# Species Status Assessment

**Common Name:** Eastern long-tailed salamander **Date Updated:** January 2025

**Scientific Name:** *Eurycea longicauda longicauda* **Updated By:** W. Hoffman

**Class:** Amphibia

**Family:** Plethodontidae

## Species Synopsis *(a short paragraph which describes species taxonomy, distribution, recent trends, and habitat in New York):*

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 range wide due to habitat loss and degradation, but appear to 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 legal protected Status

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

ii. **New York:** Special Concern; HPSGCN

### b. Natural Heritage Program

i. **Global:** G5

ii. **New York:** S2S3 **Tracked by NYNHP?:** Yes

**Other Ranks:**
-IUCN Red List: Least Concern
-COSEWIC: N/A
-Northeast Regional SGCN List (2023): Not Listed
-NEPARC Regional List (2010): Species of High Concern

**Status Discussion:**

The eastern long-tailed salamander is apparently restricted to the southern tier and southeastern counties west of the Hudson River in New York. It had previously 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 as a Species of High Concern because more than 50% of states list the species as a Species of Greatest Conservation Need (SGCN), and as a species of high responsibility because the Northeast comprises more than 50% of the distribution. It is listed as Threatened in New Jersey,

Special Concern 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

| Region | Present? | Abundance | Distribution | Time Frame | Listing status | SGCN? |
|---|---|---|---|---|---|---|
| **North America** | Yes | Stable | Stable | Since 1970s | Not Listed | |
| **Northeastern US** | Yes | Unknown | Unknown | | | No |
| **New York** | Yes | Unknown | Unknown | | Special Concern | Yes |
| **Connecticut** | No | N/A | N/A | | | No |
| **Massachusetts** | No | N/A | N/A | | | No |
| **New Jersey** | Yes | Unknown | Unknown | Listed in 1979 | Threatened | Yes |
| **Pennsylvania** | Yes | Stable | Stable | | | No |
| **Vermont** | No | N/A | N/A | | | No |
| **Ontario** | No | N/A | N/A | | | No |
| **Quebec** | No | N/A | N/A | | | No |

*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 *(specify any monitoring activities or regular surveys that are conducted in New York):*

There are currently no regular monitoring activities 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.

Peterson and Peterson (2005) conducted a survey of 64 sites in six counties in 2005.

### Trends Discussion *(insert map of North American/regional distribution and status):*

Long-tailed salamander populations are widely distributed in forested habitats in the eastern United States, and populations appear to be relatively stable range-wide (Petranka 1998, IUCN 2022).

Bishop (1941) documented 10 locations in New York, as far north as Albany County. The NY Amphibian and Reptile Atlas (1990-99) documented 12 locations in the Southern Tier and in the southwestern counties west of the Hudson River. In a survey conducted during 2005, Peterson and Peterson (2005) found long-tailed salamander at 18 sites in Steuben, Chemung, Schuyler, Tioga, Sullivan, and Orange counties; 11 of these sites were new. Gibbs et al. (2007) state that the species appears to be declining in numbers and locations, but the reasons for declines are unknown.

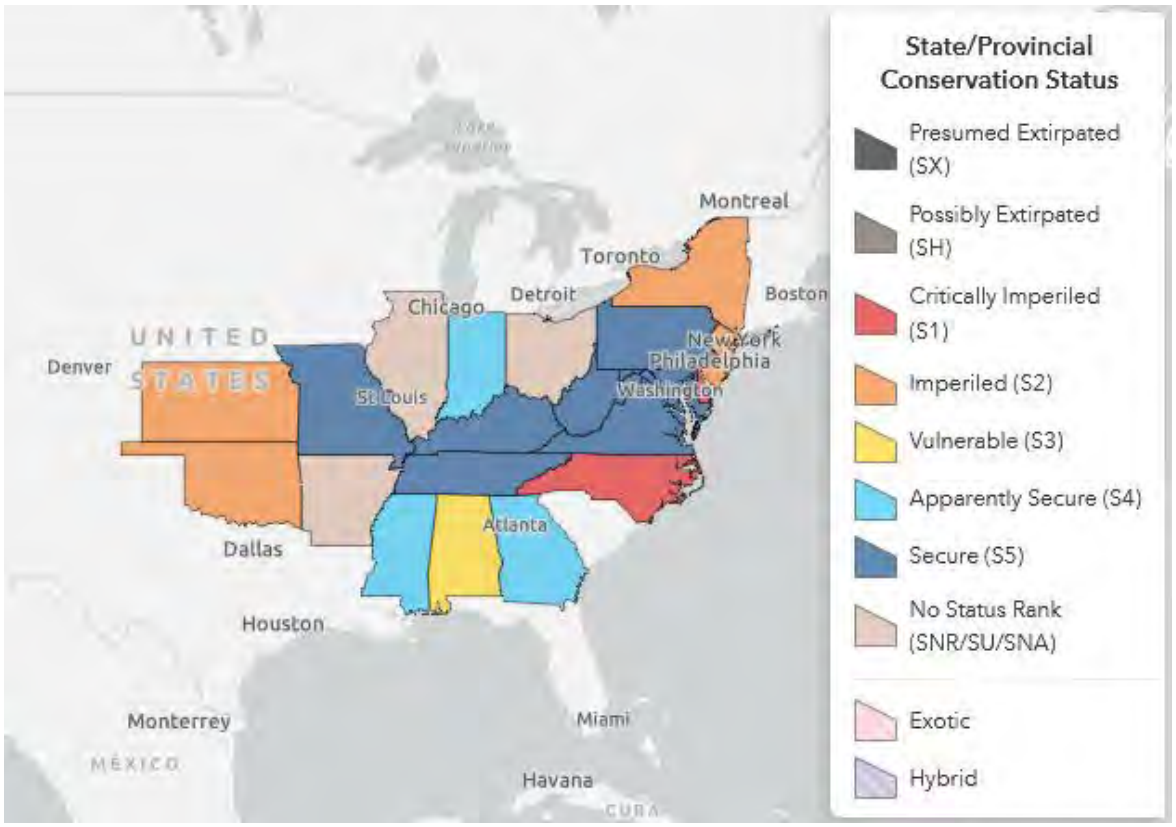


**Figure 1.** Conservation status of eastern long-tailed salamander (NatureServe 2023)

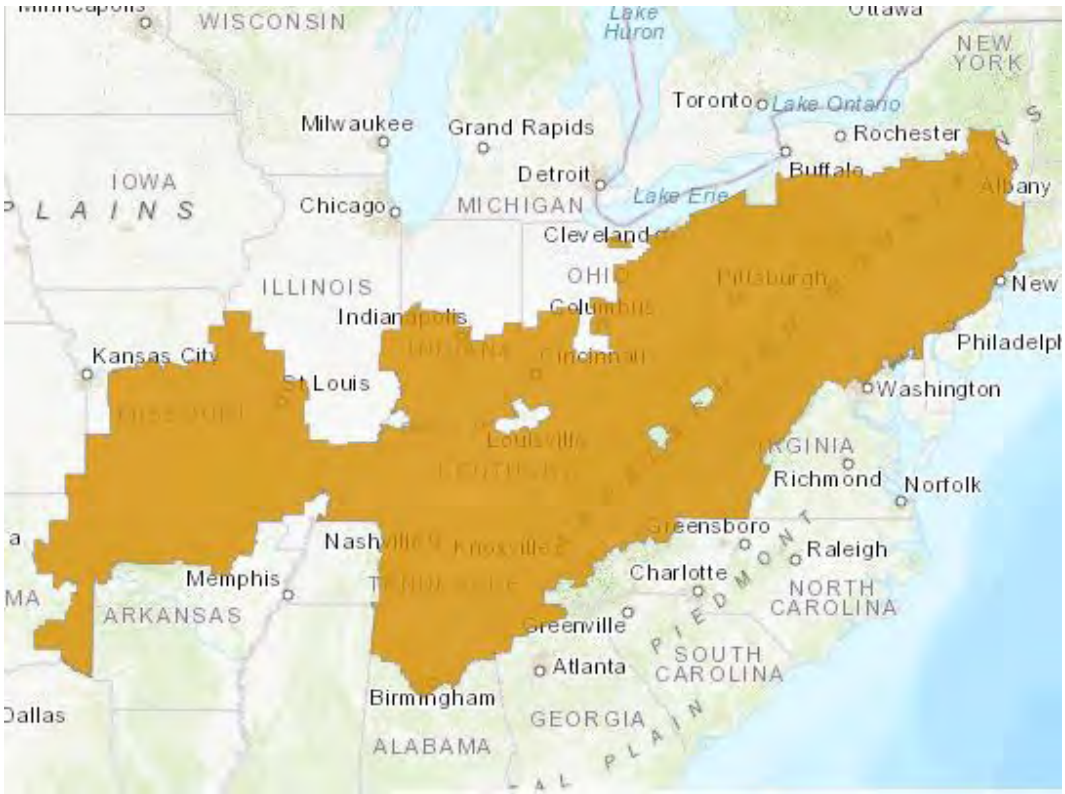


**Figure 2.** Eastern long-tailed salamander distribution (IUCN 2022)

## III. New York Rarity *(provide map, numbers, and percent of state occupied)*

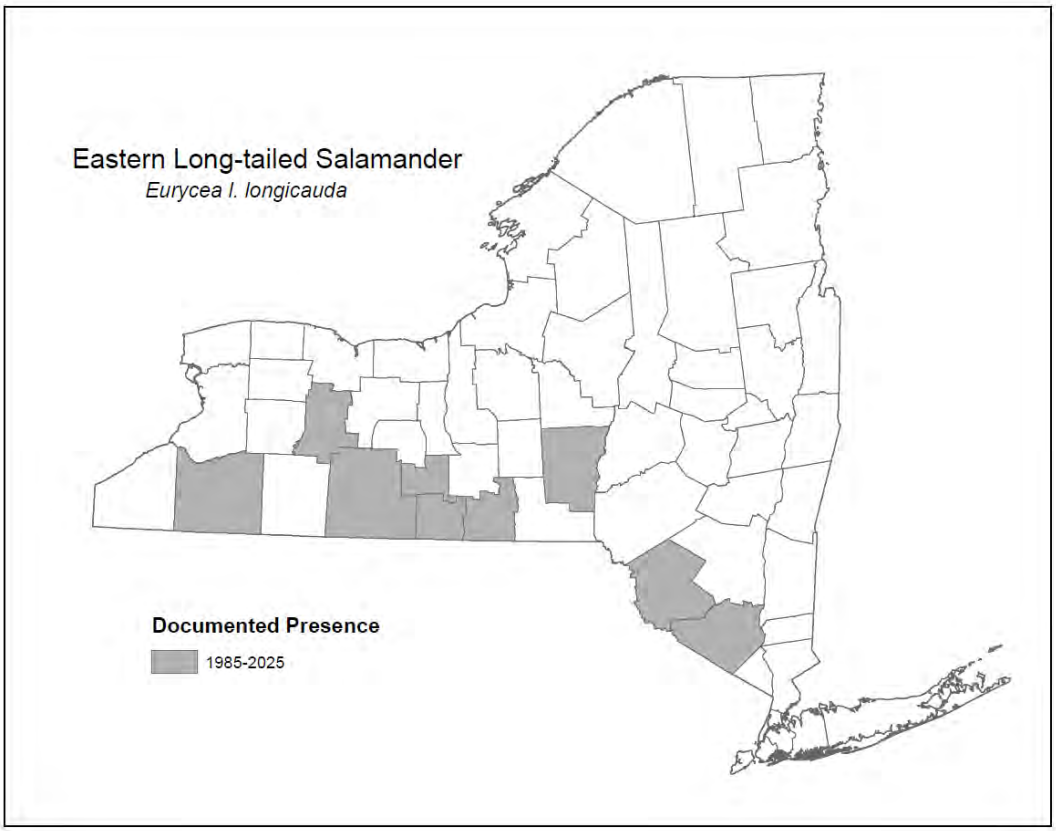


**Figure 3.** Distribution of Eastern long-tailed salamander in New York (NY Herpetology database, NYSDEC)

### Details of historic and current occurrence:

Originally described by Jacob Green in 1818, the eastern long-tailed salamander reaches its northern limit in New York, historically as far north as Albany county (De Kay 1842). Bishop (1941) noted ten locations in New York, and confirmed records in Albany County.

The NY Amphibian and Reptile Atlas database (1990 to 1999) includes 13 locations with long-tailed salamander records across 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 localities 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 recently confirmed. New locations are the result of increased searches and random encounters, though the state population is not likely to be increasing.

### 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):*

a. Mixed Northern Hardwoods

b. Wet Meadow/Shrub Swamp

c. Freshwater Marsh

d. Headwater/Creek; Low Gradient; Highly Buffered, Calcareous; Transitional Cool

e. Small River; Low-Moderate Gradient; Moderately Buffered; Neutral; Transitional Cool

f. Floodplain Forest

### Habitat or Community Type Trend in New York

| Habitat Specialist? | Indicator Species? | Habitat/ Community Trend | Time frame of Decline/Increase |
|---|---|---|---|
| No | No | Declining | Wetland decline since 1970s |

*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:

Long-tailed salamanders hide in rock crevices and under rocks, logs, and other debris along stream sides, in spring runs, cave mouths, and abandoned mines; in northern New Jersey they are also found in ponds (Conant and Collins 1991). All occupied sites where Peterson and Peterson (2005) observed long-tailed salamanders were visibly calcareous habitats at the base elevation of major valleys. They reported two distinct habitats: rocky calcareous tributary waterfall plunge pools at the base of major valleys, and silty calcareous floodplain forest on valley bottoms. Adults may disperse into wooded terrestrial habitats during wet weather.

Eggs are laid in underground crevices associated with springs, temporary pools, and streams; under rocks in streams; in woodland ponds; or are attached to objects in or above water in caves (NatureServe 2012).

Compared to larger ambystomatid salamanders, the movements of plethodontids are poorly documented, but home ranges likely tend to be very small, on the order of a few meters to a few dozen meters in length or diameter. Yet, on occasion, dispersing individuals likely travel at least several hundred meters, and stream-dwelling species likely disperse much farther along riverine corridors. Over a number of years, it is likely that these salamanders can spread multiple kilometers through suitable habitat (NatureServe 2012).

## 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** *(include information about species life span, reproductive longevity, reproductive capacity, age to maturity, and ability to disperse and colonize):*

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 late fall through early spring (Petranka 1998). Females lay 60 to 110 eggs in water, attached to the underside of rocks or other submerged debris (Petranka 1998). Time to hatching ranges from 4 to 12 weeks depending on the location of the population in the range. The larval period 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 and transform the following summer (Petranka 1998). 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). Long-tailed salamanders are sexually mature at an average age of 2 years old. (Lannoo 2005).

## VI. Threats *(from NY 2015 SWAP or newly described):*

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 affecting long-tailed salamanders. Groundwater contamination resulting from multiple sources degrades the streams and ponds needed for larval development. Colonization of floodplain habitat by the invasive species Japanese knotweed was noted in one New York population (W. Hoffman, pers. obs.), and collection may also be a threat.

Several emerging diseases also pose a threat to long-tailed salamander populations, including *Batrachochytrium dendrobatidis* (*Bd*), ranavirus, and *B. salamandrivorans* (*Bsal*). 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). 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). The fungus *Batrachochytrium salamandrivorans* (*Bsal*), also known as salamander chytrid, is an emerging pathogen that has caused major die-offs of salamanders in Europe, but has not yet been found in the United States. The introduction of *Bsal* to North America could have severe impacts on biodiversity and salamander conservation.

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).

| Threat Level 1 | Threat Level 2 | Threat Level 3 | Spatial Extent* | Severity* | Immediacy* | Trend | Certainty |
|---|---|---|---|---|---|---|---|
| 1. Residential and Commercial | 1.1 Housing & Urban Areas | Choose an item. (habitat loss/degradation) | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |
| 5. Biological Resource Use | 5.3 Logging & Wood Harvesting | Choose an item. (elimination of shade, results in siltation) | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |
| 7. Natural System Modifications | 7.2 Dams & Water Management/Use | Choose an item. (filling ponds, blocking springs, draw-downs) | 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 | 8.1.2 Terrestrial plants (Japanese knotweed) | Choose an item. | Choose an item. | Choose an item. | Choose an item. | Choose an item. |

**Table 2.** Threats to eastern long-tailed salamander.

## 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, 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 Environmental 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.

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for stream salamanders, which includes longtail salamander. Actions that have been accomplished, or where progress has been made, are indicated with a check.

**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.

**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.

**Population monitoring:**

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

**Habitat management:**

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

**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.

***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 | Invasive/problematic species control |
| 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 |

**Table 3.** Recommended conservation actions for eastern long-tailed salamander.

## VII. References


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