

## Species Status Assessment

**Class:** Amphibia  
**Family:** Plethodontidae  
**Scientific Name:** *Eurycea longicauda longicauda*  
**Common Name:** Eastern long-tailed salamander

### Species synopsis:

Eastern long-tailed salamanders occur in the eastern United States, primarily in the Ozark Highlands, Appalachian Highlands, and the Ohio River Valley (Conant and Collins 1991). A second subspecies, *E. l. melanopleura*, occurs in Arkansas, Illinois, Missouri, and Oklahoma. The three-lined salamander, *E. guttolineata*, which occurs in the southeastern United States, was formerly considered a subspecies of long-tailed salamander.

*E. l. longicauda* is at the northern extent of its range in New York. It is associated with wet or moist terrestrial habitats, inhabiting slow moving streams, fens, and swamps, but may also be found in abandoned mines or caves that are permeated by calcareous ground water. Populations have declined rangewide due to habitat loss and degradation but remain locally abundant. In New York long-tailed salamanders were known historically as far north as Albany County but are now apparently present only in the Southern Tier and southern counties west of the Hudson River.

### I. Status

#### a. Current and Legal Protected Status

- i. **Federal** Not Listed **Candidate?** No
- ii. **New York** Special Concern; SGCN

#### b. Natural Heritage Program Rank

- i. **Global** G5
- ii. **New York** S2S3 **Tracked by NYNHP?** Yes

### Other Rank:

IUCN – Least Concern  
Species of Northeast Regional Conservation Concern (Therres 1999)  
Species of High Concern (NEPARC 2010)

**Status Discussion:**

Long-tailed salamander is apparently restricted to the southern tier and southeastern counties west of the Hudson River in New York. It has been designated as a species of Regional Conservation Concern in the Northeast due to its unknown population status and taxonomic uncertainty (Therres 1999). NEPARC (2010) lists the eastern long-tailed salamander a Species of High Concern because more than 50% of states list the species as an SGCN, and as a species of high responsibility because the Northeast comprises more than 50% of the distribution. It is ranked as Imperiled in New York and as Secure in Pennsylvania.

Peterson and Peterson (2005) stated that long-tailed salamander is probably secure in New York although it is restricted to specific and uncommon habitats within a limited geographic range.

**II. Abundance and Distribution Trends**

**a. North America**

**i. Abundance**

declining  increasing  stable  unknown

**ii. Distribution:**

declining  increasing  stable  unknown

**Time frame considered:** Since 1970s

**b. Regional (e.g., Atlantic Flyway, USFWS Region 5 – Northeast, Watershed, Hydrologic Unit)**

**i. Abundance**

declining  increasing  stable  unknown

**ii. Distribution:**

declining  increasing  stable  unknown

**Regional Unit Considered:** northern edge of range (NY/PA/NJ)

**Time Frame Considered:** \_\_\_\_\_

**c. Adjacent States and Provinces**

**CONNECTICUT**                      Not Present   X                        No data       

**MASSACHUSETTS**                      Not Present   X                        No data       

**NEW JERSEY**                      Not Present                             No data       

**i. Abundance**

       declining           increasing                             stable                        X   unknown

**ii. Distribution:**

       declining           increasing                             stable                        X   unknown

Time frame considered:   Not specified (listed in 1979 due to rarity)  

Listing Status:                     Threatened                                          SGCN?   Yes  

**ONTARIO**                                      Not Present   X                                        No data       

**PENNSYLVANIA**                                      Not Present                                             No data       

**i. Abundance**

       declining           increasing                                        X   stable                                             unknown

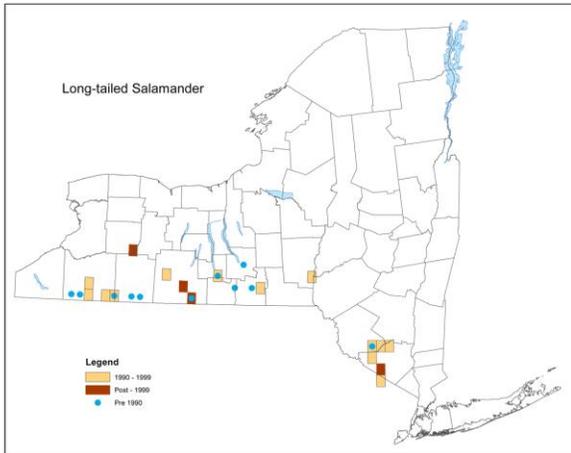
**ii. Distribution:**

       declining           increasing                                        X   stable                                             unknown

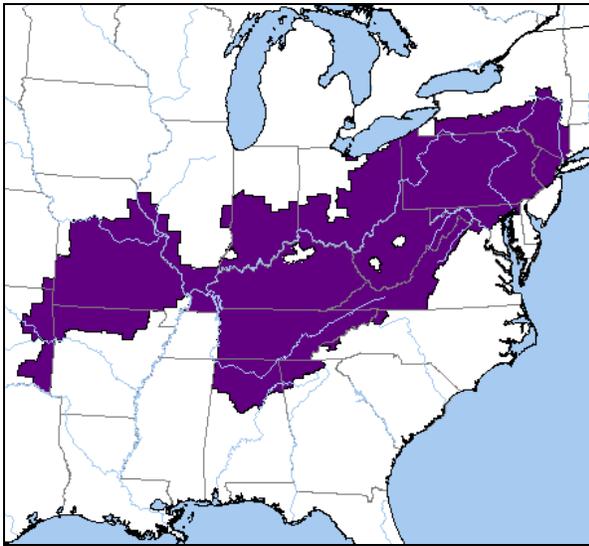
Time frame considered:   Not Specified                                    

Listing Status:                     Not Listed                                                          SGCN?   No

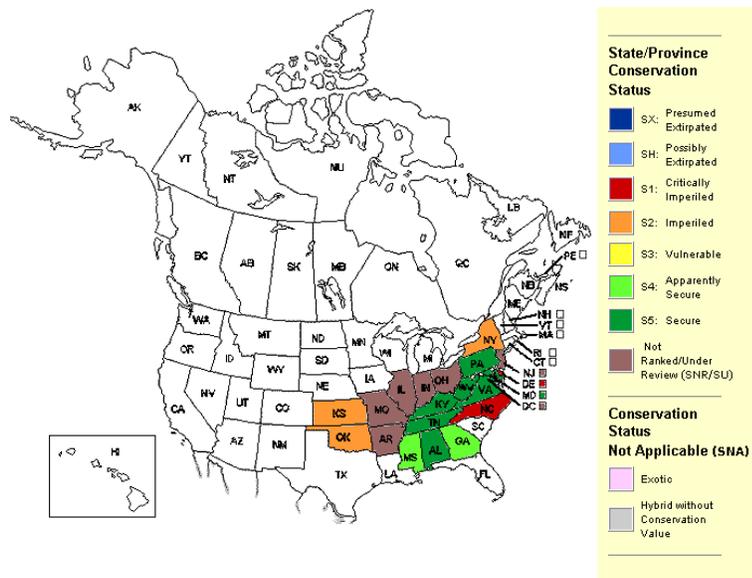




**Figure 1:** Distribution of long-tailed salamander in New York (NY Herpetology database, NYSDEC)



**Figure 2:** Distribution of long-tailed salamander in the United States (NatureServe 2012). Data developed as part of the Global Amphibian Assessment and provided by IUCN-World Conservation Union, Conservation International and NatureServe.



**Figure 3:** Conservation status of long-tailed salamander in the United States (NatureServe 2012).

**III. New York Rarity, if known:**

<b>Historic</b> (select one)	<b><u># of Animals</u></b>	<b><u># of Locations</u></b>	<b><u>% of State</u></b>
<b>prior to 1970</b>	_____	<u>10</u>	_____
<b>prior to 1980</b>	_____	_____	_____
<b>prior to 1990</b>	_____	_____	_____

**Details of historic occurrence:**

Bishop (1941) noted 10 locations in New York, as far north as Albany County.

<b>Current</b>	<b><u># of Animals</u></b>	<b><u># of Locations</u></b>	<b><u>% of State</u></b>
	_____	_____	<u>2%</u>

**Details of current occurrence:**

The NY Amphibian and Reptile Atlas database (1990 to 1999) includes 13 survey quads with long-tailed salamander records on the Appalachian Plateau (Cattaraugus County eastward to Broome County) in the southern tier, and in the Hudson Valley in Orange and Sullivan counties. Since 2000, four additional quads have been confirmed to have long-tailed salamander records, including one in Livingston County where the species had not been previously reported.

The 10 locations noted by Bishop (1941) have not been confirmed recently. New locations are the result of increased searches; the state population is not likely to be increasing.

**New York's Contribution to Species North American Range:**

<b>% of NA Range in New York</b>	<b>Classification of New York Range</b>
<u>   </u> 100 (endemic)	<u>   </u> Core
<u>   </u> 76-99	<u>  X  </u> Peripheral
<u>   </u> 51-75	<u>   </u> Disjunct
<u>   </u> 26-50	<b>Distance to core population:</b>
<u>  X  </u> 1-25	_____

**Rarity Discussion:**

Peterson and Peterson (2005) found densities as high as 9 per square meter.



**V. New York Species Demographics and Life History**

- Breeder in New York**
  - Summer Resident**
  - Winter Resident**
  - Anadromous**
- Non-breeder in New York**
  - Summer Resident**
  - Winter Resident**
  - Catadromous**
- Migratory only**
- Unknown**

**Species Demographics and Life History Discussion:**

The mating system of long-tailed salamanders has not been studied extensively and remains largely unknown; there are no studies of their reproduction in New York. Breeding occurs during late fall and eggs are deposited during winter or spring. Females lay 60 to 110 eggs in water, attached to the underside of rocks or other submerged debris. Time to hatching ranges from 4 to 12 weeks depending on the location of the population in the range. Long-tailed salamanders are sexually mature at an average age of 2 years old. (Lannoo 2005).

The larval period of is typically 6 months. However, timing varies among populations. If there is an insufficient food supply, metamorphosis may be delayed for a year and larvae may overwinter. The metamorphosis size of long-tailed salamanders is 23 to 28mm snout to vent length but if overwintering occurs, they can be greater than 50 mm in total length (Lannoo 2005).

## VI. Threats:

Habitat loss and water-quality degradation are the primary threats facing long-tailed salamander populations. Development can cause direct habitat destruction as well as secondary effects such as sedimentation of freshwater ponds. Logging near breeding streams eliminates the shade favored by this species and results in siltation of waterways. Actions that alter the hydrology, such as filling ponds or blocking springs jeopardize breeding habitats. In addition, draw-downs of the water table may alter spring flow, adversely affect long-tailed salamanders. Groundwater contamination resulting from multiple sources degrades the streams and ponds needed for larval development. Collecting is also a threat.

The chytrid fungus, *Batrachochytrium dendrobatidis* (Bd), first described in 1998 (Longcore et al. 1999), is a fungal pathogen that has affected more than 200 amphibian species in 6 countries (Skerratt et al. 2007). It has apparently not been detected in long-tailed salamanders. 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 including long-tailed salamanders (Miller et al. 2011).

Long-tailed salamander was classified as “presumed stable” to predicted climate change in an assessment of vulnerability conducted by the New York Natural Heritage Program (Schlesinger et al. 2011).

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

No       Unknown

Yes

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, and no salamander species are open to harvest. The legislation also outlaws the sale of any native species of herpetofauna regardless of its origin.

The Protection of Waters Program provides protection for rivers, streams, lakes, and ponds under Article 15 of the NYS Conservation Law.

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

Although strip mining and acid drainage from coal mining likely have impacted many populations in North America, Petranka (1998) states that the long-tailed salamander remains widely distributed and is in minimal need of protection. In New York, however, the species is poorly understood.

Research needs include determining the distribution, population status, and habitat suitability throughout the state.

Conservation actions following IUCN taxonomy are categorized in the table below.

<b>Conservation Actions</b>	
<b>Action Category</b>	<b>Action</b>
Land/Water Management	Site/Area Management
Land/Water Management	Habitat and Natural Process Restoration
Land/Water Management	Invasive/Problematic Species Control
Law/Policy	Legislation

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for stream salamanders, which includes longtail salamander.

**Habitat management:**

\_\_\_ Undertake remedial actions as needed to restore habitat quality in degraded streams.

**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:**

\_\_\_ Adopt into New York's Environmental Conservation Law provisions which designate all species in this group of stream salamanders as a protected small game species.

**Other action:**

\_\_\_ Periodically evaluate status of the species to determine whether the appropriate E/T/SC status listing is in effect.

**Population monitoring:**

\_\_\_ Conduct periodic re-survey of known sites of species occurrence, in order to detect population trends.

**Statewide baseline survey:**

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

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