

## Appendix A: Birds

### American Woodcock

*Scolopax minor*

Federal Listing	N/A
State Listing	SGCN
Global Rank	G5
State Rank	S4
Regional Status	Very High



Photo by Jason Lambert

#### Justification (Reason for Concern in NH)

Woodcock numbers in New Hampshire tend to be stable and relatively strong compared to data from other portions of the eastern United States. Woodcock are most abundant in northern New Hampshire, where habitat is most suitable. Singing-ground Survey results for the Eastern Management Region in 2015 show a significant declining 10-year trend of -1.56% per year which is the second year in a row there has been a declining 10-year trend (Cooper and Rau 2015). Loss of early successional forest habitat is believed to be the cause of declines in recruitment and overall population status (Kelley et al. 2008, Dessecker and McAuley 2001).

#### Distribution

Breeding woodcock are relatively common throughout New Hampshire at elevations below 2,000 ft (610 m), although their numbers have declined since the 1960s in eastern New Hampshire (Lacaillade 1994). Singing ground survey data indicate that New Hampshire's highest woodcock concentrations occur in the west-central and southeast regions of the state and in northern Coos County (Lacaillade 1994). Historical records for woodcock are vague. Since the woodcock is a small game bird, it was probably not hunted until larger game began to disappear (Silver 1957). Fishermen introduced earthworms to the Umbagog Region around 1825 for bait; woodcock were believed to have appeared there shortly afterwards and were common by the late 1800s (Silver 1957). For more information on the abundance and distribution of habitat suitable for woodcock, see the Shrublands habitat profile.

#### Habitat

Woodcock are an early successional species that use different habitats depending on activity, time of day, and season. Dense, shrub-dominated forests with moist soils are ideal habitats (Keppie and Whiting 1994). Moist soils ensure that earthworms, which comprise nearly 80% of woodcock diet, are near the soil surface and are available to foraging birds (Dessecker and McAuley 2001). In spring, males need openings ("singing grounds") to perform courtship displays and attract females (Dwyer et al. 1988). Available nesting and rearing habitat determine the location of singing grounds rather than specific vegetation characteristics (Dessecker and McAuley 2001). Migrating and breeding woodcock favor areas of young aspen, birch, or alders and may also use overgrown fields, burned or recently logged areas, and wetlands (Lacaillade 1994). Nests and broods can be found in mixed-age forests, although young hardwood stands (especially aspen) are preferred (Mendall and Aldous 1943). During summer, young hardwoods to older stands with a dense understory, particularly alder, provide daytime cover for feeding (Dessecker and McAuley 2001). In northern breeding areas, conifer stands are used rarely, except during droughts when they may be critical for survival (Straw et al.

## Appendix A: Birds

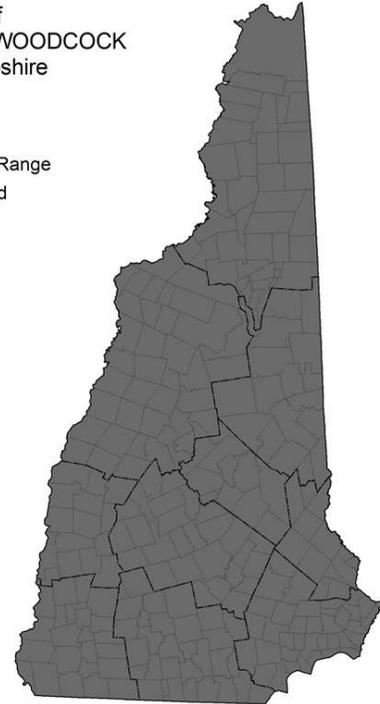
1994). Young hardwood stands on moist soils with dense shrubs are important in the fall and during migration.

### NH Wildlife Action Plan Habitats

- Shrublands
- Marsh and Shrub Wetlands
- Appalachian Oak Pine Forest
- Hemlock Hardwood Pine Forest
- Northern Swamps
- Temperate Swamps

Distribution of  
AMERICAN WOODCOCK  
in New Hampshire

■ Current Range  
▨ Localized



Distribution Map

### Current Species and Habitat Condition in New Hampshire

The Singing-ground Survey indicates that New Hampshire's highest breeding concentrations occur in the west central and southeastern regions of the state and in northern Coos County (Lacaillade 1994). The Singing-ground Survey in the Eastern Region in 2015 was not significantly different than the 2014 level, however there was a significant declining 10 year trend (2005-2015) of -1.56% per year for two consecutive years (2014 and 2015). In the Eastern Region, the 2015 index was 2.45 singing-males per route (Cooper and Rau 2015).

For the wing-collection survey, the 2014 recruitment index in the Eastern Region (1.49 immatures/adult female) was 6.9% less than the 2013 index and 8.9% below the long term (1963-2013) regional average (Cooper and Rau 2015). New Hampshire's Breeding Bird Atlas reveals that woodcock are still well distributed throughout the state, and suggests that they are most common in the central and southeast regions (Lacaillade 1994).

Elsewhere in the Eastern region, population abundance indices suggest a long-term decline (Kelly 2004). Loss and degradation of wetlands have destroyed breeding, migration, and wintering habitat (Lacaillade 1994). Pesticides have affected the earthworm populations in many areas, decimating the woodcock's primary food source (Lacaillade 1994).

## Appendix A: Birds

### Population Management Status

Reliable annual population estimates, harvest estimates, and information on recruitment and distribution are essential for comprehensive woodcock management.

### Regulatory Protection (for explanations, see Appendix I)

- Harvest permit - season/take regulations
- Migratory Bird Treaty Act (1918)

### Quality of Habitat

Refer to the Shrubland habitat profile for information on relative quality of habitat patches for American woodcock.

### Habitat Protection Status

Since no habitat map was generated, the habitat patch protection status of young forest habitats in New Hampshire is unknown. However, given the ephemeral nature of young forest habitats, tree harvesting and other vegetation manipulation techniques will need to be employed to generate suitable habitat. This can occur on both public and private land.

### Habitat Management Status

See the Shrubland habitat profile.

### Threats to this Species or Habitat in NH

*Threat rankings were calculated by groups of taxonomic or habitat experts using a multistep process (details in Chapter 4). Each threat was ranked for these factors: Spatial Extent, Severity, Immediacy, Certainty, and Reversibility (ability to address the threat). These combined scores produced one overall threat score. Only threats that received a "medium" or "high" score have accompanying text in this profile. Threats that have a low spatial extent, are unlikely to occur in the next ten years, or there is uncertainty in the data will be ranked lower due to these factors.*

### Habitat conversion due to development and impacts from fragmentation (Threat Rank: Medium)

Direct loss of shrubland habitat occurs through the conversion of these lands for residential, industrial, and commercial purposes. Development patterns lead to fragmentation of remaining undeveloped habitats, creating smaller patches that may not sustain wildlife populations and promoting generalist predators that prey on shrubland-dependent wildlife (Barbour and Litvaitis 1993, Litvaitis 2005).

Young forest habitats are important to a large suite of animals, including American woodcock (DeGraaf et al. 2005). Wildlife that utilizes young forest habitat conditions benefited from the wave of early successional habitats that followed the peak of farm abandonment in the late 1800s. As forests matured the amount of early successional habitats declined, leading to declines in associated wildlife species. In parts of New Hampshire, especially the southern tier, the amount of young forest habitat of functional quality for wildlife may now be falling below historic levels as current landscape conditions are strikingly different than in pre-settlement times (Brooks 2003, Litvaitis 2003, DeGraaf et al. 2005). Remaining patches of forest are broken up or fragmented into isolated patches. Species with small home ranges (such as American woodcock) may be able to occupy the remaining habitat patches. However, even these animals may be hampered by the consequences of human land uses that surround small patches of habitat. Increases in generalist predators may reduce or even

## ***Appendix A: Birds***

eliminate small populations of prey species (Barbour and Litvaitis 1993, Oehler and Litvaitis 1996). Over time, these small patches may contain fewer species than similarly sized patches that are surrounded by extensive forests (Litvaitis 2005).

### **Habitat degradation from forest maturation due to lack of management (Threat Rank: Medium)**

Shrubland-dependent wildlife species require dense understory cover; their occurrence is influenced more by the height and density of vegetation than by specific plant communities (Litvaitis 2003). Hence populations of American woodcock and other young forest species shift in space and time in response to natural disturbances and human land uses (Litvaitis 2005). As more open land is converted to development there is less overall space for young forest-dependent species to shift into when natural forest succession or lack of active management makes their current habitat patch unsuitable. Proactive habitat management practices must be implemented at regular intervals to ensure a continuous supply of quality grouse habitat on the landscape.

The New England landscape has gone through dramatic changes over the last 350 years. In the mid 1800s, 75% of the arable land in central and southern New England was in pasture and farm crops. One hundred years later, New England was once again forested – a result of farm abandonment after richer farm fields opened up in the Midwest (DeGraaf et al. 2005). Today, about 80% of New Hampshire is forested again. However, the second growth forests lack the structural diversity including the range of seral stages present in pre-settlement forests (DeGraaf et al. 2005). The forests have matured, while natural disturbance processes, such as fire, have been disrupted, reducing the amount of early successional conditions (Litvaitis 2003, DeGraaf et al. 2005). The conversion of young forests to residential and commercial development combined with forest maturation (i.e., lack of disturbance) is reducing early successional habitat to levels at or below historical levels (Brooks 2003). Based on current trends and predictive models, New Hampshire's forested lands will continue to decline. Forest loss linked to population growth indicates the conversion of another 225,000 acres in the years out to 2030, dropping New Hampshire forest land to 78.5% of total land area (Sunquist 2010).

### **List of Lower Ranking Threats:**

Species impacts from extreme weather and shifting migrating patterns and timing.

### **Actions to benefit this Species or Habitat in NH**

#### **Protect large blocks of forest suitable for forest management and the creation of young forest stands**

**Primary Threat Addressed:** Habitat conversion due to development and impacts from fragmentation

**Specific Threat (IUCN Threat Levels):** Residential & commercial development

#### **Objective:**

Permanently protecting large blocks of forest suitable for forest management and the creation of young forest stands, especially in the south, will provide an opportunity to manage for natural early successional forests.

## ***Appendix A: Birds***

### **General Strategy:**

Fee simple acquisition of priority forest areas by NHFG or other partners will enable these agencies to manage for the range of wildlife species that depend on them, including American woodcock. Conservation easements can be used to ensure long-term management of these habitat types by private landowners. Given the pace of development and loss of open space in New Hampshire, this conservation action should receive priority, especially in the southern part of the state. Once lands are permanently protected the decision cannot be reversed, however, management decisions to benefit priority wildlife species can be adapted as needed. The ephemeral nature of early successional forests makes it difficult to permanently protect them. The best approach may be to identify large blocks of forest that provide opportunity for forest management. The New Hampshire Land and Community Heritage Investment Program is a critical resource for maintaining and protecting large forest blocks, if new funds become available. Although permanent land conservation is typically more expensive than other conservation measures, this action may be required to sustain young forest-dependent wildlife.

### **Political Location:**

Statewide

### **Watershed Location:**

Statewide

## **Create and maintain young forest habitat**

**Primary Threat Addressed:** Habitat degradation from forest maturation due to lack of management

**Specific Threat (IUCN Threat Levels):** Natural system modifications

### **Objective:**

Provide adequate young forest habitat conditions to sustain populations of American woodcock and other young forest-dependent wildlife.

### **General Strategy:**

Since young forest habitats are relatively short-lived (20 to 25 years in most cases), periodic management is needed to maintain this habitat type. Managing forest vegetation for a specific height and density should encourage many early successional species, depending on spatial scale and landscape context. Creating small patches of young forest habitats in a developing landscape may not yield desired results because of competing pressures of predation, disturbance, and the effect of fragmentation on wildlife movement. Managed habitats should be positioned near existing patches of shrubland, wetland, or a beaver flowage to maintain landscape-scale connectivity. Protection and maintenance of scrub-shrub wetlands will be important for maintaining woodcock populations in New Hampshire. This can be done by maintaining natural establishment, occupancy, and abandonment of beaver flowages. In some instances, regeneration of alder stands may be necessary. Initially, the size of timber harvests would be larger than natural disturbances to offset the shortfall in early-successional habitat that currently exists (for example 4-10 ha) (Litvaitis 2005). As forests mature, management efforts (especially timber harvests) could then be patterned after canopy gaps (Runkle 1991) or modified to specific silviculture practices of a region (Seymour et al. 2002) if other forms of early-successional habitats (e.g. native shrublands and beaver impoundments) are adequately represented. Large forested blocks suitable for forest management will first need to be identified. If in public owner-ship, then resource managers can manage the habitat. If on private lands, then an education and outreach program could be directed at landowners to maintain diverse

## ***Appendix A: Birds***

habitats on their lands, including early successional habitats. UNH Cooperative Extension and the New Hampshire Coverts Program have an extensive network of landowners interested in wildlife and could be valuable partners in developing the means to educate landowners and facilitate forest management on private lands. NHFG can work with its state and federal partners to develop management plans on public lands that pro-mote a variety of forested stages including blocks of young forests, and developing an education campaign on the importance of maintaining a suite of forested conditions including young forest habitats.

### **Political Location:**

Statewide

### **Watershed Location:**

Statewide

## **References, Data Sources and Authors**

### **Data Sources**

The primary source of information was the annual woodcock report compiled by the USFWS for those states that conduct annual singing ground surveys. Information was gleaned from this document through literature reviews, research projects conducted in the region, and available databases. Sources of information include journal articles, websites, GIS data, and white papers.

### **Data Quality**

The quality of population data for woodcock is very good, however, confirmed breeding records are difficult to obtain due to the species' inconspicuous nesting behavior (Lacaillade 1994). Singing ground surveys have been conducted since 1968 and summarized annually. Woodcock are managed on the basis of 2 regions or populations, Eastern and Central (Kelley 2004). There is a wing-collection survey of hunters that provides age-specific data used to assess reproductive success (Kelley 2004). The ratio of immature birds per adult female in the harvest provides an index to recruitment of young into the population (Kelley 2004). Many studies on brood ecology, early successional habitat, and influence of hunting have been completed in the Northeast. The extent and quality of data for woodcock population information are quite good. However, information on habitat abundance and distribution is lacking.

### **2015 Authors:**

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### **2005 Authors:**

Julie Robinson, NHFG; Jim Oehler, NHFG

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## ***Appendix A: Birds***

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