

Bird-Friendly Forest Management in Central Appalachian Forests

A Silviculture Guidebook for Foresters



Shelterwood harvest.

This bird-friendly forestry guidebook and corresponding management plan template were created to inform and guide foresters and land managers on bird-friendly forestry practices in the hardwood forests of the Central Appalachian Mountains. Bird-friendly forestry is management that takes account of habitat needs of focal bird species. Management plans written from a "bird's-eye view" aim to improve wildlife habitat as part of supporting overall forest health and timber growth. The focal area of this resource is West Virginia, but the concepts may be broadly applicable elsewhere in the Appalachian Mountains region.

Forest Stewards Guild

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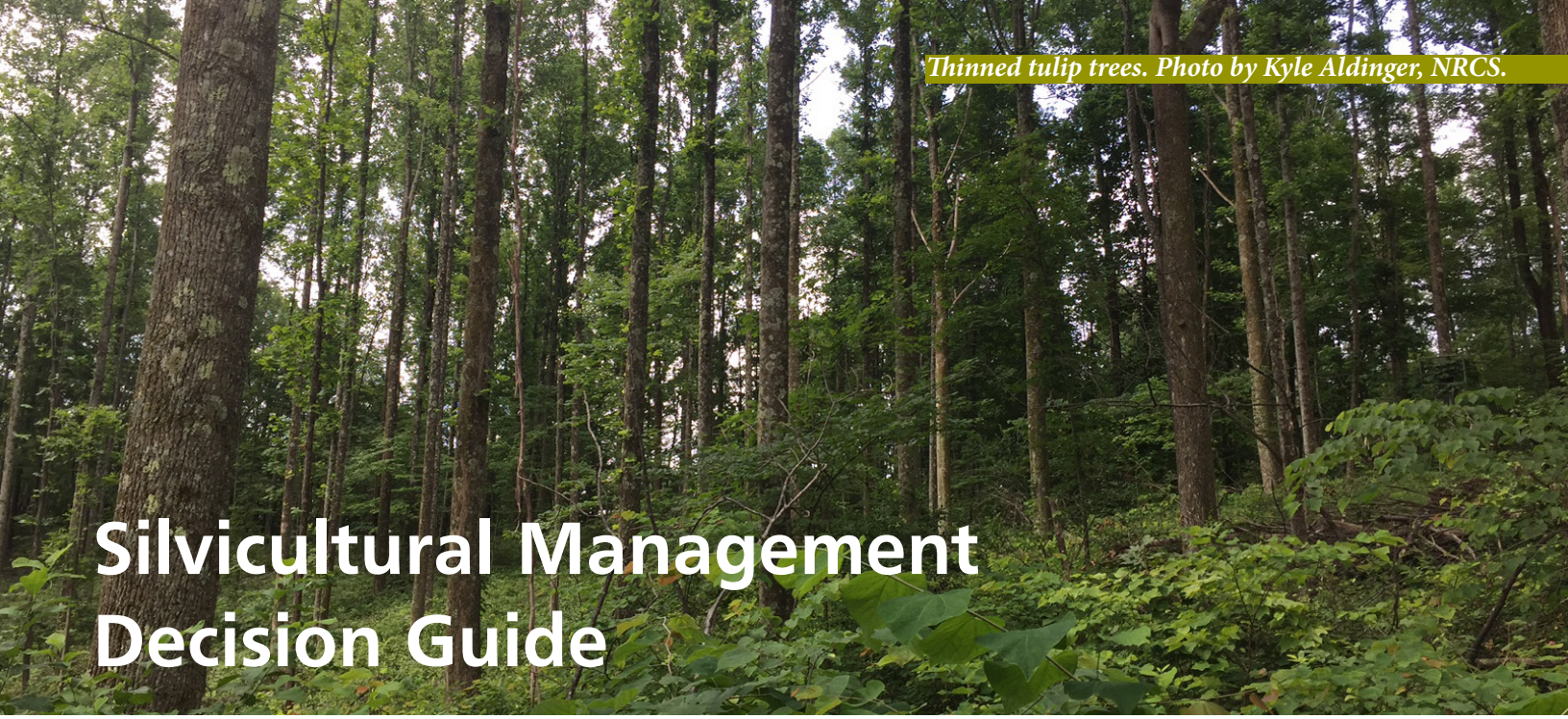


Thinned tulip trees. Photo by Kyle Aldinger, NRCS.

Silvicultural Management Decision Guide

Why Birds Can Be the Voice of the Forest

Birds are crucial for forest health, performing important ecological functions such as insect-eating and seed dispersal. Though their influence on timber quality has not been extensively studied, it is known that the consumption of native insects and non-native pests by birds reduces the likelihood of damaging insect infestations of forests. Put simply – birds are needed to grow nice trees.

Non-industrial landowners value their forests for many reasons. Common reasons include enjoying and protecting nature, providing a tangible asset for future generations, and generating income in the present. When landowners are asked about their forest management goals, most state that providing a place for wildlife and plants to live and thrive is more important than anything else (*i.e.*, timber, recreation, legacy, etc.). Accordingly, foresters and other practitioners can successfully connect with landowners by using wildlife as an objective for forest management.

Referencing wildlife, and more specifically birds, is a crucial starting point in discussing forest management with landowners because the presence of certain species often indicates quality habitat. Forests in Central Appalachia are home to many different species of birds with diverse habitat needs. Some species prefer mature forests with high structural diversity while others are more often found in younger, regenerating stands. Often, individual species may use different forest ages and structures depending on the stages of their breeding cycles. An unfragmented forest landscape with a diversity of habitats is likely flush with the sound of songbirds. Through watching the behavior of birds, both foresters and landowners can see the specific habitat features that forests provide. By targeting those features, silviculture can make working forests better places for birds.

Icons of Central Appalachian Forests

There are many ways to describe a forest such as species composition, age class, structure, and more. This guide features three bird species whose habitats represents desirable forest conditions: Golden-winged Warbler, Cerulean Warbler, and Wood Thrush.


Joe Girgente

Golden-winged Warbler

The Golden-winged Warbler is is a small songbird with a silvery-gray body and bright yellow "flashes" on the head and wings. Males have a black mask and throat while females do not. Note that individuals often hybridize with Blue-winged Warblers, creating a range of patterns and forms. The typical song is high-pitched and buzzy with the first note higher than the rest.

Concerns

Golden-winged Warbler populations have been in decline for the last several decades. In fact, they have experienced one of the steepest declines of any North American songbird – especially in the Appalachian Mountains. Habitat loss and hybridization with the Blue-winged Warbler* are among the causes of decline.

Landscape

Golden-winged Warblers prefer a mosaic of cover types within eastern deciduous forests. They are found most often in early successional habitats with a mix of shrubs, saplings, grasses, and forbs adjacent to mature stands within a mostly forested landscape. When breeding and nesting, they prefer openings with trees no larger than saplings, and after fledging, disperse into mature stands.

Ideal sites for restoration are at elevations above 2,000 feet and are surrounded by >70% forest cover within a 1.5-mile radius. Golden-winged Warblers prefer sites where forest cover is composed of at least 80% deciduous species. Important tree associations include tulip tree-red oak, sugar maple-beech-yellow birch, and mixed oak. The ideal site will not be near major development and will be within 15 miles of known nesting Golden-winged Warbler populations.


Kyle Aldinger, NRCS

Other species that share similar habitat

White-eyed Vireo, Blue-gray Gnatcatcher, Gray Catbird, Brown Thrasher, Yellow Warbler, and other early successional species.

*Note that Blue-winged Warbler itself is a Species of Greatest Conservation Need, and has experienced widespread declines.

Cerulean Warbler

Male Cerulean Warblers are small, slender, sky-blue birds with white and black streaking on the wings and back and a thin dark-blue to black neck band. Females are a muted bluish-green and typically lack the neck band. Their song starts with three buzzy notes, followed by four fast warbles, and ends with a higher pitched buzzy trill.

Concerns

West Virginia hosts 34% of the global population of Cerulean Warblers, more than any other state or province. Since the mid-1960s Cerulean Warbler populations have experienced a 70% decline. These declines are mainly due to loss of structurally complex forest across the species' range.

Landscape

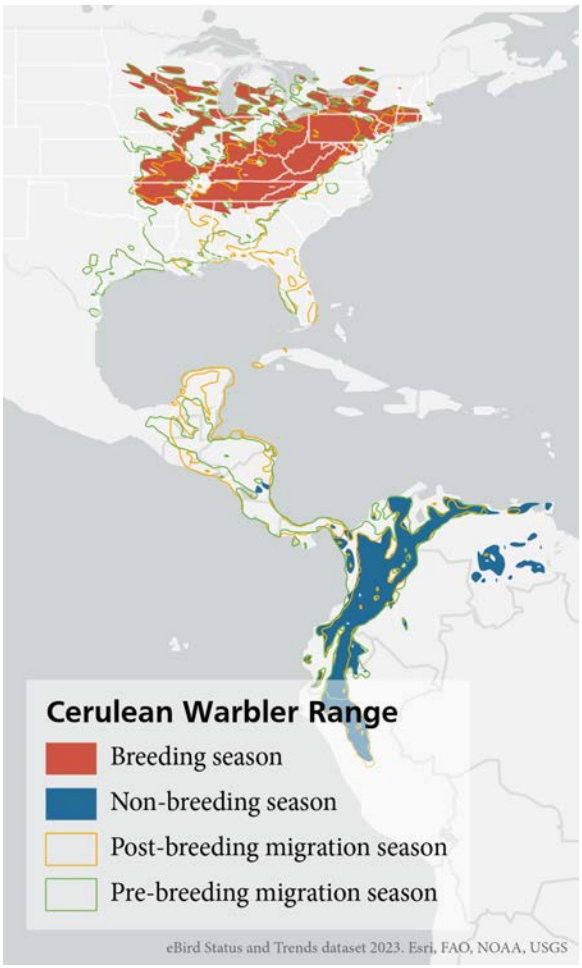
Cerulean Warblers prefer older deciduous forests with late-successional characteristics such as large trees and canopy gaps. Within the Appalachian range, Cerulean Warblers primarily occur on ridgetops and steep, upper slopes. They are generally associated with white oak-dominated stands with structurally complex canopies.

The ideal site for a Cerulean Warbler restoration area is on middle or upper slopes, or ridgetops surrounded by >75% forest cover within a 6-mile radius. Cerulean Warblers prefer north and northeast aspects but will respond wherever hydrology and soils promote white oak and other preferred species. Preferred species composition includes white and chestnut oaks, black cherry, and sugar maple. It should also been noted that Ceruleans heavily depend on grapevine for nest building.

Kyle Aldinger, NRCS

Other species that share similar habitat

Blue-gray Gnatcatcher, Brown Creeper, Ovenbird, Kentucky Warbler, Hooded Warbler, Summer Tanager, many species of forest-dwelling bats, and other species found in structurally complex forests and near water.




Wil Hershberger

Wood Thrush

Wood Thrushes are pot-bellied birds with brown backs and black-spotted white bellies. Their song is flute-like and often starts with three notes going up in pitch and ends with a high-pitched trill.

Concerns

Wood Thrushes are abundant at lower elevations in Central Appalachian forests, with reduced presence in montane northern hardwood forests. However, Wood Thrush populations have been decreasing range-wide for decades, resulting in an overall population decline of 50% from 1966 to 2019. Losses are primarily due to reductions in forest quantity and quality, with many contributing factors. The decline prompted 14 states, including West Virginia, to designate the species as a Species of Greatest Conservation Need.

Landscape

Wood Thrushes can be found in hardwood and mixed forests with heterogeneous structure, often near open water, streams, or wetlands. Post-breeding, Wood Thrushes typically utilize early successional forest habitats.

The ideal site for a Wood Thrush treatment area is an intermediate to older-aged stand 250 acres or more in size in a landscape with >80% forest cover. Wood Thrushes prefer cool, moist deciduous forests with canopies >50 ft tall. Often, forest extent is more important than stand-level habitat features.


Kyle Aldinger, NRCS

Other species that share similar habitat

Acadian Flycatcher, Veery, Hermit Thrush, Ovenbird, Worm-eating Warbler, Kentucky Warbler, Hooded Warbler, and Scarlet Tanager.

Silvicultural Management Suggestions

Bird-friendly forestry aims to create forest conditions that will enable birds to breed, feed, and raise their young. It is important to note that managing for all species within one stand is often not a realistic goal. The three focal species in this guide are representatives of different habitats, and while managing for all three across the landscape is desirable, managing for all three within a single stand is seldom feasible. Creating bird-friendly forests starts with assessing forests and habitats at both the landscape and the stand level to determine appropriate management actions.

Step One: Know Your Forest Communities

Every good forest management plan begins with an inventory. Managing forests for birds generally requires consideration of existing conditions and features, and recognizing a stand's forest type is the first step in any inventory.

Northern Hardwood Forest

In West Virginia, this forest type primarily occurs in the Allegheny Mountains. Common trees of northern hardwood forests include American beech, black cherry, red maple, sugar maple, and yellow birch. At times basswood, Eastern hemlock, Fraser magnolia, Northern red oak, red spruce, sweet birch, white ash, and yellow buckeye are present in stands. Characteristic midstory species include mountain holly and striped maple. Common herbaceous species include ferns, mountain wood sorrel, painted trillium, and yellow fairybells.

Jim Vanderhorst, WVDNR

Appalachian Oak Forest

Upland oak forests are often the most abundant ecosystem across the landscape, with moisture regimes ranging from dry to dry-mesic. These forests are mostly closed-canopy and are dominated by a mixture of oaks, hickories, maples, and pine species. Common species include chestnut oak, Eastern white pine, mockernut hickory, Northern red oak, pignut hickory, red maple, scarlet oak, shagbark hickory, sugar maple, tulip tree, Virginia pine, and white oak. Subcanopy trees include blackgum, dogwood, and sourwood. On dry, acidic sites heath shrubs are common including blueberries, huckleberries, and mountain laurel.

Kyle Aldinger, NRCS

Appalachian Cove Forest

Cove forests in the Central Appalachians can be classified into rich or acidic subtypes. Common trees in rich cove forests include basswoods, bitternut hickory, sugar maple, tulip tree, white ash, and yellow buckeye. The most obvious distinguishing characteristic is lush herbaceous growth. Typical overstory trees of acidic cove forests include cucumber magnolia, Eastern hemlock, Eastern white pine, Fraser magnolia, red maple, sweet birch, and tulip tree. Unlike rich cove forests, acidic cove forests characteristically have dense shrub layers with great laurel as the dominant shrub.

Kyle Aldinger, NRCS

Planted Pine

Pine plantations in West Virginia are uncommon and currently compose 1.4% of the forested acreage in the state. Common species include loblolly, shortleaf pine, and white pine. Currently, there are no recommendations for bird-friendly forestry in pine plantations.

Abandoned Agricultural Land

When cleared farmland is left unattended, grasses and herbaceous growth give way to shrubby, young forest which will eventually succeed to forest unless actively managed to maintain an early successional state. Common herbaceous species include asters and goldenrods, and common woody species include blackberries, black locust, hawthorns, and red maple. Non-native invasive plant species, such as autumn olive, often grow in abundance in these sites.

Step Two: Assess the Forest from a 'Bird's-eye View'

There are a number of key features needed within a forest stand to create desirable conditions for Central Appalachian birds. To assess a stand for its value to birds, you will need to look at the stand from a "bird's-eye view." Are there places for birds to forage in all canopy layers? Are there places for birds to nest safely? To assess the value of your forest stands for birds, complete the printer-friendly assessment on the following two pages. Once the assessment has been completed, use that information to help determine which management actions to take. Certain terms in the assessment are defined as follows.

Cover - Open Canopy: Gaps in the forest with no trees to create space for sunlight to reach early-successional species such as grasses and shrubs.

Cover - Closed Canopy: Forests often have closed canopies, meaning the tree canopy does not allow sunlight to reach the forest floor.

Midstory: The layer of mid-sized trees between the overstory and understory that often provides important elements such as structure, snags, and soft mast-producing tree species.

Understory: The layer of saplings, shrubs, and herbaceous plants that can grow with varying levels of light.

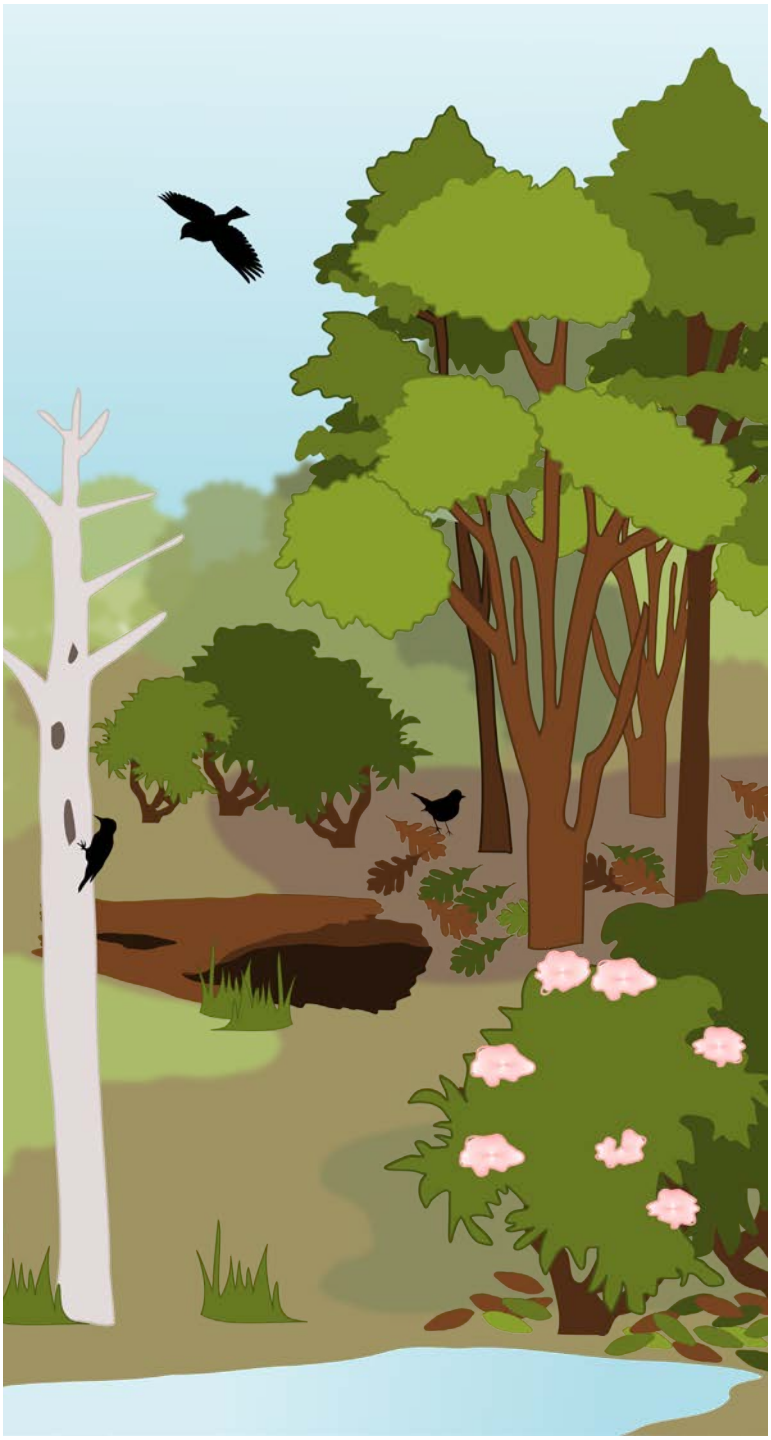
Water: Vegetation communities along the margins of water bodies such as vernal pools, streams, rivers, and lakes often include plants that prevent erosion and provide food and cover for wildlife.

Structural Features: Variability in forest structure includes differences in size of live tree and other vegetation, foliage distribution, and variation in canopy density horizontally and vertically.

Snags and Cavities: Standing dead or dying trees provide a place to forage and nest.

Coarse Woody Material: Fallen trees and limbs add structure to the forest floor and support insect prey for birds.

Fine Woody Material and Leaf Litter: Undecomposed organic matter such as small branches, twigs, leaves, and needles on the forest floor provides nesting material and foraging substrate.



Bird Habitat Assessment Form

These data can supplement a traditional forest inventory or be a standalone assessment tool. Assessments may be completed alongside each timber cruising point or as a summary of stand conidtions.

Landowner Name		**Date**	
Stand ID		**Plot ID**	
GPS Location		**Elevation**	
Forest Type		**Age (circle one)**	**Young Intermediate Mature**

Canopy/Vegetation Layers

Overstory	**Dominant Species**	**Size Classes** # of Small (<9" DBH): _____ # of Medium (9-12" DBH): _____ # of Large (12-18" DBH): _____ # of Very Large (>18" DBH): _____ **Basal Area:** _____
	Canopy Height ___ < 30' ___ 30-60' ___ 60-90' ___ > 90'	
Midstory	**Dominant Species**	**Percent Cover*** ___ High (>70%) ___ Medium (30-70%) ___ Low (5-30%) ___ Very Low (<5%)
Understory	**Dominant Species**	**Percent Cover*** ___ High (>70%) ___ Medium (30-70%) ___ Low (5-30%) ___ Very Low (<5%)

Canopy Gaps	**Present? (Y/N)** How many per unit?	**Average Size** ___ <0.25 acres ___ 0.25-0.5 acres ___ 0.5-1 acre	___ 1-2 acres ___ >2 acres

Snags/Cavity/Decay Trees

Count the number of snags/cavity/decay trees > 6'

Small (<9" DBH)	Medium (9-12" DBH)	Large (12-18" DBH)	Very Large (>18" DBH)
#	#	#	#

Dead Woody Material

Coarse Woody Material Count the number of logs/ branches on forest floor >6" diameter and >4' length	___ High (>20 pieces, difficult to walk in places) ___ Medium (6-20 pieces, occasionally need to step over pieces) ___ Low (<6 pieces, easy to walk through, park-like)

Fine Woody Material Estimate the amount of twigs, small branches and tops/slash	___ High (>5 piles) ___ Medium (1-4 piles) ___ Low (No piles)
Leaf Litter Estimate average leaf litter thickness	___ Adequate (>1.5" thick) ___ Not Adequate (<1.5" thick) ___ Not Applicable

Forest Health		
Invasive Plants	**Species Present**	**Percent Cover**
Herbivory, Invasive Insects, and/or Disease	**Describe**	
Water *E.g.*, distance from flowing water, wetland habitat present, etc.	**Describe**	

Notes

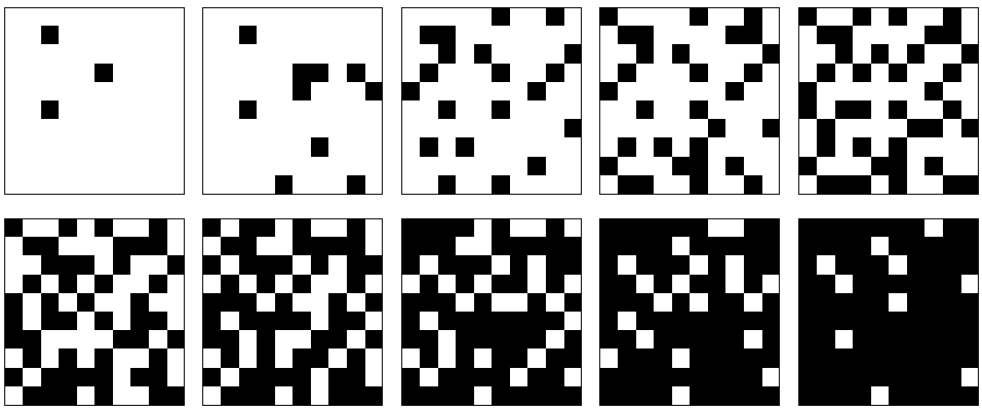
*Guide to Estimating Percent Cover

Very Low (<5%): Virtually no cover present

Low (5-30%): Little cover throughout or in small patches

Medium (30-70%): Moderate cover throughout or scattered patches of dense cover

High (70-100%): Dense cover throughout the area

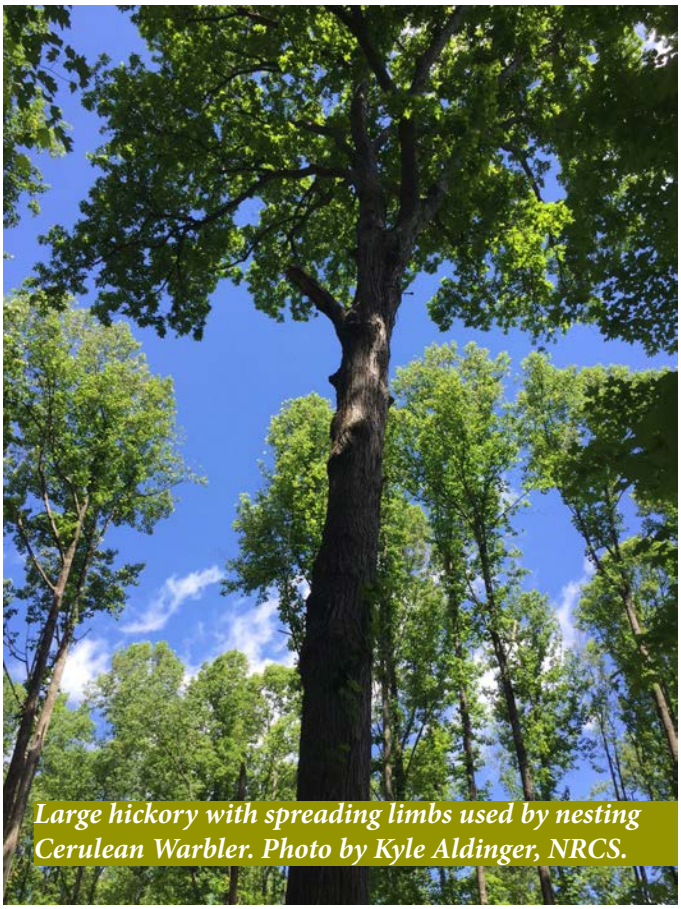


The shaded boxes represent the visualization of percent cover from 5% in the upper left to 90% in the lower right

Step Three: Management Suggestions

The habitat needs of the three focal bird species in this guide vary, and managing for one of them will also benefit other species with similar habitat requirements. Additionally, there are some universal management practices to maintain bird-friendly features such as habitat connectivity and structural diversity that will benefit overall bird species diversity and abundance. Specific habitat characteristics that are required by certain species, such as the importance of shrublands and young forest for Golden-winged Warblers, can be achieved through implementing a select few silvicultural practices.

After completing the Habitat Assessment, compare your results to the habitat needs of our three focal species in Table 1.



Large hickory with spreading limbs used by nesting Cerulean Warbler. Photo by Kyle Aldinger, NRCS.

Cerulean Warbler.

Universal Management Practices

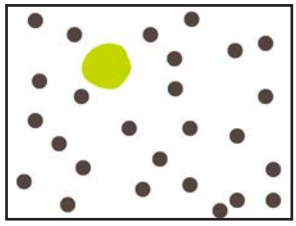
- Prioritize sites in proximation to existing target species populations. This is crucial for inhabitation by the species.
- Always seek to address invasive species management prior to silvicultural treatment or in conjunction with the management activity.
- Retain trees containing small and large cavaties and limit damange to cavity trees during harvest.
- Manage for a mosaic of forest types across the landscape. Birds and other wildlife need young forest as well as mature forests and sometimes, 'doing nothing' and letting the forest grow is an active management decision.
- Keep contiguous buffers along perennial streams and limit management in riparian zones.
- Limit management activities during bird breeding seasons when possible.
- Soften edges between habitats. An example of an abrupt edge is the border between a forest and a farm, and can cause negative edge effects. Negative edge effects are the consequences of abrupt changes in conditions between differing vegetation communities. Negative edge effects include increased risk of predation, brood parasitism, invasive species invasion, and adverse microclimate conditions.

Table 1. Focal Species Habitat Needs.

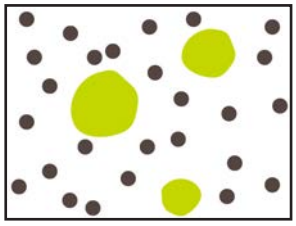
Focal Species Habitat Needs		Golden-winged Warbler	Cerulean Warbler	Wood Thrush
Forest Type		Hardwood	Hardwood	Hardwood, Mixedwood
Age Class		Young Forest	Older Forest	Intermediate to Older Forest
Elevation		>2,000 feet	<3,000 feet	<4,000 feet
Overstory	**Dominant Species**	80% deciduous overstory American beech, red oaks, sugar maple, tulip tree, yellow birch	Chestnut oak, hickories, sugar maple, white oak	American basswood, American beech, black birch, hickories, maples, oaks, pines, tulip tree
	Canopy Height	Variable	Variable	>50 feet
	Size Classes	Widely spaced trees >9" DBH	Variable Well-spaced trees >16" DBH	Variable
	Basal Area	10-40 sqft/acre	45-90 sqft/acre	90-130 sqft/acre
Midstory	**Dominant Species**	Variable	Black cherry, black locust, grapevine	Flowering dogwood, mapleleaf viburnum, rhododendron, sassafras, spicebush, striped maple, witch-hazel
	Percent Cover	30-70% Uneven distribution of shrubs and saplings	30-70% Diverse structure	55-80% Diverse structure
Understory	**Dominant Species**	Forbs and some grasses	Diverse structure	Diverse structure
	Percent Cover	Low to Medium	Medium to High	Low to Medium
Canopy Gaps		5-25 acres Patches should be >5 acres if within 1,000 feet of other young forest patches or >25 acres if no other young forest is nearby	0.01 to 0.02 acres	¼ acre to 1 acre Total area of sapling patches could range from one to tens of acres if distributed properly
Snags		Retain for other species benefit		
Coarse and Fine Woody Debris		Scattered woody material should occupy <25% of the area of gaps	Variable	Variable
Leaf Litter		Variable or not applicable	Variable	>1.5" thick
Water		Will use brushy riparian areas	Often found close to water	Riparian associated

How can I enhance habitat for Golden-winged Warblers and other associated species?

Golden-winged Warblers are associated with shrubby, young forest with thick herbaceous cover. To achieve the conditions outlined in Table 1, we recommend implementing a regeneration harvest: clearcut with reserves, seed tree, or shelterwood. In any method we recommend implementing feathered edges to reduce abrupt edges.



Clearcut

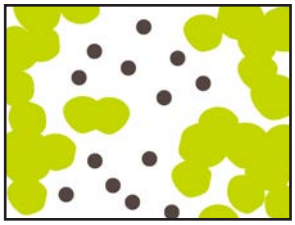


Seed Tree

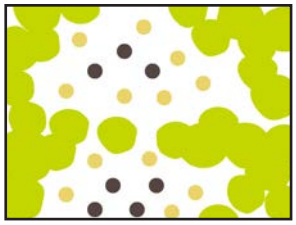
Shelterwood

How can I enhance habitat for Cerulean Warblers and other associated species?

Cerulean Warblers are associated with forests with complex canopy structure with scattered large trees and canopy gaps with dense foliage. To achieve the conditions outlined in Table 1, we recommend implementing a regeneration harvest: group selection, *femelschlag*, or shelterwood with reserves. In any method we recommend implementing feathered edges to reduce negative edge effects.



Group Selection

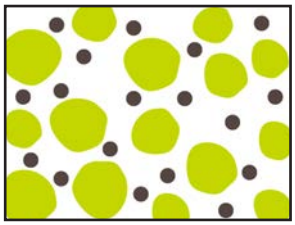


Femelschlag

Shelterwood

How can I enhance habitat for Wood Thrush and other associated species?

Wood Thrush are associated with closed canopy forests with a mix of large and small trees and an open forest floor, though forest extent is often more important than stand-level habitat features. To achieve the conditions outlined in Table 1, we recommend implementing crop tree management practices: crown thinning or other intermediate treatments. Single-tree regeneration treatments may also be appropriate.



Crown Thinning

Single Tree Selection

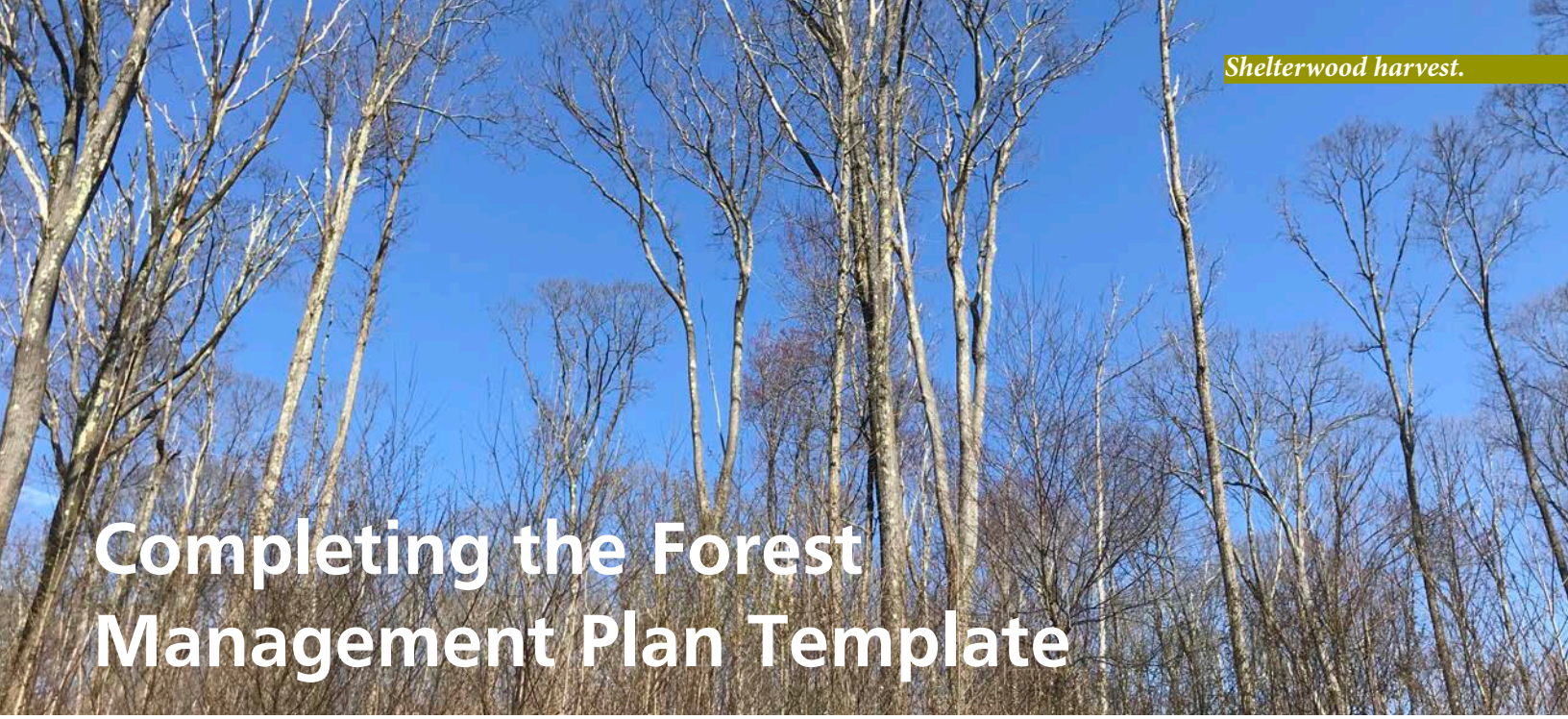
Step Four: Incorporate into Forest Management Plan

After the conditions of your forest have been evaluated and a management strategy has been determined, incorporate the suggestions into a Forest Management Plan. It is important to highlight the connections among forest structures, bird habitat, and active management. A forest managed to improve conditions for birds can also support healthy watersheds, sustainable timber harvests, and resilient communities. Birds bring management objectives into focus, help us see the big picture, and with thoughtful stewardship will continue to sing and provide valuable ecosystem functions in working forests for generations to come

Tree removal. Photo by Liz Brewer, AMJV.

Male Golden-winged Warbler. Photo by Kyle Aldinger, NRCS.

Post-harvest opening. Photo by K. Yoder.



Shelterwood harvest.

Completing the Forest Management Plan Template

This section is meant to be used in reference to and read alongside the Forest Management Plan Template document. The Forest Management Plan Template was structured to comply with the NRCS Conservation Planning Activity (CPA 106) requirements.

The first three pages of the document are the **Title Page**, **Signatures and Approvals**, and **Table of Contents**. The Table of Contents will update automatically when refreshed.

Before the **Introduction** section, there is a space for **Conservation Assistance Notes**. Here, Conservation Assistance Notes must be date-ordered and include initials of note-maker, date, results of the interaction or activity completed, and those present. Document each client interaction and each field visit.

The **Introduction** section includes easy-to-follow prompts that are standard in forest management plans.

Also included in the Introduction is a section regarding the land use history of the property. Here, we include a special section dedicated to the **Historical Landscape Context** of the property and/or surrounding landscape. It is important to acknowledge the history of the landscape, including the presence of Indigenous peoples and their traditional uses and connections with the land. As original stewards and inhabitants, they shaped the forest's unique mix of tree and other plant species, soils and waterways, and habitat for wildlife. Other relevant management history of the parcel will go in **Management History**.

Historical Landscape Context Example

The Smith property is located in Randolph County, West Virginia. This county is the historical homeland of several Native American nations, including the Calicuas, Massawomeck, and Shawandasse Tula (Shawnee). Before European settlement, forests of this area (including what is now the Monongahela National Forest) were used as hunting grounds and places of gathering. In fact, the word Monongahela comes from the Lenape language and means "river with sliding banks." Many of the plants found in North American forests today were foraged and cultivated for numerous uses such as food, medicine, construction materials, and musical instruments. Descendants of these tribes continue to live in West Virginia and have deep connections to the land.

The **Property Maps** section should include a location map, forest management plan map(s), and soil map(s). All maps must include map title, client name, Technical Service Provider name, conservation district, county, state, date prepared, scale, location identifier, north arrow, appropriate map symbols, and a legend. Specifically, the forest management plan

map(s) should have:

- Boundary lines for the Planning Land Units (PLUs) with labels (name, number, or both). A PLU is a unique geographic area, defined by a polygon, which has common land use and is owned, operated, or managed by the same participant or participants. The PLU is the minimum unit for planning.
- Land-use designation and any applicable land-use modifiers such as irrigation for each PLU, as appropriate. The NRCS-recognized land use names and land use modifiers are listed in the National Planning Procedures Handbook, Definitions section. (Handbook 180, Part 600.2)
- Acreage for each PLU.
- Location of sensitive resources and setbacks, if applicable.
- Locations of planned and applied management activities.
- If the planning area includes nonprivate lands, such as Federal or Tribal lands, a land status map must be included to display land ownership categories (Private, State Trust, BLM, Tribal, Territorial, etc.).

An important part of the **Property Overview** section is the **Fish, Wildlife, and Biodiversity** section as this contains some of the primary information needed to practice bird-friendly forestry.

Within the section, list the desired wildlife improvement activities taken from the Silviculture Management Decision Guide. These activities could include general practices such as snag creation, feathering of edges, and other practices deemed appropriate for the site.

Lists of rare, threatened, and endangered species and Species of Greatest Conservation Need (SGCN) by county and watershed can be found using your state's Natural Heritage Program or Department of Natural Resources datasets. Find rare, threatened, and endangered species and SGCN for the county and/or watershed of your management area and copy/paste the table into this section. In West Virginia, you can obtain these lists through the Division of Natural Resources Data Requests or NatureServe Explorer.

A list of commonly used Ecological Systems and/or Forest Types can be found in NatureServe's *Descriptions of Ecological Systems for Modeling of LANDFIRE Biophysical Settings* and corresponding GIS data can be found on their Products page.

In the **Management of Forest Resources** section, a checklist is included for habitat management recommendations. This list includes general bird-friendly forestry practices as well as species-specific practices that correspond to the Silvicultural Management Decision Guide.

In the **Forest Health Concerns** section, complete the table to list the detrimental native species impacts (*e.g.* deer over-browsing), invasive exotic pests, pathogens, and plants that currently threaten forest health or are likely to do so in the near future. Foresters and landowners should plan for the short- and long-term effects from regional invasives. Always seek to address invasive species management prior to a silvicultural treatment or in conjunction with the management activity. See Table 2 and Table 4 for example.

Use the **Monitoring of Forest Resources** section to describe the basic plan for the landowner to monitor forest growth and dynamics, wildlife habitat and use, and impacts of management activities. Monitoring may be optional and depending on the size and scale of forest management, effective monitoring can take a variety of forms. For example, a landowner could go on a forest walk twice per year and take notes about observations of invasive species present and the conditions of roads. Other actions could include listening for specific birds during breeding season, re-inventorying the forest every 10-15 years, or working with a university to conduct empirical research.

The verification of **Professional Assistance** is necessary in certain instances when applying for cost-share funding or other circumstances.

In most forest management plans, **Stand-Level Information** is the most important content. This section includes easy-to-follow prompts that are standard in forest management plans. To add additional stand description pages, click on the page and then click the

blue + on the lower right-hand corner to add more pages.

The **Forest Management Activities** schedule in this plan template includes space to include cost-share program information as desired. NRCS has state-level programs that are sometimes applicable to bird-friendly forest management practices. NRCS program schedules, project activities and corresponding codes, and rates can be found online at NRCS's Conservation by State webpage. See Tables 3 and 4 for examples.

This is the final section of the Bird-Friendly Forest Management Plan Template. Appendices can be added as needed. Useful appendices might include: additional soils information from Web Soil Survey, stand inventory data, information about focal bird species, and/or additional maps.

Table 2. Example of Forest Health Concerns entry using Japanese stiltgrass.

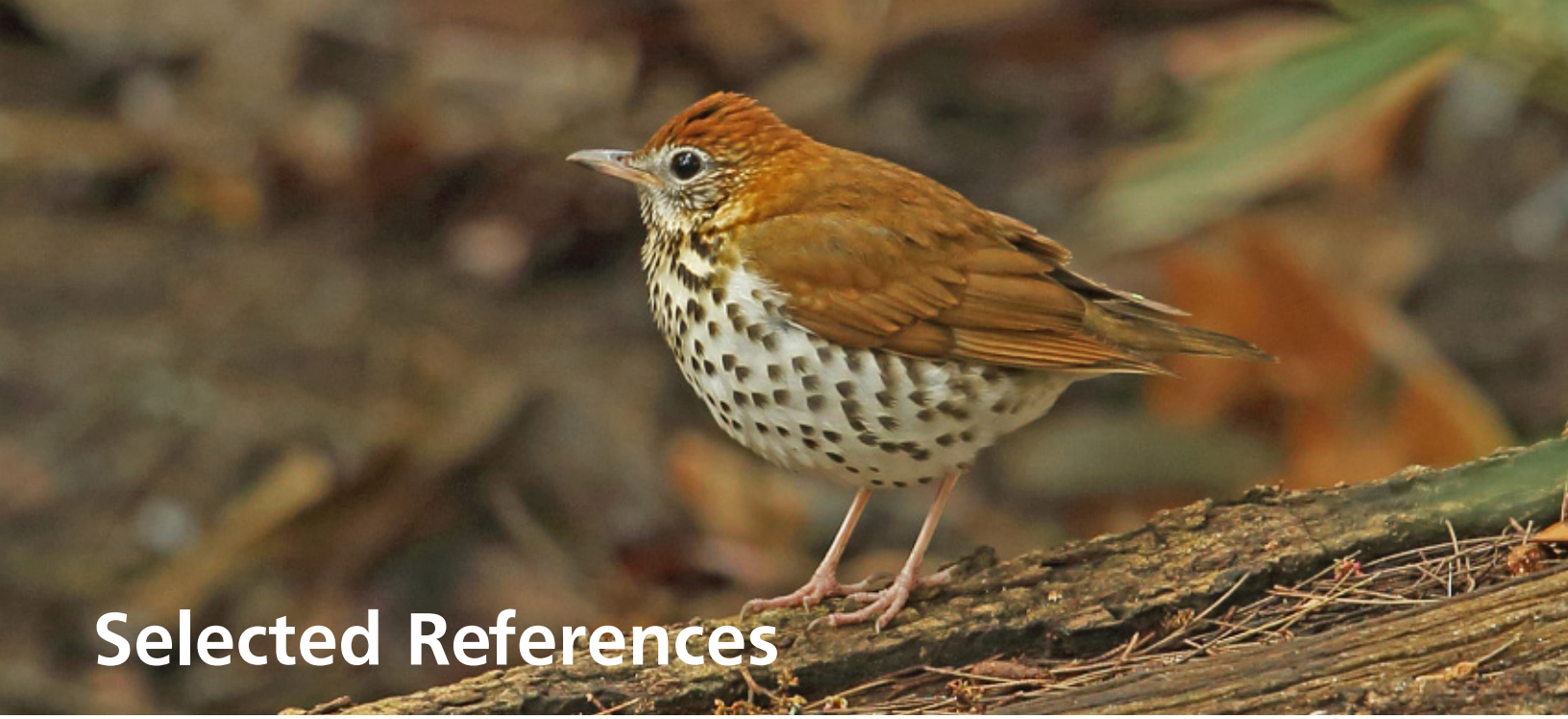
Threat	Scope (% Covered)	Severity (1-10 scale)	Potential Impacts	Mitigation Strategy
Japanese stiltgrass	14% of stand	6	Complete understory takeover	Apply herbicide and mow to stop seed production

Table 3. Example of activity applicable to an NRCS cost share program.

NRCS Tract Number	Stand(s)	Activity/Consrvation Practice	Code	Units	Planned Month/Year	Effects of No Action
T1234	1	Forest Stand Improvement	666	25 ac	2024	Lack of growing space for crop trees

Table 4. Example of activity not applicable to an NRCS cost share program.

NRCS Tract Number	Stand(s)	Activity/Consrvation Practice	Code	Units	Planned Month/Year	Effects of No Action
NA	2, 3, 4	Cut stump herbicide	NA	10 ac	2023-2026 annually	Native species displacement by invasive tree of heaven



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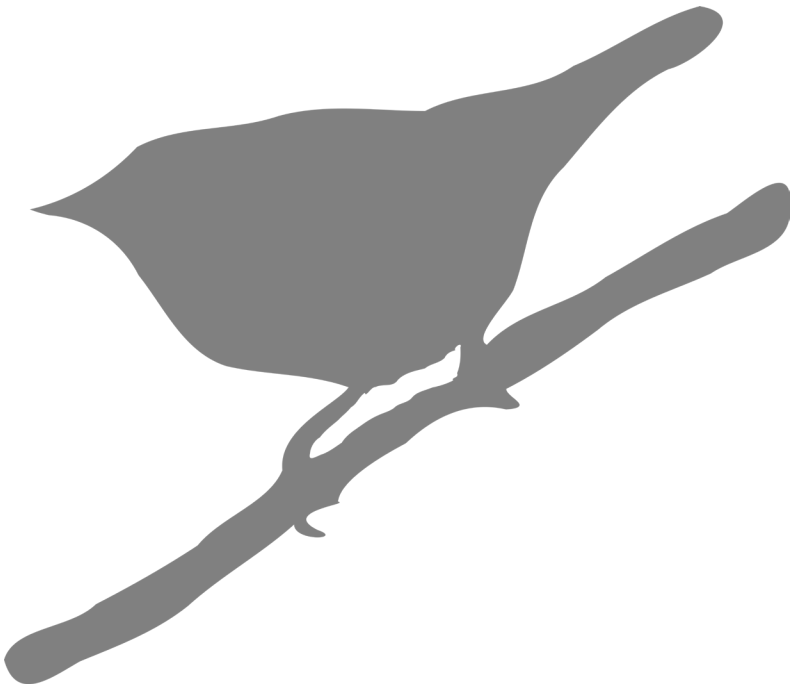

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