Agroforestry

Working Trees for Wildlife

***Working Trees* provide wildlife habitat and contribute to the social and economic well-being of landowners and community residents.**

Photo by Steven Katovich, USDA Forest Service

Sustaining quality wildlife habitat is challenging, especially where agricultural fields offer little plant diversity and in suburban areas where human development has fragmented the landscape.

Increasingly, these areas are managed primarily for people. But, an amazing variety of animals call the same areas home and depend on us to make sure that their needs are met.

Working Trees are trees and shrubs, especially native species, that are in the right place to do a specific job. Whether *Working Trees* come in the form of a windbreak to enhance crop or livestock production or a riparian forest buffer to filter stormwater runoff, they add critical wildlife habitat to the landscape.

The benefits of *Working Trees* extend far beyond providing food, cover, and nesting sites — all essential wildlife habitat components. *Working Trees* add diversity and help reconnect the landscape by creating travel corridors for wildlife. But, remember, not all wildlife species are benefited by trees.

Integrating *Working Trees* onto the land can add a new source of income, improve our environment, conserve natural resources, increase property values and save time, energy and water.

Read on to discover how *Working Trees* support a seemingly endless variety of wildlife, while they enhance property, income, and our lives.

What Is Habitat?

All animals need a unique combination of food, water, cover, and territory. This environment in which an animal lives is called habitat and how these features are woven together on the land affects the quality of their habitat. All of these habitat requirements must be met as an animal's needs change throughout the seasons.

Territory

Animals move daily, searching for food, or as they migrate to wintering or breeding grounds. Home range varies from less than one acre for beetles to thousands of square miles for bears.

Nocturnal animals, like the pocketed free-tailed bat, sleep during the day and are active at night.

Original photo by Merlin Tuttle, Bat Conservation International. Used with permission.

Food

Most wildlife have food preferences and diets that change with the seasons. Trees and shrubs provide seeds, berries, nuts, and fruits. Some animals also eat the leaves, twigs, roots, buds, stems, grasses, mosses, and lichens that are found in a woody environment.

Water

Almost all animals need access to clean water to survive — some simply need drinking water, while others depend on water to reproduce and live. Agroforestry practices protect water quality and provide travel lanes to water sources like farm ponds, streams and wetlands.

Cover

Animals use all tiers of *Working Trees*, from the tree canopy down to burrows in the ground. They breed, roost, nest, rear young, regulate body temperature, hide, and escape predation in tall grasses, dense shrubs, leaf litter, downed logs, stumps, rock piles, and brush piles.

Benefits

Migratory birds, like the American tree sparrow, spend the winter in the U.S. and migrate to northern Canada to breed and nest.

Original photo by Dave Menke, US Fish & Wildlife Service

Social

Working Trees and wildlife provide a sense of place to an area and attract families, nature photographers, bird-watchers, and those who like to hunt and fish. The linear configuration of some *Working Trees* practices makes them well suited for a trail oriented recreation like walking or bicycling.

Photo by Keith Weller, USDA NRCS

Educational

In a *Working Trees* outdoor classroom, students learn to identify plants and animals, as they become aware of the importance of balanced human and environmental interactions.

Bumblebees are important crop and wildflower **pollinators.**

Original photo by Richard Straight, USDA National Agroforestry Center

Environmental

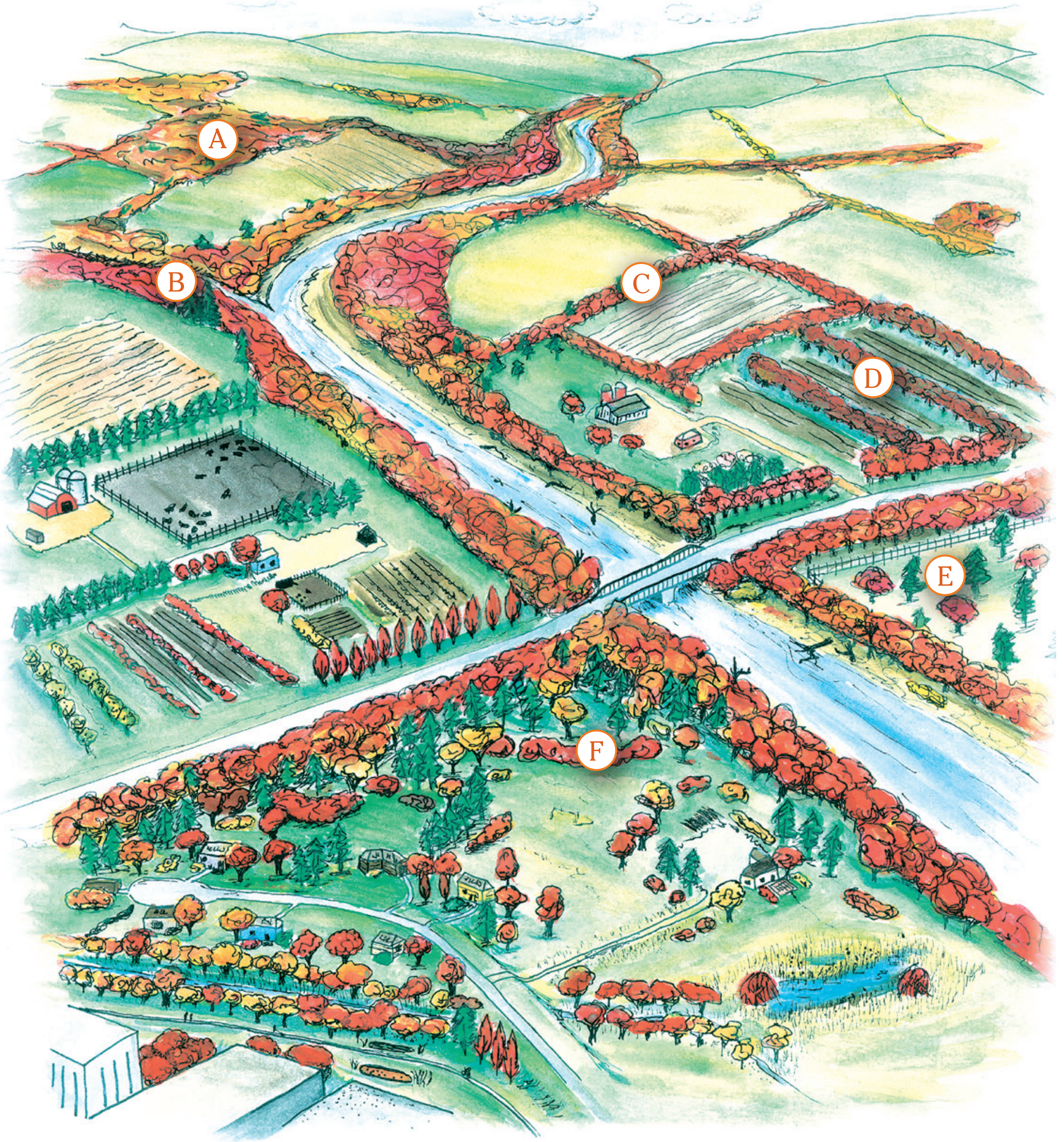
Trees and shrubs clear toxic elements from water and absorb runoff, reduce flooding, and erosion, replenish oxygen, cleanse the air, and enrich and restore soil.

Amphibians live part of their life in water and part on land. Green tree frogs are drawn to open, damp areas and can be found under flakes of bark on trees.

Original photo by Laurie Reid, South Carolina Forestry Commission

Economic

Working Trees and wildlife support a billion dollar industry of non-game wildlife appreciation. *Working Trees* provide habitat for native pollinating insects that provide another billion dollars worth of pollinating services. Properly designed, *Working Trees* can reduce work and home energy consumption.



Make A Difference In Your Neighborhood, Your Landscape

Every landscape area has a dominant landcover, most likely woodland, grassland, row crop, or urban land. Patches and corridors like streams, fence rows, roads, woodlots, or urbanized areas dissect this dominant cover. Some wildlife species inhabit the dominant area, while other species prefer the patches and corridors. In many cases, humans have altered, reduced, and even eliminated natural areas and the vegetative diversity that wildlife depend on, creating a "fragmented" landscape. *Working Trees* help offset fragmentation by providing basic habitat, often a diverse patch or travel corridor to connect other patches of habitat. To help reestablish suitable habitat, first identify regional landscape patterns around you. Then devise a plan that will have the greatest impact for wildlife in your area. Work with your neighbors to have even greater impact.

Working Trees And Wildlife

A. Forest Farming

High value specialty crops like ginseng and goldenseal can be cultivated under the protection of a forest canopy. This provides a harvestable product for the landowner which provides incentive to keep the land in forest habitat. The diversity created with forest farming attracts a variety of wildlife species.

B. Riparian Forest Buffers

Vegetative buffers along waterways create travel corridors for wildlife. While the tree canopy reduces water temperature, roots and fallen debris provide food and hiding places for aquatic animals. Riparian buffers filter nutrient-laden runoff from adjacent land to improve water quality.

C. Windbreaks

Properly designed and located windbreaks protect soil, crops, livestock, buildings, and wildlife from harsh winds. Over 50 bird species are known to use windbreaks during the breeding season. The microclimate that windbreaks create enable native insects to pollinate crops more efficiently.

D. Alley Cropping

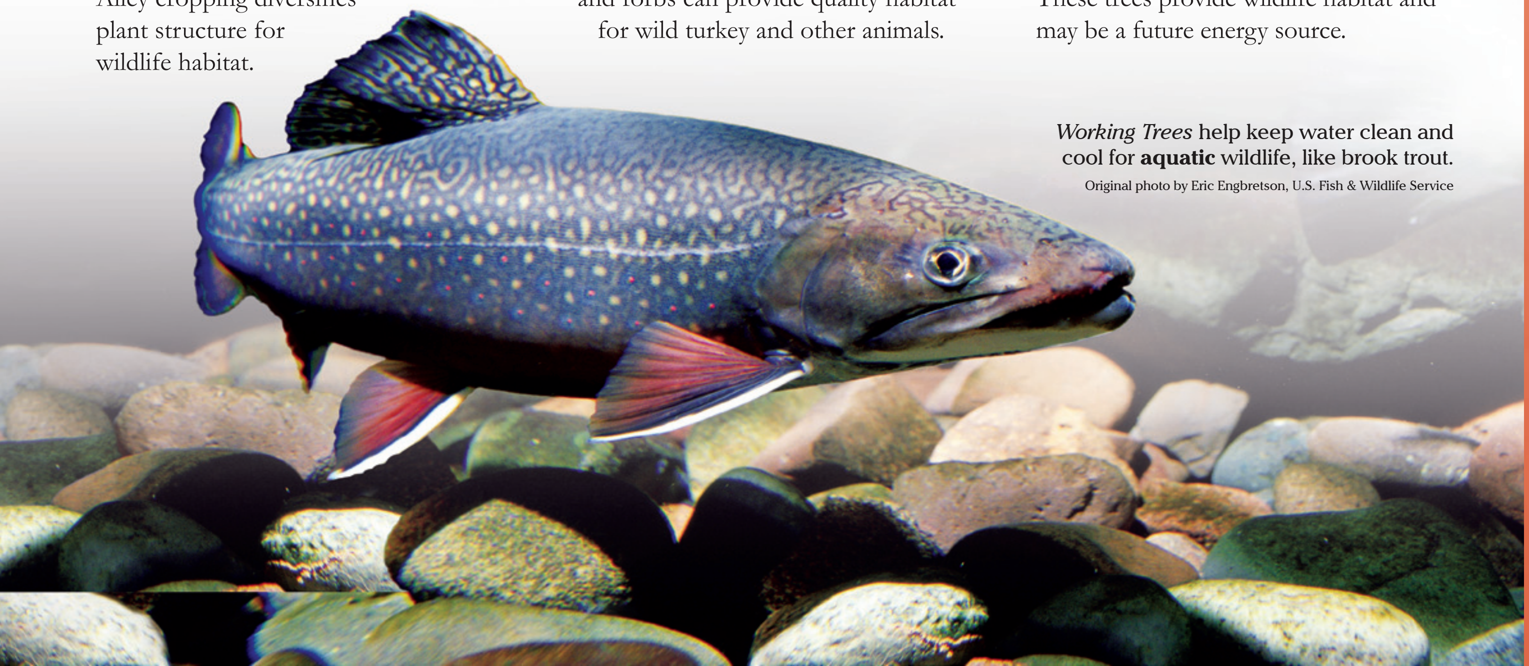
Alley cropping systems are designed to grow an annual crop between rows of high value trees, like oak, pecan or walnut, until the trees are harvested or the alley crops are shaded out. Alley cropping diversifies plant structure for wildlife habitat.

E. Silvopasture

Silvopastures combine trees, forage, and livestock in an intensively managed system. Silvopastures are typically less diverse than a natural forest understory, but incorporating clumps of native grasses and forbs can provide quality habitat for wild turkey and other animals.

F. Special Applications

Many *Working Trees* practices have been adapted to help people and communities deal with problems, such as wastewater and stormwater treatment, with fast growing willows and cottonwood trees. These trees provide wildlife habitat and may be a future energy source.



Working Trees help keep water clean and cool for **aquatic** wildlife, like brook trout.

Original photo by Eric Engbretson, U.S. Fish & Wildlife Service

Designing For Wildlife

Beneficial insects, like the ladybird beetle, help control insect pests.

Original photo by Jon Sullivan.

Placement within landscape

The way elements are arranged within the larger landscape determines the habitat value for different species. Having food, cover, and water located in the same vicinity creates optimal habitat, and must consider the wildlife species' normal range of mobility. For example, if the desired species seldom feeds more than 200 yards from escape cover, it does little good to provide cover a half mile from the food.

Diversity of vegetation

By combining a variety of native coniferous and deciduous trees and shrubs and including perennial and annual herbaceous vegetation, summer and fall fruiting and flowering dates are extended. Use native plants whenever possible because they usually provide better habitat and are adapted to local growing conditions. A mixture of vegetation reduces the possibility of losing all plants to disease, insects or a catastrophic event.

Disturbance

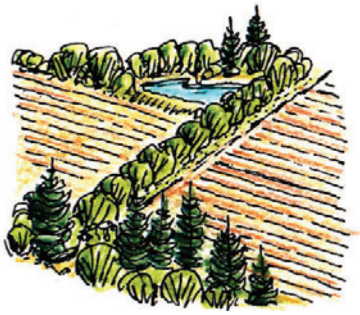
Historically, fire, floods, wind, ice, and wildlife browsing disturbed the land which in turn helped control invasive species and promote native plant growth. Today, vegetation can be managed by mowing, disking, thinning, prescribed burning, and grazing. The extent and timing of disturbances help create diversity and structure. Timing can also minimize impact to wildlife, such as mowing after nesting is complete.

Vertical structure

Different layers of vegetation allow an assortment of wildlife to utilize the same area. Each tier creates a niche in the habitat area. Five or more layers are optimal and include the canopy, understory, shrub layer, herbaceous layer, and the floor.

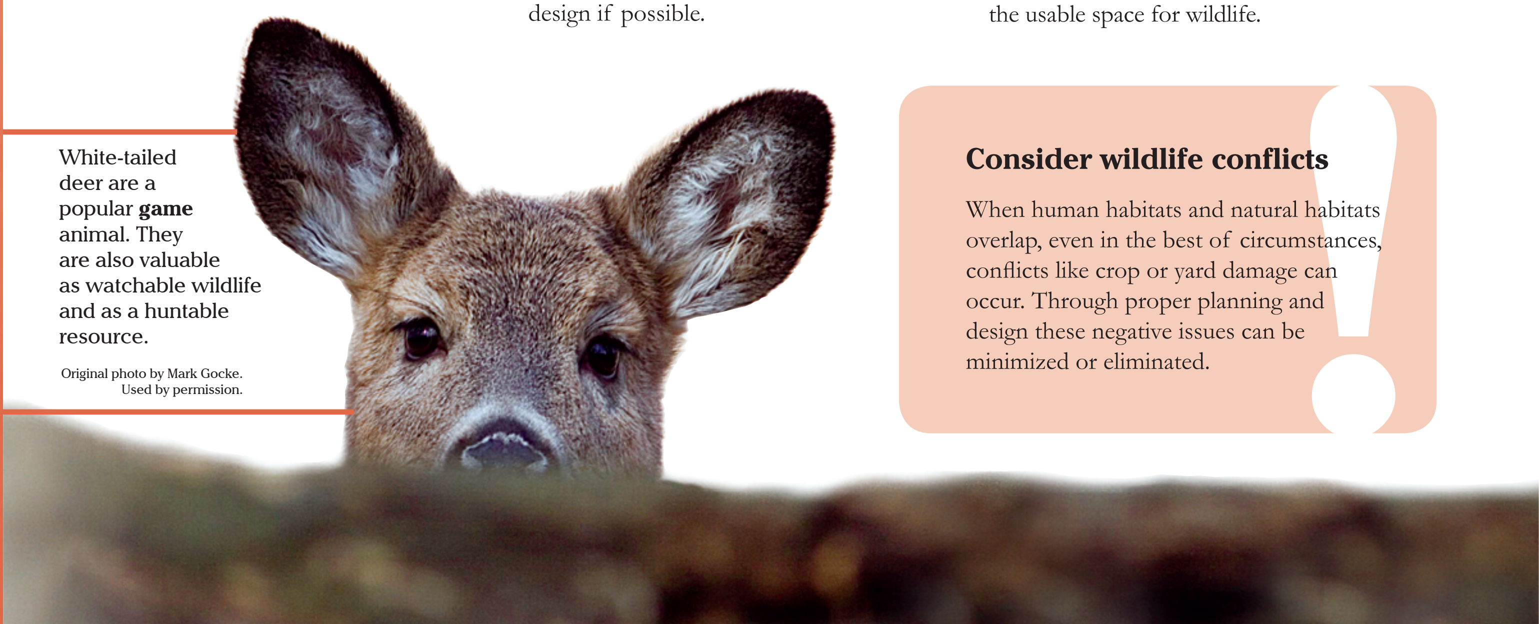
Horizontal structure

Arrange vegetation to provide the greatest width practical and transition smoothly into the adjoining land use. Incorporating clump plantings under a tree canopy or along the outside edge improves horizontal structure. Minimize straight lines in the design if possible.



Travel lanes

Many species of wildlife need a minimum amount of a particular habitat type; if it gets to be too small they won't use it. Vegetation can be used to connect several small isolated areas within a landscape, thus making those areas more viable and increasing the usable space for wildlife.



White-tailed deer are a popular **game** animal. They are also valuable as watchable wildlife and as a huntable resource.

Original photo by Mark Gocke. Used by permission.

Consider wildlife conflicts

When human habitats and natural habitats overlap, even in the best of circumstances, conflicts like crop or yard damage can occur. Through proper planning and design these negative issues can be minimized or eliminated.

Get Started Today

Small changes that you make today will add up to a big difference for wildlife.

Raccoons prefer well-wooded areas. All **mammals** have hair and produce milk to feed their young.

Original photo by Terry Spivey, USDA Forest Service

Let the natural form dominate

Thickets, brush piles, and fallen branches provide cover for rabbits, thrushes, and snakes. Minimize pruning to encourage natural diversity in the structure of plants.

Go native and think seasonal

Native plants are adapted to local soil, rainfall, and sunlight conditions; they are apt to thrive and require less maintenance. Choose plants that provide food throughout the year.

Minimize pesticide use

Pesticides can kill more than just target pests; they harm animals that eat the sprayed vegetation and eliminate pollinators. Consider spot spraying or biological control methods.

Leave snags

A snag is a deteriorating or dead standing tree. Over 85 North American bird species rely on snags to nest, feed, or seek shelter. If they don't pose a hazard, leave snags standing.

Provide artificial shelters or food sources

While your agroforestry planting develops into quality habitat, erect special houses and feeders to attract bluebirds, purple martins, bats, bees, or toads.

Leave woody debris

Limbs, rootwads, and whole trees in streams supply food for critters at the bottom of the food chain and create a place for small fish to hide.

Have fun with the border

An unmowed grassy area alongside *Working Trees* provides spring nesting areas and a fall seed supply. Irregular borders and curves are aesthetically pleasing and provide room to add clumps of berry-producing shrubs that will attract all types of wildlife.

Many **threatened and endangered** species, like the red cockaded woodpecker, are benefited by permanent vegetation, such as a short-leaf pine silvopasture.

Original photo by Bill Lea, Southern Research Station, USDA Forest Service.

Supply rocks and stone piles

Large flat rocks offer a place for lizards, butterflies, chipmunks, snakes, and skinks to bask in the sun, which they need to do to regulate body temperature.

Identify "host" plants

Some animals are dependent on a specific plant. Incorporate host vegetation into your *Working Trees* planting.

Provide perches

Eagles, hawks, and other raptors like to perch on high branches from which they can spot prey. Erect poles to provide perches until trees are established.

USDA National Agroforestry Center

A partnership between:
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Natural Resources Conservation Service

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The USDA National Agroforestry Center (NAC) is a partnership of the Forest Service (Research & Development and State & Private Forestry) and the Natural Resources Conservation Service. NAC's staff is located at the University of Nebraska, Lincoln, NE. NAC's purpose is to accelerate the development and application of agroforestry technologies to attain more economically, environmentally, and socially sustainable land use systems by working with a national network of partners and cooperators to conduct research develop technologies and tools, establish demonstrations, and provide useful information to natural resource professionals.

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