

Pickerel-weed – Arrow-arum – Arrowhead Emergent Wetland



System: Palustrine

Subsystem: Non-persistent

PA Ecological Group(s): Emergent Wetland and Marsh Wetland

Global Rank: GNR

State Rank: S4

General Description

This community type is dominated by broad-leafed, emergent vegetation; it occurs in upland depressions, borders of lakes, large slow-moving rivers, and shallow ponds. The aspect of these systems changes seasonally from nearly unvegetated substrate in winter and early spring, when plants are dormant, to dense vegetation during the height of the growing season. The most characteristic species are pickerel-weed (*Pontederia cordata*), arrow-arum (*Peltandra virginica*), and wapato (*Sagittaria latifolia*). Other species commonly present include showy bur-marigold (*Bidens laevis*), mannagrass (*Glyceria* spp.), goldenclub (*Orontium aquaticum*), bur-reed (*Sparganium* spp), arrowhead (*Sagittaria rigida*), soft-stem bulrush (*Schoenoplectus tabernaemontani*), spike-rush (*Eleocharis palustris*), false water-pepper (*Persicaria hydropiperoides*), water-pepper (*Persicaria punctata*), water smartweed (*Persicaria amphibia*), jewelweed (*Impatiens* spp.), common bladderwort (*Utricularia macrorhiza*), duckweed (*Lemna minor*), water-meal (*Wolffia* spp.), and broad-leaved water-plantain (*Alisma subcordatum*). This community is often interweaved with aquatic beds on the deep side, and shallower marsh or swamp communities on the shore side, and thus species characteristic of those communities are often present. This type is restricted to shallow (less than 2 meters at low water) depressions, or the edges of lakes, ponds, and rivers.

Rank Justification

Uncommon but not rare; some cause for long-term concern due to declines or other factors.

Identification

- Emergent marsh dominated by broad-leaved, aerenchymatous plants filling small depressions, as well as along pondshores, lakeshores, impoundments, and quiet riverbanks
- Occurs in perennial standing water up to about a meter deep
- Usually develops muck soils over a sand or gravel substrate
- Typical species include pickerel-weed (*Pontederia cordata*), arrow-arum (*Peltandra virginica*), and wapato (*Sagittaria latifolia*)

Characteristic Species

Herbs

- [Pickerel-weed \(*Pontederia cordata*\)](#)
- [Arrow-arum \(*Peltandra virginica*\)](#)
- [Wapato \(*Sagittaria latifolia*\)](#)
- [Showy bur-marigold \(*Bidens laevis*\)](#)
- [Mannagrass \(*Glyceria* spp.\)](#)
- [Goldenclub \(*Orontium aquaticum*\)](#)
- [Arrowhead \(*Sagittaria rigida*\)](#)
- [Soft-stemmed bulrush \(*Schoenoplectus tabernaemontani*\)](#)
- [Creeping spike-rush \(*Eleocharis palustris*\)](#)
- [Mild water-pepper \(*Persicaria hydropiperoides*\)](#)
- [Dotted smartweed \(*Persicaria punctata*\)](#)
- [Jewelweed \(*Impatiens* spp.\)](#)
- [Broad-leaved water-plantain \(*Alisma subcordatum*\)](#)
- [Common bladderwort \(*Utricularia macrorhiza*\)](#)
- [Duckweed \(*Lemna minor*\)](#)
- [Water smartweed \(*Persicaria amphibia*\)](#)
- [Lizard's-tail \(*Saururus cernuus*\)](#)

- [Water-hemlock \(*Cicuta bulbifera*\)](#)

Exotic Species

- [Purple loosestrife \(*Lythrum salicaria*\)](#)

International Vegetation Classification Associations:

[Northeastern Leafy Forb Marsh](#) (CEGL006191)

NatureServe Ecological Systems:

[Laurentian-Acadian Freshwater Marsh](#) (CES201.594)

Origin of Concept

Fike, J. 1999. Terrestrial and palustrine plant communities of Pennsylvania. Pennsylvania Natural Diversity Inventory. Harrisburg, PA. 86 pp.

Pennsylvania Community Code

HA : Pickerel-Weed – Arrow-Arum – Arrowhead Wetland

Similar Ecological Communities

Some examples of the Wool-grass – Mannagrass – Mixed Shrub Vernal Pool community type may resemble this floristically. The two differ in their hydrologic regime; the vernal pool type occurs in small upland depressions that are seasonally flooded, but experience substantial or complete annual draw-down. Pickerel-weed – Arrow-arum – Arrowhead Emergent Wetland is usually permanently to semi-permanently flooded. Spatterdock – Water-lily Emergent Wetland may occur intermingled with or surrounded by the Pickerel-weed – Arrow-arum – Arrowhead Emergent Wetland. These two types may intergrade but the Spatterdock – Water-lily Emergent Wetland represents a wetland comprised of floating aquatic vegetation dominated by spatterdock (*Nuphar advena*/*N. variegata*) and fragrant water-lily (*Nymphaea odorata*), where as the Pickerel-weed – Arrow-arum – Arrowhead Emergent Wetland is often classified as a broad-leaved emergent wetland.

Fike Crosswalk

Pickerel-weed - arrow-arum - arrowhead wetland

Conservation Value

Pickerel-weed – Arrow-arum – Arrowhead Emergent Wetland can serve as habitat for rare marsh birds and odonates as well as provide cover for small fish, reptiles, and amphibians. Rare plant species such as hard-stem bulrush (*Schoenoplectus acutus*), river bulrush (*Schoenoplectus fluviatilis*), and water bulrush (*Schoenoplectus subterminalis*) may be present within this community. This community also serves as a

buffer for sediment and pollution runoff from adjacent developed lands by slowing the flow of surficial water causing sediment to settle within this wetland.

Threats

Alteration to the hydrological regime is a major threat to this community (e.g., impoundments, beaver dams) and can lead to habitat destruction and/or shifts in community function and dynamics. Clearing and development of adjacent land can lead to an accumulation of agricultural run-off and pollution, sedimentation, and insolation/thermal pollution. Purple loosestrife (*Lythrum salicaria*) can be an exotic plant species that invades this community and displaces native species.

Management

A natural buffer around the wetland should be maintained in order to minimize nutrient runoff, pollution, and sedimentation. The potential for soil erosion based on soil texture, condition of the adjacent vegetation (mature forests vs. clearcuts), and the topography of the surrounding area (i.e., degree of slope) should be considered when establishing buffers. The buffer size should be increased if soils are erodible, adjacent vegetation has been logged, and the topography is steep, as such factors could contribute to increased sedimentation and nutrient pollution. Direct impacts and habitat alteration should be avoided (e.g., roads, trails, filling of wetlands) and low impact alternatives (e.g., elevated footpaths, boardwalks, bridges) should be utilized in situations where accessing the wetland can not be avoided. Care should also be taken to control and prevent the spread of invasive species within the wetland.

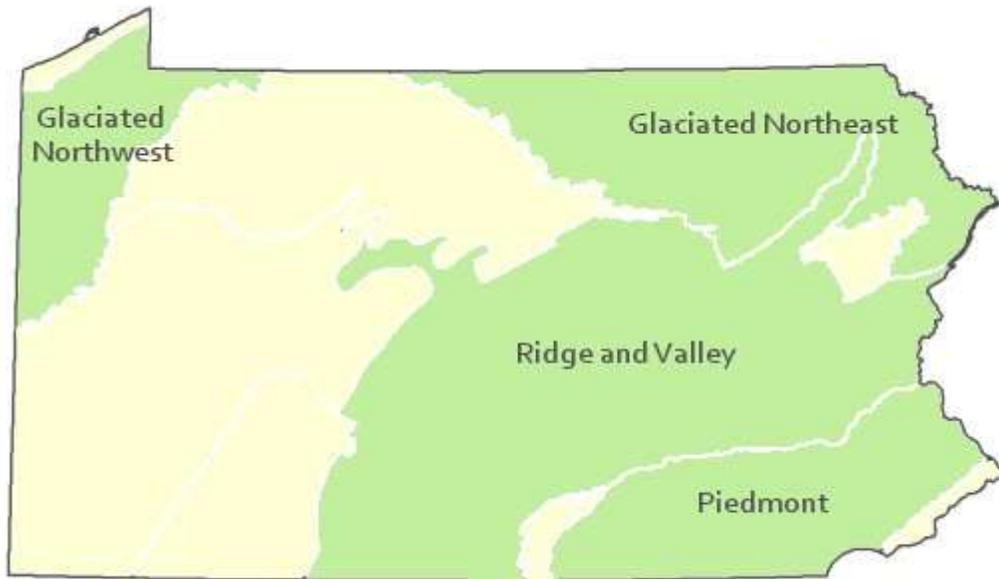
Research Needs

There is a need to collect plot data to characterize variations and guide further classification of this community.

Trends

While it is true that naturally occurring wetlands have most likely declined due to wetland draining/filling activities and clearing of the adjacent lands, the construction of dams and artificial reservoirs, lakes and ponds has probably resulted a greater number of emergent Pickerel-weed – Arrow-arum – Arrowhead Emergent Wetlands than were present historically. The relative trend for this community is likely stable.

Range Map



Pennsylvania Range

Glaciated NE, Glaciated NW, Ridge and Valley, Piedmont.

Global Distribution

Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

References

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