

Suggestions on Management of Small Game in Oregon

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Successful Nests Are Sport Insurance

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Agricultural Experiment Station
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Oregon State Game Commission,
American Wildlife Institute,
and
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SUMMARY

1. The future supply of wildlife in the state of Oregon could be much better assured through the establishment of game-management areas as joint projects of the Oregon State Game Commission, sportsmen's clubs, and private land owners. Management of wildlife is not a project for a few but is an endeavor in which every citizen can help.

2. Upland game-management areas in Oregon need to be large. For ring-necked (Chinese) pheasants, a tract of 3,000 acres or more is desirable. A smaller area is suitable for valley quail. Well-marked boundaries are necessary.

3. In establishing a management unit the area is analyzed for wildlife possibilities, and a cover map is made to indicate type of vegetative growth, topography, water courses, and the like.

4. It is desirable that about 30 per cent of a game-management area be kept closed to hunting the year around, thereby serving as seed stock areas, "refuge islands," or safety zones. These may insure an annual crop of upland game.

5. Ring-necked pheasants have suffered from heavy hunting in many seasons since established in Oregon in 1881. When wisely conserved they will live under the most trying circumstances. May and June cutting of crops results in high mortality of these and other upland game birds.

6. Systematic handling of slashings in timbered areas will benefit quail and aid in the control of noxious weeds.

7. It is no kindness to wild game to provide feed artificially except during most severe weather or other critical periods.

8. Predatory animals and birds need to be controlled on management areas by means of traps rather than so-called "varmint hunts," which are ineffective and handicap law enforcement.

9. The results of predation or illegal shooting nearly always leave identifying clues.

10. If sportsmen, farmers, and citizens generally will accept their share of responsibility in protecting wildlife, effective control can be accomplished without additional enforcement machinery. Poaching game is a form of thievery and should be treated as such. Wild game is a crop that has money value to the entire state. It is estimated that the elk season alone in 1937 was worth \$150,000 to Oregon citizens.

11. Where game laws are not observed, the final result is the establishment of exclusive shooting preserves open only to the few. If general hunting privileges are to be maintained, they will be based on better management of the wildlife crop and better observance of rules for using this crop.

12. Waterfowl shooting possibilities can be increased in Oregon through the better development and stabilization of waters in favorable areas.

13. Food supplies for waterfowl may be increased by seeding desirable food plants in and around lakes and marshes.

14. Ponds and marshes used by waterfowl may be managed so as to be of most use to wildlife, and still serve as watering places for livestock.

Suggestions on Management of Small Game in Oregon

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INTRODUCTION

Many of the conditions that lead to increase or decrease in wildlife populations are the result of human activities. Among the chief causes of the reduction in numbers of game animals is that the general public feels little responsibility for the protection of wildlife and takes small interest in the need of regulations limiting open seasons and bags and prohibiting wasteful practices. This attitude is disastrous, for with such evasion of personal responsibility by the citizens, the limited personnel of the field protection force cannot cope with violations adequately. Oregon game officers are each allotted about 1,500,000 acres to patrol, on an average, throughout the state.

Planning for wildlife management in most states is chiefly the concern of the State game department. In Oregon the State Game Commission's administrative branch, headed by the State Supervisor of Game, under whom are two superintendents of game farms and the Superintendent of Fisheries, is the active wildlife conservation body. The duties of this organization are definitely prescribed by law, but there is a further obligation that might well guide its actions. It could oversee the general policies and plans adopted for the management of wildlife. These duties are exacting, but in themselves are only a fraction of the attention that is necessary to perpetuate wildlife. No game or conservation commission can do the job alone. After the game department lays out the program for wildlife management, the actual carrying out of the plan rests on outside voluntary conservation groups.

Many hunters object to an increase in license fees. These, however, are nominal and would not go very far toward paying the actual cost of production of the game they authorize the holders to take. Hunters are beneficiaries of game production, for which they pay little. Sportsmen, therefore, have responsibilities for the upkeep of wildlife and for encouraging practical management.

Wildlife must have adequate food and protection. Either through a more intensive use of agricultural land or through separate activity by sportsmen's groups, the small-game population could be greatly increased. Some of the constructive practices that may be followed in improving wildlife conditions are herein discussed.

State-wide management of wildlife is not a project that a mere handful of men in the conservation agencies can successfully accomplish. Every citizen can help. Oregon can materially increase its possibilities for satisfactory hunting with little cash outlay. There must be material assistance rendered to wildlife, and if the license fee were increased, the state could carry on a larger share of the actual work. Each individual, however, can help in wildlife management either through well-planned sportsmen's activities or by aiding in the adoption

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of favorable agricultural practices. Wide participation by citizens is most desirable as it increases man power for the work far beyond the point that the State Game Commission could command even with increased license fees. This is the best course to pursue.

If there is an active sportsmen's organization in the community where a game-management program is being conducted, its members could cooperate with the State game department to avoid confusion and wasted effort.

SELECTING THE GAME-MANAGEMENT AREA

In developing a plan of game management for a district, both land and game resources are considered. If the project is in a densely populated area, obviously small game and fish production will be the most practical objective.

If it is hoped to produce ring-necked pheasants, it should be remembered that these birds seek favorable surroundings and will remain only in areas well suited to them. It is not possible to maintain pheasants in unsuitable habitats. No tract of less than 3,000 acres is suitable for the ring-necked pheasant unless it has special attributes, and much larger units are preferable.

As for the bobwhite quail, this species in Oregon has a comparatively wide range for so small a bird and does not remain localized like the native California valley quail.

For the valley quail, an area of very limited acreage will prove satisfactory. These quail maintain the most stable populations of all the small-game species. Year after year coveys will remain within a territory with a half-mile radius. They may even stick closely to a single brush pile or wild-blackberry tangle if sufficient food is available nearby.

The ruffed and the blue grouse require a much greater range. The ruffed grouse, especially, wanders continually. It is solitary in habits, ranges considerable distances, and is seldom closely colonized.

It is difficult to choose ground that is ideal for game-management purposes, but the handicaps for upland game management are much less if somewhat isolated areas are selected.

Establishing boundaries. Satisfactory boundaries may be along surveyed fence lines, county lines, or permanent roadways. A good choice of boundaries makes administration easier as there is less confusion when the units are posted. With definite well-marked boundaries it is not likely that accidental trespass will occur. Watercourses likewise make good boundaries.

It is well, where practicable, to organize an entire county for game-management rather than to set up numerous small units that may be difficult to administer.

If a particular sportsmen's group wishes to develop a small area for its own use, that is feasible if the membership is sufficiently large to carry on all of the necessary work, or can finance such a program.

Analyzing the possibilities and values. The game-management unit having been chosen, the area is then studied to determine its possibilities and the kinds of desirable wildlife for which it is best suited—whether fish, waterfowl, or upland game. In connection with such appraisal, skilled help is extremely desirable and the lack of it has previously limited progress in various states. The varied personnel necessary for carrying on a well-rounded program of wild-life conservation was, in general, not foreseen.

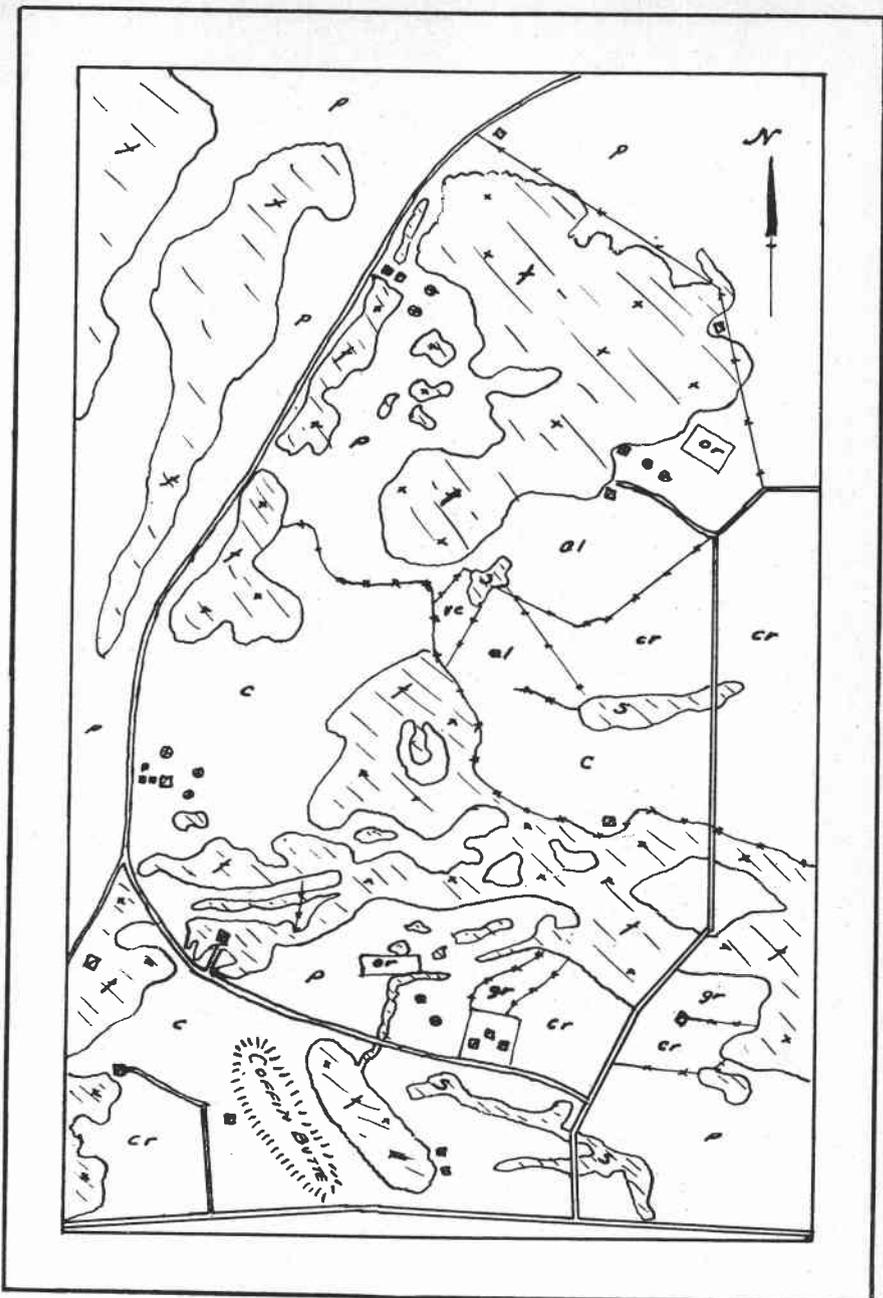


Figure 1. A cover map. This indicates the fields and woodlots, orchards, gardens, etc.
Legends: x, scattered conifers; ve, vegetables; or, orchard; p, pasture; cr, cereals;
 s, shrubs; al, alfalfa; t, trees; g, grass; gr, garden; c, cropped land; ⊕, scattered apple
 trees.

A cover map (Figure 1) of the area should be made, on which is indicated the types of vegetative growth, the topography including watercourses, and the cultivated lands and their various crops. This is a tedious undertaking, and to facilitate it sections or townships to map may be allotted to various individuals and the map of the entire area later assembled. The cover map is kept up to date so that definite records are available from year to year on which to base plans for maintaining wildlife. For example, each year definite knowledge is needed of the grain acreage, pasture areas, burned-over lands, and the amount of cover and forage. This is important and over a period of years will indicate the trend of wildlife and therefore, the success of the work. Base maps suitable for this purpose are available, such as forestry type-maps, upon which may be indicated the dominant vegetation. Separate crops may be represented by symbols or numbers, or other short cuts may be adopted that are compatible with keeping complete and readily usable records.

Modern farming practices are vastly different from those of the pioneers. In the Willamette Valley and in many other parts of Oregon at the time the pioneers were wresting the soil from forest domination there was a continual succession of clearings that formed ideal habitats for the blue grouse and the mountain quail. If again a program of slashing, piling, and controlled burning were followed, the land would become much more productive agriculturally, and the favorable habitat for these and other game species, including the valley quail and the ring-necked pheasant, would be greatly enlarged. A discontinuance of the present practice of burning stubble would add much to soil fertility and moisture-holding capacity. By using single or double plows instead of disk plows even the highest stubble causes little trouble.

Fish requirements. To determine the suitability of an area for the propagation of fish, the food in the streams, ponds, and lakes is studied to learn its abundance and quality and the possibilities of increasing it through plantings. This is a task for experts. Only fishes suitable to the waters, preferably native species, should be stocked.

Adjustment based on prevailing conditions. In making game-management plans for a county or district it is well to keep in mind the fact that only certain crops can be produced and that the property owners have the right to decide what to do with their lands. For example, many tracts in a county may be owned by persons who desire no shooting thereon. Their holdings, especially if two or more adjoin, probably could be made recognized seed stock areas, "refuge islands," or "safety zones," for small game, and would be of greater value in the management program than if they were part of an unbroken hunting area.

It seems that it is just when a species is reduced alarmingly in numbers, that objections are usually made by sportsmen to the closing of private holdings to hunting. The closed areas naturally harbor most of the remnant of game, hence the urge to hunt them. It is imperative, however, that refuge islands be maintained in order to prevent the extermination of breeding stock. To produce a good crop of small game it would help to close to hunting one-third of all the available area. For ring-necked pheasants, in Oregon, refuge areas of about 3,000 acres or larger in extent are best. The Oregon Game Commission, under the Federal Aid to States program, is pioneering in this activity by setting up a large number of these rotating refuges in the Willamette Valley.

MANAGEMENT OF SMALL GAME

Ring-necked, or Chinese, pheasants. There seems to be a general opinion that something peculiar and mysterious has happened to the ring-necked, or Chinese, pheasant since its original introduction into western Oregon. This species was first established in 1881, when 10 cock birds and 18 hens were released in the Willamette Valley near Petersen's Butte, Linn County. From this stock the birds of Oregon and of adjacent states have sprung. An examination of data concerning the original introduction, tremendous initial increase, and later decline of the pheasant reveals nothing, however, that is mysterious. It is generally reported that from the first open season, in 1891, hunting had a marked effect on the numbers of the birds and after the first open season it became necessary to restrict the number of shooting days and the bag limit. Ever since the first great increase in numbers was halted by overkilling and other causes, the pheasants have been more or less steadily declining. It is only recently that increases are obvious, the result of the management practices of the Game Commission. This despite the fact that ring-necked pheasants when not hunted to the point of extermination, will live under the most trying circumstances and will produce a yearly crop in areas not particularly attractive to the hunter. In any plan adopted for increasing pheasants on farm lands careful consideration should be given to the prevalence of food and cover. In fact, effective steps that can be taken to improve conditions for pheasants are few. Large open fields, or even smaller ones in which there is no cover affording opportunity for the birds to evade hunters or their dogs and to escape predators, are not suitable for pheasants. Depressions, swales, and winding draws, however, are good, serving as travel ways for the birds in which they can move about free from detection. Fence rows, especially those away from high-speed highways, if allowed to grow up to ordinary vegetation, provide excellent harboring places. Along main highways it is better to keep the fence rows and the ground for some distance on either side of them clear of vegetation so that the birds will not drift out to the roadway from the fence row cover or be flushed from it, and run the risk of being struck by passing automobiles.

Rotation of crops that provide some grain food is of inestimable value. A large tract of uncultivated or pasture land does not provide much food for pheasants, nor does it make good habitat for them the year around, although there may be short seasonal periods during which it may be used.

The early cutting of wheat and oat fields and hay meadows results in a high mortality, hence crops that are harvested in the late summer and fall after the pheasants' nesting season are of special advantage. Studies during the past five nesting seasons show beyond doubt that the best and most productive nesting period is in July. These findings are the result of studies made west of the Cascade Mountains and may not apply elsewhere.

The losses of birds through being struck by automobiles on highways, through flying against telephone wires, and as a result of agricultural activities together constitute a formidable drain on the pheasant population; hence any plan to limit the hazards will aid materially in building up a desirable population. At local meetings and through the press and radio, automobile drivers can be cautioned and urged to give consideration to the birds.

Bobwhite. Bobwhites in western Oregon are wide-ranging, a habit to be considered in game-management plans. It seems to be peculiar to the western bird, as the quail of the Southeastern United States thrives in a restricted range. Their drift to other ranges invariably comes in winter. Some success

has been attained with bobwhites in western Oregon, and recent management practices have shown them to be responsive, but they cannot be manipulated on the same basis as the Chinese pheasant. In management, the food supply is important. The best plants for providing quail food are those that yield a crop of small seeds, including such legumes as red and alsike clovers. The clovers not only provide seed for winter use but green foliage that is eaten at other seasons.



Figure 2. Bobwhites increase rapidly under proper conditions.

Valley quail. The valley quail, native to southern Oregon, and now introduced in many other sections, is a game bird of great possibilities. It has definitely limited daily and seasonal ranges. Where conditions are favorable, the home territory of a covey is practically fixed. There are records in the state of colonies containing as many as 500 birds, becoming established in good cover and ranging over no more than a few thousand square yards. In establishing good habitat for valley quail it is essential to provide dense thickets. Perhaps the best type of cover for this species is provided by tangles of Himalaya and evergreen blackberry bushes. Cover may be provided also by cutting brush and laying it in piles about 30 feet long, 15 feet wide, and 8 feet high. The brush is best piled loosely, with openings through which the birds can run. The valley quail, unlike the bobwhite, does not roost on the ground, and cover for roosting will protect the birds not only from nocturnal predators, as horned owls, but also from heavy snowstorms. Ordinary rose-bush tangles afford good cover for valley quail during the day, but are not good for roosting. Thick-foliaged evergreen trees, as young Douglas fir (*Pseudotsuga taxifolia*) provide the best winter cover.

It would help in cover management if farmers would rotate brush slashings, and pile the debris in such a way as to afford cover for valley quail—practices that would be to their advantage in putting their clearing program on an orderly basis. The piling of small trees and brush will make a much better burn the following season than will a random slashing, and is more economical. Incidentally, this form of slashing and piling will hold down the widespread germination of thistles and other weeds, while general slash burn will be followed by thistles over the entire area. If the piles are burned in isolated spots, the thistles germinating there can be coped with more easily and their eradication completed with the minimum of effort and expense.

Cover is most valuable near an abundant food supply. Brier patches adjacent to wheatfields or hayfields producing abundant seed crops will be readily used by valley quail, and if other conditions are favorable, the birds will occupy them perhaps for years. As valley quail are slow to spread, it is desirable to trap some of them as part of the process of removing surplus population, and transplant to other areas, in which there are no quail but where adequate cover and food are available. This should be done only in an orderly way.

Blue and ruffed grouse. The native blue grouse prefers cut-over lands adjacent to good stands of evergreen timber in which it can take refuge when danger threatens and where it can spend the winter in security. The ruffed grouse is at home in an alder swamp or swale, or better still in a dense tangle of hawthorn or wild crabapple. It must be recognized, however, that the possible production of these grouse is much lower than with the quail. Thus the birds can be kept from extinction locally only if hunting is effectively regulated and the birds' needs in cover and food fully met. Artificial propagation of these species is not at present practicable. It is undoubtedly best to recognize the limitations of these two species and plan accordingly.

Gray partridge. The Hungarian, or European gray partridge is a bird worthy of consideration for introduction into western Oregon. When afforded adequate protection, a strain suited to the region will thrive. The Hungarian partridge has become established in territories identical in climate with that of the Willamette Valley. On Whidbey Island, in Whatcom County, near Grand Mound, and on an area adjacent to Battle Ground—all four places being in a section of Washington State having a climate as wet as that of the Willamette Valley—the numbers of these birds have been built up to a satisfactory point. At each place, however, they have again been greatly reduced at times, in one instance being almost exterminated, when the hunting public failed to recognize the necessity of preserving adequate breeding stock.

The sandy agricultural country of Germany and France, where these partridges thrive, has a climate practically identical with that of the Willamette Valley. There from 25 to 50 may be found on a 40-acre farm. It has been definitely shown that strains of Hungarian partridges are adapted to certain local conditions. The form so successful in eastern Oregon would not be the one to introduce in the Willamette Valley where conditions are different, although in time it, too, might become acclimated if fully protected. It would be better to try some of the western Washington or European stock, which has adjusted itself to wet weather.

This partridge frequents the open meadows and fields but needs the protective cover of rank vegetation or tall stubble. The use in Oregon of the header to cut grain has aided greatly in providing better partridge cover. For the protection of this and other game birds as well as for the betterment of the soil,

stubble should *not* be burned. Although plowing it under is more difficult, the practice will return dividends in increased production of crops and in protection of the soil from wind or water erosion.

Because of the gregarious nature of this partridge initial plantings should be heavy and few. The stocking of "Huns" here in 1913 was in small numbers and in widely separated areas. In only two or three places have they survived, with the annual increase unnoticeable.

AIDING GAME IN WINTER

Throughout most of the year the assistance that can be rendered to wildlife is limited. Occasionally, however, there are short periods of severe weather in winter during which very material aid can be rendered. It is not desirable nor practicable, however, to feed wildlife artificially. For example, feeding deer eventually results in deterioration of the animals. It is much more satisfactory to manage environment so that the forage remains in such condition that the deer can find sustenance for themselves. The practice of feeding oil cakes, hay, or some other concentrated food is an endless undertaking and must eventually be replaced by proper land management. Feeding the elk at Jackson Hole, Wyoming, because of the popular demand, made a dependent group of "star boarders" and for the good of the animals had to be greatly curtailed.

Organized sportsmen interested in small game can counteract the effects of severe winter conditions by providing food during the few days when the ground is covered with snow and ice. Ring-necked pheasants and quail both respond readily to such feeding. As soon as the ground is again uncovered and the natural range available to the birds feeding should be discontinued until the next emergency. During the summer sportsmen's clubs can collect waste grains, unused farm seeds, and other food supplies for distribution when needed. Someone in the organization may be made responsible for seeing that the food is distributed as needed throughout the district. Such feed is best placed within or along the edges of clumps of vegetation where the birds can find sufficient shelter and *not along high-speed highways*, which concentrates birds in danger areas and results in heavy losses. During the heavy snows of February 1937, hundreds of birds were killed in the Willamette Valley because well-meaning individuals scattered grain along roadsides. When distributing feed for small game, care is needed to see that no seeds of noxious weeds are included. Strewing them about the barnyard, where as plants they will be trampled or eaten, is not serious, but scattered in the farmer's fields, they cause serious trouble.

There are other ways also of providing food for game birds during the critical winter days. Farmers may have no objections to opening straw stacks, distributing barnyard litter, or removing the snow from manure piles around the barnyard. Waste bedding, including grain from mangers, affords excellent forage litter for quail, and if it can be spread in a vacant hay or machine shed or other sheltered place, it will aid materially in carrying the birds through a critical period.

In the Willamette Valley, however, heavy rainfall and even periods of intense cold or heavy snow have had little effect on the numbers of game birds. This section is especially favored because of the abundance of food crops available even though the snow may be two feet deep. The common obnoxious tarweed (*Madia*) persists in every pasture lot and on all unused ground, and the Chinese pheasants and quail gorge themselves with its seeds. It is doubtful if

there is another locality in the United States that has such an abundance of seedling apple trees as the Willamette Valley, and these provide a great source of food during the critical winter days. Song birds and game birds both seek them out and eat the fruit. Most important, however, is the abundant wild rose, which is the first shrub to come in when a pasture lot is left uncultivated. It also makes an early start in meadowlands that are not tilled regularly. Late in fall an occasional ring-necked pheasant may be found that has made a whole meal of rose fruits, the fleshy part of which would seem to be of most value as the seeds appear to be not readily digestible.

Many farmers permit inside fence rows to grow up to suitable plants. Among these are shrubs that bear valuable seeds or fruits. Those that hold their fruits through the winter may make the difference between success and failure of a management plan.

PREDATORS

During periods of intense cold or of heavy snow, game birds suffer more from birds of prey than from ground predators. During the first few days after a storm it is doubtful whether either skunks or feral house cats are about, as these animals hole up and sleep until better weather conditions prevail or until the pangs of hunger finally drive them out in search of food. The great horned owl and hawks, especially Cooper's and the sharp-shinned, however, are very active during these trying winter conditions. Game managers can materially reduce depredations by systematically pole-trapping these predators, using No. 0 steel traps placed on poles, upon which a 4" x 4" flat top has been attached to hold the trap securely. If padded jaws are used and the traps are tended regularly, beneficial birds can be released unhurt. It is natural for birds of prey to perch on poles, and pole trapping restricted to game coverts is far more effective than hunting in taking those birds that are actually preying upon game birds. The night-hunting owls not usually taken by hunters also are thus caught. Such activities, however, should be confined to the areas under game-bird management. If game populations are high, the control of hawks and owls is not so important as when only small remnants remain.

Balance of nature is popularly considered as resulting from all the wild forms living together, one form checking but not destroying another. For example, many persons assume that skunks and bobcats can live on the same area with such small-game species as quails, rabbits, and pheasants without doing too much harm. Where toll of game is taken by gun, and predators are not correspondingly reduced, the abnormally numerous predators may seriously affect the remnant of game.

When predator control is required, it should be remembered that some of the fur bearers are considered highly beneficial, and the muskrat and the beaver are not detrimental to small game-bird management. When the skunk, coyote, and bobcat are overabundant, however, their numbers can well be reduced. The bird population at the end of the breeding season on an area where predator control is exercised will be much greater than where attempt is made to raise both fur animals and small game on the same tract.

Field records and analyses of skunk stomachs taken in summer in the Willamette Valley show that these animals feed on small game. They are especially aggressive during the nesting season when eggs and chicks are readily eaten. Without doubt the skunk is a limiting factor on the low population of brush rabbits on the west side of the Cascade Mountains. There has been no

noticeable increase of this species, and from the analyses of stomach contents of skunks it is found that young rabbits frequently make up the bulk of the food. From the standpoint of the farmer, skunks are generally a nuisance around poultry although they may destroy rats and mice. As their pelts are low in value, there is little need to encourage their increase, and every effort might well be made to control them where they are a known cause of loss. This is more or less a recurring problem, as after the skunks have been hunted and trapped quite effectively in the valleys, others come in from the outlying ranges.

Under present conditions the destruction of small game by predators in the Willamette Valley is becoming less of a limiting factor to the success of game management as the game increases. When small-game populations have reached a low ebb, the combined effect of the persistent attacks upon them by foxes, skunks, horned owls, Cooper's and sharp-shinned hawks, and other forms that periodically destroy young or adult birds may prove disastrous. If predation were the only adverse factor, however, the small-game species could withstand considerable losses each year from this cause, and within a few seasons attain desirable numbers. But with the added mortality caused by automobiles and farm machinery in addition to hunting, it is rarely possible for small-game populations to increase. Although the number of predators may not be greater and probably is not as great now as at the time ring-necked pheasants were introduced, the combined effects of all destructive forces at present make it impossible to maintain the pheasant population without paying attention to the available numbers when establishing seasons and bag limits.

From 1881 to 1891, under absolute protection and contending with probably greater numbers of predators than exist today, the ring-necked pheasants built up a fine population over an area approximately 40 miles wide and 200 miles long, thus amply showing their capacity for increase. The kill during the first open hunting season, however, was far beyond the birds' ability to withstand, and from that time the trend has been definitely downward, until drastic regulations in 1939 prohibited all hunting for upland game in the Willamette Valley.

Because most of the birds of prey are migratory, it is impossible as it is also highly undesirable to eliminate them. When overabundant on game-management units, however, they should be controlled. Greater success can be attained in controlling the ground predators. Trapping as a means of checking predation in small-game habitats should be encouraged. With the trap jaws padded, the harmless forms can be released. Hunting "vermin" with guns in the field during closed game seasons merely aggravates the problem of field patrol and affords greater security to persistent violators. Certainly no true sportsman wishes to aid the poacher and hamper law enforcement.

Identifying depredations. Few kills are made that do not leave some recognizable trace of the killer. A predatory owl will disgorge the feathers and the bones of its prey, and an analysis of the pellets will reveal what the bird has eaten. Owl pellets may be found near fence posts or at the base of broken trees or snags. Cooper's and sharp-shinned hawks eat game birds in a distinctive matter. Usually they systematically remove the feathers, cut through the body tissues just below the ribs and remove the internal organs. When a horned owl kills an adult bird, as for example, a cock pheasant, it pierces the spinal column at the base of the brain, paralyzing the bird, flies away with the carcass, and finally perches to eat it at leisure. It will flesh the dead bird, leaving only the larger bones. For the owl the neck meat appears to be the choicest part of the victim.

GAME PROTECTION

Sportsman cooperation is essential to management and protection as these jobs cannot be adequately handled by a limited staff of game officials and wardens. Because of the pressure of their duties and the large size of many counties in Oregon, employees of the game department cannot exercise complete control over the factors limiting game. Although this responsibility belongs to every citizen, only a few have as yet accepted it.

Protection is an essential part of conservation that can be applied at once. It is a part of sensible management and if not carried on effectively, all other phases of management cannot overcome the handicap. For sportsmen considering a management unit, the first step is a definite system of protection that will include occasional patrol by allotment among the sportsmen and continual surveillance of the area by cooperators in position to make daily observations.

Poaching and trespass. Signs of shooting in the field, as wads or discarded shells, are easily recognized and in many instances the illegal hunter can be tracked down by the clues he has left.

Potentially good game areas may be spoiled by extensive trespass, but in Oregon there is a definite regulation limiting the trespass of individuals upon private grounds. The laws of 1931, Chapter 370, Section 28, state: "No persons shall hunt with a dog or gun upon the cultivated or enclosed land of another without first obtaining permission from the owner, occupants, or agents thereof. No prosecution shall be commenced under this section except upon complaint of the owner or agent of such cultivated or enclosed land." This regulation gives sportsmen "agents" some advantage in controlling trespass upon management areas, but it will not be completely effective unless enforced also by farmer cooperators.

In most instances depletion of game by trespassers on any particular day is not great, but continual molestation throughout the year prevents normal increases of wildlife. It is imperative that a definite procedure be established to learn from time to time just what disturbances may be taking place. The general attitude of sportsmen toward this responsibility is one of indifference. For some reason they feel that it is not good sportsmanship to call people to account for acts that are harmful to game. This attitude is to be deplored, but it is felt that within the next few years, with the population increase and trespass trouble, there will be a complete reversal of this attitude. Poaching game is a form of thievery. Like any other crop, game has money value and the annual income from wildlife, direct and indirect, runs into millions of dollars. For example, it was estimated that the elk season alone during 1937 was worth \$150,000 to Oregon citizens. Expenses of each elk hunter probably averaged \$50 for traveling, equipment, materials, shelter, and food. Persistent violation of protective regulations will diminish greatly such income. Man can no longer live off the country, as was done in pioneer days. It must be recognized that hunting needs as definite rules as other sports. The prevention of illegal acts is the obligation not only of game wardens, but also of individual citizens.

Organized sportsmen's groups are in position to keep informed of game violations in their community. Any entry upon protected ground can be immediately noted. In this age of rapid communication there is no need to tolerate destructive trespass as poachers can be promptly reported by telephone. Trespassers upon a management area usually arrive by automobile; hence keeping a complete record of their cars—the license number, color, make, and tread—makes it a simple matter to apprehend them even if not recognized. The Ore-

gon State Police have been very successful in reconstructing acts of illegal hunting and trespass and in bringing the culprits to justice. Violations can be made unpopular in any community.

If sportsmen in general do not observe and support the game regulations, private shooting preserves upon which only a few people can hunt will be established, open shooting range in Oregon will disappear, and landowners or lessees will go to the opposite extreme in preserving game populations. Only those who devote time, effort, and money to game-restoration projects can expect good hunting.

In addition to the game officers, there are many other civil officers in position to lend support to game-law enforcement. Oregon Laws, 1933, Chapter 174, Section 4, reads in part: "Any member of the State Game Commission, the State Game Supervisor, or any State Police officer and any sheriff, deputy sheriff, constable, United States Forest Supervisor, Ranger or Guard, may without warrant arrest any person violating any of the laws of the state of Oregon for the protection or propagation of any of the game animals, fur bearing animals, game fish, game birds, or non-game birds, and take such persons before any court having jurisdiction of the offense, which court shall proceed without delay to hear, try, and determine the matter, and enter judgment according to the allegation and proof, and shall further have all power and rights of a Peace Officer in serving subpoena or other legal process in the enforcement of the laws for the protection of game animals, fur bearing animals, game fish, game birds, and non-game birds of the state."

Here is a tremendous staff charged with game-law enforcement. If laxity exists, sportsmen may aid greatly in encouraging a closer cooperation between game wardens and civil officers. Sportsmen need to learn how to present evidence that will make definite cases for enforcement officers. *Do not deal in suppositions.* The law is thus brought to the attention of the violator and if his conduct then shows that he does not appreciate the seriousness of his acts, there need be no hesitation in seeing him brought to court.

Hunting. After management has produced a surplus of game the next consideration is the regulation of hunting. This requires knowledge of the stock of the entire tract detailed enough to warrant decision as to what the hunting removal may be. It is not possible anywhere for hunters to take unlimited bags. To determine how many head of game may be removed safely from an area through hunting, a census is necessary. This would establish the number of game birds and mammals present before the opening of the hunting season. Pheasant populations should be 20 birds to each 100 acres of habitat before an open season is declared in the Willamette Valley.

From a study of bird concentrations, roosting grounds, and coverts, an estimate of the numbers of game birds can be made. Examination of the night roosting grounds of the pheasants during the fall and winter months will indicate how many birds have survived the shooting season. Pheasants are seasonally gregarious and will remain closely grouped until the mating season. By following the movements of the birds, cock-crowing areas can be located and the number of nesting hens approximated, and by casual observation through the summer a fairly close estimate of the extent of reproduction can be made. In wet seasons, especially, the coveys will dwindle during the periods shortly following the hatch. In drier seasons, or later in the summer of wet years, the coveys will become well established, and there is a uniformity in the numbers appearing from time to time.

Such seasonal observations of the wildlife crop form the basis for drawing up regulations for the hunting season. To permit an open season on a tract where there is but a small supply of game may render that area unsuitable for hunting during the following years and indefinitely delay the program of restoration. Overshooting is largely responsible for the plight of small-game species throughout the country today. If hunting is to continue and the game supply remain plentiful, annual populations must be great enough to permit a limited kill and still leave sufficient seed to assure future increase. A system of recording the annual take by sex, species, and number, and by counties, or other geographical units, is desirable in order to obtain a definite knowledge of population trends and sex ratios. On game-management units records of both annual censuses and kills should be kept.

Upland game birds. The present game-law regulations prohibit the hunting of ducks or geese before sunrise or after 4:00 p.m. This is a wise provision that could well be applied to all hunting on a game-management unit. Birds should not be hunted while they are still in their roosting areas. For example, ring-necked pheasants have definite roosting grounds, to which they make every effort to return each evening. Coverts for roosting presumably are chosen for the protection from predators or weather. Hunters entering such places early in the morning will find the birds in concentration. It is certainly not good sportsmanship to be afield with the best of equipment and with a dog specially trained to track the birds, in the dew of early morning when the scent is most persistent, and shoot the pheasants on their roosting grounds before they have even quickened from their night's rest. In 1937, when the killing of hen pheasants in the Willamette Valley was prohibited, seven dead pheasant hens were picked up on a roosting ground of one 60-acre plot—a wastage as bad as the law violation. It is likewise better for hunters to leave the fields before dusk so that the birds may return undisturbed to roosting areas of their choice. English sportsmen for years have followed this practice with good results.

Careless and long-range shooting at upland game birds allows one bird to be lost through crippling and delayed death for each two brought to bag in the Willamette Valley. This is a needless wastage of one-third of the crop. Sportsmen should be careful and use more personal skill in stalking or hunting the game.

It is not good practice to annihilate bird coveys. No covey of valley quail, if shot down to fewer than 7 to 10 birds during the open season, can be expected to maintain itself and provide hunting for the following year. A covey of even larger size is desirable in the Willamette Valley, since there is a steady drain through losses to predators and accidents. The niceties of sport need to be cultivated and more definitely established. The shooting of hen pheasants was prohibited during 1937 in the Willamette Valley. This was a move to protect the breeding stock, and most of the hunters heartily complied but the results of the measure fell far short of those anticipated. Time after time some gunners defended the shooting of females on the excuse that they did not know they had killed hens until they were brought to bag. Men who can see no better than that have no business with a gun. It would be far better to allow unidentified birds to escape than to kill a hen pheasant by "mistake." Hunting must be sanely regulated, and on areas under sportsman management some individual should be responsible for seeing that the regulations are followed. Good management will result in fewer restrictions on hunting because the game crop will stand these liberalizations.

Waterfowl. Owing to limitations in water supply, only relatively small acreages of suitable areas being available, migratory waterfowl have a restricted range in Oregon, especially in the eastern part. There is likewise only a small acreage of shooting grounds compared with the state's 61,000,000 total acreage. To game conservationists or the sportsmen this need not be discouraging, however, as there are large tracts in Oregon that could be made suitable for waterfowl if flooded.

Oregon has few waterfowl wintering grounds. In the eastern part of the state frequently the only available open water aside from the rather barren Columbia River is seepage from springs. All other waters are closed at some period by freezing. West of the Cascade Mountains, however, open water can be found during every month except in unusually severe winters. Providing wintering grounds for waterfowl is very important as with these birds, as with all wildlife, winter is a very critical season. Winter refuges under good management will contribute greatly to the return of satisfactory numbers of waterfowl to the nesting grounds.

INCREASING WATER SUPPLY

The development of bodies of water may seem to be too large a problem for sportsmen's groups to handle. There are in many sections of Oregon, however, excellent potential waterfowl areas that need only a little attention. For example, throughout the Willamette Valley there are old meanders of the river that are not now accessible to waterfowl because they are so overgrown with trees. Only wood ducks can thrive there. The canopy of overhanging trees has retarded the growth of aquatic vegetation so essential to the waterfowl food supply. Aquatic plants not only provide seeds, tubers, roots, and leaves for waterfowl food, but also harbor snails, crustaceans, and insects, which the birds also consume. Many of these tree-bordered lagoons could be converted into year-round habitats for waterfowl by careful slashing to decrease the over-shading, and thus favor the aquatic vegetation.

One of the means widely employed in the past to increase waterfowl on an area was artificial feeding. For the purpose of providing immediate hunting this was effective—so much so that results throughout the country as a whole were disastrous to the birds. The better plan is to avoid artificial concentrations by promoting the growth of waterfowl food plants. Scattered growths of favored natural foods induce the birds to spread out in feeding and in the hunting season give them a better sporting chance. Efforts, based on technical help of a biologist, to increase waterfowl food plants in many localities would contribute to the welfare of the birds and eventually to enlargement of their numbers.

In nearly every community there are possibilities for water-development projects that would aid in waterfowl restoration. These may include irrigation systems, flood-control structures, sumps, and artificial lakes. Perhaps the day will come when each district in the State will have some person or group actively interested in seeing that every potential resource of this nature is properly developed. Such a program would assure each community its share of waterfowl and be of great value to the birds.

In irrigated regions there are tremendous volumes of waste waters. There is also much land that has poor drainage. Such overflow areas or sumps are potentially suitable for waterfowl, but need development. Keeping them flooded, and stocking them with cover and food plants would be a fine aid to such species

as the ruddy and redhead ducks, which annually face more restrictions in their rather peculiar nesting requirements, as well as to more adaptable wild fowl, including the blue-winged teal, cinnamon teal, and mallard. Drought, drainage, and greater water usage for domestic and agricultural purposes have been inimical to all of these species.

Some water resources can be restored and others can be created locally through sportsmen's groups. In many parts of the State run-off water has been conserved by the construction of small dams. By donating labor any sportsmen's organization can make such impoundments. Areas unproductive for agriculture may be flooded for wild fowl.

Where the topography permits, small outlet channels from streams and creeks can be built to carry away flood waters and fill suitable basins, ravines, and hollows. This not only will assist in preventing floods, but will benefit waterfowl and livestock. A thorough analysis of the water-resource possibilities of communities will disclose many opportunities that lie within the realm of practical attainment.

IMPROVING WATERFOWL FOOD SUPPLY

The development of new water areas means much to the migratory waterfowl, but water is not the sole requirement. There are two kinds of water reservoirs, those with relatively stable and those with rapidly fluctuating water levels. Waterfowl can use both but are best served by the constant type. To fishes, which make their nests in shallow water, however, fluctuating levels are a tremendous handicap, oftentimes destroying the entire increase of the year as well as reducing the food supply.

Plantings with aquatic vegetation should differ somewhat for these two types of reservoirs. Around the margins of the fluctuating-level reservoirs should be placed plants that can withstand drying during low-water periods. Among these, smartweed (*Polygonum*) is one of the most satisfactory in Oregon for providing migratory-waterfowl food. It is really a wild buckwheat. Recent plantings upon the Malheur Migratory Bird Refuge have shown it to be especially well suited to a changing beach line. Wild millet or watergrass and sedges of the *Carex* group also are useful. In reservoirs with stable water levels the more truly aquatic plants are desirable. These include duckweeds, pondweeds, and water cress, all fine duck foods. Such larger plants as the water lilies also are valuable, especially in acid waters. These aquatic plants also harbor countless insects and other invertebrates upon which the ducks and ducklings feed. Perennial plants are to be preferred to annuals, which require attention in order to insure a desirable succession. A few years without care might result in ponds being filled with undesirable plants.

Reservoirs with water levels that can be controlled are the best in producing regular aquatic crops. Even if the water overflows and submerges the aquatics, however, the area may still be productive. During flood periods in Oregon all the overflowed meadow and grain lands become feeding grounds for the birds. The critical periods are in times of water shortage and drought.

MANAGEMENT OF DUCK PONDS AND MARSHES

Sportsmen or landowners who have acquired waterfowl areas will find mere control is not enough; management is equally as important. The area needs to be protected from wasteful land-use practices, with livestock fenced away except

for inlets for drinking—at least 100 feet from the shore line, and more if practicable. This will safeguard nesting cover, and both aquatic and marginal plants, undisturbed by the livestock, will mature the food supplies, so vital for waterfowl during the fall and winter. Heavy shore vegetation should be kept under control and paths kept open therein so that the birds and especially their young may traverse it readily.

Waterfowl areas can be easily ruined for sport by uncontrolled and unmanaged shooting. Careful observation will show how many guns may safely be permitted and how long an open season may be allowed (within legal limits) and yet insure that the birds will continue to use the pond as a natural feeding place.