

## SPECIES PROFILE

# Red Shouldered Hawk

*Buteo lineatus*

**Federal Listing:** Not listed

**State Listing:** Special Concern

**Global Rank:** G5

**State Rank:** S3

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## ELEMENT 1: DISTRIBUTION AND HABITAT

### 1.1 Habitat Description

Red shouldered hawks in the northeastern portion of their range typically inhabit large contiguous blocks of moist and mature deciduous and mixed forests. They especially prefer bottomland and riparian forests and forested wetlands and will use suburban woodlots if there is adequate foraging habitat nearby (Crocoll 1994).

### 1.2 Justification

The northeastern red shouldered hawk population experienced a substantial decline during the 1960s (Henny 1972, Palmer 1988). This species was listed as Threatened in New Hampshire between 1980 and 1986, was on the American Birds Blue List throughout its range between 1972 and 1986 (Tate 1986), and was considered a migratory non-game bird of management concern in the northeastern United States in 1987 (Peterson and Crocoll 1992). Population increases led to reduced levels of concern and subsequent downlistings. According to analyses of Breeding Bird Survey data, red shouldered hawk populations are increasing regionally (Sauer et al. 2004).

However, increasing levels of forest fragmentation and recreational activity may justify monitoring, particularly in southern New Hampshire. Clearing of large forest blocks has been implicated in population declines (Brown 1971, Woodrey 1986, Hands et al. 1989, Preston et al. 1989, Peterson and Crocoll

1992), and forest fragmentation favors Great Horned Owls and Red-tailed Hawks over red shouldered hawks (Bednarz and Dinsmore 1981, 1982, Bryant 1986).

### 1.3 Protection and Regulatory Status

The Red-shouldered hawk is protected in the United States under the Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755) as amended by: Chapter 634; June 20, 1936; 49 Stat. 1556; P.L. 86-732; September 8, 1960; 74 Stat. 866; P.L. 90-578; October 17, 1968; 82 Stat. 1118; P.L. 91-135; December 5, 1969; 83 Stat. 282; P.L. 93-300; June 1, 1974; 88 Stat. 190; P.L. 95-616; November 8, 1978; 92 Stat. 3111; P.L. 99-645; November 10, 1986; 100 Stat. 3590 and P.L. 105-312; October 30, 1998; 112 Stat. 2956).

### 1.4 Population and Habitat Distribution

The New Hampshire population of red shouldered hawks is estimated at 1,400 to 1,600 individuals, based on a cursory examination of topographic maps. Maps were examined for location of potential home ranges based on presence of wetlands or bottomland forests on a town-by-town basis. The combined population estimate for BCRs 14 and 30 is 7,330 individuals (Hunt 2005). The range-wide population is estimated at 830,000 (Rich et al. 2004).

New Hampshire Endangered Species Program and NHBR documented 88 occupied red shouldered hawk territories in southern New Hampshire during the 1981 to 1989 breeding seasons: 41 in Merrimack County, 19 in Hillsborough County, and 28 in Rockingham County. Biologists conducting searches and broadcast surveys at 57 of these sites in 1990, detected red shouldered hawks at 25 of the 57 sites, and rated habitat at 44 as suitable, 11 as marginal, and 2

as no longer suitable (NHA, unpublished data).

Red shouldered hawks are more common in the Sebago-Ossipee Hills, Coastal Plain, and southern New Hampshire Uplands subsections than elsewhere in the state (Foss 1994), where mountainous terrain limits the distribution of suitable wetlands.

### 1.5 Town Distribution Map

*Not completed for this species.*

### 1.6 Habitat Map

### 1.7 Sources of Information

The information in this account is based on review of available literature and analysis of data in the NHBR Database from 1991 to 2004.

### 1.8 Extent and Quality of Data

Searches for red shouldered hawks were conducted under the auspices of the New Hampshire Endangered Species Program during the 1980 and 1981 breeding seasons. Biologists used broadcast surveys to determine occupancy of 57 previously documented territories in 1990. Additional data were obtained during fieldwork for the New Hampshire Breeding Bird Atlas (1981 to 1986) and by serendipitous observations. The absence of documented territories in Sullivan County is more likely the result of a lack of observers than of the absence of red shouldered hawks.

### 1.9 Distribution Research

The relatively specific habitat needs of this species (mature forest and extensive wetlands) enable identification of potential territory sites from topographic maps. Field surveys of identified potential sites in the rapidly developing southeastern counties would provide an important baseline against which to measure future population change. In addition, field efforts in Sullivan County would clarify the species' distribution in New Hampshire.

## ELEMENT 2: SPECIES/HABITAT CONDITION

### 2.1 Scale

Conservation of red shouldered hawks is best addressed at the ecoregional scale. New Hampshire Endangered Species Program data from the 1980 and 1981 field seasons and New Hampshire Breeding Bird Atlas data suggest that red shouldered hawks occur at highest densities in the Southern New England Coastal Hills and Plain Ecoregion. Suitable habitat and documented territories are scarce and widely scattered in the White Mountains and Vermont-New Hampshire Uplands ecoregions. County analyses of potential habitat confirm this assessment (see table 1). Field surveys have high territory densities in Kensington/South Hampton (0.35/sq. mi), Andover (0.15/sq. mi), Dunbarton (0.13/sq. mi), and Canterbury (0.11/sq. mi).

### 2.2 Relative Health of Populations

Insufficient data exist to assess recent population trends for New Hampshire. Breeding Bird Survey data suggest that red shouldered hawk populations are increasing regionally (Sauer et al. 2004).

### 2.3 Population Management Status

No population management efforts are under way, and there is no evidence that such efforts are needed.

### 2.4 Relative Quality of Habitat Patches

Quality of habitat patches varies from sites in large blocks of unfragmented forest with relatively pristine wetlands to sites in highly fragmented forest with wetlands degraded by stormwater runoff from roads and other impervious surfaces. Two of the counties with the highest densities of potential territories experienced New Hampshire's most rapid development from 1990 to 1997; Hillsborough and Rockingham counties each received 27% of the State's new housing units during that period (Sundquist and Stevens 1999).

## 2.5 Habitat Patch Protection Status

Unknown.

## 2.6 Habitat Management Status

No active habitat management is currently underway.

## 2.7 Sources of Information

Cited literature, evaluation and analysis of available data, and consultation with colleagues.

## 2.8 Extent and Quality of Data

Searches for red shouldered hawks were conducted under the auspices of the New Hampshire Endangered Species Program during the 1980 and 1981 breeding seasons. Biologists used broadcast surveys to determine occupancy of 57 previously documented territories in 1990. Additional data were obtained during fieldwork for the New Hampshire Breeding Bird Atlas (1981 to 1986) and by serendipitous observations. Potential territories were identified roughly from the New Hampshire Atlas and Gazetteer (DeLorme 2002). There has been no recent field survey to determine habitat quality of historical and potential territories.

## 2.9 Condition Assessment Research

Priority research for this species is the GIS analysis of fragmentation and development metrics for potential habitat.

### ELEMENT 3: SPECIES AND HABITAT THREAT ASSESSMENT

#### 3.1.1. Development (Fragmentation, Habitat Loss and Conversion)

##### (A) Exposure Pathway

Development and deforestation reduce availability of nesting sites and foraging areas. Remaining habitat exists in patches interspersed among other land uses, and such landscape mosaics provide suitable habitat for Great Horned Owls and Red-tailed Hawks. The relative contributions of reduced foraging area, ag-

gressive interaction, predation, and competition to abandonment of fragmented sites are unknown.

##### (B) Evidence

Great horned owls are known to prey on red shouldered hawk nestlings (Huey 1913, Wiley 1975, Portnoy and Dodge) and to nest in former red shouldered hawk nests (Palmer 1988). Habitat alteration (e.g., removal of trees) has preceded known cases of red-tailed hawks replacing red shouldered hawks (Palmer 1988). When habitat remains unaltered, red shouldered hawks may occupy specific territories for many years (Bent 1937).

## 3.2 Sources of Information

Literature review.

## 3.3 Extent and Quality of Data

Although there is no compelling reason to expect that New Hampshire red shouldered hawks should behave differently than those in other parts of the species' range, none of the primary research on which the threat discussion is based was conducted in northern New England.

## 3.4 Threat Assessment Research

- Where development in New Hampshire is high, field surveys and GIS analyses should be conducted to determine the nature of threats.
- Documenting territories and nest sites within tracts of protected land would provide insight into the long-term viability of the species in southern New Hampshire.

### ELEMENT 4: CONSERVATION ACTIONS

#### 4.1 Specific Conservation Action: Protect large unfragmented forest blocks with extensive wetland. Category: Habitat Protection

##### (A) Direct Threats Affected

Development (Fragmentation, Habitat Loss and Conversion)

##### (B) Justification

- Evidence cited above strongly suggests that

maintaining red shouldered hawk habitat enables local populations to persist over long periods.

- The threat posed by habitat loss and fragmentation must be confronted on the scale of individual home ranges. However, multiple home ranges in high-density areas should take precedence over single, isolated home ranges.
- Protective measures should be based on urgency of threats.
- The scope and nature of protective measures will reflect new information on red shouldered hawks.

#### (C) Conservation Performance Objective

Protect habitat for clusters of home ranges throughout the southern New England Coastal Hills and Plain Ecoregion.

#### (D) Performance Monitoring

Monitor number and location of protected habitat areas.

#### (E) Ecological Response Objective

Maintain local populations of successfully breeding pairs throughout the Southern New England Coastal Hills and Plain Ecoregion.

#### (F) Response Monitoring

Monitor protected home ranges with broadcast surveys and searches for nest sites.

#### (G) Implementation

See profile for unfragmented forest blocks of matrix forest.

#### (H) Feasibility

See profile for unfragmented forest blocks of matrix forest.

### ELEMENT 5: REFERENCES

#### 5.1 Literature

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## 5.2 Data Sources

New Hampshire Bird Records, New Hampshire Audubon, Concord, NH.

Table 1. Estimated red shouldered hawk potential territories for New Hampshire counties. Figure 1. New Hampshire towns with red shouldered hawk observations reported to New Hampshire Bird Records during 1991-2004.

County	Area (sq. mi.)			Estimated potential home ranges	Estimated density
Belknap	467.6			35	0.07
Carroll	978.2			75	0.08
Cheshire	722			116	0.16
Coos	1884.7			34	0.02
Grafton	1746.2			69	0.04
Hillsborough	880.8			124	0.14
Merrimack	961.6			91 87	0.09
Rockingham	705.5			115	0.16
Strafford	378.5			55	0.15
Sullivan	548.7			27	0.05

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## Distribution of Red-shouldered Hawk in New Hampshire

Distribution  
■ Known



0 10 20 40 Miles

Known = confirmed breeding observations as reported in the  
NH Natural Heritage Bureau's Element Occurrence Database.

