

# Three Lakes <sup>2030</sup>

## Chapter 7: Agricultural, Natural, & Cultural Resources

### STATE WILDLIFE AREAS AND WILDLIFE HABITAT

The woodlands and lowlands of Three Lakes provide a diverse mosaic of habitat for game and nongame wildlife with much of the area supporting food and cover values needed for deer and other game. The combination of large tracts of woodland and wetland areas, interspersed with small areas of farmland, offers year-round food sources and cover for wildlife. The lakes and streams of Three Lakes provide high-quality aquatic habitats.



Thunder Lake Wildlife Area. Source, WDNR.

The Thunder Lake Wildlife Area is a 3,000-acre property located one mile north of Three Lakes. It includes the 1,800-acre Thunder Lake, the 120-acre Rice Lake, and the Rice Lake State Natural Area. The property consists of open peat wetland and tamarack and black spruce woodlands. In addition to a wide variety of wetland wildlife using the property, three rare bird species: the Nelson sharp-tailed sparrow, Merlin and the yellow rail, nest on the property.

### WILDLIFE HABITAT

Nearly 70% of the Three Lakes landscape is classified as woodlands, wetlands or surface waters, offering a wide variety of plant and animal habitat. These areas provide food and cover for birds, mammals, aquatic life and other wildlife common in the area. Local farm fields serve as a food source for deer, sandhill cranes, turkeys and waterfowl. Agricultural lands also serve as important wildlife corridors between living, feeding and breeding areas. Wet microsites interspersed throughout other habitats provide important habitat for amphibians and turtles.

The Chain of Lakes is a major waterfowl, aquatic, reptile and amphibian habitat area. The primary threats to wildlife in Three Lakes, as elsewhere, are habitat loss and habitat fragmentation (see box at right). Habitat loss typically occurs through the destruction of natural and agricultural lands during the commercial or residential development process. Fragmentation occurs when large contiguous areas of wildlife habitat are broken apart during commercial and residential development and new road construction. When fragmentation occurs, the remaining wildlife areas are known as *habitat islands*. Reconnecting fragmented habitat islands is the most effective way of increasing wildlife diversity.

#### *Habitat Fragmentation*

A primary threat to wildlife is **fragmentation** -- the breaking up of larger habitat areas into smaller sections.

Habitat fragmentation is the alteration or fracturing of wildlife habitat into discrete or tenuously connected islands. This results from modification or conversion of the landscape due to development or agricultural operations.

Carefully planned environmental corridors provide opportunities to reconnect fragmented natural areas and improve habitat for important plant, animal and insect species.

Fragmentation decreases wildlife population sizes, isolates habitat areas and creates more edges -- where two dissimilar habitats meet (i.e., grassland and residential subdivisions).

Isolated areas of habitat are known as **habitat islands**. Habitat islands can occur naturally (islands, mountain tops), but are most often human caused.

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### ENVIRONMENTAL CORRIDORS

Environmental corridors are components of the landscape connecting existing natural areas, open spaces and wildlife habitat (see box at lower right). They provide physical linkages between fragmented habitat areas and provide animals a means of travel to and from feeding and breeding places. Fish and wildlife populations, native plant distribution and even clean water all depend upon movement through corridors. Most native species decline when habitat areas are fragmented due to agricultural operations or residential and commercial development. Wildlife populations isolated in one location, like a stand of trees or a secluded wetland can overpopulate or die out without adequate corridors allowing free and unimpeded movement.

The functional effectiveness of a corridor depends on the type of species that use it, its size and shape, and its edge effects. Larger corridors offer greater habitat diversity. Hiding as well as thermal cover is important to many species. Linear corridors tend to be less diverse, but offer important migration routes. Edge effects include the penetration of wind, light and sound, as well as visibility beyond and into surrounding areas. They are crucial in determining the type of habitat a corridor will provide.

In suburban environments, corridors often lie along stream and river banks. More than 70% of all terrestrial wildlife species use riparian corridors. In farming areas and suburban-type environments, fencerows provide important habitat links for songbirds and other wildlife. In Wisconsin, fencerows were used to mark off ownership of farm fields. Stones and stumps cleared from cultivated areas were laid along property lines or to separate "forties," the common 40-acre field. During the 1920s, the federal government advocated tree-lined fencerows as a means of reducing topsoil loss. Nationwide, farmers began planting trees along fence lines to reduce wind erosion. Over time, these fence lines became more complex, providing habitat for a variety of plant and animal species. As more of Wisconsin's farms are converted to subdivisions, these important areas of wildlife habitat are fragmented or lost.

### OPEN SPACES

Open spaces in developed areas have two chief functions: environmental protection and community well-being. Well-planned open space areas can serve both of these functions and provide a crucial link between the natural and human environments. Open space provides environmental protection through:

- Natural areas preservation
- Wildlife and native plant habitat protection
- Surface water quality protection
- Nonstructural flood control
- Protection of groundwater resources

Open spaces enhance community well-being

#### *What is an environmental corridor?*

One way to think of environmental corridors is to compare them to hallways. A building contains hallways, which are places of concentrated movement back and forth; and rooms, which are destination points where people eat, work, play and sleep. The hallways serve to link places of activity. Just as hallways enhance the operation of a building, environmental corridors increase the value of natural resource areas. Areas of concentrated natural resource activity ("rooms"), such as wetlands, woodlands, prairies, lakes and other features, become more functional when linked by environmental corridors ("hallways").

Source: Environmental Corridors: "Lifelines for Living"; University of Illinois Extension; Fact Sheet Series, 2001-013.



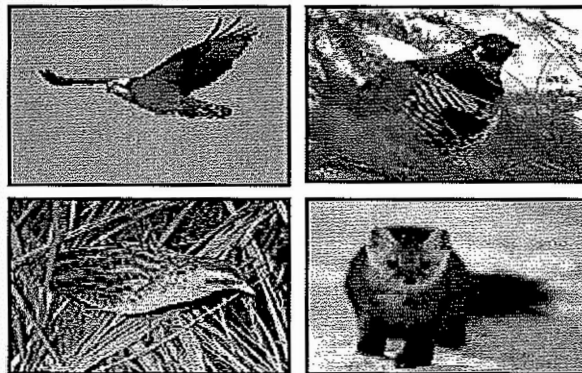
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through:

- Community identity and separation
- Aesthetic quality preservation
- Recreational opportunities
- Educational and spiritual enrichment
- Property value enhancement

Open spaces lend form to communities by surrounding them and defining their exterior boundaries. Streams and greenways can subdivide a community into identifiable neighborhoods. It can also create a unifying focus for community activities centered on a community park or playground and can aid in buffering neighborhoods from incompatible uses.



Endangered and threatened species known or presumed to exist in Oneida County. Clockwise from top left: osprey, spruce grouse, American marten, and yellow rail.

### OTHER SIGNIFICANT NATURAL FEATURES

Other landmark features, such as old-growth timber, may be identified as significantly contributing to the scenic diversity and attractiveness of the town. A number of methods exist to help preserve and protect these natural features. One method is to develop an overlay district to encompass and protect these areas. Another method is to include the natural feature in the definition of "environmentally sensitive area," and protect it with setback provisions.

### ENDANGERED, THREATENED AND SENSITIVE SPECIES

There are a number of threatened and endangered plant and animal species in Oneida County. Unfortunately, there is not a list or map available specific to Three Lakes. The DNR has county-level maps of threatened and endangered species (see map on page 7-28). These maps do not precisely identify habitat areas within each county. The DNR does not want people to visit or otherwise intrude on the habitats of endangered and threatened species. The DNR is attempting to identify and catalog endangered plant and animal species across the state. Proposed locations for development or disturbance can be submitted to the appropriate agency and they will assist in recommending mitigation or avoidance measures for sensitive locations. For a complete up-to-date list, refer to: [www.dnr.state.wi.us](http://www.dnr.state.wi.us). Another option to help identify critical habitat is through the State Heritage Program.

Biodiversity and the ecological processes that support biodiversity depend on the sustainability of a diverse ecosystem, such as the mosaic of forests, agricultural lands, grasslands, aquatic communities and open spaces seen in the Three Lakes area. The landscape hosts a wide array of native species, many of which are observed and valued. The enjoyment that people receive from outdoor activities, such as hunting and fishing, hiking and camping, photography, silent sports and the ability to learn about and observe nature, is part of what is important to the citizens of this town. Many value the opportunity to walk in a quiet setting, enjoying nature and solitude. These activities are critical to our socioeconomic well-being. Ecosystem management is an approach that blends human needs and values with ecosystem capability and sustainability. It is based on the premise that natural resources should be

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managed as natural systems, and the humans are an integral part of these systems. The Wisconsin Natural Heritage Inventory (NHI) is one of the tools available to identify these sensitive areas. The inventory provides information about the general location of species that need to be protected in some manner. To protect these sensitive plant and animal species, the exact location is not made available to the general public. However, the system does allow one to generally identify wildlife and plants that occur within a given square mile. The DNR and The Nature Conservancy are available to help with information and management guidelines to help protect, enhance and, in some cases, restore habitat for sensitive species.

The following endangered, threatened or sensitive plant and animal species, habitats and ecosystems are known or presumed to be present in the Three Lakes area:

- Alder thickets
- LeConte's Sparrow
- Bird Rookery
- American Bittern
- Sparse-flowered sedge
- Emergent Marsh-Wild Rice
- Bald Eagle
- Lake-Shallow, Soft Drainage
- Northern Mesic Forest
- Northern Sedge Meadow
- Osprey (threatened)
- Shrub-carr
- Spruce Grouse (threatened)
- American Marten (endangered)
- Northern Dry-mesic forest
- Marsh Ragwort
- Freija Fritillary
- Yellow Rail (threatened)
- Red-disked Alpine
- Swamp-pink
- Black-throated Blue Warbler
- Open bog
- Large Roundleaf Orchid
- Bullfrog
- Hidden-fruited Blatterwort
- Purple Blatterwort

Federal, state and county government, as well as the NHI, provides methodology for managing and maintaining habitat for these species. Other species (such as the loon) are sensitive to encroachment and must be considered when managing natural resources. The greater the diversity of habitat present in the community, the greater number of species may be found there. Habitat diversity influences the types of wildlife and their population. Development patterns can greatly affect habitat quantity and quality and, therefore, wildlife diversity and populations. An obvious impact is the loss of habitat due to conversions of woodlands and cropland to other uses. Infrastructure to service new uses such as roads, power lines, sewer, water, telecommunication towers, etc., can also cause serious wildlife impacts by loss or fragmentation of habitats obstructing



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migration routes, and increased human activity which disrupts normal wildlife behavior patterns. The transition area between developed landscapes and natural habitats can be the source of a range of detrimental environmental impacts that may limit native biodiversity.

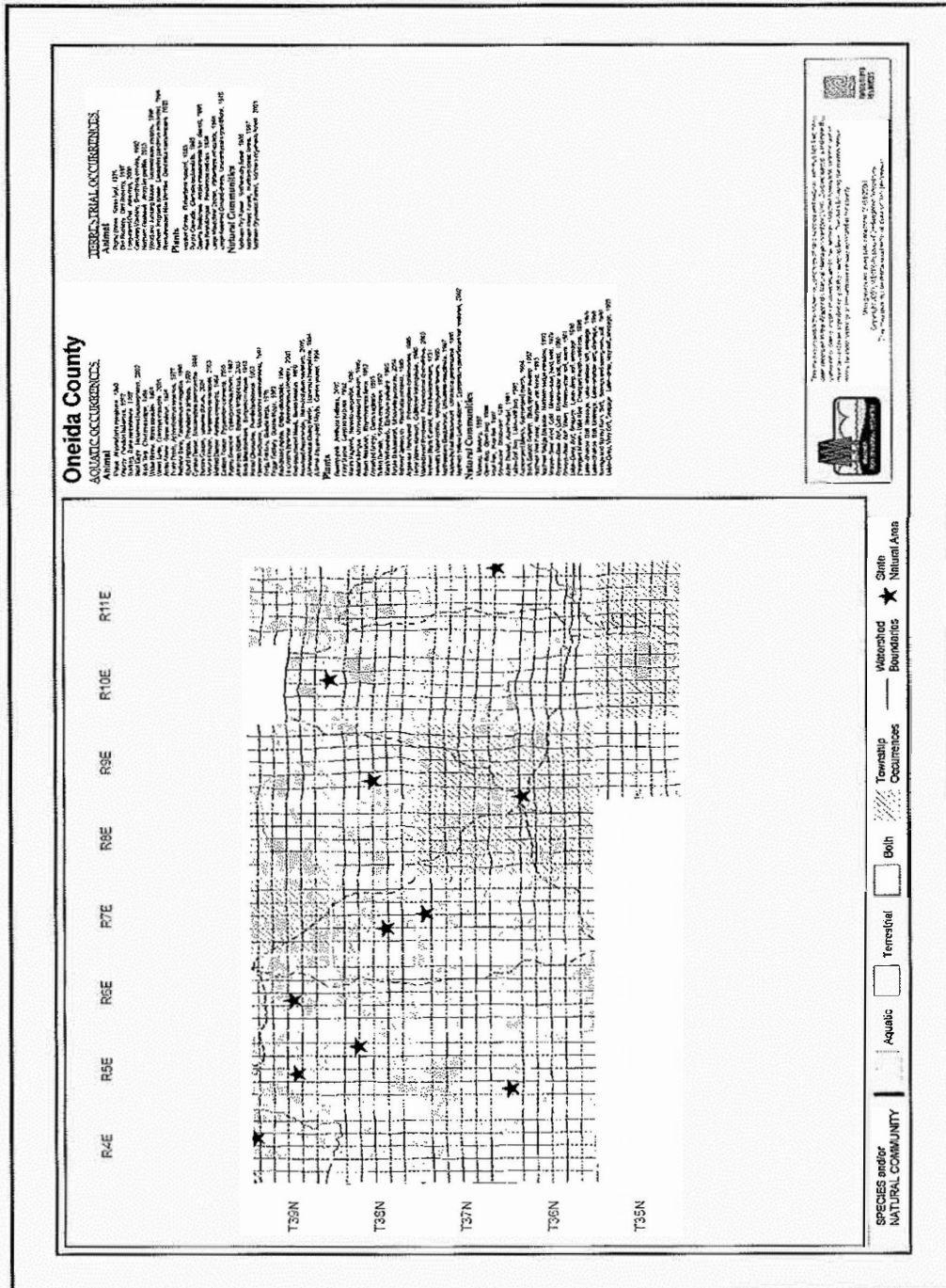
### **LARGE PREDATORS**

The gray wolf does not currently have an established pack within the town. However, wolves are observed on occasion as they travel from their home range distribution. There are established packs to the north, east and west of the town. Wolf territories can be dozens of square miles in size and change with the availability of food and competition with other packs. The current debate and litigation on the federal delisting of the wolf has not been settled.

On a similar note there have been historical sightings of mountain lion in the area. These have not been confirmed; however, this mammal has a large home range and may migrate through the area on occasion. Black bear are common in Oneida County. While lynx may be present, they are extremely rare. Wisconsin's bobcat sightings have become more common in recent years.

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### Aquatic and Terrestrial Occurences-Oneida



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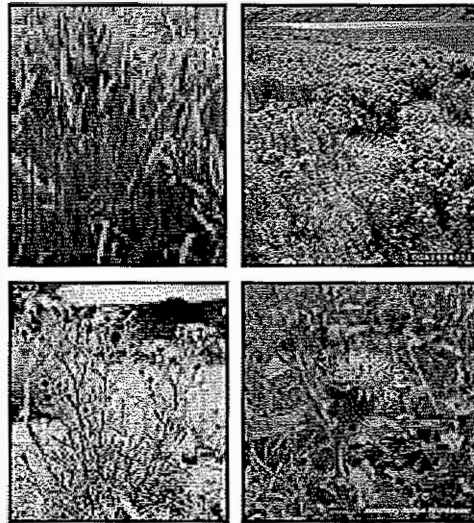
#### **EXOTIC AND INVASIVE SPECIES**

Non-native invasive plant and animal species have been recognized in recent years as a major threat to the integrity of native habitats and species, as well as a potential economic threat (damage to crops, tourist economy, etc.). The DNR requires that any person seeking to bring a non-native fish or wild animal for introduction in Wisconsin obtain a permit. The town of Three Lakes can help combat invasive species by educating residents about non-native species (using the Internet, TLWA kiosks or a town newsletter as primary tools in this effort) and by encouraging residents to use native plants in landscaping, and to inspect boats before launch into area lakes.

Non-native aquatic and terrestrial plants and animals, commonly referred to as exotic species, have been recognized in recent years as a major threat to the integrity of native habitats. The invasion of non-native plants and animals threaten the natural biodiversity of the area. These species typically compete with natural plants and animals and flourish to the point that they out compete other species, which eventually die out. Some of these are considered a major threat to Wisconsin. There are management recommendations and mitigation measures for areas of known occurrences.

A query of the U.S. Forest Service data base showed the presence of a number of invasive species in the Three Lakes area, including garlic mustard, spotted knapweed, Canada thistle, European swamp thistle, bull thistle, St. John's wort, and reed canary grass. For a complete listing of invasive plants and animals, visit: [www.dnr.state.wi.us/invasives/](http://www.dnr.state.wi.us/invasives/).

The mitigation measures and recommendations for limiting the spread of these species should be incorporated into policies for consideration. An example would be to avoid the development of a gravel pit in a location that has spotted knapweed. The Town of Three Lakes received an aquatic invasive species control grant for fall 2008 – fiscal year '09 in the amount of \$10,000 for early detection and response services on the Three Lakes Chain of Lakes.



Invasive species known to exist in Three Lakes. Clockwise from top left: reed canary grass, St. John's wort, Canada thistle, and spotted knapweed.

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### **INVASIVE AND NON-NATIVE SPECIES COMMONLY USED IN LANDSCAPING**

The following species, often used in residential and commercial landscaping, are classified as invasive by the DNR:

- Norway maple
- bigtooth aspen
- grey dogwood
- red osier dogwood
- Wayfaringtree
- smooth sumac
- staghorn (stagham) sumac (although invasive, this is a native)
- purple loosestrife
- hawthorne
- Japanese barberry

### **METALLIC MINING RESOURCES<sup>3</sup>**

Metallic mining has occurred in Wisconsin since the time of the Copper Culture (about 2,000 to 5,000 years before present). Native Americans also mined for metallic minerals in the southwestern part of the state in the 1600s. Mining for metals such as copper, lead, iron and zinc shaped the history of several regions of Wisconsin from the beginning of European settlement and played a major role in the development of Wisconsin as a state.

While mining is potentially economically significant on a multicounty regional scale, mining also has the potential to seriously harm natural resources. The state Legislature recognized that potential and began to specifically regulate the environmental aspects of metallic mining (which does not include gravel mining or quarrying) with the passage of the state's first comprehensive mining law in 1974. This law enabled the department to write rules that would regulate metallic mining activities.

The Wisconsin Department of Natural Resources (DNR) is the state agency with primary responsibility for regulating environmental aspects of metallic mining activities in Wisconsin. Within the DNR, the Bureau of Waste Management has the lead role in reviewing applications for mining permits. The Bureau of Integrated Science Services, Environmental Analysis and Liaison Program have the lead role in orchestrating the required environmental impact analysis of a proposed mining project. Under laws created by the Wisconsin Legislature, mining is a legal activity subject not only to the state mining law, but also to all other state environmental regulations. Prior to any proposed activity, landowners need to be sure that they have subsurface mineral rights on the land.

### **NONMETALLIC MINING RESOURCES**

As part of NR 135, Wisconsin Administrative Code, adopted in December 2000, any community in Wisconsin may adopt an ordinance to establish requirements for reclamation of nonmetallic mines, such as gravel pits and rock quarries. If a community decides not to develop its own ordinance, a county may develop an ordinance for the area instead. Likewise, a regional

<sup>3</sup> Excerpted from *Metallic Mining in Wisconsin*, WDNR website, [dnr.wi.gov/org/aw/wm/mining/metallic/](http://dnr.wi.gov/org/aw/wm/mining/metallic/), 2009.



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planning agency may develop ordinances for the counties within its region. The ordinance must establish reclamation requirements to prevent owners and operators of quarries and gravel pits from abandoning their operations without proper reclamation of the mine or quarry. In addition, ordinances could further limit the spread of invasive plant species by requiring mitigation measures prior to development and use of a nonmetallic operation.

The process of siting a mine continues to be a local matter governed under existing zoning procedures by local authorities. The reclamation requirements through NR 135 add to the status quo, but do not replace or remove any other means of regulation. The requirements neither regulate active mining processes nor have any effect upon local zoning decisions, like those related to the approval of new mine sites.

Under NR135, any landowner of a demonstrated "marketable nonmetallic deposit" may register the site for mining. The local zoning authority may object to the application if the zone does not permit nonmetallic mining as a use. Registration expires after a 10-year period and may be extended for a single 10-year period if it is demonstrated that commercially feasible quantities continue to exist at the property. Towns rezoning property in a manner consistent with their comprehensive plan are not required to permit nonmetallic mining operations that are inconsistent with their adopted plan. The Town may want to consider establishing requirements for quarrying, topsoil/organic soil removal, and landscape material-type operations in some sort of operation plan, including a mandatory operation plan.

### **AIR QUALITY**

Air pollutants can impair human health, harm the environment and cause property damage. The U.S. Environmental Protection Agency (EPA) evaluates air quality using health-based criteria (science-based guidelines) as the basis for setting permissible air quality levels. One set of limits (*primary standard*) protects health; another set of limits (*secondary standard*) is intended to prevent environmental and property damage. A geographic area that meets or exceeds the primary standard is called an *attainment area*. Areas that do not meet the primary standard are called *non-attainment areas*. Oneida County is an attainment area.

## **Cultural and Historical Resources**

Like agricultural and natural resources, cultural and historical resources are valuable community assets warranting preservation. The Three Lakes area has a history dating back more than 10,000 years with evidence of its past scattered throughout the community. Nearby archeological studies have recently shown that early indigenous occupation prior to European settlement was year-round cultures and not only hunting/gathering nomadic-type settlements.

### **CULTURAL RESOURCES**

At the time of European settlement, what is now the state of Wisconsin was inhabited by native peoples. Although tribal boundaries often fluctuated with agreements between tribes made and broken over time, most of the state fell under the domain of four Native American nations. The Ojibwa (or Chippewa) people gathered rice, fished and hunted game in the Upper Peninsula of Michigan and across northern Wisconsin. The Ho-Chunk (or Winnebago) lived primarily west of

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the Wisconsin River with a larger settlement near Wisconsin Dells. Southeastern Wisconsin was home to the Potawatomi. The remainder of the state was the land of the Menominee.

The Menominee are the only people indigenous to Wisconsin. Archaeological records trace their heritage in the state back more than 10,000 years. Prior to the relocation of the Ojibwa, Ho-Chunk and Potawatomi to the state (as a result of the Iroquois Wars in the 1600s), Menominee lands totaled more than 10 million acres and included much of the Upper Peninsula and western parts of lower Michigan, eastern portions of Minnesota, and the vast majority of Wisconsin. In fact, the words Michigan, Minnesota and Wisconsin are all European phonetic translations of Menominee words, as are many of the community names in the state (Milwaukee, Oshkosh, Shawano, Oneida and Wausau, to name a few).<sup>4</sup>



Modern cultural assets in the town of Three Lakes include historic church and school sites, 19th- and early 20th-century structures, and farmsteads scattered throughout the community. These facilities offer spiritual enrichment, education and gathering spaces that contribute to the local culture.

### **HISTORICAL RESOURCES**

Town governments, like other governments in Wisconsin, have the authority to preserve their historical heritage (Wisconsin Statutes §60.64). One of the most effective ways to do so is through a local historic preservation ordinance. The historic preservation ordinance can establish procedures to designate historically and culturally sensitive properties and places, and to review projects that have the potential to negatively affect these important places.

The Wisconsin Historical Society has created the Architecture and History Inventory (AHI), an Internet-based search engine that provides architectural and historical information on approximately 120,000 properties in Wisconsin. The AHI contains information on buildings, structures and objects that illustrate Wisconsin's unique history. The AHI documents a wide range of historic properties such as round barns, log houses, cast-iron bridges, small-town commercial buildings and Queen Anne houses, among others.

Early logging played a significant role in Three Lakes history and there are many opportunities to view evidence of this colorful past, ranging from locations of narrow-gauge railroads to CCC camps and pine plantations as well as large remnant pine stumps from early timber harvest. Nearby Argonne Experimental Forest explains the significance of managing forested lands and the Military Road provides locations and interpretive signs that give tourists a better understanding of this part of the history of Three Lakes.

Other areas of historical interest include Chapel in the Pines, Burnt Rollway Dam, CCC camp locations, Three Lakes Historical Museum schoolhouse, early resorts and recreational camps,

<sup>4</sup> Excerpted from Menominee History, David "Nahwahquaw" Grignon, Menominee Historic Preservation Department, 2003.



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boathouses, a museum and the recently renovated Three Lakes Center for the Arts in the Northwoods.

### **Agricultural, Natural and Cultural Resources Issues, Opportunities and Programs**

This section describes the major issues expressed during the planning process and those revealed in the inventory portion of this chapter. Strategies to address these concerns are included in the Goals, Objectives and Policies section in *Chapter 12: Implementation*.

#### **SUSTAINING FARMLANDS AND NATURAL AREAS IN A GROWING COMMUNITY**

Given the projected growth rate in the town and surrounding area, there is a real concern about the impact development will have on natural areas and farmland. Preservation of natural resources and farmland is important to preserving the rural character of the area, maintaining wildlife habitat and providing green infrastructure (e.g., wetlands and floodplains for stormwater management, scenic areas, etc.) needed to sustain the town of Three Lakes' high quality of living. Both state and federal lands within Three Lakes are managed using their respective governmental resource management plans. The natural values are important to this town's valued character and it is vital that this Town of Three Lakes Comprehensive Plan coordinates with others within the town through an intergovernmental relationship.

Within Three Lakes, there are lands which historically have been used for small-scale agriculture and are now been rezoned as single-family residential, which prohibits the use of commercial agriculture. Some of this rezoning has discouraged agriculture use in Three Lakes. Some of these lands can be grandfathered in with a variance if they have had continued agriculture use. The town should establish criteria that could be used to better balance development with retaining some of the opportunities that residents value, such as having a small farm.

#### **PURCHASE AND TRANSFER OF DEVELOPMENT RIGHTS (PDR/TDR)**

In addition to the conservation subdivisions discussed earlier in this chapter, another means of preserving important landscapes, natural and agricultural, is to establish a purchase and/or transfer of development rights (PDR/TDR) program. A PDR or TDR program would allow the Town to "send" development from farmland and natural resource areas to designated "receiving" areas.

The creation of a *Purchase and/or Transfer of Development Rights* (PDR/TDR) program provides another means of preserving natural and agricultural landscapes. A PDR or TDR program would allow Three Lakes to "send" development from farmland and natural resource areas to designated "receiving" areas within the town. Advantages of these approaches include just and fair compensation for landowners, permanent protection of farmland and natural resources, and voluntary participation (landowners are not forced to participate).

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- **Purchase of Development Rights (PDR).** In a PDR program, a land trust, local government or other organization offers to purchase the development rights on a parcel. The landowner is free to decline the offer or negotiate a higher price. When the development rights to a farm are sold, the landowner typically receives payment equal to the difference between the fair market value of the land and the price the land would command for agricultural use. Upon payment, a conservation easement is recorded on the property deed. The easement stays with the land in perpetuity. The private landowner retains the right to occupy and make economic use of the land for agricultural purposes. The landowner gives up the right to develop the property in the future. Farmers are not compelled to sell their development rights. The main disadvantage of PDR is cost. Development rights can be expensive, so funding for PDR needs to be selectively targeted in order to protect the agricultural land that is most worthy of preservation. As a result, not every farmer who wants to sell his or her development rights will be able to do so.

Purchase of Development Rights	
Strengths	Limitations
<ul style="list-style-type: none"> <li>▪ Permanently protects land from development</li> <li>▪ Landowner is paid to protect their land</li> <li>▪ Local governments can target locations effectively</li> <li>▪ Land remains in private ownership and on the tax rolls</li> <li>▪ Program is voluntary</li> </ul>	<ul style="list-style-type: none"> <li>▪ Can be costly for local unit of government, therefore land is protected at a slower rate</li> <li>▪ Land remains in private ownership – typically no public access</li> <li>▪ Since program is voluntary, it may be difficult to preserve large tracts of contiguous land</li> </ul>

- **Transfer of Development Rights (TDR).** TDR involves transferring development rights from one piece of property to another. In this approach, a landowner is compensated for selling his/her development rights. However, rather than simply eliminating these rights, they are transferred to another property in the town that is targeted for development. That landowner of the “targeted property” is free to develop the land and may use the transferred rights to develop at a greater density or intensity (e.g., smaller lot sizes to locate more homes in a single area). This approach preserves farmland and natural areas in designated “sending” zones while allowing for more intensive development to occur in the “receiving” zones.

Transfer of Development Rights	
Strengths	Limitations
<ul style="list-style-type: none"> <li>▪ Permanently protects land from development</li> <li>▪ Landowner is paid to protect their land</li> <li>▪ Local governments can target locations effectively</li> <li>▪ Low cost to local unit of government</li> <li>▪ Utilizes free market mechanisms</li> <li>▪ Land remains in private ownership and on tax roll</li> </ul>	<ul style="list-style-type: none"> <li>▪ Can be complex to manage</li> <li>▪ Receiving area must be willing to accept higher densities</li> <li>▪ Difficult program to establish</li> <li>▪ Program will not work in rural areas where there is little to no development pressure on the area to be preserved</li> </ul>



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### **LOSS OF HABITAT FOR UNIQUE SPECIES**

The town of Three Lakes has an abundance of important natural resources. As discussed earlier in this chapter, the town's natural areas provide important wildlife habitat for a number of rare, threatened and endangered species. Habitat loss and fragmentation are often the results of poorly planned development. In a community that values its natural environment as much as the town of Three Lakes does, it will be important for the Town to utilize existing and newly developed local land use tools to guide development away from the most sensitive habitat areas to insure the long-term viability of a healthy local ecosystem.

### **PRESERVATION OF SURFACE WATER QUALITY**

The Chain of Lakes and the area's forestlands serve as the backbone of the town of Three Lakes. It was these that drew the original settlers and entrepreneurs to the community and they continue to attract visitors and new residents to this day. However, with each new home, business or road constructed in the community, additional strains are placed upon the aquatic ecosystem. Development in a watershed has direct and predictable effects on the lakes, streams and wetlands within the watershed. Guidelines and regulations such as Best Management Practices are designed to protect the quality of water during activities such as road building, logging, farming and building. Some of these are regulatory, while others are offered as guidance.

Historically, water quality was degraded by point sources, or direct discharges to lakes and rivers from industry, municipal sewerage districts and the like. Since the passage of the Federal Water Pollution Control Act of 1972 (the Clean Water Act), the United States had taken dramatic steps to improve the quality of water resources. No longer are industries allowed to discharge untreated waste directly to surface waters.

Today, the greatest threat from a cumulative standpoint to streams and lakes comes through nonpoint-source water pollution. Nonpoint-source water pollution, or runoff, cannot easily be traced to a single point of origin. It occurs when rainwater or snowmelt flows across the land and picks up soil particles, organic wastes, fertilizers and other contaminants that become pollution when carried to surface and/or groundwater. Nonpoint pollution, in the form of nitrogen, phosphorus and total suspended solids (soil particles), contaminates streams and lakes, increases the growth of algae and harmful aquatic weeds, covers spawning beds and feeding areas, and turns clear rivers into conveyances of stormwater. The sources of nonpoint pollution include:

- **Impervious Surface.** A positive correlation exists between the percentage of impervious surface in a watershed and surface water quality (see graph above). Stormwater runoff from impervious surfaces such as roads and roofs has an adverse effect on surface waters. As the percentage of impervious surfaces increases in a watershed, lakes and streams experience greater degradation from stormwater runoff. According to the Center for Watershed Protection (CWP) in Ellicott City, Maryland, "More than 30 different scientific studies have documented that stream, lake, and wetland quality declines sharply when impervious cover in upstream watersheds exceeds 10%." In 1999, CWP developed criteria that allowed local governments and watershed organizations to predict the effects upon surface water quality resulting from increases in impervious

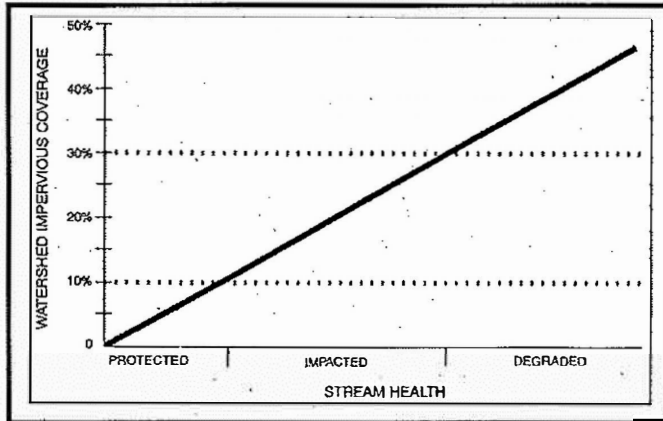
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surfaces within a watershed. CWP classified watersheds into three groups, each defined by the percentage of impervious surface within the watershed.

- **Agricultural Fields.** Plowed fields, row crops, lack of riparian buffers, wetland conversion, and the overuse of commercial pesticides and fertilizers all intensify nonpoint source pollution loading to surface waters. By utilizing techniques such as conservation tillage, nutrient management planning, wetland restoration, grazing management, cover crops, and agricultural buffers, farmers can dramatically reduce nonpoint source pollution as well as the cost of farming.



Source: Center for Watershed Protection, 1995.

- **Lawn Fertilizers, Herbicides, and Pesticides.** Wisconsin and Minnesota residents use more fertilizers and pesticides on their lawns per capita than those of any other state. Upwards of 95% of the chemicals applied to residential lawns are washed into storm drains and then into nearby creeks and streams following rain events. In northern climates, turf grass is only capable of ingesting fertilizer during the fall. Fertilizers applied during spring and summer months contribute to algae blooms and eutrophication of lakes and streams. Most herbicides, even those that claim to be focused on specific "weeds" or "pests", kill healthy aquatic and terrestrial organisms and are suspected causal factors in many autoimmune and endocrine illnesses in humans and pets.

Additional future threats to natural vegetation and water quality can come from ice-melting products placed on certain segments of roads in the winter. Maintenance for some roads, especially those near riparian areas, needs to better protect the environment by mitigating the application of high volumes of salt during the long winters.

There are parks and golf courses in Three Lakes near riparian and water resources. The use of fertilizers and pesticides needs to be well managed to protect the quality of surface and subsurface aquatic resources. Proper planning of how these areas is maintained and the use of natural filter zones and shoreline management can help preserve the town's valuable water quality.



<i>Healthy Lawn Maintenance</i>	
<i>January</i>	Remember you have a lawn under all that snow. Consider reducing or eliminating salt, which can harm grass and water quality.
<i>April</i>	Repair or replace sod damaged by snowblower, foot traffic, salt or cars. Lightly rake dead spots and plant seed.
<i>May</i>	Mow high (3 inches), leave clippings on lawn and cut frequently; remove no more than 1/3 of the grass blade when you cut. Do not fertilize in spring.
<i>June</i>	As it warms, grass growth will slow – reduce mowing frequency to every one to two weeks. Raise lawn mower height to 3 ½ inches. Monitor lawn for heat stress.
<i>July</i>	Cut only when necessary during the hot and dry months. Sharpen mower blades. Aerify lawn with core remover. Allow lawn to get brown. (It will recover when it rains.)
<i>August</i>	Don't cut lawn if grass has not received moisture for last 10 days. Aerify lawn with core remover (late August).
<i>September</i>	Soil test (every three years). Enrich soil for next season by applying a thin layer of compost (no more than ¼ inch thick) to your lawn; lightly rake. Lower mower height back to 3 inches. If you wish to fertilize, do it now (late September). Overseed entire lawn with a good seed mix (4 to 6 lbs./1000 sq. ft.).
<i>October</i>	Chop fallen leaves with mower and leave a ¼-inch thick mulch; rake remaining leaves and put into your compost pile. Last cut late October.
<i>November</i>	Service lawn mower; sharpen blades.

Chapter 12: Implementation will discuss a variety of tools, best management practices and funding courses to aid in the reduction of nonpoint-source water pollution in the town of Three Lakes.

### LAKE CLASSIFICATION

Very clear lakes, referred to as **oligotrophic**, are low in nutrients, organic matter and sediments. They are typically deeper and colder than the typical lake and are capable of supporting trout populations. They tend to have clear water with visibility more than 10 feet and are considered pristine. The lack of nutrients in the water column limits the number of plant and fish species that would occur in such lakes. Though they can be excellent for swimming, they are often quite cold. Oligotrophic lakes are typically characterized by:

- A small watershed with nutrient-poor soils;
- A majority of the lake deeper than 30 feet;
- Minimal development;
- A watershed undisturbed by intensive human activities (agriculture, development, forestry); and

# Three Lakes <sup>2030</sup>

## Agricultural, Natural, & Cultural Resources

### Chapter 7:

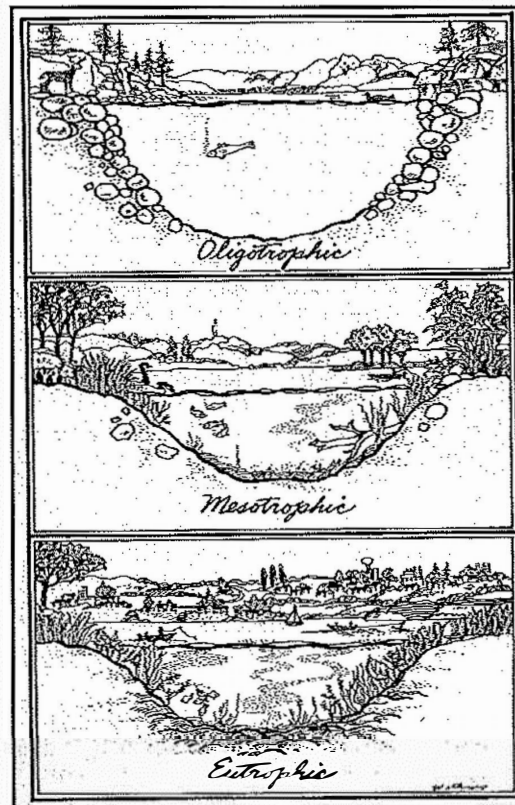
- No discharges of pollution from industry or cities.

Somewhat less clear *mesotrophic* lakes have higher amounts of nutrients than oligotrophic lakes and represent the midpoint on the lake evolution continuum. They often support a rich array of aquatic plants and a wide variety of fish species. The biological diversity present in a mesotrophic lake provides a tremendous range of recreational opportunities, making them very popular for fishing, swimming and a variety of other activities. Mesotrophic lakes tend to have:

- a small- to medium-sized watershed with organic (nutrient rich) soils;
- parts of the lake deeper than 20 feet;
- moderate land development and land-disturbing activities around the lake;
- Few point sources of pollution (though nonpoint sources can accelerate the evolution to eutrophic).

*Eutrophic* lakes are very productive and have high levels of nutrients, organic matter and sediments. They can support large fish populations; however, the diversity of fish species is usually much lower than that of a mesotrophic lake. High nutrient levels encourage plant growth, sometimes excessively so. These lakes often lack enough dissolved oxygen to support some fish species, like trout, walleye and other prized game fish. As the lake eutrophies, it becomes less and less capable of supporting cool- and cold-water fishes. Decaying vegetation can further reduce oxygen levels and cause fish kills, particularly during winter months. Eutrophic lakes usually have:

- a large watershed with organic soils;
- depths shallower than 10 feet;
- substantial areas of land disturbance in the watershed;
- considerable to excessive development along the lakeshore; and
- Multiple sources of pollution.



Source: *Life on the Edge...Owning Waterfront Property*, Dresen and Korth, UWEX, 1994

#### PROTECTION OF GROUNDWATER

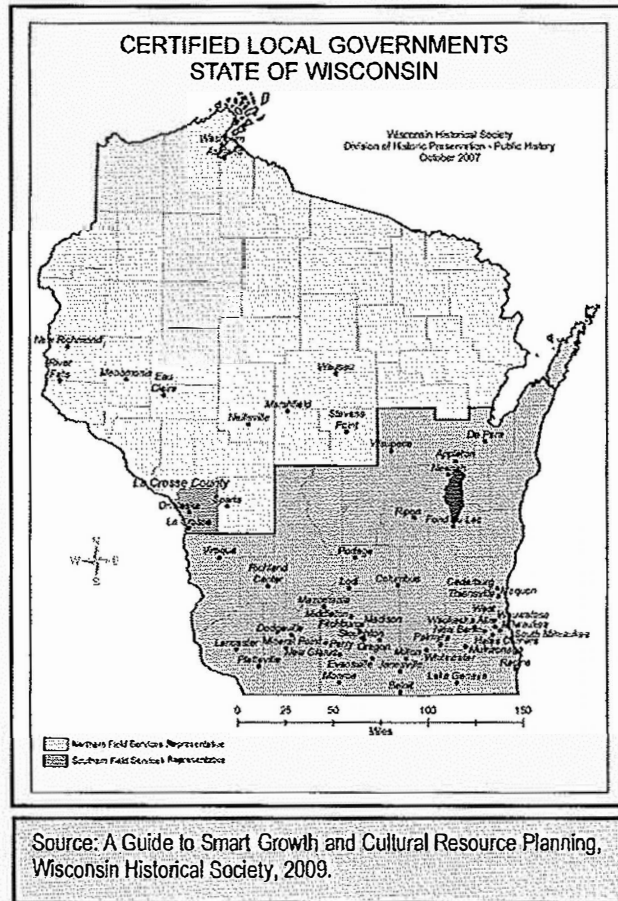
With most of the supply of potable water for the town of Three Lakes provided by private wells, susceptibility to contamination remains a concern. As discussed in *Chapter 6: Utilities and Community Facilities*, sources of groundwater contamination include leaking fuel tanks, surface discharges and natural substances present in the subsurface geology.



Homeowners can protect groundwater by properly sealing abandoned wells and using best management practices on lawns and farm fields (see insert on previous page for proper lawn maintenance). These practices include properly treating sewage, improving roadway and property drainage, minimizing pesticide and fertilizer use, and following application guidelines when pesticides or fertilizers are necessary. Recycling programs that reduce the solid waste and proper disposal of hazardous household waste will also reduce the risks of contamination to nearby residential wells.

### CERTIFIED LOCAL GOVERNMENT PROGRAM<sup>5</sup>

Local units of government that have enacted historic preservation ordinances may consider being certified to participate in the state and federal Certified Local Government (CLG) program. The CLG program provides special grants to fund planning and educational activities. The Division of Historic Preservation at the Wisconsin Historical Society administers the CLG program. Wisconsin has 44 Certified Local Governments.



Local governments strengthen their local historic preservation efforts by achieving Certified Local Government (CLG) status from the National Park Service (NPS). NPS and state governments, through their State Historic Preservation Offices (SHPOs), provide valuable technical assistance and small matching grants to hundreds of diverse communities whose local governments are striving to keep for future generations what is significant from their community's past. In turn, the NPS and states gain the benefit of local government partnership in the national historic preservation program. Another incentive for participating in the CLG program is the pool of matching grant funds SHPOs set aside to fund CLG historic preservation subgrant projects -- at least 10% of the state's annual Historic Preservation Fund (HPF) grant allocation. Grant funds are distributed through the HPF grant program, administered by the NPS and SHPOs.

<sup>5</sup> Excerpted from *A Guide to Smart Growth and Cultural Resource Planning*, Wisconsin Historical Society; and *Certified Local Government Program* from the National Park Service website, 2006.

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## **Agricultural, Natural, & Cultural Resources**

### **Chapter 7:**

Jointly administered by the NPS in partnership with SHPOs, the CLG program is a cost-effective local, state and federal partnership that promotes historic preservation at the grassroots level across the nation. Working closely with such national organizations as the National Association of Preservation Commissions, the CLG program seeks:

- To develop and maintain local historic preservation programs that will influence the zoning and permitting decisions critical to preserving historic properties; and
- To ensure the broadest possible participation of local governments in the national historic preservation program while maintaining preservation standards established by the secretary of the Interior.
- Since 1985 more than \$40 million in HPF grants has been allocated to the Certified Local Government program and 1,228 local governments currently participate in the program nationwide.

#### **PRESERVATION TAX INCENTIVES**

The federal government encourages the preservation of historic buildings through various means. One of these is the program of federal tax incentives to support the rehabilitation of historic and older buildings. The Federal Historic Preservation Tax Incentives program is one of the federal governments most successful and cost-effective community revitalization programs. The Preservation Tax Incentives program rewards private investment in rehabilitating historic properties such as offices, rental housing and retail stores. Current tax incentives for preservation, established by the Tax Reform Act of 1986 (PL 99-514: Internal Revenue Code section 47 [formerly Section 48(g)]) include:

- A 20% tax credit for the certified rehabilitation of certified historic structures; and
- A 10% tax credit for the rehabilitation of nonhistoric, nonresidential buildings constructed before 1936.

For more information on this and other programs to protect and restore historic structures, contact the Wisconsin State Historical Preservation officer.

#### **CONSERVATION RESERVE ENHANCEMENT PROGRAM (CREP)<sup>6</sup>**

CREP is a U.S. Department of Agriculture program that supplements the Conservation Reserve Program. In Wisconsin, 600,000 acres have been taken out of agriculture production to decrease erosion, enhance water quality and establish wildlife habitat under the initial Conservation Reserve Program (CRP). The goal for the state is to add 100,000 acres with the Enhancement Program. As of December 2005, about 35.9 million acres were involved in the CRP nationwide, averaging about 50 acres per contract.

Under the program, a farmer volunteers to take land out of production for a period of 10 or 15 years and is paid annual rental payments and provided with cost-share assistance to establish long-term, resource-conserving land covers on eligible farmland. The Commodity Credit Corp makes annual rental payments based on the agriculture rental value of the land and it provides

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<sup>6</sup> SOURCE: USDA; UWGB.



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cost-share assistance for up to 50% of the participant's costs in establishing approved conservation practices. Participants enroll in CRP contracts for 10 to 15 years.

The Commodity Credit Corp administers the program through the Farm Service Agency (FSA) with support from the Natural Resources Conservation Service, Cooperative State Research and Education Extension Service, state forestry agencies and local Soil and Water Conservation Districts. At the end of the contract period, the farmer can sell the land or put it back into production.

### **THE RIGHT TO FARM ACT**

Wisconsin has a right-to-farm law protecting farmers from nuisance lawsuits related to typical farm noise and odors. As residential development expands into farmland areas, it is inevitable that odor issues develop. Often, the issues relate to manure spreading and storage. Other common farm practices are plowing and harvesting at night, which also create some concerns for residents living nearby. People who move to rural areas near farmland may not be aware of these and other potential nuisances. As more people move to rural farmland areas, conflicts are inevitable. To minimize conflicts, education is strongly recommended. By educating new landowners about potential conflicts, "surprise" nuisances can be avoided. Some communities in the state require that "right-to-farm" language be included with the deed for all new home sales.

### **Coordination with Other Comprehensive Plan Elements**

The development of the Agricultural, Natural and Cultural Resources chapter required coordination with all of the required comprehensive plan elements. For example, when considering economic development strategies, the limitations presented by natural resources are important to consider, as were the benefits natural areas provide to the local quality of living. Below is a description of the critical issues addressed with respect to the Land Use and Housing chapters. These elements are profiled because their coordination with the Agricultural, Natural and Cultural Resources element is critical to the success of the plan.

#### **LAND USE**

Residents of the town have clearly indicated that the protection of natural resources is a priority. As a result, when the Future Land Use Maps were developed, special consideration was given to this desire. The goals, objectives and policies in this chapter include provisions to protect the natural environment of Three Lakes.

#### **HOUSING AND TRANSPORTATION**

Housing and future road and trail locations, if not carefully located and planned for, can result in negative effects upon the natural environment. Housing development can fragment wildlife habitat areas. The additional traffic, people and services associated with residential development can quickly impact rural character. Directing development in the town will help to protect natural resources and farmlands in surrounding communities. This strategy for housing development is reflected in the Future Land Use Maps.

### **Agricultural, Natural, & Cultural Goals, Objectives and Policies**

The residents of the town of Three Lakes value the community's rural character, scenic landscape and natural environment. It is important that the community protect the Three Lakes Chain of Lakes, its woodlands and wetlands, so that they may continue to provide a high quality of life for residents and viable habitat for flora and fauna. Future residential and commercial development will occur in harmony with the town's natural environment. The Town will also work with neighboring communities, the school districts, Oneida County, the state of Wisconsin and the U.S. Forest Service to ensure that natural resources are adequately protected for future generations.

The goals, objectives, and policies were developed to ensure that Three Lakes:

- *Remains a safe and enjoyable place to raise a family or run a business for the next 20 years and well into the future;*
- *Limits new development to options that retain the town's rural setting;*
- *Respects the opportunity for all property owners to receive fair value for their land and protect property rights; and*
- *Has defined standards for managing growth and maintaining an effective comprehensive plan.*