

Appendix A: Birds

Bicknell's Thrush

Catharus bicknelli

Federal Listing	PE
State Listing	SC
Global Rank	S4
State Rank	S2
Regional Status	Very High



Photo by Jason Lambert

Justification (Reason for Concern in NH)

The Bicknell's Thrush is endemic to high-elevation spruce-fir forests of the northeastern United States and southeastern Canada. This limited and fragmented habitat is threatened by a combination of acid deposition, climate change, and development for ski areas, wind facilities, and other uses. Birds nesting in these areas may be at risk from exposure to mercury and other toxins. Almost all of the population winters on the Caribbean island of Hispaniola, where extensive historic and current deforestation likely poses the greatest threat to the species' long-term survival. Although difficulties in monitoring make trend data hard to obtain, there is some evidence of declines, and the species' has definitely disappeared from several more isolated mountaintops where it formerly bred.

Distribution

Bicknell's Thrush is endemic to the Northeast, where it occurs in the mountains of New York (Catskills and Adirondacks), Vermont (Green Mountains and northeast highlands), New Hampshire (see below), Maine (White Mountains to Katahdin), Quebec (north shore of St. Lawrence River and Gaspé), north-central New Brunswick, and Nova Scotia (Cape Breton Island) (Rimmer et al. 2001). Historically occurred in coastal areas within the Canadian range, and south to Mt. Greylock, Massachusetts, where extirpated (Veit and Petersen 1993). Repeated Breeding Bird Atlas projects in New York and Vermont detected no changes in distribution (McGowan and Corwin 2008, Renfrew 2013). The species' entire global population winters in the Greater Antilles, with almost all records from the island of Hispaniola (Haiti and Dominican Republic). Scattered sightings have been made in mountains of southeastern Cuba, Jamaica, and Puerto Rico.

In New Hampshire, Bicknell's Thrush breeding habitat is centered in the White Mountains, with smaller numbers north in suitable habitat to the Canadian border. To the south, it formerly occurred on isolated mountains from Smart's Mountain (Lyme, where still present) south. Of these, it is still present occasionally (but perhaps just as a visitor) on Mt. Cardigan (Orange), but has not been reported from Kearsarge, Sunapee, or Monadnock since at least the 1970s (Foss 1994). In addition to this range retraction from the isolated southern mountains, Bicknell's Thrush has also disappeared from lower elevation sites where it formerly occurred, such as Dixville Notch (it still breeds in the mountains on either side of the notch).

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Habitat

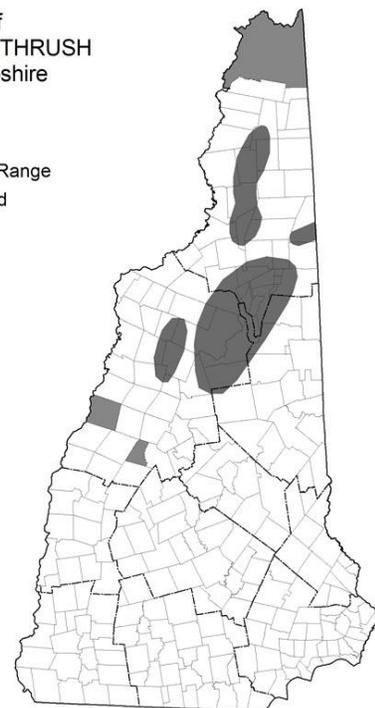
Bicknell's Thrush occupies coniferous forests on high elevation mountain slopes in the northeastern United States, and lower elevation forests further north in the Canadian Maritime Provinces. Occupied habitats are characterized by high numbers of standing dead conifers with a dense understory of balsam fir, with varying amounts of red spruce, black spruce, paper birch, mountain ash, and other species depending on latitude and elevation. Within these forests, Bicknell's Thrush are most common in areas that undergo frequent natural disturbance from wind, ice storms, fir waves, fire, and insect outbreaks, and will also readily use similar habitats in regenerating timber harvests (Rimmer et al. 2001). Elevation limits vary with latitude, and are higher in the southern portion of the range (3600' in Catskills of NY) than in the north (2500' in Maine, Rimmer et al. 2001). In New Hampshire, Bicknell's Thrush habitat is found primarily between 3500 and 4500' (Foss 1994). On its wintering grounds, this species occupies moist, primarily broadleaf forests, which have been severely reduced in extent (Rimmer et al. 2001). It is now largely restricted to remnant areas of cloud forest at relatively high elevation (IBTCG 2010).

NH Wildlife Action Plan Habitats

- High Elevation Spruce-Fir Forest

Distribution of
BICKNELL'S THRUSH
in New Hampshire

■ Current Range
▨ Localized



Distribution Map

Current Species and Habitat Condition in New Hampshire

Trend data are limited and equivocal. Overall, Mountain Birdwatch data for the US show a stable population from 2001-2009 (IBTCG 2010), including in the White Mountains, whereas King et al. (2008) report a 7% annual decline from 1993-2003 in this region. All data from the species' range in Canada indicate declines (IBTCG 2010). Overall, the species' range has retracted since the late 1900s.

Population Management Status

Management is not currently in place for this species.

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Regulatory Protection (for explanations, see Appendix I)

- Migratory Bird Treaty Act (1918)

Quality of Habitat

Montane spruce-fir forests occupied by Bicknell's Thrush during the breeding season are impacted by atmospheric deposition of acidic compounds, heavy metals and other pollutants, development of wind power, telecommunications, and ski area facilities, human disturbance along hiking trails, and climate change impacts. Several alpine ski resorts and thousands of miles of hiking trails attract millions of visitors each year. Ski slopes in higher elevations may be wide enough to limit movement and effectively fragment and degrade breeding habitat. Extensive traffic on popular hiking trails may disturb birds in adjacent habitats and cause damage to soils and vegetation. An assessment of habitat quality for different patches should include size of habitat block, forest stand characteristics, natural and human disturbance factors, predator populations, and measures of ecosystem health that could include invertebrate community, soil toxicology, and other factors. Habitat condition should be correlated with Bicknell's Thrush population parameters, including reproduction and mortality rates, blood mercury content, etc.

Habitat Protection Status

Most of the Bicknell's Thrush habitat in New Hampshire is within the White Mountain National Forest, and overall 94% of potential habitat statewide is under some sort of conservation (Lambert 2003).

Habitat Management Status

Habitat management has not been implemented for this species.

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 and degradation from agriculture on winter grounds (Threat Rank: High)

Considerable evidence suggests that habitat loss on the Caribbean winter grounds may be the most critical threat facing Bicknell's Thrush. On Hispaniola, only 10% of original forest cover remains in the Dominican Republic, while the figure for Haiti is less than 2% (IBTCG 2010), and remaining forests are under continual pressure from agriculture and charcoal making. At the same time, protection of existing conserved areas is often inadequate or non-existent and habitat continues to be lost even in reserves.

Habitat conversion due to development (Threat Rank: Medium)

See high-elevation spruce-fir forest habitat profile for more detail on this threat.

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Habitat conversion and fragmentation from tower and turbine development (Threat Rank: Medium)

In a study of Bicknell's Thrush at a wind facility in northern New Hampshire, Parrish (2013) found no effects of turbines on home range size, although behavioral data suggested that birds avoided turbines when the latter were emitting moderate-to-high amounts of noise. The effects of noise on stress levels, site fidelity, and reproductive success are in need of further research.

Habitat degradation from insect pests (Balsam Woolly Adelgid and spruce budworm) (Threat Rank: Medium)

Range expansion by the non-native Balsam Woolly Adelgid has the potential to alter forest composition and this habitat suitability. The adelgid is currently limited by winter temperatures. See the high-elevation spruce-fir forest habitat profile for more information.

Habitat degradation from acid deposition (Threat Rank: Medium)

High-elevation spruce-fir forests throughout the Northeast have been affected by acid deposition, which has resulted in extensive die-offs of red spruce. Because red spruce is not the dominant species in Bicknell's Thrush habitat, the species may be less impacted by acid deposition than the forest as a whole, and would even benefit if spruce was replaced with dense regrowth of balsam fir. Acidification also leaches calcium from the soil, causing declines in tree health, invertebrate prey quality, and potentially reproductive success in Bicknell's Thrush and other species which share its habitat.

List of Lower Ranking Threats:

Disturbance from persistent organic compounds

Disturbance from mercury toxicity

Disturbance from recreational activity (walkers, dog walkers)

Habitat conversion and impacts (fragmentation) from ski area development

Disturbance during research activities

Habitat degradation from timber harvest

Habitat impacts from road fragmentation

Habitat conversion and degradation from warming temperatures and associated increase of hardwood species

Actions to benefit this Species or Habitat in NH

Support Mountain Birdwatch

Objective:

Maintain continuous monitoring of Bicknell's Thrush populations so as to assess trends and possibly the spatial scale at which threats manifest

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General Strategy:

Work with the Vermont Center for Ecostudies to ensure complete coverage of Mountain Birdwatch routes in New Hampshire.

Political Location:

Coos County, Grafton County

Watershed Location:

Hispaniolan Habitat Conservation

Primary Threat Addressed: Habitat conversion and degradation from agriculture on winter grounds

Specific Threat (IUCN Threat Levels): Agriculture & aquaculture

Objective:

Maintain, preserve, and enhance winter habitat for Bicknell's Thrush

General Strategy:

There are already projects in place that seek to conserve wintering habitat for Bicknell's Thrush in the Dominican Republic and Haiti. New Hampshire should consider participating in and/or supporting such efforts given the state's responsibility for the species' breeding population.

Political Location:

National

Watershed Location:

Statewide

Pollutant effects research

Primary Threat Addressed: Habitat degradation from acid deposition

Specific Threat (IUCN Threat Levels): Pollution / Air-borne pollutants / Acid rain

Objective:

Determine the importance of acid deposition, mercury, and other atmospheric pollutants on Bicknell's Thrush reproductive success

General Strategy:

Conduct research at sites with varying exposure to atmospheric pollutants (and climate change) to assess the direct or indirect impacts of these stressors to reproductive success, survival, or other demographic parameters.

Political Location: Regional

Watershed Location:

References, Data Sources and Authors

Data Sources

Mountain Birdwatch is a program run by the Vermont Center for Ecostudies. Additional broad distribution data obtained from NHBR.NH eBird.

Data Quality

Because Bicknell's Thrush habitat is often remote, and birds difficult to detect even when present, it can be very difficult to obtain good estimates of population size or trend. Although more robust

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monitoring methods have been developed in recent years, more data need to be collected before strong inferences can be made.

2015 Authors:

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2005 Authors:

Laura Deming, NHA

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