

Forestry for the Birds

Pocket Guide for Landowners in Illinois and the Central Hardwoods Region



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Welcome to the Illinois Forestry for the Birds Pocket Guide.

This guide is intended to provide bird-focused forest management information for landowners in Illinois, which is part of the Central Hardwoods Bird Conservation Region. The Central Hardwoods Region provides diverse and essential habitats for birds and includes approximately 4.6 million acres in Illinois. (See <https://www.chjv.org>)

The twelve bird species highlighted in this guide were selected because they nest in the Central Hardwoods of Illinois and are relatively easy to identify by sight or sound, with *most in need of conservation action to help address often significant population declines*.

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About this Guide

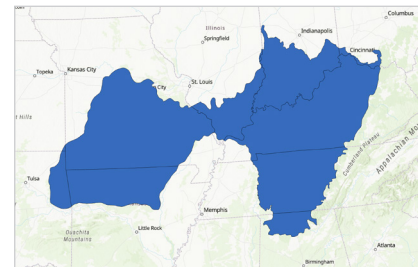
This guide is intended to help landowners in the Central Hardwoods of Illinois understand how to incorporate bird-friendly practices into their forest management efforts. Twelve species are highlighted with information provided about their life histories, population trends, and conservation needs.

For additional help with species identification, readers can consult published field guides or online resources. Much more detailed species-specific life history information can be found at the Cornell Laboratory of Ornithology's All About Birds (allaboutbirds.org) and the American Bird Conservancy's Bird Library (abcbirds.org/birds).

A glossary of technical terms used in this guide is provided on page 41.

The forest types described in this guide are **young/regenerating forest**, **oak woodland**, and **closed canopy forest**. Each bird species is associated with the forest type in which it is most commonly found.

Guidance on forest management for each species was developed in consultation with foresters and wildlife managers, and other experts in the field.



■ Central Hardwoods Bird Conservation Region

Why Manage Forests for Birds



It is estimated that bird populations in North America have declined almost 30% since 1970, a decline of an estimated 3 billion birds. In other words, if you were alive in 1970, more than one in four birds in the U.S. and Canada have disappeared in your lifetime!

Threats to birds include habitat loss and fragmentation, fire suppression, invasive plant species, and insect declines.

Loss of forested habitat is clearly a threat to forest-nesting bird populations, but so is the fragmentation of forested habitats. Fragmented landscapes tend to support more predators and parasites of bird nests (e.g. Brown-headed Cowbirds), causing a decrease in the reproductive success and survival of forest birds.

Fire suppression has resulted in many forests with closed canopies and dense woody midstories. Oaks struggle to regenerate and grow in these conditions. As a result, many once oak-dominated forests are converting to predominantly non-oak tree species, which is problematic for birds and other wildlife.

Invasive plant species outcompete native plants in both open and closed forests, which degrades habitat quality for birds and other wildlife. Common invasive shrubs in Illinois include bush honeysuckle, multiflora rose, and autumn olive. Other invasive species include Japanese stiltgrass, garlic mustard, and kudzu.

Finally, it is estimated that 40% of insect species are declining globally, which represents an existential threat to birds, most of which are wholly or mostly insectivorous. Reasons for these declines include urbanization, pollution, overuse/misuse of insecticides, loss of habitat, introduced species, and climate change.

The good news is that forest management actions can have significant conservation benefits for birds, while at the same time helping keep forests healthy. This is a win for landowners and for the birds.

Because privately-owned forested acres far exceed those in public ownership, ecologically sound forest management on private lands is crucial to the conservation of many North American bird species.

Forest management activities can include non-commercial thinning (both midstory removal and crop tree release), the use of prescribed fire, and invasive species control. Harvesting trees can also be an important tool for forest habitat restoration and management.

Timber harvest methods can generally be differentiated as even-aged versus uneven-aged management. Even-aged management produces stands with trees of roughly the same age

established over a relatively short period of time. Uneven-aged management produces stands that contain trees of multiple ages, ranging from recently established seedlings to large, mature trees.

Types of Even-aged Management:

Clear-cutting is a regeneration technique in which a new age class of trees develops after removal of most-to-all trees in the previous stand. Clear-cutting provides sunlight to younger trees and can be used to regenerate species that do not tolerate shade.

Shelterwood Cutting is a regeneration technique aimed at creating a new generation of trees within an existing stand of trees, avoiding periods of treelessness. Initial cuttings remove midstory

trees and enough overstory trees so that sufficient sunlight reaches the forest floor — allowing for regeneration of shade-intolerant tree species.

Types of Uneven-aged Management:

Individual Tree Selection is a regeneration technique that involves removing selected trees over an entire stand. Removing single trees creates small openings similar to those resulting from natural tree mortality, so this method favors the regeneration of tree species that can tolerate shade.

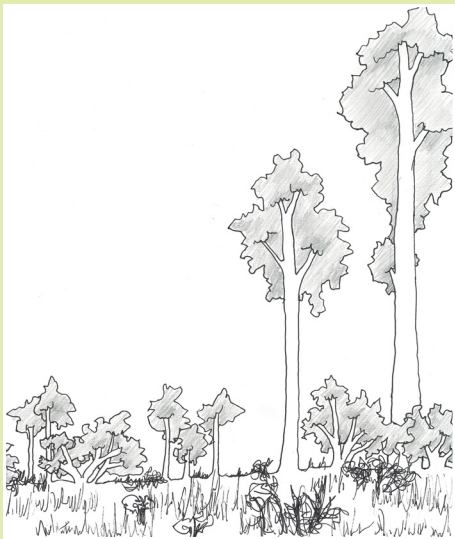
Group Selection is a regeneration technique that involves removing small groups of trees to create relatively small openings (up to 2 acres). These openings permit more sunlight to reach the forest floor than with individual tree selection, allowing

regeneration of shade-intolerant tree species in the openings.

Forest Management Planning

A Forest Management Plan is a site-specific plan that is based on a landowner's management objectives. Forest management plans provide detailed information about a property and a road map to achieving a landowner's goals by recommending stand-specific management actions.

For more information about forest management planning contact your local Illinois DNR District Forester and/or your local USDA Natural Resources Conservation Service office.



The Central Hardwoods were historically dominated by oak woodlands. However, there were also areas that stayed very open due to their geographies and/or frequent fire. These areas existed in a patchwork on the landscape and were often characterized by a dense understory of grasses, forbs, and shrubs.

These open habitats are largely disturbance-dependent and have greatly declined due, in large part, to fire suppression over the last 100 years. In the absence of fire, many of these open habitats have become closed canopy forests. Many bird species that use these habitats are among those experiencing the greatest population declines in the Central Hardwoods Region.

In addition to the species highlighted in this section, other bird species common in young, regenerating forest include Common Yellowthroat, Field Sparrow, and Northern Cardinal.

Juveniles of many species that nest in closed canopy forests also spend crucial days and weeks after leaving the nest in these habitats because of the shelter and food provided by the dense understory vegetation.

Forest management actions to re-create versions of these open, shrubby habitats include the use of prescribed fire, invasive species control, non-commercial thinning, and timber harvesting that will create patches of young, regenerating forest.



Blue-winged Warblers can be hard to find, both because of their insect-like song and relative rareness. Additionally, populations have declined dramatically due to degradation of habitat and loss of habitat to urban sprawl.

Migratory Status: Summer resident. Winters in southern Mexico, Central America, West Indies.

Population Trend: Declining. Populations have declined an estimated 22% range-wide between 1970 and 2014. Total population is estimated at below one million individuals.

Conservation Concerns: Lack of forest management to maintain open habitats combined with loss of habitat to development. Invasive species choking out native vegetation.

Habitat Preferences: Usually nests in early- to mid-successional habitat and forest-field edges that support dense cover of small saplings, shrubs, or other thick vegetation.

Nesting: Usually on or near the ground. Nests attached to upright stems of goldenrod or berry bushes; sometimes built in a clump of grass. Egg laying occurs in May and June. Clutches are usually 4-5 eggs.

Foraging and Diet: Foraging methods include gleaning, hovering (infrequent), hanging upside down and probing. Diet includes insects and spiders, especially moth and butterfly larvae, small crickets, and grasshoppers.

Forest Management Guidance

Desired Condition: Regenerating clear-cuts and open forests with dense shrub layers.

Forest Stand Improvement: Invasive species control. Non-commercial thinning and prescribed fire to maintain habitat openness and promote shrub growth.

Timber Harvest: Clear-cuts. Additionally, group selection cuts that create larger openings will benefit the species.



Prairie Warbler males are often conspicuous in their breeding habitats as they seek out relatively exposed perches and have an easy to recognize song. Populations have declined significantly in parts of the breeding range due to habitat loss and degradation.

Migratory Status: Summer resident. Winters in south Florida and the West Indies.

Population Trend: Declining. Populations have declined an estimated 53% range-wide between 1970 and 2014.

Conservation Concerns: Lack of forest management to maintain open habitats combined with loss of habitat to development. Invasive species choking out native vegetation.

Habitat Preferences: Breeds in various shrubby habitat associations lacking closed canopies, including abandoned fields or pastures with shrubby growth and open woodlands. Also, relatively large clear-cut stands for several years post-harvest.

Nesting: Prefers saplings and shrubs with numerous branches and twigs, usually <3' high. Egg laying occurs mid-May into July. Clutches are usually 3-5 eggs.

Foraging and Diet: Modes of feeding varied; gleaning from leaves and branches, hopping, fly-catching, hovering, hanging upside down. Diet includes insects and spiders, occasionally fruit and other plant matter.

Forest Management Guidance

Desired Condition: Regenerating clear-cuts (3+ acres) up to 6 years post-harvest and woodland habitats with a dense shrub layer.

Forest Stand Improvement: Invasive species control. Non-commercial thinning and prescribed fire to maintain habitat openness and promote shrub growth.

Timber Harvest: Clear-cuts. Additionally, group selection cuts that create larger openings will benefit the species.



Yellow-breasted Chat is a large, warbler-like songbird that inhabits brushy habitat. The male's extensive vocal repertoire and its distinctive flight display, typically launched from a high perch, make the male's presence conspicuous early in the breeding season.

Migratory Status: Summer resident. Winters in coastal Mexico and throughout Central America.

Population Trend: Declining. Overall significant decrease in the Chat population (11%) over the breeding range during the 1966–2019 period.

Conservation Concerns: Lack of forest management to maintain open habitats combined with loss of habitat to development. Invasive species choking out native vegetation.

Habitat Preferences: Occupies a variety of habitats with open canopies and dense shrub layers. Examples of habitats used include regenerating old fields, clear-cuts, and open woodlands.

Nesting: Nest placed 1-8' above the ground, well concealed in dense shrub, briar tangles, vines, or low tree. Egg laying occurs mid-May through July. Clutches are usually 3-5 eggs.

Foraging and Diet: Forages in low, dense shrubs and thickets. Diet includes small invertebrates (mainly insects and spiders) throughout the summer, fruits, and berries when available.

Forest Management Guidance

Desired Condition: Regenerating clear-cuts and open habitats with a dense shrub layer.

Forest Stand Improvement: Invasive species control. Non-commercial thinning and prescribed fire to maintain habitat openness and promote shrub growth.

Timber Harvest: Clear-cuts and shelterwood cuts often lead to quick colonization if the understory is densely shrubby. Additionally, group selection cuts that create larger openings will benefit the species.



Eastern Towhee is a large, boldly patterned sparrow, named after its signature call, towhee. The taxonomy of the Towhees has been under debate in recent decades, and formerly this bird and the Spotted Towhee were considered a single species, the Rufous-sided Towhee.

Migratory Status: Summer resident. Most birds in the northern part of the range migrate southward in winter.

Population Trend: Declining. Populations have declined an estimated 43% range-wide between 1970 and 2014 but appear to be stable in the Central Hardwoods.

Conservation Concerns: Lack of forest management to maintain open habitats combined with loss of habitat to development. Invasive species choking out native vegetation.

Habitat Preferences: Occupies a variety of habitats with open canopies and dense shrub layers, and a well-developed layer of leaf litter for foraging. Examples of habitats used include shrubby and small tree thickets in old fields, regenerating forest, and some shrubby oak woodlands.

Nesting: Nests on the ground under a shrub, or in low bushes, usually less than 5' high. Egg laying occurs in early May through July. Clutches are usually 3-5 eggs.

Foraging and Diet: Principally a ground forager — rummaging through leaf litter by scratching with its feet. Will seek food in foliage, particularly when defoliating caterpillars are prevalent. Omnivore; consumes seeds, fruits, and invertebrates.

Forest Management Guidance

Desired Condition: Regenerating clear-cuts and open habitats with dense shrub layer. Also, retention of stand-alone trees/snags in clear-cuts as male 'singing trees.'

Forest Stand Improvement: Invasive species control. Non-commercial thinning and prescribed fire to maintain habitat openness and promote shrub growth.

Timber Harvest: Clear-cuts. Additionally, group selection cuts that create larger openings will benefit the species.



The bright blue color of the male Indigo Bunting is in stark contrast to the brown plumage of the female. The male is a constant singer through the summer, often singing during the hottest part of the day. Pairs may attempt to raise multiple broods during a long breeding season.

Migratory Status: Summer resident. Winters in southern Mexico, Central America, West Indies.

Population Trend: Declining. Populations have declined an estimated 25% range-wide between 1970 and 2014.

Conservation Concerns: Lack of forest management to maintain open habitats combined with loss of habitat to development. Invasive species choking out native vegetation.

Habitat Preferences: Common in shrubby habitats including old fields and forest edges. Also, clear-cut stands for several years post-harvest and gaps in selectively cut forests until canopy closure.

Nesting: Nest site is usually 1-3' above ground, in dense shrub or low tree. May nest in large forbs, such as goldenrods. Egg laying late May through August. Clutches are usually 3-4 eggs.

Foraging and Diet: Forages on ground, stems of tall grasses, low bushes, other vegetation. Diet includes small spiders and insects, including caterpillars, also seeds of grasses, forbs, and berries.

Forest Management Guidance

Desired Condition: Clear-cuts up to 12-14 years post-harvest and other open habitats until canopy closure.

Forest Stand Improvement: Primarily invasive species control. Prescribed fire to maintain habitat openness and promote shrub growth.

Timber Harvest: Clear-cuts. Additionally, group selection cuts that create larger openings will benefit the species.



Historically, oak woodland, exhibiting 30-80% canopy closure, was the most common forest type in the Central Hardwoods. These forests were primarily composed of white oak, black oak, and hickories. In Illinois, examples of these forests can be found at Giant City State Park, Trail of Tears State Forest and throughout the Shawnee National Forest.

Oak woodlands are dependent on the regular occurrence of fire to maintain their species composition and structure. Depending on geography and fire return interval this forest type can range from a forest with as much as 80% canopy cover to a much more open setting, but always with oaks as the dominant canopy tree species.

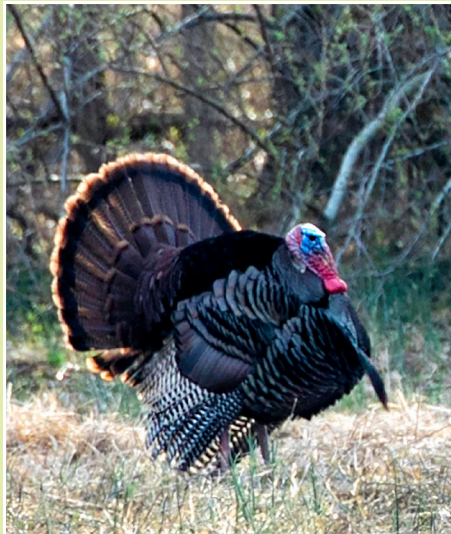
Oak dominance in these forests is important because oaks serve as a key habitat component for a number of wildlife species. Indeed, in addition to providing acorns, oaks attract and support more native moth and butterfly caterpillar species than any other tree type in the eastern United States. These insects are, in turn, a very important food resource for birds.

However, long-term fire suppression has allowed many forest canopies to close, both suppressing

oak regeneration and creating ideal growing conditions for shade-tolerant species, like beech and sugar maple. While oaks continue to dominate the overstory in Illinois, a lack of oak regeneration threatens the sustainability of this forest type.

Bird species not highlighted in this section and common in oak woodlands include Eastern Screech Owl, Downy Woodpecker, Yellow-billed Cuckoo, and White-breasted Nuthatch.

Forest management actions to restore these forest types include using fire and non-commercial thinning to reduce midstory tree density. Clear-cuts, shelterwood cuts and group selection cuts can be used to encourage oak regeneration and open the canopy allowing more sunlight to reach the forest floor.



The Wild Turkey is the largest North American game bird, weighing up to 30 pounds, with a wingspan of up to five feet. Hunted to near extinction by the early 1900s, the restoration of the Wild Turkey is considered one of the great successes of modern wildlife management.

Migratory Status: Non-migratory.

Population Trends: Stable to decreasing. Populations increased dramatically during a 60-year restoration effort when birds were reintroduced into former ranges. However, while much of Illinois' population is stable, numbers in some areas have been declining in the last few decades.

Conservation Concerns: Loss of quality nesting and brood-rearing habitat as well as invasive species dominance in oak woodlands.

Habitat Preferences: Found in oak-hickory forests, woodlands, and adjacent open areas. Breeding and nesting habitat includes scattered openings with bunchgrasses and forbs in and around woodlands and forest edges.

Nesting: Nest site is on the ground, often at the base of a tree, under a shrub, or in tall grass. Egg laying begins mid-April. Clutches are usually 10-15 eggs.

Foraging and Diet: Forages on the ground in flocks, occasionally climbing shrubs, or low trees for fruits. Scratches the forest floor for acorns and nuts. Invertebrates comprise about 10% of adult diet, but make-up the majority of the diet for young turkeys.

Forest Management Guidance

Desired Condition: Open, oak-dominated woodlands with well-developed herbaceous understory. Ample open ground for utilization by young while foraging for insects.

Forest Stand Improvement: Invasive species control, non-commercial thinning of the midstory, and prescribed fire.

Timber Harvest: Both even-aged (e.g. clear-cut) and uneven-aged (e.g. group selection) regeneration cuts can be used to create suitable habitats for different activities and life-cycle stages.



The Eastern Whip-poor-will is named for its distinctive nocturnal song. Rarely seen due to its excellent camouflage, Whip-poor-wills forage at dawn and dusk for flying insects. Populations have declined significantly due to a variety of factors including habitat loss and degradation.

Migratory Status: Summer resident. Winters primarily in Mexico and Central America.

Population Trend: Declining. Species of regional concern in the Central Hardwoods. Populations have declined an estimated 69% between 1970 and 2014.

Conservation Concerns: Habitat loss and degradation, nest predation, declining insect populations, and vehicle collisions.

Habitat Preferences: Forest with low to moderate tree density and canopy cover and an open midstory. Disturbance is required to prevent transition of open forests to closed canopy forest with a dense midstory.

Nesting: Two eggs laid directly on leaf litter, often near a fallen tree limb. Egg laying late April to mid-May. Most eggs hatch a few days before a full moon.

Foraging and Diet: Most active at dawn and dusk and on bright, moonlit nights. Aerial foragers, consuming large amounts of moths, beetles, and other insects each night.

Forest Management Guidance

Desired Condition: Open canopy forests and woodlands with some degree of proximity between forested and open areas, including wildlife openings and timber harvests.

Forest Stand Improvement: Thinning (midstory removal) will aid in attracting this species by improving line-of-sight and maneuvering space while foraging. Affinity for forests treated with repeated controlled fires.

Timber Harvest: In general, efforts to create thinned stands with lower basal areas, including midstory removal, such as the first phase of a shelterwood harvest. Group selection and clear-cuts to create open areas and edges.



Red-headed woodpecker is a colorful species with eye-catching plumage and was a favorite of early ornithologists, including John James Audubon. Red-headed Woodpeckers commonly cache food in tree cavities and under bark and will often fly out from a perch to catch insects.

Migratory Status: Present year-round. Local breeding birds may be replaced by more northern breeding birds in winter.

Population Trend: Species of continental concern in the Central Hardwoods. Populations have declined an estimated 67% between 1970 and 2014.

Conservation Concerns: Habitat loss and degradation. Specifically, loss of open woodland and removal of dead trees (snags) and branches.

Habitat Preferences: Found in a variety of treed habitats, typically with a degree of openness. Prefers areas with tall trees and snags or power poles, low density of stems in understory, dead limbs, and mast trees.

Nesting: Excavates nest cavities in snags, dead branches of live trees, and power poles. May excavate a new cavity or use an existing one. Egg laying mid-May into September. Clutch size is usually 4-5 eggs.

Foraging and Diet: Includes a wide variety of insects, fruits, seeds, and nuts. Nestling diet is around 1/3 fruit. Diet in winter consists primarily of hard mast (e.g., acorns, beechnuts).

Forest Management Guidance

Desired Condition: Open forest areas with completely dead trees and live trees with sizeable dead branches. Habitat should include mast-producing trees in an open woodland or savanna-like setting.

Forest Stand Improvement: Midstory removals to enhance the amount of light for oak regeneration. Occasional prescribed fire to reduce understory density. Invasive species control, as appropriate.

Timber Harvest: Larger group selection cuts. First stage shelterwood harvests. Leaving and, as appropriate, creating large snags in areas with open understories.



Scarlet Tanager is a colorful, long-distance migrant, annually making the journey between South America and the eastern United States. Surprisingly difficult to see in the forest canopy, Scarlet Tanagers have a distinctive “robin with a sore throat” song and chip-burr call.

Migratory Status: Summer resident. Winters in southern Central America and northwest South America.

Population Trend: Relatively stable. Populations have declined an estimated 7% range-wide between 1970 and 2014.

Conservation Concerns: Sensitive to forest fragmentation. Presence depends on amount of fragmentation, size of forest patch, forest configuration, and degree of patch isolation.

Habitat Preferences: Prefer forest tracts with large, deciduous trees, particularly oaks. The minimum area required to provide high quality habitat is estimated to be over 60 acres in a landscape with 70% forest cover.

Nesting: Nest site is high in trees, typically 20-30' above ground. Nest placed on a horizontal branch, usually well out from the trunk. Egg laying late-May through July. Clutch is usually 4 eggs.

Foraging and Diet: Foraging height varies with stature of forest; primarily forages in leaves, twigs, and branches of mid-canopy. Diet includes a wide variety of adult flying and nonflying insects, insect larvae, and spiders.

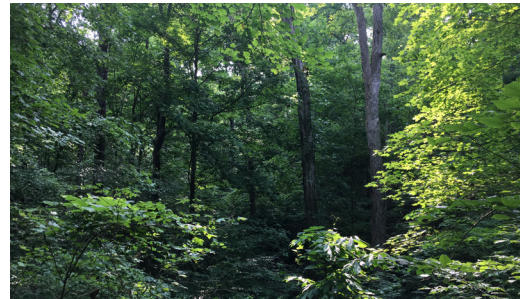
Forest Management Guidance

Desired Conditions: Uneven-aged hardwood stands with over 60% canopy cover. Nesting success is higher in the forest interior than near the forest edge.

Forest Stand Improvement: Midstory removals that enhance the amount of light for oak regeneration. Prescribed fire to reduce midstory density. Recommendation is that the area of treatment be 10 acres or more.

Timber Harvest: Group selection cuts. Shelterwood cuts that encourage oak regeneration.

Closed Canopy Forest



Closed canopy forest has always existed in the Central Hardwoods in areas that were less prone to burning, often in coves, along streams in valleys and on lower northerly slopes. In these forests the beech, sugar and red maple, black gum, ash, and yellow-poplar trees create a mostly closed canopy with little understory growth.

Additionally, in the absence of disturbance, oak woodland areas can transition to a closed canopy forest where the tree species composition shifts from predominately oaks and hickories to more shade-tolerant species like beech and maple.

A balance between open and closed canopy forests was historically maintained by fire. Fires tended to burn the dry ridges, which promoted the regeneration of oaks, but largely missed the wetter valleys and ravines which retained a closed canopy and a different group of tree species.

These closed canopy forests are important to a suite of bird species, particularly to those that nest in midstory vegetation or in leaf litter on the ground. Bird species not highlighted in this

section, but also common in closed canopy forest, include Worm-eating Warbler, Louisiana Waterthrush, and Cerulean Warbler.

Forest management actions consistent with maintaining these types of habitats include invasive species control, individual tree selection cuts, and limited application of small group selection cuts.



Acadian Flycatcher's relatively small size belies its explosive *peet-sah* song, which is frequently heard in breeding habitats. Requires relatively undisturbed mature forest throughout its breeding range and can be abundant in good habitat. Population may be increasing.

Migratory Status: Summer resident. Winters in southern Central America and northern South America.

Population Trend: Populations have declined an estimated 10% range-wide between 1970 and 2014; however, population trend was positive from 2005 to 2015.

Conservation Concerns: Vulnerable to forest fragmentation, due to increased rates of Cowbird brood parasitism and nest predation.

Habitat Preferences: In Central Hardwoods, prefers deciduous forests with abundant midstory trees. Found along streams, dry draws, and in deep, shady ravines. An area-dependent species, it prefers larger forested tracts.

Nesting: Nest is usually in a small tree, averaging 20' above the ground suspended between a horizontal fork near the end of the branch. Egg laying occurs in May and June. Clutches are usually 3 eggs.

Foraging and Diet: Forages within forest from close to ground up to lower canopy. Diet includes primarily insects, insect larvae, and spiders.

Forest Management Guidance

Desired Condition: Closed canopy forest (>80%) with small to medium-sized midstory trees for nesting. Nesting success is higher in the forest interior than near forest edge.

Forest Stand Improvement: Primarily invasive species control. Thinning efforts should retain some midstory trees for nesting.

Timber Harvest: Single tree selection to keep much of the canopy intact.



Wood Thrush was once a common bird of eastern forests, best known for its conspicuous flute-like song, sounding, in part, like *free-toe-lay*. Populations have declined significantly due to high rates of Cowbird brood parasitism, especially in the fragmented landscapes of the Midwest.

Migratory Status: Summer resident. Winters primarily Mexico and Central America.

Population Trend: Declining. Populations have declined an estimated 60% range-wide between 1970 and 2014, although declines have been less steep (30%) in the Central Hardwoods.

Conservation Concerns: Highly susceptible to Cowbird brood parasitism and nest predation in landscapes where short pasture, agricultural fields, and lawns are common.

Habitat Preferences: Closed canopy forest with a well-developed midstory for nesting. Also, fairly open forest floor, moist soil, and decaying leaf litter.

Nesting: Nest placed in small, understory trees, usually 10-15' above the ground, sometimes lower. Egg laying occurs mid-May into July. Clutches are usually 4-5 blue-colored eggs.

Foraging and Diet: Forages in leaf litter or on semi-bare ground where herbaceous cover is open. Feeds mostly on soil invertebrates; use of fruit greater in late summer.

Forest Management Guidance

Desired Condition: Closed canopy forest (>80%) with small to medium-sized midstory trees for nesting. Open forest floor with moist leaf litter. Nesting success is higher in the forest interior than near the forest edge.

Forest Stand Improvement: Invasive species control. Thinning efforts should retain some midstory trees for nesting and fall berry-producing trees/shrubs as food sources.

Timber Harvest: Single tree selection to keep much of the canopy intact. Proximity to regenerating gaps and clear-cuts likely is valuable during post-fledgling period.



Kentucky Warbler is heard more often than seen, although the song may be confused with that of the Carolina Wren or the Ovenbird. Found throughout the Midwest and southern U.S. Populations appear to be declining, more in some regions than in others.

Migratory Status: Summer resident. Winters in southern Mexico and Central America.

Population Trend: Recent data suggest significant declines in populations in most regions (29%); however, decline is not uniform across range (e.g. only 4% in Central Hardwoods).

Conservation Concerns: Destruction of herbaceous understory due to over-browsing by white-tailed deer. Cowbird brood parasitism rates can be high in extensively fragmented forests.

Habitat Preferences: Bottomland sites and woods near streams with dense understory. Well-developed herbaceous understory for ground nesting.

Nesting: Nest placed on ground or within a few inches of it usually at the base of a plant or sometimes low in a shrub. Egg laying occurs mid-May into July. Clutches are usually 3-6 eggs.

Foraging and Diet: Feeds on ground by rummaging through leaf litter. Also feeds in shrubs, vines, and lower parts of trees. Main food sources are insects, caterpillars, and small spiders.

Forest Management Guidance

Desired Condition: Closed canopy forest (>80%) with well-developed ground cover for nesting. Nesting success is higher in the forest interior than near the forest edge.

Forest Stand Improvement: Primarily invasive species control.

Timber Harvest: Single tree selection to keep much of the canopy intact. Proximity to regenerating gaps and clear-cuts valuable during post-fledgling period.

Many people looking at this guide may not consider themselves forest landowners. However, homeowners with back and front yards can manage those spaces in ways that can have important benefits for birds.

If just half of each yard in the United States were planted with mostly native species, the result would be what has been described as a 26-million-acre Homegrown National Park, which would benefit scores of nesting and migrating bird species.

Planting native trees, shrubs, and flowers, avoiding insecticide use, removing invasive

species, and keeping cats inside will go a long way toward making any yard valuable bird habitat.

To recognize those kinds of habitat restoration efforts, the National Wildlife Federation has a program whereby a homeowner can have their yard or garden recognized as Certified Wildlife Habitat. The requirements for certification are that your habitat includes food, water, cover, and places for wildlife to raise young.

For more information about these efforts you can visit <https://homegrownnationalpark.org> and www.nwf.org/certifiedwildlifehabitat

Canopy Cover: The portion of the forest covered by crowns (tree branches, twigs, and foliage) of mature trees. Percent canopy cover, based on vertical projection, can range from 0 to 100.

Central Hardwoods Bird Conservation Region: Includes portions of 10 states (AL, AR, IL, IN, KS, KY, MO, OH, OK, TN). The region is dominated by oak-hickory deciduous forest and includes some of the most extensive forests in the middle of North America (www.nabci-us.org)

Clear-cutting: Even-aged regeneration technique in which a new age class of trees develops after removal of most-to-all trees in the previous stand. Clear-cutting provides sunlight to younger trees and can be used to regenerate species that do not tolerate shade.

Closed Canopy Forest: A forest condition in which trees occupy most of the growing space, and little light can penetrate through to the forest floor. In these forests, beech, maple, and other trees create a mostly closed canopy with a dense midstory and a mostly bare understory. Occurs in areas less prone to burning, often in coves, along stream valleys, on lower northerly slopes, and unmanaged areas.

Cowbird Brood Parasitism: The process of Brown-headed Cowbirds laying eggs in the nests of other bird species (hosts). As a result of parasitism, host species usually raise cowbirds almost exclusively.

Crop Tree Release: A silvicultural treatment intended to provide increased growing space to selected trees through the removal of crown competition from adjacent trees.

Even-aged Forest Management: Silvicultural system that produces trees regenerated at the same time and roughly the same age across the entire stand (e.g. clear-cuts, shelterwood harvests). Shade-intolerant species such as oak are typically managed through this type of management.

Forest Stand: A contiguous group of trees relatively uniform in age-class distribution, composition, and structure, that is a distinguishable unit from adjoining areas or

stands. For each stand, a forester can prescribe a set of silviculture techniques to be applied.

Forest Stand Improvement: Any management activity used to improve forest conditions or health. Typically, non-commercial such as removing undesirable or poor-formed trees and invasive species.

Forest Fragmentation: The process of creating smaller and more isolated forest tracts through land type conversion (e.g. agriculture, housing). This process often leaves many bird species more susceptible to nest predation and Cowbird brood parasitism. Management activities that alter forest age or structure are not considered fragmentation because it remains in a forested condition.

Forest Management Plan: A site-specific conservation plan that contains detailed information about a property and provides a road map to achieving a landowner's goals by recommending stand-specific management actions.

Group Tree Selection: Uneven-aged silvicultural system that involves removing small groups of trees (up to 2 acres) within a larger forested stand to regenerate a new cohort of trees within the gaps. This occurs multiple times over years to create three or more age classes within the stand. Typically used to regenerate species ranging from tolerant to moderately intolerant of shade depending on location within the gap.

Invasive Species Control: Removal and management (suppression) of aggressive, non-native plants. Control of invasive plant species can include hand-pulling, digging, pruning, and/or the use of herbicides to kill or limit their spread. Prescribed fire can also be used.

Midstory: Intermediate canopy layer. The layer of vegetation in a forest that consists of those trees whose height is between the heights of the smallest and tallest trees.

Non-commercial Thinning: An intermediate thinning that occurs to improve growing conditions by removing poor-quality or less desirable trees to improve overall forest quality and/or wildlife habitat.

Oak Woodland: Depending on geography and fire-return interval this forest type can range from a forest with as much as 80% canopy cover to a much more open woodland setting, always with oaks as the dominant canopy tree species.

Prescribed Fire/Burn: The managed application of fire to restore health to ecosystems that depend on fire.

Shelterwood Cutting: Even-aged silvicultural system aimed at creating a new generation of trees within an existing stand of trees, avoiding periods of treelessness. Initial cuttings remove midstory trees and enough overstory trees so that sufficient sunlight reaches the forest floor — allowing for regeneration of shade-intolerant tree species. Shelterwood systems have many variations.

Single Tree or Individual Selection: Uneven-aged silvicultural system that involves removing single trees throughout the stand to regenerate mostly shade-tolerant species where trees were removed. Multiple cuts can be made over time to create multiple age classes within the stand.

Snag: Standing dead or dying tree.

Uneven-aged Forest Management: Silvicultural system that produces stands that contain trees of multiple ages, ranging from recently established seedlings to large, mature trees (e.g. single/individual tree and group selection cuts). Management is carried out every 15-20 years to continually establish new cohorts of regeneration. Typically used for shade-tolerant to moderately shade-intolerant species.

Young/Regenerating Forest: Stage of forest development that includes a dense understory of grasses, forbs, shrubs, and sparse tree cover (10-30% canopy cover). Examples would be forested areas post-disturbance (e.g. catastrophic fire or windstorm) and clear-cuts for several years post-harvest.



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in your forest at www.chjv.org