Species Status Assessment

Common Name: Truncate Sallfly **Date Updated:** 7/22/24

Scientific Name: *Alloperla leonarda* **Updated By:** Luke Myers

Class: Insecta

Family: Chloroperlidae

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

This is one of the least commonly collected species in eastern North America, with geographic clusters in southeastern Canada, Michigan, and Minnesota, plus a single disjunct locality in southern Missouri (Surdick 2004, Willett and Stark 2009, DeWalt et al. 2023). In New York, a single adult male of this species was collected on May 22, 2008 (Fig. 27) at 225 m asl (Fig. 28) from the Black River, a large river draining the Tug Hill Plateu and Western Adirondacks (Fig. 29d). A morphological analysis of *A leonarda* has indicated that there may be two distinct species in eastern North America (Willett and Stark, 2009).

I. Status

a. Current legal protected Status

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

ii. **New York:** Not listed

b. Natural Heritage Program

i. **Global:** G4

ii. **New York:** none **Tracked by NYNHP?:** No

Other Ranks:

-New York 2025 SGCN status: Species of Greatest Conservation Need
-COSEWIC: Not listed
-IUCN Red List: Not listed
-Northeast Regional SGCN: Not listed

Status Discussion:

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Unknown	Unknown			Choose an item.

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
Northeastern US	Yes	Unknown	Unknown			-
New York	No data	Unknown	Unknown			Yes
Connecticut	No data	Unknown	Unknown			-
Massachusetts	No data	Unknown	Unknown			-
New Jersey	No data	Unknown	Unknown			-
Pennsylvania	No data	Unknown	Unknown			-
Vermont	No data	Unknown	Unknown			-
Ontario	No data	Unknown	Unknown			-
Quebec	No data	Unknown	Unknown			-

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):*

None.

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

Figure 1. Conservation status of *Alloperla leonarda* in North America (NatureServe 2023)

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

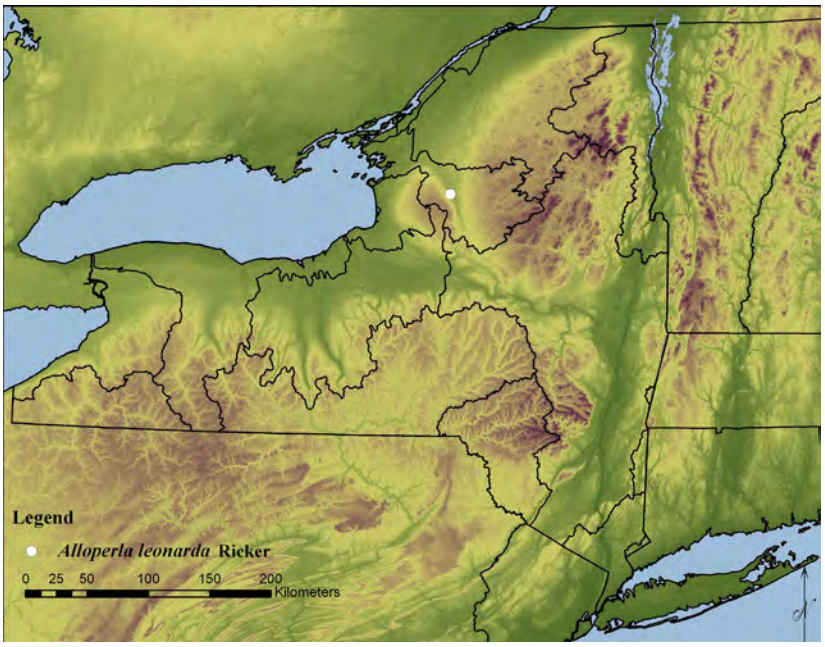

Figure 2. Distribution of *Alloperla leonarda* (Ricker) in New York

Years	# of Records	# of Distinct Waterbodies/Locations	% of State
Pre-2000	_____	_____	_____
2000- 2023	1	1	_____

Table 1. Records of *Alloperla leonarda* in New York.

Details of historic and current occurrence:

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%	Disjunct	

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. Riverine

Habitat or Community Type Trend in New York

Habitat Specialist?	Indicator Species?	Habitat/ Community Trend	Time frame of Decline/Increase
Yes	Yes	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:

Large rivers

V. Species Demographic, and Life History:

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

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):*

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

Threat Level 1	Threat Level 2	Threat Level 3	Spatial Extent	Severity	Immediacy	Trend	Certainty
4. Transportation & Service Corridors	4.1 Roads & Railroads	4.1.1 Roads (runoff)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
4. Transportation & Service Corridors	4.1 Roads & Railroads	4.1.3 Bridges (construction/ maintenance)	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.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
7. Natural System Modifications	7.2 Dams & Water Management/Use	7.2.1 Water level management using dams (altered hydrology, sedimentation)	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	-	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
9. Pollution	9.1 Domestic & Urban Wastewater	-	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
9. Pollution	9.2 Industrial & Military Effluents	-	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
9. Pollution	9.3 Agricultural & Forestry Effluents	9.3.1 Nutrient loads (run off, algal blooms)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
9. Pollution	9.6 Excess Energy	9.6.1 Light pollution	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
11. Climate Change	11.1 Habitat Shifting & Alteration	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
11. Climate Change	11.4 Changes in Precipitation & Hydrological Regimes	11.4.2 Droughts	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.

Table 2. Threats to *Alloperla leonarda*)

Stoneflies, mayflies, and caddisflies are usually only found at high quality, minimally-polluted sites. They are sensitive to pollution and vulnerable to any activity that affects water quality and are commonly used indices of aquatic ecosystem health. Their presence in an aquatic ecosystem is a strong indicator of a healthy body of water.

Poor water quality and the acute and chronic effects of contaminants in aquatic habitats as a significant threat to stoneflies, mayflies, and caddisflies. Water quality can be degraded by siltation, nutrient runoff, temperature increases, toxics (e.g., pesticides, heavy metals), lowered dissolved oxygen, and altered hydrology (dams, water withdrawal, ground water extraction). Additionally, contaminants that enter aquatic and terrestrial systems through atmospheric depositions and have both habitat and population-level effects.

Altering the flow of riparian habitats with dams and bridges, and for flood control, agriculture and development (roads, residential, commercial) can directly and indirectly stoneflies, mayflies, and caddisflies. Movement of populations of aquatic species are inhibited, and habitat for all species dependent on lotic systems is lost outright or degraded through decreased conveyance and increased sedimentation.

Populations could be adversely affected by disturbance of the benthos including dredging and channel modifications. Stream and road bank erosion of coastal soils, and erosion from agricultural fields are significant sources of sand/sediment. Larvae are particularly intolerant of stream pollution. Adults may be adversely affected by light pollution (Myers, pers. comm.).

Climate change poses a threat to aquatic species. By virtue of the small and isolated populations of this species, it is particularly vulnerable to storms that cause erosion and flooding. Winter storm events with excessive ice and heavy snowfall result in spring meltwater flooding and erosion.

From 1993 to 2002, the NYSDEC Stream Biomonitoring Unit sampled macroinvertebrates at 1,532 sites on 917 streams in New York. Of the sites determined to have some impact, nonpoint source nutrient enrichment was the dominant impact, affecting 52% of sites (Bode et al. 2004).

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:

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:

Action Category	Action	Description
A.1 Direct Habitat Management	A.1.1.1.2 Manual removal	Manually remove invasive plants
A.1 Direct Habitat Management	A.1.2.4.1 Plant for erosion management	Implement and maintain riparian buffers to reduce sedimentation and runoff
A.1 Direct Habitat Management	A.1.3.0.0 Mitigate human environmental impact	Implement temporary runoff reduction measures
A.1 Direct Habitat Management	A.1.3.1.0 Manage Access	Implement boat washing stations to reduce transport of invasives between waterbodies
A.1 Direct Habitat Management	A.1.3.3.0 Remove and improve anthropogenic infrastructure	Remove barriers to natural flow in waterways where feasible
A.1 Direct Habitat Management	A.1.3.3.0 Remove and improve anthropogenic infrastructure	Remove and improve industrial/municipal infrastructure to be more flood resilient
A.1 Direct Habitat Management	A.1.3.3.2 Culverts	Install culverts to reduce runoff and erosion severity
B.3 Outreach	B.3.1.0.0 Outreach, communication, and distribution	Educate anglers about the risks of releasing unused baitfish
B.5 Economic and Other Incentives	B.5.0.0.0 Economic and other incentives	Use incentives to encourage sustainable or alternative farming practices
C.7 Legislative and Regulatory Framework or Tools	C.7.2.0.0 Create or amend policies, guidelines, or best practices	Consider baitfish bans in locations with vulnerable species
C.7 Legislative and Regulatory Framework or Tools	C.7.2.2.0 Create or amend best practices or guidelines	Use Best Management Practices when crossing streams, consider water flow when constructing in or around stream.

Table 3. Recommended conservation actions for *Alloperla leonarda*

VII. References

NatureServe. 2023. NatureServe Explorer. Page last published 12/1/2023. https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.107296/Alloperla_leonarda Access January 3, 2024.

Ross, H. H. and W. E. Ricker. 1971. The classification, evolution, and dispersal of the winter stonefly genus *Allocapnia*. Illinois Biological Monographs 45: 1-166.

Stark, B. P., R. W. Baumann and R. E. DeWalt. 2010. Valid Stonefly Names for North America. Available http://plsa.inhs.uiuc.edu/plecoptera (Accessed: January 27, 2010).

Environmental Protection Agency (EPA). 2005. Protecting water quality from agricultural runoff. https://www.epa.gov/sites/default/files/2015-09/documents/ag_runoff_fact_sheet.pdf. Accessed on July 3, 2023.

Environmental Protection Agency (EPA). 2016. Adapting to climate change northeast. https://www.epa.gov/sites/default/files/2016-07/documents/northeast_fact_sheet.pdf. Accessed on August 10, 2023.

Environmental Protection Agency. 2022. Region 2 climate adaptation implementation plan. https://www.epa.gov/system/files/documents/2022-10/bh508-R02%20Climate%20Adaptation%20Implementation%20Plan%209.19.2022%20HQ%20OP%20Copy.pdf

Frankson, R., Kunkel, K.E., Champion, S.M., Stewart, B.C., Sweet, W, DeGaetano, A.T., & Spaccio, J. (2022). New York State Climate Summary 2022. National Oceanic and Atmospheric Administration National Centers for Environmental Information. https://statesummaries.ncics.org/chapter/ny/

Ganguly, A. and U. Candolin. 2023. Impact of light pollution on aquatic invertebrates: Behavioral responses and ecological consequences. Behavioral Ecology and Sociobiology 77: 104. https://doi.org/10.1007/s00265-023-03381-z

Hughes, Robert M., and Robert L. Vadas Jr. 2021. Agricultural Effects on Streams and Rivers: A Western USA Focus. Water 13, no. 14: 1901. https://doi.org/10.3390/w13141901

Mahar, Amy and Jenny Landry. 2013. New York State Department of Environmental Conservation species status assessment for *Lasmigona subviridis* (Green Floater).

McCormick, Frank H., Glen C. Contreras, and Sherri L. Johnson. 2009. "Effects of nonindigenous invasive species on water quality and quantity." *A dynamic invasive species research vision: opportunities and priorities* 29 (2009): 111-120.

New York State Comptroller. 2023. New York's local governments adapting to climate change: challenges, solutions, and costs. https://www.osc.state.ny.us/files/local-government/publications/pdf/climate-change-2023.pdf

New York State Department of Environmental Conservation. 2005. A strategy for conserving New York's fish and wildlife resources. Final submission draft.

Souza, Francine N., Rodolfo Mariano, Tassio Moreia, and Sofia Campiolo. 2020. Influence of the landscape in different scales on the EPT community (Ephemeroptera, Plecoptera and Trichoptera) in the Atlantic Forest region. Environmental monitoring and assessment 129: 391-391.

Strayer, David L., J.A. Dowling, W.R. Haag, T.L. King, J.B. Layzer, T.J. Newton and S.J. Nichols. 2004. Changing perspectives on Pearly Mussels, North America's most Imperiled Animals. BioScience 54:429-439.

Watershed Agricultural Council Forestry Program. 2018. New York State forestry voluntary best management practices for water quality. http://nysbmpguidelines.com/. Accessed on June 20, 2023.

Zaidel, Peter A., A. H. Roy, K. M. Houle, B. Lambert, B. H. Letcher, K. H. Nislow, C. Smith. 2021. Impacts of small dams on stream temperature. Ecological indicators 120:6-11.

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