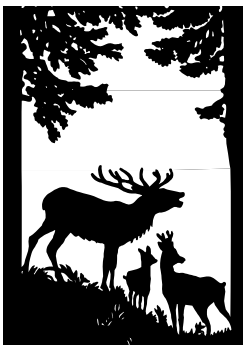
You and Your Forest: Letter 4

Enhancing Forest for Wildlife

Many landowners state that the benefit of enjoying the opportunity to observe wildlife in their forest is an important consideration to them. And by creating greater diversity in habitat this will result in greater diversity in wildlife. No matter what size area you have, there are basic needs that must be met in order for wildlife to flourish. Before a landowner can evaluate and make habitat improvements, there are some basic concepts that need to be understood. So, let's start with some of these.

Habitat Requirements



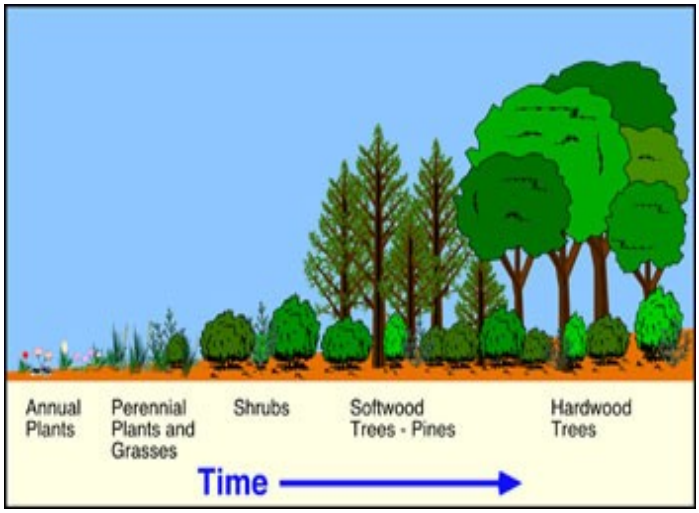
There are four basic habitat requirements for any species of wildlife. They are food, cover (or shelter), water and usable space. Each individual species has its own particular requirements. Knowing these requirements for the wildlife species you are trying to attract (or discourage) will allow you to make good management decisions. Habitat requirements may change with the seasons, so keep this in mind as well. Once you know what species you would like to encourage and find out about their habitat requirements, you should evaluate your area to determine if it will provide the required elements. Modifications may improve the habitat to a level that will sustain the desired species. Other times, you may find changing the habitat to meet requirements may involve more effort or financial considerations than you are willing or able to do.

Successional Stages

Successional stages are the different stages of plant cover on a particular area. The stages generally run from:

- bare ground
- annual grasses and weeds
- perennial grasses and weeds
- shrubs
- young trees
- mature trees

Forest succession varies due to many factors - soil condition, topography, frequency of natural disturbances, population of deer, and amount of competing vegetation. The kind and abundance of wildlife also changes as a forest matures due to the quality and the quantity of food, water, cover, and habitat change. Many wildlife species will require multiple successional stages in order to satisfy their habitat requirements. Landowners should keep in mind that the greater the diversity of ecological succession, the richer the diversity of wildlife. It should be noted that invasive plants can become established in multiple successional stages, especially ones precipitated by disturbances.. Become familiar with different invasive plants that have succession preferences in order to anticipate potential problems.



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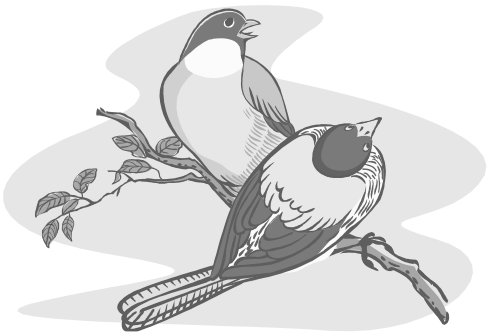
Carrying Capacity

Carrying capacity is the term used to describe the limit of animals that can live in a particular habitat. This is based on the amount of space, the quantity and quality of food and water, and the amount of shelter/cover in the given area. Carrying capacity is seasonal—for example, in winter, food resources are often more limited than in early summer. If the landowner's goal is to increase carrying capacity for a specific population, the limiting factor of food, water, shelter, or space must be increased to sustain the additional desired population.



Space and Cover

Space and cover encompass the general layout and size of the habitat. Different layers of vegetation and their arrangement in relationship with each other effect the wildlife and their use of the habitat. For instance, some species may require the ground layer for food and the shrub or tree layer for cover. Edges (where two or more types of land cover types meet) attract or discourage wildlife inhabitants. How the cover types are arranged determines the ability of the habitat to support wildlife. Areas of continuous habitat, sometimes referred to as corridors, allow animals to travel from one habitat to another. These corridors are important especially in areas where fragmentation of habitat has occurred due to human or natural disruption.

Management Practices

In order to increase the opportunity to view wildlife, the habitat on your property may need to be enhanced. There are a number of common management practices that can be undertaken to improve the quality of habitat on your land.

Brush Piles

This is exactly what it sounds like. Leaving piles of brush, branches from pruning or harvesting trees, or small saplings provides cover and den areas for a variety of wildlife. They are particularly useful for small mammals such as rabbits and quail. (Conversely, if you are finding that you are experiencing damage from rabbits, rather than adding brush piles to your area, you will want to be sure to remove piles. This will help discourage rabbits from utilizing the area.)

Songbirds will perch on the piles if they are located near food sources. Care should be taken in locating the piles. If they are placed at an edge where there is a high contrast, from grass to mature trees for example, piles will provide needed cover near food sources in the open area.

Piles should be loose with the largest material on the bottom allowing for grasses to grow in between while leaving room for animals to get into the pile. Piles should be three to five feet high and up to fifteen feet in diameter.

If piles are located near a water source, they may be used by reptiles and amphibians as areas for breeding, resting, and feeding. If piles are placed near feeding or nesting sites for songbirds, they will use them as a perch site.

Plantings

Planting provides benefits to wildlife if the plant species are absent in the current habitat. Determine the wildlife species that you would like to attract and evaluate your area based on the species' particular need. The following are a few general suggestions of plantings that can assist in improving habitat. Plantings should not be limited to the following as there are many options available. Further research on your part, as well as talking with the Cooperative Extension office, Master Gardeners, and local Soil and Water Conservation District will provide you with many more options that are too expansive to list in their entirety. Most importantly, remember to choose trees or shrubs that offer wildlife benefits but are adapted to your climate.

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- Mast trees—mast trees are trees that provide fruit or seed as food for wildlife. (Specifics about what, how, or when to plant can be obtained through your local Soil and Water Conservation District or from your Natural Resource Conservation Service). Reading about your identified species food requirements will provide you with a basic understanding of what to plant. Deer find acorns as attractive as most children find candy. Oak, hickory, and beech trees will also provide food for chipmunks, squirrels, turkey, blue jays, ruffed grouse, bears, and wood duck. Soft mast trees such as Mountain Ash provide a food source for birds into late fall. Remaining crab apples will help sustain American Robins that migrate before all snow cover has left. Plant mast trees in the early spring while they are still dormant. Mast trees provide a supplemental food source as well as providing additional nesting and cover sites.
- Evergreens and conifers— these trees provide cover for a variety of species. Ruffed grouse use hemlocks for shelter. The American Robin prefers to nest in these trees as does a variety of other bird species. Red squirrels enjoy the snack pine cones offer. The evergreens provide maximum shelter in the harsh winter months especially during very cold temperatures or storms.
- Fruiting shrubs and vines—if food sources are limited in your habitat, these are an excellent way to increase this limiting factor. Blackberries, elderberries, grapes, sumac, trumpet vine, and viburnums are a few examples of such food sources.
- Grasses, wildflowers, and forbs—planting grasses provides insects for birds and young ruffed grouse and turkeys. They also provide food for deer and rabbits and hunting sites for owls, foxes, snakes, and hawks. Clovers and trefoils are examples of grasses that provide food sources. Wildflowers such as cardinal flower and bee balm provide nectar for butterflies and hummingbirds. New England Aster and Joe-pye weed are also good food sources.

Plantings should encourage the safe transportation between two areas of cover. They are also useful around the homestead and along edges between fields and woodland.

Snags and Woody Material

Snags are dead or partially dead trees that are still standing. They often have cavities or are hollow. These provide a source of shelter for cavity dwelling animals. They are also an important food source as many insects use them to lay their eggs. The hatching insects attract woodpeckers and nuthatches. The moist areas of decaying trees often produce fungi and mushrooms providing a food source for chipmunks and squirrels.

Caution should be used when leaving snags standing. As long as there is not a safety issue involved, some snags should be left for wildlife use. Eventually snags fall and become part of the down woody material. These are useful to a number of wildlife species. The usefulness varies with the stages of decomposition. Downed logs provide drumming sites for ruffed grouse as well as denning sites for a variety of mammals such as opossums, rabbits and skunks. Decomposing logs provide the moist, cool habitat required by many amphibians and reptiles.

Water, Water, Water

Water is an element that cannot be overlooked when creating or improving wildlife habitat. Many animals get sufficient water from their food sources but still appreciate the opportunity to have a place to get a drink. Additionally, water is used to bathe in, to provide breeding grounds for amphibians and reptiles, and is a source of insects and plants for food.

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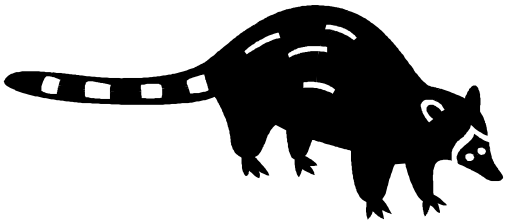
Natural seeps provide fresh water year round and are an important site for wildlife. They may be the only fresh water source during winter. The temperature of the seep water allows spring vegetation to get a head start on other areas. This provides a critical early food source.

Vernal pools are ephemeral wetlands which fill annually from precipitation, runoff and rising groundwater. Most years they become completely dry, losing water through evaporation and transpiration. The wet-dry cycle prevents fish from becoming established , yet present rich, although temporary, habitat for many species including frogs and salamanders. During the hot summer, the mucky area left behind by seeps provides relief to amphibians and reptiles. Determining if your land has seeps or other water sources is necessary. If there is not a water source of some type, it may be necessary to artificially provide a water source.

Wildlife Damage

In attracting wildlife, sometimes things get out of hand. Unwanted visitors may take up residence where you prefer they did not. Damage to young saplings by rabbits during the winter, skunks living around the home, and raccoons moving in the attic are just a few examples. If you experience wildlife issues, contact the wildlife biologist at DEC or call the Cooperative Extension office for information on the local wildlife nuisance control person.



So, Who is Here?

In evaluating your area, it is important to understand what species you already have living in your woodlands and backyard. This information can be obtained through observation. Start off with spending some time out in the woods watching to see what animals you see moving about. Good field guides and binoculars are particularly useful tools. Remember to look up as well as down and all around as the old saying goes. Sitting in an area quietly will provide the opportunity to see animals that may otherwise hear you moving about and scatter before you see them. Early morning and just before dusk are optimal observation times. While walking your land, pay close attention to any tracks or signs left by animals. These include scat (animal droppings) and browsing signs. Opportunities to learn more about what animals eat, what particular buds or branches are included in field guides as well as outdoor nature centers that often offer hands-on learning opportunities. Start noticing the natural events that occur in particular months in your area. When do you start seeing Robins? Bluebirds? Hear Spring Peepers? How do these events tie in with other seasonal events such as plant emergence, etc.?

Wildlife Species & Habitat Requirements

Here are some species of wildlife you might want to attract to your forested lands with some of their general habitat requirements.

Wild Turkey—The Wild Turkey is a member of the Galliformes bird order. It is the largest game bird in North America. A male turkey weighs an average of 14 -20 pounds while an adult female will weigh an average of 8-10 pounds. The turkey requires large areas of young and mature trees with areas of open grass and shrubs. Mature trees provide roosting sights. Grasses, legumes, nuts, acorns, and insects are turkeys' main food sources. Forests that have a variety of trees is more valuable to turkeys than those containing only a few species. Deer often consume the same food as turkeys so an abundance of food sources increase the chances of turkeys inhabiting your woodlot. Leftover grains in agricultural fields are also an important source of food for turkey, as are berries. Turkeys have keen eyesight and hearing. These are their main defense against predators. In evaluating your site for turkeys, ask the following questions:

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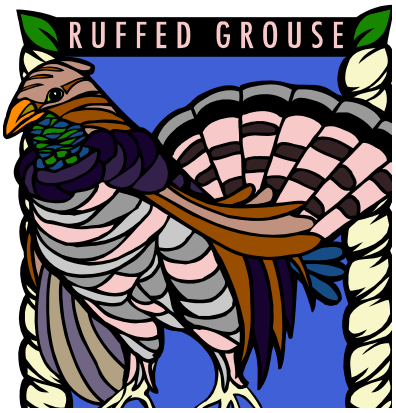
- Are there large trees for roosting?
- Is there water present?
- Is there enough ground cover that is thick and dense?
- Are there open areas where grasses can grow?
- Are there mast trees like oak, hickory, or beech?

Hairy or the Downy Woodpecker— These birds use wooded and riparian areas. They require trees or older shrubs for their habitat. Holes are excavated in mature and dying trees as well as snags. Woodpeckers forage on animal matter, such as insects, caterpillars, beetle larvae, and beetles. Fruits and nuts supplement their diet. Snags, tree stumps, downed logs, and tree trunks are all places they will forage for food. To attract woodpeckers to your area be sure to leave some snags standing. Keep areas of mature and dying trees as well. Maintaining one snag per acre in wooded areas is recommended. Softwood trees should be planted. Water is not a limiting factor as their normal food source seems to provide an adequate amount.

White-tailed deer— White-tailed deer can sometimes be found a nuisance if their habitat and human habitats overlap. This situation depends upon the humans' perspective. If landowners wish to attract white-tailed deer, the following habitat requirements should be addressed. Deer look for grasses, shrubs, and trees all interspersed. They will eat a variety of grasses, shrubs, waste grains. Nuts are a favorite food of white-tail deer. They use woodlands and tall shrubs for cover as they travel. Along riparian areas, tall aquatic vegetation is utilized for cover.

Planting food plots of grass and clover in areas that have trees will provide additional food sources if food is a limiting factor in your forest. Timber management in areas that have dense forests made up of mature trees should include selective cutting. Planting mast trees will provide favorite nut foods. White-tail deer drink water when it is available. If there are agricultural fields, eliminate fall tillage of grain crops near the woodlands. (If deer become overpopulated, they can seriously degrade habitat.)

Ruffed Grouse— Grouse are primarily plant eaters. They will also eat some fleshy fruits. Insects are eaten by young. Primarily they will eat the twigs, buds, and flowers of shrubs and trees. Buds of aspen and other deciduous trees are necessary for winter survival food. Nesting cover is provided by fairly dense hardwoods and located near feeding grounds. Nesting sites are often located near drumming sites. (Drumming sites are decayed logs on which the male grouse beats his wings when looking for a mate in early spring.) Be sure to leave a drumming log if you want to encourage ruffed grouse. Escape cover is provided by thickets, dense shrubs, and young timber. They use forbs and grassy areas for brooding sites. Evergreens, especially hemlock, provides winter cover. Tips for improving ruffed grouse habitat include clear cutting small areas to encourage grasses and aspen (poplar) tree growth. Establish small, dense evergreen patches for winter cover. Avoid single species, even-aged stands of trees.



Sources

- Wildlife Habitat Evaluation Program National Manual
- 4-H Wildlife Project Manual
- Your Backyard Wildlife Garden by Marcus Schneck
- Working Trees for Wildlife—USDA National Agroforestry Center
- Management Practices for Enhancing Wildlife—Penn State Fact Sheet
- A Field Guide to the Animals of Vernal Pools by Leo Kenney and Matthew Burne

We're Not Seeing the Forest for the Trees!

In the Hudson River Valley and Catskill Mountain region of New York State trees are the dominant vegetative species of the terrestrial environment, representing 65% of the landscape. This is particularly true of the upland areas and tributaries. In addition, private forest owners (PFO) control over 85% of these forest lands, the balance being in parks, preserves, other protected areas and the forest industry. Many of these landowners are unaware of the responsibility they have as stewards of forested property and the role their forests play in providing crucial ecosystem services to the community at large.

Values of Forested Land

Drinking Water Supply- Privately owned forested lands help to serve as natural filters and reservoirs for water, helping to save billions of dollars in filtration and storm water control.

Clean Air & Carbon Sequestration -For every ton of wood about 1.5 tons of carbon dioxide are removed from the air and replaced with 1.1 tons of oxygen. A single tree can absorb more than 10 pounds of carbon dioxide per year. Trees also remove other air pollutants.

Endangered species and Biodiversity- Approximately 90% of endangered species depend on forests for the habitat they provide. Biodiversity is sustained in healthy diverse forests.

Healthy Rural Economies and Working Forest Landscapes– Well managed private forested lands contribute jobs and healthy economies in rural areas. Recreation, tourism, hunting, fishing, and forest products bring income to private forest owners and the communities where they reside. In return, these communities supply the workforce and infrastructure needed to maintain privately owned forest lands.

Recreation- Privately owned forests provide healthy recreation opportunities including camping, fishing, birding and hiking. For example, there were almost 4 million participants in wildlife watching in New York State in 2001, who spent a total of $1.4 billion in wildlife-watching related expenditures.

Hunting- More than 642,000 people hunted in New York State in 2001 and spent over $822.2 million in hunting related expenditures.

Challenges & Threats to Forested Land

Increasing Development Pressure- Forests are lost forever once they are converted to development. From 1963 to 2002, the US experienced a 13 million acre net loss of forested land, larger than Vermont and New Hampshire combined, to non-forest uses.

Shrinking Parcel Size- In New York State the average acreage has dropped steadily from 44 acres in 1978 to less than 30 acres today. This trend is expected to continue, with an average of 17 acres per owner predicted by 2012, although today, in the eastern Catskills, it is 12 acres! As tracts of private forest land become smaller and more fragmented their ability to provide important ecological services, such as filtering water and providing suitable wildlife habitat decreases.

Minimal Land Management Planning- Management planning helps private landowners make a long term commitment to the land. Yet current estimates suggest that only 3% of PFO have a written management plan.

Harvesting without Professional Advice- Without professional forest management advice PFO may engage in management practices that degrade the quality and productivity of their land for years to come. Only 22% of PFO have sought professional advice prior to timber harvesting on their land resulting in 8 out of 10 harvests being exploitive.

Declining Forest Health and Ecological Values- Unhealthy forests can lead to degraded water quality and wildlife habitat and limit the opportunities for recreation. PFO are threatened by invasive species, insects, diseases and wild fire threats. PFO also often lack the financial and technical resources needed to treat their land and minimize these threats.

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Changing Private Forest Owner Profile- PFO are changing from largely resident farmer and blue-collar worker to non-resident, white collar, professional, and retired. The average age of private forest owners is 60+ years. Consequently, a significant portion of private forests will soon change hands, from current owners to heirs and new owners, often splitting forests among several heirs or selling smaller parcels to other owners.

Diverse ownership objectives—Many PFO cite scenic beauty, hunting and fishing, biodiversity conservation (wildlife enhancement/conservation), preservation, privacy and family legacy as the primary reasons for owning land.

Global Climate Change– Consequences of global climate change may allow more insect pests and diseases to spread north, severe weather disturbances will impact certain tree species and species ranges will move northward.

CCE's Agroforestry Resource Center

Our Mission Statement

The mission of the ARC is to ***sustain the economic, ecological and aesthetic values of forested land***. This mission is pursued through education and research that supports integrating economically and environmentally sound farm venture, woodlot management and market development for forest farming products as well as the expansion of a land use ethic capable of sustaining both the economic and ecological values of forested land.

Program and Resource Examples

- Diseases of Pests of the Forest
- Streambanks and Buffers: Trees, Landscaping and Healthy Streams
- A Municipal Officials Guide to Forestry
- Wildlife and Forestry
- Ginseng: A Primer for Beginners Workshop
- Trained Logger Certification Program for regional loggers.
- A Forest Primer for Woodland owners
- You and Your Forest letter series
- Forestry Practices and Creating Pasture
- Heating with Firewood: A Workshop for Homeowners
- Growing Shiitake Mushrooms for Fun and/or Profit
- Silvopasture or Grazing Animals in the Forest
- Invasive Forest Pests

Facility

- ✦ Interpretative displays of state and regional organizations relating to forestry and agriculture.
- ✦ Modern conference and classroom featuring distance learning and internet video-conferencing capabilities.
- ✦ 142-acre model forest showing Best Management Practices to protect water quality, demonstrations of silviculture practices and alternative forest income opportunities.
- ✦ Conference and meeting room space. This facility is available for use by outside organizations. Contact us for further information regarding availability and fees.
- ✦ Easily accessible from the New York State Thruway and other major routes.

Our Partners

Watershed Agricultural Council

Cornell University

Cornell's Master Forest Owners

Greene County Legislature

Columbia-Greene Community College

Hudson Mohawk RC&D Council

Greene County Soil & Water Conservation District

New York Forest Owners Association

Catskill Forest Association

Catskill Center for Conservation & Development

Greene County Maple Producers

Catskill Mountain Beekeepers Club

The pond at the Siuslaw Model Forest

CORNELL COOPERATIVE EXTENSION'S
AGROFORESTRY RESOURCE CENTER
& THE WATERSHED FORESTRY PROGRAM
OF THE WATERSHED AGRICULTURAL
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