

Chapter V

AGRICULTURE, NATURAL, AND CULTURAL RESOURCES

INTRODUCTION

This element describes the agriculture, natural, and cultural resources of the Town of Byron. These resources are significant to the quality of life, agribusiness, and the general economy of the town and region. It is of great importance to assess these resources and their significance before making development decisions that may have significant impacts on them. This chapter takes a broad view look at the resource base.

SOIL, FOREST, AND NON-METALLIC MINING RESOURCES BASE

The Town of Byron has utilized the soil as an agricultural resource since the 1800s. The soils in the town are generally favorable for agricultural production. Approximately, 17,264 acres of agricultural land exists in the town. Soils are categorized by order, suborder, great group, subgroup, family, and series. The order is the highest category and the series is the lowest category. Ten soil orders exist throughout the world. Five soil orders and twenty-three soil series are found in the town (Appendix A, Map 2).

Soil Order: Alfisols

Beecher, Casco, Dodge, Fox, Lomira, Morley, Leroy, Lomira-Knowles, Knowles, St. Charles, and Virgil series are all part of the alfisols order. These soils mainly developed under forest vegetation in a glacial till deposit substratum. These soils have high clay content and have moderately slow water permeability. Alfisols are the most abundant soil order within the Town of Byron and are used for agricultural or woodland production.

Soil Order: Entisols

Juneau and DePere soil series are of the entisols order. Entisols are soils of recent origin that are not developed. These soils are found on floodplains of streams or in low-lying drainage ways within the town. These soils are best left undeveloped as flooding is a main limitation.

Soil Order: Histosols

Houghton and Palms soil series are classified as in the histosols order. Histosols have high organic matter content and are called bogs, peats, or mucks. They are often water saturated for most of the year which prohibits organic matter decomposition and are found mainly in low lying wetland areas within Byron (Appendix A, Map 2 and Map 5). These soils provide both wildlife habitat and stormwater retention.

Soil Order: Inceptisols

The Keowns soil series is are part of the inceptisols order. Inceptisols are not prominent in the Town of Byron. This soil occupies depressions and drainageways on old glacial lake plains or in recent deposits left by streams. The original vegetation was water tolerant trees and grasses.

Soil Order: Mollisols

Ashkum, Elliot, Hockheim, Peebles, Poygan, Pella, and Sebewa soil series are all examples of the soil order mollisols. These soils have a thick dark-colored layer of organic matter. These soils developed primarily under prairie grasses and secondarily from stream or river alluvial deposits.

Mollisols are the most abundant crop producing soils in the United States. The northwestern quadrant of the Town of Byron has a significant area of mollisols.

Prime Soils

The U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS), established a soil classification system under which soils are categorized based on productivity. Prime soils are defined as land that is suited for the production of food, feed, forage, fiber, and oilseed crops when properly treated and managed. Based on this definition most of the land in the Town of Byron is suitable for agricultural production (Appendix A, Map 3). In addition, the NRCS classifies land using an eight different capability classes. Soils in class I have few limitations that restrict their use. Class II soils have moderate limitations, Class III has severe limitations, and Class IV soils have very severe limitations. Only the Dodge and Lomira-Knowles soil series are ranked as class I in the Town of Byron. The remaining series have moderate, severe, or very severe limitations that reduce the choice of plants, require special conservation practices, or careful land management.

Soil Erosion

The Town of Byron does not have many areas with highly erodible land (Appendix A, Map 4). However, many areas in the town are potentially highly erodible. The potential for high erosion should be taken into account for future agriculture practices or other developments. The Hockheim and LeRoy soil series has experienced the greatest erosion due to very steep slopes.

Forests

Much of the native forests in the town were cleared for agriculture production and homes. Some of the remaining woodlots have experienced fragmentation from residential development. Today, the Town of Byron has approximately 1,935 acres of woodland. About 8.3 percent of the Town of Byron's land area is in woodlands. These areas contribute to clean air and water, maintenance of a diversity of plant and animal life, and provide for recreational opportunities. Under balanced use and sustained yield management, woodlands can serve scenic, wildlife, educational, recreational, environmental protection, and forest production benefits simultaneously. Some of woodlots have been fragmented by residential development, however, potential exists for the remaining woodlots for economic or recreational uses.

Nonmetallic Mining

The Town of Byron has an abundant supply of gravel and stone resources. Currently, five companies extract non-metallic resources from mines within the town. Most of these resources are extracted from sections 10 and 11 (Appendix A, Map 12). Wisconsin Administrative Code NR 135 requires that all counties adopt and enforce a Nonmetallic Mining Reclamation Ordinance that establishes standards for reclamation of mining sites. Nonmetallic mining reclamation ordinances help protect the environment and create productive future land uses with the potential to provide habitat and increased land values.

WETLANDS, WATERSHEDS, FLOODPLAINS, AND SURFACE WATER RESOURCES

Wetlands

Wetlands perform an important set of natural functions, which make them particularly valuable resources lending to overall environmental quality, biological diversity, and quality of life. Some wetlands provide seasonal groundwater recharge or discharge. Those wetlands that provide groundwater discharge often provide base flow to surface waters. Wetlands contribute to the

maintenance of good water quality by serving as sediment traps, which retain soil and nutrients, thereby preventing them from reaching lakes. They act to retain water during dry periods and hold it during flooding events, thus helping to manage water table levels. They provide essential breeding, nesting, resting, and feeding grounds and predator escape cover for many forms of fish and wildlife. These attributes have the net effect of improving environmental health; providing recreational, research, and environmental opportunities; maintaining opportunities for fishing and hunting; and adding to natural area aesthetics.

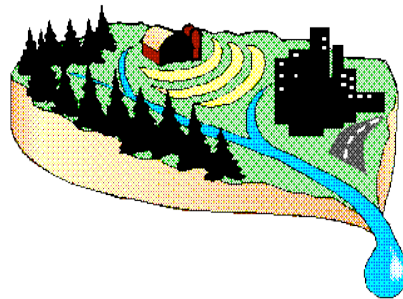
Wetlands pose severe limitations to development. In general, limitations are related to the high water table, low soil bearing capacity, and high shrink-swell capacity. These limitations may result in flooding, wet basements, and unstable foundations. In addition, there are significant and costly on-site preparation and maintenance costs associated with the development of wetland soils, particularly in connection to roads, foundations, and public utilities. In Byron, two significant wetland areas are located in the east central and west central portions of the town (Appendix A, Map 5). Other scattered areas are found along stream drainage ways.

Watersheds

Watersheds and basins interconnected areas of land draining from surrounding ridge tops to a common point such as a lake or stream confluence with a neighboring land area. All lands and waterways can be found within one watershed or another. Picture a raindrop making its way from the very top of the mountain, through and over the land, joining more water on a journey down through gullies, streams and rivers to a lake (Figure V-1). The land where all the water comes from is a watershed...it's easy to see that what the water picks up on its journey will affect the receiving waters -- lakes, rivers, and wetlands located downstream.

Figure V-1

WATERSHED DIAGRAM



Four surface watersheds exist in the Town of Byron (Appendix A, Map 6). The East/West Milwaukee River watershed is part of the larger Milwaukee River Basin. The East Branch Fond du Lac River and Fond du Lac River watersheds are part of the Upper Fox River Basin. The East Branch Rock River watershed is part of the Upper Rock River Basin. Water from the East Branch Rock River watershed flows into the Upper Rock River basin and eventually to the Mississippi River. Water from the East Branch Fond du Lac, Fond du Lac, and East/West Milwaukee River watersheds flows into the Upper Fox and Milwaukee River basins and makes its final destination in Lake Michigan.

Floodplains

The floodplains of a stream are the wide, gently sloping areas contiguous with and usually lying on both sides of a stream channel. Streams occupy their channels most of the time. However,

during flood events, stream discharges increase beyond the capacity of the channel to accommodate the entire water flow resulting in a spreading of water onto the floodplain.

For planning and regulatory purposes, floodlands are normally defined as the areas, excluding the channel, subject to inundation by the 100-year recurrence interval flood event. This is the event that would be reached or exceeded in severity on the average of once every 100 years. It should be noted that the 100-year recurrence interval contains within its boundaries the areas inundated by floods of less severe, but more frequent occurrence of 5, 25, or 50 years. Floodplains are not suited for development due to flood hazards, high water tables, and inadequate soils. However, they may be suitable locations for park and open space. Floodplains, like wetlands, provide storage for floodwaters and thereby help to decrease downstream discharges. Floodplains in the Town of Byron exist along De Neveu Creek, Campground Creek, the East Branch of the Fond du Lac River, and the West Branch of the Milwaukee River. Wisconsin Statute 87.30 requires counties, cities, and villages to implement floodplain zoning. Fond du Lac County administers a floodplain zoning program in the Town of Byron.

Surface Waters

Approximately 68 acres of surface water exist in the Town of Byron. This includes Campground Creek, De Neveu Creek, Kummel Creek, Parsons Creek, and the West Branch of the Milwaukee River. The East Branch of the Fond du Lac River is very close to the northwest corner of the Town of Byron. There are no lakes within the town, however several ponds are scattered throughout the area.

GROUNDWATER RESOURCES

Groundwater Importance

Safe, clean drinking water is what residents of the Town of Byron expect when they turn on their faucets. Groundwater is a vital resource that contributes immensely to the quality of life in the Town of Byron by providing a water supply for residential, commercial, and industrial uses. Moreover, groundwater is important to the environment as a perennial base flow for streams.

Groundwater Vulnerability to Contamination

Many contaminants in Wisconsin groundwater are naturally occurring. These include arsenic, radon, bacteria, parasites, viruses, iron, manganese, hydrogen sulfide, sulfate, chloride, barium, lead, zinc, copper, radium, and uranium. Potential groundwater contamination caused by poor management practices on the land surface include chemical storage, land spreading of sewage treatment plant sludges, road salt usage, animal feedlots, fertilizer use and spills, septic tanks, underground storage tank leakage, improperly abandoned wells, and improperly constructed wells.

The State of Wisconsin is recognized as a national leader in private water well protection. Wisconsin created the first water well regulations in 1936 and today all private wells in the state are protected by NR812 of the Wisconsin Administrative Code and regulated by the Department of Natural Resources. Since Byron residents rely upon their own private water wells and onsite sewage treatment systems it is important to test their water and maintain sewage treatment systems (See Recommendation 4, Page 31).

Since animal agriculture is prevalent in Byron, animal waste storage and spreading can create groundwater pollution if not done properly. The Fond du Lac County Land Conservation Department administers an animal waste storage ordinance. In addition, the State of Wisconsin

regulates livestock operations with 1,000 animal units or more and those livestock operations with less than 1,000 units that have discharges that significantly affect water quality (Table V-1). Recently, the Wisconsin Department of Natural Resources codified statewide performance standards for agricultural operations. These standards include manure management prohibitions, nutrient management, manure storage, and soil loss from fields along streams and rivers. Implementation of these standards will mainly be the responsibility of the counties although the Department of Natural Resources will be the main authority for large permitted facilities.

Table V-1

NUMBER OF ANIMALS THAT COMPRISE 1,000 ANIMAL UNITS

Type of Animal	Number	Type of Animal	Number
Dairy Cattle	700	Swine (15 to 55lbs)	10,000
Dairy Heifers (over 800 lbs)	900	Turkeys	55,000
Dairy Heifers (less than 800 lbs)	1,700	Layer Chickens	100,000
Dairy Calves	5,000	Broiler Chickens	200,000
Beef Cattle	1,000	Sheep	10,000
Swine (over 55 lbs)	2,500	Horses	500

Source: Wisconsin Department of Natural Resources

Groundwater Aquifers

Groundwater occurs within three major aquifers that underlie east-central and southeastern Wisconsin. From the land surface downward they are: 1) the sand and gravel deposits in glacial drift; 2) the shallow Niagara dolomite strata in the underlying bedrock; and 3) the deeper sandstone and dolomite strata. Due to the proximity to the land surface the first two aquifers are referred collectively as the shallow aquifer and the later is called the deep aquifer. Within the region, the shallow and deep aquifers are separated by the Maquoketa shale, which forms a relatively impermeable barrier between the shallow and deep aquifers.

Air Quality

The Clean Air Act requires the U.S. Environmental Protection Agency (EPA) to set national ambient air quality standards (NAAQS) for six criteria pollutants (carbon monoxide, lead, nitrogen dioxide, particulate matter, ozone, and sulfur oxides) which are considered harmful to public health and the environment.

Eastern Wisconsin experiences high levels of ground-level ozone. Ozone is formed when precursor pollutants, such as volatile organic compounds and nitrogen oxides, react in the presence of sunlight and is especially a problem on hot, sunny summer days. Vehicle exhaust, power plants, factories, and other sources generate these pollutants. The ozone problem is believed to be attributable to pollutant emissions generated by larger urbanized areas located to the south and southeast of the Town of Byron. The pollutants are carried into the area by prevailing winds. A multi-state and regional effort is necessary to effectively begin to reduce pollutant emissions.

Environmental Corridors/Sensitive Areas

The most important elements of the natural resource base of the town, including the best remaining woodlands, wetlands, prairies, wildlife habitat, surface water and associated floodplains, and related features, including existing park and open space sites, scenic views, and natural areas and critical species habitat sites, occur in linear patterns in the

landscape, termed “environmental corridors.” The preservation of these corridors is considered essential to the overall environmental quality of the town and the maintenance of its unique cultural and natural heritage and natural beauty. Because these corridors are generally poorly suited for development owing to soil limitations, steep slopes, or flooding potential, their preservation will also help to avoid the creation of new environmental and developmental problems. Two primary environmental corridors exist within the Town of Byron. They are found in sections 18, 19, 20, and 21 and in sections 24, 25, and 36 (Appendix A, Map 13).

While this plan recommends the protection of environmental corridors, it recognizes that certain development may be accommodated in such areas without jeopardizing their overall integrity. Under the existing plan, only 184 acres of the town’s 3,584 environmental resource acreage would be converted to other uses.

Wildlife Habitat

Most of the soil types in the Town of Byron have high potential for wildlife habitat. Many of these soils are used for agricultural production that reduces their potential for wildlife habitat. However, the town does have a significant amount of environmental areas that when combined with agricultural crops provide enough food, cover, and water for wildlife. The wetlands in the Town of Byron support waterfowl such as geese, ducks, herons, egrets, and swans. Wetland and upland areas also provide critical habitat for pheasants, song birds, deer, rabbits, grouse, fox, raccoon, squirrel, and muskrats.

Natural Areas

The Wisconsin Department of Natural Resources administers the state natural areas program. This program, is located in the Department of Natural Resources' Bureau of Endangered Resources and advised by the Natural Areas Preservation Council an 11-member group of scientists and conservationists. By 2002, its 50th Anniversary year, the state natural areas program had grown to nearly 400 sites encompassing more than 150,000 acres of land and water. These lands are found in 70 of Wisconsin's 72 counties and range in size from less than one acre to more than 7,700 acres.

A portion of the Oakfield Railroad Prairie State Natural Area is found in the Town of Byron in sections 6 and 7 along the Wild Goose State Trail that can be accessed from Lost Arrow Road. Oakfield Railroad Prairie is owned by the Department of Natural Resources and under the management of Fond du Lac County. It was designated a State Natural Area in 1998.

This prairie is a 10-acre remnant of the large, deep-soil mesic and wet-mesic prairies once found in this region and has been described as the best remaining prairie in Fond du Lac and Dodge counties. The long, linear strip of grassland lies within a former railroad right-of-way along the Wild Goose State Trail. While most mesic prairies have been nearly extirpated from the state due to human settlement and agriculture, railroads actually helped preserve the prairie through the unintentional fires sparked by the rails and stray cinders from passing locomotives that helped keep the site open and free from woody species encroachment. The northern segment, about ½ mile south of Willow Lawn Road, is the most striking and diverse. Dominant grasses include big and little blue-stem, Indian grass, prairie drop-seed, cord grass, blue-joint grass, and switchgrass. Common abundant forbs include smooth blue aster, Canada tick-trefoil, purple prairie-clover, prairie parsley, stiff goldenrod, prairie blazing-star, and heart-leaved golden

alexander. Less common are Canadian milk-vetch, glaucous white-lettuce, compass-plant, bottle gentian, and the hemiparasite, and bastard toad-flax.

Threatened and Endangered Species

Endangered species are defined as any species whose continued existence as a viable component of this state's wild animals or wild plants is determined by the Wisconsin Department of Natural Resources to be in jeopardy on the basis of scientific evidence. Threatened species are any species which appears likely, within the foreseeable future, on the basis of scientific evidence to become endangered. Small White Lady's Slipper and Yellow Gentian are the only two threatened plants that may be found in the Town of Byron or Fond du Lac County. The Wisconsin Department of Natural Resources does not list any plants in Byron as endangered. Threatened animals that may be found in the area are the Great Egret, Red-Shouldered Hawk, Redfin Shiner, River Redhorse, Ellipse Mussel, and Blanding's Turtle. Endangered animals that may be found in the town or county include Giant Carrion Beetle, Barn Owl, Forster's Tern, Slender Madtom fish, Striped Shiner, and Blanchard' Cricket Frog.

CULTURAL RESOURCES

Cultural resources include historic buildings and structures as well as historic archeological sites. The comprehensive planning law requires that this plan include a compilation of objectives, policies, goals, maps, and programs for the conservation and promotion of the effective management of historic and cultural resources.

State and National Register of Historic Places

The National Register of Historic Places recognizes properties of local, state, and national significance. The Wisconsin State Register of Historic Places parallels the National Register. Most of the properties in Wisconsin listed on the National Register are also on the State Register. There are not any sites in the Town of Byron that are listed on the State or National Register.

Wisconsin Architecture and History Inventory

The Wisconsin Architecture and History Inventory (AHI) developed by the Wisconsin Historical Society provides information on historic and architecturally significant properties in Wisconsin. The AHI compiles data on buildings, structures, and objects that contribute to Wisconsin's history. The majority of properties in this database are privately owned. These properties currently display any special status or benefits. According to the AHI, the Town of Byron has 59 properties. A description of these properties can be viewed at <http://www.wisconsinhistory.org/ahi/summary.asp> These sites should be reviewed and property owners should be educated about the National and State Register of Historic Places.

Parks and Open Space

The Town of Byron does not have any parks. Ten towns in Fond du Lac County operate at least one park. The Town of Byron is included in the Fond du Lac County Parks and Open Space Plan. The expansion of Hobbs Woods County Park in the Town of Byron is listed in the Fond du Lac County Park and Open Space Plan's capital improvement budget.

Community Design

The Town of Lomira is located in the south central portion of Fond du Lac County (Appendix A, Map 1). The town is 36 square miles in size and is surrounded by Dodge County to the south, the Town of Oakfield to the west, the Town of Eden to the east, and the Town of Fond du Lac to the

north. The City of Fond du Lac is slowly encroaching upon the Town of Byron's northern border. The hamlets of Byron and South Byron provide single and multi-family housing and serve as centers for small business. The remainder of the town has single family housing, scattered subdivision development, and large tracts of agricultural land and open space.

AGRICULTURAL, NATURAL, AND CULTURAL RESOURCES ELEMENT: GOALS AND OBJECTIVES

Goal 1

Maintain and enhance the farm economy in the Town of Byron.

Objectives

1. Support younger farmers who desire to pursue farming as a career.
2. Educate realtors, developers, and new residents about living in the country.
3. Support the Right to Farm in the town.
4. Encourage direct marketing of farm products to the growing urban market.
5. Increase efforts to buffer new residential development from existing farm operations.

Goal 2

Guide development in a manner that has minimal impacts on the peaceful rural character and natural and cultural resources of the Town of Byron.

Objectives

1. Avoid disturbance of environmental corridors and other sensitive areas such as wetlands and floodplains by directing growth away from them.
2. Encourage proper landowner forest management.
3. Collaborate and work with local historical societies, the state historical society, and landowners to identify and record sites and structures that have historical or archeological significance in the town.
4. Identify sources of groundwater contamination and work to reduce them.
5. Review existing and future nonmetallic mine reclamation sites for potential park development.

AGRICULTURAL, NATURAL, AND CULTURAL RESOURCES: POLICIES AND RECOMMENDATIONS

Policies

1. The town shall avoid disturbance of environmental corridors and other sensitive areas such as wetlands and floodplains by directing growth away from them.

2. The town will collaborate with local and state historical societies and landowners to identify and protect sites and structures with historic, archeological, or cultural significance.
3. The town will provide opportunities for landowners to learn and implement proper forest management techniques.
4. The town will reduce the impacts of new development on agricultural, natural, and cultural resources by requiring appropriate design and site plans for all proposed developments.

Recommendations

1. The town will distribute copies of *Country Acres: A Guide to Buying and Managing Rural Property* to realtors, developers, and new residents to educate them about rural living.
2. The town board and plan commission will make certain that new developments due not cause direct conflicts with operating farms.
3. The Town of Byron will work with Fond du Lac County, UW-Extension, and the Wisconsin Department of Natural Resources to provide education and increase awareness for the proper management of groundwater, floodplain, woodlot, and wetland resources.