

Red Maple – Black Ash Palustrine Forest



System: Palustrine

Subsystem: Forest

PA Ecological Group(s): Basin Wetland

Global Rank: G2G4

State Rank: S2S3

General Description

These are palustrine forests enriched by groundwater, varying from circumneutral to calcareous. The substrate can be muck or mineral soil with or without a thin layer of organic matter. Calciphiles are often present. The dominant trees are usually red maple (*Acer rubrum*) and black ash (*Fraxinus nigra*). Associates include swamp white oak (*Quercus bicolor*), blackgum (*Nyssa sylvatica*), and American elm (*Ulmus americana*). Common understory species include meadow-sweets (*Spiraea latifolia*, *S. alba*), winterberry (*Ilex verticillata*), and alders (*Alnus serrulata* or *A. incana* ssp. *rugosa*). Alder-leaved buckthorn (*Rhamnus alnifolia*) and poison sumac (*Toxicodendron vernix*) may be present in the more calcareous sites. Common herbs include royal fern (*Osmunda regalis*), tussock sedge (*Carex stricta*), a sedge (*Carex leptalea*), skunk-cabbage (*Symplocarpus foetidus*), violets (*Viola* spp.), water avens (*Geum rivale*), and sensitive fern (*Onoclea sensibilis*). Many calciphilic species associated with this type have moderate to high light requirements, and thus are found in openings. These species include hemlock-parsley (*Conioselinum chinense*), spreading globe-flower (*Trollius laxus*), sedges (*Carex interior*, *C. flava*, *C. lacustris*, *C. laevivaginata*), small yellow lady's-slipper (*Cypripedium parviflorum* var. *parviflorum*), showy lady's-slipper (*Cypripedium reginae*), and downy willow-herb (*Epilobium strictum*).

Rank Justification

Vulnerable in the jurisdiction due to a restricted range, relatively few populations, recent and widespread declines, or other factors making it vulnerable to extirpation.

Identification

- Poorly drained depressions with primarily organic soils
- Typically underlain by calcareous bedrock or calcareous glacial deposits
- Canopy dominated by red maple (*Acer rubrum*) and black ash (*Fraxinus nigra*)
- Ground-fed circumneutral water
- May have openings with calciphilic species such as hemlock-parsley (*Conioselinum chinense*), spreading globe-flower (*Trollius laxus*), sedges (*Carex interior*, *C. flava*, *C. lacustris*, *C. laevivaginata*), small yellow lady's-slipper (*Cypripedium parviflorum* var. *parviflorum*), showy lady's-slipper (*Cypripedium reginae*), and downy willow-herb (*Epilobium strictum*)

Characteristic Species

Trees

- [Red maple \(*Acer rubrum*\)](#)
- [Black ash \(*Fraxinus nigra*\)](#)
- [Swamp white oak \(*Quercus bicolor*\)](#)
- [Blackgum \(*Nyssa sylvatica*\)](#)
- [American elm \(*Ulmus americana*\)](#)

Shrubs

- [Alder-leaved buckthorn \(*Rhamnus alnifolia*\)](#)
- [Ninebark \(*Physocarpus opulifolius*\)](#)
- [Meadow-sweet \(*Spiraea alba*\)](#)
- [Meadow-sweet \(*Spiraea latifolia*\)](#)
- [Winterberry \(*Ilex verticillata*\)](#)
- [Highbush blueberry \(*Vaccinium corymbosum*\)](#)
- [Swamp azalea \(*Rhododendron viscosum*\)](#)

Herbs

- [Sedge \(*Carex interior*\)](#)
- [Sedge \(*Carex leptalea*\)](#)

- [Yellow lady's-slipper \(*Cypripedium parviflorum* var. *parviflorum*\)](#)
- [Showy lady's-slipper \(*Cypripedium reginae*\)](#)
- [Water avens \(*Geum rivale*\)](#)
- [Downy willow-herb \(*Epilobium strictum*\)](#)
- [Cinnamon fern \(*Osmunda cinnamomea*\)](#)
- [Tussock sedge \(*Carex stricta*\)](#)
- [Skunk cabbage \(*Symplocarpus foetidus*\)](#)
- [Violets \(*Viola* spp.\)](#)
- [Sensitive fern \(*Onoclea sensibilis*\)](#)
- [Hemlock-parsley \(*Conioselinum chinense*\)](#)
- [Spreading globe-flower \(*Trollius laxus*\)](#)

International Vegetation Classification Associations:

[Red Maple - Black Ash Swamp](#) (CEGL007441)

NatureServe Ecological Systems:

[North-Central Interior and Appalachian Rich Swamp](#) (CES202.605)

Origin of Concept

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

Pennsylvania Community Code

UC : Red Maple – Black Ash Palustrine Forest

Similar Ecological Communities

The much more common Red Maple – Blackgum Palustrine Forest is not generally influenced by calcareous waters, and lacks the black ash (*Fraxinus nigra*) and herbaceous calciphiles that characterize the Red Maple – Black Ash Palustrine Forest.

Red Maple – Black Ash Palustrine Forest may contain pin oak (*Quercus palustris*) and swamp white oak (*Quercus bicolor*) which dominate the Oak - Mixed Hardwood Palustrine Forest but the Red Maple – Black Ash Palustrine Forest is clearly dominated by red maple (*Acer rubrum*) and black ash (*Fraxinus nigra*).

Fike Crosswalk

Red maple - black ash palustrine forest

Conservation Value

The community supports calciphilic and rare plant species including spreading globe-flower (*Trollius laxus*), yellow sedge (*Carex flava*), small yellow lady's-slipper (*Cypripedium parviflorum* var. *parviflorum*), showy lady's-slipper (*Cypripedium reginae*), and swamp red currant (*Ribes triste*). 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 current hydrological regime is a major threat to this community 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. Invasive plant species such as purple loosestrife (*Lythrum salicaria*) and Japanese stiltgrass (*Microstegium vimineum*) can be common in this community. Ash (*Fraxinus* spp.) mortality resulting from the emerald ash borer (*Agrilus planipennis*) is a major concern.

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. Alterations to groundwater sources should be minimized.

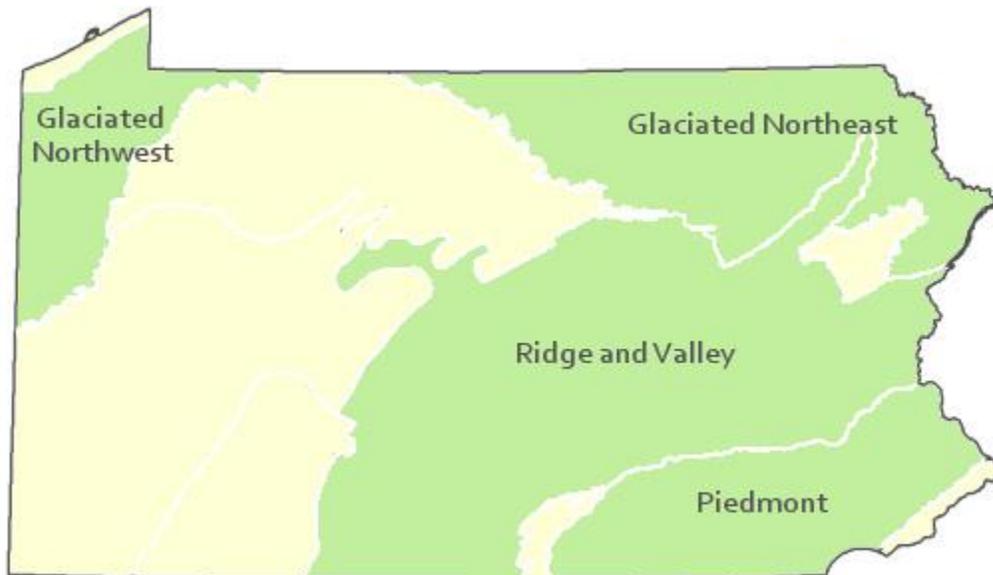
Research Needs

Variations may occur at ecoregional levels. There is a need to collect additional plot data to characterize variations and guide further classification of this community.

Trends

Red Maple – Black Ash Palustrine Forests were probably more common but declined due to dam impoundments, wetland draining/filling, and clearing of the adjacent lands leading to increased sedimentation and disruption of wetland hydrology. The relative trend for this community is likely stable or may be declining slightly due to hydrological alterations.

Range Map



Pennsylvania Range

Glaciated Northeast, Glaciated Northwest, Piedmont, Ridge and Valley.

Global Distribution

Maryland, New York, Pennsylvania, and West Virginia.

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