Species Status Assessment

Common Name: Fowler's toad **Date Updated:** January 9, 2025

Scientific Name: *Anaxyrus fowleri* **Updated By:**

Class: Amphibia

Family: Bufonidae

Species Synopsis:

Until 1996, Fowler's toad was considered an eastern subspecies of the Woodhouse's toad (*Bufo woodhousii*) (Sullivan et al. 1996). It was then reclassified again in 2006, from the genus Bufo to the genus Anaxyrus (Frost et al. 2006). Fowler's toads occur in lowland habitats that have dry, sandy soils. They are found in most of the eastern United States and along the northern shore of Lake Erie in Ontario, though the species is absent from northern New England and the Florida peninsula (Conant and Collins 1991). In New York, this toad occurs primarily on Long Island. Populations are scattered northward along the Hudson Valley to the sand plains of Albany, Saratoga, and Warren counties, where the species is near the northern extent of its range in the United States. North American populations are stable but local extirpations have occurred in Ontario and Massachusetts, at the edges of its range. It is thought that a decline in the Fowler's toad population on Fire Island, NY, contributed to the local extirpation of the island's eastern hog-nosed snake population (Cook et al. 2010).

I. Status

a. Current legal protected Status

i. **Federal:** Not Listed **Candidate:** No

ii. **New York:** Not Listed; SGCN

b. Natural Heritage Program

i. **Global:** G5

ii. **New York:** S4 **Tracked by NYNHP?:** No

Other Ranks:

-IUCN Red List: Least Concern
-COSEWIC: Endangered (2010)
-Northeast Regional SGCN List (2023): Not listed
-NEPARC Regional List (2010): Species of High Concern

Status Discussion:

Fowler's toads are locally common in New York, occurring on Long Island, the Hudson Valley northward to the sand plains, and in sporadically in western New York along the shores of the Great Lakes. The Northeast Partners in Amphibian and Reptile Conservation (NEPARC 2010) lists Fowler's toad as a Species of High Concern because more than 50% of northeastern states list it as a Species of Greatest Conservation Need (SGCN). Declines and extirpations have been noted at Fire Island National Seashore, Breezy Point National Recreation Area, and Sandy Hook National Recreation Area (Cook et al. 2010).

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Unknown	Unknown			
Northeastern US	Yes	Unknown	Unknown			No
New York	Yes	Declining	Declining	SWAP: decreasing upper Hudson; unknown w NY	Not Listed	Yes
Connecticut	Yes	Stable	Stable		Not listed	Yes
Massachusetts	Yes	Stable	Stable	Losses from islands 1940-60 but stable inland	Not listed	No
New Jersey	Yes	Stable	Stable	Since 2000	Special concern	Yes
Pennsylvania	Yes	Declining	Declining	SWAP notes ”recent” decline in western PA	Not listed	Yes
Vermont	Yes					Yes
Ontario	Yes	Declining	Declining	Known decline since 1980s	Endangered	
Quebec	No	N/A	N/A			

Column options
Present?: Yes; No; Unknown; No data; (blank) or Choose an Item
Abundance and Distribution: Declining; Increasing; Stable; Unknown; Extirpated; N/A; (blank) or Choose an item
SGCN?: Yes; No; Unknown; (blank) or Choose an item

Monitoring in New York:

There are currently no regular monitoring activities for Fowler’s toads in New York.

The New York Amphibian and Reptile Atlas Project (Herp Atlas), conducted from 1990-1999, documented the geographic distribution of all species of amphibians and reptiles in the state. The Herp Atlas database also includes pre-1990 records from various sources, such as museum records, researchers’ field notes, agency reports, and published literature.

Trends Discussion:

Fowler’s toad populations are thought to be declining in the Upper Hudson Valley. The status of the populations in western New York and on Long Island is unknown.

In 2010, the Fowler's toad was listed as Endangered in Ontario where they reach the northern extent of the distribution. Three remaining populations on the northern shore of Lake Erie are threatened by intense human use of the lake shoreline.

Calling survey data from the North American Amphibian Monitoring Program for 2001-2007 show a significant trend for Fowler's toad in 1 of 5 states (Delaware, Maryland, New Jersey, Virginia, and West Virginia); routes surveyed in Delaware showed a decline in occupancy of 0.009% per year (Weir et al. 2009).

Figure 1. Distribution of Fowler's toad in the United States (IUCN 2022).

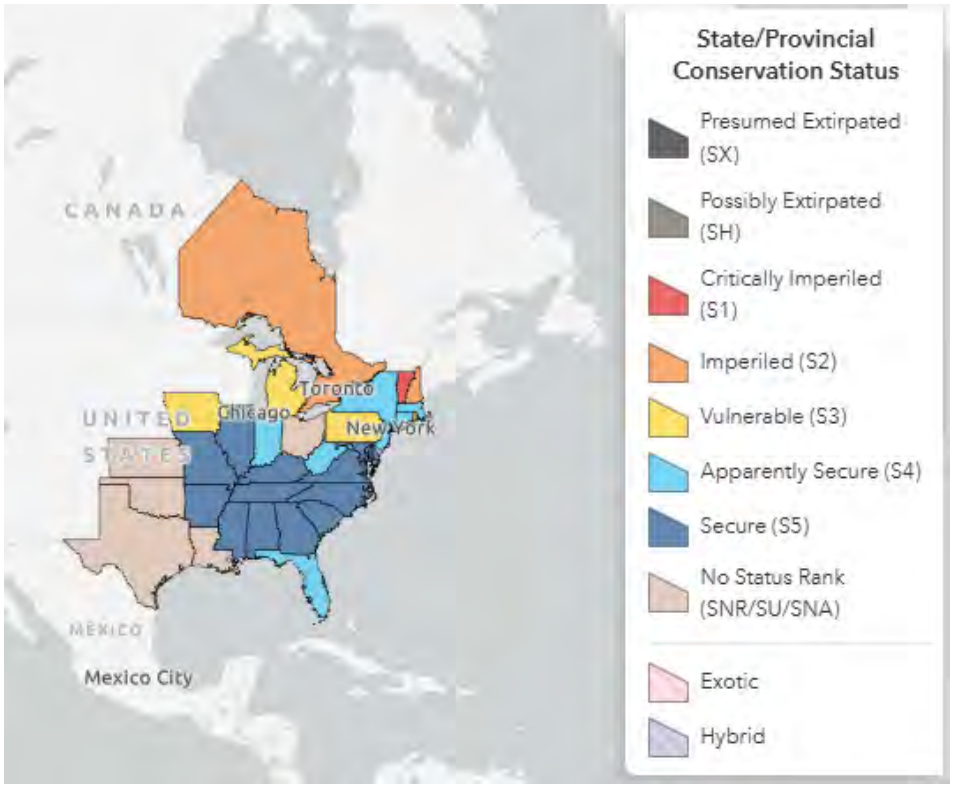

Figure 2. Conservation status of Fowler's toad in the United States (NatureServe 2024).

III. New York Rarity:

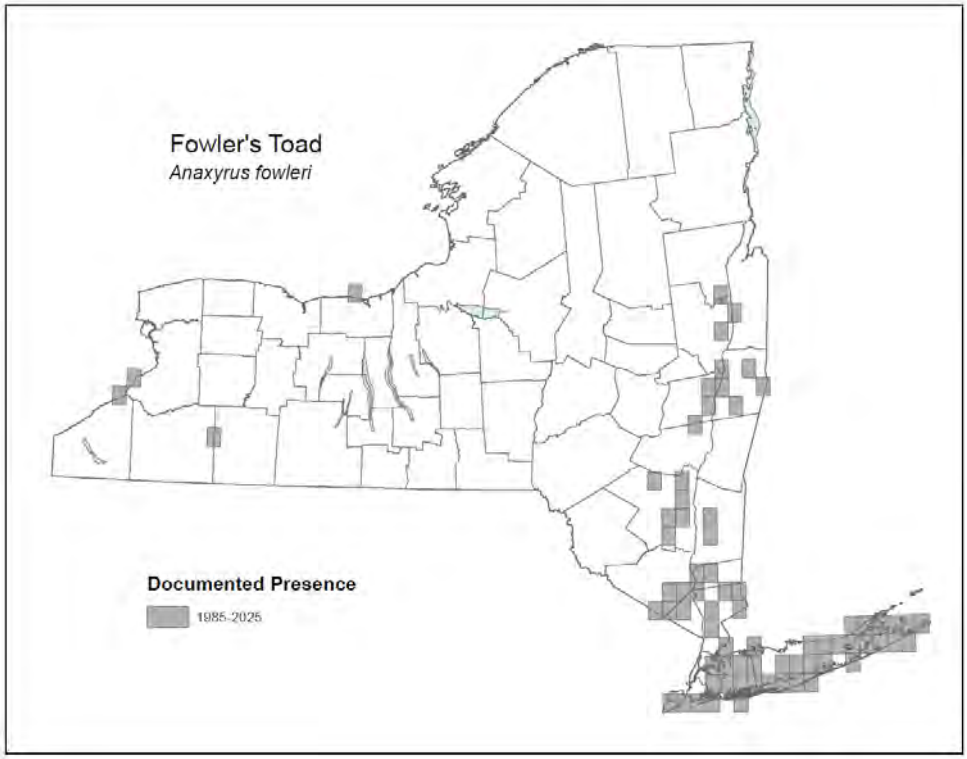

Figure 3. Distribution of Fowler's toad (*Anaxyrus fowleri*) records in New York, 1985-2025 (NYS Amphibian & Reptile Atlas, NYSDEC)

Details of historic and current occurrence:

Fowler's toads are known from Long Island and the lower Hudson Valley, extending northward in disjunct colonies through the sand plains of Albany, Saratoga, and Warren counties. There is also a population on the western edge of the state (Gibbs et al. 2007). Elsewhere observations likely represent misidentifications or released individuals (Gibbs et al. 2007).

The Fowler's Toad was reported to the NY Amphibian and Reptile Atlas project (1990-1999) in a total of 65 survey quads. Additional records from 1985-1990 and post-1999 increased the known distribution to 74 quads. Citizen science records from iNaturalist added 23 new quads, but only 41 Herp Atlas quads have been reconfirmed on iNaturalist (John Vanek, NYNHP, personal communication). The species is notably absent from Fishers Island.

New York's Contribution to Species North American Range:

Percent of North American Range in NY	Classification of NY Range	Distance to core population, if not in NY
1-25%	Peripheral	

Column options
Percent of North American Range in NY: 100% (endemic); 76-99%; 51-75%; 26-50%; 1-25%; 0%; Choose an item
Classification of NY Range: Core; Peripheral; Disjunct; (blank) or Choose an item

IV. Primary Habitat or Community Type *(from NY crosswalk of NE Aquatic, Marine, or Terrestrial Habitat Classification Systems):*

1. Pine Barrens
2. Coastal Coniferous Barrens
3. Coastal Plain Pond
4. Vernal Pool
5. Floodplain Forests

Habitat or Community Type Trend in New York

Habitat Specialist?	Indicator Species?	Habitat/ Community Trend	Time frame of Decline/Increase
Yes	No	Unknown	

Column options
Habitat Specialist and Indicator Species: Yes; No; Unknown; (blank) or Choose an item
Habitat/Community Trend: Declining; Stable; Increasing; Unknown; (blank) or Choose an item

Habitat Discussion:

Fowler's toads are found in wooded lowlands, river valleys and floodplains, and agricultural areas, and are typically associated with dry, friable soils. Dry soils facilitate underground burrowing during times of inactivity, though this toad may also hide under rocks, plants, or other cover when inactive. Breeding occurs in shallow water of marshes, ponds, lakes, reservoirs, flooded areas, and other bodies of water lacking a strong current including ephemeral pools, ditches, and borrow pits. Fowler's toads do not avoid disturbed areas and can occur in suburban areas, as they do on Long Island.

V. Species Demographic, and Life History:

Breeder in NY?	Non-breeder in NY?	Migratory Only?	Summer Resident?	Winter Resident?	Anadromous/ Catadromous?
Yes	-	-	Yes	Yes	-

Column options
First 5 fields: Yes; No; Unknown; (blank) or Choose an item
Anadromous/Catadromous: Anadromous; Catadromous; (blank) or Choose an item

Species Demographics and Life History Discussion:

Fowler's toads are active from May to September with breeding occurring from mid-May through July. Eggs hatch in 2-5 days due to the warm temperature of the shallow water in which breeding occurs. Metamorphosis takes place in about 35 days and toadlets emerge from the water. Fowler's toads hide in burrows or among vegetation during the day and hunt at night. In New York, Fowler's toads have been found to use depressions or holes created by diamondback terrapins as refuges or hibernation sites (Bossert et al. 2003). Overwintering toads have been found as deep as 6 feet in loose sandy soil (Latham 1968).

Fowler's toads live a maximum of 5 years (Kellner and Green 1995) and experience high levels of mortality at all life stages, despite producing noxious and toxic skin secretions. Hybridization with the American toad is known to occur but is not considered a threat (Green 1984); American toads occur throughout New York except on Long Island. Adults and toadlets are capable of dispersing up to 6 mi (10 km) and can re-colonize habitats after local extirpations (Green et al. 2011). Known predators include hognose snakes, bitterns, bullfrogs, and raccoons.

VI. Threats:

Although Fowler's toads can persist in suburban areas, loss of both wetland and upland habitat is a threat. Spread of the invasive common reed (Phragmites) can reduce habitat quality. Pesticides—DDT in particular—are thought to have caused the extirpation of populations from Nantucket and other Massachusetts islands from 1940 to 1960 (Lazell 1976). Widespread treatment of breeding pools to control West Nile Virus would likely have negative effects on many amphibians, including Fowler's toad.

Road mortality is a concern for adults moving to and from breeding pools and for dispersing juveniles. Use of off-road vehicles in sandy habitats can kill adults and juveniles.

The chytrid fungus, *Batrachochytrium dendrobatidis* (*Bd*), first described in 1998 (Longcore et al. 1999), has become a disease of global concern, with a recent study finding *Bd*-infection in 72% of sampled countries and in 54% of amphibian species tested (Monzon et al. 2020). *Bd* has apparently not been documented in Fowler's toads. First identified in the 1960s (Granoff et al. 1965), ranaviruses have been shown to cause mortality in at least 14 families and more than 70 individual species of amphibians, though it has not been identified in Fowler's toads (Miller et al. 2011).

Threat Level 1	Threat Level 2	Threat Level 3	Spatial Extent*	Severity*	Immediacy*	Trend	Certainty
1. Residential and Commercial	1.1 Housing & Urban Areas	(loss of upland/wetland habitat)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
4. Transportation & Service Corridors	4.1 Roads & Railroads	4.1.1 Roads (roadkill)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
6. Human Intrusions & Disturbance	6.1 Recreational Activities	6.1.1 Motor vehicles (offroad)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
8. Invasive & Other Problematic Species	8.1 Invasive Non-Native Plants & Animals	8.1.4 Aquatic plants (phragmites)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
8. Invasive & Other Problematic Species	8.4 Pathogens	8.4.2 Viral pathogens (treatment of breeding pools for West Nile virus)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.

Table 1. Threats to Fowler's toad.

Are there regulatory mechanisms that protect the species or its habitat in New York?

Yes: ✓ **No:** _____ **Unknown:** _____

If yes, describe mechanism and whether adequate to protect species/habitat:

In 2006, the State of New York adopted legislation (ECL section 11-0107 sub 2) that gave all native frogs, turtles, snakes, lizards and salamanders legal protection as game species, with very few open to harvest. The legislation also outlaws the sale of any native species of herpetofauna regardless of its origin. Native frogs that are open to harvest have a defined season, and require a small game license for collection/take. However, it is unclear how important recreational take is to the conservation status of this species.

Under Article 24 of the New York State Environmental Conservation Law, the Freshwater Wetlands Act provides protection for wetlands greater than 12.4 acres in size as well as smaller wetlands of unusual local importance. Starting on January 1, 2028, the Freshwater Wetlands Act will provide protection for wetlands greater than 7.4 acres in size. The Freshwater Wetlands Act also allows the Adirondack Park Agency to protect wetlands over one acre in size or any size wetland adjacent to open water within the Adirondack Park. The U.S. Army Corps of Engineers also protects wetlands, irrespective of size, under Section 404 of the Clean Water Act. Under Article 15 Title 5 of the New York State Environmental Conservation Law, the Protection of Waters program provides protection for the state's water resources, including rivers, streams, lakes, and ponds.

These protections are not adequate to protect all habitats utilized by the species in NYS.

Describe knowledge of management/conservation actions that are needed for recovery/conservation, or to eliminate, minimize, or compensate for the identified threats:

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for freshwater wetland amphibians, which includes Fowler's toad. Actions that have been accomplished, or where progress has been made, are indicated with a check. Conservation actions following IUCN taxonomy are categorized in the table that follows.

Easement acquisition:

___ Secure habitats critical to species survival by acquisition of conservation easements, or by other land protection mechanisms.

Habitat management:

___ Manage the variety of factors which might be limiting wetland habitat suitability for resident amphibian species, including management of exotic plant and animal species, management of adverse hydrological alterations, and management of anthropogenic inputs of sediments and toxicants.

Habitat research:

___ Develop standardized habitat survey protocols, and implement survey protocols at all known and potentially suitable sites, to document the character, quality and extent of occupied habitat.

Life history research:

___ Document life history parameters specific to New York populations of the species, including age and sex ratios, longevity, age at sexual maturity, survivorship of young, predator-prey relationships, and wetland/upland habitat requirements.

Modify regulation:

__✓__ Modify Freshwater Wetlands Act, in order to protect wetlands smaller than 12.4 acres where they support species of conservation concern, and in order to expand the protected upland buffer beyond the 100-foot limit where necessary.

__✓__ Adopt provisions into New York's Environmental Conservation Law designating four-toed salamander and Fowler's toad as a protected small game species.

Other action:

____ Periodically evaluate status of the subject species to determine whether appropriate E/T/SC status listings are in effect.

Population monitoring:

____ Conduct periodic surveys of known sites of species occurrence, in order to detect population trends.

Statewide baseline survey:

____ Develop standardized population survey protocols, and implement protocols at all known and potentially suitable sites to document the extent of occupied habitat.

Complete Conservation Actions table using IUCN conservation actions taxonomy at link below. Use headings 1-6 for Action Category (e.g., Land/Water Protection) and associated subcategories for Action (e.g., Site/Area Protection) - https://www.iucnredlist.org/resources/conservation-actions-classification-scheme

Action Category	Action	Description
A.1 Direct Habitat Management	A.1.0.0.0 Direct Habitat Management	Site/Area management
A.2 Direct Species Management	A.2.0.0.0 Direct Species Management	Species Management
C.6 Design and Plan Conservation	C.6.0.0.0 Design and Plan Conservation	Site/Area and Resource/Habitat protection
C.6 Design and Plan Conservation	C.6.5.1.3 Develop a conservation, management, or restoration plan for protected private lands	Habitat and natural process restoration

Action Category	Action	Description
C.7 Legislative and Regulatory Framework or Tools	C.7.1.2.0 Create, amend, or influence legislation	Legislation

Table 2. Recommended conservation actions for Fowler's toad.

VII. References

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