Species Status Assessment

Common Name: A hand-maid moth **Date Updated:** March 2025

Scientific Name: *Datana ranaeceps* **Minor Edits By:** NYSDEC Wildlife Section

Class: Insecta

Family: Notodontidae

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

This moth is primarily a species of coastal plain pinelands of Long Island, New York, southern New Jersey and southeastern Virginia southward to Florida, but Forbes (1948) also reports it from Arkansas and the Delaware Water Gap, Pennsylvania. In New York this species is currently found in one location, on Long Island, in open mesic or less often xeric pinelands especially for the first few years after wildfires (Wagner 2005, Schweitzer et al. 2011, NYNHP 2013, NYNHP 2013a). Although the population on Long Island seems stable (NYNHP 2013), this species is undergoing a long-term decline throughout most of its range (Wagner 2005).

This species is currently found in one location on Long Island (NYSDEC SGCN Experts Meeting).

DEC is not aware of any additional data or new information on population trends or threats to this species since the last SWAP revision in 2015 to indicate a need for change in SGCN status

I. Status

a. Current legal protected Status

i. **Federal:** Not listed **Candidate:** No

ii. **New York:** Not listed; SGCN

b. Natural Heritage Program

i. **Global:** G3G4

ii. **New York:** S1S3 **Tracked by NYNHP?:** Yes

Other Ranks:

Status Discussion:

This species is considered rare, mainly because of its limited and spotty distribution (NatureServe 2012).

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Declining	Declining	1983-2013		Choose
Northeastern US	Yes	Stable	Stable	1983-2013		Choose
New York	Yes	Declining	Declining			Yes
Connecticut	No	-	-			Choose
Massachusetts	No	-	-			Choose
New Jersey	Yes	Stable	Stable			Choose
Pennsylvania	Yes	Unknown	Unknown			Choose
Vermont	No	-	-			Choose
Ontario	No	-	-			Choose
Quebec	No	-	-			Choose

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):*

Intermittent surveys have been conducted in pine barren communities of Long Island.

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

This species is localized with a naturally disjunct range, but is not threatened in New Jersey or North Carolina (Schweitzer et al. 2011, NatureServe 2012, NYNHP 2013a). The New Jersey pine barrens seem to be the stronghold for this species (Schweitzer et al. 2011, NatureServe 2012). Virginia and Pennsylvania have only one known population each. In Virginia, a single specimen was found in the mountains of Montgomery County and in Pennsylvania, a specimen was recorded in Fort Indiantown Gap (Schweitzer et al 2011).

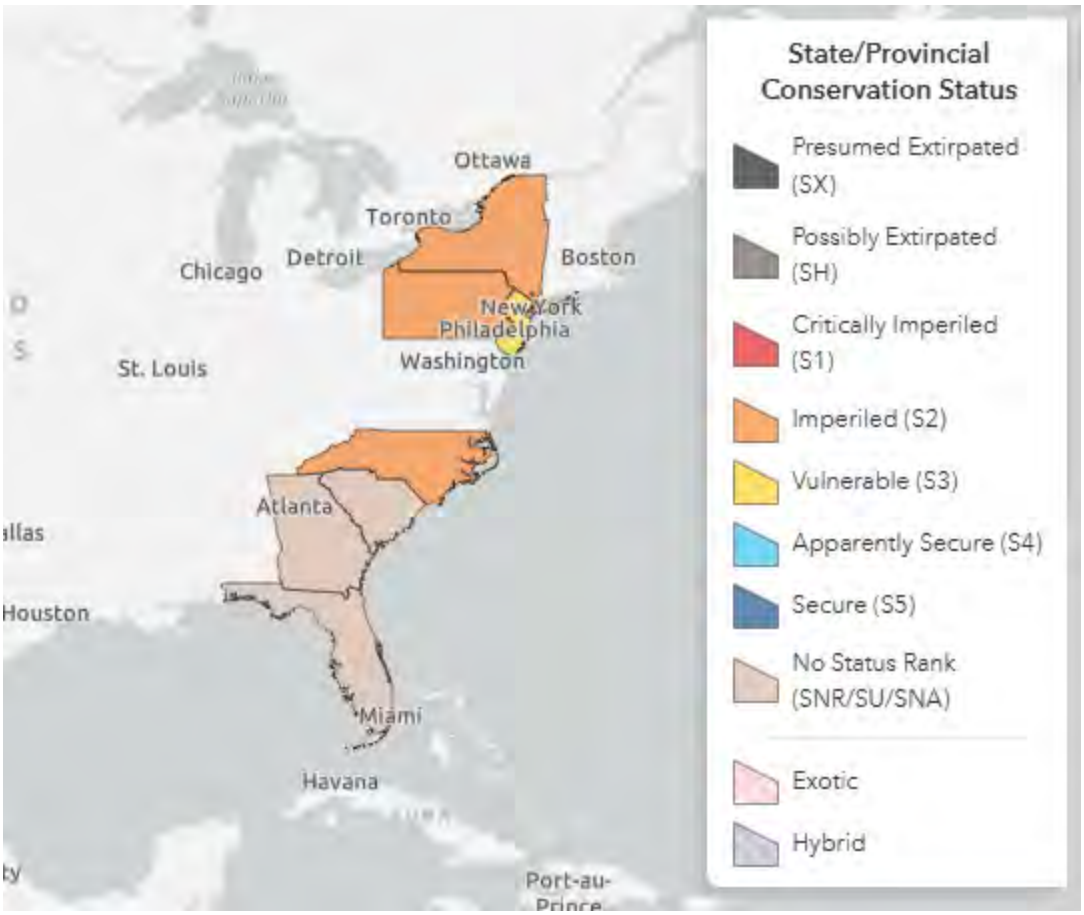

Figure 1. Conservation status of *Datana ranaeceps* in North America (Natureserve 2025).

III. New York Rarity *(provide map, numbers, and percent of state occupied*

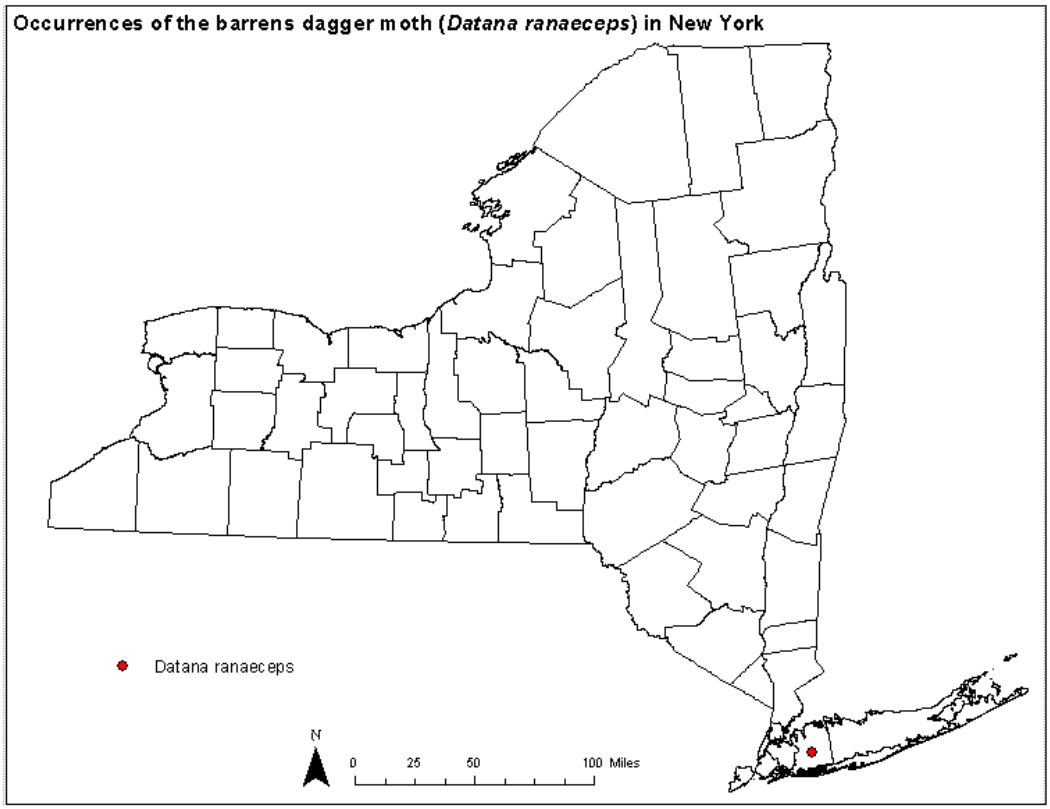

Figure 2. Occurrences of the barrens dagger moth (*Datana ranaeceps*) in New York (NYNHP 2013b).

Details of historic and current occurrence:

There is a record of an occurrence of this species at Bear Mountain, Orange County from well before 1950 (NYNHP 2013b). In 1989, ten larvae were seen on a foodplant during a survey at Mitchel Field, in the Town of Hempstead, Nassau County (NYNHP 2013b).

In 1991, 66 larvae were seen in Mitchel Field site in Nassau County (NYNHP 2013b).

New York's Contribution to Species North American Range:

Percent of North American Range in NY	Classification of NY Range	Distance to core population, if not in NY
0%	Peripheral	

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):*

a. Pine barrens

Habitat or Community Type Trend in New York

Habitat Specialist?	Indicator Species?	Pollinator Species?	Habitat/ Community Trend	Time frame of Decline/Increase
Yes	No	-	Stable	

Column options
Habitat Specialist, Indicator Species and Pollinator 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 occurs in mesic to xeric open pinelands with an abundance of the foodplant. It can also be found in mowed rights-of-way through pine barrens (Schweitzer et al 2011).

V. Species Demographic, and Life History:

Breeder in NY?	Non-breeder in NY?	Migratory Only?	Summer Resident?	Winter Resident?	Anadromous/ Catadromous?
Yes	-	-	Yes	Yes	-

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):*

Adults normally occur in May into July, with a second brood during early August (Schweitzer et al. 2011). Eggs are laid in masses on the underside of the foodplant (Staggerbush, *Lyonia mariana*) (Schweitzer et al. 2011). The larval stage lasts about a month before caterpillars burrow deeply into the soil to pupate (Schweitzer et al. 2011, NatureServe 2012). Larvae are particularly abundant after fire (Schweitzer et al. 2011, NatureServe 2012, NYNHP 2013a). Pupae overwinter, sometimes for two years (Schweitzer et al. 2011).

VI. Threats *(from NY 2015 SWAP or newly described):*

Destruction and fragmentation of habitat by development are threats to this species. It requires frequent fires or mowing to persist in its coastal plain habitats (NYNHP 2013a). Fire suppression and natural succession decrease the amount of suitable habitat for this species (Schweitzer et al. 2011, NYNHP 2013a). Forestry practices that result in closed canopy pine stands or destruction of understory would severely impact the species (Schweitzer et al. 2011, NYNHP 2013a). Application of the insecticide Dimilin for gypsy moth would cause very high mortality of larvae for the rest of the season (Schweitzer

et al. 2011, NatureServe 2012, NYNHP 2013a). There are broad scale studies showing artificial lighting to be a partial cause in changes in moth behavior and predation rates, which could affect population levels (Frank 2006). Dirt bike use may also threaten this species (Schweitzer et al. 2011, NYNHP 2013a). General threats known to affect moths include habitat loss and degradation caused by development; habitat fragmentation; alteration of natural fire regimes; natural succession of shrubland, woodland, and barrens habitats; land clearing; coastal erosion; and sea level rise. Introduced parasitoid flies have been known to affect native Lepidoptera (Boettner et al. 2000).

Threat Level 1	Threat Level 2	Threat Level 3	Spatial Extent	Severity	Immediacy	Trend	Certainty
1. Residential and Commercial	1.1 Housing & Urban Areas	(habitat loss/ degradation)	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.
7. Natural System Modifications	7.3 Other Ecosystem Modifications	7.3.2 Vegetation succession	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	8.1.1 Terrestrial animals (parasitoid flies)	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.

Table 2. Threats to *Datana ranaeceps.*

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

Yes: _____ **No:** ✓ **Unknown:** _____

If yes, describe mechanism and whether adequate to protect species/habitat:

The known population of *Datana ranaeceps* in Mitchel Field, Nassau County, is within an federal military airbase and is protected from residential and commercial development.

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

Properly timed prescribed burns or pesticide application should reduce threats to this species. Restricting forestry practices to areas that are heavily vegetated by pine should also help. Reducing dirt bike use will prevent degradation of suitable habitat.

Action Category	Action	Description
A.1 Direct Habitat Management	A.1.0.0.0 Direct Habitat Management	Site Management
A.2 Direct Species Management	A.2.0.0.0 Direct Species Management	Invasive/problematic species control
B.3 Outreach	B.3.0.0.0 Outreach	Awareness and Communications
C.6 Design and Plan Conservation	C.6.0.0.0 Design and Plan Conservation	Site/Area Protection
C.6 Design and Plan Conservation	C.6.0.0.0 Design and Plan Conservation	Resource/Habitat Protection
C.7 Legislative and Regulatory Framework or Tools	C.7.0.0.0 Legislative and Regulatory Framework or Tools	Policies and Regulations

Table 3. Recommended conservation actions for *Datana ranaeceps* .

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for other moths, and for*Datana ranaeceps* in particular.

Easement acquisition:

____ Where appropriate, acquire easements to promote moth protection and conservation.

Fact sheet:

____ Create fact sheets covering moths.

Habitat management:

____ Determine best management regime for moth species, including fire and other forms of management.

Habitat monitoring:

____ Develop standardized measures of habitat parameters for each species of listed moth.

____ Investigate threats to food and host plants.

____ Monitor land development projects.

Habitat research:

____ Examine role of light pollution as threat to moths.

____ Determine host/ food plant.

Life history research:

____ Investigate the metapopulation dynamics of those species which warrant it.

____ Examine role of introduced parasites and predators in threats to moths.

Other action:

____ Develop standard definition of what is needed for "viable" populations of moths.

____ Research the role of pesticide use in threats to moths.

Population monitoring:

____ Inventory of species within historical range.

____ Develop standardized survey protocols for moths.

Private fee acquisition:

____ Where appropriate, encourage/assist private entities to acquire land for moth protection and conservation.

State fee acquisition:

____ Where appropriate, acquire land essential to moth protection and conservation.

State land unit management plan:

____ Incorporate needs of moths into state land management plans.

VII. References

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Originally prepared by	Jim Katz
Date first prepared	March 26, 2013
First revision	Samantha Hoff (February 10, 2014)
Last revision	Transcribed from 2015 version (March, 2025)