

## Species Status Assessment

**Class:** Insecta  
**Family:** Nymphalidae  
**Scientific Name:** *Phyciodes batesii batesii*  
**Common Name:** Tawny crescent

### Species synopsis:

Populations in the northeastern United States from southern Maine to northern Virginia, Quebec, and a few from eastern Ontario appeared to be *Phyciodes batesii batesii*, although five subspecies of *Phyciodes batesii* have been described across North America. *P.b. lakota* is widespread in western Canada and a few populations near Ottawa, Ontario appear to be intermediate between this subspecies and the more eastern *P.b. batesii* (Schweitzer et al. 2011). Because of its similarity to *P.b. cocyta* and *P.b. lakota*, early records from scientific literature and museum specimens are confusing and likely incorrect. There have been no verifiable reports in the U.S. since the 1970s or in Canada since the 1990s and this species is likely extinct, except for the hybrid population near Ottawa (Schweitzer et al. 2011).

Few populations in New York and Pennsylvania persisted into the 1960s and 1970s, with most specimens disappearing before 1930. All experts (NYSDEC SGCN Expert Meeting) agree that this species is extirpated in NY.

**I. Status**

**a. Current and Legal Protected Status**

- i. **Federal**      Not Listed      **Candidate?** No
- ii. **New York**      Special Concern; SGCN

**b. Natural Heritage Program Rank**

- i. **Global**      G4T1
- ii. **New York**      SH      **Tracked by NYNHP?** Yes

**Other Rank:**

None

**Status Discussion:**

Whether this subspecies is extinct or critically imperiled depends on its presence in Ontario; some populations intermediate between *P.b. batesii* and *P.b. lakota* probably still exist near Ottawa but otherwise this subspecies is likely extinct (NatureServe 2013). It was listed as a category II species (possible candidate for listing) under the Endangered Species Act until 1996, when this category was eliminated.

**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:** 1850 – present

**Severe decline**

**b. Regional**

**i. Abundance**

X declining \_\_\_ increasing \_\_\_ stable \_\_\_ unknown

**ii. Distribution:**

X declining \_\_\_ increasing \_\_\_ stable \_\_\_ unknown

Regional Unit Considered: Region 5- Northeast

Time Frame Considered: 1850- present

**Severe decline**

**c. Adjacent States and Provinces**

CONNECTICUT Not Present X No data \_\_\_\_\_

MASSACHUSETTS Not Present X No data \_\_\_\_\_

QUEBEC Not Present X No data \_\_\_\_\_

VERMONT Not Present X No data \_\_\_\_\_

NEW JERSEY Not Present \_\_\_\_\_ No data \_\_\_\_\_

**i. Abundance**

\_\_\_ declining \_\_\_ increasing \_\_\_ stable X unknown

**ii. Distribution:**

\_\_\_ declining \_\_\_ increasing \_\_\_ stable X unknown

Time frame considered: 1850 - present

Listing Status: Not Listed SGCN? No

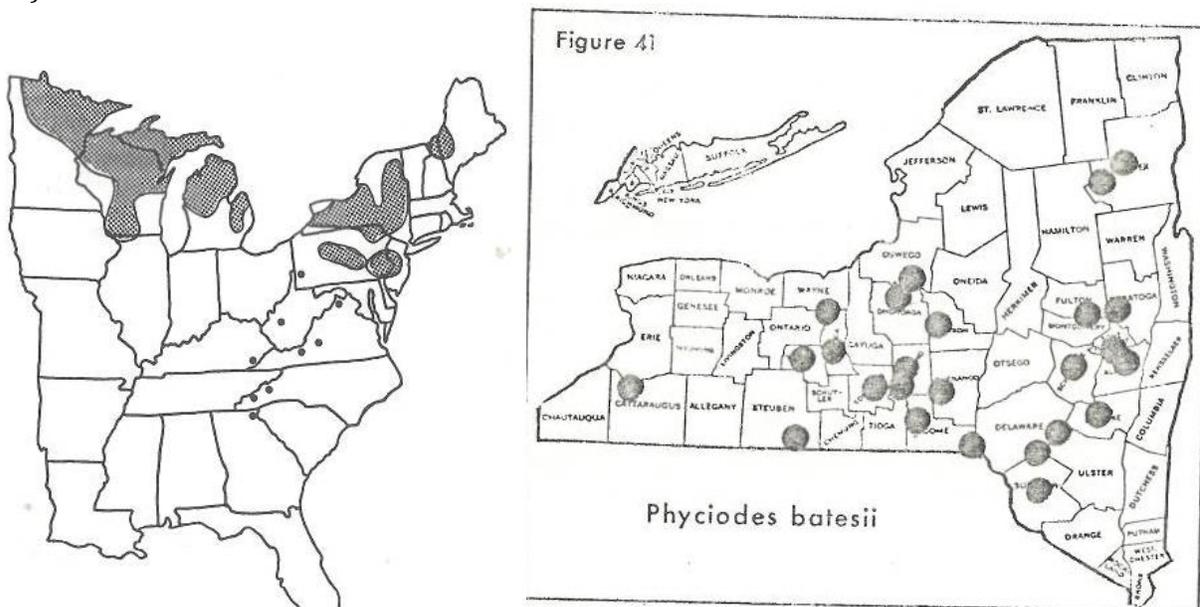


## Monitoring in New York.

Over the course of five years, 110 Lepidoptera Species of Greatest Conservation Need identified in the SWG T-17 grant are being assessed. The tawny crescent is included in this study, but has not yet been assessed (NYSDEC 2012).

## Trends Discussion:

*Phyciodes batesii batesii* was first collected in Maine during the 19<sup>th</sup> century and it historically occurred in southern Quebec, eastern Ontario, much of New York, southward through central and eastern Pennsylvania to West Virginia. The last collections in Maine, New Jersey, and West Virginia were from before 1900 and there have been no verifiable reports in the U.S. since the 1970s or in Canada since the 1990s, except for the blend zone populations near Ottawa, Ontario (Schweitzer et al. 2011). The New York Natural Heritage Program made substantial surveying efforts to check New York alvars in the 1990s, but no colonies were found (Schweitzer et al. 2011, NYNHP 2013). This species has been declining for more than 100 years with an estimated decline of 99-100% throughout the entire range (NatureServe 2013). Few populations in New York and Pennsylvania persisted into the 1960s and 1970s, with most specimens disappearing before 1930 (NatureServe 2013).



**Figure 1.** Historical distribution of *Phyciodes batesii* in North America (left) and New York (right) (Shapiro 1974, NYNHP 2013).



**Figure 2.** Known locations of *Aster undulatus*, the suggested food plant of *Phyciodes batesii* (NYNHP 2013).

**III. New York Rarity, if known:**

<b>Historic</b>	<b><u># of Animals</u></b>	<b><u># of Locations</u></b>	<b><u>% of State</u></b>
prior to 1970	_____	_____	_____
prior to 1980	_____	_____	_____
prior to 1990	_____	_____	_____

**Details of historic occurrence:**

The last confirmed population record is from Onondaga County in the early 1970s (Shapiro 1974).

<b>Current</b>	<b><u># of Animals</u></b>	<b><u># of Locations</u></b>	<b><u>% of State</u></b>
	_____	_____	_____

**Details of current occurrence:**

There are no current records.

**New York's Contribution to Species North American Range:**

**Distribution** (percent of NY where species occurs)

- 0-5%
- 6-10%
- 11-25%
- 26-50%
- >50%

**Abundance** (within NY distribution)

- abundant
- common
- fairly common
- uncommon
- rare

**NY's Contribution to North American range**

- 0-5%
- 6-10%
- 11-25%
- 26-50%
- >50%



**V. New York Species Demographics and Life History**

- Breeder in New York**
  - Summer Resident**
  - Winter Resident**
  - Anadromous**
- Non-breeder in New York**
  - Summer Resident**
  - Winter Resident**
  - Catadromous**
- Migratory only**
- Unknown**

**Species Demographics and Life History Discussion:**

The tawny crescent produces one brood late in spring, sometimes with a very small partial second in Ontario during late July, with emergence occurring progressively earlier as one proceeds southward (Shapiro 1974). Adults occur primarily in June with flight extremes recorded for New York from June 20<sup>th</sup> to July 21<sup>st</sup> (NYNHP 2013). Eggs are laid in batches under the leaves of host plants and hatch within 7 to 8 days. The first and second instar larvae live communally in webs on the host, generally entering diapauses in the third instar and completing development the following spring (NYNHP 2013). Nectar plants are not discussed in the literature. This species is not migratory, but they presumably move around within their overall community and can colonize newly created habitat (NatureServe 2013).

**VI. Threats:**

If hybrid populations of *Phyciodes batesii batesii* still exist in Ontario, overly abundant deer, prescribed burning on alvars, succession, development, and gypsy moth spraying would be among the major threats. Unburned habitat refugia is needed to protect colonies of the butterfly (Schweitzer et al. 2011). The most recent collapse in the Ottawa area and Quebec was not associated with any apparent habitat change, but did coincide with a rapid increase of the recently

adventive pearl crescent (*Phyciodes tharos*) (NatureServe 2013). The same situation may have occurred in New York but there is no real evidence of the cause of decline (NatureServe 2013). Other factors affecting Lepidoptera are invasive species, habitat fragmentation and degradation, and off-road vehicle use (NYSDEC 2005).

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

**No**     **Unknown**  
 **Yes**

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

Conservation actions following IUCN taxonomy are categorized in the table.

Conservation Actions	
Action Category	Action
Law and Policy	Policies and Regulations
Education and Awareness	Training
Education and Awareness	Awareness & Communications
Land/Water Protection	Site/Area Protection
Land/Water Protection	Resource/Habitat Protection
Land/Water Management	Site/Area Management
Land/Water Management	Invasive/Problematic Species Control
Land/Water Protection	Site/Area Protection

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for other butterflies, and for the tawny crescent in particular.

**Fact sheet:**

Develop fact sheets and other outreach material to educate the public about species at risk Lepidoptera.

**Habitat management:**

Determine best management regimes for species in each locality.

**Habitat research:**

- \_\_\_ Determine precise habitat needs of all life stages.
- \_\_\_ Ascertain food plants.
- \_\_\_ Determine the relationship between food availability and species numbers.

**Invasive species control:**

- \_\_\_ Identify species which impact negatively on butterfly populations.
- \_\_\_ Determine the best control method for those exotic species with minimal repercussions for butterfly populations.

**Life history research:**

- \_\_\_ Investigate the metapopulation dynamics of those species which appear to have distinct populations.
- \_\_\_ Establish the duration of all life stages.
- \_\_\_ Taxonomic research for related species.

**Other action:**

- \_\_\_ Determine the actual sensitivity of species to chemical formulations, particularly diflubenzuron and other commonly used agricultural pesticides.
- \_\_\_ Determine the effect of *Bacillus thuringiensis kurstaki* (BTK) used in Gypsy moth sprayings on various species.

**Population monitoring:**

- \_\_\_ Inventory of species within historical range.

**Statewide baseline survey:**

- \_\_\_ Survey all species to more adequately define the list of species that need to be addressed.

**VII. References**

NatureServe. 2013. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. Accessed: May 10th, 2013.

New York State Department of Environmental Conservation (NYSDEC). 2005. New York State Comprehensive Wildlife Conservation Strategy. <http://www.dec.ny.gov/index/html>.

New York Natural Heritage Program (NYNHP). 2013. Element Occurrence Database. New York State Department of Environmental Conservation. Albany, NY.

Shapiro, A.M. 1974. Butterflies and skippers of New York State. *Search Agriculture, Entomology (Ithaca)* 4(3): 1-60.

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