

Managing Wildlife Habitat on Public Open Space



School of Natural Resources
College of Food, Agricultural, and Environmental Sciences





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Funding was generously provided by the U.S. Fish and Wildlife Service, Department of Interior.

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TDD No. 800-589-8292 (Ohio only) or 614-292-1868

6/04—1000



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Introduction

Preservation and management of “open space” is an emerging issue in Ohio and throughout the country and is of great interest to most residents. As the landscapes of the United States become increasingly urbanized, “open spaces” that are free from housing or commercial development are among the only areas left to provide wildlife habitat and outdoor recreation for citizens. Consequently, many people support the acquisition and naturalistic management of open spaces, and cities are heavily investing in these efforts. There are examples of open space in every community, and these include parks, cemeteries, golf courses, corporate land, and schoolyards. Indeed, open spaces now represent tremendous land holdings throughout the country. For example, golf courses alone cover over 1.5 million acres in the United States.

Open spaces represent excellent opportunities to provide not only economic, educational, aesthetic, and recreational benefits to land managers and nearby residents, but also habitat for a variety of wildlife. For example, with proper management, golf courses might provide critical “surrogate” habitat for regionally declining species like the red-headed woodpecker (in the East and Midwest), the Bell’s vireo (in the Midwest),

and the burrowing owl (in the West). Similarly, shrubby fields in parks can provide habitat for certain declining birds associated with early-successional forests, such as the prairie warbler. Contrary to what some may think, the benefits of wildlife-friendly landscaping do not only extend to the plants and animals of an area. Managers and owners of open spaces also can save money and time on maintenance and use wildlife management as a tool to leverage public support. Local residents can enjoy a variety of activities, such as hiking and birdwatching, in areas free from extensive pavement and buildings. In many cases, open spaces provide ideal “learning laboratories,” where schoolchildren are exposed to ecological principles, management of natural resource, and the natural history of local plants and animals.

Wildlife habitat enhancement has the potential to improve the ecological and social values of public open space and corporate land, particularly at the rural-urban interface. The purpose of this bulletin is to introduce you to some of the basics of managing wildlife habitat. Different sections will discuss management of specific habitats. This bulletin is intended only to be a primer. Please consult other sources for more detailed information.

Benefits of Wildlife Habitat

Management of your property for wildlife can provide several benefits to you, as land managers, and others.

Aesthetic. Flowering and fruiting plants associated with wildlife-friendly landscaping are appreciated by visitors to open spaces. These habitat features also provide more privacy and opportunities for solitude than turfgrass-dominated areas because they add structure to the land. Some have suggested that these visually pleasing qualities promote relaxation, peacefulness, and a sense of contentment.

Recreational. Abundant wildlife populations and natural areas provide recreational opportunities such as wildlife photography, bird watching, fishing, and hunting. Open spaces can also bring neighbors together for a common purpose (e.g., building bluebird boxes, hiking trails) and, thus, build a sense of community.

Economic. Management practices for improving wildlife habitat often provide benefits such as reduced soil erosion, improved water quality, and increased soil moisture, which can translate into substantial money savings. Even simple measures, like strategically placing trees near buildings, can reduce heating and cooling costs. Certain wildlife habitat improvements (e.g., converting from turfgrass to prairie) can directly reduce maintenance costs. In fact, businesses have reported up to 50 percent reductions in lawn maintenance costs after the establishment of native prairie grasses. In some cases, landowners can receive additional income by establishing private or public wildlife recreation preserves on their land or promoting wildlife-related activities to increase ecotourism and use of their property. Adjacent residences also can profit, as land values are often greater near open spaces than in areas lacking open spaces.

Educational. Habitats intended for wildlife can serve as outdoor classrooms for schoolchildren. Students can learn to identify plants and animals, as well as see how human and environmental needs can be balanced. Educational opportunities simultaneously provide excellent public relations exposure and improve the image of a company or business.

Ecological services. Few people recognize the important ecological services provided by wildlife. Each species performs a specific function in the ecosystem that directly or indirectly benefits the environment and other organisms, including humans. For example, many birds, such as blue jays, disperse acorns and other seeds throughout the landscape. Bats may reduce the numbers of mosquitoes around your home by feeding on them. One bat alone may eat up to 3,000 insects in a night! Similarly, insectivorous birds can help plants by consuming insects living on bark, leaves, or branches. Earthworms, beetles, and certain rodents turn over the soil and recycle nutrients. Ecologists are continually learning about new complex relationships among organisms and their environment. By providing habitat for wildlife, you ensure that some of these ecological, recreational, educational, economic, and aesthetic benefits will be maintained on your land.



Black-billed (shown above) and Yellow-billed Cuckoos feed heavily on gypsy moths and may play a role in preventing outbreaks.

Habitat Components

Wildlife habitat describes the complex mixture of food, cover, water, space requirements, and environmental conditions where an animal lives. Each animal has specific habitat requirements, and the distribution and abundance of species are limited by the quality and quantity of habitat in a given area. To occur in a particular location, an animal must find at least one of its habitat requirements met there. Some wildlife species, like river otters, are called *habitat specialists* and will only be found in one type of habitat (in this case, streams or rivers). Other wildlife, such as deer, are *habitat generalists* and they may occur in many types of habitat (from forest to farmland to suburban developments).

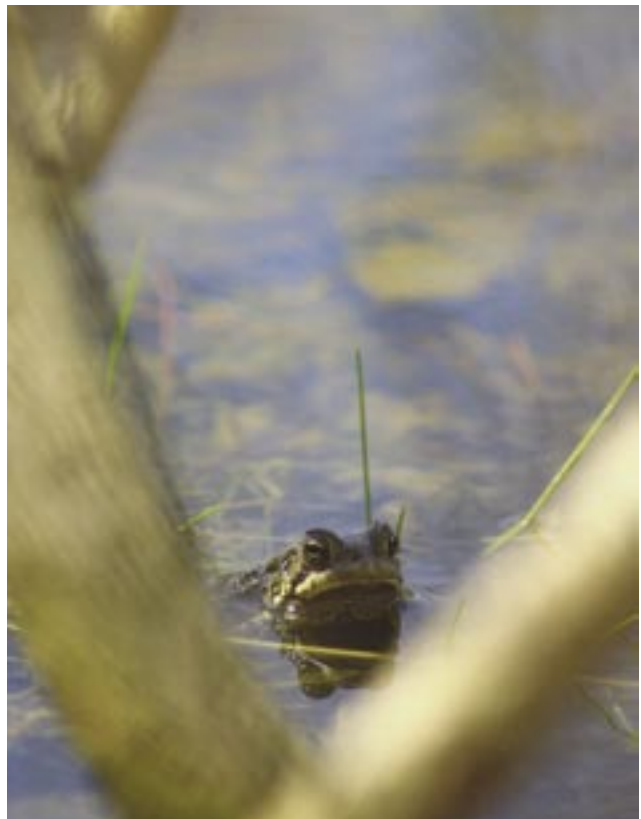
The four main components of “habitat” are:

Food. Every animal needs food for growth, maintenance, and reproduction. Sources of food are as diverse as the animals that eat them—from flowers to bark, insects to worms, small mammals to birds. Although supplemental food sources like birdseed can attract certain animals, they generally do not provide the best sources of food for wildlife. Instead, natural food sources, like native plants, fruits, and insects, should be the focus of management activities whenever possible. “Native” refers to plants or animals that naturally occur in a particular area or region. Aside from being the best overall food sources for wildlife, native plants and insects almost always are associated with lower energy and maintenance costs than non-native (exotic) foods. In addition, non-native plants can rapidly displace native plants.

Water. Most wildlife must consume water every day, so habitat that provides a water source can be attractive to many animals. Of course, animals will use water for other purposes as well. Wetland or aquatic-dependent species, such as frogs, some turtles, waterfowl, and fish, require permanent or semi-permanent streams, ponds, or wetlands for their survival. Many birds will bathe in water, and



Fruiting plants are excellent sources of food for wildlife.



Wetlands support a diverse assemblage of habitat specialists.

even butterflies will “puddle” in moist or muddy soil. Depending on the type of animal that you wish to attract, you will need water sources of different sizes, shapes, and depths, ranging from simple birdbaths to complex wetland systems.

Cover. Cover provides protection both from predators and the weather (wind, cold, rain). Nearly any plant will provide some degree of cover to an animal. However, native plants usually offer the best sources of cover. Many people assume that only trees and woody shrubs will serve as suitable cover, but prairie grasses and flowers provide excellent cover to a wide range of animals as well. Cover also provides an important benefit to land managers in that many recreational users prefer using areas with ample vegetation because they are more private and can increase enjoyment.

Space to live and to raise young. In addition to requiring particular habitat components, wildlife also differ in the amount or location of the habitat they require to live and raise young. This “space” might be used to establish and defend territories, to court and attract mates, or to raise young. The amount of habitat available to an animal frequently affects the quality of food resources and the number and types of predators in an area as well. *Area-sensitive species* require large amounts of land, whereas other species can live on small parcels of habitat. Many songbirds of mature forests, such as wood thrush and scarlet tanager, are known to be area-sensitive and may require hundreds of acres of forest. Other forest birds, like downy woodpeckers and Carolina chickadees, can live on less than an acre of forest. Location of habitat can also influence wildlife. Even if suitable habitat is available, some species will avoid using areas near a *habitat edge* (junction between two habitat types). These species are often referred to as *interior* species and include animals like salamanders and many warblers. Other wildlife, such as turkey, grouse, and deer, prefer using edges of habitat because of the abundant browse and vegetation usually present in those areas.

Creating a Habitat Management Plan

1. Identify your goals. The first and most important step in developing a habitat management plan is to identify your goals for the property. Be realistic in terms of your expectations for habitat, which wildlife may be attracted, and the maintenance involved. Defining clear and attainable goals will make your project more likely to succeed and will likely enhance enthusiasm of employees, volunteers, and clientele/users of your property.

2. Inventory your resources. Before you create a habitat plan, you will need to evaluate the habitats, wildlife species, and plants that presently occur on your property. You should also look at the landscapes or land uses surrounding your land (i.e., are you surrounded by urban development, agriculture, or forestland?). This “inventory” of resources will tell you what resources you have to work with, which habitat features you need to create in order to achieve your goals, and provide insight into the chances of successfully reaching your goal.

3. Contact experts and consultants when necessary. Professional biologists, foresters, natural resource managers, and certain non-profit organizations (e.g., National Wildlife Federation) can provide excellent advice about different management approaches and give insight about the potential of your property.

4. Write an action plan that describes the steps that you must take to achieve your goals. This plan will be most helpful if it includes specific and manageable steps that can be accomplished within relatively short periods, rather than broad or vague statements requiring months or years to implement.

A note on biodiversity: Frequently, people consider maximizing “biodiversity” as the preferred goal of wildlife or habitat management. Biodiversity is a term used to describe the variety of living organisms (plants, animals, fungi, and microorganisms) and the relationships that they have with each other and the environment. Conserving biodiversity on the planet is critical, but this cannot be accomplished by maximizing diversity at every location. In fact, rare habitats or those that contain sensitive or endangered species are extremely important from a conservation perspective, yet they may have comparably low levels of biodiversity. The best approach is to consider the unique, rare, or declining habitats and species that may be found on your property rather than focus on the number of species present.



Part One: Forest Habitat Management

Forest Succession

The structure and plant composition of forests change over time in a process called succession. In forest succession a grassy field or clearcut will eventually become a mature forest. Certain wildlife will be favored in forests at different stages of succession because of the types and amounts of habitat that are provided by that stage. For example, early-successional forests have more fruit, seeds, and woody browse but less nuts, acorns, and cavity trees than older forests. Depending on the type of management that is applied to your land, you will be creating or maintaining different successional stages of forest and, as a result, providing habitat for different groups of wildlife.

Forest-Management Approaches

There are two approaches to forest harvesting: even-aged and uneven-aged management. Even-aged forest management removes most overstory trees from a stand (like clearcuts) and produces stands that are dominated by one age class as they regenerate. These methods work best when you are trying to regenerate trees that are not tolerant of shade, such as oak. Uneven-aged management creates stands with at least three tree age classes by cutting scattered individual trees (single-tree selection) or small groups of trees (group-selection). Shade-tolerant tree species, like maple and beech, regenerate best in these stands. Choosing not to harvest and relying on succession also can

be a good option in some situations. However, recognize that this approach is similar to harvesting in that some wildlife will be favored (e.g., late successional species) whereas others will decline (e.g., early-successional species). Based on your goals, the type of forest you have, and other site characteristics, a professional forester or biologist can suggest which method is appropriate for your land. Although these management approaches differ greatly in which wildlife are favored, both early and late successional species are important from a conservation standpoint.

General Tips for Managing Forest Wildlife

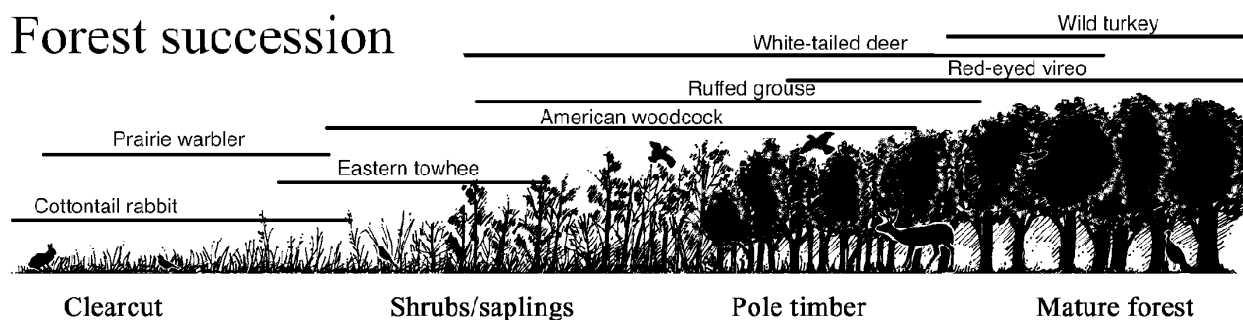
Protect unique or important habitat features.

Harvesting trees or locating high-use facilities near unique habitat features, such as small ponds, temporary pools (vernal pools), rocky outcrops, and seeps, can destroy the habitat they provide. If possible, do not disturb the forest within at least 100 feet of these important habitat features.

Enhance the vertical structure of the forest.

Keep understory and midstory vegetation intact. Forest animals usually specialize on particular “layers” of the forest, depending on these components for foraging or nesting substrates. Although removing shrubs and saplings creates an open, park-like structure, it will prohibit some understory-dependent species from using the area.

Forest succession





Protecting forests along streams keeps fish and wildlife habitat healthy.

Maintain forested buffers along streams.

Riparian habitats perform critical ecological functions, as well as provide habitat for a rich diversity of flora and fauna. Removing trees adjacent to streams not only destroys riparian habitat for terrestrial wildlife but also harms aquatic habitat by increasing water temperature and sedimentation. To reduce the negative impacts, leave buffer strips of unharvested trees (at least 50 to 100 feet wide) along both sides of streams. Remember to keep roads and heavy-use trails at least 50 feet away from water and minimize the number of stream crossings for roads. The wider the buffer, the more beneficial it will be for wildlife and erosion control.

Retain decaying and dead trees (snags). Tree cavities provide shelter, dens, nests, and foraging sites for many wildlife species. For wildlife use, snags should be greater than 8-inch diameter

breast height (dbh). Leaving all standing dead trees is best for wildlife, but at least one large (greater than 18-inch dbh) cavity tree per few acres is needed for larger species that use cavities, such as wood duck, pileated woodpecker, and mergansers. Beech, basswood, and aspen are generally good cavity-producing trees. Also, some damaged young trees also can be reserved to provide future cavity trees. Trees with fungal conks, dead branches, old scars, and soft or decaying wood (especially heartrot) are good indicators of cavity potential. If you are concerned about safety issues, a professional forester can evaluate safety threats posed by a particular snag and then recommend actions that you can take to minimize the risk.

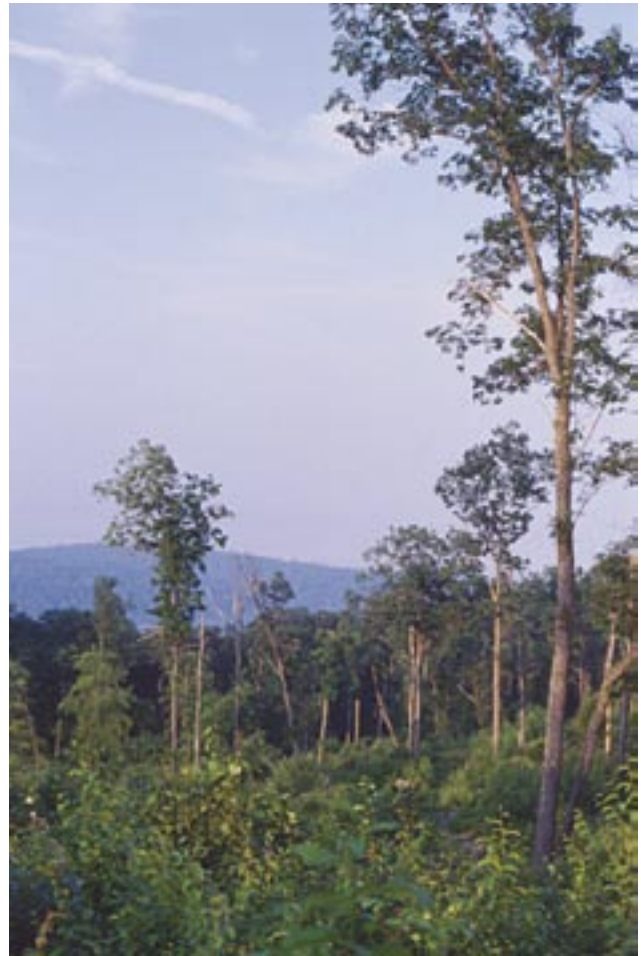
Keep dead and down wood on the forest floor. Many animals, especially salamanders and small mammals, use logs, slash, and other woody debris for cover, dens, nests, foraging sites, and even as places for courtship displays. If possible, leave large logs that will last longer than small logs. You may want to leave some woody debris in piles to prevent quick decay, especially in wet sites. These brush piles can be placed anywhere but are most useful near edges, food sources, water, or areas with little cover.



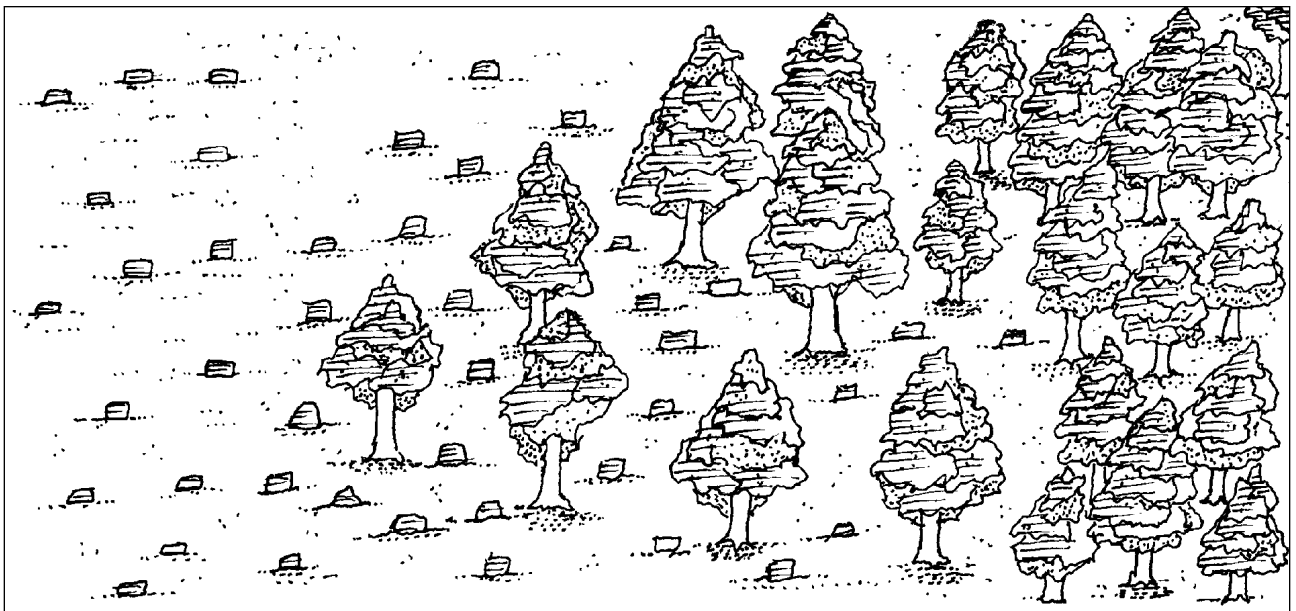
Woody debris is a natural and important component of forest habitats.

If you are harvesting, retain some overstory trees. Live overstory trees, retained both individually and in small groups and in a variety of species and sizes, provide perching, nesting, and foraging opportunities to wildlife. In addition, by retaining at least one individual tree of every species on your land, you increase the probability of some seed production every year. Sometimes retaining a single mature tree of a species uncommon to your woodlot can preserve wildlife values not provided by a common tree species. Making special efforts to retain trees that produce mast (fruits, nuts, and seeds), such as beech, oak, cherry, and dogwood, will be beneficial to many forest wildlife. Small groups of conifers (evergreen trees like pine and hemlock) also can provide important cover from snow and cold temperatures during the winter months.

Create feathered and meandering edges rather than straight or abrupt edges. An edge is where two different types of habitats meet. Edges can be abrupt, like the interface of a tall forest and a farm field, or they can be gradual and feathered, like a forest grading into a shrubfield and then a meadow. Some wildlife, such as salamanders and certain forest birds, avoid using abrupt edges,



Overstory trees in harvested areas are used by a variety of birds for foraging and nesting.



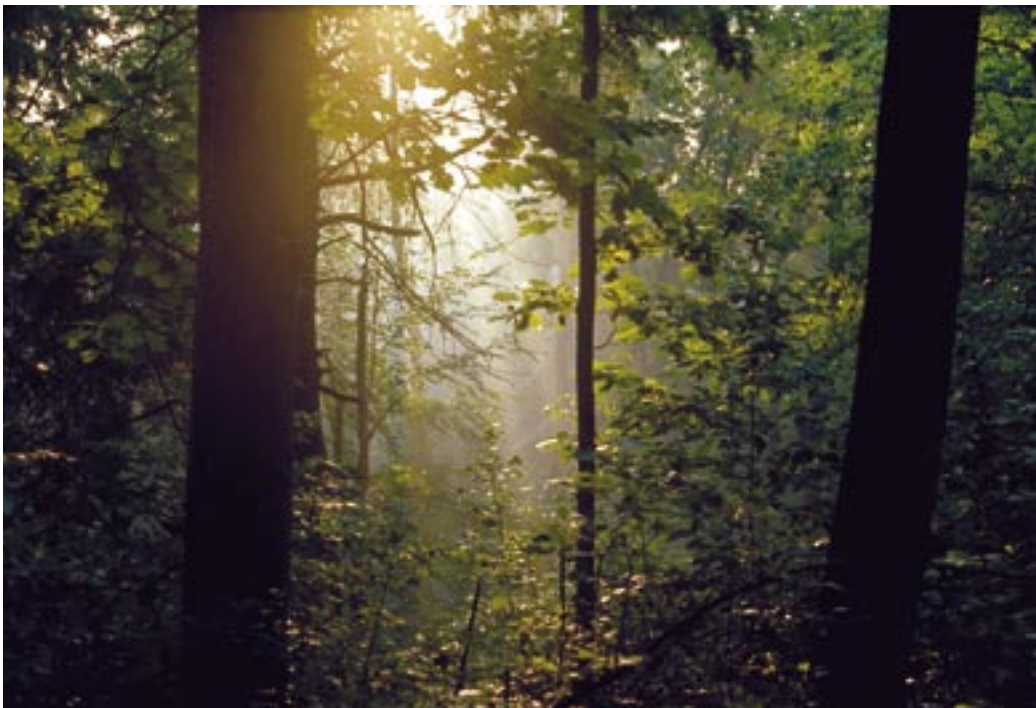
An example of a feathered, gradual forest edge. Shrubs can similarly help to soften edges.

and those that use them may experience high rates of predation. Edges can be associated with higher amounts of nest predation, fewer food resources for some species, warmer air and soil temperatures, drier conditions, and more wind than interior forest. Abrupt and highly contrasting edges generally have more of these negative “edge effects” than gradual or low-contrast edges. Low-contrast, gradual edges can be made by allowing shrubs, saplings, and some overstory trees to remain along the forest boundary. Edges can be feathered by retaining more trees, shrubs, and saplings closer to the forest interior and gradually fewer trees closer to the open area. Be sure that the feathered edges *add to* rather than subtract from your forest patch area (i.e., they make the forest stand larger rather than smaller).

Try to maximize the “interior” of your forest stands. Forest interior is unbroken forest at least 300 feet from habitat edges and usually is positively related to the size of a patch of forest (i.e., the larger the patch size, the more forest interior there is). To maximize the amount of interior forest, leave the largest patch of uncut forest possible.

You also can cut around the borders of a forest stand rather than fragment the stand into smaller ones. Try to keep disturbances, such as improved paths and roads, from bisecting your forest patch. Circular and square-shaped forest patches retain more forest-interior than oblong, rectangular, or irregularly shaped patches. Do keep in mind that a small patch is usually better than no patch at all. Even small patches can provide habitat for some common species and, possibly, migrating birds.

Encourage the growth of oaks, hickories, and other mast-producing species in eastern forests. Throughout much of the eastern United States, forests are shifting from oak-hickory composition to shade-tolerant stands of maple, cherry, or tulip. Because these shade-tolerant species do not produce hard mast, nut and acorn food resources for wildlife might decline in abundance. Oaks and hickories generally require full sun conditions to regenerate. Protecting seedlings and saplings from heavy deer browsing and using prescribed burning in young stands may also promote regeneration. A professional forester can best guide management activities aimed at regenerating these species.



Forests often have distinct layers of vegetation in the understory (usually lower than 10 to 15 feet), midstory, and canopy.

Part Two: Shrubland Habitat Management

Open and shrubby habitats usually follow disturbances like fire, timber harvesting, and farming. Although frequently overlooked as important wildlife habitat, these open areas can provide habitat to a diverse group of animals. Several different types of valuable wildlife habitats are found in open habitats; examples include odd areas that are not cultivated (e.g., seeps, bogs, ditches), abandoned or fallow fields, old orchards, field edges and hedgerows (especially if they contain trees and shrubs), patches of native shrubs, and prairies.

General Tips on Managing Open Habitats

Avoid converting open or shrubby areas to turfgrass. Naturally-maintained open or shrubby areas provide food and cover resources to wildlife and are great habitats for a variety of plants. In contrast, turfgrass offers little habitat structure and food to wildlife, and many of the management practices associated with turf can degrade the environment via chemical and mechanical disturbance. Allow open areas to naturally regenerate. Consider actively managing open areas as prairies or shrubfields by planting native species and then periodically burning, mowing, or cutting.

Create hedgerows. This can be accomplished either by planting trees and shrubs or reducing mowing frequency of odd areas, field borders, and edges of lawn. As wildflowers and other plants grow in these areas, hedgerows will become more valuable to wildlife. If you want to establish woody plants in the area, dense clumps of fruiting species like sumac, wild plum, dogwoods, hawthorns, chokecherry, and sassafras will provide food and escape cover for wildlife.

Try strip or mosaic mowing to increase habitat diversity. In areas where open fields are maintained without grazing or haying, strip mow



Regenerating clearcuts can provide excellent shrubland habitat to wildlife.

ing (30- to 50-foot-wide strips) or mosaic mowing (small patches in irregular patterns) can increase habitat diversity by allowing woody plants to establish in unmowed strips.

Consider disking to promote abundant herbaceous growth in some areas. A variety of annual grasses and forbs will grow in areas recently disked. When disking for wildlife, the goal is not to uproot and turn under all existing plant matter. Instead, vary the disking intensity to expose bare soil in certain areas and stimulate stem growth in others.

Use prescribed burns and fires, when appropriate. If done properly on a periodic basis, burning can improve the quality of grassland and brushland habitats. Fires remove accumulated dead material and encourage the growth of valuable seed-producing plants and herbs and stimulate legume germination. The abundant herbaceous growth that follows a burn provides browse and cover for deer, grouse, and rabbits and attracts insects and the songbirds that feed on them. Small controlled burns are recommended for areas too steep for tillage or mowing. Burns should be kept small and controlled with firebreaks plowed

around the perimeters. BE CAREFUL! Not only is fire dangerous, but it can do more harm than good if applied incorrectly or in the wrong season. See a professional forester, biologist, or natural resource manager before implementing plans, and be sure to obtain the proper permits first.

Create brush piles. Brush piles can provide dense cover for ground-nesting birds, rabbits, and other small mammals. Stack layers of logs at right angles to each other to make a base for the pile. Place treetops, old Christmas trees, limbs, stones, or stumps on top of the base to complete the pile. Ideal piles are 4 to 8 feet tall and from 10 to 20 feet in diameter. Place piles close to other food and cover sources, preferably along forest edges, field corners, or along streams and marshes. Isolated piles may receive little use or could be detrimental if long distances between piles and suitable habitat make animals vulnerable to predators.



Chestnut-sided warblers breed in shrubby, early-successional forests.

Part Three: Grassland Habitat Management

Native grasslands and prairies are great alternatives to lawns. These habitats also are among the most threatened ecosystems in North America, and, consequently, populations of many grassland wildlife have declined dramatically. Despite similar appearances, grasslands can provide quite different ecological resources depending on the types of grasses within them. Cool season grasses, such as orchard grass, timothy, tall fescue, and Kentucky bluegrass, grow best in cool weather and are commonly found in lawns and pastures. These grasses require relatively high levels of maintenance and offer poor wildlife resources. In contrast, warm season grasses, such as Indian grass, big and little bluestem, and switchgrass, grow best in warm weather. Native grasslands and unplowed prairie remnants are dominated by native warm season grasses. These grasses provide numerous environmental benefits to land managers, including reduced maintenance, drought tolerance, soil improvement, and wildlife habitat.

General Tips on Managing Grasslands

Avoid planting exotics or invasive species. The following are aggressive, exotic species that can take over your meadow: bull thistle (*Cirsium vulgare*), Canada thistle (*Cirsium arvensa*), crown vetch (*Coronilla varia*), Dame's rocket (*Hesperis matronalis*), nodding thistle (*Caduus nutans*), purple loosestrife (*Lythrum salicaria*), spotted knapweed (*Centaurea maculosa*), and Queen Anne's lace (*Daucus carota*).

Consider planting warm season grasses that are native to your area. Not only are they attractive, but warm season grasses

will generally outperform cool season grasses under drought conditions and in poor soils. This means that maintenance is lower for these native species. Native grasses also provide dependable forage production for livestock and wildlife. Their extensive root systems provide excellent soil-holding capabilities and, thereby, reduce erosion.

If establishing a prairie, closely follow recommendations for preparing the site and seeding, watering, and fertilizing grasses. Several organizations, including seed companies (e.g., Sharp Bros. Seed Company, Ernst Conservation Seeds), the Natural Resource Conservation Service, and state natural resource/wildlife agencies, provide detailed information on how to establish native warm season grasses in a given area. Be careful not to overseed a grassland.

Avoid haying or mowing from April to August. Haying often coincides with peak nesting of grassland songbirds such as bobolink, Eastern meadowlark, and grasshopper sparrow. Many bird nests, young birds, and deer fawn are lost each spring due to mowing hay or brush-hogging



Purple coneflowers are a beautiful way to incorporate native plants in a landscape.

fields. If possible, avoid mowing or clearing thick, brushy areas from April to August. In addition, place the cutting blade to a height of 6 inches to prevent further loss of wildlife.



Without regular disturbance, woody plants can invade grassland habitats.

Limit invasion by woody vegetation. If you want to maintain the grassland, woody plants must be controlled through mowing, burning, grazing, or cutting. For best results, woody plants should represent less than 5 percent of the grassland.

Maintain the largest grassland area as possible. Few people realize that many grassland birds are area sensitive (i.e., they require large areas of habitat to live and reproduce). In fact, hundreds of acres of native grassland may be necessary to attract species like grasshopper sparrow, bobolink, and Henslow's sparrow. Some experts recommend a minimum prairie size of 100 to 250 acres to attract and sustain grassland bird populations. In

addition to managing a large grassland, keeping adjacent habitats open (e.g., agricultural fields, pasture) may attract area sensitive species.

Carefully locate hedgerows and lone trees. Recent evidence suggests that hedgerows may reduce the nesting success of grassland-nesting birds because predators may be attracted to the taller woody vegetation. Unlike the benefits that hedgerows provide in shrubby, upland habitats, certain grassland species may avoid prairies that are fragmented by hedgerows, as they can divide the grassland into smaller habitat patches. In light of this, avoid establishing hedgerows and other woody vegetation through the center of grasslands. Instead, try to locate woody plants near edges.

Avoid prairie monocultures. Focus on structural and species diversity of grasses and forbs. A prairie dominated by one grass, even if a native species, will provide fewer structural and food resources to wildlife than a prairie with a mix of native forbs and grasses.

When possible, remove tiles to restore natural moisture gradients. Each plant species thrives within a particular microenvironment (e.g., soil type and moisture level). Restoring the natural moisture gradient to the area will allow for the co-existence of wet and upland prairie species.

Burn, but avoid burning too frequently. There can be too much of a good thing. Although native prairies usually require active management and/or prescribed burning, burning at too-frequent intervals (less than 3 to 5 years apart) can create prairies dominated by dense grasses. Grass density increases by 20 to 40 percent every time you burn. At high grass densities, forbs cannot compete, and the structural complexity of the grassland decreases—and with that the value to wildlife decreases.

Consider strip-disking to increase structural and compositional diversity. A variety of annual grasses and forbs will grow in areas recently disked. When disked for wildlife, the goal is not

to uproot and turn under all existing plant matter. Instead, vary the disking intensity to expose bare soil in certain areas and stimulate stem growth in others.

All else being equal, mow or burn in the spring rather than fall to retain winter cover. Many birds will use grasslands during the winter months. If you can retain vegetation on the site, you will be more likely to provide habitat for birds like Fox Sparrow and White-throated Sparrow.

Be patient. Native prairies and grasslands undergo succession. For example, some species, like Purple Coneflower, may not become established until the third year. Some undesirable exotic species, such as Queen Anne's Lace, naturally disappear after the first or second year of grassland management. Notice how grassland species will change with the changing structure of the prairie as well. For example, some species prefer short, sparse vegetation, whereas others like taller, dense prairies.



Part Four: Parkland and Golf Course Management

Parks and golf courses often contain areas of forest, grassland, or shrubby habitats, and information on these habitats is included in the preceding sections. In addition to these “natural” habitats, parks and golf courses usually contain more intensively managed areas. These areas often have scattered large trees with lawn underneath and may contain small islands of “natural” habitats. Parks and golf courses can be managed to allow the persistence of some natural areas and can provide excellent wildlife habitat along with aesthetics and recreational opportunities. Promoting positive interactions with wildlife may even enhance the enjoyment of clientele and, thus, increase business. For example, many golfers enjoy watching birds on their outings and may choose to frequent golf courses that attract large numbers of birds.

A wide variety of management approaches are used in parks and golf courses, and each has its own set of pros and cons for wildlife. Even so, there are several wildlife-friendly strategies that can be adopted on nearly all park and golf course properties.

General Tips on Managing Parks and Golf Courses

Reduce the amount of lawn. Not only are lawns environmentally and financially costly to maintain, but turfgrass offers little value to wildlife. Almost any unpaved ground cover is more beneficial to wildlife than lawn.

Reduce use of pesticides and herbicides. Pesticides and herbicides can harm wildlife either directly by killing them or indirectly by poisoning their plant and animal food sources and, in turn, expose them to the chemicals or reduce their food supply. Chemical exclusion strips approximately 30 to 60 feet wide at the edges of fields or lawns adjacent to more natural areas can increase



Because many species of wildlife consume oak acorns, oaks are excellent species to plant or maintain in parks.

the abundance of birds, small mammals, and butterflies in these areas. Encourage natural control agents such as ladybird beetles, some wasps, and birds. If you must use pesticides, avoid highly toxic or broad spectrum chemicals that kill most invertebrates.

Use native plants in landscaping whenever possible. Native plants generally support more species of wildlife than non-native plants. In addition, plants that are native to the soils and climate of Ohio will usually require less water, less fertilizer, and less effort to maintain.

If Not Lawn, Then What?

- Native species as ground cover
- Native trees or shrubs
- Butterfly or hummingbird garden
- Annual or perennial flower beds
- Hedgerow
- Meadow or prairie patch
- Water garden or pond
- Rock garden
- Mulched path

Plant or retain trees that produce fruits and seeds (mast), such as beech, oak, cherry, and dogwood. Hard mast (e.g., acorns and beechnuts) is especially important in the fall and winter diets of many wildlife, such as white-tailed deer, wild turkey, woodpeckers, and squirrels. Soft mast (e.g., cherries and grapes) is used by many animals, especially migrating birds, during the late summer and early fall.

Provide small groups of conifers (such as pine and hemlock). Because they keep their needles year-round, conifers provide important winter cover for wildlife, especially in snowy areas. Their seed-bearing cones also are a food source for many animals.

Promote complex vertical structure in forests. Allow understory and midstory layers (shrubs and saplings) to persist beneath canopy trees. These forest layers will increase the naturalness of the park, as well as improve the quality of wildlife habitat offered. On the other hand, if you are trying to restore an oak savanna, then you will want to avoid thick understory layers.

Retain dead trees (snags) and living trees with cavities. Snags are standing dead trees left for wildlife to use for food, shelter, and nesting. Tree cavities, even in living trees, also provide shelter, dens, nests, and foraging sites for many wildlife species. In fact, cavity-nesting birds often comprise 20 to 40 percent of the birds in the forest, but a variety of mammals, amphibians, and reptiles regularly use cavities too. Trees with fungal conks, dead branches, old scars, and soft or decaying wood (especially heartrot) are good indicators of cavity potential. In addition, trees with loose, rough, or deeply furrowed bark can provide foraging sites for birds and roost sites for bats. If leaving dead or decaying trees is not an option, artificial nest cavities can be created for certain species like Eastern bluebirds. Although safety is always an important concern, not every dead tree or limb poses a serious safety threat. Dead trees



Standing dead trees are important foraging and nesting resources for wildlife.



Parks provide excellent opportunities to balance human and wildlife needs.

and limbs located away from heavily used areas, for example, can often be maintained. Consult with a professional arborist or forester for advice.

Leave natural areas of the largest size possible.

Areas that are intensively managed for recreation (e.g., picnic areas and playgrounds) are usually less attractive to wildlife than more undeveloped areas. Leaving certain areas free from recreational development will provide wildlife both habitat and areas free from high levels of disturbance by visitors. Protecting large patches of natural vegetation will reduce negative effects associated with habitat edges and will increase the likelihood that the area will be quality wildlife habitat.

Cluster golf course or park elements (e.g., buildings, roads, parking lots, and fairways) to

leave larger natural areas. Locating important elements close together can save time and money on development and maintenance and helps to keep large areas of the property less disturbed.

Develop and build only in areas where habitat quality is relatively low (that is, where wildlife are unlikely to thrive). For example, if you need to build playground and restroom facilities in the park and know that one potential location is an area already degraded by exotic plants and heavily used trails, you can select that location for the development. This will keep intact your high quality areas that have wildlife potential.

Avoid bisecting habitat patches with roads, trails, fairways, or paths. Instead, place these features along the perimeter of the habitat patch.



Eco-Friendly Turfgrass Management

- **Cut your lawn at a proper height (3 inches)** to reduce water loss and reduce vulnerability to pests. However, try not to remove more than 1/3 of the grass blade in a single mowing.
- **Keep the lawn mower blades sharpened.** This can ultimately reduce the need for pesticides because dull blades can tear grass and increase vulnerability to disease and pests.
- **Use a mulching mower and allow grass clippings to remain on the lawn.** This reduces the space they occupy in landfills as well as adds nitrogen to the lawn.
- **Reduce water consumption.** Water lawns early in the morning and avoid overwatering. Most lawns only need 1 inch of water each week, which is only 1 to 1.5 hours for the average sprinkler in the absence of rain. Soaker hoses and drip irrigation systems allow less evaporation than sprinklers. Avoid overfertilizing lawns (more lush lawns need more water).
- **Use a variety of lawn grass that requires less pesticides, water, and fertilizer.** Plant drought-resistant species, such as tall fescues.
- **If a pesticide must be used, select from some of the new, more environmentally sensitive products.** New chemical and biological products are continually being developed. Ask a lawn care professional for the latest information on environmentally sensitive options.
- **Select low-maintenance turfgrasses that grow slowly and require less mowing.** Lawn mowers can emit 10 to 12 times as much polluting hydrocarbons as the typical automobile. Reducing the operating time of these machines will keep the environment more healthy.
- **Reduce air pollution.** Prevent spilling gasoline and do not overfill your mower. Change oil and replace air filters regularly. Choose “cleaner” gasoline equipment, electrical equipment, or manual tools when possible.





