Golden Saxifrage – Sedge Rich Seep

System: Palustrine
Subsystem: Herbaceous
PA Ecological Group(s): Seepage Wetland

Global Rank: GNR
State Rank: S2

General Description

This community occurs in small (less than 0.5 hectare) patches, fed by groundwater seepage. The species composition is diverse and variable. Wetlands that are more open will tend to be dominated by graminoids, while wetlands shaded by forest canopy will tend to be dominated by broad-leaved plants. It may occur as part of a fen wetland complex, in areas of active seepage flow, often around edges. Plants of seepage habitats represent a broad range of pH tolerances, including Pennsylvania bittercress (*Cardamine pensylvanica*), golden ragwort (*Packera aurea*), jewelweed (*Impatiens* spp.), skunk-cabbage (*Symplocarpus foetidus*), golden saxifrage (*Chrysosplenium americanum*), New York ironweed (*Vernonia noveboracensis*), field horsetail (*Equisetum arvense*), swamp saxifrage (*Saxifraga pensylvanica*), sedge (*Carex leptalea*), and turtlehead (*Chelone glabra*). Some of the following indicators of more alkaline pH should also be present: yellow sedge (*Carex flava*), Atlantic sedge (*Carex sterilis*), thin-leaved cotton-grass (*Eriophorum viridicarinatum*), capillary beak-rush (*Rhynchospora capillacea*), grass-of-Parnassus (*Parnassia glauca*), brook lobelia (*Lobelia kalmii*). Stoneworts (*Chara spp.*), an aquatic algae that resembles an aquatic plant, may cover areas of open seepage. Other species may include bog sedge (*Carex atlantica*), sedge (*Carex granularis*), fowl bluegrass (*Poa palustris*), water horsetail (*Equisetum fluviatile*), white beak-rush (*Rhynchospora alba*), and marsh fern (*Thelypteris palustris*).

Rank Justification

Imperiled in the jurisdiction because of rarity due to very restricted range, very few populations, steep declines, or other factors making it very vulnerable to extirpation.

Identification

- Presence of seepage (diffuse ground-water fed upwelling of water that does not coalesce into a free-flowing channel)
- Calcareous species such as golden ragwort (Packera aurea), golden saxifrage (*Chrysosplenium americanum*), yellow sedge (*Carex flava*), Atlantic sedge (*Carex sterilis*), capillary beak-rush (*Rhynchospora capillacea*), grass-of-Parnassus (*Parnassia glauca*), and brook lobelia (*Lobelia kalmii*)
- Relatively more open than the Skunk Cabbage – Golden Saxifrage Forest Seep, unlikely to have skunk cabbage as a community dominant

Characteristic Species

Herbs

- Yellow sedge (*Carex flava*)
- Atlantic sedge (*Carex sterilis*)
- Capillary beak-rush (*Rhynchospora capillacea*)
- Grass-of-parnassus (*Parnassia glauca*)
- Brook lobelia (*Lobelia kalmii*)
- Pennsylvania bittercress (*Cardamine pensylvanica*)
- Golden ragwort (*Packera aurea*)
- Jewelweed (*Impatiens capensis*)
- Skunk cabbage (*Symplocarpus foetidus*)
- Golden saxifrage (*Chrysosplenium americanum*)
- New York ironweed (*Vernonia noveboracensis*)
- Field horsetail (*Equisetum arvense*)
- Swamp saxifrage (*Saxifraga pensylvanica*)
- Turtlehead (*Chelone glabra*)

International Vegetation Classification Associations:

Mid-Atlantic Rich Seep (CEGL006448)

NatureServe Ecological Systems:

None

Origin of Concept

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

Pennsylvania Community Code

HX : Golden Saxifrage – Sedge Rich Seep

Similar Ecological Communities

Seep communities are differentiated from the Golden Saxifrage – Pennsylvania Bittercress Spring Run because seepages are diffuse groundwater flow, while Golden Saxifrage – Pennsylvania Bitter-cress Spring Run has groundwater flow that coalesces into a recognizable channel. Generally, the volume of springs is also higher. This seep community may occur as part of a fen complex, and is differentiated from the shrub and sedge fen communities by the presence of active seepage flow, in high enough volume to be visible and usually to prevent peat accumulation. This community can be differentiated from the Skunk-cabbage – Golden Saxifrage Seep because it tends to be more open, and skunk-cabbage will not be the dominant species.

Fike Crosswalk

Golden Saxifrage – Sedge Rich Seep

Conservation Value

The Golden Saxifrage – Sedge Rich Seep occurs where mineral-enriched, circumneutral pH groundwater reaches the surface, which is an especially unusual condition in Pennsylvania as the predominant geology in most regions is acidic. Plants of special concern in Pennsylvania found in this habitat include yellow sedge (*Carex flava*), Atlantic sedge (*Carex sterilis*), capillary beak-rush (*Rhynchospora capillacea*), grass-of-Parnassus (*Parnassia glauca*), brook lobelia (*Lobelia kalmii*), thin-leaved cotton-grass (*Eriophorum viridicarinatum*), and sedge (*Carex tetanica*).

Threats

The greatest threats to these communities are groundwater extraction and bedrock disruptions such as drilling or mining in nearby areas, which can contaminate or alter the flow patterns of the groundwater that feeds the seepage. Groundwater pollution can also occur from improperly installed septic systems, improperly lined underground waste disposal, and in agricultural areas, infiltration of pesticides, fertilizer, and bacteria from animal wastes. Removal of natural vegetation cover adjacent to the wetland

can affect water levels and temperatures by increasing solar heating, surface run-off, and sedimentation. Invasive plant species can threaten the biological integrity of the community.

Management

Extraction, drilling, mining, or other activities that impact the bedrock or flow of groundwater should not be undertaken within half a mile of a seepage wetland without a thorough understanding of bedrock layers and groundwater flows. Groundwater flow patterns do not always mirror surface watersheds, and in some cases aquifers may be contiguous over large areas. Seepage wetlands are also sensitive to trampling and other physical disturbance from recreational activities; trails should be sited away from the wetland, or elevated structures employed to prevent traffic in the wetland. 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 cannot 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.

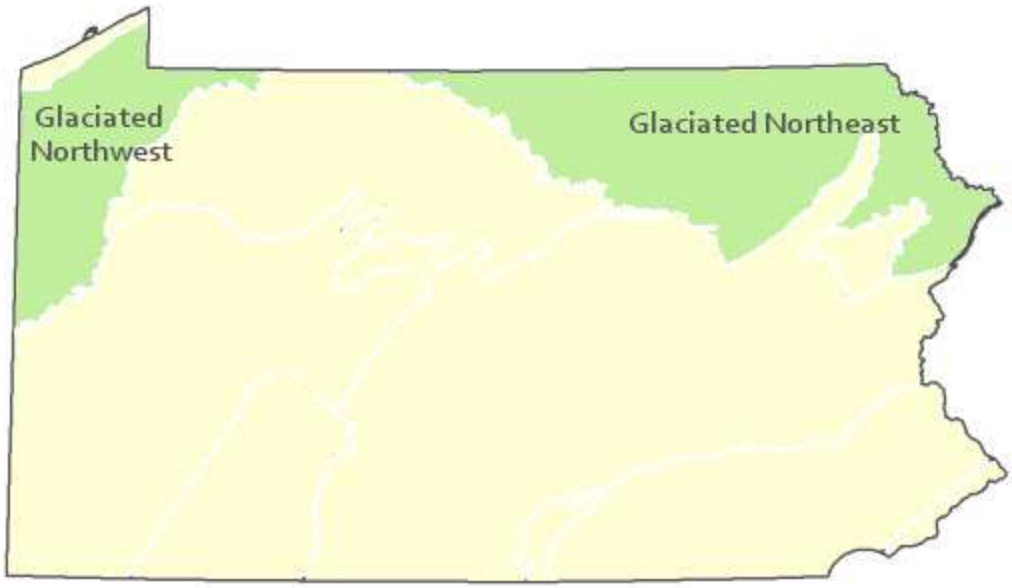
Research Needs

Groundwater flows are not well understood in many areas, and this information is very useful in managing seepage wetlands. Management may also be improved with a better understanding of natural successional pathways in these wetlands.

Trends

Specific information on the loss and degradation of the calcareous seepage wetlands that host the Golden Saxifrage – Sedge Rich Seep community is not available.

Range Map



Pennsylvania Range

Northwest and northeast Pennsylvania.

Global Distribution

New Jersey, New York, and Pennsylvania

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