless permits were authorized in western Oregon for the 1969 hunting season. In central and southeastern Oregon, relatively few permits were issued in 1969—a conservative trend that has continued to date. Poor fawn production and survival in northeastern Oregon the past two seasons called for a reduction by two-thirds in the number of antlerless permits issued in that area in 1971.

Another popular explanation of the deer decline is the effect of heavy hunting pressure on buck survival. Some people feel that too many bucks are harvested and reproduction is being adversely affected. In the winter of 1969 autopsies of mule deer does killed by accident, collected in reproductive studies,

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Migration, Hibernation and Starvation

By RON SHAY, Editor



Though waterfowl, specifically geese, are most often thought of as the major migrating species, many varieties of birds move out for the winter, including such diverse species as pelicans and hummingbirds.

As the days grow shorter and winds bring a chill from the north and east, most of us throw a few more logs on the fire or, more simply, turn up the thermostat to ward off the winter winds. Even the intrepid hunter who sits in a cold duck blind from daylight to dark or the persistent steelheader who stands all day with his feet in the cold water retreats to the warmth of the hearth as the sun disappears below the horizon.

But wild birds and animals have no artificially heated dwelling places to protect them from the cold, rain, and snow of winter. In many cases winter presents them with the choice of migration, hibernation, or starvation. Obviously not all wildlife follows one of these patterns but in any discussion of what happens to wildlife in the winter, we must consider the three actions as main alternatives of a large portion of our outdoor dwellers.

To better understand wildlife in the winter, we should look at Oregon. Basically we have two distinct climates in the state. West of the Cascades the warming winds from the Pacific give us moist, not too cold winters. However, across the Cascades the scene changes and often the eastern part of the state resembles the cold, windswept plains of central United States.

If you've traveled the state at all, you'll immediately realize that the gross division we made in the previous paragraph is just that — very gross or broad. Within the state, in addition to the two major weather types, we have many variations caused largely by the topography of the state. Obviously the winter situation along the crest of the Cascades and in the Blue and Wallowa Mountains is going to be considerably different than that perhaps a hundred miles away and several hundred feet lower.

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MIGRATION

We don't mean to get into a long discussion of Oregon's climate and geography but in order to talk about the activities of wildlife in the winter, it is important to think about the areas where the wildlife are spending their time.

In another sense, Oregon is located in the "middle." You may recall that we are located halfway between the equator and the north pole. At least a couple of signs, one just north of Salem, point out this fact and it follows that this would put us in the temperate zone.

So we're influenced by our north-south location on the continent, by a warm ocean adjacent to one side of the state, and by a high ridge of mountains running the length of the state.

But we're supposed to be discussing what wildlife does in the winter, not giving a geography lesson. Retain in your mind, if you will, the materials we've just presented as influences on our winter weather. One of the best known yearly responses of birds to escape the cold is migration. Because of our rather unique location, Oregon serves as both a summer and a winter home for waterfowl and during the fall months we have both in and out migrants.

Birds that have spent their summer here raising their young head south for California and Central and South America. The swallows that return each spring have spent the winter in Mexico and many of the pintail ducks that are in Oregon for the summer move to central California to escape the chill.

While most migrations are a rather gradual thing, extreme weather may cause mass movements. When the waters of Summer Lake in southeastern Oregon freeze up, it is not uncommon for many thousands of snow geese to leave the area in just a few hours.

Across the Cascades, however, in western Oregon some of the mourning doves don't seem to get the message that winter has arrived and, despite the fact that their compatriots have mostly left for warmer climes, they spend the whole winter here.



Oregon is located in the middle geographically. Many birds nest here and go south in the winter. Others such as the juncos that are shown nest in the northern climes and spend their winters here.

While the Oregon nesters are headed south, another group of birds that has done its homemaking in Canada, Alaska, and Siberia is headed for the winter "warmth" of the state. Some of the waterfowl just pass through here on their way farther south but others such as the dusky Canada goose hold up here until spring. Virtually the whole population of this subspecies winters in the Willamette Valley, then heads north to the nesting grounds in Alaska come spring.

We've used waterfowl as an example of migrating birds since their patterns and flyways are perhaps the best defined. This does not mean that they are the only birds making the seasonal trek. Many of the hawks do the same thing and our "middle" position has the same effect with these birds; some move south and other northern birds come in for the winter.

In addition to the hawks, many varieties of song birds move out for the winter, including such diverse species as the hummingbirds and pelicans.

This long-distance traveling is not confined strictly to birds even though their greater mobility makes them more adapted to such activities. Some bats leave Oregon for the winter and along the coast probably our most spectacular migrants are the gray whales. They have their young in the waters near Baja California, then about April head north to the Arctic Ocean. These 35-ton creatures that are 30 to 50 feet long make one of the longest migrations of any of the marine mammals but shorter trips are not uncommon by other animals

in the ocean world. In December and January the whales head back south to their warmer water rearing areas.

Scientists usually list two major causes of migration. One reason is obviously a search for better or milder weather. The second is a search for a food supply. These two reasons manifest themselves in two types of migrations. We've discussed the long north-south type moves. Less spectacular but equally important migrations to many species are the vertical ones. Our big game animals, especially in eastern Oregon, demonstrate this trait. As the winter snows cover the high country, deer and elk leave the once lush summer feeding areas and move down the mountains to areas where snow is shallower and temperatures may be a bit warmer.

In western Oregon the plant-eating animals often are not forced off the hilltops but remain scattered throughout the winter. When snow does hit, some of them, not accustomed to it, may starve rather than move down out of the cold, food-covering layer.

Smaller animals also may head for the foothills and since predators such as the bobcat depend on the plant eaters, they also move down following their food supply.

Animals that are involved in vertical migrations usually don't leave the state. However, they do leave the areas where you may be accustomed to seeing them. Hunters who patrol the lower country during deer season are often amazed when they see big bucks coming out of the high country during the elk season later in the year.

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HIBERNATION

One of nature's most fascinating ways of protecting her brood during the winter months is hibernation. As is true regarding migration, there are many theories as to what triggers hibernation. So many, in fact, that we don't intend to get involved in them in this article.

Suffice to say, some animals go into deep sleep when the climate gets to the point where it is uncomfortable. If they do this in the summer (when desert heat may be severe) the act is called aestivation. Whether winter or summer, it involves a prolonged period of torpor accompanied by a slowdown of body functions.

Bears do not hibernate. They may crawl into a hole and sleep for several weeks at a time. However, their heart beat, respiration, and temperature remain much the same as when they are out and active and they may be aroused. Such is also the case with some bats as well as chipmunks, the

skunks, raccoons, opossums, and badgers, to name a few. At any rate, if you come across a bear or skunk sound asleep in a den, don't kick, poke, or agitate . . . the results could be disastrous!

Some of the more familiar forms of wildlife are true hibernators and disappear beneath the ground for most of the winter. The croak of the frog is gone during the winter because of hibernation in the mud and many other amphibians and reptiles follow this practice. In the mammals, many of the rodents such as ground squirrels, rockchucks or marmots, and jumping mice go into the deep sleep.

Again we should stress that these are not hard and fast rules. Some individuals may ignore the pattern and stay awake or at least have active periods during the winter. Most especially, this may be the case in the milder clime of western Oregon.



Bears don't hibernate. They may sleep for several weeks at a time but can be aroused. If you come across a sleeping bear, do not kick, poke, or agitate!

True hibernation is a marvel of nature. We had the opportunity to observe the state first-hand once while blasting stumps. Two small jumping mice were exposed as a large fir stump was tipped over with dynamite. Both were curled in the typical hibernation pose with heads tipped between the front feet and the body in a curled-up, almost fetal position.

Though normally warm-blooded with a rapid respiration and pulse rate, the little animals appeared dead. They were cool to touch, breathing was not apparent, and, though flexible, their bodies tended to slowly return to the gently curled position when straightened out.

Since neither of the little fellows had any external marks, we carefully tucked them into the loose pockets of the jacket we were wearing and went about our work. About an hour and a half later one pocket was filled with a thrashing, kicking, jumping mouse. Apparently the heat of the wearer's body had caused the little rodent to wake up. He was subsequently turned over to the zoology department at Oregon State University where he lived a long, sheltered life as a guest of the department. The other mouse picked up at the same time never revived, possibly because of internal injuries caused by the blasting.

Such is the nature of hibernation. Animals in this state may have a body temperature that approaches that of their surroundings. If the temperature drops below freezing, they may awake or may simply freeze to death.

The breathing rate of the animal may drop to only one breath per 4 to 6 minutes and the heartbeat will slow to 1/20 to 1/40 of the normal rate. Response to outside stimuli is minimal or nonexistent.

This state of suspended animation may last as long as 6 to 7 months in some species but, again, varies tremendously.

From the reaction of the jumping mouse we mentioned, it might seem apparent that temperature triggers the sleep or awakening, but we'll add that a pet horned lizard kept in the house at room temperature went into

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HIBERNATION (Continued)

a three-month hibernation while his surroundings remained the same temperature!

Somewhere between complete hibernation and short sleeps, there is a state of dormancy or torpor utilized by some bats, certain of the small mice, and some of the other rodents. Periods of shortage of food may put these animals into periods of inactivity approaching hibernation but hunger or changes in the weather apparently bring them out again to an active state.

Some of the other small creatures of the ground remain fairly active in the winter, their work being covered by snow in some areas. Moles and gophers keep at their subterranean activities during the winter. Often the mole leaves signs of his under-the-snow excavating when spring arrives. Long tubes of earth may make winding patterns across the land showing where the furry insect-eaters were searching for food during the cold weather.

The frantic fall activity of the chipmunks serves them during winter as they stay underground and feed on the "goodies" they have cached while food was more plentiful.

Much the same holds true with the beaver and muskrat as they spend much time in their dens munching on sticks and other plants they towed in earlier. Both of these animals are active, though perhaps less busy than during the summer. The warm bodies of the beaver tend to make things quite cozy in their earthen and stick dens and at times steam may be seen arising through the thin top section as they bundle together.

But sleeping and migrating still leaves quite a group of birds and animals unaccounted for during the winter.

Some species are just harder to see when snow covers the ground. The ptarmigan recently introduced into northeastern Oregon changes its coat from brown to white. The same holds true with the snowshoe hare and in some areas with the weasel, who by changing to a white coat acquires the name of ermine. As is true with hibernation, there are varying

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Some animals go into deep sleep if the climate gets to the point where it is very uncomfortable. If they do this in the summer, the act is called aestivation. In the winter it is called hibernation. A number of the rodents are among the true hibernators though some of the others stay fairly active.

Some species just become harder to see in the winter. The ptarmigan and snowshoe hare change to a white coat. As with hibernation, there are varying degrees and numerous theories as to what triggers the change. A partially white creature in snow-bare surroundings is rather conspicuous!



HIBERNATION (Continued)

degrees of color change in birds and animals and, again, a number of theories as to why it takes place. A perfectly white ptarmigan is extremely conspicuous in a landscape that has had no snowfall.

In other animals the color change is less spectacular but species such as the deer and bobcat tend to have somewhat lighter coats in the winter than in the summer. Though such a change would not seem to be appropriate in western Oregon with little snow, the overall grayer tone of the woods makes the lighter coat somewhat better camouflage.

STARVATION

The third major reason you may not see wildlife in the winter is because it is less active—or perhaps dead. Resident birds such as the pheasant tend to stay in the more protective, heavier patches of cover and during cold spells move around less, thus conserving body heat. Prolonged cold spells, however, demand more work from the birds as they search for food and water to survive.

Much the same activity pattern is true with many of the small carnivores such as the weasel, mink, marten, and fisher, though they are better off with a fur coat and usually a nest or den for protection against the most severe weather.

In the birds and many other animals, death is the ruler during winter. All during the summer, production by the females has been filling the available habitat. As winter arrives, the habitat shrinks. Grains, seeds, and insects are no longer around to feed upland game birds. Forage plants lose their leaves and only twigs remain for big game. Rodents go under ground and no longer are prey for hawks and owls.

Nature narrows the funnel of abundance in the winter and, as a result, eliminates those individual birds and animals that are surplus. Studies have shown that there is a 75 to 80 percent natural turnover of bird populations every year. To put it more directly, three out of every four of the birds you saw this summer will be dead by next spring.



Three out of four of the birds you saw this summer will be dead by next spring. This mortality has nothing to do with hunting. Nature narrows the funnel of abundance in the winter and, as a result, eliminates those individual birds and animals that are surplus.

This mortality has nothing to do with hunting. It takes place in song bird populations that are never hunted. Actually the hunter is merely removing a portion of the birds that would probably die during the winter anyway. Checks of hunters' birds have shown also that some 80 to 90 percent of these birds are ones that were hatched the spring of the same year.

Despite the wishful thinking of many who would like to see unlimited numbers of birds and animals, nature will not stand for it and uses the critical winter months to cull the flocks and herds. If good habitat that provides plenty of food and shelter is available, a few more individuals will

survive but eventually a saturation point will be reached and winter culling takes place. Death is part of nature's scheme.

So we get back to our original question—where is the wildlife in the winter? Some of it has left, some of it is asleep, some is less apparent, and some is dead. But even during the winter, birds not seen in the summer visit our state and the careful and rugged observer may see resident species in perhaps new appearances. Part of knowing about nature is appreciating the year-round changes that take place. We in Oregon are fortunate in that climate and topography make our state a diverse, ever-changing natural workshop.

Commission to Work For Adequate Fish Passage

Now that the controversial downstream migrant salmon and steelhead mortality problem at the industrial complex at Willamette Falls has been settled to the satisfaction of those concerned, the Game Commission will direct its efforts to solve similar problems at dams, hydro and irrigation projects, or other water-use complexes on several other Oregon streams.

This is the road the Commission directed the staff to travel during a recent business meeting in Portland.

Of major import are the four hydro-electric dams on the Columbia River bordering Oregon at which an estimated 8 to as high as 15 percent fish mortality occurs at each. Similar mortalities occur at other upstream Columbia and Snake River dams. Intensive efforts by a number of state and federal agencies are now being directed at the Columbia and Snake downstream mortality problem and other fish passage problems.

Also critical is the downstream mortality at four dams on the Rogue River although considerable efforts have been made to correct the problem. Other critical areas include power and/or irrigation diversions on the Clackamas, North Santiam, South Santiam, McKenzie, Hood River, Umatilla, and Walla Walla. All of these river systems contain significant runs of migratory fish.

The Commission commented that great strides have been made in salmon and steelhead technology during the past two decades as evidenced by increased runs of these fish in numerous Oregon streams. Runs of salmon and steelhead have been created in some streams where they did not previously exist or were present in very limited numbers.

But to achieve the full potential of the Willamette system, the Rogue, and other stream systems, the Commission emphasized, both upstream and downstream migration of these fish past dams, water diversions, or other water-use complexes must be assured. This means full protection at these installations, or at least passage with minimum of risk.

North America Still Losing Birds of Prey

At least four species of North American birds of prey continue to approach the danger point for survival, and another—the Peregrine Falcon—has already reached it, according to the National Audubon Society.

The Society's bimonthly journal, *American Birds*, analyzing the reports of last summer's breeding success sent in by more than 1,500 field observers, published this conclusion in its October issue. The reports, coming from every state and province in the U.S. and Canada and representing thousands of hours of observation, show that, "with a few exceptions, there has been a continual overall decline in the hawk and eagle population," says editor Robert Arbib.

Declines in these species have been attributed to the effects of DDT and other pesticide residues, loss of habitat for nesting, and most recently the possibility of mercuric chloride poisoning. In addition, large numbers of hawks and owls are still being shot despite the fact that, with a few exceptions in some states, it is against the law to shoot them. The Audubon Society has been waging a long campaign to educate hunters to the laws and to explain that these birds, far from being "harmful," have an important role to play in keeping populations of rabbits, rats and other species in check.

Most severely threatened of all the birds of prey, and already extinct as a breeding species in the northeast, is the swift and handsome Peregrine Falcon, which is now becoming extremely scarce throughout North America. Only one or two nesting pairs are reported in the *American Birds* survey.

The Marsh Hawk America's only harrier, was everywhere down in numbers, reflecting the diminution of its marshland habitat and possible pesticide problems. "Now scarce in southern New England," "Disastrous in Idaho," "None reported in the Ottawa, Ontario area," "Down in the upper Midwest" were among the comments.

License Fee Hike On Tap For Hunters, Anglers

Archery hunters will have an increase in their license fees starting in 1972, the result of a law passed by the regular session of the 1971 Legislature.

The new law, passed with the support of Oregon's organized bow hunters, requires that in addition to a regular hunting license, any person desiring to hunt with bow and arrow in an area designated exclusively for archery hunting must obtain a bow hunting license. The fee for this license is \$2 when purchased in combination with the regular hunting license and \$5 when purchased separately.

A point for archers to remember is that the combination hunter-archer license will cost the Oregon hunter \$7 but if the documents are purchased separately, they will cost him \$10. Nonresidents are also subject to the new law if they intend to bow hunt in Oregon. **Both the regular hunting license and bow license are required to hunt in a designated archery area.**

The legislature also increased the nonresident hunting license fee to \$50, nonresident angling license to \$20, ten-day vacation angling license to \$10, and the daily angling license to \$2.50. However, anglers fishing on the daily license may angle for salmon and steelhead without purchasing the regular salmon-steelhead license. These changes took effect January 1, 1972.

Hunters and fishermen who lose their licenses and request duplicates will pay a little more for this service than they have in the past. The charge for issuing duplicates will be \$1 instead of 50 cents.

Species showing mixed reports—down in some areas and holding their own in others—included the Osprey, the Prairie Falcon, the Red-tailed Hawk, and Golden Eagle.

Species apparently holding their own included the Bald Eagle, Broad-winged, Swainson's, and Ferruginous Hawks.

Hunters Approve Chesnimnus Controls

Although the Game Commission embarked on the experimental Chesnimnus hunter control project this fall with some apprehension, 87 percent of the nimrods hunting this popular elk unit gave rousing approval to the restrictions.

The experiment—part of an overall study of the effects of logging roads on elk populations and distribution — restricted hunter vehicular travel to specific roads within the unit and blocked all other roads and trails to motorized travel of any kind. Hunters were allowed to pack in on foot or horseback to any part of the unit they desired, but the road blocks in effect over much of the better elk range forced hunters to challenge their quarry on foot, even to back-packing downed animals to camp.

Final figures for the Chesnimnus season are incomplete. However, Ron Bartels, district game biologist at Enterprise, said that of 3,349 hunters checked in and out of the area, 2,905 endorsed the restrictions and urged more of the same in other areas of the state.

Bartels said that 293 persons (9 percent) opposed the restrictions while 151 hunters (4 percent) had no opinion or wished to reserve judgment.

As expected from the road blocks and curtailed vehicular travel, the bull elk kill was down from the previous year. Incomplete figures show 271 bulls taken for an 8 percent success ratio compared to 413 bulls taken in 1970 for an 11 percent success ratio. Antlerless elk hunters took 129 antlerless animals for 75 percent hunter success compared to 54 antlerless animals and 68 percent success in 1970.

Hunters, cooperating wholeheartedly during the season, policed their own ranks and were quick to report violations to officials. Nineteen citations were issued for violating road closures. Illegal kills were down, according to Bartels, with only 7 tallied compared to 20 illegal kills in 1970.

GAME BULLETIN

Antelope Respond To Coyote Control

In March of 1969, 17 antelope trapped in central Oregon were released on the Umatilla Army Depot in the northeastern part of the state. The group included 10 adult females, 2 adult males, and 2 male and 3 female fawns born the previous year.

Observations of the herd indicated only one fawn born in May 1969 survived until fall and similar results were experienced in 1970.

Evidence of a high coyote population in the area, coupled with poor fawn survival during the 1969 and 1970 seasons, prompted a control program to reduce predation.

No poison was used, but intense trapping and the use of coyote getters removed 135 coyotes from the 16,000-acre area.

Fawn survival responded the following year when 13 fawns produced by 9 does remained on the area through the fall of 1971. Based on figures obtained on antelope herds in southeastern Oregon in recent years, this is a survival of 80 percent of the reproductive potential of the does as compared to 20 percent in the other areas.

After 15 months of coyote control on the area, a total of 146 animals had been removed. In addition to allowing better fawn survival, the reduction in numbers of coyotes appears to have removed a harassment factor and let the antelope utilize a greater portion of the available habitat.

A Tie With Ivan?

It seems even the Soviet Union, virtual inventor and chief exponent of central planning, can get caught with its plans down where big game is concerned.

The National Shooting Sports Foundation relates that years ago Soviets nearly exterminated the saiga, a type of antelope, by killing it for its horns.

Next, under total protection, the saiga multiplied until it "began eating Kazakhstan Province back to desert."

Steelheaders Protect Trask River Access

Sport fishermen can thank members of the Beaverton Steelheaders for opening up a 4-mile section of excellent steelhead fishing water on the Trask River after the landowner became discouraged at the vandalism of "slobs" and closed his property to entry.

Dave Heckerroth, fishery biologist in the Tillamook district, approached the landowner to see if some solution couldn't be worked out. The landowner had no objection to persons angling from his property but objected strongly to torn down fences and other damage and vandalism.

Heckerroth then contacted the Beaverton Chapter of the Northwest Steelheaders and arranged for a work force to repair the damage. According to Heckerroth, a good crowd showed up for this goodwill project and repaired fences, constructed three stiles, brushed out trails along the river, and cleaned up the problem area. As a result of this show of courtesy and concern, the landowner reopened his property.

Heckerroth said plans for similar efforts on another piece of Trask property were arranged by the group and other opportunities are being investigated. He said that this is the type of sportsman-landowner cooperation that should receive priority attention of sportsmen's groups all over the state.

Now, with nearly 2 million hungry saigas on the loose in a limited area, planners tardily aim to do something about that.

American game managers will brood darkly over this situation. Their own planning is more alert, but they have no real power to implement it, with the result that it is often stymied by collective public insanity where big game is concerned. Thus, results can be equally bumbling under the cloistered planning of socialism and the brawling democracy of capitalism.





Oregon's Flagtails

Oregon's Columbian whitetail deer is listed as an endangered species simply because it has been forced out of its native habitat. Once found throughout the Willamette Valley, the animals haven't adapted to human civilization as the blacktail has.

A small herd of the pure strain of Columbian whitetail still exists along the lower Columbia River. Al Miller, Game Commission photographer, managed to obtain a few fleeting shots showing the appropriateness of this deer's name. The long tail, dark on top, is used as a flag when these elusive brush dwellers take off at a lope. As the tail is held up, the almost white underside makes an unmistakable identifying feature. The tail is larger than that of the mule or black-tailed deer and normally the other two species keep the tail down when running.

Populations of whitetails also exist near Roseburg, in northeastern Oregon, and are occasionally reported in the Mount Hood area.



International Symposium On BioSurvival

WASHINGTON, D.C.—The National Wildlife Federation is planning to sponsor a three-day symposium on "Uniting Nations for BioSurvival" in Stockholm, Sweden June 10-12, 1972, according to Thomas L. Kimball, Executive Director.

This Symposium will be presented during the governmental United Nations Conference on the Human Environment scheduled for Stockholm, June 5-16, 1972. Eighteen national and world authorities on the environment and ecosystem relating to renewable natural resources have accepted invitations to be panel participants for the Symposium.

All participants will be encouraged to present resolutions to be considered by the non-government representatives attending. Among the recommendations submitted by NWF will be those calling attention to the desperate need to train fish and wildlife regional specialists throughout the world and for developing industrial and domestic water and air quality criteria which will prevent any industry or nation from establishing economic advantages at the expense of a quality type of natural environment. Means of accomplishing these objectives will be discussed. Possibilities include the inauguration of a global monitoring system of fish and wildlife for population levels, range, distribution and condition of habitat; control of the movement of plants and animals throughout the world with special emphasis on endangered and depleted species; and an effort to wisely develop but while preventing the degradation of the seas' resources.

The program itself is in process of being finalized. Copies may be obtained from the National Wildlife Federation headquarters, 1412 16th Street, N.W., Washington, D.C. 20036, by or near February 1, 1972.

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or obtained from other sources revealed over 150 fetuses per 100 does. Numerous other investigations reveal similar reproductive rates with buck-doe ratios below the 1 to 10 average that exists in Oregon mule deer.

The initial reduction in deer numbers was undoubtedly caused by the heavy snow accumulations in the winter of 1968-69. An indication of the effects of this winter on deer populations was obtained from the Cedar Creek research project in Tillamook County. In this project 77 black-tailed deer were being studied in a 340-acre enclosure. Before the winter was over, mortalities included all of the previous year's fawns, all yearling bucks, two-thirds of the adult bucks, 18 percent of the yearling does, and 12 percent of the adult does. Stress during this winter not only caused losses but also influenced the condition of fawns born the following spring. Normally, black-tailed deer at birth weigh about 6½ to 7 pounds each. In 1969 the 32 fawns born within the enclosure had birth weights varying from 2½ to 6 pounds. By May 1970, only one of these fawns was still alive. The winter of 1968-69 literally wiped out two years of reproduction in the study area. Since that time, blacktail populations have recovered almost to the pre-1968 level.

The Cedar Creek project involved only black-tailed deer but herd counts in central and southeastern Oregon indicate that the 1968-69 winter had similar effects in those areas. Compared to the 1958-68 average, fawn survival declined 11 percent in 1969 and was down 15 percent in 1970. The overall population showed a 6 percent decrease in 1970 followed by a further decline to 19 percent below average in 1971. Fawn production and survival did not recoup the losses that occurred.

The Game Commission initiated a research project on Steens Mountain in 1968 to determine the causes of mule deer fawn mortality. This study has revealed that the reproductive potential in the Steens is quite high with a ratio of 165 fetuses per 100 does. By the end of March, approximately ten months following the fawning seasons, 70 percent of the potential fawn production had been lost. A significant finding is that 90 percent of the loss occurred before December 15.

A factor that must be considered is predation. Evidence points to the coyote and other predators as being partly responsible for fawn mortality. One of the primary objectives of the Steens Mountain study is to determine the overall effect of predators on a mule deer population.

Preliminary observations during the month of December reveal poor survival of 1971 fawns and heavy snowfall during that month creates an opportunity for another heavy winter loss on eastern Oregon ranges this winter.

Whatever the cause, fawn survival is the key to population growth and hunting success. Yearling bucks represent nearly two-thirds of the harvest on the better years; without that age class, success suffers. Investigations will be continued to better document the causes of fawn mortality. Meanwhile, regulations and appropriate action programs will continue to be based on supply and it is anticipated that further restrictions may be necessary to maintain the deer herds at optimum levels.



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

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