

# OREGON WILDLIFE

OCTOBER 1983



# OREGON WILDLIFE

OCTOBER 1983  
Volume 38, No. 10

OREGON FISH AND WILDLIFE COMMISSION

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**The Cover** — Sport hunting of game-birds has little effect on population numbers. The carrying capacity of the area is much more significant. See feature article.

*Photo by Jim Gladson*

HUNTER EDUCATION PROGRAM  
INSTRUCTORS APPROVED  
Month of August ..... 44  
Total Active ..... 1,651  
STUDENTS TRAINED  
Month of August ..... 983  
Total to Date ..... 304,519  
HUNTING CASUALTIES  
Fatal ..... 0  
Nonfatal ..... 3

## Look for the Green Dot

Those of you in the woods for the hunting seasons this year will be exposed to a new system. But don't panic. . . the exposure should be a pleasant one. If you've been in the woods during big game seasons in recent years you have no doubt noticed in some areas that a number of the roads have been closed.

The road closure program has been generally well accepted. It was designed to give big game a better chance to escape the traffic of the roads during the season and has also given hunters a better hunting experience, away from vehicles.

When the program began, it was set up along the lines of most such programs with signs prohibiting entry at certain points. This has proven expensive since, in some areas, a majority of the smaller, branch roads are closed during the seasons.

To save money and take a more positive approach, the green dot system has been devised. Instead of signs to designate closed roads, green dots will mark the open roads. These should last from year to year and will make the program easier and much less expensive to operate. It has already been tried in limited areas.

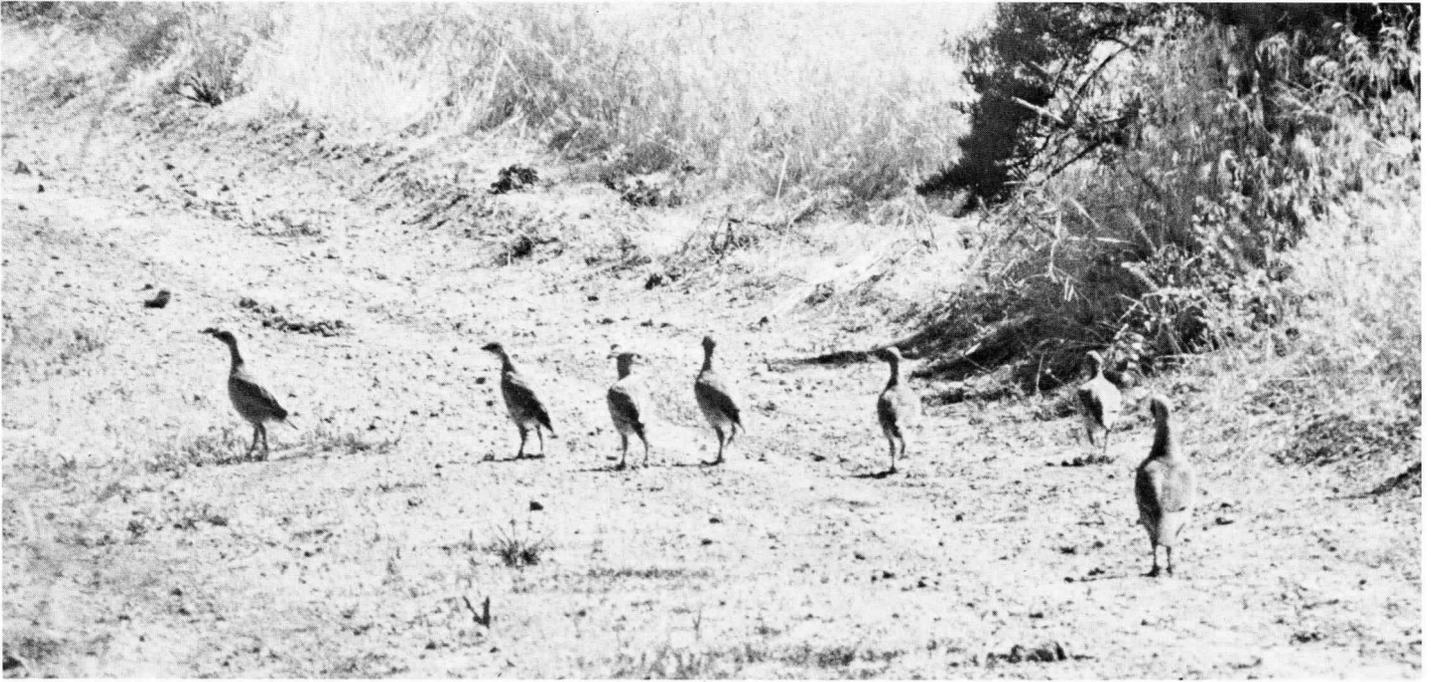
Obviously, this system is going to depend on the cooperation of you who use the road closure areas. The program is a positive approach to better hunting and it gives the animals a better chance. Since the signing can be done less expensively, it is also a saving of your dollars. However, if there is a great deal of vandalism or non-compliance calling for more enforcement, the gains could become losses.

So we hope that all of you will watch for the green dots as you head into the road closure areas, and that you will pass the word along to others. Closures are listed in the big game regulation pamphlet. It will take an assist from all users to make the green dot program work. By assisting, you can help yourself by helping save some of your license dollars. □

*R.E.S.*

## Commission Meetings

*The Fish and Wildlife Commission will conduct two days of public hearings on Friday, October 21 and Saturday, October 22, on 1984 sport fishing regulations. Both meetings will begin at 8 a.m. in the main conference room at Fish and Wildlife Department headquarters, 506 SW Mill Street in Portland. Following public testimony on the second day, the Commission will set angling rules for 1984. □*



A brood of chukars. How many will live for how long is discussed in John Crawford's article below.

# Life and Death in the Uplands

By  
*Dr. John A. Crawford*  
*Department of Fisheries and Wildlife*  
*Oregon State University*

A fox slips quietly along a fencerow. In the grassy cover, a ring-necked pheasant detects the intruder. He chooses to freeze in the hope that trouble will pass. It does not.

The facts in this scene are clear — the fox killed the pheasant. But the effects of such events on pheasant populations are much harder to understand. For decades, wildlife biologists, managers and researchers have worked to learn what factors control upland gamebird numbers. The results, sometimes inconclusive or conflicting

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with other findings, may lead one to support the comment of renowned wildlife biologist Paul Erington, that "nature's way is any way that works." Some patterns, though, have emerged. Continuing research lets us better understand these patterns and the many exceptions.

One may sometimes wonder why a certain area does not support two, or five or even ten quail per acre. Even with intensive management, it is rare to have more than one quail per acre. Obviously, quail and all the other gamebirds

are limited by something. But what are the factors, how do they operate, and how can we use information about these factors to improve management?

## **Mortality and Limiting Factors**

To address these questions, we must start with a distinction between "mortality factors" and "limiting factors". Anything that directly kills an animal, such as hunting, predation, disease or accident, is called a mortality factor. By contrast, limiting factors are

*(Continued next page)*

those things that restrict or control the size or distribution of an animal population.

Works by Gordon Gullion with ruffed grouse and Errington with bobwhites revealed that the quality and amount of habitat, behavioral interactions such as territoriality, and weather are the factors that most often limit populations of upland gamebirds.

Frequently, but often wrongly, mortality factors are thought to control populations. The logic is hard to resist — a pheasant does not die from lack of habitat or from territoriality; rather it dies from hunting, predation, disease or the like. Therefore, it's these latter factors that limit the number of pheasants. But this is faulty logic.

One of the most important traits of gamebird populations is that mortality rates are fairly constant from one year to the next. For quail, usually 60 to 80 percent of the birds alive at any one time will die within a year. Mortality rates for other upland species, such as grouse, pheasants and turkeys, are slightly lower, but commonly reach 50 percent each year. Most of this loss occurs during fall and winter.

The "carrying capacity" of an area for upland species is best described as the numbers of birds an area can support during the most critical time of the year. Most often this is winter or early spring. Any birds in excess of the carrying capacity are called the "biological surplus." What becomes of the biological surplus? Most often they die from many causes, or they may leave the area.

#### Gamebird Population Traits

Errington found that the causes of deaths operated in a "compensatory" way. In other words, if predators are abundant in one year, many quail die from predation and fewer birds die from other causes. By the same token, hunting losses may be compensated for by fewer deaths caused by predators. The outcome of compensatory mortality is that the overall mortality rate for the population does not change although causes of death may differ from year to year or from one area to another.



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There must be the proper amounts and distribution of habitat needs, such as food, escape cover, water, nesting areas, etc.



The reason the mortality rate is rather constant is that once the population of birds drops below a certain level, called the "threshold of security," the population usually is safe from more losses to predation, disease or similar factors. For example, at some point, it is no longer efficient for the predator to search for the last few quail or grouse in an area because he spends more energy than he can take in. And, even chance meetings between prey and predator are rare.

Some factors, though, do not operate within the bounds of compensatory mortality. Severe weather conditions, for instance, may reduce a population well below its normal threshold of security. But upland bird populations display a special resiliency to such occurrences. If the number of birds that survive through a critical period is particularly low in a certain year, the productivity of adults and survival of young is especially high. Errington called this phenomenon "inversity" because of the inverse relationship between the size of the breeding population and the number of young born into the population.

#### Importance of Habitat

Many of the mortality factors acting upon upland gamebirds really do not limit the population even though they cause the deaths. There is little a manager can do about the behavioral or weather factors that limit populations. But habitat can be managed.

The quality and quantity of habitat is quite important from another aspect as well. Our research at Oregon State University, and other studies around the country, indicate that habitat conditions affect the way limiting factors work in upland gamebird populations. For compensatory mortality, inversity and the threshold of security to function normally, there must be the proper amounts and distribution of habitat needs, such as food, escape cover, water, nesting areas, etc. If the habitat is quite small or if any of these needs is restricted in its distribution, mortality factors, such as hunting,

disease, or predation, may actually *limit* the population. For example, a site may contain all of the needed features for a pheasant population, but if even one part, like nesting sites or winter cover, causes the population to be very concentrated, disease may spread quickly through the population or predators may reduce numbers of pheasants well below the carrying capacity. In the latter instance, predators do not have to search an entire area for the birds if they are confined along fencerows for nesting or in a small amount of left-over cover during winter, and it may be energy efficient for the predator to try to take the last few birds on an area.

### Management Practices

With this basic review of gamebird mortality and limiting factors, let us look at five management practices that have been used to maintain or improve populations:

#### 1. Hunting Regulations

For gamebirds that live in areas with adequate habitat, population size and mortality rate are mainly unchanged by sport hunting. Protection of gamebirds from hunting will not allow the population to increase. Because of the high mortality rate, even without hunting, and because hunting typically is compensatory, upland gamebirds cannot be "stockpiled" from one year to another. Thus, area or season closures for populations in good habitat are not needed and do little or no good.

Beyond the question of whether or not to hunt is the rather mystical realm of season length, bag limits, possession limits, etc. These types of regulations for gamebirds in good habitat serve much more to spread the harvest among hunters than to protect the population. In some instances, however, regulations are necessary to safeguard populations. Hunting of gamebirds that occur only in a very small area, are suffering declines because of poor habitat, or are concentrated during the hunting season (at watering sources, for instance) may have the potential to limit the population, and regula-

tions must be carefully applied to such species.

For healthy populations, though, hunting is "self-limiting." This means that as the biological surplus is removed, hunters tend to lose interest in the last few birds on an area and hunting effort falls off. The remaining birds become skilled at dodging hunters and the population achieves a measure of security.

Any discussion of the welfare of gamebird populations and the effects of hunting or hunting regulations must also take into account the quality and amount of habitat in which the species lives. Without this information, best use of the resource and protection where needed may not be achieved.

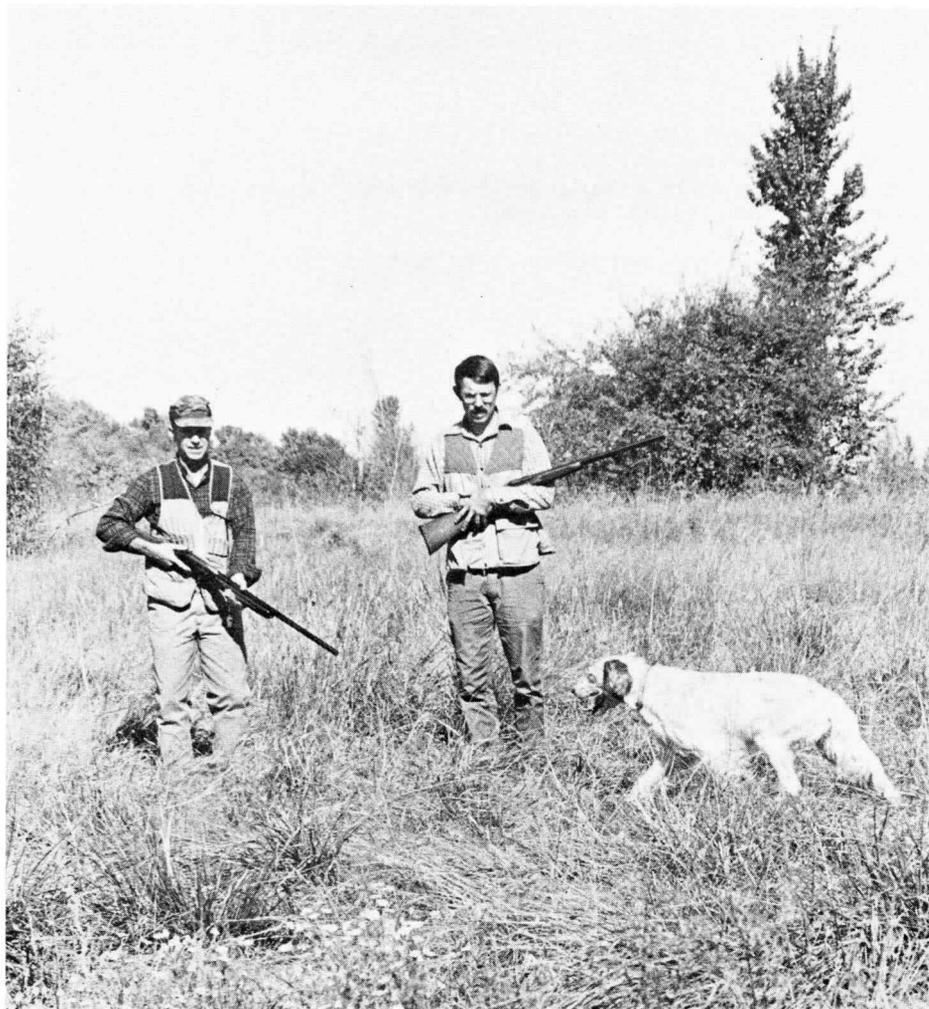
#### 2. Refuge Areas

Many people know the valuable role played by refuges for waterfowl, but it is less well known that refuges were once used by some state agencies and private landowners for upland gamebirds. These refuges attempted to stockpile birds, which, in theory, would move into areas that had been heavily hunted and repopulate them. Research found that birds within refuges suffered mortality rates similar to nearby hunted populations and that nothing was gained by establishing such refuges in areas of healthy gamebird populations.

#### 3. Stocking

Stocking of pen-reared gamebirds has been a common practice

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Stocking of pen-reared gamebirds has been a common practice for well over a century. Research has shown though, that stocking birds into areas that already contain populations of the same species will have no long-term effect.

for well over a century. Stocking may serve many purposes, such as the establishment of a new species, re-establishment of a species that has disappeared or to boost the numbers of birds for hunting through "put and take" operations during the fall. Research has shown, though, that stocking birds into areas that already contain populations of the same species will have no long-term effect. The reason is that the carrying capacity of an area cannot be increased simply by adding more birds. Any birds present in an area, either wild or stocked, that are in excess of the carrying capacity are part of the biological surplus and will be **OREGON WILDLIFE**

removed in one way or another.

#### 4. Control of Predators

Predator control has been one of the most common approaches to gamebird management over the years. It also is the most controversial technique. Predators such as hawks, owls and foxes were viewed for decades as the main cause of low or declining gamebird populations. But research that began in the 1930's revealed predators did not often limit populations. In some instances, even heavy control of predatory birds and mammals failed to cause a sustained population increase. By contrast, other studies show that

gamebird densities are greater and birth rates improved when predators are controlled.

The scientific literature is inconclusive about the relationship between predator control and the survival and productivity of gamebirds. Our research at OSU indicates that both the amount and quality of cover may largely determine the impact of predation on upland gamebirds.

#### 5. Habitat Management

There is no doubt that the main factor in the management of upland gamebirds is the provision of enough food, water, cover and space. None of the other management practices is as critical to the well-being of gamebirds as habitat, and no other management practices can be used for long to reduce problems caused by poor habitat.

Many of the efforts of wildlife biologists and managers center on learning the habitat needs of a species, trying to find what components are available in the least amount (i.e. what really is limiting the population), and then conducting the management needed. Any one or several of the four basic components of habitat may limit a population at any one time. For some species, freely available water is essential for survival. For these gamebirds, managers must insure a supply of water during the most critical period, usually spring or summer. In some arid regions a year-round water supply must be maintained.

"Gallinaceous guzzlers," devices which collect rain or snow and store it for use as needed by birds, are often installed to meet this need. For healthy gamebird populations, there must not only be enough water, but it must be distributed to avoid large concentrations of birds in one area.

The quality and amount of food greatly affects both survival and productivity of gamebird populations. In most areas, the food supply during winter and early spring is the most limiting to gamebirds. The wildlife manager usually chooses one of two schemes to insure a supply of food. For some

*(Continued next page)*

species, such as quail and pheasants, patches of corn, wheat, Sudan grass or other species are used if natural foods are in short supply. For other species, such as grouse, the manager must insure that the proper mixture of successional stages of vegetation is available to meet food needs throughout the year.

Understanding the space needs of gamebirds is important for good management. These requirements focus on the sizes of areas needed by birds to live and reproduce and are especially important for territorial species. The usual goal is to try to provide all of the food, water and cover needs for a bird on a minimum-sized area.

Cover needs of gamebirds are complex and change from season to season for many species. To provide the proper amounts and types of cover offers probably the greatest challenge to the manager. Some of the more important cover needs include sites for mating, secure nesting, brooding, feeding, escape, roosting and daytime rest-

ing. In addition, some species need certain types of cover during harsh weather, winter or summer. The manager must provide the needed species of plants and the correct types of vegetation structure, dispersed throughout an area.

#### Management Problems

Of all management schemes, improving habitat for gamebirds is the hardest for the biologist or manager to achieve. The problem, which has been tackled in many ways by state and federal agencies, lies in the fact that most of the best land for upland gamebirds is in private ownership where gamebird production is usually of secondary importance, if any at all. On many public lands forage production for big game and livestock, timber production, or recreation takes precedence over management specifically for gamebirds.

In Europe, management programs for grouse, pheasants and partridges are much more common than in the U.S. and are the high-

est priority on some areas. The reasons for this lie in basic philosophical, cultural and legal differences.

In Great Britain, for example, upland gamebirds belong to the landowner, not the public as in the U.S., and a substantial income may come from selling shooting privileges and the harvested game. Because this is so, some landowners receive the greatest amount of their income from shooting, and proper management for gamebirds is thus a great concern.

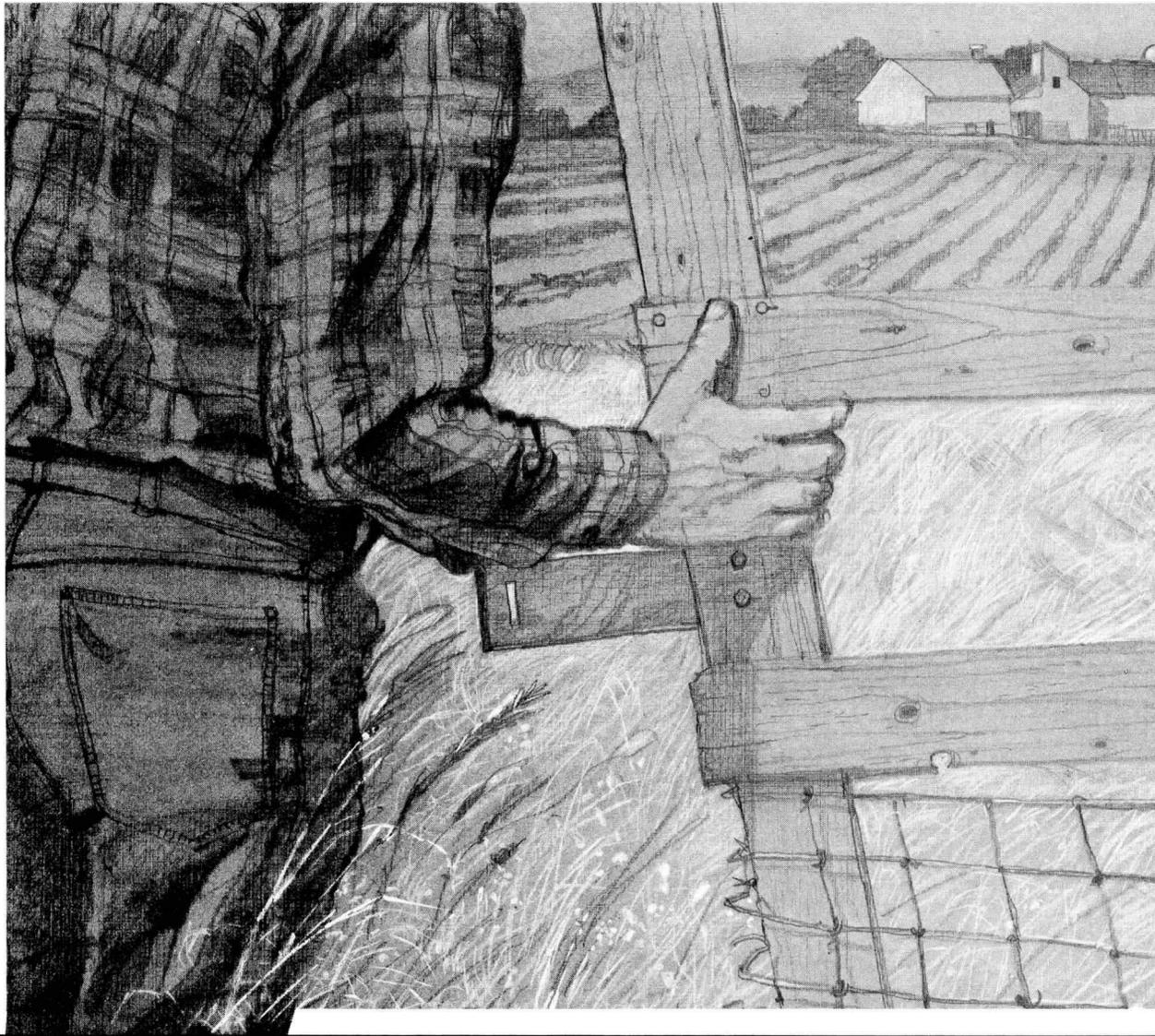
The pattern of land ownership in the U.S., the long history of hunting by people of all economic levels, and many other traditions make it unlikely that the European system will ever prevail here. Management agencies will continue with the frustrating job of trying to produce gamebirds on areas where other uses have greater importance. And biologists and researchers will always try to develop schemes to get the best gamebird production compatible with these dominant uses. □



#### Skate Caught Crabbing

Betty Cooper of Portland had a bit of a shock when crabbing with her husband Gary at Tillamook Bay. As she pulled up the crab ring, it felt quite loaded, and it was! A large skate some 5 to 6 feet across had managed to wedge itself into the ring on the front and get one fin hooked in the rope on the back. Gary estimated the weight of the unexpected catch at about 60 lbs.

## *The gate swings both ways*



**A**ccess to private land: For millions of hunters throughout America, it's the difference between spending a day afield, or the day at home.

For the most part, landowners are not against hunting. But they do want to control access to their property. They want to know who's on their land, and why.

In fact, according to a national survey, one-third of all landowners with posted land would allow hunting access if hunters came to them and asked permission.

It's been said many times before but always bears repeating: Ask permission before you hunt on private land and, once you get it, treat the land as if it were your own.

# Gamebirds in '84

**Biologists see an improving trend for upland birds and mixed prospects for waterfowl.**

By  
Ralph Denney  
Staff Gamebird Biologist

Upland game birds often recover from low population levels at a phenomenal rate given the right conditions. But when levels are at an all-time low, as they were last year, it *does* take more than one year.

Fortunately most species had a fairly good nesting season this spring. This means the start of a recovery, if we don't get hit with a severe winter, and also given another good nesting season next spring. Put another way, we are watching upland bird populations with guarded optimism.

The outlook for hunting this fall is mixed depending on species and area. Western Oregon pheasant levels are the lowest on record. The season will last only four weeks again this year for cocks only. In spite of low numbers there is a fair carryover of adult roosters.

Eastern Oregon pheasants responded to a mild winter and increased 39 percent from last year's near-record low. Populations are still 35 percent below the ten-year average, though. Young pheasants will predominate as the carryover of adult roosters was low. A two-cock bag limit is continued again in eastern Oregon to extend the harvest through the season.

Valley quail numbers increased slightly in western Oregon and showed excellent gains in eastern Oregon. Eastside valley quail numbers are again above average. Valley quail bag limits remain the same on the west side of the Cascades but have been increased to ten per day with 20 in possession in eastern Oregon. Mountain quail



**Sage grouse hunting opportunities were expanded this year. The season was held in late September and is over until next year.**

populations remain low in eastern and southwestern Oregon and bag limits are unchanged from last year.

Chukar and Hungarian partridge made encouraging gains throughout eastern Oregon from the low levels of last year. Chukar increases averaged 32 percent over last year although both chukar and hun numbers remain 20 percent below the ten-year average. A two-week delay in the season and a cut in the possession limit from 18 last year to 12 this season is intended to give added protection to these birds and encourage a speedy pop-

ulation increase. Production was spotty with good recovery seen in some areas, almost none in others. Partridge hunters may need to sample several areas to find one with better hunting this season.

Forest grouse numbers remain stable in western Oregon and have increased on the east side. Two additional weeks are added to the western Oregon season. And in eastern Oregon hunters were allowed to take three blue grouse *and* three ruffed grouse per day in their September season rather than three in total.

*(Cont'd on page 11)*

Sage grouse hunting opportunities were expanded this year. The season was held in late September and is over until next year.

In summary, upland bird prospects are spotty depending on species and area, but upland bird hunters who don't mind walking should find enough hunting to justify a few days afield during the best part of the year.

Waterfowl prospects also vary by species and area. Local production was good for great basin Canada geese, mallards, gadwall and teal. However, locally produced birds tend to migrate south early and most hunting is provided by birds which move in from northern nesting areas.

Mallard production is up somewhat this year in the Pacific Flyway but pintail and wigeon numbers are at a 30-year low due to several years of poor production in their northern nesting habitat. Greenwing teal numbers should be about the same as last year. Flights of major diving ducks including scaup, redhead and canvasback should be above average this year although wintering populations of these ducks are fairly low in Oregon.

Goose prospects also vary. The large, light-colored Canada goose had a good nesting year as did the smaller Taverners Canada goose. The dusky Canada, which winters only in the Willamette Valley, suffered heavy nesting predation on the Copper River Delta and the flight will be much reduced this year. A January 1 season closure was set for geese in the Willamette Valley to reduce the take of dusky Canada geese.

Other northern species including cacklers, snow geese from Wrangel Island, and whitefronts had a poor nesting season. And black brant populations are at such low levels that no open season was set in Oregon for 1983. The season closure is intended to encourage an increase in wintering populations.

All in all, gamebird hunters will have good times and poor times, but as most hunters know, this is all part of the game. □

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## Outdoor Guides to be Registered by the Marine Board

A new law passed by the 1983 Legislature requires Oregon outdoor guides to register with the State Marine Board starting January 1, 1984. The previous guide licensing law went out of existence on July 1, 1982.

The State Marine Board is working out details of the registry and will send information to guides licensed in the last year of the previous system. New guides who have not been licensed before should contact the Marine Board at 3000 Market Street N.E., Salem, Oregon 97310 (telephone 378-8587) for further information and application forms.

Under the new law, guides will pay an annual fee of \$25, must meet certain Red Cross training standards, and must give proof of certain insurance. Other information will also be required, but no examination is involved in the registry. The Department of Fish and Wildlife now registers charterboat operators, but will not be involved in the outdoor guide registry. □

## Tip of the Hat

Two Reedsport men charged with five counts of killing elk out of season and four counts of wasting game meat have been handed stiff sentences by Douglas County District Judge Robert Anderson.

The two men had said they were target shooting when they saw a herd of elk and started shooting at them, firing about 40 rounds into the herd.

"It was a shocking crime," Judge Anderson said and gave one defendant 120 days in jail and fined him \$1,000 on each of two counts. The second man, Anderson said, was a follower in the crime rather than the leader and was sentenced to 60 days in jail and fined \$500 on each count. Both men's hunting privileges were suspended for five years and their weapons were forfeited.

State Police trooper Glen McDonald who testified at the sentencing hearing said four of the five elk were decomposing when they were found. The fifth had been gutted and taken to the home of another Reedsport man who has been charged with illegal possession of elk.

Deputy District Attorney Pat Joslin, in asking for a stiff sentence, said the two men had left several thousand pounds of meat to rot. A tip of the sportsman's hat goes this month to Judge Anderson and Deputy D.A. Joslin. □

### Sportsmen on the Increase

The number of hunters and anglers in the U.S. continues to increase. The ranks of licensed sportsmen, as reported by state wildlife agencies, grew to the highest level yet in 1982.

There were 16,748,541 licensed hunters afield in 1982. That is 109,957 more than the year before. There were 29,581,326 fishermen licensed last year, 304,085 more than in 1981.

These figures only approximate the actual number of hunters and anglers in the U.S. They do not include people who are exempt from license fees. In many states, special provisions are made for senior citizens, youngsters, the handi-

capped and certain military personnel. Also, many coastal states do not require licenses for saltwater fishing. In addition, some people purchase licenses in more than one state and, therefore, are counted more than once.

Although it is an approximation, this tally of hunters and fishermen is probably the best estimate of actual numbers available.

Expenditures for state hunting licenses rose to \$258,604,481 in 1982, an increase of more than \$16 million over 1981. Anglers paid \$226,947,399 for fishing licenses last year, a bit more than \$14 million above the year before.

*Outdoor News Bulletin*

# 1983 Fish and Wildlife Legislation

By  
*Rollie Rousseau*  
*Special Assistant to the Director*

The 1983 Oregon Legislature adjourned without making many major changes in fish and wildlife law or policy. Two bills introduced by the Department of Fish and Wildlife were passed.

House Bill 2209 changes penalties for violation of wildlife and commercial fish laws to be consistent with other class "A" misdemeanors. The bill also tightens provisions for the sale of fish in Oregon caught from waters of another state. It also provides for cross-deputization of federal officers. House Bill 2210 deletes the law making the department use "special" accounting procedures for daily ocean salmon license revenues. Funds from this license will still be spent on anadromous fish programs.

Although most of the action concerned fisheries, the legislature did pass a \$5 State Waterfowl Stamp Program effective July 1, 1984. Oregon will join 25 other states which issue duck stamps. The law allows the commission to contract for sale of art prints from the waterfowl stamp design. More than \$600,000 is expected each year from the sale of stamps and prints to hunters, and art and stamp collectors. The money will

be used in several waterfowl programs and for the purchase of wetlands.

No other fishing or hunting license fees were changed. The legislature rejected citizen proposals to increase hunting license fees for weed control and to pay for public shooting ranges.

Through House Joint Memorial 9, the legislature supported ratification of the United States/Canada fish treaty. The treaty should provide greater return to Oregon of chinook salmon reared in our waters. House Joint Resolution 15 requests the Fish and Wildlife Commission make every effort possible to restore salmon runs so fishermen can return to traditional ocean seasons. In support of this request, the legislature passed the department's budget which increases salmon hatchery production and other enhancement programs. This includes four new biologists for the Salmon and Trout Enhancement Program (STEP), so the program can be expanded.

Early in the session, Senate Bill 290 was passed ending the commercial harvest of shad from the Coos River. Although the House passed a bill stopping the use of

setlines for commercial sturgeon fishing on the Columbia River, the measure failed when the Senate did not endorse it. On June 13, the Governor signed House Bill 2642 immediately making either an Oregon or Washington angling license valid in the ocean five miles north or south of the Columbia River.

The STEP program was assisted by passage of House Bill 2558 which removes landowner liability for volunteers working on STEP projects. Existing commercial limited entry programs for troll salmon, pink shrimp, and scallop fisheries were extended until 1988 by House Bill 2556. This law also removes the lottery for new salmon trollers and tightens standards for transferring troll salmon permits. The Fish and Wildlife Commission was also authorized to adopt rules for a limited entry permit system for the Yaquina Bay roe-herring commercial fishery.

Private aquaculture was the focus of much debate throughout the session. A law was passed during the final hours which requires the Fish and Wildlife Commission to adopt rules by July 1, 1984, governing public and private salmon hatchery practices. The depart-

ment plans to adopt the same detailed and comprehensive standards that now apply to all hatcheries in Oregon.

Several bills of interest to many fishermen were not passed. Senate Bill 428 would have made an angling license necessary to take any fish including marine fish, clams and crabs. It failed in the House after passage by the Senate. A \$60 salmon enhancement fee for salmon troll vessels contained in House Bill 2561 died in the Ways and Means Committee after passage by the House Natural Resources Committee. Several bills to restructure the Fish and Wildlife Commission were rejected by Senate and House committees.

Major water policy was enacted with passage of Senate Bill 225 which allows ODFW and the Department of Environmental Quality to submit up to 75 minimum streamflow (MSF) points on priority streams to the Water Policy Review Board in the next 90 days.

The Board must act on the MSF points by 1986 and the priority date of the flow will be the date when the departments make the MSF recommendations rather than when the board adopts the flow. The law also says that beginning in 1986, when ODFW or DEQ submit additional MSF recommendations, the priority date is at application and the board must take action on proposals within one year.

Small hydro development also received much attention, most of it focused on the need for stronger laws to protect fish. The department was given authority to shut down the Winchester hydro project if fish protection standards are not met. A state hydro planning task force was created in Senate Joint Resolution 4 to work with the Northwest Power Planning Council to classify streams and hydro sites for protection of fish runs. In addition, the legislature defeated House Bill 2714 which would have allowed consideration of a hydro project at Gold Hill Dam on the Rogue River.

No further action is expected this year on fish and wildlife matters in special legislative sessions. □

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## American Kestrel

Falcons are the birds of kings. Their coloring, their flight, their general behavior all define them as classy birds. Yet, until the past few decades, they have been stuck with the most ordinary common names. Even worse, these names identified them with other birds; duck hawk (peregrine), pigeon hawk (merlin), and sparrow hawk (kestrel).

The American kestrel officially got its own name less than ten years ago. As the smallest of the hawks and falcons, its position in the renaming line is perhaps logical.

While most falcons prefer the wild places of the world, this colorful bird often makes its home around people. The kestrel may hover for several minutes over farm field or freeway median waiting for a grasshopper or mouse to make a wrong move in the grass below. Despite the common label of sparrow hawk, the kestrel rarely preys on birds. Its small size may be a likely source of that name, rather than a tendency to take feathered victims.

Kestrel markings are distinctive. The male has a rusty-colored back and tail, slate blue wings, and a face patterned in black and white. The wingspread measures less than two feet; a span similar to that of a jay.

Kestrels are cavity nesters. They may deposit three to five eggs in the hallows of trees, the vacant nest holes of woodpeckers and flickers, or crevices of cliffs or buildings. Because of their adaptability, where kestrels live seems restricted only by their imaginations. They thrive throughout the U.S. in habitats as different as marches and deserts. □

*Jim Gladson*

# This and That

Compiled by Ken Durbin

## Checkoff States Total 28

Twenty-eight states now have nongame checkoff programs in operation. These programs provide state income taxpayers an opportunity to donate a portion or all of their refunds to the state wildlife agencies for nongame management. Twenty states had programs in effect early enough to cover the 1982 tax year. They have collected nearly \$6 million so far in refunds to support nongame efforts.

In addition to Oregon, states with nongame checkoffs include: Alabama, Arizona, Arkansas, Colorado, Delaware, Idaho, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Massachusetts, Minnesota, Montana, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Utah, Virginia, West Virginia and Wisconsin.

*Wildlife Management Institute*

\*

## Eagles 2, Peregrines 0

An attempt to restore endangered peregrine falcons to Sequoia National Park in California turned into a picnic for golden eagles, according to the Wildlife Management Institute. The eagles ate the released falcons.

Three fledgling peregrines were turned loose in the park at a natural nesting site. Two of the birds were caught and eaten by eagles. The third was recaptured before the eagles could get it.

Biologists report that the eagle predation will set the peregrine restoration program back a full year. The restoration is sponsored by the Peregrine Fund, a group dedicated to returning peregrines to the Sierra Nevada Mountains.

\*

## A Clear Choice

"I realize that if I had to choose, I would rather have birds than airplanes. . . ."

*Charles Lindbergh*

## Refuges Get More Money

The National Wildlife Refuge system will get a boost from additional operation and maintenance money in fiscal year 1984, according to the Wildlife Management Institute. The increase could total as much as \$14.6 million.

The Administration asked for \$88.8 million for refuge O&M in its FY 1984 budget request to Congress. That would be \$14.5 million more than is available this year for that purpose. The House and Senate apparently agree that additional refuge maintenance money is needed. The House-passed appropriations bill allows the U.S. Fish and Wildlife Service \$88.9 million for refuge O&M in 1984 and the bill reported from the Senate side would provide \$88.8 million. Thus it appears the Administration will get the extra refuge money it requested.

\*

## Quarterly for Carp

If Ron Shay's article on carp a few months ago piqued your interest in this widespread fish, you might also be interested in a little publication called the *Carp Newsletter Quarterly*, which includes all kinds of information about carp and about fishing methods. A year's subscription to the quarterly publication is \$6.50. Single issues are available for \$1.75. Write to *Carp Newsletter Quarterly*, P.O. Box 236, Eleva, WI 54738.

\*

## Federal 'Duck Stamp' Reexamined, Increase Expected

Hearings were held late in July on a proposal to increase the federal 'Duck Stamp' from the current \$7.50 to \$10. Reviewing legislation, which also would allow the U.S. Fish and Wildlife Service to charge entry fees at selected national wildlife refuges, were the House Subcommittee on Fisheries and Wildlife Conservation and the Environment, and the Senate Subcommittee on Environmental Pollution. The new stamp fee would be effective by fall, 1984.

*National Wildlife Federation Tipsheet*

## Bird Checklist Available for Coos County

A "Checklist of the Birds of Coos County" has been prepared by the Fish and Wildlife Department and is now available as a pocket-sized leaflet.

Coos County, located on the southern Oregon coast, contains 1,627 square miles with elevations ranging from 4,319 feet on Mt. Bolivar on the southeastern corner to sea level along 44 miles of coastline. It has a wide range of habitat types and a wealth of bird life. The list includes 264 species and 47 "casual or accidental" species belonging to 49 families that have been sighted in the county. For each species an abundance rating is given for each season. The leaflet also lists a number of popular birdwatching areas.

Single copies of the leaflet are available free by writing the Oregon Department of Fish and Wildlife, I&E Section, P.O. Box 3503, Portland, Oregon 97208.

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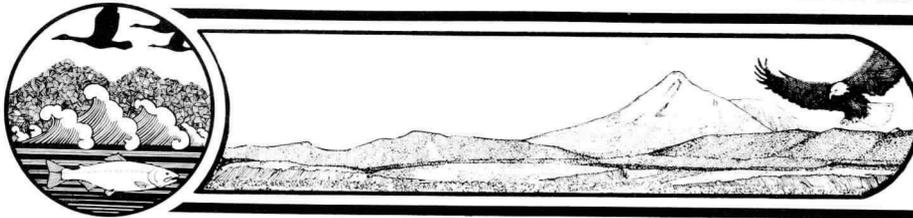
## Moose Hunting Referendum May Set Bad Precedent

This fall Maine voters go to the polls to decide whether moose hunting should continue in their state, but underlying the November 8 referendum is a much larger issue — subjecting wildlife management to political whim. The Maine Department of Inland Fisheries and Wildlife has recommended continuing a limited, permit-only moose season in the northern region of the state. However, the season (held the last two years) has been opposed by 'SMOOSA' (Save Maine's Only Official State Animal). If the moose season is closed, the door may open to fish and game management by legislation rather than scientific practices in other states as well.

*National Wildlife Federation Tipsheet*

OCTOBER 1983

# THE WAYS OF WILDLIFE



## Learning By Experiencing

### "Figuring" Wildlife Populations

Last month, we showed you how to build a set of traps to capture small mammals without injuring them. Now that you have completed your traps, you are ready to set them out to find what and how many small mammals live around you.

One of the common problems field biologists face is estimating the size of a POPULATION (a population is a group of individuals that are similar in one or more ways). A census of the human population of the United States is taken every few years by counting all the people that live there. Since counting small nocturnal (active at night) mammals like mice is very hard to do, biologists use other methods to estimate the size of such a population.

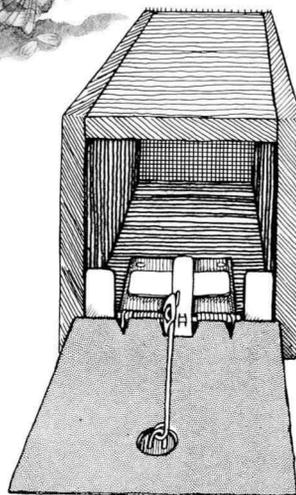
The LINCOLN INDEX is a common method used by biologists to estimate the size of a population of animals. Using traps similar to the ones you have built, they trap and mark animals, release them, and then reset their traps. By noting the number of marked animals recaptured, the biologist can apply the Lincoln Index equation to estimate the population size.

Traps are set out in a grid arrangement as shown, at least one yard apart. Since most small animals are active at night, traps are set out one to two hours before dusk and checked at least every four hours. *Animals should not be left in the traps overnight.* The traps are baited with oatmeal, peanut butter or other grain or nut products. The bait should be placed as far back in the trap as possible.

Since it will be dark when you check your traps, use a gas lantern or powerful flashlight to see what you have caught. Use the references listed below to help you identify the animals.

Biologists would normally have to handle the animals to identify, mark and release them. Since small mammals sometimes carry diseases that can be transferred to humans through a bite, we do not recommend that you handle the animals. Instead, use the following activity to stimulate the use of the Lincoln Index:

1. Place 200-300 poker chips (which represent members of a population of white-footed mice) in a plastic bag. The bag represents the area in which the mice live.
2. "Capture" a handful of mice (poker chips) from the bag. Mark those captured with a piece of masking tape.



3. Write down the number of mice captured, and release them back into the area where they were caught (the bag). Mix them evenly with the mice you did not capture.
4. Make another "handful" capture from the area. Record the total number you captured and the number of these animals that were captured the first time (those marked with tape).
5. Now, using the data you have recorded, apply it to the following formula:

Total Population (N)

Number of Individuals captured, marked and counted the first time (M)

=

Total of the second catch (marked and unmarked) (n)

Number of Individuals recaptured (marked) in the second catch (m)

or

$$\frac{N}{M} = \frac{n}{m}$$

M m

Example: You captured 42 mice the first time. On the second try you captured 36 mice, 12 of which were also captured the first time (marked).

$$M = 42$$

$$n = 36$$

$$m = 12$$

so

$$\frac{N}{42} = \frac{36}{12}$$

$$42 \quad 12$$

Cross-multiplying to solve for N:

$$12N = 42 \times 36 \text{ or } 1,512$$

Dividing 12 into 1,512, you get 126, so  $N = 126$

So, using the Lincoln Index, we have found the population of mice for a given area to be 126.

Remember this is not an exact number. It is only an estimate. Since in this case you know how many actual individuals (poker chips) there are in the area you are sampling, you can also see just how accurate the Lincoln Index is.

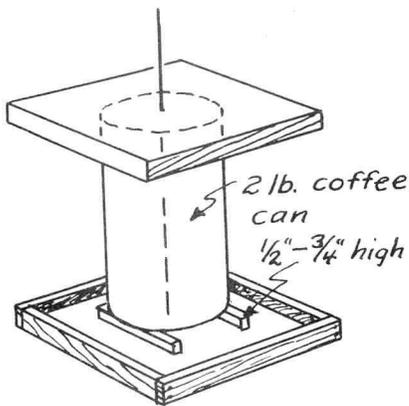
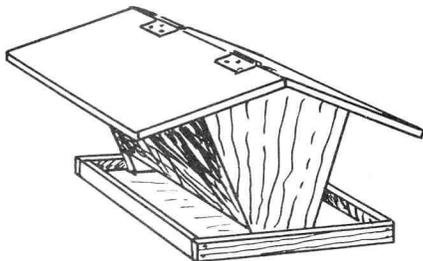
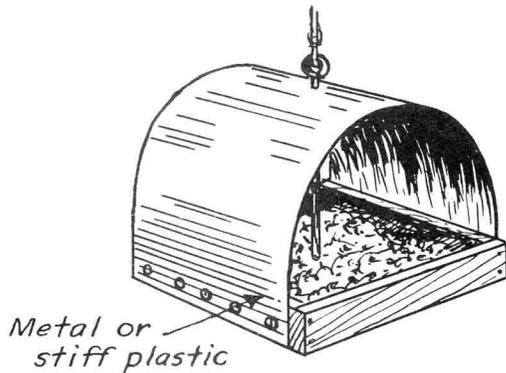
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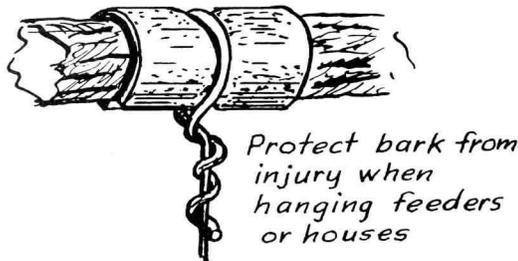
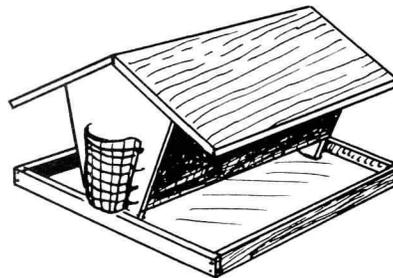
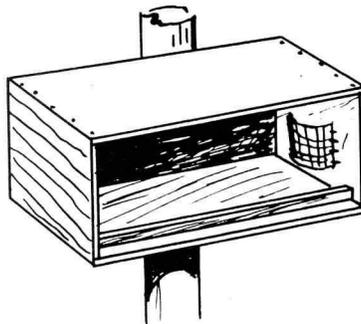
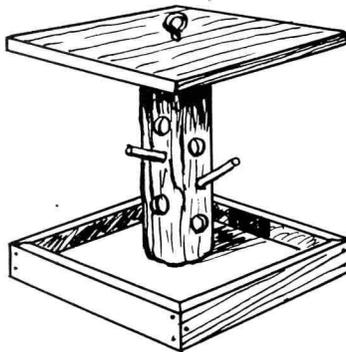
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# BIRD FEEDERS

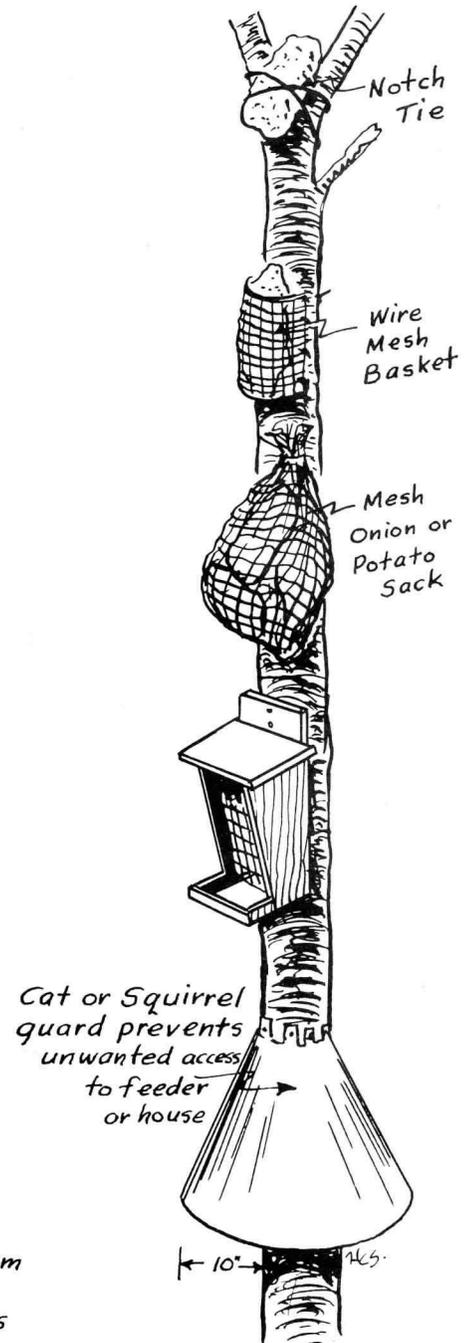
## SEED HOPPERS



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