

Description of site

Purpose:

The purpose of this section is to delve into greater detail regarding the present context, composition and condition of the site.

It may be helpful to break this section into subsections, such as:

- Regional Context
- Species, Natural Communities, Scenic/Recreational Value
- Current Conditions
- Other Protected Areas

Questions to Answer:

When writing this section, answer the following questions:

- In what watershed does your site lie?
- What is the ecological landscape of the site?
- What are the climate conditions of the site?
- What is the topography of the site?
- Does the site contain any noteworthy or rare biota, such as endangered or threatened species?
- What are the native plant and animal communities of the site?
- Does the site contain any valuable recreational or scenic features?
- Are there any unique or important geological, aquatic or other natural features found at the site?
- What is the current condition of the site (e.g. degraded, pristine)?
- Are there other agencies or groups doing conservation work in the area?
- Are there other similar or related sites protected in the area?
- What land uses are present on lands adjoining or near the site (e.g. residential, agricultural, commercial)?

Resources:

DNR Ecological Landscapes link: <http://www.dnr.state.wi.us/landscapes/>

Ecological Landscapes Maps: <http://www.dnr.state.wi.us/landscapes/maps/>

Opportunities for Sustaining Natural Communities table:

<http://www.dnr.state.wi.us/landscapes/opportunity/>

Natural Communities of Wisconsin: <http://www.dnr.state.wi.us/landscapes/community/>

WDNR's Hydrologic Areas: <http://www.dnr.state.wi.us/org/gmu/sidebar/whatis.htm#wmus>

Data Compilation and Assessment of Wisconsin's Coastal Wetlands:

<http://www.dnr.state.wi.us/org/land/er/publications/cw/>

Natural Community Descriptions:

<http://www.dnr.state.wi.us/org/land/er/communities/descriptions.htm>

State Natural Areas: <http://www.dnr.state.wi.us/org/land/er/sna/>

U.S. Fish & Wildlife Service, Great Lakes-Big Rivers Region: <http://www.fws.gov/midwest/>

Current land cover (1992): <http://www.dnr.state.wi.us/landscapes/maps/state/wiscland.htm>

Public land ownership and private land enrolled in forest tax programs:

<http://www.dnr.state.wi.us/landscapes/maps/state/publicland.htm>

% of change in acreage assessed agricultural:

<http://www.dnr.state.wi.us/landscapes/maps/state/percentacre.htm>

Average monthly max. temperature for August:

<http://www.dnr.state.wi.us/landscapes/maps/state/augtemp.htm>

Average monthly min. temperature for January:

<http://www.dnr.state.wi.us/landscapes/maps/state/jantemp.htm>

Imperiled or significant species by worldwide status:

<http://www.dnr.state.wi.us/landscapes/maps/state/imperiled.htm>

Outstanding and exceptional resource waters:

<http://www.dnr.state.wi.us/landscapes/maps/state/outstandwaters.htm>

Degraded lakes and rivers: <http://www.dnr.state.wi.us/landscapes/maps/state/303degraded.htm>

Susceptibility to groundwater contamination:

<http://www.dnr.state.wi.us/landscapes/maps/state/susceptibility.htm>

Bedrock types: <http://www.dnr.state.wi.us/landscapes/maps/state/bedrocktype.htm>

Example:

Gilson Creek Watershed

Regional Context

The Gilson Creek Watershed is located in the Northeast corner of Brown County along the shore of Green Bay. This region falls within the Central Lake Michigan Coastal (CLMC) Ecological Landscape – one of 16 Ecological Landscapes in Wisconsin that are based on a system of land classification developed by the Department of Natural Resources. This system divides the state into ecological units based on combinations of biotic and environmental factors, which include climate, geology, soils, hydrology, and vegetation.

The climate of the CLMC Landscape is highly influenced by its proximity to Lake Michigan, giving the area cooler summers, warmer winters and precipitation levels greater than at locations farther inland. Its generally flat topography consists of clay and silt loam soils. Historically, most of this landscape was vegetated with mesic hardwood forest, but due to the heavy development pressure in the Green Bay area much of the land cover is now primarily urban and agricultural. There are some remnants of northern hardwood forest with maple, beech, and some hemlock, plus conifer swamps, hardwood swamps, and riverine marshes.

The biota in this region is especially noteworthy for the rare regional endemic plants associated with Lake Michigan shoreline habitats and the highly specialized animals inhabiting the Niagara Escarpment. The coastal areas annually host significant concentrations of migratory birds and provide seasonally critical habitat for numerous animals. However, the CLMC

Landscape has the worst relative pollution ratings for watershed and streams according to the rankings by the Wisconsin DNR.

An area loosely referred to as Red Banks is found in the Gilson Creek Watershed and contains an unusual and unique array of natural communities. Red Banks supports Wisconsin's best example of an alvar community and unusual variants of the prairie-savanna and cedar forest communities. Invertebrate diversity is high in both the insect and land snail groups, with many rare taxa represented. The Gilson Creek Watershed is also home to the rare and threatened dwarf lake iris (*Iris lacustris*).

Red Banks

Species, Natural Communities, Scenic/Recreational Value

The Red Banks Alvar was designated a State Natural Area in 2001. Alvar communities are extremely rare and are distinguished by naturally open areas of very shallow soils over essentially flat limestone or dolomitic bedrock. An unusual blend of boreal, southern and prairie species, -- relicts of the post-glacial environment and the warmer, dryer period that followed -- characterizes alvar ecosystems. Alvars are important sites for (1) the protection of biodiversity including threatened plant communities and rare and threatened species of flora and fauna; (2) biological research and environmental monitoring; and (3) ecotourism.

Red Banks Alvar contains one of the most diverse snail communities known in the Midwest and is one of the most important areas in Wisconsin for land snails – colonies of 25 different groups of highly specialized and rare glacial relict snails can be found from the base to the top of the escarpment. A few rare plants found at the alvar include cream gentian (*Gentiana alba*), Craze's sedge (*Carex crawei*), and Richardson's sedge (*C. Richardsonii*). There have also been at least 20 species of butterflies documented within the community and there is an old-growth mesic forest on the slope below the dolomite escarpment.

A unique white cedar woodland community also occurs at Red Banks, bordering Gilson Creek. This community is dominated by white cedar, native sedges and the common juniper. The rare Great Lakes endemic, dwarf lake iris, is a local dominant in the groundlayer.

The dwarf lake iris is listed both by the State of Wisconsin and by the United States government as a threatened species. Its rarity is due both to a limited amount of habitat and to increasing disturbance by shoreline development. The dwarf lake iris must have just the right combination of light, humidity, soil, moisture and temperature to live – it thrives on the cool air that flows off the lakes, and the thin, moist, sandy or rocky soils that can be found in a few sites near the shores of the northern Great Lakes. The iris is appreciated for its deep blue to purple blossoms and its great genetic potential.

Current conditions (e.g. degraded, pristine)

Some of the major disturbance factors affecting the Red Banks site include hydrologic disruption, invasive plants, quarrying, heavy grazing, encroachment by residential development, and fragmentation by roads and power line corridors. These factors, together with a long history of fire suppression, have altered the composition and structure of the alvar community by increasing the dominance of woody species. The vegetation has formed an almost closed canopy dry forest, with small scattered openings supporting plants characteristic of savanna or prairie communities – exotics, such as Kentucky bluegrass and smooth brome, are common and sometimes dominant in these openings.

In terms of the specific habitat of the dwarf lake iris -- its lakeshore habitat has been greatly reduced by shoreline development. Residential and vacation homes, as well as associated road-widening, chemical spraying and salting, and off-road vehicle use have caused disturbance and destruction of habitat.

Although threats remain very high to this region and it is considered a priority for immediate conservation attention by the DNR, there are portions of this site that are relatively intact or restorable.

Niagara Escarpment

Geology

The Niagara Escarpment is the steep face of a 650-mile sickle-shaped cuesta that runs from the northeastern United States south of Rochester, New York, across portions of southeastern Canada, and the southward north and west of Lake Michigan to southeastern Wisconsin. In geological terms, a cuesta or escarpment is a ridge composed of gently tipped rock strata with a long, gradual slope on one side and a relatively steep scarp or cliff on the other. In Wisconsin, the Escarpment extends over 230 miles, from Rock Island, off the northern tip of the Door Peninsula, south to northern Waukesha and Milwaukee counties.

The primary bedrock type is dolomite, formed from accumulated sediments of an ancient sea 405-425 million years ago during the Silurian Period of the Paleozoic Era. The Escarpment was formed over millions of years through the differential erosion of rocks of different hardnesses – a cap of erosion-resistant dolomite overlays weaker, more easily eroded weather shale rocks, that when gradually eroded left a series of cliffs. This series of bluffs can be found along the shoreline of Red Banks in the Gilson Creek Watershed.

Species, Natural Communities, Scenic/Recreational Values

The geology of the Escarpment greatly influences its ecological attributes. Cold air and sometimes water move through the fractured rock creating unique microhabitats in which many highly specialized species, such as rare terrestrial land snails and bats, can be found.

The Niagara Escarpment is as much a hydrological as a geological feature. The headwaters of several rivers rise in the Escarpment and the area is important for groundwater recharge. The uncontaminated water of many Escarpment aquifers is in heavy demand from the bottled water industry.

The area of the Escarpment in the Gilson Creek Watershed is home to the rare dwarf lake iris and Red Banks Alvar. There are also trees growing on the forested portion of the Niagara Escarpment that include some of the oldest red and white cedars in Wisconsin.

Current conditions (e.g. degraded, pristine)

Shoreline near the Escarpment has been extensively developed near the City of Green Bay and the Town of Scott, in the vicinity of Red Banks – mostly for residential uses. As you move away from large cities a mix of agricultural land, woodlands, and locally concentrated developments can also be found.

Another form of development that is a concern is the number of county operated or privately owned quarries that supply crushed stone from the Escarpment primarily for road base or concrete aggregate. Areas along the Niagara Escarpment, such as Red Banks, have thin soil deposits due to glacier scouring and relatively post glacial deposition. These conditions of

shallow soils lying directly over fractured bedrock make the area susceptible to groundwater contamination.

Other protected areas

The portion of the Niagara Escarpment occurring in Ontario, Canada has been designated as a World Biosphere Reserve by the United Nations Education, Scientific and Cultural Organization.

The work being done at Red-Banks Gilson Creek is also ongoing at several other sites within the Lake Michigan basin by the Lake Michigan Shorelands Alliance.