

Appendix A: Birds

Northern Harrier

Circus cyaneus

Federal Listing	N/A
State Listing	E
Global Rank	G5
State Rank	S1
Regional Status	Very High



Photo by Jason Lambert

Justification (Reason for Concern in NH)

At the continental scale, harrier populations have declined at 1.2% per year from 1966 to 2013. From 2003-2013, the trend started to level out, and was a non-significant -0.63%/year (Sauer et al. 2014). A similar pattern is seen in most other regions, with stronger declines followed by smaller ones, suggesting at least in part that detectability is declining to the point where BBS is not accurately tracking this species' populations. This is particularly true in the Northeast, where harriers are uncommon and highly dispersed. Data from repeat Breeding Bird Atlases are equivocal with regard to range changes. Harrier occupancy declined in southern Ontario but increased in the north (Cadman et al. 2007), was stable in New York (McGowan and Corwin 2008), and increased in Vermont and Massachusetts (Renfrew 2013, Mass Audubon 2014). Because of its overall rarity in the Northeast, the Northern Harrier is a SGCN in most states where it occurs, and in the Region as a whole.

Distribution

Breeds across most of Alaska, Canada, and the northern and western United States. Winters from southern Canada to Central America, and parts of the western Caribbean (Smith et al. 2011). Also occurs across Europe and northern Asia. Scant data exist on the distribution of northern harriers in New Hampshire prior to the 1800s. Historically, the species was probably restricted to bogs, fens, and similar wetlands (e.g., beaver meadows), and perhaps isolated agricultural clearings along major river valleys. The species may have benefited from extensive forest clearing in the 1800s, and by the early 1900s it was nesting in small numbers over most of the state, with the possible exception of the southwest (Foss 1994).

By the 1960s, Coos County was the stronghold for New Hampshire's harrier population, a distribution that was largely unchanged through the 1980s. Roughly 16 territories were documented during the Breeding Bird Atlas (Foss 1994), and over the next 15 years there were between 19 and 21 territories, eight to 13 of which were active breeding territories. Between 1998 and 2003, breeding season harriers were reported at 15 locations, and only six of these were in the species' traditional stronghold in the northern Connecticut River valley. Most recently (2004-2014), the vast majority of potential breeding records have been from Coos County, mainly in Pittsburg, Colebrook, Errol, and Jefferson/Whitefield. In the absence of systematic surveys, there are no data on the number of birds and/or territories in this region. All summer records south of the White Mountains appear to represent isolated single individuals, or – along the coast – birds wandering north from breeding sites in Massachusetts.

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Habitat

Northern harriers use a variety of open and semi-open habitat throughout the year, including grassland, cattail marsh, salt marsh, shrub-steppe, and agricultural land (Smith et al. 2011). In the Northeast, the species may nest in wetter habitat, although birds still forage extensively in upland areas (Serrentino 1992). The species also frequents bogs and fens with open foraging areas and a brushy border for nesting. Important features of nesting areas in northern New Hampshire include dense stands of low woody plants (*Spirea*, *Alnus*, *Cornus*, heaths) near open grassland areas for foraging (Serrentino 1992, 1998).

In northern Coos County, key habitats included hayfield, pasture, early successional field, late successional field, and shrub wetland (Serrentino 1998). Collectively, open and partially open upland habitats in this study comprised 59-75% of total habitat in each focal area. In west-central New Hampshire, historic sites in Danbury and Sutton are large wetlands bordered by shrubs and cattails. Limited data suggest that harriers prefer larger fields. In Massachusetts, harriers only used fields over 11 ha (27.5 ac) (Serrentino 1992), whereas blueberry barrens in Maine needed to be at least 100 ha (250 ac) (Vickery et al. 1994). Wetlands used for foraging need not be as large, with areas as small as 1 ha (2.5 ac) being used in Maine (Gibbs et al. 1991).

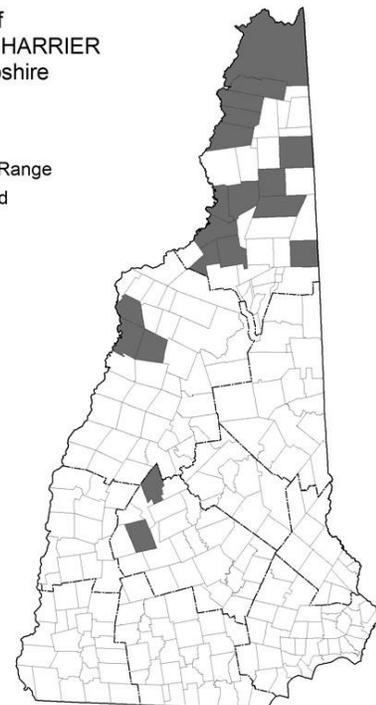
Non-breeding habitat includes a similar variety of open habitats and wetlands, as well as agricultural fields. Most winter records of harriers in New Hampshire are from the Seacoast, where the species is found in salt marsh and associated upland brushy edges.

NH Wildlife Action Plan Habitats

- Grasslands
- Peatlands
- Marsh and Shrub Wetlands
- Salt Marshes
- Shrublands

Distribution of
NORTHERN HARRIER
in New Hampshire

■ Current Range
▨ Localized



Distribution Map

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Current Species and Habitat Condition in New Hampshire

Unknown, although the harrier population in NH is generally believed to be declining. This is based on the species' absence from former (albeit occasional) breeding sites south of the White Mountains, and some suggestion of declines in its stronghold in Coos County.

Population Management Status

Harrier populations are not managed in New Hampshire (but see section 2.6).

Regulatory Protection (for explanations, see Appendix I)

- Endangered Species Conservation Act (RSA 212-A)
- Migratory Bird Treaty Act (1918)

Quality of Habitat

Data are insufficient to evaluate the condition of harrier territories in New Hampshire. Anecdotal information suggests that agriculture continues to decline in the northern Connecticut River valley, which would imply that some harrier territories may be affected by habitat change through succession. Many areas that include harrier territories appear stable in Pittsburg, Lake Umbagog, and Pondicherry, and some are protected.

Habitat Protection Status

Variable. Harrier territories around Lake Umbagog and Cherry Pond are largely within National Wildlife Refuges, and some locations in Pittsburg are within the Connecticut Lakes management area. Sites elsewhere in the Connecticut and Androscoggin valleys are generally not protected, although in the absence of recent data on harrier locations this is difficult to evaluate fully. To the south, most historic harrier areas (e.g., Cascade Marsh and part of Danbury Bog) are protected as state wildlife management areas.

Habitat Management Status

Habitat management directed specifically at Northern Harriers is not occurring. The exception is the Whitefield Airport, which has a Memorandum of Agreement with NHFG that defines a Northern Harrier Management Area and requires the following:

- Brush removal only between 1 September and 30 March
- Consultation with NHFG prior to any brush removal
- No use of herbicides, insecticides, or rodenticides without prior approval
- If nesting habitat is modified because of airport activities, the equivalent amount of suitable habitat must be provided elsewhere on the property

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.

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Habitat conversion due to development (Threat Rank: Medium)

Development results in both net loss of habitat and fragmentation of the remainder. Although development is generally less of a threat in northern New Hampshire, the continued decline of agriculture and subsequent selling of land for second homes is likely having an effect on Northern Harriers in the Connecticut River valley.

Habitat degradation from grasslands maturing into forest (Threat Rank: Medium)

In the absence of periodic mowing, grassland sites revert to shrublands and eventually to forest. This can reduce both foraging and nesting habitat for Northern Harriers, although the latter impact is relatively low because most harriers in NH appear to nest in wetlands.

List of Lower Ranking Threats:

Disturbance from persistent organic compounds
Disturbance from mercury toxicity
Habitat degradation and species impacts from introduced or invasive plants
Mortality and species impacts from subsidized or introduced predators
Species disturbance through nest loss due to mowing
Habitat conversion from the direct filling of wetlands for development

Actions to benefit this Species or Habitat in NH

Northern Harrier Surveys

Objective:

Obtain up-to-date information on the distribution, abundance, and productivity of harriers in NH

General Strategy:

Develop a protocol for systematic surveys of historic harrier breeding areas, particularly in Coos County. Protocol should include components that allow for determination of mating status and potential for young. Conduct surveys over a 3-5 year period to obtain baseline data. Compare these data to historic data from the 1980s and 1990s to assess changes in range and identify priority areas for other conservation actions (e.g., habitat management). See also the grasslands habitat profile for actions that may benefit this species.

Political Location:

Coos County, Grafton County

Watershed Location:

Androscoggin-Saco Watershed, Upper CT Watershed

References, Data Sources and Authors

Data Sources

Trend data from Breeding Bird Survey (Sauer et al. 2014, above). Recent NH distribution data from NHBR/NH eBird

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Data Quality

Because harriers have not been consistently surveyed in northern Coos County since 1997, data are lacking on the species' current distribution in this former stronghold. Harriers continue in the Androscoggin and Lancaster/Jefferson areas, which are visited more frequently.

2015 Authors:

Pamela Hunt, NHA

2005 Authors:

Pamela Hunt, NHA

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