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Surveys of TU Plants, Taxonomic Studies, Pennsylvania Flora Project Web Site, and Environmental Review

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Final Report to the Wild Resources Conservation Fund ME#389184

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Abstract

In the ongoing effort to refine and improve the scientific accuracy of the Plants of Special concern list work reported here resulted in recommendations for the reclassification of eleven plants. The revised classifications which we recommended were the result of 1) additional field data on current status; 2) new discoveries in the field, 3) adoption of taxonomic revisions reported in recent botanical literature. Our 2000 field work resulted in the documentation of 162 field occurrences at 69 sites. Inflated bladderwort (*Utricularia inflata*) was added to the flora of Pennsylvania as a result. In order to make information about the state flora more accessible the Pennsylvania Flora Website was redesigned and expanded. The new look was launched in January 2001 at <http://www.upenn.edu/paflora>. In addition several site reviews were conducted in response to PNDI "hits".

Disciplines

Botany

Comments

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**Title: Surveys of TU Plants, Taxonomic Studies,
Pennsylvania Flora Project Web Site, and Environmental
Review**

**Ann F. Rhoads and Timothy A. Block
Morris Arboretum of the University of Pennsylvania
9414 Meadowbrook Ave.
Philadelphia, PA 19118**

Submitted May 10, 2001

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Web Site, and Environmental Review**

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Abstract:

In the ongoing effort to refine and improve the scientific accuracy of the Plants of Special concern list work reported here resulted in recommendations for the reclassification of eleven plants. The revised classifications which we recommended were the result of 1) additional field data on current status; 2) new discoveries in the field, 3) adoption of taxonomic revisions reported in recent botanical literature. Our 2000 field work resulted in the documentation of 162 field occurrences at 69 sites. Inflated bladderwort (*Utricularia inflata*) was added to the flora of Pennsylvania as a result. In order to make information about the state flora more accessible the Pennsylvania Flora Website was redesigned and expanded. The new look was launched in January 2001 at <http://www.upenn.edu/paflora>. In addition several site reviews were conducted in response to PNDI "hits".

Objective:

This is a 4 part project, the objectives of each section are as follows:

- 1) Field and herbarium surveys intended to continue to collect the information necessary to refine the classification of plants on the Plants of Special Concern list and other plants recommended for listing by the Vascular Plants Technical Committee.
- 2) The treatment of several plant species that have been proposed for listing under PNDI is complicated by uncertainties regarding taxonomic status. We conducted a review of pertinent recent botanical literature regarding several such problem taxa to determine how they should be treated in the PNDI listings.
- 3) A searchable, online version of the PA Flora Database was initiated in June 1997 at our website <http://upenn.edu/paflora>. We requested funding to support periodic monitoring and updating of this important resource on all of the plants of Pennsylvania.
- 4) Morris Arboretum staff were available to provide environmental review services to the Bureau of Forestry as needed.

Justification:

- 1) The Plants of Special Concern list is still being reviewed and updated to assure that the status of each listed plant is well documented and justified, and that all plants that require protection are appropriately classified. Species currently listed as TU require study before a more accurate classification status can be recommended.
- 2) A number of plants proposed for PNDI listing require clarification of their taxonomic status to resolve uncertainties that complicate the appropriate treatment of some taxa under PNDI. We propose to investigate several problem "species" drawing on recent pertinent botanical literature.
- 3) The Pennsylvania Flora Project web site containing an online, searchable version of the PA Flora Database has made up-to-date information about the plants of Pennsylvania readily available throughout the state and the world for the first time. The site consistently registers between 600 and 1000 users weekly, proving that there is a demand for the information. However, the web site, and the main database that supports it, need regular maintenance and updating in order to remain current and useful.
- 4) The extensive experience and expertise of the Morris Arboretum Botany Department will be available for consultation and/or field visits in eastern PA counties for the purpose of environmental reviews where occurrences of PNDI listed plants may be affected.

Materials and Methods:

A major part of this years' effort was directed at resolving classification status of PNDI-listed vascular plants. This involved new field surveys, synthesis of current and previous field studies, and library and herbarium research.

PNDI reviews involved field visits to potential sites of conflicts such as the PennDOT Chalfont Borough Bristol Road extension site visit – May 4, 2001. Several other PNDI "hits" were field checked for other agencies under private contractual arrangements.

Pennsylvania Flora Project Website enhancement involved approximately 2 weeks of Tim Block's time to design and implement changes in the website to enhance information content, appearance, and accessibility.

Products Delivered in Addition to this Final Report:

PNDI field forms were submitted to the Eastern Pennsylvania PNDI office at Middletown with duplicates provided to the Bureau of Forestry Division of Ecological Services PNDI office on January 23, 2001 for all field studies conducted during calendar year 2000. Field forms were submitted for 162 element occurrences at 69 sites representing work under a contract with the Bureau of State Parks, work on a survey of Pocono lakes and miscellaneous field surveys conducted during the 2000 field season.

Recommendations were submitted to the annual meeting of the Rare Plant Forum and Vascular Plants Technical Committee (see below).

Results and Conclusions:

PNDI status - Recommendations for refinements in the PNDI lists

Andropogon glomeratus (Walter) BSP. - TU to PR?

syn. *A. virginicus* L. var. *abbreviatus* (Hackel) Fern. & Griscom.

habitat and range according to Cronquist: wet soil, West Indies and Central America north to CA, AR, KY, VA and along the coastal plain to MA.

PA: Estimated total number of plants >10,000 in approximately 12 locations. The largest extant population is probably the one at French Creek State Park where there are several thousand plants. Other populations are smaller, but stable. Several coastal plain sites however are vulnerable.

Panicum longiligulatum - TU to N

This species has been lumped in with the common species *Panicum acuminatum* in The Plants of Pennsylvania (Rhoads and Block 2000).

Prunus pumila L. - PR to N

Prunus pumila L. var. *depressa* (Pursh) Bean – N to PE

Prunus pumila L. var. *pumila* – N to PX

Prunus pumila L. var. *susquehannae* (Willd.) H. Jaeger – N to PT

A recent paper (Catling et al. 1999) presented evidence supporting recognition of *Prunus pumila* var. *susquehannae* at the species level. In addition keys for distinguishing the species and varieties were included. In order to bring the Plants of Special Concern list into agreement with this recent interpretation of the taxa, we recommended that the varieties each be assigned a distinct status.

Ranunculus aquatilis L. – N to PR

Ranunculus longirostris (Chaix) Bosch – PT to N

Ranunculus trichophyllus Chaix – PR to N

The treatment of these taxa in recent manuals including Volume 3 of Flora of North America (Flora of North America Editorial Committee 1997) and Plants of Pennsylvania, an Illustrated Manual (Rhoads and Block 2000) involves lumping *Ranunculus longirostris* and *Ranunculus trichophyllus* in the circumboreal species *Ranunculus aquatilis*. The changes in the PNDI list were recommended to reflect these current botanical references.

Utricularia inflata Walter - N to TU

habitat and range according to Cronquist (Gleason and Cronquist 1991): ponds along the coastal plain DE to FL

PA: collected at one site (lake) each in Pike and Monroe Counties in 2000, found to have been collected at 3 sites in Sullivan County 1993-1997, but recorded at the time as *U. radiata*.

Comments: There has been some taxonomic disagreement regarding the status of the 2 species of inflated bladderworts. *U. radiata* Small has been considered a variety of *U. inflata* (*U. inflata* Walter var. *minor* Chapman or *U. inflata* Walter var. *radiata* (Small) Stone). However, Peter Taylor in his 1989 monograph on the genus *Utricularia* (Taylor 1989) recognizes both taxa at species rank as do Crow and Hellquist (2000).

***Utricularia purpurea* - PR to N**

habitat and range according to Cronquist: lakes, ponds and ditches Quebec and Nova Scotia to MN and northern IN and south along the coastal plain to FL and LA.

PA: since 1986 collected in 19-20 ponds and lakes in the Pocono area, in most cases populations of thousands to tens of thousands of plants were noted. It is present in natural and artificial water bodies and undoubtedly is present at more sites that have yet to be inventoried.

***Utricularia radiata* Small - PE to PX**

habitat and range according to Cronquist: ponds along or near the coastal plain ME to FL and TX.

PA: several early (1865-1927) collections from the Bristol area of Bucks County, no collections since 1927.

Pennsylvania Flora Website update

Changes were implemented in January 2001; See <http://www.upenn.edu/paflora>.

PNDI Site Review

A field visit to the PennDOT Bristol Road extension was made in May 4, 2001 to check for *Lycopodiella appressa* and *Eleocharis olivacea* which were reported from the site in 1986 and 1998 respectively.

An initial paper review of the Crown Tower site in Tunkhannock Township, Monroe County was conducted for CMC Engineering. Applicant did not request further site review.

A site review was conducted at the Scranton/Wilkes-Barre Airport expansion site under contract with Acker Associates to check for *Scirpus ancistrochaetus* habitat.

A site survey was conducted at the Valley View II residential development in Horsham Township, Bucks County under contract with DelVal Soil and Environmental Consultants, Inc. for conflicts with a nearby population of *Amelanchier obovalis*.

Discussion and Management Recommendations:

The following recommendations were made to the annual Rare Plant Forum for changes in the status of species on the Plants of Special Concern List. All of these recommendations were accepted by the Rare Plant Forum and the Vascular Plants Technical Committee.

	<u>current status</u>	<u>recommended status</u>
<i>Andropogon glomeratus</i>	PT	PR
<i>Panicum longiligulatum</i>	TU	none
<i>Prunus pumila</i> var. <i>depressa</i>	none	PE
<i>Prunus pumila</i> var. <i>pumila</i>	none	PX
<i>Prunus pumila</i> var. <i>susquehannae</i>	none	PT
<i>Ranunculus aquatilis</i>	none	PR
<i>Ranunculus longirostris</i>	PT	none
<i>Ranunculus trichophyllus</i>	PR	none
<i>Utricularia inflata</i>	none	TU
<i>Utricularia purpurea</i>	PR	none
<i>Utricularia radiata</i>	PE	PX

Literature Cited:

- Catling, P. M., S. M. McKay-Kuja, and G. Mitrow. 1999. Rank and typification in North American dwarf cherries, and a key to the taxa. *Taxon* 48: 483-488.
- Crow, Garrett E. and c. Barre Hellquist. 2000. *Aquatic and Wetland Plants of Northeastern North America*. The University of Wisconsin Press, Madison
- Flora of North America Editorial Committee. 1997. *Flora of North America* Volume 3. Oxford University Press, New York
- Gleason, H. A. and A. Cronquist. 1991. *Manual of the Vascular Plants of Northeastern United States and Adjacent Canada*. New York Botanical garden, Bronx
- Rhoads, Ann Fowler and Timothy A. Block. *The Plants of Pennsylvania, An Illustrated Manual*. University of Pennsylvania Press, Philadelphia
- Taylor, P. 1989. The Genus *Utricularia* – A Taxonomic Monograph. Royal Botanic Gardens Kew, London

Appendix:

Herbarium Collections of PNDI-listed plants, calendar year 2000, all specimens deposited at the herbarium of the Morris Arboretum of the University of Pennsylvania (MOAR).

May 10, 2001

**Chris Firestone
DCNR Bureau of Forestry
PO Box 8552
Harrisburg, PA 17105-8552**

Dear Chris:

Please find enclosed with this letter our final report for last year's Wild Resources Conservation Fund Grant, ME#389184. The report contains a list of herbarium specimens collected to document the PNDI records. Please recall that I delivered the field forms for these EOs to you back in January.

Sincerely,

**Ann F. Rhoads, Ph.D.
Senior Botanist, Pennsylvania Flora Project**

cc: Frank Felbaum, Wild Resources Conservation Fund