

SPECIES PROFILE

Whip-Poor-Will

Caprimulgus vociferous

Federal Listing: Not listed
State Listing: Special concern
Global Rank: G5
State Rank: S3B
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ELEMENT 1: DISTRIBUTION AND HABITAT

1.1 Habitat Description

Whip-poor-wills inhabit areas of dry soils and open understory, especially in pine and oak woodlands (Clink 2002). They prefer to forage in open areas, such as fields, clearings, regenerating clear cuts, recent burns, and power line rights of way (Wilson 2003). Dry soil, which contributes to the sparse understory that whip-poor-wills prefer, may also allow for better drainage of the leaf litter where the birds lay their eggs. However, definitive data are lacking.

In New Hampshire, whip-poor-will records during the Breeding Bird Atlas were all from areas below 1,200 ft in elevation (Foss 1994), a pattern consistent with the species' distribution in New York (Andrle and Carroll 1988) and Vermont (Laughlin and Kibbe 1985). During a study in the Piscataquog River Watershed in 2003, whip-poor-will records were concentrated in the northeastern quarter of the watershed. A preliminary analysis of habitat at points where whip-poor-wills were detected suggests that birds were more likely to occur in areas identified by aerial photography as "dry pine forest," "gravel pit," or "disturbed" (photo interpretation by D. Sundquist, SPNHF).

1.2 Justification

Anecdotal accounts over much of the Northeast suggest a consistent decline in whip-poor-will popula-

tions, including in Vermont (Laughlin and Kibbe 1985, Murin and Pfeiffer 2003), New Hampshire (Foss 1994), Massachusetts (Veit and Petersen 1993, Petersen and Meservey 2003), Connecticut (Zeranski and Baptist 1990), and southern New Jersey (Sibley 1993). In New York, the current Breeding Bird Atlas indicates a dramatically reduced range compared to the years from 1980 to 1985 (New York Department of Environmental Conservation 2004). These declines are corroborated by data from the Breeding Bird Survey (BBS), which indicate significant declines in both the Northeast (USFWS region 5) and the eastern third of the continent (Sauer et al. 2004).

Because the BBS does not survey nocturnal species particularly well, these trends should be viewed with some caution, although other data also suggest long-term declines. Whip-poor-will is on the priority species lists in the CWCS for every state in Bird Conservation Region (BCR) 30 (New England/mid-Atlantic Coast), and it ranks moderate-to-high concern in other BCRs within its range. Although specific data are unavailable for New Hampshire, NHBR (see section 1.4) and anecdotal accounts make clear a range retraction from the northern and coastal areas.

1.3 Protection and Regulatory Status

This species is protected under the Migratory Bird Treaty Act, which prevents the killing of most non-game birds and collection of their nests or eggs.

1.4 Population and Habitat Distribution

In New Hampshire, whip-poor-wills have historically been most common south of the White Mountains (Foss 1994, and references therein). The northern edge of its distribution during the early 1980s corresponded fairly well with the 68 degree July isotherm. North of this line, there were more records in the

western highlands than in the White Mountains and areas to the north. Concentrations during the Breeding Bird Atlas occurred in central Carroll County in the Ossipee area, in a band from northwest Merrimack County to north-central Hillsborough County, and in central Strafford County (Foss 1994). In addition to the Atlas, the NHA conducted a statewide volunteer whip-poor-will survey program from 1980 to 1985. Data from this program indicate a range very similar to that indicated by the Atlas: concentrations in northern Carroll, Merrimack, eastern Hillsborough, Strafford, and central Rockingham Counties (figure 1a).

Recent data (NHBR) suggest that this range had not changed dramatically by the early 1990s (figure 1b) or early 2000s (figure 1c), although there is some indication of range retraction in the north and near the seacoast. It should be noted, however, that no standardized survey was in place during this period. Nonetheless, anecdotal data from throughout the state indicate a consistent decline, one that has apparently been going on since at least the early 1960s (Foss 1994).

1.5 Town Distribution Map

Not completed for this species.

1.6 Habitat Map

N/A

1.7 Sources of Information

Basic natural history information in this profile was largely gathered from the literature cited in element 5. Data on whip-poor-will distribution in New Hampshire were compiled from NHBR, a database maintained by the NHA.

1.8 Extent and Quality of Data

Because whip-poor-wills are largely nocturnal, there are limited data on their demographics in New Hampshire. Most data are anecdotal, and even during the intensive Breeding Bird Atlas the species almost certainly went undetected in many areas. When surveys specific to this species were implemented in the Ossipee and Piscataqua River watersheds in 2003 and 2004, observers found the species quite common in some areas. This recent data should not be taken

as evidence that the perceived decline is less extreme, only that overall populations are likely to be underestimated by anecdotal accounts. Given that the number of anecdotal accounts has been on the decline, it is safe to conclude that the species may be decreasing in the state and region (if the number of observers has not also declined).

1.9 Distribution Research

Northeast Partners in Flight has identified nightjar monitoring as a priority. Because whip-poor-wills and other nightjars are poorly surveyed by traditional methods like the BBS, there is need for standardized monitoring protocols to be implemented across the region, if not the entire range. Implementation of such surveys in New Hampshire—which would build upon monitoring initiated in 2003—is critical to determine the distribution and abundance patterns across the state. When conducted for several years, such a program will also provide valuable information on population trends. Data can then be used for habitat conservation or species-specific research.

ELEMENT 2: SPECIES/HABITAT CONDITION

2.1 Scale

Although there are areas where whip-poor-wills appear more concentrated in the state (Ossipee Pine Barrens, Merrimack and Hillsborough Counties), the lack of consistent statewide data makes it impossible to evaluate these putative concentrations. Because whip-poor-wills are not restricted to pine barrens habitats, it is similarly impractical to identify planning units based on habitat. As a result, all discussion of whip-poor-will conservation will treat the species' entire range as a single unit, with the recognition that certain habitats within this distribution will be divided into planning units. Whip-poor-will conservation can occur on a statewide scale as described in this profile, or within smaller units identified for specific habitats in which whip-poor-wills occur.

2.2 Relative Health of Populations

Based on the available data, statewide whip-poor-will populations are declining. Data from historic strongholds (Ossipee, Merrimack/Hillsborough) sug-

gest that the species remains common in these areas, although there are no comparable baseline data on abundance prior to 2003.

2.3 Population Management Status

Whip-poor-will populations are not currently managed in New Hampshire.

2.4 Relative Quality of Habitat Patches

In the absence of detailed data on habitat needs, it is not feasible to assess quality of whip-poor-will habitat at most scales. To the extent that habitat continues to be lost to development, succession, or fire suppression (see element 3), overall habitat quality is likely to continue to decline in most areas.

2.5 Habitat Patch Protection Status

Because whip-poor-wills remain widespread in the southern part of the state, and because specific locations are not determined (most records are of heard birds, often at some distance), an analysis of protection status is not possible. One could approximate this number by calculating the percent of the species' statewide range (south of 68 degree July isotherm plus western highlands) that is protected. However, this number would not reflect the patchy distribution of whip-poor-wills within the potential range.

2.6 Habitat Management Status

Habitat management specifically to benefit this species is not occurring anywhere in New Hampshire. However, ongoing attempts to restore or mimic fire in pine barrens would likely benefit whip-poor-wills, which have been documented concentrating in recently burned areas in southeastern Massachusetts (J. Kelly, United States Army – Fort Edward, personal communication). See the pine barrens habitat profile for more detail on habitat management issues.

2.7 Sources of Information

Information on whip-poor-will distribution in New Hampshire was obtained primarily from NHBR and was supplemented by historical accounts and recent surveys.

2.8 Extent and Quality of Data

See Section 1.8.

2.9 Condition Assessment Research

As discussed in section 1.9, coordinated whip-poor-will monitoring is needed before any attempt can be made to fully assess habitat condition. If areas of high concentration are discovered, detailed studies should be conducted to determine what makes the habitat attractive to whip-poor-wills.

ELEMENT 3: SPECIES THREAT ASSESSMENT

3.1.1 Development (Habitat Loss and Conversion)

Because the bulk of New Hampshire's whip-poor-will population occurs in the rapidly developing southern part of the state, the species is at high risk of losing habitat to development. At the same time, the pine barrens and other dry forests preferred by the species are usually located in river valleys and near lakes where development pressure is particularly intense.

3.1.2 Altered Natural Disturbance (Natural Succession)

(A) Exposure Pathway

Because of ongoing declines in agriculture (see grassland habitat profile), many open areas adjacent to forests are either growing up to shrubland or young forest or are being lost to development (section 3.1.1). Although early successional habitat may remain somewhat open for several years, it will eventually revert to forest if not managed.

(B) Evidence

Because whip-poor-wills require openings in which to forage, loss of fields or other early seral stages are believed to lower habitat quality (Cink 2002, Wilson 2003). If the amount of open habitat is reduced to the point where foraging efficiency is reduced, whip-poor-wills may no longer occupy the area even if nesting habitat remains suitable (Cink 2002).

3.1.3 Predation and Herbivory

(A) Exposure Pathway

Several authors (e.g., Laughlin and Kibbe 1985, Cink 2002, Petersen and Meservey 2003) have speculated that whip-poor-will declines are related to a decline in prey populations. In particular, it has been proposed that saturniid and sphingid moth populations over much of the Northeast were severely depressed following widespread spraying for the introduced gypsy moth (*Lymantria dispar*) from roughly 1950 to 1970. Any subsequent recovery of moth populations is believed to have been hampered by a parasitoid fly (*Compsilura concinnata*), which was introduced to combat gypsy moths (Schweitzer 2004). An alternate hypothesis is that moth declines are the result of atmospheric pollution (Andrele and Carroll 1988).

(B) Evidence

There are limited data on the nature and extent of moth declines in eastern North America where most gypsy moth control has occurred. Thus, any connection between large moth populations and whip-poor-will populations is largely speculative. Data on diet indicate that almost 60% of prey items are moths (Cink 2002), which at least corroborate the species' reliance on this group of insects.

3.1.4 Altered Natural Disturbance (Fire Suppression)

As per threat 3.1.1, this issue will be dealt with in the context of pine barrens habitat as a whole.

3.2 Sources of Information

Information used in this section was obtained primarily through a literature review.

3.3 Extent and Quality of Data

For threats related to habitat loss and maturation, there are generally extensive data on extent but relatively few data pertaining to effects on whip-poor-wills (see section 3.4). Data are even more lacking for hypotheses about declines in whip-poor-will prey populations.

3.4 Threat Assessment Research

Data are needed on habitat use patterns of whip-poor-wills throughout their range, although studies of this nature are currently underway in Massachusetts (J. Kelly, United States Army – Ft. Edward, personal communication). There are even fewer data linking declines in prey populations to whip-poor-will declines, and any study of this threat would need to monitor populations of prey insects and their parasitoids. Finally, there are few studies of whip-poor-wills on their winter grounds in Florida and Central America (Cink 2002), and one should not discount the possibility that habitat loss, pesticide use, or other factors operating during the non-breeding season are affecting whip-poor-will populations. The widespread range retraction over much of the Northeast could be an indication that non-local factors (i.e., during the non-breeding season) are affecting populations on a larger scale.

ELEMENT 4: CONSERVATION ACTIONS

In the absence of more data on how threats affect whip-poor-will populations in New Hampshire, it is not possible to identify species-specific conservation actions. Whip-poor-wills will likely benefit from any action, whether land protection or habitat restoration, that targets the pine barrens and other forested habitats in which they occur. In both habitats, it will be important to consider the species' need for openings and edges for foraging, and when possible plan to maintain core habitats in a mix of seral stages.

ELEMENT 5: REFERENCES

5.1 Literature

- Andrele, R.F., and J.R. Carroll. 1988. The Atlas of Breeding Birds of New York State. Cornell University Press, Ithaca, New York, USA.
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- Foss, C.R. 1994. Atlas of Breeding Birds of New Hampshire. New Hampshire Audubon, Concord, New Hampshire, USA.
- Hunt, P.D. 2004. Final Report on Whip-poor-will

- Surveys in the Piscataquog River Watershed: Summer 2003. Report to Piscataquog Watershed Association and UNH Cooperative Extension. New Hampshire Audubon, Concord, New Hampshire, USA.
- Laughlin, S.B., and D.P. Kibbe. 1985. The Atlas of Breeding Birds of Vermont. University Press of New England, Hanover, New Hampshire, USA.
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- Petersen, W.R., and W.R. Meservey. 2003. Massachusetts Breeding Bird Atlas. Massachusetts Audubon Society, Lincoln, Massachusetts, USA.
- Sauer, J.R., J.E. Hines, and J. Fallon. 2004. The North American Breeding Bird Survey, Results and Analysis 1966-2003. Version 2004.1, USGS Patuxent Wildlife Research Center, Laurel, Maryland, USA.
- Schweitzer, D.F. 2004. Gypsy Moth (*Lymantria dispar*): Impacts and Options for Biodiversity-Oriented Land Managers. NatureServe, Arlington, Virginia, USA.
- Sibley, D. 1993. The Birds of Cape May. New Jersey Audubon Society, Franklin Lakes, New Jersey, USA.
- Veit, R.R., and W.R. Petersen. 1993. Birds of Massachusetts. Massachusetts Audubon Society, Lincoln, Massachusetts, USA.

5.2 Data Sources

- NHBR. New Hampshire Bird Records, New Hampshire Audubon, Concord, New Hampshire, USA.

Distribution of Whip-poor-will in New Hampshire

Distribution
■ Potential
▨ Historic



0 10 20 40 Miles

Potential = possible breeding and other observations as reported in the NH Natural Heritage Bureau's Element Occurrence Database and obtained from NH Bird Records and the NH Breeding Bird Atlas, Audubon Society of New Hampshire.
Historic = observations greater than 20 years old.

