Bieber Creek NHA

PNHP Significance Rank: *Regional*

Site Description

Bieber Creek passes through a mixture of forested and agricultural settings in this reach of its course. The forested riparian corridor and the various open wetlands adjacent to the floodplain of the creek provide suitable habitat for the **six species of concern** occurring at this site including two sensitive species of concern, which are not named at the request of the jurisdictional agencies overseeing their protection.

Species or natural communities of concern that can be found in this NHA include the following:

Species or Natural Community Name		PNHP Rank[1] Global	PNHP Rank[1] State	PA Legal Status[1]	Last Seen	Quality[2]
Bushy Bluestem (*Andropogon glomeratus*)		G5	S3	TU (PR)	9/6/2012	BC
A Sedge (*Carex tetanica*)		G4G5	S2	PT (PT)	6/20/1989	D
Swamp Lousewort (*Pedicularis lanceolata*)		G5	S1S2	N (PE)	9/6/2012	B
Bog Bluegrass (*Poa paludigena*)		G3	S3	PT (PR)	6/19/1989	D
Sensitive species of concern A[3]	S	---	---	---	9/6/2012	BC
Sensitive species of concern B[3]	S	---	---	---	6/17/2009	E

[1]See the PNHP website (http://www.naturalheritage.state.pa.us/RankStatusDef.aspx) for an explanation of PNHP ranks and legal status. A legal status in parentheses is a status change recommended by the Pennsylvania Biological Survey.
[2]See NatureServe website (http://www.natureserve.org/explorer/eorankguide.htm) for an explanation of quality ranks.
[3]This species is not named by request of the jurisdictional agency responsible for its protection.

Bushy bluestem has a range across the continent in the southern states, with an extension northeastward into southern New England. In Pennsylvania, it has been documented historically in scattered locations, particularly in the southern counties. The bushy bluestem grows in a variety of damp to wet open places, clearings, and sometimes in human-created disturbed ground. About 15 populations are currently known from the state. Given the preference of the species for open habitats, active management – such as fire, mowing, or invasive species removal – is often required to maintain the proper successional stage at sites where it grows.

Bushy Bluestem
(*Andropogon glomeratus*)

Denise Watts, PNHP

Rigid sedge has a range throughout most of eastern and mid-western North America. In Pennsylvania, it has been documented historically in scattered counties. It grows in damp or seasonally wet meadows, grasslands, and marshes, particularly on serpentine or diabase substrates. Active management – such as fire, mowing, or invasive species removal – may be required to maintain the proper successional stage at sites where it grows.

Swamp lousewort has a range from southern New England west into the Dakotas and south into Arkansas and Georgia. In Pennsylvania, it occurs mostly in the southern and northwestern counties, where it grows in calcareous wetlands, including boggy meadows, marshes, swamps, and fens. The known occurrences of swamp lousewort and its habitat type will be enhanced by creating buffers around its habitat, removal of invasive species, and protection of wetland hydrology. Excessive deer browsing may be a threat in some locations.

Bog bluegrass has a range primarily in the Great Lakes and Mid-Atlantic states, from New York south into North Carolina and west into Minnesota and Iowa. Despite this relatively large range, this species is considered globally vulnerable to extinction due to its limited number of occurrences worldwide. In Pennsylvania, it has been documented historically in numerous widely scattered counties. It grows in swamps, seepy woods, and along spring-fed streamlets. About 30 populations are currently known from the state. The areas supporting populations should be managed in a way that ensures the continuation of excellent water quality and neutral or calcareous water chemistry.

John Kunsman, PNHP

Bog Bluegrass (*Poa paludigena*)

Threats and Stresses

Habitats that in the past were maintained by grazing and occasional hay mowing likely helped provide the open conditions favorable to many of the species of concern known from this area. In fact, natural succession from open wet meadows to shrub swamps and ultimately forested wetlands has reduced the open wet meadow habitats preferred by most of the species of concern known from this location. Aggressive active management to restore open wet meadow conditions may be necessary to prevent complete canopy closure over the habitats that support the species of concern.

Specific threats and stresses to the elements present at this site include:

- Degradation of water quality or quantity can have a negative impact on the habitat supporting the species of concern found at this location. The stormwater runoff from roadways, suburban development, and agriculture should be considered a potential source of significant contamination for the wetland habitat. Runoff from these sources has significantly higher levels of sediment, nutrients, pesticides, herbicides, and other pollutants than runoff filtered through a natural habitat.
- Natural succession can convert open wetland habitats to closed canopy shrub swamps, eliminating critical habitat for the species of concern documented here.
- Exotic invasive plant species threaten to compete with and displace native species.
- Over browsing by white-tailed deer is a serious threat to the overall understory plant diversity. An overabundance of deer can create the effect of park-like forests in which the native plant understory and vertical stratification are greatly reduced.

Conservation Recommendations

Long term goals of this Natural Heritage Area should be to maintain the mosaic of groundwater fed open-canopied wetland systems that dominated this area before trees and shrubs began to dominate the wetland habitats through natural succession.

Denise Watts, PNHP

Trees and shrubs are colonizing open, wet meadows, diminishing the preferred habitat for most of the species of concern at this site.

The following steps are recommended to ensure the persistence of these species at this site:

- Action is needed to reverse the colonization of woody species. Cut trees and shrubs out of the primary wet meadow habitats to restore open canopied conditions. Once the open wet meadow habitat has been restored, grazing with pastoral animals or occasional mowing can be an effective tool to maintain these soggy meadows in their preferred condition.
- Because the species of concern noted from this site rely on open canopied habitats, programs that support establishment of riparian buffers with trees, such as CREP, should be avoided in areas close to open wetland habitats, but instead should be targeted to buffer the wetlands from upland disturbances.
- Maintaining a high quality aquatic habitat is important to the species of concern found at this location. Improve the water quality and maintain the water quantity of the wetland habitat. Protect and enhance existing aquatic habitats by monitoring water quality and enforcing protections. Best management practices (BMPs) that focus on limiting the introduction of non-point sources of pollution into surface and groundwater should be applied to the surrounding area.
- Maintaining the current hydrologic regime is critical to the persistence of the natural communities and species of concern at this site. Disruption to groundwater flow from activities such as drilling or mining in nearby areas and groundwater extraction can contaminate or alter the flow patterns of the groundwater that feeds the seepage. Culverts that allow water to enter and exit the site must remain clear. Obstruction of the culverts could lead to flooding that would alter the habitats in the swamp and eliminate the rare species. Creation of additional man-made ponds should be discouraged to maintain the existing hydrology within the Natural Heritage Area. Additionally, as the existing farm or quarry ponds deteriorate and are in need of maintenance, the removal of such ponds should be explored, in order to recreate the natural flows of the landscape.
- Suppress the establishment and spread of invasive species of plants. The edge habitats associated with roadways, residences, and agricultural fields are particularly susceptible to weedy plant invasion and will require a sustained and targeted approach to invasive management. Aggressive invasive plant species can have a significant impact on the available habitat for the species of concern. Focus non-chemical control efforts on selected areas surrounding species of concern. Target pioneer populations of invasive plants for immediate and continued removal. It is much easier and more effective to keep a place invasive-free than to try to repair a heavily infested habitat. Invasive species management needs to be coordinated by individuals familiar with the rare species as well as the invasive species present.
- Preserve and expand the forested riparian buffer along the creek edge while avoiding planting trees in wet meadow areas. Forested zones along waterways help filter runoff from roads, residences, and agricultural areas, removing many contaminants contained in the runoff before it

enters larger streams and rivers. Forested creek edges also slow the speed and force of runoff, allowing the water to percolate into the groundwater.

- Further fragmentation of this Natural Heritage Area should be avoided, and where necessary, should be conducted with the continuity of the wetland systems in mind. This may require that road crossings involve bridge systems that would preserve the groundwater movement associated with fens and slow flowing waterways.

Location

Municipalities: *Rockland Township, Pike Township, Oley Township*
USGS quads: *Manatawny, Fleetwood*
Previous CNHI reference: *Berks CNAI 2003: "Pine Creek Watershed"*
Overlapping Protected Lands: *Berks County Conservancy - Lobachsville Fish Hatchery & Lobachsville Wetland*

References and Additional Reading

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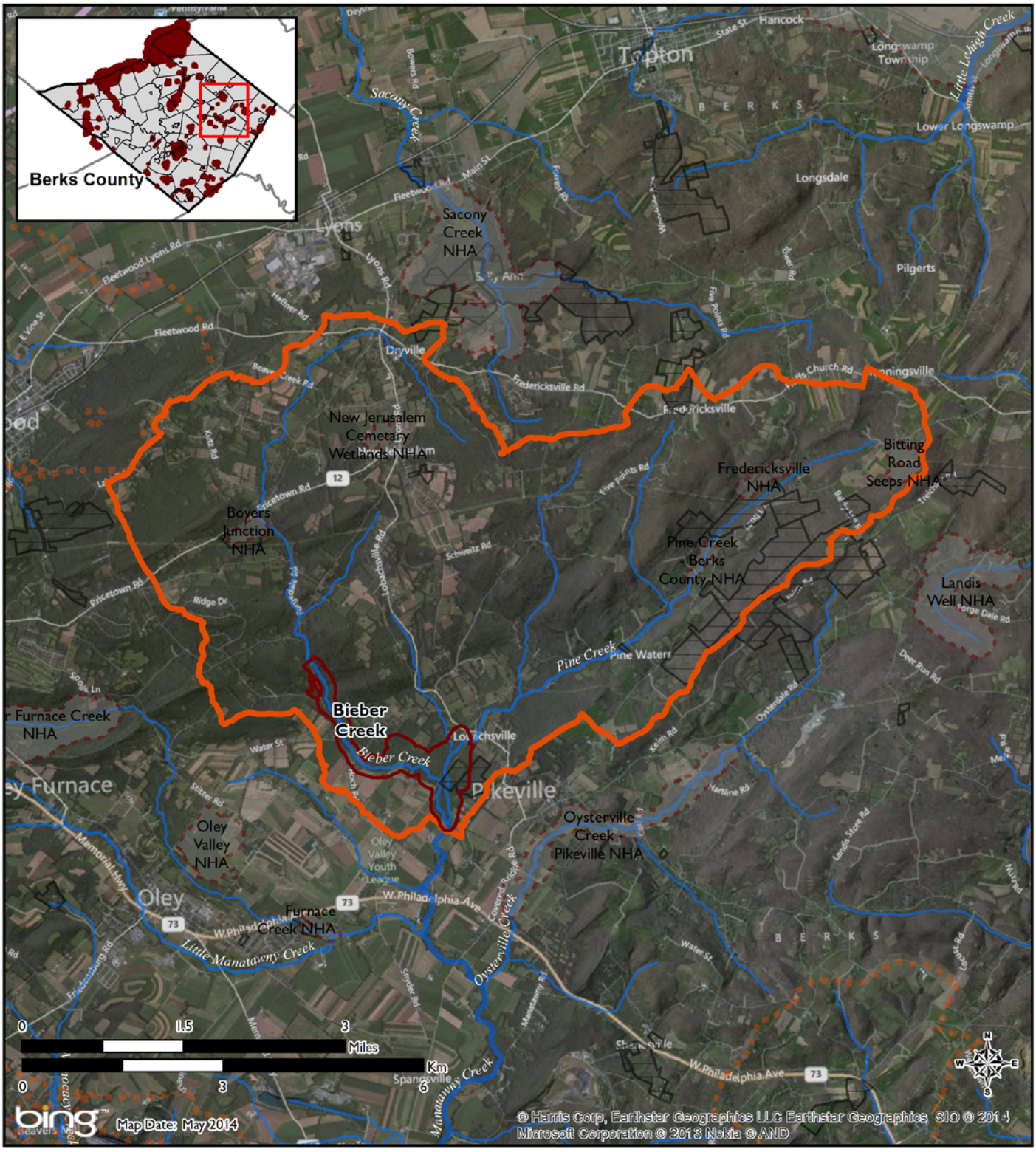
Rhoads, A.F. and T.A. Block. 2007. The Plants of Pennsylvania: An Illustrated Manual. 2nd edition. University of Pennsylvania Press, Philadelphia.



Bieber Creek
Natural Heritage Area

Wetlands and riparian forest along Bieber Creek support 4 plant species of concern, including globally vulnerable bog bluegrass, in addtion to two sensitive species of concern.

Significance Rank:
REGIONAL

Pennsylvania Natural Heritage Program

Pennsylvania Natural Heritage Areas

- ***Core Habitat***
- ***Supporting Landscape***
- ***Other Core Habitat***
- ***Other Supporting Landscape***
- ***Conservation Lands***