

## Proposed Designation of the Bennett Bogs Preserve to the Natural Areas System



### Summary and Staff Recommendation October 29, 2019

The Division of Parks and Forestry, Office of Natural Lands Management (ONLM) proposes to designate the New Jersey Natural Lands Trust's (Trust) 31-acre Bennett Bogs Preserve in Lower Township, Cape May County to the Natural Areas System in order to protect and manage rare coastal plain intermittent pond ecological community habitat which includes occurrences of cypress-swamp sedge (*Carex jorii*), black-fruit spike rush (*Eleocharis melanocarpa*), wrinkled jointgrass (*Coelorachis rugosa*), rare-flower beaked-rush (*Rhynchospora rariflora*), coast flat sedge (*Cyperus polystachyos var. texensis*), Virginia thistle (*Cirsium virginianum*), snowy orchid (*Platanthera nivea*), Barton's St. John's wort (*Hypericum adpressum*), thread-leaf beaked-rush (*Rhynchospora filifolia*), hairy primrose-willow (*Ludwigia hirtella*), and smooth orange milkweed (*Asclepias lanceolata*), as well as many other rare plant and animal species.

To qualify for designation to the Natural Areas System, a site must be listed on the Register of Natural Areas and wholly or partially owned in fee or held as a conservation easement by the State (N.J.A.C. 7:5A-1.6(a)). On September 5, 2019, the Commissioner of the NJ Department of Environmental Protection (NJDEP) listed the Bennett Bogs Preserve, wholly owned by the Trust

in fee, on the *Register of Natural Areas* pursuant to N.J.A.C. 7:5A-1.4(d). In order to be listed on the Natural Areas Register the site must include rare species habitat or at least one ecological community, as defined at N.J.A.C. 7:5A-1.3. As noted above, the Bennett Bogs Preserve includes habitat for a significant number of rare plant species as well as a significant ecological community. Pursuant to N.J.A.C. 7:5A-1.3, "Rare species habitat" means habitat for any plant and/or animal species listed, proposed or of candidate status by the Federal government as endangered or threatened throughout the United States pursuant to the Endangered Species Act of 1973, 16 U.S.C. §§ 1531 et seq., and its implementing regulations, 50 CFR §§ 17.11 and 17.12; any plant species listed as endangered or as a species of concern pursuant to N.J.S.A. 13:1B-15.151 et seq. and its implementing rules, N.J.A.C. 7:5C; any animal species listed as endangered, threatened or as a priority wildlife species pursuant to N.J.S.A. 23:2A-1 et seq. and its implementing rules, N.J.A.C. 7:25-4; and any rare plant and/or animal species and/or ecological community recorded in the Natural Heritage Database. "Ecological community" means an interacting assemblage of plants, animals and other organisms, their physical environment and the natural processes that affect them.

Pursuant to N.J.A.C. 7:5A-1.6(b), the ONLM has undertaken a designation study of the Bennett Bogs Register Site to assess the appropriateness of the designation all or a portion of it to the Natural Areas System. The enclosed Designation Study recommends that the entire Bennett Bogs Register Site be designated to the Natural Areas System.

### **Staff Recommendation**

The ONLM recommends that the Council approve this designation to the Natural Areas System as proposed. The recommendation of the Natural Areas Council will be submitted to the NJDEP Commissioner for decision.

# Designation Study and Recommendation for Inclusion of the Bennett Bogs Preserve in the Natural Areas System

October 29, 2019

**Name of Site:** Bennett Bogs Natural Area

**Name of Natural Areas Register Site:** Bennett Bogs

**Percentage of Register Site:** 100%

**Acreage:** 31 acres

**Location:** Lower Township, Cape May County

## I. MANAGEMENT OBJECTIVE

Preservation of a rare coastal plain intermittent pond ecological community which provides habitat for numerous rare plant and animal species.

## II. EVALUATION OF SIGNIFICANCE AND PROTECTABILITY

### A. Quality – overall quality of the site including:

#### 1. Inherent ability to perpetuate features of concern:

The palustrine intermittent ponds of the coastal plain are dominated by herbaceous vegetation. Populations of rare plant and animal species are often found in coastal plain intermittent ponds. Perpetuating the ponds is currently not a concern but in order to perpetuate the rare species habitat, it will be necessary to prevent woody vegetative succession within the ponds by mowing, brush hogging, selective tree thinning as well as selective herbiciding and prescribed burning. There may also be a need to control offsite stormwater drainage through ditching or plugging.

#### 2. Size of site sufficient to perpetuate features of concern:

The 31-acre proposed natural area provides immediate protection to the coastal plain intermittent ponds of concern in addition to buffers and watershed protection. However, the size of the natural area may still not be sufficient to perpetuate all the features of concern, due to potential hydrologic and water quality impacts from existing and future residential development.

3. Size of populations sufficient to assure perpetuation of biotic features:

Since very little research and study has been conducted on the many rare plant species documented in this preserve, little is known about their life history and population biology. However, annual monitoring of the rare plant and animal species that occur within the rare coastal plain intermittent ponds by staff of the New Jersey Natural Heritage Program indicates that the species' populations appear to be of sufficient size to be self-perpetuating. Periodic monitoring and management will be needed to assure their long-term survival, including management to prevent woody succession or invasive plant encroachment.

4. Integrity of site sufficient to illustrate features of concern:

The integrity of the coastal plain intermittent ponds and rare species habitats are currently sufficient to illustrate these features of concern, since the conditions to support the natural communities and rare species, including the natural hydrologic processes characteristic of these coastal plain intermittent ponds, continue to be present on site. Threats to the survival of endangered plant species include changes in hydrology due to local and regional well water withdrawal, climate change influence in precipitation patterns, coastal plain salt intrusion in groundwater, invasive species encroachment, and disturbance from off-road vehicles. At this location, off-road vehicles and hydrological changes are currently less of a threat than the other listed threats. The New Jersey Natural Lands Trust (Trust), owner of the Bennett Bogs Preserve, is committed to maintaining a relatively open canopy and addressing invasive species.

B. Diversity – significant diversity of biotic features and number of plant and/or animal species per community:

Bennett Bogs Preserve is considered one of the most botanically diverse sites in New Jersey and includes several plant species which occur nowhere else in the state. This botanical diversity occurs within an ecological community that is itself critically imperiled. The globally critically imperiled (G1) rare type of seasonally flooded, coastal plain intermittent pond depression wetland (Cape May – Delmarva Depression Meadow) (Table 1) at Bennett Bogs occurs only at two sites in southern New Jersey and Delaware. The substrate is sandy loam over sandy clay loam. The vegetation is diverse, with *Cladium mariscoides* (smooth sawgrass) arguably the most characteristic species. Herbaceous associates may include *Dichanthelium spretum* (= *Panicum spretum*) (Eaton's rosette grass), *Coelorachis rugosa* (wrinkled jointgrass), *Boltonia asteroides* (false aster), *Eryngium aquaticum* (marsh rattlesnake-master), *Rhexia virginica* (Virginia meadow-beauty), *Fimbristylis autumnalis* (slender fimbry), *Scleria reticularis* (netted nutrush), *Sclerolepis uniflora* (bog buttons), and others.

Table 1: Community classification for ecological community in the proposed Bennett Bogs Natural Area including state scientific and common names, National Vegetation Classification, and preliminary ranks from NatureServe/NJ Natural Heritage Program for global (G) and state (S) ranks from Breden et al. (2001) and NatureServe (2019):

*Cladium mariscoides* - *Coelorachis rugosa* Herbaceous Vegetation  
 Translated Name: Twig-rush - Wrinkled Jointgrass Herbaceous Vegetation  
 Common Name: Cape May - Delmarva Depression Meadow  
 Unique Identifier: [CEGL006332](#)

**Global Status: G1** - Critically Imperiled  
**NJ State Status: S1** – Critically Imperiled

**Reason:** This coastal plain pond community is restricted to a small subset of seasonally flooded basins of southern New Jersey and Delaware. Only three occurrences are known, and one is threatened by altered hydrology caused by an adjacent gravel pit.

The New Jersey Natural Heritage Database and the New Jersey Landscape Project contain documented records for numerous rare plant and animal species in the Bennett Bogs Preserve (Table 2). Based on the locational precision of the record and the observation date, all of these species are believed to be extant in the proposed natural area.

Table 2: Rare plants and animals documented within the proposed Bennett Bogs Natural Area:

Scientific Name	Common Name	Status
<i>Eleocharis quadrangulata</i>	Angled Spike-rush	SC
<i>Hypericum adpressum</i>	Barton's St. John's-wort	SE
<i>Isoetes melanopoda</i>	Black-base Quillwort	SE
<i>Eleocharis melanocarpa</i>	Black-fruit Spike-rush	SE
<i>Sclerolepis uniflora</i>	Bog Buttons	SC
<i>Panicum aciculare</i>	Bristling Panic Grass	SE
<i>Eleocharis brittonii</i>	Britton's Spike-rush	SE
<i>Lobelia canbyi</i>	Canby's Lobelia	SC
<i>Rhynchospora glomerata</i> var. <i>glomerata</i>	Clustered Beaked-rush	SE
<i>Cyperus polystachyos</i> var. <i>texensis</i>	Coast Flat Sedge	SE
<i>Paspalum floridanum</i>	Florida Crown Grass	SC
<i>Spiranthes odorata</i>	Fragrant Ladies'-tresses	SC
<i>Gratiola Pilosa</i>	Hairy Hedge Hyssop	SC
<i>Ludwigia hirtella</i>	Hairy Primrose-willow	SC
<i>Utricularia gibba</i>	Humped Bladderwort	SC
<i>Spiranthes laciniata</i>	Lace-lip Ladies'-tresses	SE
<i>Panicum hemitomon</i>	Maiden-cane	SC

<i>Eryngium aquaticum</i>	Marsh Rattlesnake-master	SC
<i>Gentiana autumnalis</i>	Pine Barren Gentian	SC
<i>Muhlenbergia torreyana</i>	Pine Barren Smoke Grass	SC
<i>Pinus serotina</i>	Pond Pine	SC
<i>Rhynchospora rariflora</i>	Rare-flower Beaked-rush	SE
<i>Xyris jupicai</i>	Richard's Yellow-eyed-grass	SC
<i>Rhynchospora nitens</i>	Short-beaked Bald-rush	SC
<i>Juncus brachycarpus</i>	Short-fruit Rush	SE
<i>Gymnopogon brevifolius</i>	Short-leaf Skeleton Grass	SE
<i>Utricularia radiata</i>	Small Swollen Bladderwort	SC
<i>Asclepias lanceolata</i>	Smooth Orange Milkweed	SC
<i>Platanthera nivea</i>	Snowy Orchid	SE
<i>Boltonia asteroides</i> var. <i>glastifolia</i>	Coastal Plain Doll's Daisy	SE
<i>Carex jorii</i>	cypress-swamp sedge	SE
<i>Sphagnum cribrosum</i>	Sphagnum	SE
<i>Sphagnum macrophyllum</i>	Sphagnum	SC
<i>Cleistes divaricata</i>	Spreading Pogonia	SE
<i>Pluchea foetida</i> var. <i>foetida</i>	Stinking Fleabane	SE
<i>Rhynchospora filifolia</i>	Thread-leaf Beaked-rush	SE
<i>Cirsium virginianum</i>	Virginia Thistle	SE
<i>Aristida virgata</i>	Wand-like Three-awn- Grass	SC
<i>Panicum wrightianum</i>	Wright's Panic Grass	SC
<i>Coelorachis rugosa</i>	Wrinkled Jointgrass	SE
<i>Hyla chrysoscelis</i>	Cope's Gray Treefrog	SE
<i>Nyctanassa violacea</i>	Yellow-crowned Night- heron	ST
<i>Nycticorax nycticorax</i>	Black-crowned Night- heron	ST
<i>Bubulcus ibis</i>	Cattle Egret	ST
<i>Egretta thula</i>	Snowy Egret	SC (BR)
<i>Egretta tricolor</i>	Tricolored Heron	SC
<i>Sterna hirundo</i>	Common Tern	SC
<i>Plegadis falcinellus</i>	Glossy Ibis	SC

Explanation of Status Codes: SE - Listed as State Endangered  
ST - Listed as State Threatened  
SC - Plant or Animal Species of Concern in NJ  
BR - Breeding

C. Scarcity - relative scarcity or uniqueness of plant and animal species, community types and/or wildlife habitats:

The Bennett Bogs are not true bogs but rather a grouping of intermittent coastal plain ponds that occur in shallow depressions influenced directly by groundwater. Since its discovery, more than 250 native plant species have been identified at Bennett Bogs. The Bennett Bogs Preserve is considered one of the most

botanically diverse sites in New Jersey and includes several plant species which occur nowhere else in the state.

D. Buffers – presence and quality of surrounding buffer areas to provide protection and insure integrity of site:

Within the Bennett Bogs Preserve and proposed natural area, there are buffers to the coastal plain ponds, which are the primary location of the rare species habitat within the natural area. However, natural area features may be partially unbuffered from the effects of residential development on nearby private lands, which can have potential hydrologic and water quality impacts.

E. Threats – direct and indirect factors which currently or potentially threaten natural area resources:

Potential threats to natural area resources include alterations to hydrology, salt water intrusion, invasive plants, and natural succession to woody vegetation. There is a history of ORV use at Bennett Bogs but in the past decade there has been no evidence of such illegal activity. There is a history of mowing at Bennett Bogs going as far back as 1907, but there was no active management at the bogs for about a decade prior to The Nature Conservancy's 2015 donation of approximately 25 acres to the Trust. As a result, Bennett Bogs succeeded to woody vegetation such as persimmon, red maple, and sweetgum, creating a closed canopy which was adversely affecting plant habitat. In 2018, New Jersey Audubon Society transferred its six-acre parcel to the Trust making it the sole owner of Bennett Bogs Preserve and thus making it possible for the Trust to undertake active management such as herbicide application of common reed, removal of woody vegetation and mowing. It is recommended that in the event that Bennett Bogs is designated to the Natural Areas System, these management activities be recognized as acceptable and ongoing management practices in order to maintain the habitat for the rare plants that make this site a biodiversity hotspot.

F. Manageability – the ability of the administering agency to adequately manage the site or enter into a management agreement with others to preserve the integrity of the natural features:

Most of the management recommendations noted below (see Preliminary Management Techniques) should be within the ability of staff of the property owner, the Trust, the Office of Natural Lands Management, its management partners at NJ Forest Service, or their contractors to achieve. Application of these recommendations will not significantly interfere with the passive recreational activities such as hiking and environmental education allowed throughout the natural area.

G. Public welfare - The degree of threat to the public health, safety and welfare which may be encountered as a result of terminating existing uses or activities:

The designation of Bennett Bogs as a State Natural Area will not result in the termination of any existing legal uses or activities. A possible exception includes enforcement of illegal OHV use, if it becomes necessary. Such enforcement will not create threats to the public health, safety and welfare.

- H. Preliminary boundaries – The preliminary boundaries of the natural area (See attached map) may be refined upon adoption of a management plan.

### **III. INTERIM CLASSIFICATION – Conservation Preserve**

### **IV. PRELIMINARY MANAGEMENT TECHNIQUES**

Designation of Bennett Bogs to the Natural Areas System will require the development of a management plan. N.J.A.C. 7:5A-1.8, Natural area management plans, indicates that the Department, with the cooperation of the administering agency, shall prepare a management plan for each natural area in the System. The primary purpose of a management plan is to describe the natural features of the area and prescribe management practices and public uses to ensure preservation in accordance with the management objective of the natural area.

Since the development of a management plan may take time, it is recommended that monitoring of woody species succession and rare plant populations within the coastal plain intermittent ponds be conducted regularly to determine the rate of succession, the potential loss of rare species and community habitats, and the need for implementation of management. As needed, the following interim management activities are recommended by the Natural Areas Council for approval on an ongoing basis: mowing, brush hogging, selective tree thinning, selective herbiciding, prescribed burning, and controlling or eliminating offsite stormwater through ditching or plugging.

#### **References:**

Breden, T.F., Y.R. Alger, K.S. Walz, A.G. Windisch. 2001. Classification of Vegetation Communities of New Jersey: Second Iteration. Association for Biodiversity Information and New Jersey Natural Heritage Program, Office of Natural Lands Management, Division of Parks and Forestry, New Jersey Department of Environmental Protection. Trenton, NJ.

NatureServe. 2019. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://explorer.natureserve.org>. (Accessed: October 17, 2019).



Figure 1: Proposed Bennett Bogs Natural Area, the entire 31-acre Bennett Bogs Preserve, located in Lower Township, Cape May County, NJ.