

## **NATURAL, AGRICULTURAL & CULTURAL RESOURCES**

### **LOCATION**

The Town of Spider Lake, Sawyer County, is geographically located in the northern highland province of Wisconsin and lies a short distance south of the continental divide that separates the St. Lawrence and Mississippi River drainage systems.

The most distinguishing landscape features of the Town are the glacial lakes set in hilly conifer and hardwood forests. Picturesque hills, scenic wild rivers, spruce bogs, and scattered farmlands add variations to the landscape. The development of cottages, resorts, and homes has not yet reduced the shoreline scenic qualities on all the lakes; however, several of the larger lakes, first settled over 100 years ago, show signs of aesthetic deterioration.

### **PHYSIOGRAPHY**

Continental glaciation is responsible for the present topography of Sawyer County. Where the ice stopped, it deposited terminal moraines - huge accumulations of rock, gravel, sand, and clay pushed along by or carried on the front of the ice sheet. One of these terminal moraines was deposited between two lobes of the Lake Wisconsin Ice Sheet along the western border of Sawyer County in the present Towns of Edgewater, Sand Lake, Bass Lake, Hayward, Lenroot, Round Lake, and Spider Lake. The resulting topography can only be described as rough. Lakes and swamps occupy many of the deeper kettle holes and it is noticeable that most of the lakes in Sawyer County are in this morainic area. Ground moraine forms the greater part of the topography east and south of the moraine. This was deposited in a broad sheet by the ice, which melted away beneath it, and the present surface is rolling with low ridges and shallow depressions, occupied by swamps rather than lakes.

### **CLIMATE**

The climate in the Town of Spider Lake is classified as continental, a climate type characterized by large seasonal and daily ranges in temperatures. Winters are long, cold, and snowy. Summers are relatively short and warm with brief periods of hot, humid weather. Summer days are usually warm and sunny, while nights are cool. Spring and fall are often short with sharp day-to-day temperature changes. All seasons have frequent weather changes as alternate high and low pressure systems move across the continent from west to east. The long-term annual average temperature is 41 degrees Fahrenheit (F.). December through March temperatures generally average below 32 degrees F. The date of the last killing frost in Sawyer County has ranged from mid May to mid June. The growing season averages about 120 days. Average monthly temperatures range from a low of 9.6 degrees F. in January to 66 degrees F. in July. Annual precipitation, including snowfall, is about 32 inches. Snowfall averages between 60 and 70 inches per year.

Prevailing winds are from westerly directions from late fall through early spring and from southerly directions the remainder of the year. April is the windiest month with an average of about 13 miles per hour, while July and August are the least windy with an average of 9 miles per hour.

Possible sunshine averages 60 percent from late spring through early fall, near 40 percent in late fall and early winter, and between 50 and 60 percent for the remaining months.

## **GEOLOGY**

Igneous and metamorphic rocks of Precambrian age underlie Sawyer County. The principal surface deposits are glacial drift and alluvial sand and gravel. It varies in thickness throughout the county ranging from a few feet to 250 feet. Along the Chippewa River are numerous rapids caused by outcropping of the granitic rock that forms the underlying bedrock formation throughout the eastern three-fourths of the county.

## **SOILS**

The soils in the Town of Spider Lake are upland and outwash types from glacial drift and are acidic in nature.

The chemical constituents of the surface and ground waters are reflections of the soil type of a particular region. Spider Lake's waters tend to be acid like its soils and low in the essential nutrients necessary for organic life. Phosphates, potassium, and magnesium levels are lower than in other soil types of the state; while the less essential iron occurs in excessive and often detrimental amounts. Low nutrient levels or fertility is also accentuated in the landlocked lakes where the water source is principally from precipitation with little ground water inflow. Geologic characteristics that greatly affect water quality in the landlocked lakes are the uneven nature of the underlying granitic bedrock formation and deposits of impervious masses of clay in the glacial till. The lakes which form in these pockets tend to have stabilized water levels, which combined with the acidic nature of the soil contributes to the development of encroaching bogs on lakeshores.

The following are the soil associations published in the General Soil Map, Sawyer County, Wisconsin. The major land and soil associations are shown at the end of the chapter Map 5.1.

FREER-FREEON-ADOLPH (Fr-Fn-Ad) - Nearly level to gently sloping, somewhat poorly, moderately well and very poorly drained soils formed in silts over sandy loam to loam glacial till.

SANTIAGO-FREEON-MILACA (S-Fn-M) - Gently to strongly sloping, well and moderately well drained soils formed in silts over sandy loam glacial till.

IRON RIVER-PENCE (IR-Pe) - Rolling to steep, well to somewhat excessively drained soils formed in shallow loam material over sandy loam glacial till or loose sandy and gravelly outwash or drift.

CLOOUET-VILAS (Cl-Vi) - Rolling to steep, somewhat excessively drained sandy loam and glacial till or sandy, gravelly drift.

ANTIGO- BRILL-STAMBAUGH (A-Br-St) - Nearly level to gently sloping, well to moderately well drained soils formed in 20 to 40 inches of silt over loose sandy and gravelly outwash.

CHETEK-PENCE-ONAMIA (Ch-Pe-On) - Nearly level to moderately steep, somewhat excessively drained soils formed in shallow sandy loam and loam material over sandy and gravelly outwash.

OMEGA-PENCE (O-Pe) - Nearly level to rolling, excessively drained soils formed in deep sands and loamy sands and in shallow sandy loams over sand and gravel.

POSKIN-BRILL-RIB (Po-Br-R) - Nearly level to depressional, moderately well to poorly drained depressional soils formed in 20 to 40 inches of silts overlying sands and gravel outwash.

PEAT-MUCK (P-M) - Shallow and deep organic accumulations, in various stages of decomposition, derived from sedges, fibrous and woody material.

## **WATER RESOURCES**

### **Surface Waters**

The total inland surface water area of Sawyer County is 58,359 acres. Of this, 5,822 acres or about 10 percent are found in the Town of Spider Lake. There are 50 named lakes in the Town of Spider Lake. These water resources lie within three watersheds (Map 5.2) the Upper Namekagon River, West Fork Chippewa River and Lake Chippewa. Eighty-five percent of the Town is in the West Fork Chippewa River and Lake Chippewa watersheds. The total miles of lake shoreline are 109 miles with 29 miles in public ownership.

### **Water Quality**

The chemical quality of water in streams and lakes in the county is generally very good. The lakes of Wisconsin and Sawyer County fall into four main types when classified by water source and chemistry; hard water drainage, soft water drainage, hard water seepage, and soft water seepage lakes. The other minor types of lakes include acid bog lakes, alkaline bog lakes, and spring ponds. In terms of surface acreage, the most common type in the Town is the soft water drainage lake, including Ghost, Teal, and Lost Land Lakes. They are typically clear, slightly acid and of good fertility.

### **Groundwater Quality**

Large supplies of good quality ground water are available in most of the Chippewa Basin, including the Town of Spider Lake. Area differences in ground water quality are due to the composition, solubility, and surface area of the particles of soil and rock through which the water moves and its speed of movement. Minor water use problems are caused by hardness and locally high iron concentrations. Water from the deeper sandstone aquifers is slightly more mineralized as opposed to the surficial sand and gravel acquirers. The concentration of nitrate in ground water of the Town is generally low.

Local climatic conditions along with recurrent seasonal fluctuations cause variations in the ground water level that in turn affects stream flow and lake levels. With natural recharge and discharge continually occurring, the greatest rise in ground water levels usually takes place in spring and early summer due to snowmelt and rainfall. Water levels generally decline the rest of the year. Long-range fluctuations also occur from year to year. Changes in ground water levels reflect, in a general way, changes in the balance between precipitation, evapotranspiration, and run-off in the water system. Ground water levels in the area are more stable than in surrounding areas and in areas of different soil types and greater population in other parts of the state. Spider Lake lies in a Drift Province of abundant aquifers, and plentiful supplies of ground water are obtained from sands and gravels of the glacial drift and the valley alluvium.

### **Floodplains**

Areas susceptible to flooding are considered unsuitable for development because of risks to lives and property. Effective in 1981, the Flood Hazard Boundary Map (FHBM) for Sawyer County is the most recent source for identifying areas subject to flooding in the Town of Spider Lake. These flood hazard maps are available from the Sawyer County Zoning Office. The FHBM is intended to be general in nature and additional field checking may be required to determine whether or not a given area is in the floodplain before development is authorized or denied. Maps are available for review at the Town Hall or county zoning department.

### **Wetland Resources**

The Wisconsin Wetland Inventory available for Sawyer County estimates that about 160,000 acres of all types of wetlands exist in the county. In comparison, the Wisconsin Wetland Inventory has mapped approximately 16,500 acres in the Town of Spider Lake. This is about 10 percent of the county's area. Both of these figures are an understatement of the actual wetland acreage because the inventory only maps wetlands greater than five acres in size.

Wetlands serve several important environmental functions including flood control, water quality improvement, and groundwater recharge as well as providing habitat for fish and wildlife. Map 5.3 delineates wetlands five acres and over mapped by the Wisconsin Department of Natural Resources (DNR) on its digital Wisconsin Wetland Inventory Maps and may not reflect all areas considered wetlands by the United States Department of Agriculture (USDA) or the U.S. Army Corps of Engineers.

A complex set of local, state, and federal regulations place limitations on the development and use of wetlands. The Shoreland/Wetland Zoning Ordinance adopted by Sawyer County regulates shoreland use and development within 300 feet of navigable streams and 1,000 feet of lakes (Map

5.4). The Department of Natural Resources regulates the placement of structures and other alterations below the ordinary high water mark of navigable streams and lakes. The Corps of Engineers has authority over the placement of fill materials in all shoreland wetlands. And, after the recent enactment of Wisconsin Act 6, the Wisconsin Department of Natural Resources has regulatory authority over non-shoreland wetlands. Prior to placing fill or altering wetland resources, the appropriate agencies should be contacted to receive authorization. Wetlands are scattered throughout the Town with some of significant size. Approximately 24 percent (16,520 acres) of the gross land area of the Town is taken up by wetlands. These wetlands include a wide diversity of wetland types from emergent/wet meadow, to scrub/shrub, to deciduous and coniferous forest.

**Streams and Rivers**

Streams and rivers play a key role by supporting sport fisheries, transport surface runoff from area forests and link chains of lakes to one another. There are two types of streams, perennial and intermittent. Perennial streams have water flow during most of the year (> 50 percent of the time). Intermittent streams flow only after rain storms or during snowmelt, where otherwise they are dry most of the year.

**BIOLOGICAL COMMUNITIES**

A community is an assemblage of different plant and animal species, living together in a particular area, at a particular time in specific habitats. Communities are named for their dominant plant species. The following biological communities are found in the area:

Northern Forest: Contains mixed deciduous and coniferous forests found in a distinct climatic zone that occurs north of the tension zone.

Wetlands: Water is present, near, at, or above the ground surface, at least during a portion of a natural year, in sufficient quantities to support hydrophytic plants (plants that grow in water-saturated soils). Soils are indicative of water-saturated conditions, at least during a portion of a natural year.

Aquatic Communities: Including springs, ponds, lakes, streams and rivers.

**WILDLIFE**

The local area provides habitat for a variety of wildlife species including the following important waterfowl, furbearers, and game animals:

- |                |                 |                    |
|----------------|-----------------|--------------------|
| Beaver         | Gray Wolf       | Ruffed Grouse      |
| Black Bear     | Mallard         | Sharptailed Grouse |
| Blue-wing Teal | Mink            | Snowshoe Hare      |
| Bobcat         | Muskrat         | White tailed Deer  |
| Common Loon    | Otter           | Wood Duck          |
| Coyote         | Raccoon         | Woodcock           |
| Elk            | Red Fox         |                    |
| Fisher         | Ringnecked Duck |                    |

Two important rare and threatened species, the bald eagle and osprey inhabit the area. The osprey is listed as threatened by the WDNR. The two most popular game animals are the whitetail deer and ruffed grouse. These two species are primarily associated with the aspen type in the area.

Elk were reintroduced into Ashland County just to the east of Spider Lake and do frequent the eastern portion of the Town.

The most common nesting waterfowl are mallard, wood ducks, and blue-winged teal. Less common are the black ducks, hooded and American mergansers, and ring-necked ducks. The least common nesters are the American-widgeon, greenwinged teal, red-breasted mergansers, and lesser scaup. Only rarely do other species of waterfowl nest in this area of the state.

The most abundant migratory waterfowl during the spring and fall seasons in Sawyer County are scaup, ring-necks, coot, and mallards. Less common are goldeneyes, buffleheads, redheads, canvasbacks, black ducks, and blue-winged teal. The least common migrants are the wood ducks, American widgeon, pintails, green-winged teal, shovelers, gadwall, ruddy ducks, and mergansers. Blue, snow, and Canada geese and whistling swans are also a part of the migratory flight. Besides the waterfowl and beaver inhabiting the local wetlands and waters, muskrats, mink and otter are also important resources.

Wisconsin's Natural Heritage Inventory (NHI) is maintained by the Wisconsin Department of Natural Resources' (WDNR) Bureau of Endangered Resources. Rare species, natural communities and natural features significant to Wisconsin are maintained through this program. The program has three main objectives: collect information on occurrences of rare plants and animals, high-quality natural communities, and significant natural features in Wisconsin; standardize this information, enter it into an electronic database, and mark locations on base maps for the state; and use this information to further the protection and management of rare species, natural communities, and natural features (Wisconsin DNR).

### **MINERAL RESOURCES**

Development of metallic mineral resource is not expected in the future. However, development of non-metallic mineral deposits, sand and gravel, may be expected to occur in the future. When new deposits are sited and developed, special consideration of adjoining residential homes should be considered and standards developed to minimize effects of noise, air and water quality. Zoning regulations should be reviewed periodically to ensure current policies are applicable.

### **OPEN SPACE AND PARKS**

There are a number of developed park and recreational places along with hundreds of acres of open forest area. The Utilities and Community Facilities Chapter outlines some of these places. Significant to open space is the abundant supply of recreational forest land (county, state and federal). Recently, the Wisconsin Department of Natural Resources designated new state management areas to protect and preserve critical habitat.

**AGRICULTURAL RESOURCES**

Agricultural activity is not a predominate land use activity. However, it is an important land use activity. In 2006, only 21 parcels, totaling 611 acres were assessed as agricultural. Nearly all agricultural activity takes place in the southwestern portion of the Town. Even with a limited amount of agricultural activity, these and past agricultural lands play an important role in defining local and state agricultural practices. Prime farmlands are identified in Map 5.5.

**CULTURAL RESOURCES**

Cultural resources are a defining character or place that point to past and present history and heritage. Area forests, lakes and other natural resources define the area’s cultural heritage. The Northwood’s character exuberates the cultural resources evident throughout the Town. Community design, or the character in which the community exhibits its direction, takes the Northwood’s character, trees, colors and local surroundings into consideration when developing standards and recommendations for man-made developments.

The Wisconsin Historical Society maintains a list of archaeological sites and cemeteries known as the Archaeological Site Inventory Database (ASI). A number of archaeological and cemetery sites are presumed to be present in the Town. The past travel of native American Indians and European fur traders no doubt left behind sites where village or camp sites are now covered in dense forest cover. As future development occurs, consideration should be given to exploring the ASI data base for known or listed sites of significance.