

SUBCHAPTER 3: AGRICULTURAL, NATURAL  
& CULTURAL RESOURCES

## **SUBCHAPTER 3: AGRICULTURAL, NATURAL & CULTURAL RESOURCES**

### **21.300 PURPOSE**

The purpose of this Subchapter is to comply with §66.1001(2)(e), Wis. Stats., which requires this Plan to contain a compilation of objectives and programs for the conservation and promotion of the effective management of natural resources such as groundwater, forest, productive agricultural areas, environmentally sensitive areas, threatened and endangered species, stream corridors, surface water, floodplains, wetlands, wild life habitat, metallic and non-metallic mineral resources consistent with zoning limitations under §295.20(2), parks, open spaces, historical and cultural resources, community design, recreational resources and other natural resources.

### **21.301 INVENTORY OF NATURAL RESOURCES**

- (1) **ECOLOGICAL LANDSCAPES:** The Town is located in central Wisconsin where two ecological landscapes meet. The Northeast portion of the Town is contained in the “Central Sand Plains” ecological landscape and the Southwest portion in the “Western Coulee and Ridges” ecological landscape.

The Central Sand Plains ecological landscape occurs on a flat, sandy lake plain, formed in and around what was once Glacial Lake Wisconsin, which contained glacial melt water extending over 1.1 million acres at its highest stage. Soils are primarily sandy lake deposits, with some silt, loam, loess caps. Sandstone buttes carved by rapid drainage of the glacial lake, or by wave action when they existed as islands in the lake, are distinctive features of this landscape. The historic vegetation of the area includes extensive wetlands of many types. Prairies, forests, savannahs, and barrens also occur. The Wisconsin River is the largest river that flows through this landscape.

The Western Coulee and Ridges ecological landscape is characterized by its highly eroded, driftless topography, and extensive forested landscape. Soils are silt, loam (loess) and sandy loams over sandstone residuum over dolomite. The historical vegetation consists of southern hardwood forests, oak savannah, scattered prairies, and floodplain forests and marshes along the major rivers. Current vegetation is a mix of forest, agriculture and grassland, with some wetlands in the river valleys.

Map No. 1 attached hereto shows the land cover for the Town.

- (2) **THE DELLS:** The unique combination of geological and biological features found in the Dells is unusual in the Midwest and rare nationally. Sandstone cliffs in the Kickapoo River valley in Vernon and Crawford counties are geologically comparable to the Dells, and the Dalles of the St. Croix River between Wisconsin and Minnesota are somewhat similar. However, the Dalles of the St. Croix River were formed under different circumstances and are composed of different rock types. In addition, some of the native plant communities found in the Dells of the Wisconsin River State Natural Area are uncommon in the state. Some communities such as northern dry-mesic forest with red and white pines are typically found farther north. Of special significance are the shaded and exposed cliffs, which harbor several species of rare plants. While similar cliffs are found in Sauk County, the diversity of the cliffs and cliff flora in the Dells is unmatched. The Dells contain the most significant populations of some rare plant species in the state.
- (3) **SURFACE WATER:** Rivers and streams in the Town furnish an abundant supply of surface water. The main uses of surface water are as fish and wildlife habitat, for irrigation, and for the enjoyment of anglers, boaters, hunters and tourists. The major soil type being porous sand allows for most surface water to leach directly into the ground. Other waters travel from small wetlands, ponds and lakes along small creeks and

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streams, draining into the Wisconsin River along our eastern boundary. The Town has some trout streams classified under NR-20, including Gilmore Creek with 2 miles of class 1 and 1.5 miles class 2, and Lyndon Creek with 6 miles of class 3 of which approximately ¼ mile is in Lyndon. (See Map No. 2 regarding "Water, Wetlands & Floodplains").

- (4) **GROUNDWATER:** In Juneau County, the major source of water supply is from groundwater aquifers and is available in adequate quantities for most domestic, agricultural, and business needs. The quality of the groundwater throughout Juneau County is generally good for most uses, but treatment may be needed for specific purposes. The water is relatively soft, but local differences in quality are caused by a variety of factors. Calcium, magnesium, and bicarbonate ions derived from dolomite are present. Minor water problems occur locally due to high concentrations of iron produced mainly by reducing conditions in marshes and swamps, although some iron does come from the bedrock.
- (5) **WETLANDS:** Wetlands serve several important environmental functions including flood control, water quality improvement and groundwater recharge as well as providing habitat for fish and wildlife. Wetlands shown reflect wetlands mapped by the DNR on its digital Wisconsin Wetland Inventory Maps and may not reflect all areas considered wetlands by the United States Department of Agriculture (USDS) or the US Army Corps of Engineers. A complex set of local, state, and federal regulations place limitations on the development and use of wetlands. The Shoreland Zoning Ordinance adopted by Juneau County regulates shoreline use and development within 300 feet of navigable streams and 1,000 feet of lakes. 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 Army Corps of Engineers has authority over the placement of fill materials in virtually all wetlands. The USDA incorporates wetland preservation criteria into its crop price support programs. Prior to placing fill or altering wetland resources, the appropriate agencies should be contacted to receive authorization. Wetlands are scattered throughout the Town. There are approximately 879 acres of wetland comprising 4.85% of the Town's land area. These wetlands exhibit great diversity in hydrologic and vegetative characteristics. The majority of the wetlands are forested areas with wet soils. These lowland areas support mixed hardwood and needle-leaved coniferous/deciduous plant communities. Wetter areas support scrub/shrub and emergent vegetation types. (See Map No. 2 regarding "Water, Wetlands & Floodplains").
- (5) **WISCONSIN RIVER:** The eastern boundary of the Town is the Wisconsin River, the largest river in the State, providing habitat for a wide variety of fish and wildlife. The river is used extensively by anglers, boaters, hunters and tourists. This portion of the river is commonly known as the "upper Dells" because it is located above the dam in the heart of Wisconsin Dells. The "upper Dells" enjoys unusual rock formations and unparalleled scenic beauty, which served as the catalyst for the development of the tourism industry of Wisconsin Dells and which has been enjoyed by tourists for over 100 years. A significant portion of the Town's shoreline along the Wisconsin River is owned by the State of Wisconsin and the University of Wisconsin, both of which are committed to preserving its natural beauty.
- (6) **SMALL STREAMS:** The Town has the following small streams, plus several smaller creeks which are un-named:
- (a) Lyndon Creek
  - (b) Dell Creek
  - (c) Gillmor Creek
- (7) **LAKES:** The Town has a variety of small lakes and ponds, most of which are unnamed. Trout Lake is one of the larger bodies of water.

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- (8) **WOODLANDS:** Woodlands and forests cover a significant portion of the Town, with over 51% of the Town forested. Map No. 3 shows the “Woodland” in the Town. The vast majority of this land is in private ownership. Some woodlands in the Town are managed through the Managed Forest Law (MFL) and the Forest Crop Law (FCL). These tax assessment programs are available to landowners willing to manage their woodlands according to sound forestry practices specified in a management plan.

The primary function of woodlands is to provide wildlife habitat and enhance scenic beauty. Woodlands also serve to protect important water resources, drainage and hydrologic functions, control pollution and provide an inviting recreational setting and educational opportunities to residents and visitors. The DNR conducted a comprehensive forest reconnaissance in 1995 for the Dells of the Wisconsin River State Natural Area. According to the Master Plan, forest types were delineated and mapped and forest management recommendations prepared. Nearly 90 percent of the land within the Dells Natural Area is forested. Oak trees make-up roughly 49 percent of the timber in the area. White pine accounts for approximately 31 percent, red pine about nine percent and eight percent is jack pine. Prior to settlement, the Dells area was vegetated by plant communities influenced by frequent fires. As a result, fire-sensitive species such as maples were found only in the most fire-protected sites. Today, most of the forest can be classified as dry-mesic northern forest. Typical species include mixtures of pin oak, black oak, white oak, jack pine, white pine and red pine. Some sites with more moisture have red and white oak mixed with red maples and black cherry.

- (9) **SOILS:** Soils occur in an orderly pattern that is related to the physical geography, climate, and the natural vegetation. Each kind of soil is associated with a particular kind of landscape or with a segment of the landscape. By observing the landscape in an area, by reviewing the soil map, and by understanding what is possible with each soil type, relationships can be created to determine the most productive use for an area. Most of the soils in Juneau County formed under forest vegetation. This resulted in a light-colored soil that has a relatively low content of organic matter. Also, because tree roots intercept water at greater depths than grasses, there is more effective leaching. This leaching removes nutrients and allows clay accumulation at greater depths. In addition, there is an abundance of microflora, such as bacteria and fungi, which play important roles in decomposing organic matter and recycling the nutrients. Animals in the soil, including earth worms, insects, and rodents, mix the soil and contribute to additional organic matter, thereby affecting soil structure, porosity, and content of nutrients. Human activity also affects soil formation by altering and accelerating natural soil processes. Many soils have been altered by draining, clearing, burning, and cultivating. Repeatedly removing plant cover has accelerated erosion. Over-cultivation has often contributed to the loss of organic matter and has reduced the infiltration rate. Map No. 4 shows groups of soil types called associations. Each association has a distinctive pattern of soils, relief and drainage. Each is a unique natural landscape. Typically, an association consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one association can occur in another association, but then would exist in a different pattern. Because of the general soil map’s small scale, it is only useful for determining suitability of large areas for general land uses. Soil maps located in the Juneau County Soil Survey Book are printed in a large scale and, therefore, are helpful in deciding land uses in specific sections.

- (10) **NON-METALLIC MINING:** Nonmetallic mining is a widespread activity in Wisconsin. In the Town there are currently no operating nonmetallic mining operations, and no registered marketable non-metallic mineral deposits. The variety of geologic environments provides for a diverse industry. Statewide, an estimated 2,000 mines provide aggregate for construction, sand, gravel and crushed stone (limestone and dolomite) for road building and maintenance as well as for agricultural use as lime. A smaller number of sites provide dimension stone for monuments, volcanic andesite for shingles, peat for horticulture and landscaping, industrial sand for export for the oil

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industry and a considerable variety of materials for other uses.

Chapter 295, Wisconsin Statutes, enabled the DNR to establish rules, such as Chapter NR 135, Wis. Adm. Code, to implement a nonmetallic mining reclamation program. The overall goal of NR 135 is to provide a framework for statewide regulation of nonmetallic mining reclamation. The rule does this by establishing uniform reclamation standards and setting up a locally administered reclamation permit program. In order to facilitate this process, the DNR published a model ordinance for use/adoption by counties and interested municipal governments. The ordinance established a reclamation program that issues reclamation permits in order to ensure compliance with the uniform reclamation standards contained in the rule. All counties were required to adopt an ordinance by June 1, 2001. Cities, towns and villages may choose to adopt an ordinance and administer a program within their jurisdiction at any time. A reclamation plan must be approved prior to operating a new mine, or no later than September 1, 2004 for existing mines. The purpose of the reclamation plan is to achieve acceptable final site reclamation to an approved post-mining land use in compliance with the uniform reclamation standards. The reclamation standards address environmental protection measures including topsoil salvage and storage, surface and groundwater protection, and contemporaneous reclamation to minimize the acreage exposed to wind and water erosion. Chapter NR 135 also requires that mine operators submit annual fees, as specified by the local regulatory authority, and an acceptable financial assurance instrument to ensure completion of the reclamation plan. Reclamation of nonmetallic mines according to approved plans will achieve approved post-mining land uses. This results in environmental protection, stable non-eroding sites, productive end land uses and potential to enhance habitat and increase land values and tax revenues.

- (11) **CLIMATE:** Winters are very cold, and short summers are fairly warm. In the winter, the average temperature is 19 degrees Fahrenheit and the average daily minimum temperature is 8 degrees. Summer average temperature is 69 degrees. Precipitation is fairly well distributed throughout the year, reaching a slight peak in the summer. Total annual precipitation is about 33 inches. Snow generally covers the ground much of the time from late fall through early spring.

**21.302 INVENTORY OF AGRICULTURAL RESOURCES**

- (1) **LAND USE:** According to the 2008 assessment roll, the Town is almost 28.4% agricultural. An additional 12% is ag forest land, and another 7% is managed forest lands. Map No. 8 shows "Current Land Use" as of June, 2009.
- (2) **PRIME FARMLAND:** Prime farmland is one of several kinds of important farmland defined by the US Department of Agricultural, and is of major importance in meeting the nation's food needs. Prime farmland is land that is best suited to food, feed, forage, fiber and oil seed crops. It may be cultivated land, pasture, woodland or other land, but it is not urban land or water areas. Prime farmland produces the highest yields with minimal expenditures of energy and economic resources, and with the least damage to the environment. Adequate and dependable sources of moisture from precipitation or irrigation are available. The temperature and growing season are favorable, and the level of acidity or alkalinity is acceptable. Prime farmlands have few or no rocks and are permeable to water and air. It is not excessively erodible or saturated with water for long periods and is not frequently flooded during the growing season. The land slope on these lands ranges mainly from 0% – 6%.

The Town has a small amount of prime farmland, approximately 2,783 acres, spread across the Town, as shown on the attached map. Map No. 5 shows the location of "Prime Ag Land Soils."

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- (3) **FARMING OPERATIONS:** The Town has been an agriculture-based community since its inception. However, like most rural areas, the Town has seen family farms gradually go out of business. In 1960 there were thirty farms in the Town, twenty-four of which were dairy farms. Currently, there are thirteen farms, four of which are dairy farms. Although little land has gone out of agriculture, there has been a consolidation of operations.

**21.303 INVENTORY OF CULTURAL RESOURCES**

- (1) **THE HO-CHUNK NATION:** As noted above (§21.203), the Wisconsin Ho-Chunk do not have lands reserved (a reservation) in Wisconsin. Today, all Wisconsin Ho-Chunk tribal lands are lands they once owned but they have had to repurchase. As of December 27, 2001, the 6,159 members of the Wisconsin Ho-Chunk Sovereign Nation held title to 2,000 acres of land. The largest concentrations of Ho-Chunk tribal members are in Jackson, Monroe, Milwaukee, Sauk, Shawano, and Wood counties. The Ho-Chunk Nation owns approximately 77 acres in the Town.
- (2) **ROCKY ARBOR STATE PARK:** In the southeastern corner of the Town is the 244 – acre Rocky Arbor State Park. It has 89 wooded campsites nestled into the pine trees and sandstone bluffs. The park has a 1 mile self-guided nature trail, and has camping facilities such as showers, flush toilets, electricity, and a playground.
- (3) **UPHAM WOODS OUTDOOR LEARNING CENTER:** Upham Woods is the result of an amazingly far-sighted vision of two sisters from the Upham family. In 1941, when the United States was growing rapidly at the expense of its natural resources, Elizabeth and Caroline Upham decided to save their beloved childhood summer home from the hands of developers forever. These sisters laid the philosophical groundwork for Upham Woods with their stipulations of the land's use. They wrote: *"These lands are to be used as an outdoor laboratory and camp for youth, such as 4-H clubs and other people cooperating with the University of Wisconsin in the advancement of conservation, of agriculture and rural culture."* Since 1941, Upham Woods has been a place where people gather to explore and experience the natural world. Early on, programs with Ranger Mac and Marvin Hanson introduced 4-H and school groups to the unique geology and forest communities of the area. Nature study was a main component of the program. Today, the emphasis continues with even greater focus, as environmental issues have grown on a local and global scale. The activities at Upham Woods are designed to encourage youth leaders to address environmental issues with the goal being the development of caring and responsible stewards of the natural world and its inhabitants. Upham Woods' programming focuses on both the natural and cultural history of the Wisconsin River, with topics ranging from the French Voyageurs of the Fur Trade, to finding archeological artifacts from the 1800's Dell House, to exploring the sandstone caves of the Dells. Through Upham Woods' educational programming, youth obtain a unique view on how Wisconsin has changed ecologically and culturally. Youth are encouraged to explore Wisconsin's past to discover valuable lessons that will enable each of us to better plan for the future of Wisconsin and the world.
- Today, as you visit Upham Woods you will find a model residential environmental education center, operated by the University of Wisconsin-Extension. The center sits on a prime location on the Wisconsin River, two miles north of the Wisconsin Dells, offering an excellent "river classroom" to study the both the natural and cultural history of Wisconsin. The center rests on 310 total acres of forested land, including a 210-acre island called "Blackhawk Island." This island has been designated a state natural area and offers a beautiful example of a mature mixed forest featuring flora not commonly found in the area. The island also has tremendous sandstone caves formed during the ice age. It's definitely a "different view" when you climb through them! The facility consists of 14 buildings including a fully equipped nature center and a raptor enclosure housing educational birds of prey. The center supplies lodging for 146 people, meals, and

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environmental education year-round for youth and youth leaders, including environmental lesson plans, summer camp programming, leadership workshops and other conferences. Upham Woods has three full-time teaching naturalists that live on-site in spring, winter and fall and a total of five teaching naturalists in the summer.

- (4) **WISCONSIN ALUMNI RESEARCH FOUNDATION (WARF):** As noted above (§21.203) the Wisconsin Alumni Research Foundation (WARF), and its subsidiary Dells Boat Tours, LLC, owns and protects a significant portion of the shoreline.
- (5) **COUNTY PARKS:** There are no county parks in the Town.
- (6) **TOWN PARKS:** There are no town parks.
- (7) **WONEWOC SCHOOL FOREST:** The School District of Wonewoc owns 120 acres of forest land in the Town.
- (8) **OTHER CULTURAL RESOURCES:** (None)

#### **21.304 PUBLIC INPUT**

According to the participation survey, Town residents are split regarding whether agricultural land should be rezoned into other uses: 46% are against rezoning, and 39% are in favor, with the remainder uncommitted. The overwhelming majority of residents believe it is important to preserve the scenic beauty, wildlife, and natural areas of the Town. These positions are slightly in conflict with the belief of two-thirds of residents who think future growth of business is essential to the stability of the Town. These positions can only be reconciled if the Town adopts and enforces a zoning ordinance which locates business in areas which will not conflict with agriculture, scenic beauty, wildlife and natural areas.

#### **21.305 GOALS, OBJECTIVES AND POLICIES**

- (1) **CONSERVATION:** The Town should conserve its major environmental and recreational resources, including floodplains, wildlife habitat, wetlands, woodlands, open spaces, surface water and groundwater surfaces. New development in the Town should (i) not negatively impact these natural resources, (ii) encourage and support the conservation of undeveloped lands that serve to minimize flooding, such as wetlands and flood plains, and (iii) minimize impact to the Town's natural resources from non-metallic mineral mining.
- (2) **AGRICULTURE:** The Town should protect and support agriculture as an important economic activity and land use within the Town. Land divisions on prime and productive farmland should be discouraged. Existing agricultural uses should be taken into consideration when locating new development to avoid conflicts. Non-farm development should be located in areas away from agricultural activities in order to minimize conflicts.
- (3) **CULTURAL RESOURCES:** The Town should preserve and protect cultural resources. Development proposals should be reviewed for potential impacts to these resources.
- (4) **SCENIC BEAUTY:** The Town will place a high priority on the preservation of scenic beauty and the aesthetic features of the Town which give the community its unique, rural character. The Town will adopt ordinances which protect scenic beauty and encourage the clean-up and maintenance of properties. The Town will encourage higher standards for architectural and landscape design for commercial development, and the Town will regulate nuisances so that residents have recourse against nuisance properties.