

Ringed Boghaunter

Williamsonia lintneri

Federal Listing	N/A
State Listing	E
Global Rank	G3
State Rank	S2
Regional Status	High



Photo by Pamela Hunt

Justification (Reason for Concern in NH)

Considered “highly vulnerable” by the Northeastern Odonata Conservation Assessment (White et al 2014), because of its restricted range, specialized habitat, and historic loss of peripheral populations in NY and NJ. Most of the population occurs in the heavily developed coastal plain from Maine to Connecticut, and the species is listed as threatened or endangered in all states where it occurs.

Distribution

Most of the global population occurs from southwestern Maine to eastern Connecticut, with disjunct populations in Wisconsin and Michigan. There are also historic records from northern New Jersey and Albany, NY. Ringed Boghaunters have been documented at roughly 15 sites in New Hampshire, all in the southeast portion of the state in a band from Strafford and Durham to Amherst and South Hampton. Extensive field work in 2007-2011 doubled the number of locations with this species, although it has not been detected at some sites for several years. Breeding has not been conclusively shown at all sites, but is suspected at most through a combination of repeated detection or relatively high abundance.

Habitat

Ringed Boghaunters are restricted to wetland habitats containing extensive floating or suspended Sphagnum. These are generally acidic fens (deMaynadier and Carlson 1998, Lundgren 1999), which are weakly minerotrophic peatlands that receive some nutrients from groundwater springs, seeps, and streams. Vegetation can be highly variable, including shrubby basins, dwarf shrub fens, graminoid-dominated fens (usually sedges), and Sphagnum-filled pools or basins (Lundgren 1999). At least one New Hampshire site appears to be within an Atlantic white cedar swamp. Shrubs, robust sedges and rushes with persistent stems provide places for larvae to emerge in the spring. An analysis of water chemistry in Rhode Island found no differences between occupied and unoccupied sites in terms of pH, dissolved nitrogen or oxygen, conductivity, and other factors (Biber 2002). This same study also found that occupied sites tended to have deeper water, suggesting that hydroperiod may be important to this species in some situations. An informal survey of eight NH sites found pH values ranging from 3.8 to 5.2, with five sites in the 4.0-4.5 range (A. Dillon, unpubl. data). Like most Odonata, adults may require relatively intact upland forests to rest, develop, and feed immediately after emergence and between mating bouts.

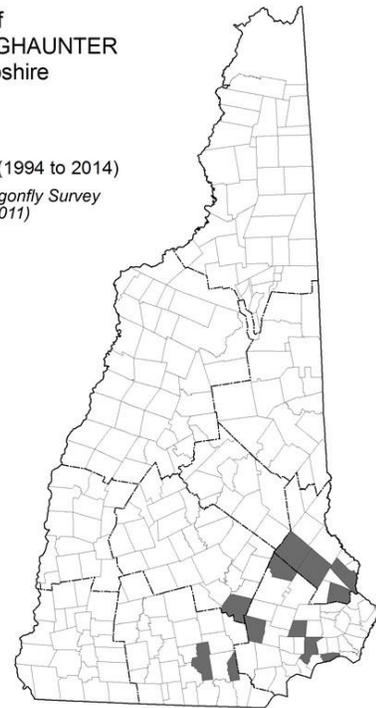
Appendix A: Insects

NH Wildlife Action Plan Habitats

- Peatlands
- Temperate Swamps
- Appalachian Oak Pine Forest
- Hemlock Hardwood Pine Forest
- Marsh and Shrub Wetlands

Distribution of RINGED BOGHAUNTER in New Hampshire

■ Current (1994 to 2014)
Includes NH Dragonfly Survey records (1987-2011)



Distribution Map

Current Species and Habitat Condition in New Hampshire

Most sites have not been consistently monitored to determine local population size or trend. Increasingly older data from sites that pre-date the NH Dragonfly Survey (2007-2011) suggest relatively stable populations, albeit over a short time period. Recently-discovered sites in Strafford, Fremont, South Hampton, and Barrington appear to support relatively high populations, although detailed inventories or monitoring have yet to be carried out.

Population Management Status

Not managed

Regulatory Protection (for explanations, see Appendix I)

- Endangered Species Conservation Act (RSA 212-A)
- Fill and Dredge in Wetlands - NHDES
- Comprehensive Shoreland Protection Act - NHDES

Quality of Habitat

Generally poorly known, although the proximity of several sites to roads or development may pose the risk of contaminated runoff entering the wetlands, particularly those of relatively small size. Larger sphagnum peatlands surrounded by intact wetland or upland forests appear to have the most potential for the long-term persistence of ringed boghaunters. The long-term biological cost of adult road mortality and increased predation by domestic animals and subsidized predators is not known.

Appendix A: Insects

Habitat Protection Status

Ownership and protection status vary widely among sites, although roughly half are under some sort of conservation.

Habitat Management Status

Habitat management for the ringed boghaunter is limited to a site in Durham, and consists of cattail removal to maintain some open water in this small peatland. It is unknown whether this activity has benefited the 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 to development (Threat Rank: Medium)

In the context of the Ringed Boghaunter, this threat pertains to forested habitat surrounding breeding sites. Such habitat is important to recently-emerged adults, as well as to females between oviposition events. Loss of such habitats may increase predation risk or other sources of mortality. In Rhode Island, occupied sites were in significantly less developed landscapes (area within 460 meters of the wetland) than unoccupied sites (Biber 2002).

See also peatlands profile

Habitat conversion from the direct filling of wetlands for development (Threat Rank: Medium)

Because most known and potential sites for this species are in the more heavily developed southeastern portion of New Hampshire, they should be considered at relatively high risk from development. Smaller wetlands may be particularly vulnerable, since they are more likely to be embedded in heavily developed landscapes and suffer incremental degradation even without direct filling.

See peatlands profile

List of Lower Ranking Threats:

Habitat degradation from impervious surface run-off

Mortality and species impacts from pesticide use

Habitat degradation from introduced or invasive plants

Mortality from subsidized or introduced predators

Habitat degradation from an increase in cattails and other successional processes

Habitat impacts (drying or flooding) due to culvert-constrained water flows

Mortality of individuals from vehicles on roadways

Actions to benefit this Species or Habitat in NH

Ringed Boghaunter monitoring

Specific Action: Data Collection and Analysis

Objective:

Confirm breeding at boghaunter sites where it has not been documented

General Strategy:

Visit sites where there are only records of adults and undertake comprehensive searches of suitable habitat for exuviae. Such documentation is important in order to effectively conserve the wetlands where Ringed Boghaunters are actually breeding.

Political Location:

Hillsborough County, Merrimack County,
Rockingham County, Strafford County

Watershed Location:

Ringed Boghaunter population monitoring

Objective:

Access status of NH Ringed Boghaunter populations

General Strategy:

Periodically search known sites for adults and exuviae to determine if the species persists at the locations. Surveys could occur every two years and involve trained volunteers.

Political Location:

Hillsborough County, Merrimack County,
Rockingham County, Strafford County

Watershed Location:

References, Data Sources and Authors

Data Sources

NH Dragonfly Survey (Hunt 2012); UNH entomology collection (historic records), P. Hunt and NHFG, unpubl. Data. Ringed Boghaunter inventory and monitoring reports of New Hampshire sites contain survey data and conservation concerns. Pam Hunt of ASNH and Sara Cairns of NHHNB provided information regarding the protection status of known breeding sites, as well as habitat quality indicators.

Data Quality

Adult Ringed Boghaunters are distinctive, and most recent records have been substantiated with photographs, so the quality of data is good. The mapped extent of the species' current distribution is likely an underestimate, given its dispersed population, specialized habitat, and early flight season. The fact that the number of known sites was roughly doubled during the NH Dragonfly Survey supports this point, and suggests Ringed Boghanter may be more widespread than previously

Appendix A: Insects

believed. For these same reasons, the absence of individuals during a single survey does not prove a site is no longer unoccupied. Data on population size and persistence are of lower quality, since there is no systematic monitoring program in place, and all recent records are essentially incidental.

The condition of Ringed Boghaunter populations in New Hampshire is not well understood. Inconsistency in surveying efforts between years and sites make it difficult to compare between and within populations. Site conditions, especially water levels, greatly influence monitoring results. The flight period for this species is short and early, and exuviae are delicate and easily dislodged from the stems of emergent vegetation by wind or high water. Therefore, the absence of individuals during a single survey does not prove the habitat is unoccupied.

2015 Authors:

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2005 Authors:

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Literature

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