

## Species Status Assessment

**Class:** Lepidoptera  
**Family:** Hesperiiidae  
**Scientific Name:** *Erynnis persius persius*  
**Common Name:** Persius duskywing

### Species synopsis:

The Persius duskywing (*Erynnis persius*) is a species that has a coast-to-coast range in North America, with its major population in the western states and a disjunct eastern subspecies, *E. p. persius*. The nominate subspecies, *Erynnis persius persius*, of the Persius duskywing, *Erynnis persius*, occupies a spotty and disjunct range in eastern North America, from southern New England west through Ontario to Wisconsin, and south to New Jersey, possibly extending further south in the Appalachian Mountains. During the past 50 years the Persius duskywing had declines dramatically throughout its range. This subspecies is locally frequent, at best, and rare in most of its range. It is this subspecies that is the subject of this profile. The pine barrens and oak savannahs that these butterflies rely on have been destroyed and fragmented by urban and agricultural development and the butterflies have suffered from pesticide spraying, especially for gypsy moth control (Nelson 2007).

At least two subspecies should be recognized: typical *Erynnis persius persius* is the now very rare eastern United States and southern Ontario taxon of conservation concern, while more western populations can all be combined as *E. persius borealis* or further split. Miller and Brown also recognize subspecies *avinofi* and *fredericki*. The latter is widely recognized in the literature. In this database information for the Great Lakes region and eastward, including southern Ontario, should be sought under subspecies *E. p. persius* (NatureServe 2012).

### I. Status

#### a. Current and Legal Protected Status

- i. **Federal**      Not listed      **Candidate?**      No
- ii. **New York**      Endangered; SGCN

#### b. Natural Heritage Program Rank

- i. **Global**      G5T1T3

ii. New York S1 Tracked by NYNHP? Yes

**Other Rank:**

None

**Status Discussion:**

The Persius duskywing (*ssp. persius*) is in severe decline across its range and apparently extirpated in Ontario. It has Endangered status under state laws in Connecticut, Massachusetts, Minnesota, New Hampshire, New York, and Ohio and is listed as threatened in Michigan, which is probably its global stronghold. West of Pennsylvania, Persius duskywing is found mostly with, but is rarer than, the karner blue (*Lycaeides melissa samuelis*), a federally endangered butterfly.

**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:** Last 50 years,

Moderate decline

**b. Regional**

**i. Abundance**

X declining \_\_\_increasing \_\_\_stable \_\_\_unknown

**ii. Distribution:**

X declining \_\_\_increasing \_\_\_stable \_\_\_unknown

**Regional Unit Considered:** Northeast

**Time Frame Considered:** Last 50 years

Moderate decline

**c. Adjacent States and Provinces**

**CONNECTICUT**                      **Not Present** \_\_\_\_\_                      **No data** \_\_\_\_\_

**i. Abundance**

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

**ii. Distribution:**

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

Time frame considered: \_\_\_\_\_

Listing Status: \_\_\_\_\_ Endangered \_\_\_\_\_ SGCN?   Yes  

Moderate decline

**MASSACHUSETTS**                      **Not Present** \_\_\_\_\_                      **No data** \_\_\_\_\_

**i. Abundance**

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

**ii. Distribution:**

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

Time frame considered: \_\_\_\_\_

Listing Status: \_\_\_\_\_ Endangered \_\_\_\_\_ SGCN?   Yes

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

**i. Abundance**

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

**ii. Distribution:**

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

Time frame considered: \_\_\_\_\_

Listing Status: \_\_\_\_\_ Not listed- Extirpated \_\_\_\_\_ SGCN? \_\_\_\_\_

**ONTARIO**                      **Not Present** \_\_\_\_\_                      **No data** \_\_\_\_\_

**i. Abundance**

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

**ii. Distribution:**

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

Time frame considered: \_\_\_\_\_

Listing Status: \_\_\_\_\_ Not listed- Extirpated \_\_\_\_\_

**PENNSYLVANIA**                      **Not Present** \_\_\_\_\_                      **No data** \_\_\_\_\_

**i. Abundance**

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

**ii. Distribution:**

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

Time frame considered: \_\_\_\_\_

Listing Status: \_\_\_\_\_ Not listed \_\_\_\_\_ SGCN? \_\_\_\_\_

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

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

**d. NEW YORK**

No data \_\_\_\_\_

**i. Abundance**

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

**ii. Distribution:**

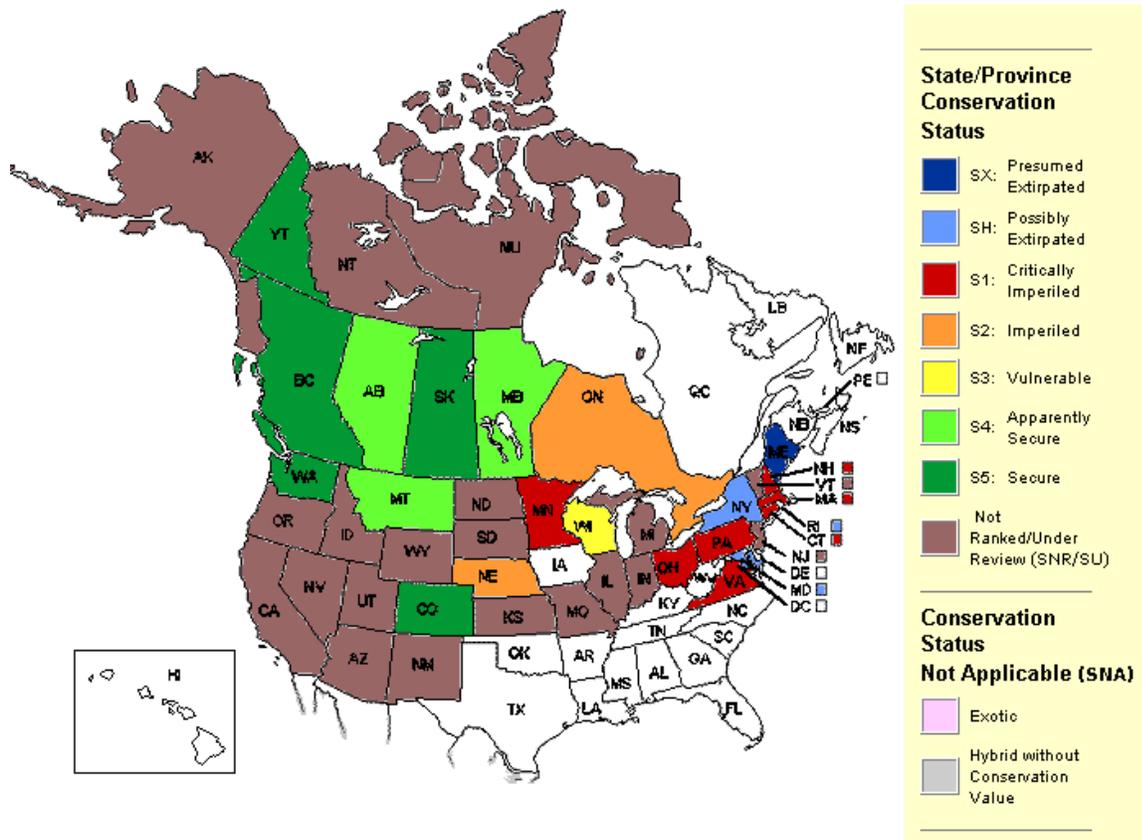
\_\_\_ declining \_\_\_ increasing \_\_\_ stable \_\_\_ X unknown

Time frame considered: \_\_\_\_\_

**Monitoring in New York.**

None

**Trends Discussion** (attach map of North American/regional and New York distribution):



**Figure 1.** Conservation status of the persius duskywing in North America (NatureServe 2012). Map is of *Erynnis persius* ; none available for *Erynnis persius persius* .



**Figure 2.** Known distribution of persius duskywing in New York (New York Nature Explorer).

**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>
<b>prior to 1970</b>	_____	<u>3 counties</u>	<u>10%</u>
<b>prior to 1980</b>	_____	<u>3 counties</u>	<u>5%</u>
<b>prior to 1990</b>	_____	_____	_____

**Details of historic occurrence:**

Yates County – 1918; Albany County – 1963; Suffolk County – 1966; Erie County – 1970; Genesee County – 1970; Niagara County – 1970.

<b>Current</b>	<b><u># of Animals</u></b>	<b><u># of Locations</u></b>	<b><u>% of State</u></b>
	_____	<u>1 county</u>	<u>&lt;5%</u>

**Details of current occurrence:**

Saratoga County – 2001

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

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

  X   0-5%  
 \_\_\_\_\_ 6-10%  
 \_\_\_\_\_ 11-25%  
 \_\_\_\_\_ 26-50%  
 \_\_\_\_\_ >50%

**Abundance** (within NY distribution)

\_\_\_\_\_ abundant  
 \_\_\_\_\_ common  
 \_\_\_\_\_ fairly common  
 \_\_\_\_\_ uncommon  
  X   rare

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

\_\_\_\_\_ 0-5%  
  X   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:**

There is one flight season from April to June. In hilly areas, males will perch on hilltops, usually sitting on twigs or on the ground, to find females. The eggs are laid singly on the underside of hostplant leaves. Caterpillars may hatch as late as July. They feed on leaves and live in shelters made by rolling or tying leaves together. They hibernate as fully grown caterpillars in leaf shelters (Shepherd 2005).

**VI. Threats:**

Much of its original savanna or barrens habitat has been destroyed by development or degraded by succession. Fragmentation of the landscape from larger suitable habitats to smaller, sometimes isolated, habitats is also implicated in its decline (Shepherd 2005).

The use of pesticides for gypsy moth suppression is implicated in the decline of *Persius duskywing* in New England. Records indicate that the butterfly was significantly less rare from the 1800s to the

1940s than from the 1950s—when massive DDT spraying was done to control the moth—onwards. The use of Btk has reduced the overall impact of gypsy moth control but still threatens populations of *Persius duskywing*, especially when they occupy forest-edge habitats (Shepherd 2005).

Given the reliance of *Persius duskywing* on wild lupine for larval survival, it is also worth noting the status of this plant. *Lupinus perennis* is on the endangered and threatened species lists for several states in which *Persius duskywing* is recorded: Iowa, Maine, New Hampshire, Pennsylvania, and Vermont. New Hampshire includes both the lupine and the butterfly on their state lists (Shepherd 2005).

*Persius duskywing* was classified as “moderately vulnerable” to predicted climate change in an assessment of vulnerability conducted by the New York Natural Heritage Program. Its abundance and/or range extent within geographical area assessed likely to decrease by 2050 (Schlesinger et al. 2011).

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

No       Unknown

Yes

The *Persius duskywing* is listed as an endangered species in New York and is protected by Environmental Conservation Law (ECL) section 11-0535 and the New York Code of Rules and Regulations (6 NYCRR Part 182). A permit is required for any proposed project that may result in a take of a species listed as Threatened or Endangered, including, but not limited to, actions that may kill or harm individual animals or result in the adverse modification, degradation or destruction of habitat occupied by the listed species.

While legislation protects the species, provisions for the protection and management of habitat are incomplete.

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

Populations are often small and local and generally need conservation attention. Populations should be monitored and conserved. As with many butterflies, protection and management of their habitat to ensure the presence of hostplant populations is the primary need. The successional nature of the habitat means that appropriate vegetation management is important due to the impact from actions such as overgrazing or badly timed prescribed fire. Habitat should be managed by mechanical disturbance or infrequent burns to maintain populations of the hostplants; poorly managed burns can damage duskywing populations (Shepherd 2005).

Gypsy moth suppression programs must consider the impacts on *Persius duskywing* populations (Shepherd 2005).

Where the karner blue also exists (from New York to Wisconsin), many habitat areas are receiving management or protection. Ironically, the federally listed karner blue may now be more abundant than the non-listed Persius duskywing in this region (Shepherd 2005).

Surveys for unidentified populations in all states where it is recorded would be useful and, in particular, surveys in those states and provinces from where it is extirpated should be done. Research into the impacts of habitat management, especially the use of fire, is a priority (Shepherd 2005).

Conservation actions following IUCN taxonomy are categorized in the table below.

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 persius duskywing 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**

Nelson, M.W. 2007. Massachusetts rare species fact sheets. Massachusetts Division of Fisheries & Wildlife, Westborough, MA.  
<[http://www.mass.gov/dfwele/dfw/nhesp/species\\_info/fact\\_sheets.htm](http://www.mass.gov/dfwele/dfw/nhesp/species_info/fact_sheets.htm)>. Accessed 7 December 2012.

New York State Department of Environmental Conservation. 2009. New York Nature Explorer.  
<<http://www.dec.ny.gov/natureexplorer/app/>>. Accessed 7 December 2012.

Schlesinger, M.D., J.D. Corser, K.A. Perkins, and E.L. White. 2011. Vulnerability of at-risk species to climate change in New York. New York Natural Heritage Program, Albany, NY.

Shepherd, M. D. 2005. Species Profile: *Erynnis persius persius*. In Shepherd, M. D., D. M. Vaughan, and S. H. Black (Eds). Red List of Pollinator Insects of North America. CD-ROM Version 1 (May 2005). Portland, OR: The Xerces Society for Invertebrate Conservation.

**Date last revised:**                    11 February 2014