

CANDIDATE ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: *Nartheceium americanum*

COMMON NAME: Bog asphodel

LEAD REGION: Region 5

INFORMATION CURRENT AS OF: March 2003

STATUS/ACTION (Check all that apply):

New candidate

Continuing candidate

Non-petitioned

Petitioned - Date petition received: ____

90-day positive - FR date: ____

12-month warranted but precluded - FR date: ____

Is the petition requesting a reclassification of a listed species?

Listing priority change

Former LP: ____

New LP: ____

Latest date species first became a Candidate: _____

Candidate removal: Former LP: ____ (Check only one reason)

A - Taxon more abundant or widespread than previously believed or not subject to a degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.

F - Range is no longer a U.S. territory.

M - Taxon mistakenly included in past notice of review.

N - Taxon may not meet the Acts definition of "species."

X - Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Plant, Liliaceae

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: NJ, NY, DE, NC, SC

CURRENT STATES/COUNTIES/TERRITORIES/COUNTRIES OF OCCURRENCE: NJ

LEAD REGION CONTACT: Diane Lynch, 413-253-8628

LEAD FIELD OFFICE CONTACT: New Jersey Field Office, Annette Scherer, 609-646-9310

BIOLOGICAL INFORMATION (Describe habitat, historic vs. current range, historic vs. current population estimates (# populations, # individuals/population), etc.):

The bog asphodel is found in savannah areas, usually with water moving through the substrate, as well as sandy bogs along streams and rivers (Stone, 1911; Fernald, 1950; Radford et al., 1968; Schuyler, 1990; Gleason and Cronquist, 1991). In the New Jersey Pinelands, savannahs are

found adjacent to rivers and creeks, often separated by a wooded levee and bordered by an Atlantic white-cedar (*Chamaecyparis thyoides*) swamp. Micro-habitats include open bogs surrounded by Atlantic white-cedar, lowlands near sharp river bends and oxbow meanders, Sphagnum bogs, iron ore streamlet seeps, small mat hummocks, quaking bogs, mud flats, sunny borders with Atlantic white-cedar swamps, and transitional areas (ecotones) (Radis, 1993; Dodds, 1996; Dodds and Goodwin, 1997). This plant is intolerant of full-shade, and is vulnerable to alterations or succession of its habitat. The growth of woody vegetation in savannah communities occupied by bog asphodel is most likely suppressed by substrates of iron ore deposits and by intermittent flooding from adjacent rivers and creeks (Cartica, 1999).

Now extant only within the Pine Barrens region of New Jersey, the historic range of bog asphodel included New York, New Jersey, Delaware, North Carolina, and South Carolina. The New Jersey Natural Heritage Database currently contains records for 66 occurrences (43 extant, 23 historical) of bog asphodel.

THREATS (Describe threats in terms of the five factors in section 4 of the ESA providing specific, substantive information. If this is a removal of a species from candidate status or a change in listing priority, explain reasons for change):

A. The present or threatened destruction, modification, or curtailment of its habitat or range.

As an obligate wetland species, *N. americanum* is threatened by changes in hydrology, loss of habitat due to filling or draining of wetlands, flooding as a result of reservoir construction, and conversion of natural wetlands to commercial cranberry bogs.

B. Overutilization for commercial, recreational, scientific, or educational purposes.

Several easily accessible *N. americanum* sites known to be popular with botanists have experienced severe declines from over-collection. Additionally, recreationists picking wildflowers are drawn to the attractive flowers and seedpods of *N. americanum*, leading to declines in areas visible from trails, roadways, and streams.

C. Disease or predation.

Deer and geese are known to occasionally crop some of the flowering culms. These instances cannot be considered major threats to bog asphodel, although they have been reported occasionally. Deer use bog asphodel habitat quite extensively. Seed predation by long-horned grasshoppers has been documented, although little is known about the frequency and intensity of this predation on bog asphodel capsules. No other diseases or predators are known to adversely affect bog asphodel populations.

D. The inadequacy of existing regulatory mechanisms.

Existing regulations provide limited protection from habitat loss and degradation. New Jersey's Endangered Plant Species List Act (NJAC 7:5C) lists *N. americanum* as endangered, but does not provide regulatory protection from collection or habitat loss. The Pinelands Protection Act (NJSA 13:18-1 et. seq.) exempts some cranberry agricultural practices that present a major threat to *N. americanum* habitat.

E. Other natural or manmade factors affecting its continued existence.

Succession and beaver-induced flooding of *N. americanum* habitat are natural threats to the species. Conversely, beaver have been providing hydrological support for bog asphodel habitat at one site on the Batsto River and one site on the Oswego River. Suppression of natural wildfires that would retard succession or create open wetland savannahs may be a factor in the decline of the species. Other factors adversely affecting *N. americanum* include trampling and erosion caused by recreationists on foot or using off-road vehicles.

FOR RECYCLED PETITIONS: N/A

- a. Is listing still warranted? ___
- b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? ___
- c. Is a proposal to list the species as threatened or endangered in preparation? ___
- d. If the answer to c. above is no, provide an explanation of why the action is still precluded.

LAND OWNERSHIP (Estimate proportion Federal/state/local government/private, identify non-private owners): Of the 53 known extant populations of bog asphodel, 37 occur on State-owned lands, 2 occur on federally owned lands, and 14 occur on private lands.

PRELISTING (Describe status of conservation agreements or other conservation activities):

A Candidate Conservation Agreement was signed in November 2002 that covers 33 bog asphodel sites occurring within Wharton State Forest, New Jersey. This conservation agreement will provide guidance to New Jersey Department of Parks and Forestry land managers to ensure the conservation, protection, and survival of bog asphodel within Wharton State Forest.

With the Service's support, New Jersey Department of Parks and Forestry produced a comprehensive series of publications on population surveys for bog asphodel, namely Windish (1993) for West Branch Wading River and Oswego River corridors; Hill (1993) for Wharton and Lebanon State Forests; Radis (1993) for the Batsto River corridor, Wharton State Forest; and Gordon (1996) for Atlantic and Burlington Counties. Schuyler (1995) surveyed historical and known bog asphodel populations on private lands. In these publications, population numbers are estimated as number of vegetative and flowering plants (individuals are virtually impossible to count for plant species that are rhizomatous but, for the purpose of this agreement, discrete above ground portions of the bog asphodel will be called individuals). Moreover, New Jersey Department of Parks and Forestry produced the confidential Handbook of *Narthecium americanum* Populations on State Owned and Managed Lands, summarizing site-specific survey results, potential threats, and preliminary management recommendations (Cartica, 1995).

Also with the Service's support, New Jersey Department of Parks and Forestry published the results of an investigation on hydrology and succession at ten sites populated with bog asphodel (Dodds, 1996) and revised the boundary of Batsto Natural Area within Wharton State Forest,

incorporating 35 percent of bog asphodel's global occurrences into the new boundary and providing bog asphodel with the most protective designation available for State-owned conservation lands (Cartica, 1996). Plans for active management of bog asphodel, as well as conservation plans and enhancement measures for bog asphodel populations on State-owned lands were prepared by Dodds (1997a; 1997b), Dodds and Cartica (1997), and Dodds and Goodwin (1997). More recently, de novo surveys were initiated implementing GIS technology to locate potential habitat for bog asphodel in areas that had not been surveyed in the past (Breden et al., 1998). The surveys resulted in the discovery of a new bog asphodel population comprising a few thousand individuals.

REFERENCES

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- Cartica, R.J. 1995. Handbook of *Narthecium americanum* populations on State-owned and managed lands, New Jersey. Confidential report. New Jersey Department of Environmental Protection, Division of Parks and Forestry, Office of Natural Lands Management, Trenton, New Jersey. 70 pp.
- _____. 1996. Boundary revision of the Batsto Natural Area, New Jersey, to encompass priority populations of *Narthecium americanum*. New Jersey Department of Environmental Protection, Division of Parks and Forestry, Office of Natural Lands Management, Trenton, New Jersey. 13 pp. + Appendices
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- _____. 1997b. Proposed management for the preservation of two *Narthecium americanum* populations in Wharton State Forest, New Jersey. Confidential report. New Jersey Department of Environmental Protection, Division of Parks and Forestry, Office of Natural Lands Management, Trenton, New Jersey. 26 pp. + Appendices
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River and Oswego River corridors in New Jersey. Report prepared for the New Jersey Department of Environmental Protection, Division of Parks and Forestry, Office of Natural Lands Management, Trenton, New Jersey. 7 pp.

LISTING PRIORITY (* after number)

THREAT

Magnitude	Immediacy	Taxonomy	Priority
High	Imminent	Monotypic genus	1
		Species	2
		Subspecies/population	3
	Non-imminent	Monotypic genus	4
		Species	5
		Subspecies/population	6
Moderate to Low	Imminent	Monotypic genus	7
		Species	8 *
		Subspecies/population	9
	Non-imminent	Monotypic genus	10
		Species	11
		Subspecies/population	12

Rationale for listing priority number:

Magnitude:

Imminence:

APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes to the candidate list, including listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all additions of species to the candidate list, removal of candidates, and listing priority changes.

Approve: Mamie Parker March 24, 2003
Regional Director, Fish and Wildlife Service Date

Concur: _____
Director, Fish and Wildlife Service Date

Do not concur: _____
Director, Fish and Wildlife Service Date

Director's Remarks: _____

Date of annual review: February 24, 2003

Conducted by: Annette Scherer, USFWS, NJFO

Comments: _____
