

Enhancing Wildlife on Private Woodlands

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Wildlife is an integral part of woodlands. Where there are forests, meadows, and streams, there is wildlife. Wildlife means many things to people, but for purposes of our discussion we'll divide it into three basic categories. The most common category is *game*—birds and mammals that one hunts for recreation, fur, and food.

Another category is *pest animals*—those that damage conifer seedlings, seeds, and in some cases larger trees.

A third category, a catch-all, is *nongame species*. This includes songbirds, reptiles, amphibians, and other animals that are neither hunted nor do they cause problems. Rather, they are observed by birdwatchers, photographers, hikers, and others enjoying outdoor recreation. Rare or endangered species such as the bald eagle and spotted owl usually are included in this category.

One of the directing forces behind managing natural resources, particularly on small areas such as woodlots, is the benefit received. What sort of benefit(s) can you expect from investing time and money in wildlife?

If you're a hunter managing for game, your benefit would be harvesting more and/or bigger (i.e., trophy) animals. Also, perhaps, if your acreage is sufficiently large (600+ acres, or approximately 1 square mile), you might profit from leasing the right to hunt on your land. If you're a birdwatcher, your objective is to spot more birds and/or more bird species.

This publication discusses managing game and nongame wildlife in order to increase people's use of them. Pest wildlife is discussed only to the extent that land management for game and nongame species does not lead to increased pest damage. Controlling pest animal damage to conifers is covered in *Understanding and Controlling Deer Damage in Young Plantations*, EC 1201, and *Controlling Pocket Gopher Damage to Conifer Seedlings*, EC 1255 (see page 8).

Whether you manage land for game, nongame, or pest species, the objective is to increase, decrease, or maintain numbers of wildlife. Increased use of wildlife usually necessitates increasing numbers or quality of wildlife available for use, which is known as wildlife *enhancement*.



What is enhancement?

Enhancing wildlife populations means causing an increase in number and/or quality of animals within those populations. The objective might be, for example, to produce more deer or quail, to have more trophy-class animals, or to increase diversity (the number of species).

How do we get enhancement?

All wildlife species are products of their environment or habitat. Each species has specific habitat requirements that are different from those of other species. The habitat provides basic life requirements including food, protection from enemies and weather, and a place to rear young.

As the *amount* of specific habitats and the *diversity* of habitats increases, diversity and numbers of wildlife species on a given piece of land also increase. So, the question “How do you enhance wildlife species?” can be rephrased as “How do you enhance habitat?”

Enhancement must provide for year-round wildlife needs. For some species, such as deer and elk in eastern Oregon, quality and quantity of some habitat elements vary seasonally. The quality and quantity of forage in summer and fall determine the amount of fat animals store in preparation for the tough winter.

If forage is not plentiful and of high quality on summer ranges, the animals might starve on winter ranges where food typically is of low quality and quantity. Also, if deer and elk are not in prime condition in fall, they might not breed, and fawn and calf crops could fail in the spring.

Enhancing habitat

Habitat diversity

Vegetation (trees, shrubs, grasses) provides wildlife habitat. Different species live in different places within this structure. Various birds, such as some warblers, live only in the tops of conifer trees. Here they

find food (insects), build nests, and take shelter from weather and predators. Other species, such as pocket gophers, live underground in grassy meadows.

Some species, such as certain frogs and salamanders, have a special requirement for the riparian zone—the moist, often forested area alongside streams. Most species, however, including deer, quail, and chipping sparrows, require combinations of habitat—meadows and other forest openings to feed in and timber for breeding sites and for protection from weather and predators.

Habitat variety is natural when natural events such as fire, windthrow, and insect and disease attacks open portions of forested areas. These areas usually are revegetated in stages, beginning with grasses, progressing to shrubs, then seedling trees, saplings, mature trees, and finally old-growth trees.

With each successive stage, different combinations of wildlife species likewise appear, persist awhile, and then decline (Figure 1a). The diversity of wildlife species depends on habitat diversity associated with these stages. Providing a diversity of habitats (and thus a diversity of wildlife species) requires a diversity of areas in different stages of vegetative development.

Clearcut logging works like nature in opening forest lands and beginning the progression of vegetative stages, starting with grassy meadows. Reforestation (planting conifer seedlings) and brush control provide other vegetative stages, but the time sequence is shortened (Figure 1b). The last stage, old growth, usually is not attained.

Habitat quantity

Can I grow deer on a 10-acre plot? How many acres does a covey of quail require? What quantities of habitat support viable, reproducing populations of wildlife species? The diversity and abundance of wildlife populations that a given parcel of land supports are directly related to the amount and kinds of land available.

Table 1 (page 5) gives minimum space requirements of representative species. Deer require a minimum of 30 acres per animal of combined forest lands and openings.

Quail require a minimum of 5 to 10 acres per bird of open meadows, with brushy

areas interspersed within the meadows and adjacent forest lands. Songbirds, such as chipping sparrows, require about 5 acres per bird, again of open areas adjacent to forested acreage.

The size and timing of timber harvest can be a major tool in simultaneous management of timber and wildlife. Instead of creating large (more than 100 acres) clearcuts in single cuttings, many smaller cuts can be spread over a number of years (40 to 60 acres could be cut every 5 to 7 years). This would even out the flow of dollar returns from timber and the supply of forage and habitat diversity for wildlife. Thinning timber also provides forage and habitat diversity.

Habitat placement

Wildlife species use different habitats to meet different needs (openings for food, forested areas for cover). These different habitats must be close enough to each other that wildlife can move readily from one to the other with minimal exposure to predation and weather. Wildlife species with small home ranges (songbirds, quail, grouse, rabbits, and deer and elk in western Oregon) must have these different habitats close together (mere hundreds of feet for quail and rabbits and usually less than 0.25 mile for deer and elk).

Problems may arise in eastern Oregon with animals such as deer and elk. They

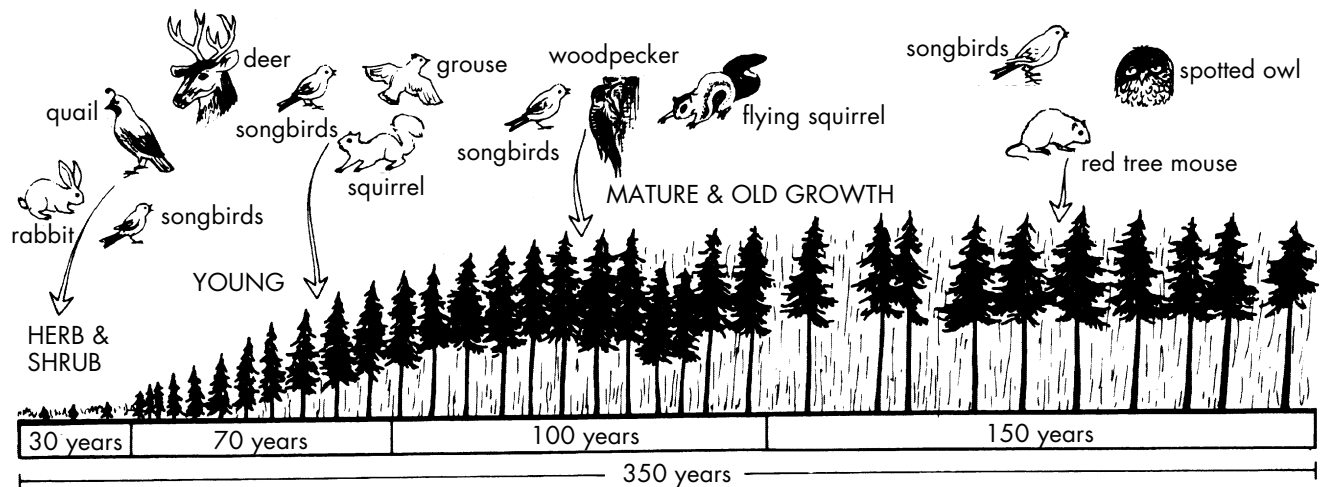


Figure 1a.—Wildlife species that live in a natural, unmanaged forest.

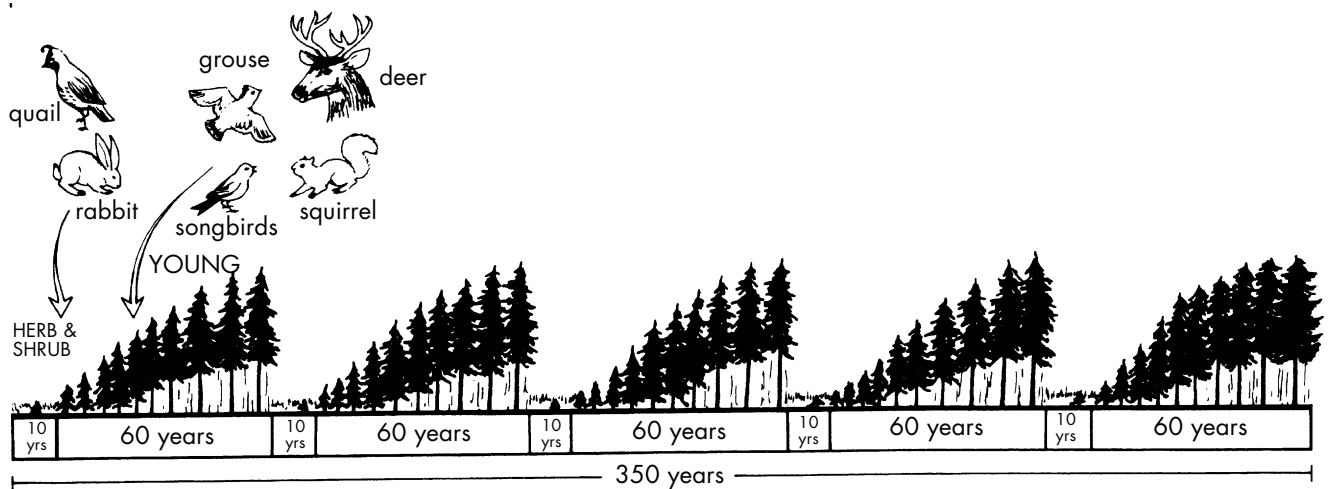


Figure 1b.—Wildlife species that live in a managed forest.

have seasonal habitats that are miles apart—summer range at higher elevations in mountain meadows, winter range down on sagebrush flats. Preserving migration corridors used for traveling to and from such seasonal ranges is another habitat requirement. If these migrating animals have to cross many logging roads, they are exposed to hunters and vehicles.

Deer and elk might be hunted when they are on summer range, on winter range, or traveling on migration corridors. If your property includes only one of these seasonally used habitats, your management of these animals could be influenced by management on land over which you have no control.

Enhancement doesn't stop at merely providing amounts, diversity, and habitat placement. Wildlife have additional habitat needs, primarily food and breeding places, that you can manage and thus indirectly influence wildlife numbers and well-being.

Special requirements

Managing forest lands for timber production generally provides a variety of habitats. However, practices such as brush control and snag removal alter or remove special habitats of some wildlife species. In some cases, one management practice can provide multiple habitat requirements, such as food and cover, for several species.

Leaving a few standing snags and allowing logs to remain on the ground provide nesting sites (cavities in snags) and a food source (insects that burrow into decaying wood) for birds. Slash often is removed from clearcut sites, usually by burning. Small amounts of this slash instead could be piled for quail and rabbits to use as protective cover, breeding sites, and food sources (berries and leaves).

Other management practices might provide for only a single need of wildlife. The rapid establishment of conifer seedlings on forested openings (clearcuts, small meadows, etc.) within 3 to 10 years greatly shortens the time that these areas would otherwise provide forage for deer (7 to 25 years). One way to provide additional forage for deer in the shortened time span is to plant forage on parts of clearcuts. Deer

especially like grass and legume seedings. Quail, grouse, and rabbits also will take advantage of this additional food source.

You can't always maintain snags and other dead standing trees as nesting sites for cavity-nesting birds and mammals such as flying squirrels. However, you can build nest boxes for bluebirds, other songbirds, squirrels, and wood ducks and place the boxes in appropriate locations as an alternative to natural nest sites.

The key to providing special requirements is to identify those animals you wish to enhance, determine whether they have special requirements that current management does not provide and, if so, implement those activities that will benefit the desired populations.

Constraints on enhancement

One manages forest lands for a variety of reasons—for timber production and recreation as well as for wildlife. The manner of management on neighboring private or public lands can influence wildlife on your land. You must account for these factors in your management plan to avoid conflicts and to increase wildlife abundance.

Conifer damage

Game such as deer and elk can damage conifer seedlings. Managing habitat to enhance populations of these animals should not increase amounts of damage. However, habitat enhancement could increase populations of some animals to a level where they deplete normal food sources and begin to damage conifers.

Planting forage crops for deer might increase populations of pest species such as mice; they girdle conifer seedlings and can cause significant economic loss. Building brush piles provides food and cover for quail and rabbits; however, if you have too many brush piles close to conifer seedlings and not much forage available in winter, you could find the rabbits cause significant damage to the seedlings.

Table 1.—Habitat requirements of representative wildlife species.

Wildlife group	Representative species	Required habitats and acreages	Special habitat requirements
Meadow wildlife	California quail, brush rabbit, meadowlark	Open areas with grasses and forbs; some shrubs (15 acres)	Brush piles essential (one per 2 acres)
Meadow/forest	Deer, elk	Openings (50 acres); closed canopy (15+ years old); conifers (150 acres)	Migration corridors between seasonal ranges
	Chipmunk	Opening (15 acres); second-growth timber (15 acres)	
	Junco, bluebird	Opening (5 acres); second-growth timber (5 acres)	Snags with nest cavities
Young forest	Red squirrel	Mixture of 15- to 75-year-old conifer trees; understory of grasses, forbs (100 acres)	Cone-bearing trees for food
	Ruffed grouse	50-50 mixture of conifers and alder (15 acres)	Moist streamside
	MacGillivray's warbler	Mixture of 15- to 75-year-old conifers (15 acres)	
Mature forest wildlife	Flying squirrel	Conifers 75+ years old (100 acres); understory with forbs, small shrubs	Nest cavities in older trees (100+ years old)
	Spotted owl	Conifers 100+ years old (400 acres)	
	Pileated woodpecker	Conifers 100+ years old (100 acres)	Conifer snags; minimum 20 inches diameter at breast height (dbh) for nest trees
Riparian wildlife	Salamanders, frogs, snakes	Moist, streamside vegetation with closed canopy (0.25 to 2 acres); flowing streams	
Large predators	Bobcat, bear, coyote, goshawk	Mixtures of closed canopy with openings (300 to 1,500 acres)	Large (more than 15 inches dbh) trees for nesting or denning

Conflicts with timber production

Often the primary product on forest lands is timber. In some cases, increasing habitat for wildlife will reduce the yield of timber products. Keeping meadows open to produce deer forage precludes producing timber for market. Maintaining stands of old-growth forest for species such as spotted owls and pileated woodpeckers

prevents the short-term rotation (50 to 80 years) required to maximize timber production on forest lands.

Maximizing diversity of wildlife species requires maximizing diversity and location of habitat sites. Altering vegetation to maximize diversity will lower production of timber on forest lands.

Neighbors

Forest management on neighboring land (private and public) could influence the wildlife on your land. If your habitat is an island of deer management surrounded by land with few deer—such as a large clearcut—few deer and elk will move in, and the population that’s already on your land will have to sustain itself.

On the other hand, if the neighboring land is managed for deer and elk as well as for other forest resources, you might be providing an attractive area that will draw additional animals from neighboring lands. The influx could overwhelm your ability to

keep the population low enough to prevent damage to your seedlings.

Matching what you want with what you’ve got

In any enhancement program, you must match desired wildlife with available habitat(s). The first step is to determine what sort of wildlife you desire.

What wildlife do you want?

Usually, if wildlife is to be managed, it most likely will be for you and your friends, with recreation and food as the chief values. Perhaps you wish to emphasize game. In most cases, leasing or selling hunting rights requires large acreages (600+ acres) to provide sufficient numbers of deer, rabbit, quail, and grouse. There is competition from federal lands (U.S. Forest Service and U.S. Bureau of Land Management), where anyone can hunt without charge and probably can find more variety and larger numbers of game animals than on a small, private ownership.

The required habitats for game animals are meadows and young forests (Table 1). This requires that you retain open grassy meadows with little emphasis on older and mature forests, which do not provide for optimum numbers of the primary game species. Note also that you will need fairly large acreages, especially for deer—an expected annual harvest of two to five deer from your land will require at least 100 acres.

If you want other uses of wildlife, such as birdwatching, you should increase habitat diversity. This means providing the full range of habitats, beginning with open meadows,

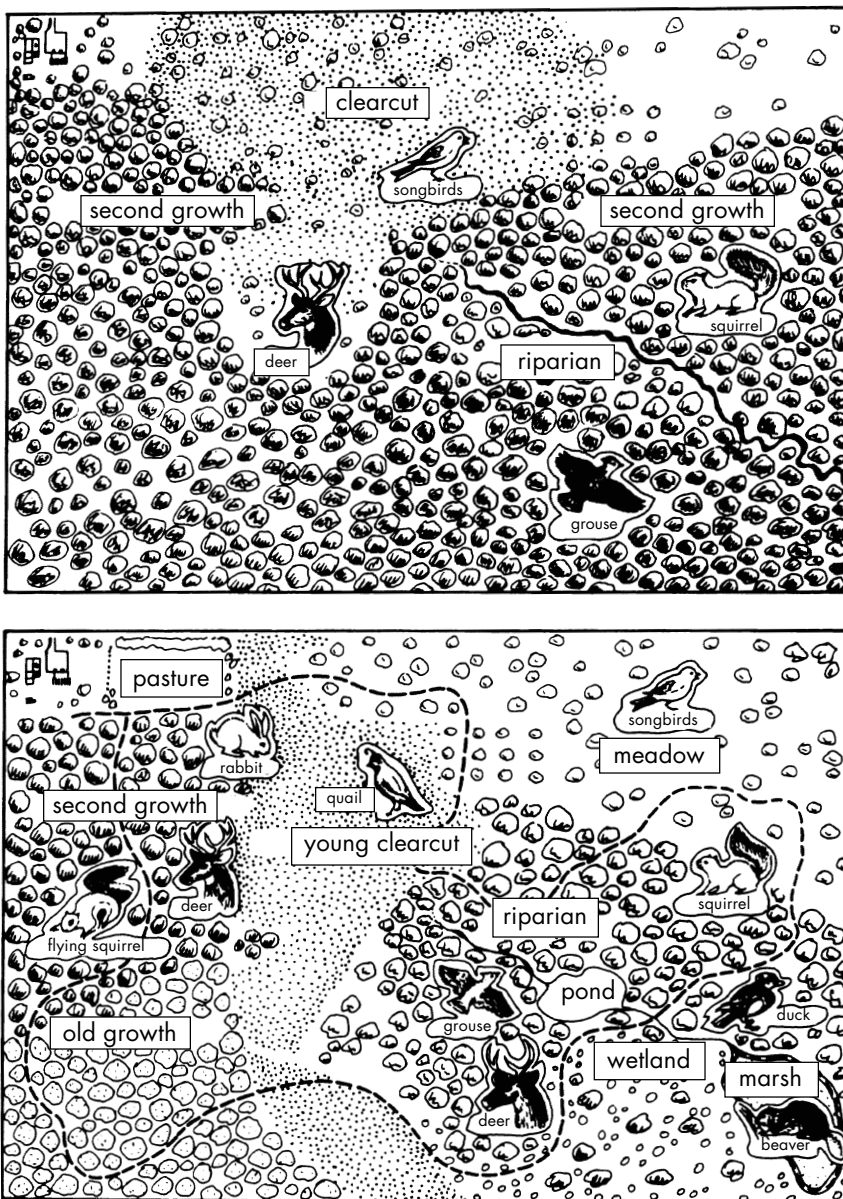


Figure 2.—(top) Wildlife-habitat associations on an undeveloped woodlot and (bottom) on a developed woodlot.

progressing through regeneration, and ending with mature forests.

As for a private game reserve, selling the privilege to observe wildlife on your land will not bring in much money—public lands are available for this.

The best approach is to design habitat improvements around silvicultural practices. The variety of species and numbers of individual species may be less than ideal, but small unused areas, riparian zones, steep slopes, and other areas where timber production cannot be maximized will provide many of the requirements you need for a diversified habitat.

What habitat(s) do you have?

When you decide what kinds of wildlife you want, identify the habitats required and check them against what is available.

Assess the diversity of habitats and acreage of each as well as the habitats of neighboring parcels of land. If the species you want match the type and amount of habitat available, the situation is ideal. If the matchup is not good, you must decide whether to manipulate the habitat to increase species diversity or to increase the number of animals—or perhaps both.

To do this properly, an inventory of your property is essential. Make a sketch of your land with the various habitats roughed out, including acreages. Then list the wildlife species that each type of habitat favors.

Draw habitats that would result from vegetation enhancement and list the wildlife that these modified habitats would favor (Figure 2).

Make a plan

If you intend to enhance vegetation to provide a greater variety of habitats for wildlife, you must make a plan for the desired changes. The plan should include the location and acreage of habitat you desire to manipulate, the expected cost of the enhancement, and provisions for special habitat requirements not provided by typical vegetation manipulation. Table 2 gives an example of such a plan.

Where to go for help

A number of public agencies and private groups in Oregon can provide assistance. The Oregon State University Extension Service has publications that describe how to provide special habitat needs such as nest boxes. The Oregon Department of Fish and Wildlife has information on preferred habitats of wildlife, and the USDA Natural Resources Conservation Service provides help with habitat manipulation. The Audubon Society is an excellent source of information on providing for special needs of songbirds; most large towns have an Audubon Society chapter.

Table 2.—Sample habitat enhancement plan.

Wildlife species	Habitat enhancement and acreages	Provision for special requirements
Deer, elk	Provide openings in forest (20 to 50 acres each); harvest standing timber; suppress tree and shrub regeneration.	Seed 5- to 10-acre patches in meadows with grass–legume mix.
Rabbits, quail	Provide permanent openings (15 acres) and one to two brush piles per acre.	
Songbirds	Maintain a good mixture of meadows, second growth, and old growth (5 to 10 acres for each habitat).	Establish nest boxes; establish a system of trails through all habitats for bird watching.

For more information

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Bennett, M. *Ecosystem Management: Opportunities and Implications for Woodland Owners*, EC 1469 (Corvallis: Oregon State University, 1996). \$1.25

DeYoe, D., D. deCalesta, and W. Schaap. *Understanding and Controlling Deer Damage in Young Plantations*, EC 1201 (Corvallis: Oregon State University, reprinted 1999). \$2.00

deCalesta, D. and K. Asman. *Controlling Pocket Gopher Damage to Conifer Seedlings*, EC 1255 (Corvallis: Oregon State University, revised 2002). \$2.00

Edge, W.D. *Managing Wildlife Habitats in Forested Ecosystems*, EC 1470 (Corvallis: Oregon State University, reprinted 1998). \$2.00

Other publications

The "Peterson Field Guide" series for birds, mammals, animal tracks, trees and shrubs, reptiles and amphibians, insects, and bird nests (Boston: Houghton Mifflin).

deCalesta, D. and M.S. Deusen. *Woodland Fish and Wildlife*. 1988. This series includes a number of separate publications. Order from Washington State University, 1-800-723-1763 or via the Web at <http://pubs.wsu.edu>, then "forestry," then "wildlife and fish."

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The Woodland Workbook is a collection of publications prepared by the Oregon State University Extension Service for owners and managers of private, nonindustrial woodlands. Information has long-range and day-to-day value for anyone interested in wise management, conservation, and use of woodland properties. The Workbook is organized in sections in a 3-ring binder with tabbed dividers for each section. To order, and to get a current list of titles and prices, inquire at the OSU Extension Service office that serves your county.

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