Species Status Assessment

Class: Insecta
Family: Coccinellidae
Scientific Name: Coccinella trifasciata
Common Name: Three-banded lady beetle

Species synopsis:

Coccinella trifasciata is a small insect that ranges from 4.0 to 5.0 mm. Males have a pale head with the exception of a black band across the base. Females have a black head with two pale spots. The anterior margin of the pronotum is typically pale with a large ventral pale spot that extends posteriorly as far as the dorsal spot. Elytra have three transverse black bands that are interrupted at the suture (Gordon 1985).

Since the beginning of the Lost Ladybug Project, C. trifasciata has been found in meadows/fields (non-agricultural), gardens, yards, hayfields, and bramble fruits in New York (Cornell University 2013).
I. Status

a. Current and Legal Protected Status
   i. Federal _______________________ Candidate?  __no____
   ii. New York  ______________________

b. Natural Heritage Program Rank
   i. Global  ______________________
   ii. New York  __not rank____ Tracked by NYNHP? _No (but possible in near future)___

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-present______________________________
b. Regional (e.g., Atlantic Flyway, USFWS Region 5 – Northeast, Watershed, Hydrologic Unit)

i. Abundance

_\times_ declining  ___ increasing ___ stable ___ unknown

ii. Distribution:

_\times_ declining  ___ increasing ___ stable ___ unknown

Regional Unit Considered: __ USFWS Region 5 – Northeast____________________
Time Frame Considered: ___1980s-present________________________

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c. Adjacent States and Provinces

| State          | Present/Not Present | Data
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CONNECTICUT</td>
<td>Not Present ______</td>
<td>No data ______</td>
</tr>
</tbody>
</table>

i. Abundance

___ declining  ___ increasing ___ stable ___ unknown

ii. Distribution:

___ declining  ___ increasing ___ stable ___ unknown

Time frame considered: __1980s-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. trifasciata.

| State          | Present/Not Present | Data
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MASSACHUSETTS</td>
<td>Not Present ______</td>
<td>No data ______</td>
</tr>
</tbody>
</table>

i. Abundance

_\times_ declining  ___ increasing ___ stable ___ unknown

ii. Distribution:

_\times_ declining  ___ increasing ___ stable ___ unknown

Time frame considered: ___1980s-present________________________
Listing Status: _____not listed________________________ SGCN? ___N_____

Declines first noted during the 1980s. The Lost Ladybug Project (Cornell University 2013): 12 of 471 (2 locations) were C. trifasciata.
NEW JERSEY  
Not Present _______  No data _______

i. Abundance

___ declining  ____ increasing ____ stable  ____x__ unknown

ii. Distribution:

____ declining  ____ increasing ____ stable  ____x__ unknown

Time frame considered: ___1980s-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. trifasciata.

ONTARIO  
Not Present _______  No data _______

i. Abundance

___x__ declining  ____increasing ____ stable  ____unknown

ii. Distribution:

____x__ declining  ____increasing ____ stable  ____unknown

Time frame considered: ___1980s-present____________________________
Listing Status: ____not listed______________________________

Declines first noted during the 1980s. The Lost Ladybug Project (Cornell University 2013): 3 of 90 were C. trifasciata.
PENNSYLVANIA

Not Present ______  No data ______

i. Abundance

____ declining  ___increasing  ____stable  ___x___unknown

ii. Distribution:

____ declining  ___increasing  ____stable  ___x___unknown

Time frame considered: ___1980s-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. trifasciata.

QUEBEC

Not Present ______  No data ______

i. Abundance

__x__ declining  ___increasing  ____stable  ___unknown

ii. Distribution:

__x__ declining  ___increasing  ____stable  ___unknown

Time frame considered: ___1980s-present____________________________
Listing Status: _____not listed________________________

Declines first noted during the 1980s. The Lost Ladybug Project (Cornell University 2013): 2 of 101 were C. trifasciata.
d. **NEW YORK**

   No data ______

   i. Abundance

   _x_ declining  ___ increasing ___ stable  ___ unknown

   ii. Distribution:

   _x_ declining  ___ increasing ___ stable  ___ unknown

   Time frame considered: ___1980s-present________________________

   Declines first noted during the 1980s. The Lost Ladybug Project (Cornell University 2013): 20 of 1639 (12 sites) were C. trifasciata.

**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. I’m not aware of any regular surveys.
Trends Discussion:

It appears that the population is declining and there is some range reduction.

Range map from Gordon (1985).
Observation points from The Lost Ladybug Project 2000-2013 (Cornell University 2013).

New York State Range Map for Coccinella trifasciata (three-banded lady beetle) 2000-2013 (Cornell University 2013)
III. New York Rarity, if known:

<table>
<thead>
<tr>
<th>Historic</th>
<th># of Animals</th>
<th># of Locations</th>
<th>% of State</th>
</tr>
</thead>
<tbody>
<tr>
<td>(select one)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>prior to 1970</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>prior to 1980</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>prior to 1990</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
</tbody>
</table>

Details of historic occurrence:

Abundance and locational data are not known at this time.

<table>
<thead>
<tr>
<th>Current</th>
<th># of Animals</th>
<th># of Locations</th>
<th>% of State</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20</td>
<td>12</td>
<td>&lt;1%</td>
</tr>
</tbody>
</table>

Details of current occurrence:

Twenty C. trifasciata have been found at twelve sites in six counties in Central/Western and Northern New York.

New York’s Contribution to Species North American Range:

<table>
<thead>
<tr>
<th>% of NA Range in New York</th>
<th>Classification of New York Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 (endemic)</td>
<td>Core</td>
</tr>
<tr>
<td>76-99</td>
<td>Peripheral</td>
</tr>
<tr>
<td>51-75</td>
<td>Disjunct</td>
</tr>
<tr>
<td>26-50</td>
<td>Distance to core population:</td>
</tr>
<tr>
<td>x 1-25</td>
<td></td>
</tr>
</tbody>
</table>
IV. Primary Habitat or Community Type:

1. Managed grasslands
2. Urban and recreational grasses
3. Shrublands

Habitat or Community Type Trend in New York:

___ Declining ___ Stable ___ Increasing _x_ Unknown

Time frame of decline/increase: ______________________________________________________

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:

Extensive habitat data are not available. Recent observations report the following habitats in New York: meadows/fields (non-agricultural), gardens, yards, hayfields, and bramble fruits (Cornell University 2013).
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

C. trifasciata is a year-round resident.

**Species Demographics and Life History:**

Specific demographics and life history information are not available for this species. It is assumed that its life cycle follows that of most Coccinellidae. In general, egg hatch after several days, larvae go through several instars before pupating and reaching adulthood.

Non-native lady beetles are predators of C. trifasciata. In addition, non-native lady beetles are likely outcompeting C. trifasciata 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 some native species have been displaced by nonnative lady beetles (Lost Ladybug Project, 2013).
2. A decline in farming (farm/open habitat loss) has decreased some of the available suitable habitat.
3. Lady beetles appear to be sensitive pesticide use (Stephens and Losey 2003).

Note: These are general threats that may or may not apply to New York sites. However, non-native species are found throughout the state making competition a likely threat.

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

_____ No   ___x__ Unknown
_____ Yes

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

** Complete Conservation Actions table using IUCN conservation actions taxonomy at link below. Use green headings 1-7 for Action Category (e.g., Land/Water Protection) and associated subcategories for Action (e.g., Site/Area Protection). [http://www.conservationmeasures.org/initiatives/threats-actions-taxonomies/actions-taxonomy](http://www.conservationmeasures.org/initiatives/threats-actions-taxonomies/actions-taxonomy)

<table>
<thead>
<tr>
<th>Conservation Actions</th>
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<tbody>
<tr>
<td>Action Category</td>
</tr>
<tr>
<td>1 Species Management</td>
</tr>
<tr>
<td>2 Species Management</td>
</tr>
</tbody>
</table>
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.

VII. References


Date last revised: February 5, 2013