

Bartonia paniculata (Michx.) Muhl.

Current Status TU

Proposed Status PT

Proposed by: Ann Rhoads and Tim Block, Morris Arboretum of the University of Pennsylvania

Habitat: *Bartonia paniculata* is an herbaceous annual that does not appear until late summer. A member of the Gentianaceae, it is a small, inconspicuous plant with scale-like leaves and small greenish-white flowers. It grows in bogs, swamps, wet woods, and moist, open barrens-type habitat.

Estimated number of extant occurrences (45) 50 – 70 (60)

Estimated number of extant individuals (2,100) 2,250 – 2,500 Genets

Factors that increase conservation concern: Many of the known extant populations are very small.

Factors that decrease conservation concern: *Bartonia paniculata* is a plant of wetland habitats. The plants are small and inconspicuous, they do not appear until late in the growing season, and they closely resemble *B. virginica* which is more common.

***Bidens laevis* (L.) Britton, Stearns & Poggenb.**

Current Status TU

Proposed Status PE

Proposed by: Daisy Daeschler, Ann Rhoads, and Tim Block, The Morris Arboretum

Estimated number of extant occurrences: (20) 25 – 50 (30)

Estimated number of extant individuals: (5,000) 6,000 – 7,000 (6,000) Genets

Factors that increase conservation concern

Boating causes erosion, development destroys habitat; much of the Delaware River bank has been bulkheaded which destroys intertidal habitat.

Widespread interest in dam removal could degrade habitat; increased flood scouring could reduce seed retention. A proposal to dredge Whites Mill Pond could be a serious problem.

Extirpation is more likely to occur as a result of conditions beyond the land owner's control, such as dam removal or riverbank erosion due to passing ships or flood scouring.

Some of remaining intertidal sites are severely degraded and support only a few plants growing in riprap.

Bidens laevis appears to be limited to sites that are on diabase geology, fresh water inter-tidal marsh, or limestone influenced glacial till. This suggests dependence on elevated magnesium levels in the substrate that limits the available habitat.

Factors that decrease conservation concern.

Obligate wetland plant, however, bulkheading and other stream bank modification destroys habitat.

Maintenance of dams appears to be important to maintaining habitat. Impoundments reduce the flood scouring effect that could wash seeds out of the area.

Annual species, dependent on water level and seed availability.

Resembles *Bidens cernua*

Species appears to have declined or disappeared at many of its historical sites, and intertidal sites, with few exceptions, are severely degraded and support very small populations.

Land protection efforts and greater land owner awareness are positive signs.

***Cuscuta campestris* Y unck.**

Current Status TU

Proposed Status PE

Proposed by: Daisy Daeschler, Ann Rhoads, and Tim Block, Morris Arboretum of the University of Pennsylvania

Habitat: *Cuscuta campestris* is a parasitic flowering plant that grows on other herbaceous species including *Lythrum salicaria*, *Artemisia vulgaris*, *Persicaria hydropiperoides*, *Persicaria pennsylvanica*, *Persicaria punctata*, *Schoenoplectus pungens*, *Amaranthus cannabinus*, *Boehmeria cylindrica*, *Urtica dioica*, *Humulus japonicus*, *Acalypha rhomboidea*, *Conyza canadensis*, *Bidens* spp., *Ambrosia artemisiifolia*, *Helenium autumnale*, *Hedysoma pulgeoides*, *Perilla frutescens*, and *Lycopus* sp. It typically grows in open shoreline situations or other open habitat that is moist to seasonally wet.

Estimated number of extant occurrences: (30) 35 – 60 (50)

Estimated number of extant individuals: (30) 50 – 100 (50) Genets

Factors that increase conservation concern

Habitat very susceptible to degradation due to non-native, invasive species. A trend toward tidiness i.e. excessive mowing in public areas could reduce habitat.

Although several sites along the Delaware River are small public parks, mowing or "weed control" along edges could eliminate habitat for *Cuscuta*.

Populations tend to be very small, often a single colony about 1 meter square. It is impossible to determine how many genets a colony represents.

Factors that decrease conservation concern

Habitat is mostly wetlands or riparian areas. *Cuscuta campestris* parasitizes a wide variety of native and non-native herbaceous plants.

Cuscutas are difficult to identify to species and may have been under collected in the past for that reason; however, *C. gronovii* has been widely collected in PA (see Rhoads and Klein 1993). *Cuscuta campestris* is the most widespread dodder in the world; it is the only example of a parasitic weed of North America that has spread to the Old World (Duke, S. 1994. Reviews of Weed Science Vol. 6. Weed Science Society of America, Champaign, IL).

Protection of wetlands and riparian areas should provide stability.

General interest in protecting and even restoring riparian corridors should work in favor of this species.

Cuscuta cephalanthii Engelm.

Current Status TU

Proposed Status PE

Proposed by: Ann Rhoads and Tim Block, Morris Arboretum of the University of Pennsylvania

Habitat: *Cuscuta cephalanthii* is an annual vine that parasitizes other flowering plants. Host plants include: *Cephalanthus occidentalis*, *Salix* spp., *Impatiens capensis*, *Symphytichum* spp., *Solidago* spp., *Vernonia noveboracensis*, and *Justicia americana*. It grows in riparian areas or wet meadows.

Estimated number of extant occurrences: (4) 8 – 16 (8)

Estimated number of extant individuals: (4) 4 – 8 (8) Ramets

Factors that increase conservation concern

Riparian habitats are vulnerable to invasion by non-native, invasive species and excessive scouring by frequent floods.

All occurrences that we are familiar with are small and thus presumably vulnerable to stochastic events.

Factors that decrease conservation concern

Many sites are along the banks of rivers and streams. *Cuscutas* are generally considered difficult to determine to species and may be under-collected. Similar to the more common *C. gronovii* and often in small isolated colonies.

Cuscuta compacta Juss. Ex. Choisy

Current Status TU

Proposed Status PE

Proposed by: Ann Rhoads and Tim Block, Morris Arboretum of the University of Pennsylvania

Habitat: *Cuscuta compacta* is an herbaceous, annual vine that is parasitic on other flowering plants. Host plants include: *Eutrochium* sp., *Sassafra*s *albidum*, *Cephalanthus occidentalis*, *Fraxinus* spp., *Cornus* spp., *Vitis* spp., *Toxicodendron radicans*. Habitat includes moist thickets, fens, and the banks of rivers and streams.

Estimated number of extant occurrences: (10) 12 – 25 (15)

Estimated number of extant individuals: (20) 25 – 35 (25) Genets

Factors that increase conservation concern

Habitat must include appropriate host species. Severe flood scouring could be a problem. Our experience is that many *Cuscuta* occurrences are small 1-3 square meters; therefore they can be assumed to be vulnerable to stochastic events.

Factors that decrease conservation concern

Many of the sites are along river banks.

Cuscuta compacta is similar to the more common *C. gronovii*; it tends to occur in small, scattered populations.

***Cuscuta corylii* Engelm.**

Current Status TU

Proposed Status PX

Proposed by: Ann Rhoads and Tim Block, Morris Arboretum of the University of Pennsylvania

Habitat: *Cuscuta corylii* is an annual vine that is parasitic on other flowering plants. Historic collection sites are on rocky bluffs, dry wooded slopes, and a utility right-of-way. Host plants include *Symphytotrichum* spp., *Solidago* spp. and other herbs and shrubs.

Estimated number of extant occurrences: (0) 0 – 0 (5)

Estimated number of extant individuals: (0) 0 – 5 (5) Ramets

Factors that increase conservation concern

There are no known extant occurrences; the most recent collection was made in 1956.

Factors that decrease conservation concern

This *Cuscuta* species occurs on dry, rocky ridge tops and rocky woods. Some collectors may avoid *Cuscuta* because they are hard to determine to species. However, *Cuscutas* have been collected both historically and recently and *Cuscuta corylii* consistently remains very rare. It has not been collected in PA since 1956.

Cuscuta pentagona Engelm.

Current Status TU

Proposed Status PE

Proposed by: Ann Rhoads, Tim Block, Morris Arboretum of the University of Pennsylvania

Habitat: *Cuscuta pentagona* is an annual vine that is a parasite of other flowering plants, common hosts include *Trifolium* spp., *Artemisia vulgaris*, *Ambrosia artemisiifolia*, *Symphytichum* spp., *Impatiens capensis* and others. It occurs in open fields, waste ground, and riparian areas.

Estimated number of extant occurrences (20) 30 – 50 (30)

Estimated number of extant individuals (20) 30 – 50 (30) Genets

Factors that increase conservation concern

Cuscuta occurs in open fields, waste ground, and riparian areas. Excessive mowing or "tidiness" in parks along rivers and streams could eliminate host plants. Populations are small and some are vulnerable to park management actions such as overly zealous mowing.

Factors that decrease conservation concern

Has a variety of potential host plants. It needs open areas with appropriate host plants. *Cuscutas* are challenging to identify to species and some people may ignore them.

Cuscuta are hard to identify to species and occurrences are often small (<1 sq meter).

Cuscuta pentagona is described by Cronquist as occurring throughout the US, and nearly cosmopolitan. It is considered a troublesome weed in some areas because it colonizes crops such as clover and alfalfa. The seeds become contaminants in crop seeds and are dispersed in that way.

Open space protection.

Even if we lumped *Cuscuta pentagona* and *C. campestris* the number of known extant occurrences (*C. pentagona* 11 and *C. campestris* 20) and small population sizes in Pennsylvania would suggest that PE is an appropriate status.

Cuscuta polygonorum Engelm.

Current Status TU

Proposed Status PE

Proposed by: Ann Rhoads and Tim Block, Morris Arboretum of the University of Pennsylvania

Habitat: *Cuscuta polygonorum* is an annual vine that is parasitic on other flowering plants. Host species include *Persicaria arifolia*, *Persicaria punctata*, *Persicaria pensylvanica*, *Persicaria lapathifolia*, *Mikania scandens*, *Symphytichum* spp., *Echinochloa crus-galli* and other *Poaceae*, *Justicia americana*, *Bidens* spp. and *Salix* spp.

Estimated number of extant occurrences (20) 15 – 20 (30)

Estimated number of extant individuals (500) 1500 – 2500 (1,000) Genets

Factors that increase conservation concern

Cuscuta polygonorum is a plant of herbaceous wetlands; appropriate host plants must be present. Increased scouring by flood waters may remove seeds from the environment. Increased frequency and severity of flood-scouring of riparian areas could cause further declines.

Factors that decrease conservation concern

The *Cuscutas* can be difficult to determine to species; *C. gronovii* is much more common than all of our other species. Colonies are small and do not necessarily appear in the same places from year to year.

Protection of riparian areas and wetlands should help to preserve habitat.

Cyperus polystachyos

Current Status PX

Proposed Status PE??

Proposed by: John Kunsman, PNHP

Habitat: damp early successional

Estimated number of extant occurrences (0 – 5)

Estimated number of extant individuals (–) Genets

Factors that increase conservation concern:

Additional factors not logically included on other worksheets By the rules, this would be PE, but...

Factors that decrease conservation concern: This species has a mostly southern, coastal plain-ish distribution and is at the edge of its range in PA. It frequents open, damp, early-successional areas and does well in certain types of disturbed habitats. It was apparently known in PA only from a 1935 collection in Philadelphia County. In 2008, plants were found in the John Heinz NWR in Delaware County, along the shoreline of a human-created shallow ponded area frequented by a flock of Canada geese that have turned the shoreline into a pavement of poop. Given this habitat, and the general adaptability of the species, I will hold my nose both literally (because of the poop) and metaphorically when it becomes a PE.

Eleocharis tuberculosa

Current Status PX

Proposed Status PE

Proposed by: Jim Bissell, Cleveland Museum of Natural History

Habitat:

Estimated number of extant occurrences () – ()

Estimated number of extant individuals () – () Genets

Factors that increase conservation concern

Additional factors not logically included on other worksheets

Only other collection from PA was from Frazier's Bog, where numerous surveys have failed to relocate the species.

Hypericum sphaerocarpum

Current Status Watch

Proposed Status PX or PE

Proposed by: Steve Grund, PNHP/WPC

Habitat: Rocky woods, barrens, and shores (Fernald)

Estimated number of extant occurrences (0) 0 – 2 (10)

Estimated number of extant individuals (0) 0 – 40 (200) Genets

Additional factors not logically included on other worksheets: Collected from a single site over a period of five years, most recently in 1921.

Myriophyllum heterophyllum

Current Status PE

Proposed Status N

Proposed by: Steve Grund, WPC/PHNP

Habitat: Lakes and slow-moving streams.

Estimated number of extant occurrences (15) 25 – 50 (100)

Estimated number of extant individuals (150,000) 400,000 – 800,000 (2,000,000) Ramets

Factors that decrease conservation concern

Enjoys fragmentation and cultural eutrophication. Range is rapidly expanding. Invades lakes and reservoirs.

***Najas marina* L.**

Current Status PE

Proposed Status N (Introduced)

Proposed by: Steve Grund, WPC/PNHP

Habitat Calcareous waters

Estimated number of extant occurrences (2) 2 – 4 (10)

Estimated number of extant individuals () – () Genets

Factors that increase conservation concern

Known in NY from the Lake Ontario region; in OH from the western Lake Erie region.

Factors that decrease conservation concern

Considered not native in Michigan. Not known in Pennsylvania before it was discovered in an abandoned quarry in 1982 by John Kunzman. Also known from the lower Delaware in a "highly artificial, very manipulated environment" (Rhoads and Block 2001). This appears to be a relatively recent introduction, and I expect it to increase in abundance.

"Appears to be somewhat aggressive" in Michigan (Voss 1972, Michigan Flora). This species is native in the New World tropics as well as in Europe (Haynes, FNA)

Parthenium integrifolium

Current Status PX

Proposed Status PE

Proposed by: Joe Isaac

Habitat

Estimated number of extant occurrences (1)

Estimated number of extant individuals () – () Genets

Factors that increase conservation concern

Additional factors not logically included on other worksheets Only one extant, Joe rediscovered it.

Quercus michauxii

Current Status N

Proposed Status PE

Proposed by: John Kunsman, PNHP

Habitat: swamps, bottomlands, streambanks

Estimated number of extant occurrences (0)–(5)

Estimated number of extant individuals (10)–(50) Genets

Factors that increase conservation concern

This species has been reported from PA (southern Bucks County) by some literature sources (Atlas of US Trees; FNA), but not by other sources (The Plants of PA, NatureServe, PNHP, USDA Plants, etc.). A voucher specimen for the literature sources may exist somewhere. In 2008, a population consisting of a dozen or two individuals was found in a nature preserve in southern Bucks County. This population is believed to be native, since it is occupying habitat typical for the species, is located where the literature sources showed the species to be, and because the nature preserve has a number of other coastal plain species.

Rhynchospora globularis

Current Status

UXH

Proposed Status (click for definitions)

N

Proposed by: Steve Grund

PNHP/WPC

Habitat

Estimated number of extant occurrences () – ()

Estimated number of extant individuals () – () Genets

Factors that increase conservation concern

Additional factors not
logically included on
other worksheets

Factors that decrease conservation concern

Additional factors not
logically included on
other worksheets

Not known from PA, all specimens at CM and PH have
been redetermined to *R. recognita*

Solidago uliginosa

Current Status TU

Proposed Status PT

Proposed by: Steve Grund, PNHP/WPC

Habitat: Wetlands, including but not limited to bogs and fens.

Estimated number of extant occurrences (17) 19 – 22 (40)

Estimated number of extant individuals (400) 500 – 1000 (3000) Ramets

Factors that increase conservation concern

Most occurrences are in high-quality wetlands, which are becoming scarce. Wetland loss and degradation has almost certainly led to loss of this species, and the loss is likely to continue. The Pocono Mountain High School site, only 3 plants observed, but it sounds like the habitat was good.

Factors that decrease conservation concern

This species has a sporadic distribution in this and surrounding states.

***Symphytichum dumosum* (L.) G.L.Nesom**

Current Status TU

Proposed Status PE

Proposed by: Sara Helm, Ann Rhoads, and Tim Block, Morris Arboretum/Academy of Natural Sciences

Estimated number of extant occurrences (4) 4 – 7 (8)

Estimated number of extant individuals (1500) 2000 – 3000 (3000) Ramets

Factors that increase conservation concern

In several places where the plant was previously known to exist, there are now invasive species monocultures. Also, fires which were common in the habitat are now suppressed.

Much habitat has been lost due to human construction of buildings, parking lots, etc.

Yes. The occurrences in Erie, PA are quite far from any other PA, NY, and OH occurrences.

In the past 100 years, *S. dumosum* has seen a greater than 80% reduction in known occurrences. In the past 20 years, it has seen a decline from six known occurrences to four known occurrences, and a large reduction in population size for at least one site. Fire suppression, invasive species encroachment, deer browsing, forest succession, and the construction of buildings, roads, etc. have contributed to this reduction.

One site is protected through an easement, but the owner does not manage the site for the preservation of species such as *S. dumosum*. Two of the other sites are also not managed for preservation of *S. dumosum*.

For example, Nottingham County Park in Lancaster County was known as recently as 2005 to have occurrences of *S. dumosum*. When surveyed in September and again in October of 2008, no *S. dumosum* was found. A large population of *Microstegium vimineum* covered the entire area where *S. dumosum* was previously known to exist. From this example

and several others, it can be concluded that the viability of *S. dumosum* in several of the places where it currently occurs may be questionable.

Factors that decrease conservation concern

Historically, the areas where the plant grew were thin soils with high heavy metals and low nutrients, rocky substrates with high pH; both conditions undesirable for farming. Recently, however, people have built homes and buildings on this type of land. The anthropogenic disturbance that this plant tolerates is controlled burning.

Since natural fires are suppressed, the species can benefit from controlled burning of its habitat.

The white form of *Symphytotrichum dumosum* looks like several other *Symphytotrichum* species; especially *S. lateriflorum*, with which it frequently grows.

S. dumosum is only identifiable when it is flowering (usually in October and November until the first frost). For this reason, and the fact that it resembles other *Symphytotrichum* species, botanists may not see it, as most surveying occurs during the spring and summer to early fall.

One site is managed to preserve the species diversity and unique ecology there, allowing *S. dumosum* to thrive in its preferred habitat.

***Trillium cernuum* L.**

Current Status TU

Proposed Status PT

Proposed by: Ann Rhoads and Tim Block, Morris Arboretum of the University of Pennsylvania

Habitat: *Trillium cernuum* is a perennial forest floor herb. It occurs in moist "rich" woods, often along a forested wetland margin. It seems to occur most often on diabase, limestone, or gneiss geology. Historically its distribution in PA was primarily in the southeastern quadrant of the state. Two varieties are sometimes recognized, both have been recorded in PA, *T. cernuum* var. *cernuum* and *T. cernuum* var. *macranthum*. However, Chase in Flora of North America Vol. 26, does not accept the varietal distinctions. The range of *Trillium cernuum* extends from Nova Scotia and New Brunswick south to Maryland and west to Iowa and Wisconsin, which places Pennsylvania near the southern limit of range of the species.

Estimated number of extant occurrences (31) 40 – 60 (50)

Estimated number of extant individuals (4,500) 5,000 – 5,500 (5,000) Ramets

Factors that increase conservation concern: *Trillium cernuum* is very susceptible to over browsing by deer and competition from invasive, non-native plants such as *Lonicera japonica*, *Alliaria petiolata*, and *Persicaria perfoliata*. None of these sites, regardless of ownership, is protected from the effects of over browsing by deer. Many populations are small, <20 plants

Factors that decrease conservation concern: Rocky diabase or gneiss woods and margins of forested wetlands generally do not lend themselves to incompatible uses other than timber harvest. Trilliums are generally easy to recognize whether in flower or fruit, but vegetative plants may senesce early and thus not be found in late season surveys.

***Veratrum virginicum* (L.) Aiton** (synonym: *Melanthium virginicum* L.)

Current Status TU

Proposed Status PE

Proposed by: Ann Rhoads and Tim Block, Morris Arboretum of the University of Pennsylvania

Habitat: *Veratrum virginicum* is a perennial herbaceous species that grows in fens, forest seeps, marshy meadows, wet successional areas, and bogs, with sphagnum mosses and *Osmunda cinnamomea* as common associates. It flowers in early to mid July. Pennsylvania is at the northern limit of range for this species, it occurs south to northern Florida and west to Iowa, Missouri, Arkansas, and Louisiana.

Estimated number of extant occurrences: (12) 20 – 50 (30)

Estimated number of extant individuals: (270) 270 – 500 (350) Ramets

Factors that increase conservation concern: Susceptible to over browsing by deer and changes due to succession. All populations are small, the largest is ~100 plants, and many are less than 10.

Factors that decrease conservation concern: Non-flowering plants senesce early in the summer (by mid July) and may be missed in surveys done later in the season.

This species is SH, S1, S2, or S3 in all adjoining states.