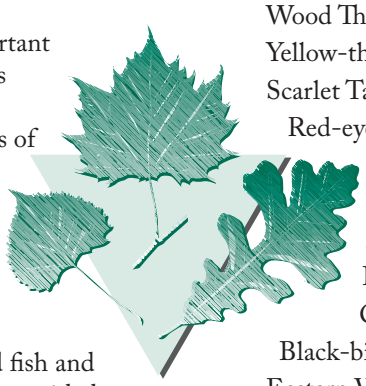
K-STATE
Research and Extension

# Birds of Kansas Streamside Forests

## Nature's Winged Legacy

Eastern Kansas hosts a variety of bird life. Much of it can be found along the forested waterways that connect the tallgrass prairie, crop fields, and towns. More than 100 bird species use the streamside forests and other woodlands in Riley County alone. Birds depend on these riparian forests for nesting and raising young, as stopover habitat during migration, or a winter haven.

Landowners and managers play an important role in conserving nature's winged legacy. This publication describes features of streamside forests that are important to particular species of birds. It suggests ways to manage stream corridors for healthy bird populations. Practices to promote bird life fit with those for managing streamsides for conservation purposes such as soil and streambank stabilization, improved water quality, timber and firewood production, natural scenery, and fish and wildlife habitat. The following information is provided to help landowners determine how well their streamside forests benefit birds and to find support for habitat restoration and improvement projects.



## Forest Size and Continuity

Birds may prefer or require forest tracts of 50 acres or more. Large-bodied forest birds such as the Red-shouldered Hawk and Pileated Woodpecker need a large territory for foraging. Song birds such as the Red-eyed Vireo, Ovenbird, and Kentucky Warbler need the protection of the inner forest. For the Wood Duck, Eastern Whip-poor-will, and Barred Owl, continuous stretches of woodland may be more important than forest patch size.

Birds that inhabit forests in eastern Kansas include:

Hairy Woodpecker
Pileated Woodpecker
Broad-winged Hawk
Red-shouldered Hawk
Barred Owl
Wood Duck
Wood Thrush
Yellow-throated Vireo
Scarlet Tanager
Red-eyed Vireo
Blue-gray Gnatcatcher
Northern Parula
Kentucky Warbler
Black-and-white Warbler
Ovenbird
Black-billed Cuckoo
Eastern Whip-poor-will

## Forest Age and Condition

Mature forests with full-size, seed- and fruit-producing trees are important to some species, usually for adequate food supply, nesting sites, and cover. Species associated with mature forests:

Wood Duck
Red-shouldered Hawk
Barred Owl
Hairy Woodpecker
Pileated Woodpecker
Ovenbird
Northern Parula
Scarlet Tanager
Summer Tanager

For other birds, the overall age of the forest may be less important than the presence of large, older trees for perching, roosting, or nesting. These bird species need large trees:

Great Blue Heron
Turkey Vulture
Osprey
Bald Eagle
Broad-winged Hawk
Red-headed Woodpecker
Yellow-throated Vireo
White-breasted Nuthatch
Brown Creeper

Other birds, such as Yellow-billed Cuckoo, Chuck-will's-widow, Downy Woodpecker and Northern Flicker favor open woodland, which is forest with a broken or noncontinuous canopy. This type of habitat allows them to forage more efficiently.

Some birds prefer young forests. Sharp-shinned Hawk and Yellow-bellied Sapsucker favor dense stands of trees, while the American Woodcock selects young forests with openings.

The understory vegetation such as shrubs and small trees below the forest canopy, often determines the presence of certain birds. These birds select dense understory areas for foraging or protection:

Yellow-billed Cuckoo
Black-billed Cuckoo
Alder Flycatcher
Willow Flycatcher
Red-eyed Vireo
Black-and-white Warbler
Kentucky Warbler

The Eastern Whip-poor-will and Yellow-crowned Night-heron prefer an open understory with parklike conditions below the tree canopy.

## *Dead, Damaged and Diseased Trees*

Many birds require an ample supply of dead, damaged, or diseased trees, commonly described as 3-D forest conditions. Woodpeckers, flickers, and sapsuckers excavate cavities in trunks and limbs that are broken or filled with decayed wood. These cavities provide nesting sites, not only for the woodpeckers, but also for many other birds known as secondary cavity nesters. Eastern Bluebirds are secondary cavity nesters of fields and woodland edges. Osprey and Bald Eagle use tall, dead trees as hunting perches.

More than a dozen bird species depend wholly or partially on 3-D trees along watercourses in eastern Kansas:

Wood Duck
Osprey
Red-headed Woodpecker
Hairy Woodpecker
Downy Woodpecker
Pileated Woodpecker
Red-bellied Woodpecker
Northern Flicker
Bald Eagle
Barred Owl
Eastern Screech-Owl
Tree Swallow
Tufted Titmouse
White-breasted Nuthatch
Louisiana Waterthrush

## *Pollution and Disturbance*

Exposure to toxins in lead and other heavy metals, pesticides, dioxins, and other environmental contaminants can reduce reproduction and longevity of birds, and lead to disease or death. Pesticides can affect insect-eating birds by reducing their food supply. Air pollution can destroy the lichens and mosses the Northern Parula needs for nesting. Birds with diets that make them especially vulnerable to environmental pollution include:

Yellow-billed Cuckoo
Black-billed Cuckoo
Eastern Whip-poor-will
American Woodcock
Black-crowned Night-heron
Osprey
Bald Eagle
Cooper's Hawk
Red-shouldered Hawk
Yellow-throated Vireo
Tree Swallow
Northern Parula
Scarlet Tanager

Some bird species are sensitive to human disturbance, particularly when breeding and nesting:

Chuck-will's-widow
Eastern Whip-poor-will
Great Blue Heron
Black-crowned Night-heron
Turkey Vulture
Bald Eagle
Cooper's Hawk

Red-shouldered Hawk
Yellow-throated Vireo
Wood Thrush
Kentucky Warbler
Summer Tanager
Scarlet Tanager

## *Forest Management*

*Forest Restoration* – Riparian forests may regenerate naturally if there are mature trees nearby as a source of seeds. Natural regeneration can be rapid on sites that experience occasional flooding because water deposits sediment carrying tree and shrub seeds. Where natural regeneration would be slow or unlikely, the landowner should plant a variety of native tree and shrub seedlings. In either case, seedlings and saplings may need protection from livestock and wild herbivores such as deer. The stream or river corridor may need to be restored or stabilized before reforestation is possible. Landowners that have established a young forest should consider using nest boxes to support certain species, such as Wood Duck and Eastern Screech Owl, during the forest regrowth period.

For more information on establishing riparian woodlands, see, *Establishing Riparian Buffers* (MF2489). Low-cost native trees and shrub seedlings are available each spring and fall from the Kansas Forest Service. Learn more at www.kansasforests.org.

*Forest Stewardship* – In general, large forest patches are the most desirable for streamside bird communities of eastern Kansas. A few acres of forest can provide habitat for many songbirds, but Pileated Woodpecker, Northern Parula, and others, require tracts ranging from 20 to several hundred acres. Small openings in a forest are tolerated by many species and benefit others, for example, Broad-winged Hawk, Yellow-throated Vireo, Red-eyed Vireo, and Kentucky Warbler. Good to excellent canopy cover is also desirable, especially for smaller woodlands. Landowners with large patches of forest may wish to provide an understory of native shrubs of various composition and density to match the preferences of a range of bird species. For birds such as Wood Thrush and Northern Parula, it is important to retain leaf litter, which conserves soil moisture.

Riparian bird communities benefit from a diversity of naturally occurring tree species. The Red-eyed Vireo, Tufted Titmouse, and Black-and-white Warbler favor high tree diversity. Other birds prefer certain species, for instance, Blue-gray Gnatcatcher and Scarlet Tanager favoring oaks.

Wherever possible, landowners should create a zone of dense shrubs and small trees along the transition between forest and field (soft edge) or allow shrubs to dominate open areas of the forest. Certain birds, such as Bell's Vireo, White-eyed Vireo, and Bewick's Wren, require low, dense vegetation for nesting and protection from natural enemies. Landowners should retain snags in flooded areas, protect beaver ponds, and consider constructing new wetlands near riparian forests.

*Timber Harvesting* – Landowners who harvest trees from riparian forests can benefit bird communities by maintaining a blend of trees of varying species, ages and sizes, and a varied shrub and low tree understory. On each acre, retain several damaged and dead trees with branches, including some large trees more than 20 inches diameter at breast height. Thinning should release other trees for more rapid growth and maturity, although this may favor some birds over others. Landowners should avoid clear-cutting, heavy selective cutting (which can eliminate even versatile species such as Eastern Screech-Owl), and timber operations during the bird breeding season. Long harvest rotations of more than 50 years and reducing tree removal can help provide mature forest conditions important to many birds of eastern Kansas.

*Firewood Cutting* – Landowners should avoid excessive removal of dead trees and branches for firewood, especially big trees. This eliminates nesting habitat for species such as the Red-headed Woodpecker, which has been declining in numbers. It is useful to retain snags in groups whenever possible. Leave downed timber for Louisiana Waterthrush and other species that nest under logs and upturned trees.

*Livestock Grazing* – Livestock owners should avoid grazing areas of young tree seedlings and riparian woodlands. Use of alternative water supplies, alternative shelter and fencing for livestock can help prevent overgrazing. Some birds such as Cooper's Hawk and Willow Flycatcher, may be particularly sensitive to vegetation loss due to livestock grazing and the indirect environmental effects such as soil compaction, root exposure, and gullying. In Kansas, the Eastern Whip-poor-will requires ungrazed woods for nesting.

*Recreational Activities* – Recreational activities should be diverted from nests and roosts of birds that can be easily disturbed such as Bald Eagle and Red-shouldered Hawk. Avoid disturbing spring nesting birds, especially ground-nesters such as Chuck-will's-widow, Eastern Whip-poor-will, Ovenbird, and Kentucky Warbler.

*Pest Species* – European Starlings displace many native birds through aggressive competition for nesting cavities. Starlings can out-compete Northern Flicker, a species that creates cavities for many other native birds. Another non-native, the House Sparrow, will remove the young of other birds when taking over a nesting cavity. Brown-headed Cowbird, a bird that lays its eggs in the nests of other birds, can heavily affect songbird populations. Landowners can discourage these species and other pests by preventing or

limiting access to livestock feed, grains and garbage, and by placing feedlots and stables away from forests. They can also reduce predation on forest birds by controlling free-ranging domestic cats.

*Pesticide Applications* – Contamination of riparian forest with herbicides and insecticides can be avoided by proper timing, spacing and positioning of applications. Farmers and other property owners can reduce risk to birds and other wildlife by using pesticides with the lowest toxicity and at the lowest effective concentrations. Alternative measures for pest control should always be considered.

*Land Development and Conservation* – Landowners can incorporate conservation of forest birds in development and management plans to enhance the beauty, safety, and value of their property. Measures include setbacks from riparian forest for home building, construction and maintenance of wooded wetlands, and careful placement of roads and trails to avoid forest fragmentation. Riparian forests can be secured against future development through measures such as conservation easements and purchase of development rights. Contact a land trust for assistance. Landowners can encourage community support for conservation of streamside forests in eastern Kansas by working in collaboration with others.

## *Where to Find Help*

The following agencies support landowners looking to develop and improve streamsides for birds and wildlife.

USDA, Natural Resource Conservation Service, 760 S. Broadway, Salina, KS 67401, 785-823-4500. Ask about the Wildlife Habitat Incentives Program.

Kansas Department of Wildlife, Parks and Tourism, *http://ksoutdoors.com/*

Technical assistance for forestry practices and riparian area restoration:

Kansas Forest Service, 2610 Clafin Road, Manhattan, KS 66502, 785-532-3300, *www.kansasforests.org*.

Information and help with streamside stabilization and restoration:

Kansas Department of Agriculture, Division of Conservation: *https://agriculture.ks.gov/divisions-programs/division-of-conservation*

Kansas Alliance for Wetlands and Streams, *www.kaws.org/home*

## *References*

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