

Appendix A: Birds

Chimney Swift

Chaetura pelagica

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|-----------------|------|
| Federal Listing | N/A |
| State Listing | N/A |
| Global Rank | G5 |
| State Rank | S4 |
| Regional Status | High |



Photo by Deb La Valley

Justification (Reason for Concern in NH)

Aerial insectivores (here including nightjars, swifts, flycatchers, and swallows) have recently received increased conservation attention due to significant declines in several species (Hunt 2009, Nebel et al. 2010). Because all species share a common prey base of flying insects, there has been much speculation on a potential common cause for many of the declines. Much current research has been directed toward swifts and swallows in North America, resulting in greater knowledge of potential threats. Swifts and swallows have several ecological characteristics in common. All are highly aerial, and feed entirely on insects captured during sustained flight – often quite high in the air column. Threats identified for the group as a whole include changes in food supply, effects of insecticides on adults or young, loss of nesting locations, and climate change. It should be noted that any of these factors could be affecting birds at any point in their annual cycle, and knowledge of their winter ecology is currently largely unknown. Like many aerial insectivores, populations of Chimney Swifts are in strong decline. Based on BBS (Sauer et al. 2014) data the species has declined at 2.8% annually since 1966 in NH, with this rate increasing to 4.23% in the period 2003-2013. Regionally, declines are higher in the north (BCR 14: -4.18%) than the south (BCR 30: -1.85%) (see also Nebel et al. 2010). Repeated Breeding Bird Atlases have documented declines in occupancy, particularly in Ontario (Cadman et al. 2007), and to a lesser extent in NY (McGowan and Corwin 2008) and Vermont (Renfrew 2013). Chimney Swift is considered a species of concern in Connecticut and Maine, a RSGCN in USFWS Region 5, and Threatened in Canada.

Distribution

Breeds across eastern United States and southern Canada (Montana and Texas to Nova Scotia and Florida), and winters in South America (especially in the western Amazon basin). Occurs statewide in New Hampshire, although concentrated in urban areas.

Habitat

Prior to European colonization, Chimney Swifts nested in forested areas, building their nests in large hollow trees. By the late 1600s they had adapted to nest in chimneys and became a common feature of urban areas, and were nesting almost entirely in chimneys by 1800. Most birds presently occur in the latter, although data are limited from extensively forested landscapes where suitable nesting trees may still be present. Migrants and non-breeding birds also form large communal roosts in chimneys.

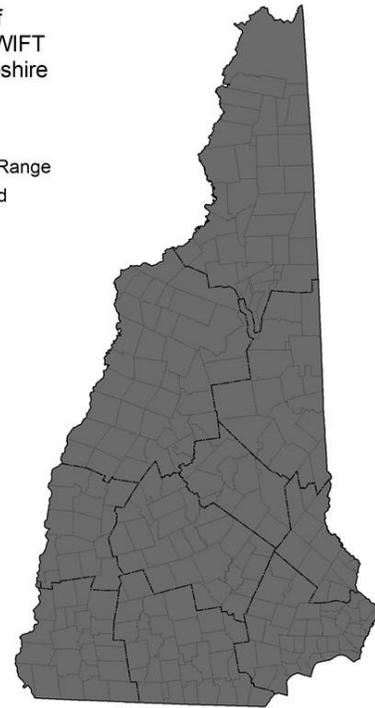
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NH Wildlife Action Plan Habitats

- Developed Habitats
- Lowland Spruce-Fir Forest
- Appalachian Oak Pine Forest
- Hemlock Hardwood Pine Forest
- Northern Hardwood-Conifer Forest

Distribution of CHIMNEY SWIFT in New Hampshire

■ Current Range
▨ Localized



Distribution Map

Current Species and Habitat Condition in New Hampshire

Significant rangewide population declines and some range retraction (see Justification).

Population Management Status

Management is not currently in place for this species.

Regulatory Protection (for explanations, see Appendix I)

- Migratory Bird Treaty Act (1918)

Quality of Habitat

Limited information. Studies elsewhere in the species range (CT, Canada) suggest that suitable (i.e., not capped or lined) chimneys in urban areas are not limiting, although the proportion of such chimneys is apparently declining (Mordecai 2008, Fitzgerald et al. 2014). There is also evidence that past and increasing current use of various insecticides can significantly impact local insect populations and thus Chimney Swifts' food supply (Nocera et al. 2012).

Habitat Protection Status

Most nesting locations are probably on private property and thus not protected in the traditional sense of the term.

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Habitat Management Status

Habitat management has not been implemented for this species, although there is growing interest in developing BMPs for minimizing impacts to swifts nesting in residential chimneys.

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 from chimney capping and lining (Threat Rank: High)

Capping or lining chimneys renders them unsuitable for nesting, and in some cases chimneys are removed entirely as heating systems change. Studies in North Carolina, Connecticut, and Ontario suggest that suitable chimneys are not currently limiting (Mordecai 2008, Rubega et al. 2013, Fitzgerald et al. 2014), but that their availability continues to decline. Note that even if a chimney is suitable for swifts and used for breeding, cleaning during the breeding season will result in failed nests.

Mortality during southward migration during hurricane season (Threat Rank: Medium)

There is some evidence that Chimney Swift short-term population fluctuations are tied to the timing and intensity of tropical storm activity in the northwest Atlantic (Butler 2000, Dionne et al. 2008). If such storms become more frequent and more intense as a result of climate change, their impacts on swift populations could increase.

Species impacts from agricultural pesticide use causing prey declines (Threat Rank: Medium)

Research on historic diets of Chimney Swifts (Nocera et al. 2012) has documented a diet shift associated with the DDT era in North America, although this work did not specifically link the shift to regional population trajectories. There is also concern about the use of insecticides on these species on their winter grounds in South America, where some chemicals are known to have direct toxic effects on migratory birds (Goldstein et al. 1999). A recent analysis of pesticide import data suggests that aerial insectivores showing the strongest declines tend to winter in Latin American countries with higher than average imports (and thus presumably use, J. Nocera pers. comm.).

List of Lower Ranking Threats:

- Mortality from pesticide use in South America
- Disturbance from agricultural pesticide use in North America
- Disturbance and destruction of nests from work activities
- Habitat degradation from the loss of old growth forest trees
- Disturbance and mortality from spring cold snaps and intense storms

Actions to benefit this Species or Habitat in NH

Roost site monitoring

Objective:

Identify and monitor significant roost sites

General Strategy:

Recruit and train volunteers to find and monitor Chimney Swift roost. Such data may provide additional information on trend while also identifying important sites that might warrant more detailed characterization.

Political Location:

Statewide

Watershed Location:

Statewide

Chimney availability surveys

Primary Threat Addressed: Habitat conversion from chimney capping and lining

Specific Threat (IUCN Threat Levels): Other options / Other threat / Alteration of human structures that wildlife use

Objective:

Determine availability of suitable nesting chimneys. Can also provide a baseline against which changes in availability can be measured at later intervals.

General Strategy:

Select study areas in a variety of developed locations and sample pre-determined sub-sections for chimneys. Where possible, record whether chimneys are capped, lined, both, or neither, involving homeowners whenever possible. Although surveys of chimney availability in CT and Canada have found that nesting structures are not currently limiting, some NH-specific data on patterns of chimney availability and “loss” may be valuable for future conservation planning

Political Location:

Statewide

Watershed Location:

Statewide

Historic diet research

Primary Threat Addressed: Species impacts from agricultural pesticide use causing prey declines

Specific Threat (IUCN Threat Levels): Pollution / Agricultural & forestry effluents / Herbicides & pesticides

Objective:

Determine if diets of swifts in New Hampshire have changed significantly.

General Strategy:

If significant historical roosts are found, consider participating in ongoing efforts to quantify changes in diet (e.g., Nocera et al. 2012)

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Political Location:
Northeast, Statewide

Watershed Location:
Statewide

Roost site protection

Primary Threat Addressed: Habitat conversion from chimney capping and lining

Specific Threat (IUCN Threat Levels): Other options / Other threat / Alteration of human structures that wildlife use

Objective:
Protect roost sites from loss or other impacts

General Strategy:
Identify significant roosts (a separate action). Inform building owners about the importance of the site and encourage steps to preserve it as a valuable location for swifts. Potential specific actions could include retaining chimneys otherwise slated for removal, securing unsafe structures, or opting not to cap or otherwise alter a chimney.

Political Location:
Statewide

Watershed Location:
Statewide

Provide artificial nesting structures

Primary Threat Addressed: Habitat conversion from chimney capping and lining

Specific Threat (IUCN Threat Levels): Other options / Other threat / Alteration of human structures that wildlife use

Objective:
Increase nesting habitat for swifts by constructing artificial nesting towers

General Strategy:
Artificial nesting/roosting towers (Kyle and Kyle 1998) have been used extensively by birds in the southern U.S., but are largely unused elsewhere, particularly the northern U.S. and Canada (Rubega et al. 2013, multiple pers. comm.).

Political Location:
Statewide

Watershed Location:
Statewide

Chimney Swift outreach

Primary Threat Addressed: Disturbance and destruction of nests from work activities

Specific Threat (IUCN Threat Levels): Human intrusions & disturbance

Objective:
Minimize cleaning of chimneys during periods when nests are active and vulnerable to destruction.

General Strategy:
Chimney swifts would benefit from outreach directed at homeowners and chimney sweeps about

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declining swift populations, characteristics of suitable chimneys, and timing of chimney cleaning.

Political Location:

Statewide

Watershed Location:

Statewide

References, Data Sources and Authors

Data Sources

Trend data from BBS and Breeding Bird Atlases (citations above)

Data Quality

Although there are considerable data on trend, BBS data are not ideal for this species because it often forages high in the air column or far from nesting sites. As a result, it is difficult to estimate actual abundance or tie locations to potential breeding sites. Declines noted in some Atlases corroborate those seen in BBS data.

2015 Authors:

Pamela Hunt, NHA

2005 Authors:

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