

Smooth Greensnake

Liochlorophis vernalis

Federal Listing	N/A
State Listing	SC
Global Rank	
State Rank	S3
Regional Status	High



Photo by Michael Marchand

Justification (Reason for Concern in NH)

Smooth green snakes were listed as a species of ‘High’ conservation concern in the northeast United States (NEPARC 2011, Northeast RSGCN list 2014). Anecdotal accounts appear to indicate a decline in smooth green snake abundance since the mid-1900s in southern New England (Klemens 1993) and in other areas (Brodman et al. 2002). Since that time, many early successional habitats that smooth green snakes prefer have become reforested or have been converted to residential and commercial developments (Klemens 1993, SPNHF 2005). The maintenance of lawns and hayfields by mowing can lead to direct mortality of individual smooth green snakes. Frequent mowing may reduce habitat suitability by altering the diversity of vegetation and soil moisture, potentially limiting the abundance of prey such as gastropods (Kjoss and Litvaitis 2001a). Insecticides reduce prey bases and direct mortality to smooth green snakes (George and Stickel 1949).

Distribution

The smooth green snake likely occurs throughout most of New Hampshire including documented records on Star Island, Isles of Shoals (Taylor 1993, D. Hayward, personal communication). Milan (2004) Berlin (2003), and Gorham (2011) represent the most northerly recent records for species in Coos County NH and has been reported for Shelburne historically (Oliver and Bailey 1939). In a historic unpublished report, Donald Carle, a professor of science at Keene Teachers College, wrote “They have been reported at the tree line on Mount Monadnock in Jaffrey, on top of Mount Stinson in the White Mountains and at the tree line next to the cog railroad going up Mt. Washington.”

Habitat

Smooth green snakes may be found in a variety of open or lightly forested habitats such as pastures, old fields, wet meadows, marsh borders, coastal grasslands, Pine Barrens, blueberry barrens, and grassy hilltops (Klemens 1993, New Hampshire Reptile and Amphibians Reporting Program 2015). Smooth green snakes feed primarily on invertebrates including arthropods, caterpillars, grasshoppers, slugs and earthworms. Females may lay two or more clutches of well-developed eggs a season, usually in July- August, in piles of rotting vegetation or sawdust, rotting logs and stumps or mammal burrows (Ernst and Ernst 2003). Ant mounds, rock crevices and mammal burrows may be used during hibernation (Carpenter 1953, Ernst and Ernst 2003).

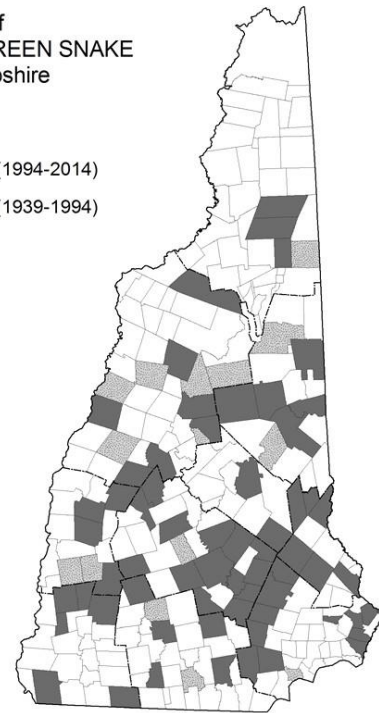
Appendix A: Reptiles

NH Wildlife Action Plan Habitats

- Shrublands
- Grasslands
- Marsh and Shrub Wetlands
- Peatlands
- Rocky Ridge
- Cliff
- and Talus

Distribution of
SMOOTH GREEN SNAKE
in New Hampshire

- Current (1994-2014)
- Historic (1939-1994)



Distribution Map

Current Species and Habitat Condition in New Hampshire

Not assessed because of insufficient information.

Population Management Status

Not assessed because of insufficient information.

Regulatory Protection (for explanations, see Appendix I)

- NHFG Rule FIS 803.02. Importation.
- NHFG Rule FIS 804.02. Possession.
- NHFG Rule FIS 811.01 Sale of Reptiles.
- NHFG FIS 1400 Nongame special rules
- Fill and Dredge in Wetlands - NHDES

Quality of Habitat

Not assessed because of insufficient information.

Habitat Protection Status

Not assessed because of insufficient information.

Appendix A: Reptiles

Habitat Management Status

Not assessed because of insufficient information.

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.

There are no threats ranked high or moderate for this species.

List of Lower Ranking Threats:

Species impacts from agricultural pesticide use causing prey declines

Mortality and species impacts (decreased fitness) of individuals from various diseases (snake fungal disease)

Habitat conversion due to succession from grass and shrubs to forested areas

Mortality of individuals from vehicles on roadways

Habitat conversion of hayfields to row crops

Mortality from mowing and agricultural machinery and vehicles

Habitat conversion due to development of upland habitat

Actions to benefit this Species or Habitat in NH

Evaluate health of smooth green snakes

Primary Threat Addressed: Mortality and species impacts (decreased fitness) of individuals from various diseases (snake fungal disease)

Specific Threat (IUCN Threat Levels): Invasive & other problematic species, genes & diseases

Objective:

Evaluate health of smooth green snakes

General Strategy:

Smooth green snakes observed with signs of disease will be evaluated and considered for testing.

Political Location:

Statewide

Watershed Location:

Statewide

Collect distribution information

Appendix A: Reptiles

Objective:

Collect, compile, and evaluate distribution information for smooth green snakes in NH.

General Strategy:

NHFG will encourage volunteers of the reptile and amphibian reporting program to report observations of the species. Researchers conducting work in smooth greensnake habitat will be encouraged to submit observations of species.

Political Location:

Statewide

Watershed Location:

Statewide

Use species as indicator for health of habitat

Objective:

Evaluate whether species is suitable for inclusion in grassland condition assessments and evaluation of pesticides.

General Strategy:

Smooth green snakes are associated with grasslands, wetland edges, and openings with grasses. They have been reported as vulnerable to agricultural management (e.g., haying) and pesticide applications. As such, researchers evaluating these habitats or their condition should consider whether smooth green snakes would serve as useful indicators.

Political Location:

Statewide

Watershed Location:

Statewide

References, Data Sources and Authors

Data Sources

Status and ranking information was taken from NatureServe (2014). New Hampshire Reptile and Amphibian Reporting Program (RAARP) and NH Wildlife Sightings records and Taylor (1993) were the primary source of locality records. Online museum collection databases (Museum of Comparative Zoology, Harvard and Yale Peabody Museum) were searched for historical records.

No data available to assess condition of smooth green snake populations. Threat assessments were conducted by a group of NHFG biologists (Michael Marchand, Brendan Clifford, Loren Valliere, Josh Megysey).

Data Quality

The distribution, habitat use, and condition of smooth green snake populations in New Hampshire are not well understood. This assessment was limited to high quality records that were included in museum collections, were found in scientific reports, or were reported to the New Hampshire Reptile and Amphibian Reporting Program and NH Wildlife Sightings by a trained expert or reports that included a specimen or clear photograph. We suspect that smooth green snakes in towns with historic observations probably have not been extirpated but rather these areas have not received recent survey effort targeting this species.

Appendix A: Reptiles

No data available to assess condition of smooth green snake populations.

2015 Authors:

Michael Marchand, NHFG

2005 Authors:

Kim A. Tuttle and M. N. Marchand, New Hampshire Fish and Game

Literature

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Appendix A: Reptiles

New Hampshire Reptile and Amphibian Reporting Program (RAARP) and NH Wildlife Sightings databases. Maintained by the New Hampshire Fish and Game Department, Nongame and Endangered Species Program, Concord New Hampshire (Accessed: December, 2014)

Oliver, J. A. and J. R. Bailey. 1939. Amphibians and reptiles of New Hampshire exclusive of marine forms: Pages 195-217 in H.E.Warfel, editor, Biological Survey of the Connecticut watershed. New Hampshire Fish and Game Department Survey Report 4.

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