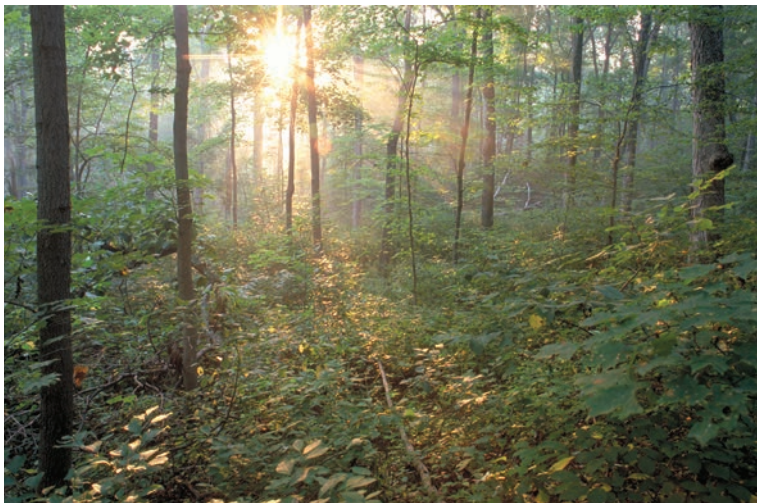




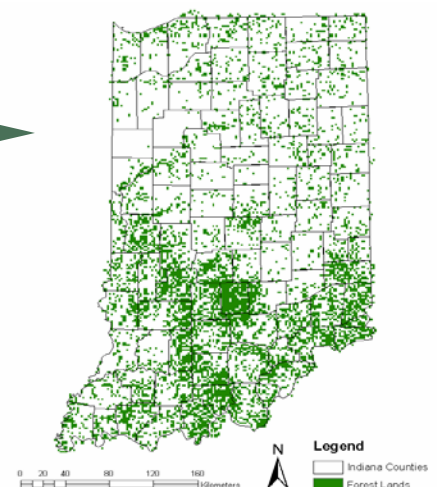
FORESTS HABITAT SUMMARY



The forest habitat guild is defined as a plant community extending over a large area and dominated by trees, the crowns of which form an unbroken covering layer or canopy. Almost 23% of Indiana is covered by forests. This habitat includes: deciduous, early forest stage, evergreen, floodplain forests, forested wetlands, mature or high canopy stage, old forest stage, pole stage, pre-forest stage, riparian wooded corridors/streams, suburban, upland and urban forests.



Almost 23% of Indiana is forested, comprising 8,686 miles² (more than 5.5 million acres). While forest lands dot the landscape in northern Indiana, heavier concentrations of woodlands follow the hillier geography of central and southern Indiana.



Indiana's State Wildlife Action Plan

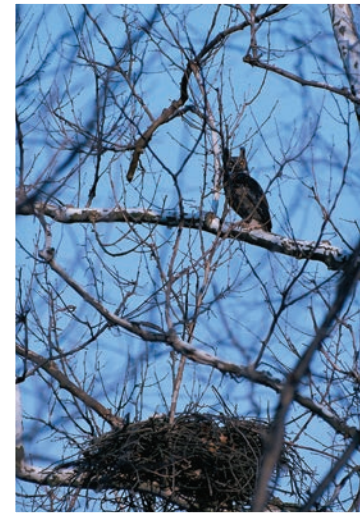
Representative Species of Forests

The forest habitat guild is represented by several wildlife and plant species. These representative species “paint a reasonable mental picture” of forests.

Spotted Salamander
 Eastern Chipmunk
 White-Tailed Deer
 Eastern Box Turtle
 Whip-Poor-Will
 Ruffed Grouse
 Pine Warbler
 Yellow-Throated Warbler
 Timber Rattlesnake
 American Robin

Wood Frog
 Fox Squirrel
 Southern Flying Squirrel
 Red-Eyed Vireo
 White-Eyed Vireo
 Field Sparrow
 Sharp-Skinned Hawk
 Pileated Woodpecker
 Tuffed Titmouse
 Baltimore Oriole

Great Horned Owl
 Red Bat
 Bobcat
 Wood Thrush
 Prairie Warbler
 Eastern Towhee
 Cerulean Warbler
 Allegheny Woodrat
 Red-Shouldered Hawk



From left to right: *Eastern Chipmunk, White-tailed deer, Great white horned owl*

Aspen
 Ash
 Elm
 Beech
 Cypress

Birch
 Yellow Poplar
 Cottonwood
 Oak
 Hickory
 White Pine

Cherry
 Eastern Red Cedar
 Maple
 Gum
 Shortleaf Virginia Pine

Indiana's State Wildlife Action Plan

Species of Greatest Conservation Need (SGCN) in Forests

SGCN are animal species whose populations are rare, declining or vulnerable.

| | | |
|----------------------------|-------------------------|----------------------------|
| Blue-spotted Salamander | Bobcat | Four-toed Salamander |
| Eastern Pipistrelle | Green Salamander | Eastern Red Bat |
| Red Salamander | Evening Bat | Bald Eagle |
| Gray Myotis | Barn Owl | Hoary Bat |
| Black-and-white Warbler | Indiana Myotis | Black-crowned Night-Heron |
| Least Weasel | Broad-winged Hawk | Little Brown Myotis |
| Cerulean Warbler | Little Brown Myotis | Common Nighthawk |
| Pygmy Shrew | Golden-winged Warbler | Rafinesque's Big-eared Bat |
| Great Egret | Silver-haired Bat | Hooded Warbler |
| Smoky Shrew | Kirtland's Warbler | Southeastern Myotis |
| Mississippi Kite | Copperbelly Water Snake | Osprey |
| Kirtland's Snake | Red-shouldered Hawk | Rough Green Snake |
| Sharp-shinned Hawk | Scarlet Snake | Whip-poor-will |
| Smooth Green Snake | Worm-eating Warbler | Southeastern Crowned Snake |
| Yellow-crowned Night-Heron | Timber Rattlesnake | Allegheny Woodrat |



From left to right: *Worm-eating Warbler, Bobcat, Indiana bat (myotis)*

Threats to Forests

- Commercial or residential development (sprawl)
- Habitat degradation
- Successional change
- Counterproductive financial incentives or regulations
- Mining/acidification
- Habitat fragmentation
- Agricultural/forestry practices
- Invasive/non-native species
- Diseases (of plants that create habitat)
- Stream channelization

High-Priority Conservation Actions for Forests

Land use planning

- Maintain or create landscapes dominated by forest in order to provide for needs of area sensitive species such as bald eagle, black-and-white warbler, black-crowned night-heron, broad-winged hawk, cerulean warbler, common nighthawk, hooded warbler, Mississippi kite, red-shouldered hawk, sharp-shinned hawk, whip-poor-will, worm-eating warbler, and yellow-crowned night-heron
- Work with local units of government for protection and management of forested habitats.
- Encourage the retention of forested corridors to connect forest blocks for SGCN, especially Indiana bat and timber rattlesnake.

Habitat protection on public lands

- Provide technical assistance to management plan development and implementation for state and federal forest properties

Habitat restoration on public lands

- Encourage sustainable timber management practices to provide a variety of forest stages for the wide variety of forest-dependent birds, including bald eagle, barn owl, black-and-white warbler, black-crowned night-heron, broad-winged hawk, cerulean warbler, common nighthawk, golden-winged warbler, great egret, hooded warbler, Kirtland's warbler, Mississippi kite, osprey, red-shouldered hawk, sharp-shinned hawk, whip-poor-will, worm-eating warbler, yellow crowned night-heron

Succession control (fire, mowing)

- Encourage sustainable timber management practices to provide a variety of forest stages for the wide variety of forest-dependent birds, including bald eagle, barn owl, black-and-white warbler, black-crowned night-heron, broad-winged hawk, cerulean warbler, common nighthawk, golden-winged warbler, great egret, hooded warbler, Kirtland's warbler, Mississippi kite, osprey, red-shouldered hawk, sharp-shinned hawk, whip-poor-will, worm-eating warbler, yellow crowned night-heron

Corridor development/protection

- Investigate features of functional dispersal corridors in forests that benefit SGCN.
- Promote development and retention of functional dispersal corridors in forest to benefit SGCN.

Habitat protection incentives (financial)

- Encourage sustainable timber management practices to provide a variety of forest stages for the wide variety of forest-dependent birds, including bald eagle, barn owl, black-and-white warbler, black-crowned night-heron, broad-winged hawk, cerulean warbler, common nighthawk, golden-winged warbler, great egret, hooded warbler, Kirtland's warbler, Mississippi kite, osprey, red-shouldered hawk, sharp-shinned hawk, whip-poor-will, worm-eating warbler, yellow crowned night-heron
- Support enrollment into state-sponsored forest management programs such as Classified Forest and Classified Wildlife Habitat programs.
- Provide technical assistance to forest habitat protection incentive programs, such as Farm Bill programs and Forest Legacy.

Habitat restoration through regulation

- Promote forest restoration practices that use native trees, protection natural drainage and protection of other landscape features to benefit SCGN in forest restoration projects conducted under state permit or receiving public funds.

Habitat protection through regulation

- Provide technical assistance to regulatory agencies protecting forest habitat to benefit SCGN.

Habitat restoration incentives (financial)

- Support enrollment into state-sponsored forest management programs such as Classified Forest and Classified Wildlife Habitat programs

Adaptive Management

- Modify survey and monitoring, research and other conservation actions and activities in response to new information to improve habitat conservation efficiency for SCGN.

Threats to SCGN in Forests

- Habitat loss (breeding range)
- Habitat loss (feeding/foraging areas)
- Degradation of movement/migration routes (overwintering habitats, nesting and staging sites)
- Viable reproductive population size or availability
- Predators (native or domesticated)
- Diseases/parasites (of the species itself)
- Unintentional take/ direct mortality (e.g., vehicle collisions, power line collisions, by catch, harvesting equipment, land preparation machinery)
- Specialized reproductive behavior or low reproductive rates
- Invasive/non-native species
- Small native range (high endemism)

High Priority Conservation Actions for SCGN in Forests

Habitat protection

- Protect forest habitat especially forest in close proximity to wetlands, rocky glades or connecting corridors between forest blocks for copperbelly water snakes, rough green snakes, scarlet snakes, southeastern crowned snakes and timber rattlesnakes
- Determine what constitutes high quality foraging and roosting habitat for forest dwelling bats.
- Implement silvicultural strategies that provide for a continuous supply of large, dead and/or dying deciduous trees to provide roost sites for crevice-dwelling bats such as the Indiana bat.

Protection of migration routes

- Investigate forest distribution in Indiana and provide adequate forestlands for migrating birds and bats.

Population management

- Determine distribution and relative abundance of rare forest-dependent wildlife such as the Indiana bat, Northern myotis, and Allegheny woodrat.
- Develop survey and monitoring programs for forest-dwelling bats.
- Develop survey and monitoring programs for Allegheny woodrats and other forest-dwelling rodents.

Food plots

- Provide for adequate regeneration of native tree species to provide adequate food for forest dwelling SGCN.

Regulation of collecting

- Develop technical assistance materials that promote leaving SGCN in the natural environment.

Threats reduction

- Determine threats to forest-dwelling bats.
- Determine impacts of different forest management regimes on habitat quality (foraging and roosting) for forest-dwelling bats.
- Investigate the impact of forest management practices on the blue-spotted salamander, four-toed salamander, green salamander, red salamander, Allegheny woodrat and other SGCN.

Native predator control

- Investigate the impact of human persecution on timber rattlesnakes and other rare snakes and determine preventative measures.

Disease/parasite management

- Reduce raccoon populations in proximity to woodrat colonies.

Limiting contact with pollutants/contaminants

- Monitor the impacts of forest-pest management measures on forest SGCN.

Public education to reduce human disturbance

- Post signs at important cave sites used by forest bats to reduce/eliminate unauthorized human visitation.

