

Species Status Assessment

Common Name: Similar Mason Bee **Date Updated:** 2024-08-28
Scientific Name: *Osmia simillima* **Updated By:** Erin L. White
Class: Insecta
Family: Megachilidae

Species Synopsis

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

Similar Mason Bees are distributed from British Columbia to Nova Scotia south to Arizona and North Carolina (Discover Life 2024).

The species was ranked an S1S2 as part of the ESNPS (White et al. 2022) based on rarity, trend, and threat information. It has been documented since 2000 in Two counties in NY, while previously known from 9 counties historically and has likely significantly declined in the state.

This species is known for a wide variety of habitats, including oak woodlands, conifer scrub, dunes (NatureServe 2024). They require wood cavities for nesting and in NY have been found near hardwood and floodplain forest habitat (Gawler 2008, NatureServe 2024).

I. Status

a. Current legal protected Status

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

b. Natural Heritage Program

i. **Global:** G5
ii. **New York:** S1S2 **Tracked by NYNHP?** On Active Tracking List

Other Ranks:

-New York 2025 SGCN status: Species of Greatest Conservation Need

- COSEWIC: Not listed in Canada
- IUCN Red List: Not assessed by IUCN Red List
- Northeast Regional SGCN: Not listed

Status Discussion:

The species was ranked an S1S2 as part of the ESNPS (White et al. 2022) based on rarity, trend, and threat information. It has been documented since 2000 in two counties in NY, while previously known from 9 counties historically and has likely significantly declined in the state.

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	Unknown		
New York	Yes	Unknown	Unknown	Unknown	S1S2	No
Connecticut	No	Unknown	Unknown	Unknown	SNR	
Massachusetts	No	Unknown	Unknown	Unknown	SNR	
New Jersey	No	-	-	-		
Pennsylvania	No	Unknown	Unknown	Unknown	SNR	
Vermont	No	Unknown	Unknown	Unknown	S1	
Ontario	No	Unknown	Unknown	Unknown	S5	
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 Empire State Native Pollinator Survey (ESNPS) was conducted from 2017-2021, but there are no organized, regular monitoring or survey activities directed toward this species or to sites where they have been documented. Some regular monitoring may occur at protected sites that Heritage staff revisit if they occur on state properties, as part of OPRHP or State Lands inventory work.

Trends Discussion

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

The species is historically (1999 and earlier) known from nine counties in NY. It has been confirmed in two counties since 2000, suggesting a decline of at least 80% of it's former NY range.

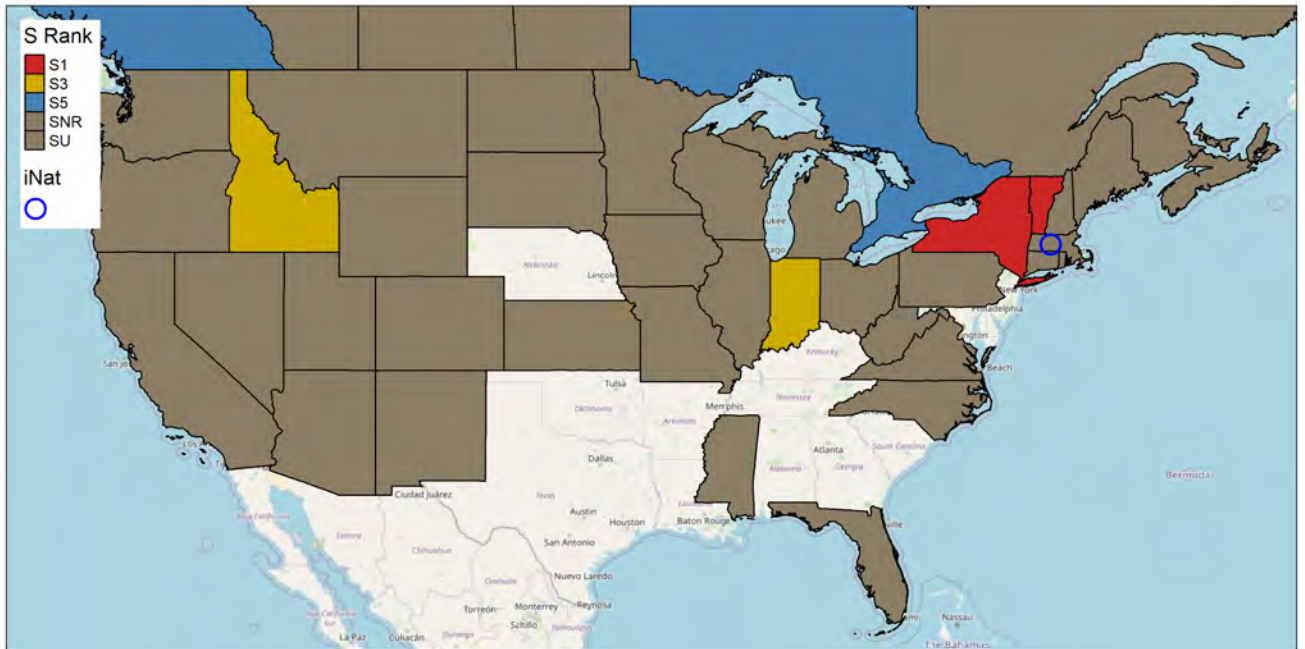


Figure 1: *Osmia simillima* North American distribution. Points show research-grade iNaturalist observations.

III. New York Rarity

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



Figure 1: Observations from 2000 to present depicted as dots; those from 1999 and earlier as shaded counties.

Figure 4: NYS distribution for *Osmia simillima* based on ESNPS (White et al. 2022).

Table 1. Number of observations of *Osmia simillima* 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	Observations	# of Counties	% of counties in State
Pre-2000	12	9	14.5
2000-2023	5	2	3.2

Details of historic and current occurrence:

There were four specimens collected from three locations on Fort Drum Military Installation as part of a DOD funded pollinator survey performed by NYNHP in 2019 and 2021 and one at Chaumont Barrens, Jefferson County in 2018 as part of the ESNPS. In addition, there is an AMNH specimen from Gardiners Island, Suffolk County in 2009.

Historically (1999 and earlier), the species is known from 1 location in Erie County, 1 in Essex County, 1 in Genesee, 1 in Greene, 1 in Kings, 1 in Monroe, 1 in Orange, 3 in Suffolk, and 1 in

Warren County (including 1 where reconfirmed in 2009). Multiple specimens were collected at some sites, hence the obs numbers for pre-2000 above.

Percent of North American Range in NY	Classification of NY Range	Distance to core population, if not in NY
1-25%	Peripheral	~1500 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):

Native Barrens and Savanna, Floodplain Forest, Mixed Northern Hardwoods/Northern White Cedar Swamp, Old Field/Managed Grasslands

NatureServe broad habitat types: Forest/Woodland, Shrubland/chaparral, Sand/dune, Grassland/herbaceous

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; Unknown; (blank) or Choose an item

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

Habitat Discussion:

This species is known for a wide variety of habitats, including oak woodlands, conifer scrub, dunes (NatureServe 2024). They require wood cavities for nesting and in NY have been found near hardwood and floodplain forest habitat (Gawler 2008, NatureServe 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):

This species needs cavities in wood or oak galls for nesting (NatureServe 2024). Recent observations in NY have occurred between May and July (White et al. 2022), but it has been documented from April to August throughout its range (Discover Life 2024).

VI. Threats

Threats facing stem-nesting or cavity-nesting bees include habitat loss from conversion of shrublands to agriculture, fire, logging and wood harvesting, invasive plants and pathogens, pesticides, and climate change (White et al. 2022). Kammerer et al. (2020) found that warmer winters will result in fewer bees and solitary bees are more sensitive to drought conditions, which are predicted in the Northeast as a result of climate change.

Threat Level 1	Threat Level 2	Threat Level 3	Spatial Extent	Severity	Immediacy	Trend	Certainty
2. Agriculture & Aquaculture	2.1 Annual & Perennial Non-Timber Crops	-	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	7.1 Fire & Fire Suppression	-	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	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
8. Invasive & Other Problematic Species	8.4 Pathogens	-	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
9. Pollution	9.3 Agricultural & Forestry Effluents	9.3.3 Herbicides & pesticides	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
11. Climate Change	11.3 Changes in Temperature Regimes	11.3.3 Gradual temperature change (warmer winters result in fewer bees)	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 (solitary bees more sensitive to drought)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.

Table 2. Threats to *Osmia simillima*.

Action Category	Action	Description
C.6 Design and Plan Conservation	C.6.0.0.0 Design and Plan Conservation	Resource & habitat protection
C.6 Design and Plan Conservation	C.6.5.1.3 Develop a conservation, management, or restoration plan for protected private lands	Habitat & natural process restoration
C.7 Legislative and Regulatory Framework or Tools	C.7.0.0.0 Legislative and regulatory framework or tools	Policies and regulations
C.9 Education and Training	C.9.0.0.0 Education and Training	Training

Table 3. Recommended conservation actions for *Osmia simillima*.

VII. References

This SSA drew heavily from these resources:

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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:

DiscoverLife. 2024. Online. Available at: <http://www.discoverlife.org/> [Accessed August 28, 2024].

Gawler, S.C. 2008. Northeastern Terrestrial Wildlife Habitat Classification. NatureServe, Boston, MA.

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Kammerer, M., Goslee, S.C., Douglas, M.R., Tooker, J.F. and Grozinger, C.M., 2021. Wild bees as winners and losers: Relative impacts of landscape composition, quality, and climate. *Global change biology*, 27(6), pp.1250-1265.

Meeus, I., M. J. F. Brown, D. C. De Graaf, and G. Smagghe. 2011. Effects of invasive parasites on bumble bee declines. *Conservation Biology* 25(4):662–671.

Northeast Fish and Wildlife Diversity. 2024. Regional Species of Greatest Conservation Need (2024). <https://northeastwildlifediversity.org/rsgcn>. Accessed August 28, 2024.

Schweitzer, D.F., N.A. Capuano, B.E. Young and S.R. Colla. 2012. Conservation and management of North American bumble bees. NatureServe, Arlington, Virginia, and USDA Forest Service, Washington, D.C. 17 pp.

White, Erin L., Matthew D. Schlesinger, and Timothy G. Howard. 2022. The Empire State Native Pollinator Survey (2017-2021). New York Natural Heritage Program. Albany, NY.

Originally prepared by	Erin L. White
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