

# Bird Declines

North America has lost nearly three billion birds, or approximately 25%, since 1970. Birds serve as important indicators of environmental health, their populations reflecting habitat quality and ecosystem function. Their diverse roles as predators, prey, pollinators, scavengers, and seed dispersers highlight their integral place within intricate food webs.



Golden-winged Warbler. © Ryan Pennesi

## Minnesota Approach

Forestry for Minnesota Birds focuses on actionable forest management strategies that can effectively improve habitat for birds here on their breeding grounds by providing:

- **Science-based** forest management recommendations
- **Options** that align with a landowner's goals and **future generations**
- **Information** to help keep forests healthy and resilient
- **Strategies** to help forests adapt to a warming climate and other threats
- **Resources** related to Minnesota's birds, forests and forest management, fire, help for landowners, educational videos, and more



250

BREEDING  
BIRD SPECIES  
IN MINNESOTA

150

SPECIES NEST  
IN MINNESOTA'S  
FORESTS



The Forestry for Minnesota Birds Working Group is a collaborative initiative founded to create a conservation guide for woodland landowners and natural resource professionals, utilizing science-based best management practices for forest bird species.

Forest Stewards  
Guild



Natural Resources  
Research Institute

UNIVERSITY OF MINNESOTA DULUTH  
Driven to Discover®



American Bird  
Conservancy

Great Lakes  
RESTORATION



UPPER MISSISSIPPI / GREAT LAKES

JOINT VENTURE

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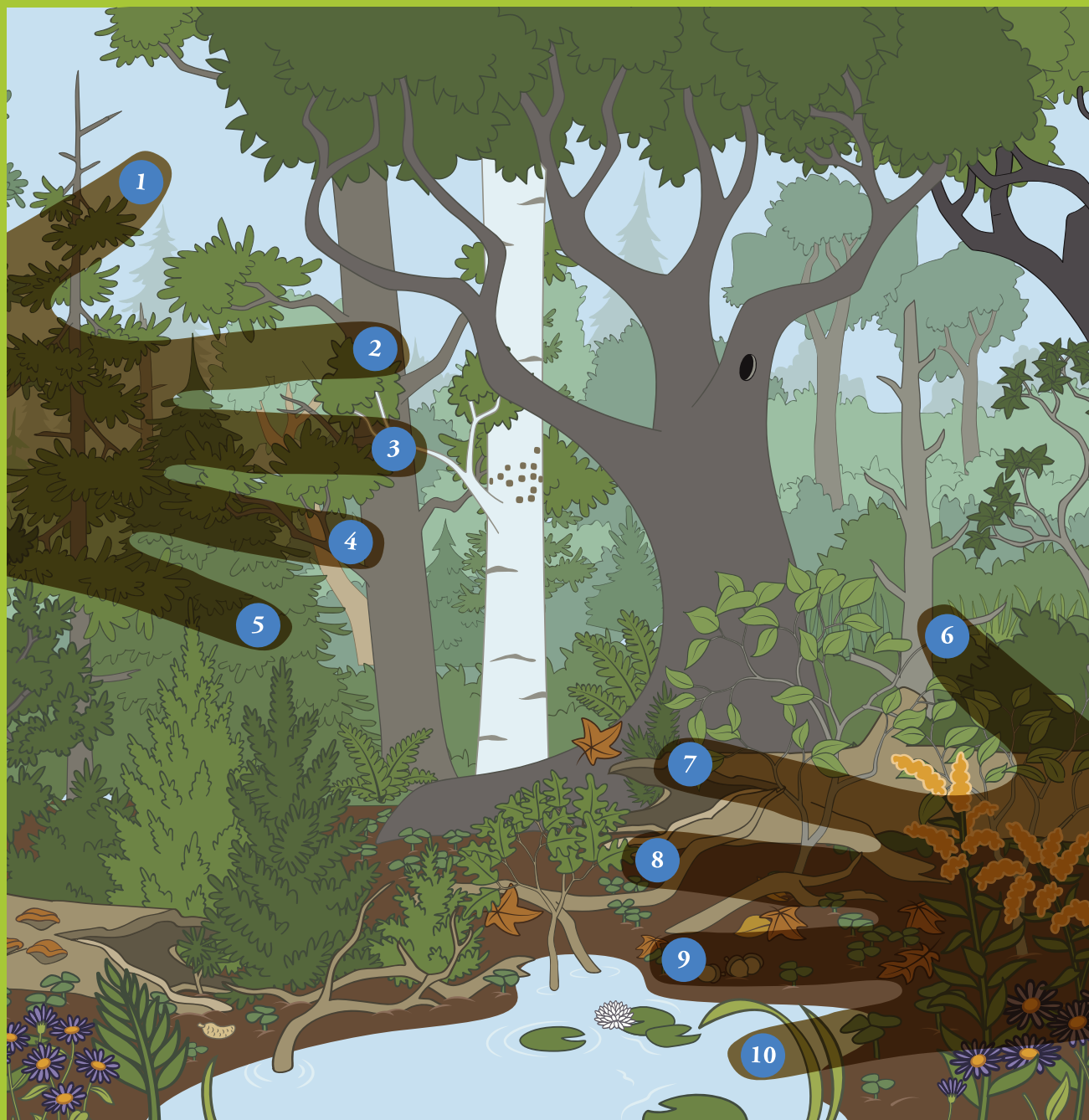
Cover Image: Pileated Woodpecker © Mark Shocken

## Forestry for Minnesota Birds



Promoting sustainable forestry practices to benefit native bird species across Minnesota's forest landscape by designing and sharing a conservation toolkit for landowners and natural resource professionals.

# Important Habitat Features for Minnesota's Forest Birds



Ever wonder how a bird sees the forest? Use your fingers to identify as many of the important forest habitat features as you can above and then try it outside! What do you see? What's missing? Download the digital guidebook using the QR code to the right or visit <https://foreststewardsguild.org/forestry-for-the-birds/>.

## 1. Canopy Gaps

Look for openings in the overhead tree canopy large enough to allow sunlight to reach the forest floor. Gaps: Small (1/4 acre), medium (1/2 acre), and large (1-2 acres).

## 2. Vertical Structure

The density and arrangement of understory plants, shrubs, saplings, and large trees, looking from the ground and up towards the sky. Is the stand mostly the same or does vertical structure change?

## 3. Large Diameter Trees

Trees a foot across or more in a stand provide different structure, cavity nesting opportunities, and future large downed wood.

## 4. Horizontal Structure

How are canopy gaps, tree density, species arrangement, or other habitat elements spread out or grouped around the stand?

## 5. Conifer Inclusions

Groups of cedar, fir, pine, or spruce provide important shelter from predators or from hot, cold, or wet weather.

## 6. Snags/Cavity Trees

Can you find standing dead trees or live trees with holes? Retain/create 4-6+ per acre. Larger, slow-rotting trees, are better.

## 7. Downed Woody Material

Large logs on the ground provide breeding display areas for grouse, habitat for fungi, insects, and salamanders, and become important to tree seedlings as they decompose.

## 8. Invasive Species

Beware of invasive plants, shrubs, or insects. Invasive species can quickly and dramatically diminish the quality of forest habitats.

## 9. Leaf Litter/Duff

In deciduous forests, is the dead leaf layer over 1.5" thick? If it's not, earthworms may be changing the composition of the forest floor. The plant and tree species may change over time.

## 10. Riparian/Wetland Areas

Note the presence or absence of streams, ponds, or wetlands, including vernal (seasonal/temporary) pools.

Access  
The Digital  
Guidebook

