Species Status Assessment

Class: Insecta
Family: Coccinellidae
Scientific Name: Coccinella transversoguttata
Common Name: Transverse lady beetle

Species synopsis:

Coccinella transversoguttata is a slightly oval-shaped insect that ranges from 5-7.8 mm. The elytra are red/orange with black markings. There is a solid black band behind the pronotum and elongated black markings near the end of its body. The pronotum is black with white markings on the side. The head has two white spots. Eggs are yellow and approximately 1.0 mm. Larvae are elongate and black with several segments. There are orange spots on the dorsal-lateral area of the abdomen. Spines run the length of the body (Graves 2013).

C. transversoguttata prefer open habitats, especially old fields, agricultural fields, meadows, and marshes (Graves 2013). Sharp declines have been noted, especially in the east. At one time this species was common throughout a large portion of North America extending from Labrador to Alaska and south to California. The current range extends from western Canada and western United States into Mexico. It is also found it Europe, Asia (except China,) and Central America. It is absent from the eastern portion of North America with the exception of one 2012 record from Quebec (Cornell University 2013).

I. Status

a. Current and Legal Protected Status

i. **Federal_____None_____Candidate? ___N_____**

ii. **New York _____None_____**

b. Natural Heritage Program Rank

i. **Global _____not ranked_____**

ii. **New York ___not ranked_____ Tracked by NYNHP? _No (but planning on it)_____**

Other Rank:

Status Discussion:

II. Abundance and Distribution Trends

a. North America

i. **Abundance**

__x___ declining ____increasing _____stable ____unknown

ii. **Distribution:**

__x___ declining ____increasing _____stable ____unknown

Time frame considered: _____1980s to present_____

b. Regional

i. Abundance

__x__ declining ____increasing ____stable _____unknown

ii. Distribution:

__x__ declining ____increasing ____stable _____unknown

Regional Unit Considered:_USFWS Region 5_____
Time Frame Considered: ____1980s-present_____

c. Adjacent States and Provinces

CONNECTICUT Not Present _____ No data _____

i. Abundance

____ declining ____ increasing ____ stable __x__unknown

ii. Distribution:

____ declining ____ increasing ____ stable __x__unknown

Time frame considered: __1989-present_____
Listing Status: ___not listed_____ SGCN? ____N_____

Declines first noted during the 1980s. The Lost Ladybug Project (Cornell University 2013): 0 of 119 were C. transversoguttata.

MASSACHUSETTS Not Present _____ No data _____

i. Abundance

____ declining ____ increasing ____ stable __x__unknown

ii. Distribution:

____ declining ____ increasing ____ stable __x__unknown

Time frame considered: ____1989-present_____
Listing Status: ____not listed_____ SGCN? ___N_____

Declines first noted during the 1980s. The Lost Ladybug Project (Cornell University 2013): 0 of 471 were C. transversoguttata.

NEW JERSEY **Not Present _____** **No data _____**

i. **Abundance**

____ declining ____ increasing ____ stable __x__unknown

ii. **Distribution:**

____ declining ____ increasing ____ stable __x__unknown

Time frame considered: _____1989-present_____
Listing Status: __not listed_____ SGCN? __N_____

Declines first noted during the 1980s. The Lost Ladybug Project (Cornell University 2013): 0 of 133 were C. transversoguttata.

ONTARIO **Not Present _____** **No data _____**

i. **Abundance**

____ declining ____increasing ____stable __x__unknown

ii. **Distribution:**

____ declining ____increasing ____stable __x__unknown

Time frame considered: _____1989-present_____
Listing Status: __on high priority candidate list_____

Declines first noted during the 1980s. The Lost Ladybug Project (Cornell University 2013): 0 of 90 were C. transversoguttata.

PENNSYLVANIA **Not Present _____** **No data _____**

i. **Abundance**

__x__ declining ____increasing ____stable __x__unknown

ii. **Distribution:**

__x__ declining ____increasing ____stable __x__unknown

Time frame considered: ____1989-present_____
Listing Status: ____not listed_____ SGCN? ___N_____

Declines first noted during the 1980s. The Lost Ladybug Project (Cornell University 2013): 0 of 407 were C. transversoguttata.

QUEBEC **Not Present _____** **No data _____**

i. **Abundance**

_x___ declining ____increasing _____stable ____unknown

ii. **Distribution:**

_x___ declining ____increasing _____stable ____unknown

Time frame considered: _____1989-present_____
Listing Status: _____on high priority candidate list_____

Declines first noted during the 1980s. The Lost Ladybug Project (Cornell University 2013): 1 of 101 was C. transversoguttata.

VERMONT **Not Present _____** **No data _____**

i. **Abundance**

____ declining ____increasing ____stable _x___unknown

ii. **Distribution:**

____ declining ____increasing ____stable __x__unknown

Time frame considered: ____1989-present_____
Listing Status: ____not listed_____ SGCN? ____N_____

Declines first noted during the 1980s. The Lost Ladybug Project (Cornell University 2013): 0 of 172 were C. transversoguttata.

d. NEW YORK **No data _____**

i. **Abundance**

__X__ declining ____ increasing ____ stable _____ unknown

ii. **Distribution:**

__X__ declining ____ increasing ____ stable _____ unknown

Time frame considered: ___1989-present_____
Declines first noted during the 1980s. The Lost Ladybug Project (Cornell University 2013): 0 of 1639 were C. transversoguttata.

Monitoring in New York.

This species, as well as other lady beetles, are the target of a citizen science project known as The Lost Ladybug Project. Participants search for, photograph, and submit images and locations of ladybugs.

Trends Discussion:

Historically, C. transversoguttata was common throughout a large portion of North America extending from Labrador to Alaska and south to California. See map below from Gordon (1985).

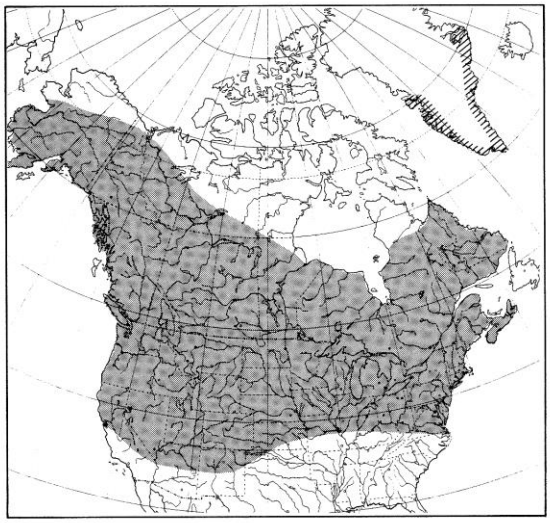
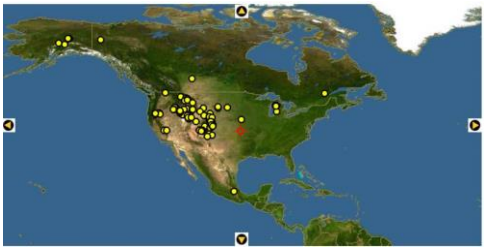


Fig. 642. Distribution. *Coccinella transversoguttata richardsoni* (shaded); *C. t. ephippiata* (cross hatch, Greenland).

During the 1980s, a decline of many native lady beetles was noted, including C. transversoguttata. It appears the range has shifted to mostly the western portion of North America.



C. transversoguttata has not been found in New York State in recent years.

III. New York Rarity, if known:

Historic (select one)	**# of Animals**	**# of Locations**	**% of State**
prior to 1970	_____	_____	_____
prior to 1980	_____	_____	_____
prior to 1990	_____	_____	_____

Details of historic occurrence:

Prior to the mid to late 1980s, C. transversoguttata was considered common in New York State.

Current	**# of Animals**	**# of Locations**	**% of State**
	___0_____	**____0____**	**__0_____**

Details of current occurrence:
C. transversoguttata has not been found in New York in recent years.

New York's Contribution to Species North American Range:

% of NA Range in New York	Classification of New York Range
____ 100 (endemic)	__x__ Core (historically)
____ 76-99	____ Peripheral
____ 51-75	____ Disjunct
____ 26-50	Distance to core population:
__x___ 1-25	_____

Rarity Discussion:

This species has become increasingly rare in North America. It has been found at one location in the east (Quebec, Canada) since the beginning of the Lost Ladybug Project in 2000 (Cornell University 2013). It has not been found in New York recently, but was once considered common.

IV. Primary Habitat or Community Type

1. Agricultural

2. Open Shrubland/grassland

3.

Habitat or Community Type Trend in New York:

__x___ Declining ____Stable ____ Increasing ____Unknown

Time frame of decline/increase: ____1880s to present_____

Habitat Specialist? _____ Yes __x___ No

Indicator Species? ___x___ Yes _____ No

(Stephens and Losey (2003) suggested lady beetles are a good indicator of ecological health because of their sensitivity to natural enemies and anthropogenic influences.)

Habitat Discussion:

C. transversoguttata prefer open habitats such as old fields, agricultural fields, meadows, and marshes.

Agricultural land has been declining in New York since the 1880s. Between 1940 and 1997, there was a 57% decline in farmed land in New York (Harmon et al. 2007).

V. New York Species Demographics and Life History

___x___ Breeder in New York

_____ Summer Resident

_____ Winter Resident

_____ Anadromous

__x___ Non-breeder in New York

_____ Summer Resident

_____ Winter Resident

_____ Catadromous

_____ Migratory only

_____Unknown

This species is present year-round.

Species Demographics and Life History Discussion:

Mating and egg lying occur in the spring after temperatures rise above 12°C. This species is polygynadrous. There are usually two generations per season, but adults will continue to breed until the temperatures cool. Egg masses contain 20-30 eggs and are usually found near aphids. There are four larval instars before pupating. Adults overwinter.

Non-native lady beetles are predators of C. transversoguttata . In addition, they are likely outcompeting C. transversoguttata for resources. *Perilitus coccinellae*, a braconid wasp, parasitizes lady beetles. There are several other known pathogens and parasites of Coccinellidae (Graves 2013).

VI. Threats:

1. While it is difficult to prove, it appears this species has been displaced by the nonnative lady beetles via competition for resources, depredation, and possible inbreeding.
2. A decline in farming (farm/open habitat loss) has decreased the available suitable habitat.
3. Lady beetles appear to be sensitive pesticide use (Stephens and Losey 2003).

Are there regulatory mechanisms that protect the species or its habitat in New York?

__x___ No ____ Unknown

_____ Yes (describe mechanism and whether adequate to protect species/habitat)

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

Conservation Actions	
Action Category	**Action**
1 Species Management	Species Re-introduction
2 Species Management	Ex-Situ Conservation (laboratory rearing)
3 Livelihood, Economic & Other Incentives	Conservation Payment (farmland conservation)
4 *Add more lines if needed*	

Additional research is needed to determine specific habitat needs. Additional survey work is needed to determine the full range and population size in New York. Consider incentives that encourage sustainable farming or reduced pesticide use.

Comments from Kathy O'Brien: Targeted searches are needed where the species has been recently found in other states to refine habitat needs. Then apply habitat knowledge to surveys in New York to locate populations. This would address loss of habitat threat, and would be applicable to any area in the state where potentially-occupied habitat exists. Conservations actions #1 and #2 above are not applicable until we have a better understanding of what the species' habitat needs are, and

possibly why these bees have declined. Conservation action #3 may work if pesticides prove to be a major culprit.

VII. References

Committee on the Status of Endangered Wildlife in Canada. 2013. "Candidate Wildlife Species." Government of Canada. http:www.cosewic.gc.ca/eng/sct3/index_e.cfm. (date accessed December 29, 2013).

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