

Dragonfly Conservation Status for the Northeastern U.S.



REGIONAL CONSERVATION NEEDS
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Banded Pennant (*Celithemis fasciata*)
Credit: Alan Wells

In the Northeast Region, 18% of dragonflies and damselflies (41 species) are vulnerable.

About the project

Dragonflies and damselflies (Odonata) are highly valued biological indicators of freshwater ecosystem integrity and climate change. Approximately 18% of the estimated 456 species of Odonates in the US are considered rare and vulnerable to extirpation or extinction.

In 2011, the Northeast Association of Fish and Wildlife Agencies' Grant Program for Regional Conservation Needs (RCN) funded a proposal to improve conservation status ranks for dragonflies and damselflies (Odonata) in the Northeast Region. The Northeast Region is a hotspot of Odonate diversity, but threats in freshwater ecosystems and a lack of information about this important taxonomic group made this project a high priority.

In general, conservation status ranks are a tool used to prioritize species in need of actions to conserve habitat or otherwise support populations. To provide a procedure for conservation assessment of dragonflies and damselflies, this project developed and tested a prioritization framework based on species vulnerability and the responsibility of the region for protecting the species (see reverse for methods).

When the prioritization framework was applied, 41 species of 228 regional Odonata species (18%) were found to be vulnerable with ranks of R1 or R2. The report also examined the degree of agreement between state species of greatest conservation need identified in 2005 State Wildlife Action Plans and this new conservation assessment.

Recommendations

Species with high vulnerability (R1 and R2) should receive targeted species-specific attention with particular emphasis applied to the nine species with higher regional responsibility (see inset box on reverse). This new assessment of species should be considered when selecting Species of Greatest Conservation Need in State Wildlife Action Plans and when planning monitoring programs.

Implementing a habitat-based approach for Odonata breeding habitats is a promising strategy. Targeted habitats include peatlands, low-gradient streams and seeps, high-gradient headwaters, larger rivers, and coastal plain ponds.

To coordinate conservation of odonate species, a regional Odonata conservation working group could be formed.

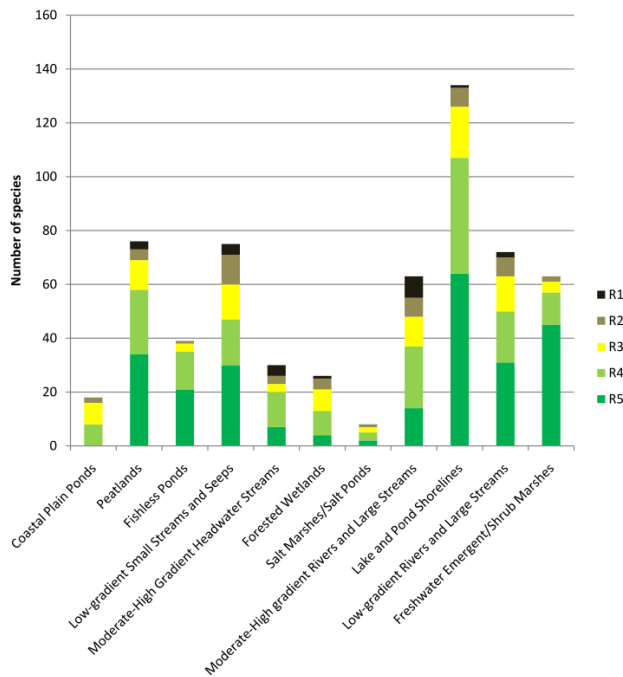
Methods

In this study, the analysis was based on 248,059 records of 228 species at the county level from all states. Vulnerability scores and ranks (R1—most vulnerable to R5—least vulnerable) were based on five factors: range extent, area of occupancy, habitat specificity, vulnerability of occupied habitats, and relative change in range size. Responsibility is measured as the percentage of the U.S.-Canada range falling in the Northeast Region with “primary” indicating more than 50% is in the region “significant” indicating 25-50% is in the region, and “shared” indicating less than 25% is in the region.

Habitat Vulnerability Assessment

Species-specific threat information is lacking, so threats to occupied habitats were assessed based on professional experience, literature review, and regulatory protections. The highest vulnerability for open water systems were the Coastal Plain Ponds, Peatlands, and Fishless Ponds. The highest vulnerability for flowing water systems were Low Gradient Small Streams and Seeps and Moderate-High Gradient Headwater Streams.

The figure below shows the number of Odonate species in each vulnerability category displayed by habitat type. Habitat types are listed in decreasing order of vulnerability from left to right.



Northeast U.S. High Vulnerability Species (R1-R2):

with Primary Regional Responsibility (>50%):

- *Cordulegaster erronea* (Tiger spiketail)
- *Enallagma recurvatum* (Pine barrens bluet)
- *Gomphus rogersi* (Sabel clubtail)
- *Gomphus septima delawarensis* (Delaware river clubtail)
- *Williamsonia lintneri* (Ringed boghaunter)

with Significant Regional Responsibility (25-50%):

- *Calopteryx angustipennis* (Appalachian jewelwing)
- *Cordulegaster bilineata* (Brown spiketail)
- *Ophiogomphus incurvatus* (Appalachian snaketail)
- *Somatochlora brevicincta* (Quebec emerald)

The Regional Conservation Needs Grant Program

The Northeast Regional Conservation Needs (RCN) grant program is the largest multi-jurisdictional collaborative in the United States to effectively address critical landscape-scale wildlife conservation needs. Since 2007, state fish and wildlife agencies of the 13 states (from Virginia to Maine) and the District of Columbia have worked together to meet their common conservation needs by combining funds, matching those resources with partner funds, and prioritizing actions identified in State Wildlife Action Plans. The program funds projects that improve our understanding of regional species and habitats of greatest conservation need and make recommendations for strategies to ensure sustained populations of these species and their biological communities. To learn more about our funded projects or to get information about upcoming grant cycles, please visit the website www.rcngrants.org.

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