



YOUNG FORESTS AND FARMING PRACTICES CAN BENEFIT WILDLIFE

Whether through nature or management, early succession forests create desirable habitat for a wide range of species.

By Cathryn H. Greenberg, Kendrick Weeks, and Gordon Warburton

There's a tendency to think of the hardwood forests of the South as pristine, undisturbed, and unchanging places that provide habitat for diverse animal and plant species.

Indeed, having large blocks of mature forest is important for many wildlife species. The leafy tree canopy, tall trunks, hard mast, dead trees with holes, cool and shady micro-environment, and thick leaf litter provide places to nest, forage, and hide for birds, salamanders, and other animals. But forests are dynamic, constantly changing over space and time due to the harsh forces of nature. That's a good thing for many "disturbance-dependent species" – those that require open structural conditions created immediately after forest disturbances or at some point early in the process of recovery and maturation.

Historically, natural disturbances such as windstorms, southern pine beetle outbreaks, landslides, and (occasionally) lightning-ignited fires provided habitats for many disturbance-dependent species by creating patches of young forest structure ranging in size from small gaps to large swaths of partially or completely removed forest canopy. These patches of young forest provide shrubby cover, and important food resources for wildlife – lush, young foliage, flowers that attract insects, and up to 19 times more native fruits such as blackberry, pokeweed blueberry, and even cherry, blackgum, dogwood from resprouting tree species.

In addition to forces of nature, just a few hundred years ago some wildlife species that today are extinct (such as passenger pigeons), locally extirpated (elk and bison), or low in number (beavers), were abundant, and created or maintained unique disturbed habitats such as open wetland "beaver meadows," prairies, or open grassy woodlands that would otherwise be rare. By creating these open, early successional habitats these "keystone" wildlife species helped to increase the abundance, diversity, and distribution of many other wildlife species that required them. Hence, natural disturbances historically created conditions

that were suitable for many, but not all, disturbance-dependent wildlife species.

When it comes to wildlife species using early successional habitat, one size does not fit all. Disturbance-dependent breeding birds are associated with open habitats. But many birds require specific early successional habitats ranging from young forest to grasslands. In fact, in the hardwood region, several breeding bird species are uniquely associated with specific human-modified environments.

For example, eastern meadowlarks require open fields with tall, continuous grass cover. Bobwhite quail require continuous, tall grass and shrub cover with open forest canopy or none at all. Golden-winged warblers require open, grassy areas with some shrub and sapling cover in a forested matrix, at higher elevations in the Blue Ridge Mountains (or lower elevations further north). Chipping sparrows need open, mowed areas. Eastern bluebirds require open fields where nest boxes are provided or snags occur. Field sparrows, yellow-breasted chats, and blue grosbeaks seek abandoned pastures and old fields with mosaics of grass, shrubs, and saplings. Song sparrows and northern mockingbirds occur almost exclusively in garden habitats or suburban residential areas.

Since natural forces alone rarely, if ever, create meadows, abandoned pasture, gardens, or suburbs then how did these disturbance-dependent species historically persist within our region?

Of course, there's another agent that often is overlooked by those searching historic disturbances in our hardwood forests: humans. People arrived in this region during the last ice age, around 12,000 years ago – long before the forests we know today were here. Glaciers in North America extended south as far as the Missouri and Ohio Rivers, and east to New England, creating a colder, drier climate that resulted in alpine tundra at the higher elevations of the Blue Ridge Mountains, and jack pine-spruce forests across much of what is now hardwood forest.

When humans first arrived here,

megafauna including ancient and modern bison, elk, primitive horses, woolly mammoths, mastodons, stag-moose, and giant ground sloth, as well as modern wildlife species such as muskox and caribou inhabited much of our region.

As the climate warmed over the next several thousand years, many of these animal species became extinct, and tree species gradually shifted to the oak and hickory forests familiar to us now. Simultaneously, human populations slowly grew and changed from small nomadic groups that foraged for their livelihoods, to centralized, highly organized societies.

By 4,500 years ago, Native Americans cultivated crops and managed forests surrounding and far beyond their settlements by burning frequently to facilitate travel and visibility, promote seed, berry, and nut production, and production of grasses and forage to attract elk, deer, bison, and other game species. These activities increased over time, with a substantial increase in burning by 3,000 years ago. Archaeological research and historical accounts by early European explorers provide abundant evidence that Native Americans created many different types of early successional habitats required by disturbance-dependent wildlife for thousands of years – long before European Americans settled the region.

By creating required habitat conditions for species that would otherwise be rare or limited in distribution, humans – first Native Americans and later European settlers – have functioned as a "keystone species" for thousands of years. By clearing, farming, and frequent burning, Native Americans created settlements, gardens, farmlands, meadows and prairies, open woodlands, canebreaks, and abandoned old fields at varying stages of succession that included successional yellow pine forests. Historically, these human-created habitats allowed many disturbance-dependent wildlife species, with specific requirements for differing kinds of early successional habitats, to occur and thrive within our upland hardwood forest region.



European settlement of the upland hardwood region began in the mid- to late 1700s. By the early 1800s most Native American populations had been severely reduced by disease and warfare, and secondary forests began to overtake their abandoned fields and farmlands. European settlers cultivated large areas, and frequently burned large landscapes to increase pasturage for their free-ranging cattle, pigs, and other domestic animals. Many types of early successional or heavily disturbed habitats were likely at their historical high in the early 1900s due to widespread heavy logging; wildfires ignited both intentionally and by sparks from logging trains; and farming practices that commonly left weedy fencerows, fallow fields, and untilled patches. Finally, the demise of American chestnut created forests with large numbers of standing dead trees, followed by heavily perforated canopies lasting for many years as the “mighty giants” fell.

Today, early successional habitats likely are at an historical low for several reasons. Family-run farming operations have diminished since the 1960s, replaced by industrialized farming practices that use equipment and herbicides to eliminate weed and brush cover. Forests on public

lands have been allowed to mature for the past century, with dramatic reductions in regeneration harvest levels in recent decades. Finally, human population growth, land ownership patterns, urban sprawl, and second homes have fragmented forests and removed large areas from the wildland base.

About 90 percent of the land within the hardwood forest region of the Southeast is in private ownership. Landowners can do a lot to help conservation of both forest species and disturbance-dependent species by maintaining forests and creating different kinds of early successional habitats with small changes in farming practices. For example, avoid mowing or brush-hogging hay lands between mid-April and Mid-August when grassland birds such as Eastern meadowlarks, bobolinks, and grasshopper sparrows are nesting. Leave fallow fields between crop rotations. And keep some of the farming practices “messy” – such as maintaining fencerows, weedy ruderal areas, brush piles, forest edge, and unmowed areas in hay- or crop fields.

Even “novel” places, like utility rights-of-way can provide good habitat for some disturbance-dependent species. A heavy forest canopy thinning can create young forest conditions; if followed by frequent

prescribed fire can be used to encourage development of open woodlands with an herbaceous understory. Many universities and state agencies offer extension wildlife programs, available to landowners who are interested in managing their lands to create habitats for wildlife conservation. ■

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