

Species Status Assessment

Common Name: Allegheny River Cruiser **Date Updated:** February 13, 2025

Scientific Name: *Macromia alleghaniensis* **Updated By:** Erin L. White

Class: Insecta

Family: Macromiidae

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

Allegheny River Cruiser is known from Missouri and Arkansas eastward in the US to New York and Connecticut and south to Georgia (NatureServe 2025). This species was first documented with breeding observations in 2023. With just one occurrence in Ulster County, it is impossible to suggest a population trend for NY, but probably indicates a recent range expansion.

Allegheny River Cruisers are known to inhabit slow-flowing streams and rivers with High-moderate and Low gradient in the Northeastern region of the US (Paulson 2011, White et al. 2015).

I. Status

a. Current legal protected Status

i. **Federal:** Not protected _____ **Candidate:** No _____

ii. **New York:** Not Listed _____

b. Natural Heritage Program

i. **Global:** G4 _____

ii. **New York:** S1 _____ **Tracked by NYNHP?:** Yes _____

Other Ranks:

-NYS 2025 SGCN Status: Species of Greatest Conservation Status

-IUCN Red List:

-Northeast Regional Rank (White et al.2015): R3 Regional vulnerability, Significant responsibility

Status Discussion:

Allegheny River Cruiser was first documented in NY in 2023 by Frank Beres at Black Creek near Esopus, Ulster County, very close to the Hudson River. With just one occurrence, it is impossible to suggest a population trend for NY, but probably indicates a recent range expansion.

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Unknown	Unknown			-

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
Northeastern US	Yes	Unknown	Unknown			-
New York	Yes	Unknown	Unknown			Yes
Connecticut	Yes	Unknown	Unknown			-
Massachusetts	-	Unknown	Unknown			-
New Jersey	Yes	Unknown	Unknown			-
Pennsylvania	Yes	Unknown	Unknown			-
Vermont	-	Unknown	Unknown			-
Ontario	-	Unknown	Unknown			-
Quebec	-	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*):

The New York State Dragonfly and Damselfly Survey was conducted from 2005-2009, but there are no organized, regular monitoring or survey activities directed toward this species or to sites where it has been documented.

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

The species is likely immigrating from the south and west. With just one occurrence from Ulster County, it is impossible to suggest a population trend for NY, but probably indicates a recent range expansion.

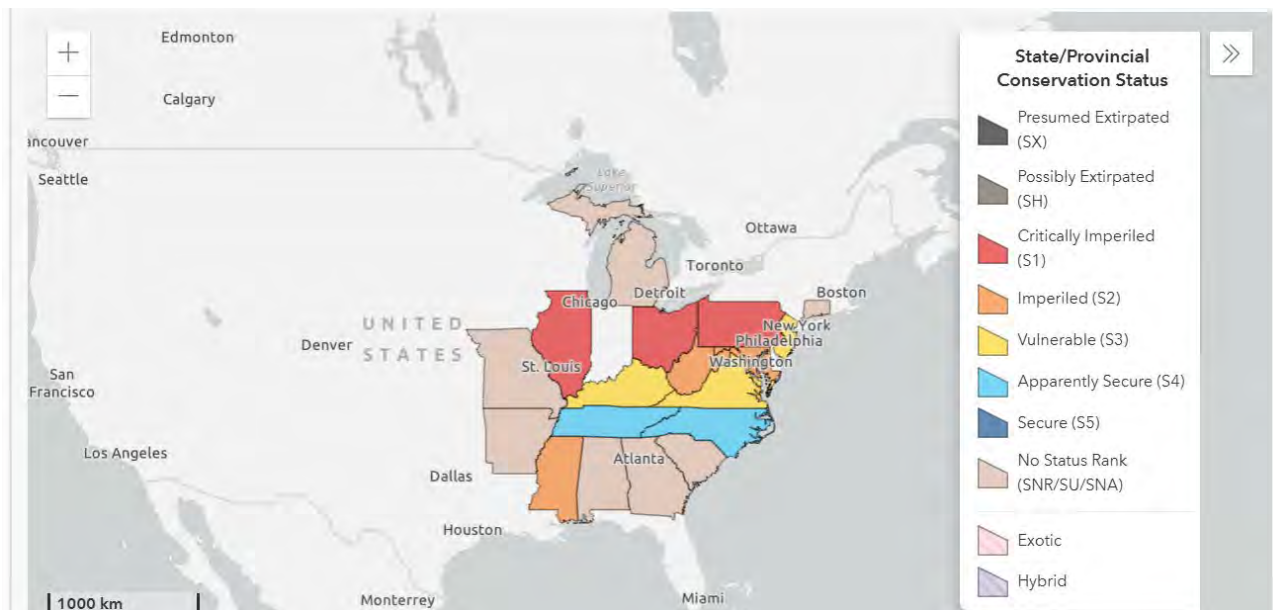


Figure 1. *Macromia alleghaniensis* North American distribution. (NatureServe 2025). The New York record is not yet reflected here.

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

Figure 3. Records of (species) in New York

Years	# of Records	# of Counties	% of State
Pre-2004	0	0	0
2005-2009	0	0	0
2010-2023	1	1	1.6

Table 1. Records of (species) in New York.

Details of historic and current occurrence:

Allegheny River Cruiser was first documented in NY in 2023 by Frank Beres at Black Creek near Esopus, Ulster County, very close to the Hudson River.

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	~700 mi

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.
- b.

Habitat or Community Type Trend in New York

Habitat Specialist?	Indicator Species?	Habitat/Community Trend	Time frame of Decline/Increase
Choose an item.	Choose an item.	Choose an item.	

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:

Allegheny River Cruisers are known to inhabit slow-flowing streams and rivers with High-moderate and Low gradient in the Northeastern region of the US (Paulson 2011, White et al. 2015).

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):

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

Any activity which might lead to water contamination, siltation, warming of waterways, or the alteration of natural hydrology could directly and indirectly impact riparian habitats and *Macromia alleghaniensis* populations. Such threats might include roadway and agricultural runoff, industrial pollution, dams, bridge construction and maintenance, logging activities, and development near riparian habitats (NYS DEC 2005). In addition, siltation decreases the amount of sunlight that reaches aquatic plants (EPA 2005) and lowers the quality of habitats needed for a variety of aquatic species (NYS DEC 2005). Point source pollution, such as effluents from municipal and industrial facilities, contribute to the degradation

and pollution of aquatic habitats (EPA 2022, NYS DEC 2005, Mahar and Landry 2013, Strayer et al. 2004).

Altering natural waterflow can degrade habitat and restrict species movement. Dams directly restrict or impede species movement, alter the flow of water, change the water temperature, and contribute to sedimentation (NYS DEC 2005, Zaidel et al. 2021).

While modern day agricultural and silvicultural practices are an important aspect of the New York State economy, it is important to consider the effects on ecosystems and species. As these practices move closer to rivers, the natural riparian buffers are often removed. Riparian buffers maintain stream temperature and slow or prevent runoff of sediments from upland soil disturbances. Furthermore, they slow or reduce runoff from farm fields and pastures, such as contaminants from pesticides, fertilizers, manure, and sludge, into waterways (EPA 2005, NYS DEC 2005, Souza et al. 2020). Excessive fertilizer use can lead to algal blooms that can be deadly to aquatic life and overgrazing of livestock in fields could introduce pathogens, oxygen-demanding organics and solids, and invasive species to aquatic ecosystems (EPA 2005).

Approximately 10% of introduced, non-native species could have an impact on the health of ecosystems (McCormick et al. 2009). Invasive plants tend to outcompete native plants and can change natural processes (NYS DEC 2005). There is an increased risk of runoff and erosion when these plants are along streams and rivers. Aquatic invasive plants and animals can alter the water chemistry, change the nutrient regime, or decrease the dissolved oxygen levels. Introduced fish can alter trophic relationships resulting in a change in native fish populations and decreased water quality (McCormick et al. 2009).

Climate change is another threat that is likely to have lasting effects on riverine systems. Irregular weather patterns can cause extreme drought, flooding, and temperature fluctuations. Heat waves are expected to be more intense (Frankson et al. 2022). The Northeast Region of the United States is expected to experience an increase in precipitation, more frequent storms, and higher than normal temperatures (EPA 2016, EPA 2022). Precipitation is expected to increase 10% to 15% in southern New York and 15 to 20% in northern New York by 2050 (Frankson et al. 2022). Extreme flooding can cause widespread erosion and runoff with added risk of contamination if flooding occurs at remediation sites, industrial sites, or wastewater treatment facilities (EPA 2016, EPA 2022). Temperature increases can significantly alter ecosystems. As water temperatures rise, the amount of dissolved oxygen decreases and evaporation increases, potentially lowering lake and stream levels (EPA 2022). Any combination of these events could change species distributions (EPA 2022) and those that cannot adapt or migrate may be extirpated from some areas (NYS DEC 2005). White et al. (2015) found seepage habitats of River Bluets to be high to moderately vulnerable and low-gradient streams and rivers to be low-moderately vulnerable.

Table 2. Threats to *Macromia alleghaniensis*

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.
11. Climate Change	11.1 Habitat Shifting & Alteration	-	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.

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:

Article 15 of Environmental Conservation Law provides protection of rivers, streams, lakes and ponds through the Protection of Waters permit program. This is not adequate to protect the habitat/species.

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

Protect water quality and reduce contamination and hydrological alteration (such as agricultural or road runoff, shoreline development, and damming) (NYS DEC 2005). Protect stream quality by maintaining both a riparian buffer that includes herbaceous and/or woody vegetation along the shoreline, and a significant forested buffer. These buffers reduce sediment and contaminant runoff (EPA 2005, NYS DEC 2005, Souza et al. 2020), provide shade, regulate temperature, and provide organic matter to animals (Hughes and Vadas 2021). Riparian zones with herbaceous and woody vegetation showed improved "indicator scores" for macroinvertebrates and fishes in the Midwest (Hughes and Vadas 2021).

Remove barriers to maintain or restore natural flow to waterways. Where removal is not possible, research alternatives that allow flow above and below a barrier.

In general, avoid stream crossings. If crossings are unavoidable, use Best Management Practices (BMP) to minimize disturbance to streams. Time periods of disturbance when water flow is low or normal and install stream-crossing structures at a right angle to the stream (Watershed Agricultural Council Forestry Program 2018). Temporary methods to reduce runoff include water bars, gravel, geotextile fabric, rubber belt deflectors, open top culverts, strawbales, silt fencing, control blankets, and straw wattles (Watershed Agricultural Council Forestry Program 2018). Restore the disturbed area with native species as soon as possible. Areas that have been logged may also need ruts to be smoothed to reduce surface runoff (Watershed Agricultural Council Forestry Program 2018). Hughes and Vadas (2021) suggest that Best Management Practices may need to be applied to entire stream lengths and catchments to fully restore an aquatic ecosystem. If this is not possible, restore or manage a larger area around the directly disturbed area.

In general, tailor agricultural management plans to local conditions (e.g., soils, slope, land use). Often these plans aim to reduce pollution and increase farm productivity, but incentives could also be used to encourage sustainable farming practices. Proper management typically reduces runoff by 20-90% (EPA 2005). Practices to reduce runoff and erosion include cover crops, crop rotation, tillage, mulching, terraces, diversion, and water and sediment control basins (NYS Soil and Water Conservation Committee 2023). Consider using Integrated Pest Management (IPM) as an alternative to pesticide use. If pesticides and fertilizers are used, they should only be applied when needed, in the proper amount, and timed appropriately. In addition, rotate livestock to avoid overgrazing and to allow for vegetation regrowth. In heavy use areas, consider a runoff management system that reduces contamination of nearby streams and soils (EPA 2005, NYS Soil and Water Conservation Committee 2023). If needed, provide alternative water sources and shade to keep animals out of sensitive areas (EPA 2005). Large livestock farms may benefit from a manure waste treatment system, such as,

anaerobic digestion, liquid/solid separation, composting, biological and chemical amendments, and waste facility cover (NYS Soil and Water Conservation Committee 2023).

Invasive species management can be time consuming and costly. Reduce the likelihood of non-native species being introduced into waterways. Boat-washing stations at boat launches can reduce transport of invasive plants and animals to new waterbodies. Educate anglers about the risk of releasing unused baitfish. If vulnerable species are present, consider a baitfish ban. Mechanical removal of some invasive plants may be needed in some rivers and streams. The use of pesticides to remove invasives can have a negative effect on ecosystems (McCormick et al. 2009) and should be a last resort to control invasive species.

Climate change is a global challenge. However, there are local actions that can help mitigate extreme weather events. Industrial and municipal infrastructure should be improved or replaced to be more resilient to flooding events (EPA 2016, NYS Comptroller 2023). Some suggested actions include installing or improving pumps to remove floodwater from facilities and installing protective structures, such as floodwalls. Ensure that existing bridges, dams, levees, seawalls, retaining walls, and wind barriers are prepared for extreme weather (NYS Comptroller 2023). Decrease runoff and erosion severity by installing large culverts, planting vegetation along riverbanks, and protecting and restoring wetlands (EPA 2016, NYS Comptroller 2023).

Public outreach is an important tool for conservation. Many of the threats to aquatic habitats and species can have direct and indirect effects to human health and recreation. In addition, outreach and incentives for various industries would be valuable. Improvements to municipal and industrial treatment facilities was noted by NYS DEC (2005) and further improvements and plans to deal with spills should continue to be encouraged.

Action Category	Action
Land/water protection	1.1. Site/area protection
Land/water protection	1.2. Resource & habitat protection
Land/water management	2.1. Site/area management
Land/water management	2.2. Invasive/problematic species control
Land/water management	2.3. Habitat & natural process restoration
Education & awareness	4.2. Training
Education & awareness	4.3. Awareness & communications
Law & policy	5.2. Policies and regulations

Table 3. Recommended conservation actions for (species)

VII. References

This SSA drew heavily from these resources:

New York Natural Heritage Program, State University of New York College of Environmental Science and Forestry. 2023. Element Occurrence and Element Dataset. Albany, New York. [Exported 12/14/2023].

NatureServe. 2023. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. <http://www.natureserve.org/explorer>. [Accessed 12/14/2023].

Additional references:

Abbott, J.C. 2006-2024. OdonataCentral: An online resource for the distribution and identification of Odonata. Available at <https://www.odonatacentral.org/>. (Accessed: 2/13/2025).

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/>

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>

iNaturalist. Available from <https://www.inaturalist.org>. Accessed February 13, 2024.

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). *New York State Comprehensive Wildlife Conservation Strategy*. Albany, NY: New York State Department of Environmental Conservation.

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

Northeast Fish and Wildlife Diversity. 2024. Regional Species of Greatest Conservation Need (2024). <https://northeastwildlifediversity.org/rsgcn>. Accessed March 11, 2024.

Olivero, A.P. and M.G. Anderson. 2008. Northeast Aquatic Habitat Classification. The Nature Conservancy Eastern Resource Office, Boston, MA.

Paulson, Dennis. 2011, Dragonflies and damselflies of the east. Princeton University Press, Princeton, NJ.

Souza, Francine N., Rodolfo Mariano, Tassio Moreira, 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.

White, E. L., J. D. Corser, and M. D. Schlesinger. 2010. The New York dragonfly and damselfly survey 2005-2009: Distribution and status of the odonates of New York. New York Natural Heritage Program, Albany, New York.

White, E.L., J.D. Corser, P.D. Hunt, P. DeMaynadier, and M.D. Schlesinger. 2015. Prioritizing Odonata for conservation action in the northeastern USA. *Freshwater Science* (34): 1079-1093.

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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