

# Species Status Assessment

**Common Name:** River Bluet      **Date Updated:** 2024-03-25  
**Scientific Name:** *Enallagma anna*      **Updated By:** Erin L. White  
**Class:** Insecta  
**Family:** Coenagrionidae

## Species Synopsis

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

River bluets range from Alberta, Canada east to Quebec and from California and Oregon east to Michigan and New York (NatureServe 2024). Likely immigrating from the west, this species was first documented in Ontario in 1998 (Lam 2003), in PA in 2006 (White et al. 2015) and in NY in 2016 (NYNHP 2024).

River Bluets are known to inhabit slow-running rivers and creeks and also seepages. They can be found in shallow streams in agricultural areas including mud-bottomed irrigation ditches (Lam 2003). They mostly occur in open country but are often found in streams with riparian borders (IUCN 2024).

River Bluet was first documented in NY in 2016 by Fred Sibley at Catherine Creek near Montour Falls. With just one occurrence from Montour Falls, Schuyler County, it is impossible to suggest a population trend for NY, but probably indicates a recent range expansion.

## I. Status

### a. Current legal protected Status

i. **Federal:** Not Listed      **Candidate:** No  
ii. **New York:**      Unprotected

### b. Natural Heritage Program

i. **Global:**      G5  
ii. **New York:**      S1      **Tracked by NYNHP?**      On Active Tracking List

### Other Ranks:

NYS 2025 SGCN Status: High Priority Species of Greatest Conservation

COSEWIC: Not listed in Canada

IUCN Red List: Least Concern

Northeast Regional SGCN: Not listed; R1 vulnerability, shared responsibility.

### Status Discussion:

River Bluet was first documented in NY in 2016 by Fred Sibley at Catherine Creek near Montour Falls. With just one occurrence from Montour Falls, Schuyler County, 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 or S-Rank	SGCN?
North America	Yes	Unknown	Unknown	Unknown		
Northeastern US	Yes	Unknown	Unknown	Pre and post 2000	R1	No
New York	Yes	Unknown	Unknown	Pre and post 2005	S1	No
Connecticut	No	-	-	-		No
Massachusetts	No	-	-	-		No
New Jersey	No	-	-	-		No
Pennsylvania	Yes	Unknown	Unknown			Yes
Vermont	No	-	-	-		Yes
Ontario	No	Unknown	Unknown	Unknown	S3	
Quebec	No	Unknown	Unknown	Unknown	SNR	

*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

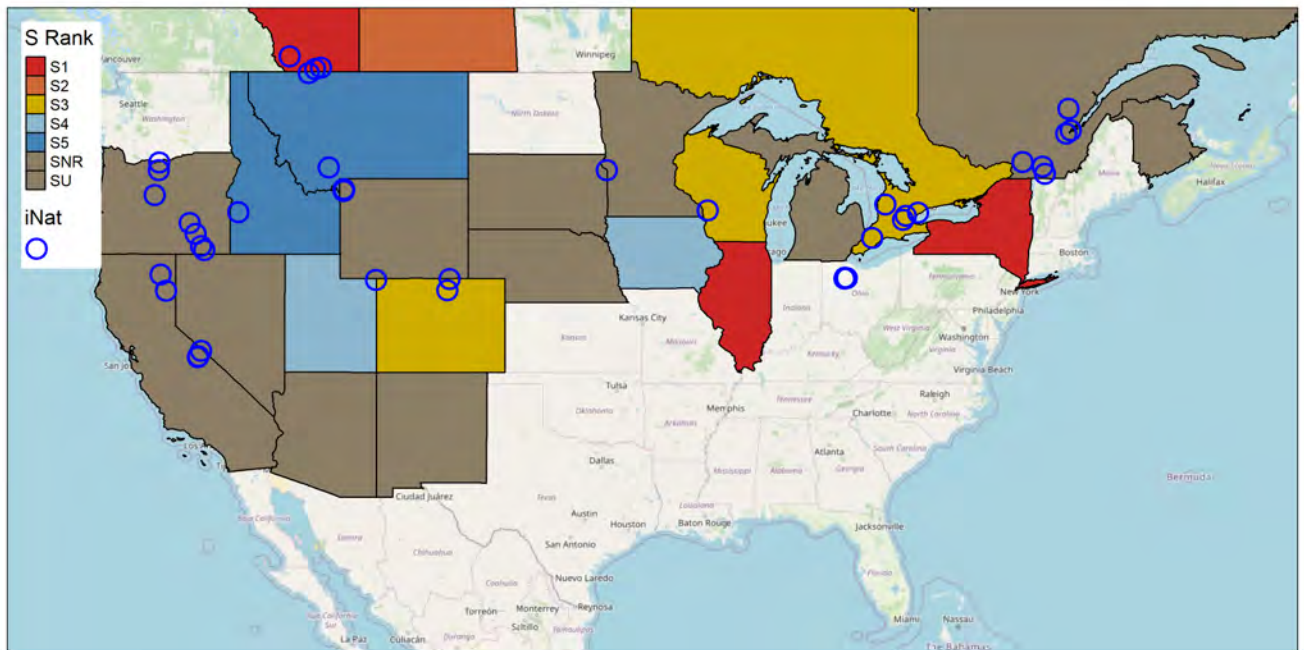
*(specify any monitoring activities or regular surveys that are conducted in New York):*

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):*

Likely immigrating from the west, this species was first documented in Ontario in 1998 (Lam 2003), in PA in 2006 (White et al. 2015) and in NY in 2016 (NYNHP 2024). With just one occurrence from Montour Falls, Schuylter County, it is impossible to suggest a population trend for NY, but probably indicates a recent range expansion.



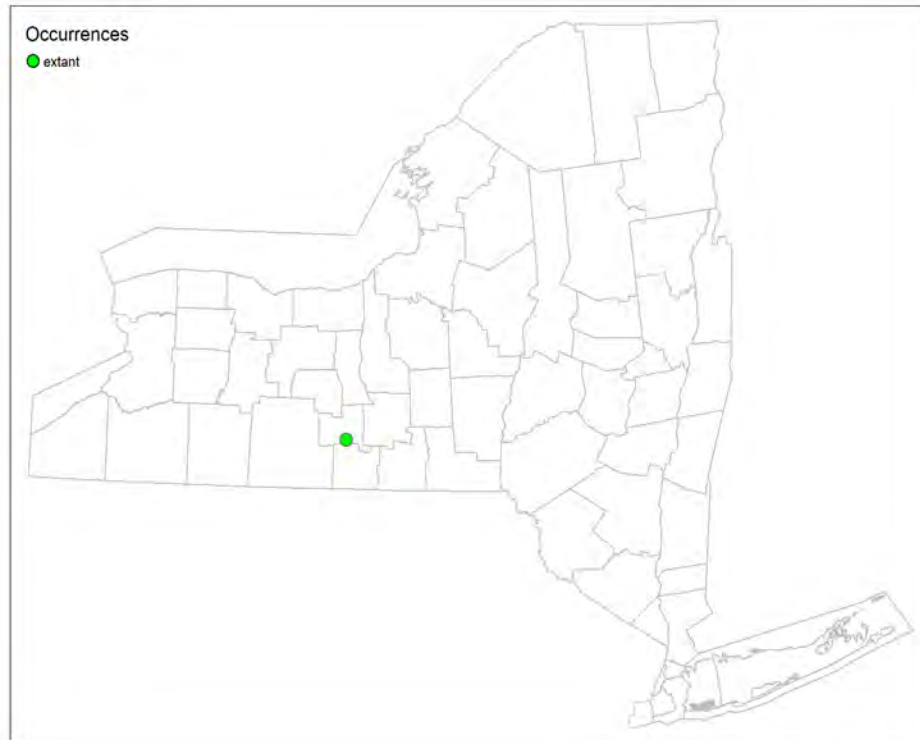
**Figure 1:** *Enallagma anna* North American distribution. Points show research-grade iNaturalist observations (NatureServe 2024, iNaturalist 2024).



**Figure 2:** *Enallagma anna* regional distribution as reported at <https://northeastwildlifediversity.org/rsgcn> and found in a regional odonate project.

### III. New York Rarity

*(provide map, numbers, and percent of state occupied)*



**Figure 3:** NYS distribution for *Enallagma anna* based on element occurrence data (NYNHP 2024).

Table 1. Number of observations of *Enallagma anna* grouped by the dates known to be extant (repeat observations (element occurrences) include the years spanning first observation to last observation) and the number and percent of total of counties these observations fall within for New York State.

Years	eocount	# of Counties	% of counties in State
Pre-2005	0	0	0.0
2005-2009	0	0	0.0
2010-present	1	1	1.6

**Details of historic and current occurrence:**

River Bluet was first documented in NY in 2016 by Fred Sibley at Catherine Creek near Montour Falls. In looking at iNaturalist records, it has also been documented in or very near this location in 2018, 2022, and 2023.

If it occurs in 1/62 counties, that is very roughly about 2% of the state, though the known occupied area of Schuyler County is rather small. There could be additional undocumented populations in NY and the % of the state can be estimated to be 1-3% currently.

Percent of North American Range in NY	Classification of NY Range	Distance to core population, if not in NY
1-25%	Peripheral	~2500 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. Size/Waterbody Type:** Small River, Creek

**b. Geology:** Moderately Buffered, Neutral

**c. Temperature:** Transitional Cool

**d. Gradient:** Moderate-High, Moderate-Low

### Habitat or Community Type Trend in New York

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

*Column options*

**Habitat Specialist and Indicator Species:** Yes; No; Unkown; (blank) or Choose an item

**Habitat/Community Trend:** Declining; Stable; Increasing; Unkown; (blank) or Choose an item

### Habitat Discussion:

River bluets are known to inhabit slow-running rivers and creeks and also seepages. It can be found in shallow streams in agricultural areas including mud-bottomed irrigation ditches (Lam 2003). They mostly occur in open country but are often found in streams with riparian borders (IUCN 2024).

## V. Species Demographics and Life History

Breeder in NY?	Non-breeder in NY?	Migratory Only?	Summer Resident?	Winter Resident?	Anadromous/ Catadromous?
Yes	Yes	No	Yes	Yes	No

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):*

Adults fly from late June to early September in Ontario (Lam 2003) and the NY observations have occurred from late June to early July (iNaturalist 2024).

## VI. Threats

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 River Bluet 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 *Enallagma anna*.

<b>Threat Level 1</b>	<b>Threat Level 2</b>	<b>Threat Level 3</b>	<b>Spatial Extent</b>	<b>Severity</b>	<b>Immediacy</b>	<b>Trend</b>	<b>Certainty</b>
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.

Table 2. Recommended conservation actions for *Enallagma anna*.

<b>Conservation Actions</b>	
<b>Action Category</b>	<b>Action</b>
<b>Land/water protection</b>	1.1. Site/area protection
<b>Land/water protection</b>	1.2. Resource & habitat protection
<b>Land/water management</b>	2.1. Site/area management
<b>Land/water management</b>	2.2. Invasive/problematic species control
<b>Land/water management</b>	2.3. Habitat & natural process restoration
<b>Education &amp; awareness</b>	4.2. Training
<b>Education &amp; awareness</b>	4.3. Awareness & communications

Conservation Actions	
Action Category	Action
Law & policy	5.2. Policies and regulations

## VII. References

### This SSA drew heavily from these resources:

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<b>Originally prepared by</b>	Erin L. White
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<b>Last revision</b>	
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