The fabric of Albany's rural character is intertwined within its abundant resources

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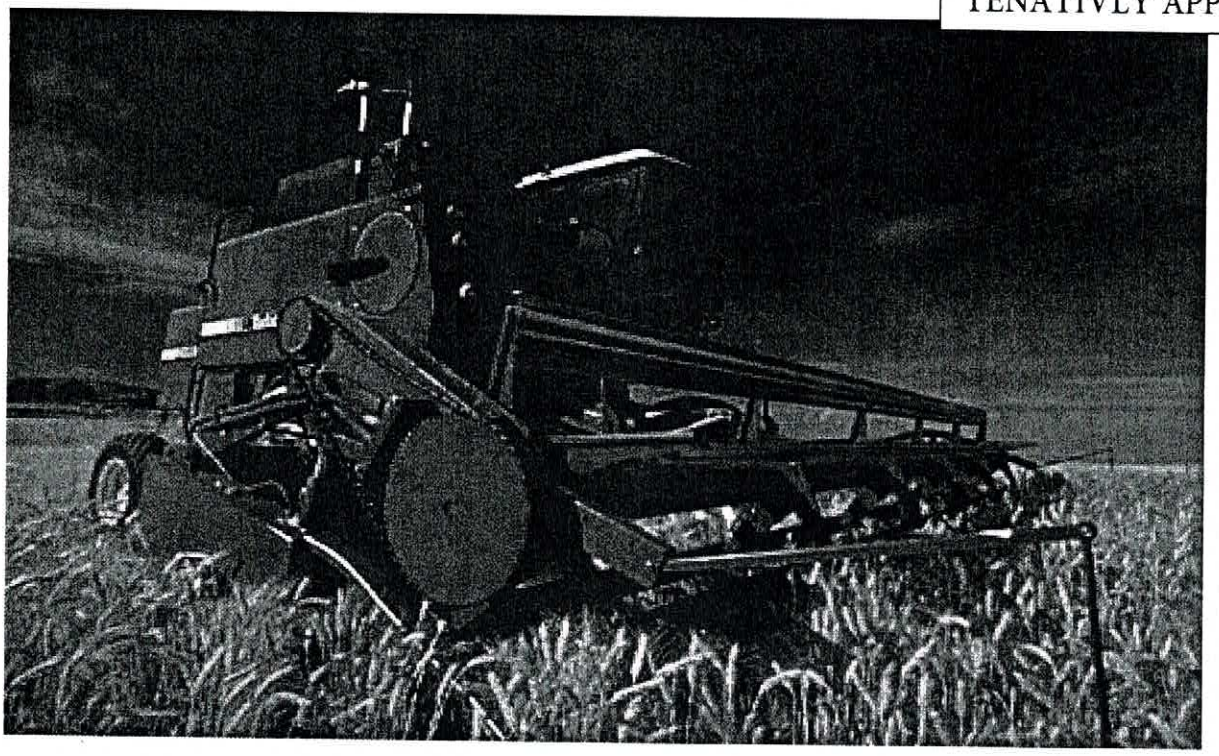


3. AGRICULTURE, CULTURAL & NATURAL RESOURCES

A. AGRICULTURAL RESOURCES

America's farmland is under ever increasing pressure from growth and development. Each year countless acres of rural land are moved into a developed state, calling into question at the national level our compatibility with sustainability. In partial response, the President has created "The President's Council on Sustainable Development". Between June 1993 and June 1999, the PCSD has advised President Clinton on sustainable development and develops bold, new approaches to achieve economic, environmental, and equity goals. We are committed to the achievement of a dignified, peaceful, and equitable existence. From this effort the United States Department of Agriculture (USDA), has committed its self to a number of new principals on sustainability.

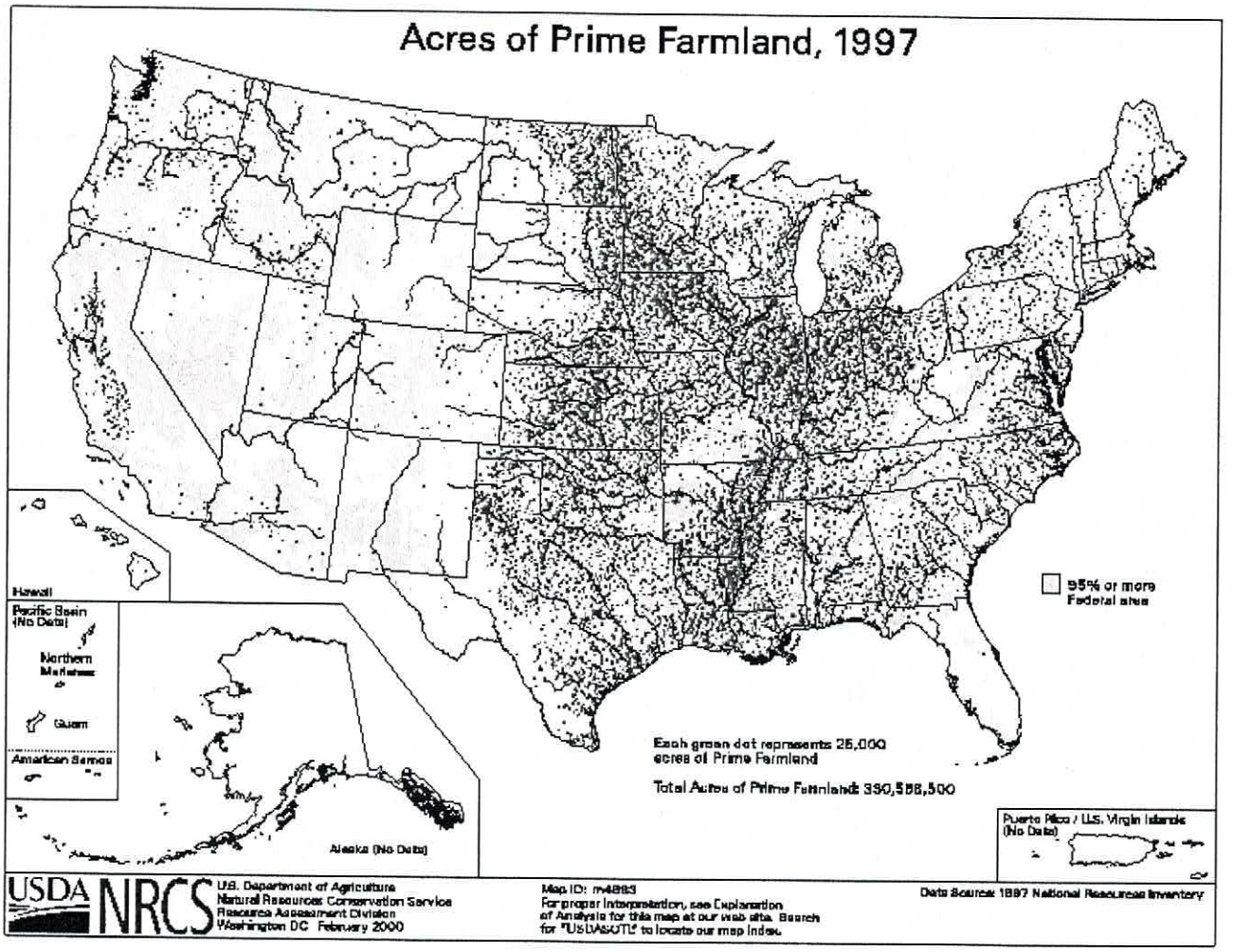
"Guiding Principles for Sustainable Development Policy

Following are the guiding principals established by the Department in support of USDA's sustainable development initiatives related to Sustainable Forestry, Sustainable Agriculture, and Sustainable Rural Community Development:

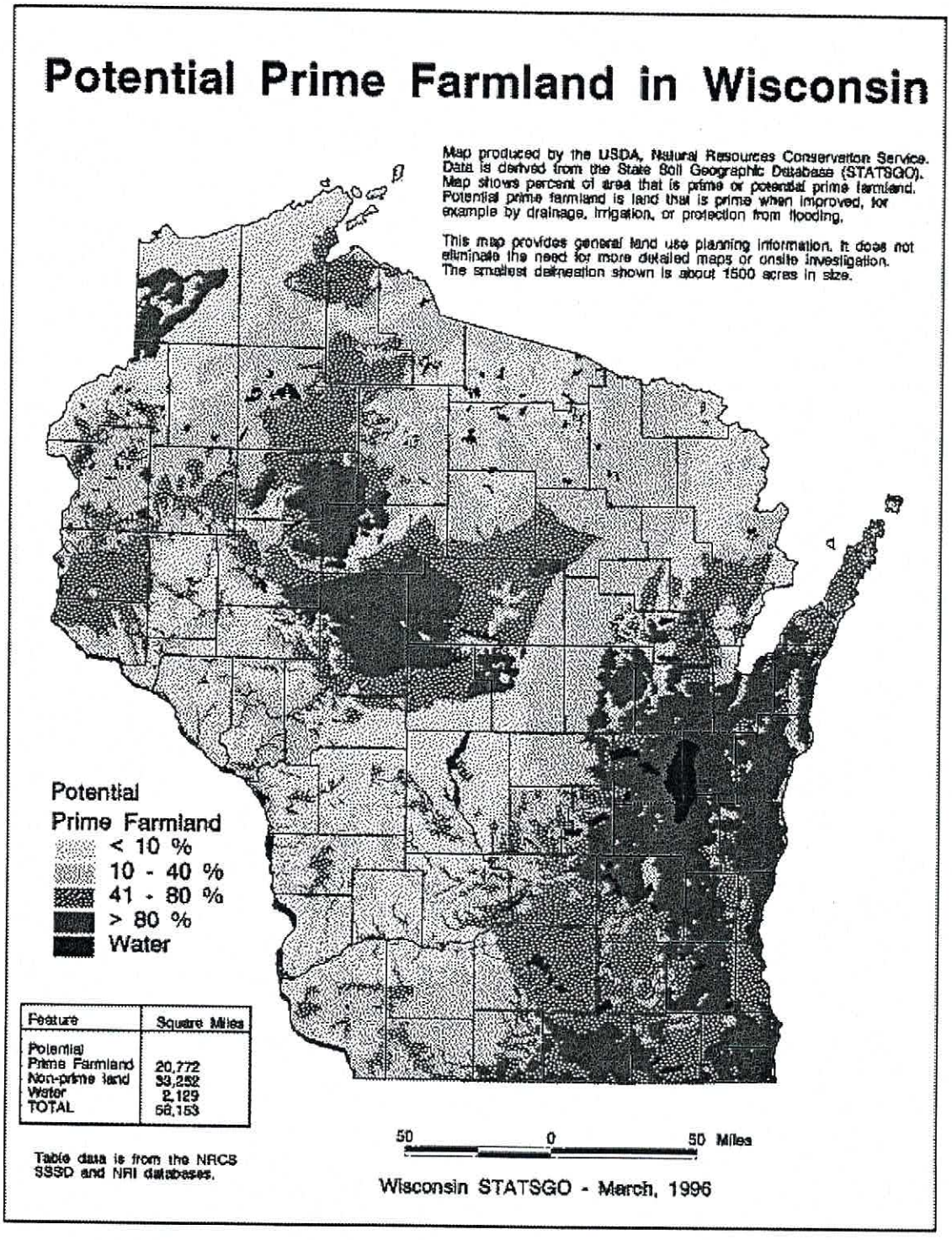
- **Sustainable Agriculture** -- USDA supports the economic, environmental, and social sustainability of diverse food, fiber, agriculture, forest, and range systems.
- **Sustainable Forestry** -- USDA balances the goals of improved production and profitability, stewardship of natural resources and ecological systems, and enhancement of the vitality of rural communities.

- Sustainable Rural Community Development -- USDA integrates these goals into its policies and programs, particularly through interagency collaboration, partnerships and outreach.[1]"

In 1997 USDA/NRCS (Natural Resource Conservation Service) estimated that throughout the Untied States there was approximately 330,556,300 acres of prime farmland.



Predominantly focused in the upper Midwest, America's prime farmland regions coincide with our traditional notions of America's farm belt. While not containing as much prime farmland area as some other upper Midwest states, Wisconsin is still home to many acres of prime land. According to 1996 findings by the USDA/NRCS Wisconsin is home to 20,772 square miles or 13,294,027 acres of prime farmland. This area represents approximately 38% of the states entire area. Most of this land area can be found in the southern and eastern portion of the state. An additional concentration of prime farmland can also be found within Clark County and the western edge of Marathon County.

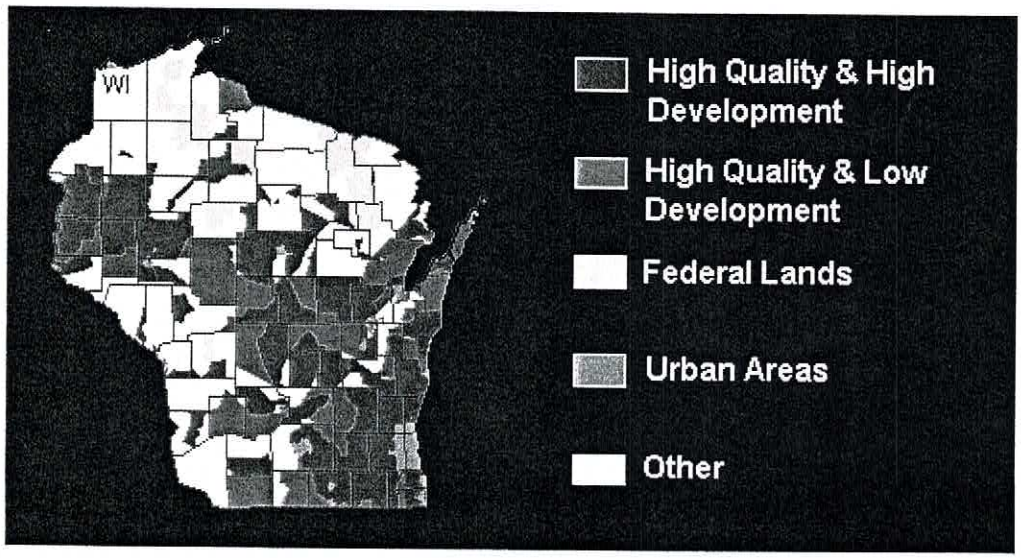


It should be noted that within Green County higher concentrations of prime farmland can be found in the southern and eastern portions of the county. Within this geographic area lies the Town of Albany. As further development is considered, careful consideration of the lands

potential productivity must be understood in order to protect this valuable community resource.

This is especially true when considering the findings of a recently completed "Farming on the edge[2]" study completed for the American Farmland Trust. In this study the top 20 most threatened Major Land Resource Areas (MLRA's) where identified. Specific to the Town of Albany is its geographic location within the third most threatened area. While not currently deemed to be in a "High Quality & High Development" location, it is readily apparent that the Town is on the cusp of inclusion should the current pattern of growth continue.

"3. *Southern Wisconsin and Northern Illinois Drift Plain*
(parts of Illinois and Wisconsin)
[MLRA no. 95B] More than 80 percent of the 11,020 square miles in this MLRA are in farms. Feed grains and forage for livestock are the chief crops but cash-grain farming (corn and soybeans) is also significant. Canning crops, potatoes, fruit and other specialty crops are important, especially around the urban areas in the south and east. On our map, 67 percent of this MLRA is red. Because the suburbs of Milwaukee-Racine, Janesville-Beloit, Madison, Rockford and Chicago are expanding rapidly and half the soils in this MLRA are prime or unique, some of the best farmland in this MLRA is being used for urban development. About 15 percent of the land is now urbanized. Our analysis concluded that 59 percent of development was occurring on prime or unique soils. The fastest growing county in the MLRA is McHenry County, Ill., just north of Chicago. Between 1980 and 1992, the county's population grew by 35 percent. Other rapidly growing counties are Boone County near Rockford, Ill., Dane County where Madison, Wis. is located and Waukesha, Washington and Ozaukee counties bordering Milwaukee."



This map portrays high quality farmland in each state by highlighting sub-county geographic areas that meet two threshold tests that define the importance and vulnerability of the land they encompass:

High Quality Farmland includes areas that in 1992 had relatively large amounts (greater than their respective statewide averages) of prime or unique farmland.

High Development includes areas that experienced relatively rapid development (greater than their respective statewide averages and having at least 1,000 acres of urban conversion) between 1982 and 1992.

Other includes all areas not meeting the two threshold tests.

Unique farmland was defined to include areas where unique soil and climate conditions support the growth of specialty crops[3].

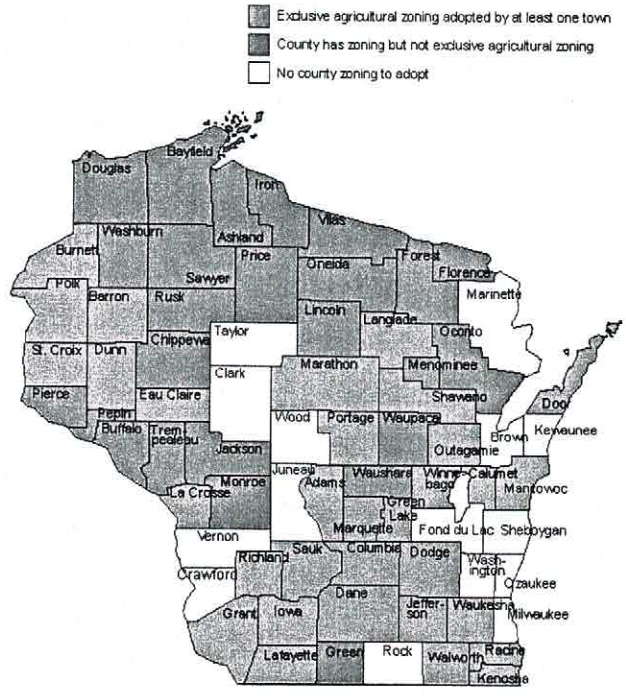
At the State level, efforts to protect agricultural lands have been underway for many years. Principal among the many state programs aimed at farmland and agricultural protection is the granted authority to county's and local governments to adopt Exclusive Agricultural Zoning Ordinances. According to the Wisconsin Department of Agriculture, Trade & Consumer Protection the authority to create Exclusive Agriculture Districts has been granted to accomplish the following.

"Exclusive Agricultural Zoning Ordinances

The legislature has determined that local units of government, through the exercise of their zoning power, can best prevent conflicts between agricultural and nonagricultural land uses. A local government, by establishing an exclusive agricultural use district, effectively decides that agricultural uses of land are appropriate in that district. An exclusive agricultural zoning ordinance can be adopted by any county, town or municipality in a county that has a certified agricultural preservation plan in effect.

Preserving Wisconsin's valuable farmland is important to the Department of Agriculture, Trade and Consumer Protection. This program assists counties in creating county agricultural preservation plans, which lay the groundwork for towns, municipalities and the county to develop exclusive agriculture zoning districts. Farmers also can participate by signing an individual, long-term agreement. The farmland preservation program provides state income tax credits to farmers who meet the program's requirements: to meet soil and water conservation standards, and to only use the land for agriculture."

County - Exclusive Ag Zoning Authority

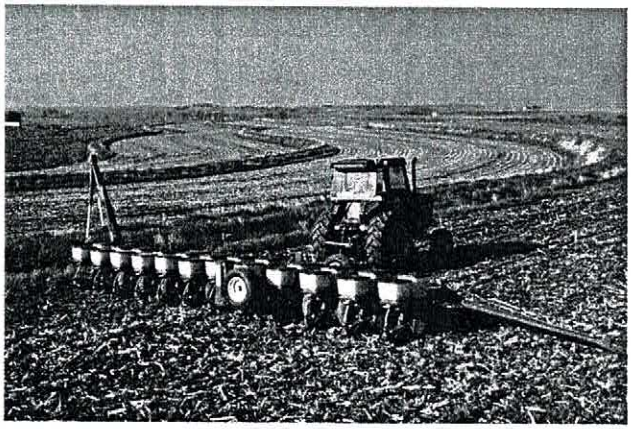


It can be noted that while this potential tool has been available for many years, Green County has yet to take advantage of it.

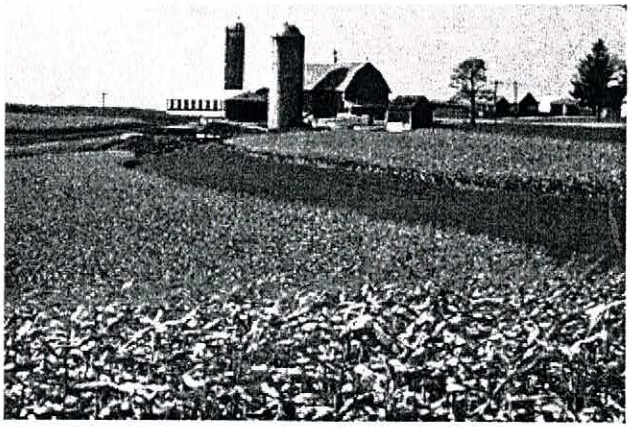
In Green County, Wisconsin the 1997 U.S. Census of Agriculture reveled a number of interesting findings related to the growth and development of the Town of Albany.

* Land in Farms - increased 4% from 293,134 acres in 1992 to 304,963 acres in 1997.
* Average Size of Farms - increased 2% from 231 acres in 1992 to 235 acres in 1997.
* Full Time Farms - decreased 9% from 967 farms in 1992 to 883 farms in 1997.

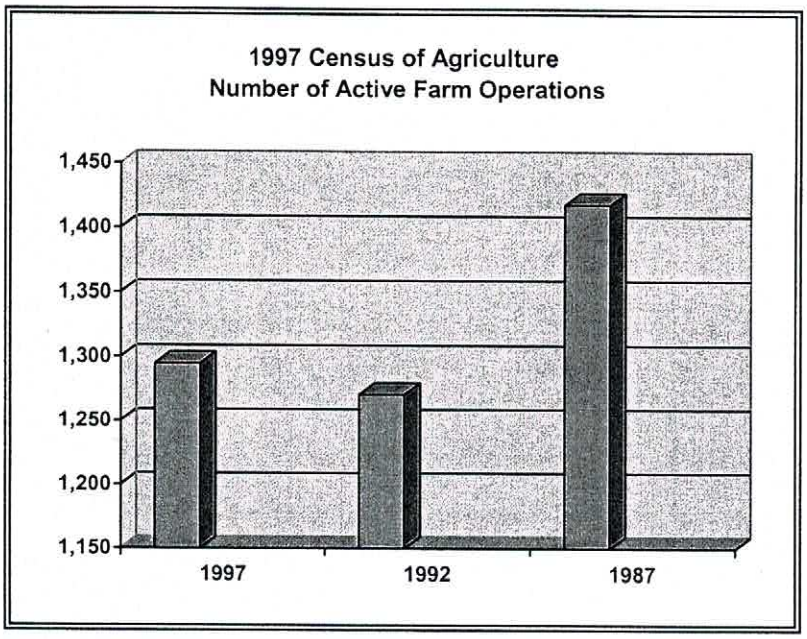
While the number and size of farms in the County and Town increased the actual number of full time farmers decreased.

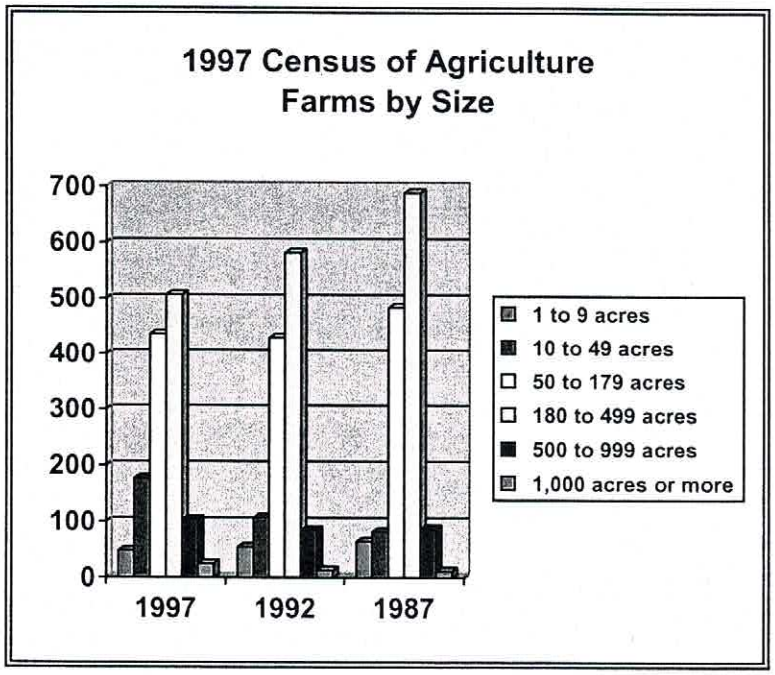


This trend lends to speculation that two phenomena are at work. 1) That more and more farm operations require operators to maintain a source of primary income from another source in order to stay in operation, and/or 2) That more farms are being operated as a hobby by long time residents and/or by new comers to the area. A closer investigation in the number and size of farms demonstrates that farm numbers, while not at 1987 levels, are back on the rise, and that the largest growth in number of new farms can be noted as being between ten (10) to fifty (50) acres in size.



In conflict to the increase in the number of smaller farms is that while the number of farms in the county is currently on the rise so is the average acreage being farmed. In 1982 the average farm operation in Green County was 232 acres in size. In 1997 the average farm operation in Green County covered 235 acres. This trend demonstrates a growth in the farms that are operating on 500 or more acres throughout the county. In 1987 there where eleven farming operations covering 1,000 acres or more. In 1997 there are now 24 farming operations covering 1,000 acres or more. Operations from 500 to 1,000 acres in size have also grown in count from 87 in 1987 to 103 in 1997, an 18% growth.





While the number of farming operations in Green County is currently increasing, so are the land values of the local farmsteads. In 1987 the average total farm value, land and buildings, was at $214,042. In 1997 the average value had grown to $314,787, an increase of 46% over the ten-year period.

With the Town of Albany's strong agricultural heritage it appears that agriculture will continue to play a strong role in the community only in a new fashion. If the current trends are allowed to continue unchecked, questions on the development patterns of agricultural lands in the township arise. Specifically, what are the Towns opinions towards an increasing number of larger "corporate" and "hobby" farms and is a landscape comprised of rural "hobby" farms mixed with larger "corporate farms an acceptable development pattern?

These questions where posed specifically at the "Town Hall" meeting. Responses found in the 20-year vision statements for the town that participants created. Statements from each of the three focus groups indicate:

1. "Township should preserve rural character of agriculture land, limiting driveways and clustering development".
2. "Without violating any individual's land rights, we want to see our township maintain its farmland and open space".
3. "The integrity of the area is maintained through a rural quality of living that provides for agriculture, maintains rural and scenic views, and provides for wildlife".

Clearly from these statements it can be said that the Town of Albany wants to maintain and enhance its agricultural character.

B. *NATURAL RESOURCES*

Green County is a square district consisting of 374,625 acres or 585 square miles. Of this acreage, 318,000 acres is currently in farmland with 260,284 acres of it being cropped. Green County lies partly in the unglaciated area commonly referred to as the driftless area and partly in the glaciated part of Wisconsin. Most of the western part of the county is in the driftless area. The Pecatonica River and the Sugar River are the two major drainage basins within the county. Most of the land within Green County was originally covered by a central hardwood forest along with scattered areas of oak savanna, although about one third was prairie.

A definite ethic of caring for the land has existed in Green County since the first settlers in the early 1800's. However, in the midst of this prosperous agricultural area, the soil, which is the basic resource of agriculture, is being eroded almost twice as fast as it is being replenished. Over one-half of a million tons of excessive soil erosion are presently occurring each year in Green County due to sheet and rill erosion. Although seemingly massive, this amount of excessive erosion is often hard to detect on a given field in a given year because of the relatively thin layer of soil it represents. Onsite damages from this erosion are mainly in the long-term loss in soil productivity due to changes in soil structure and

chemistry and reduction in thickness. The relatively small annual loss in productivity from this excessive erosion have been masked in the past with improved seed varieties, heavier fertilization, and increased use of herbicides and pesticides; although it has cost farmers extra dollars to make up for the lost natural fertility.

Using a conservative estimate of $9.00 per ton as the value of lost soil, Green County landowners are losing an estimated $4.7 million worth of top soil each year or an average of approximately $18.00 per cropland acre each year. In some cases the soil losses have already reached a point where the substitution of technology for natural fertility is no longer feasible. In these cases, the land is lost to agriculture as we know it[4].

The soils of Green County may be grouped into soil associations. A soil association is a landscape that has a distinctive proportional pattern of soils. It normally consists of one or more major soils and at least one minor soil. The soils in one association may occur in another, but in a different pattern.

A description of the eight soil associations present in Green County can serve to explain the value and use of the different land areas for agricultural and other purposes. Each association has somewhat different capabilities for agriculture and requires generally different management practices.

1. Dodgeville-Edmund Association: Moderately deep to shallow, nearly level to moderately steep soils that have a clayey subsoil; underlain by dolomite bedrock. This association is in the central and northwestern parts of the county. It consists of gently sloping to moderately steep soils on uplands and silty valley fill. The association covers about 15% of the county. Dodgeville soils make up about 35% of the association and Edmund soils about 20%. About 45% of the association is minor soils.

   Dodgeville and Edmund soils are on ridges. They are gently sloping to moderately steep soils that formed in 5 to 30 inches of windblown silt and clayey material weathered from dolomite. Ground water is at a depth of more than 5 feet in these soils. Minor soils in this association are in the Ashland, Huntsville, Lindstrom, Otter, Sogan and Tama series. Most areas of this association are either used as cropland or pasture. Corn, soybeans, oats, alfalfa and bluegrass are the main crops. Shallow soils are especially suited to pasture grasses. Dairy farming and the raising of hogs are the chief enterprises. Uses of the soils in this association are limited by the shallow root zone, flooding in low areas and limited available water capacity.

   None of these soils exist within the Town of Albany.

2. New Glarus-Sogn Association: Moderately deep to shallow, gently sloping to moderately steep soils, some of which have a clayey subsoil; underlain by dolomite or sandstone. This association is mostly in the northern and western parts of the county. It consists of gently sloping to very steep soils on uplands and gently sloping soils made up of valley fill. Soils in this association are moderately deep to shallow over dolomite or sandstone.

This association occupies about 43% of the county. New Glarus soils make up about 30% of the association; Sogn soils, 10%; and minor soils 60%. Minor soils in this association are in the Chaseburg, Hixton, Eleva, Elkmound, Orion, Fayette and Palsgrove series. Most gently sloping to moderately steep soils in this association are used as cropland or pasture. Areas of steeper soils are used as pasture or for timber. Dairying is the major enterprise. Erosion runoff are major hazards, and they are the chief concerns of management.

Approximately 900 acres of this soil type exists in the Town of Albany found in the southwest portion of the township.

3. Fayette-Tama Association: Deep, nearly level to sloping soils that have a silty subsoil and substratum; on benches in valleys. This association is west of the Sugar River, south of Albany and west of Brodhead. It is on a high bench left by the glacial Sugar River as it meandered across the valley. The association occupies about 3% of the county. Fayette soils make up about 35% of the association; Tama soils, about 30%; and minor soils about 35%.

   Minor soils in this association are Muscatine and Stronghurst soils on benches and soils of the Pillot, Tell, Lawler and Otter series. All of the soils in this association are used as cropland or pasture. They are among the most productive soils in the county. Corn, soybeans and alfalfa are the major crops. Cash grain crops and dairy-hog raising enterprises are common. The main concerns in management are slight hazards of erosion and wetness.

   Approximately 3,300 acres of this soil type are found within the Town of Albany. All of this soil type is located in the southwest corner of the township.

4. Dunbarton-Whalan Association: Shallow and moderately deep, gently sloping to moderately steep soils that have a loamy and clayey subsoil over loam till; underlain by dolomite. This association is mostly in the southern one-third of the county on uplands and high benches. Slopes are gently sloping to moderately steep. Many different kinds of soils formed in many different kinds of materials in this association. Except for major soils, however, the proportion of each individual soil is relatively small in respect to the overall association.

   The association covers about 14% of the county. Dunbarton soils make up about 20% of the association; Whalan soils, about 10%; and minor soils, about 70%. Ridges on which these soils are located are long and narrow. Minor soils in this association include those of the Arenzville, Dakota, Dodgeville, Durand, Edmund, Meridian, Miami, New Glarus, Orion, Pecatonica, Rockton and Sogn series. Most of the soils in this association are used for crops or pasture. A few wooded areas are on steeper sloping soils. Corn, oats, alfalfa and soybeans are grown in soils of this association. Dairy-hog farming is the main enterprise. The hazards of erosion and runoff are the main concerns of management. Where these soils are over dolomite bedrock, their use is limited by a slightly lower available water capacity.

Approximately 8,000 acres of this soil type exists in the Town of Albany. They are found in all but the southwest portion of the township in a scattered fashion.

5. Hebron-Saylesville Association: Deep, nearly level to gently sloping soils that have a loamy and clayey subsoil and substratum; in basins that where formerly lakes. This association is on very low to high benches in old lake basins. It is mostly in the Sugar River valley east of Albany and north of Brodhead. Another very small area is southwest of Browntown. This association occupies about 1% of the county. Herbon soils make up about 50% of the association; Saylesville soils, about 10%; and minor soils, about 40%.

   Minor soils in this association are in the Del Ray, Navan and Colwood series. These soils have a high water table, and they are subject to flooding. Most of the soils in this association are used for crops or pasture. Undrained wetlands are left idle or are used for limited pasture. Dairying and cash grain farming are the major enterprises. Corn, soybeans, oats, alfalfa and clover are the main crops in these soils. The major hazards are erosion, high rates of runoff, flooding and poor drainage. Management concerns and factors that limit the use of these soils are slow permeability, wetness in areas of poorly drained soils, limited root zones, moderate compressibility and poor sheer strength.

   Approximately 800 to 1,000 acres of this soil type exist in the Town of Albany.

6. Orion-Huntsville-Ettrick Association: Deep, nearly level and gently sloping soils that are silty throughout; on floodplains and in low areas. This associations on low benches and bottoms in stream valleys throughout the county. The soils are subject to flooding. The association covers approximately 14% of the county. Orion soils make up about 17% of the association; Huntsville soils, about 5%; and Ettrick soils, about 13%. About 55% of the association is minor soils.

   Minor soils of this association are in the Adrian, Arenzville, Dakota, Dickson, Houghton, Marshan, Maumee, Meridian, Ossian, Otter, Palms and Shiffer series. Areas of these soils that are adequately drained or protected from flooding are used for cultivated crops. Undrained areas are left idle or are used as pasture. Corn, soybeans, and clover are the main crops. Undrained areas are well suited to wildlife habitat. Areas subject to flooding are used for pasture. The growing of cash grain crops and dairy farming are the main enterprises. Management concerns are poor drainage and the hazard of flooding. Use of these soils is limited by wetness in areas where the soils are poorly drained or where flooding is not controlled.

   Approximately 6,500 acres of this soil type exist in the Town of Albany.

7. Durand-Myrtle-Rockton Association: Moderately deep and deep, gently sloping to moderately steep soils that have a loamy subsoil and substratum; on glaciated uplands. This association is in the southern part of the county on uplands and high benches. The soils are gently sloping to moderately steep. Natural vegetation is prairie grasses. Many

different kinds of soil formed in many different kinds of material in this association. Except for major soils, however, the proportion of each individual soil is relatively small in respect to the overall association. This association covers about 6% of the county. Durand soils make up about 20% of the association; Myrtle soils, about 9%; and Rockton soils, about 8%. About 63% of this association is minor soils.

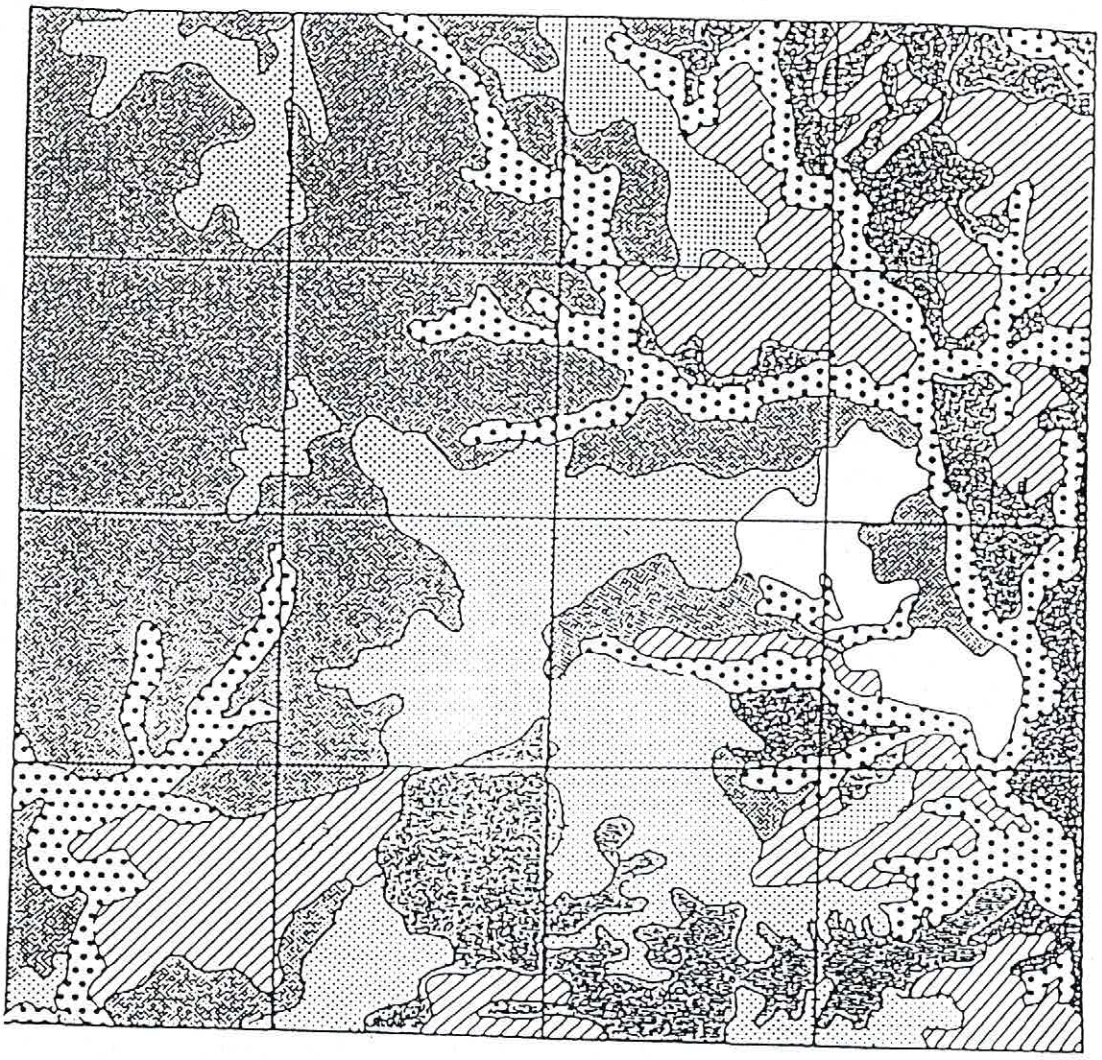
Minor soils of this association are soils of the Edmund, Flagg, Griswold, Lamartine, Miami, Ogle, Pecatonica, Saybrook and Green series; soils of the Downs series that have a silty clay loam substratum; and soils of the Muscatine series that have a loamy substratum. Most soils in this association are used for crops or pasture. A few areas of steeper sloping soils are wooded. Corn, oats, alfalfa and soybeans are grown on these soils. Dairy - hog and cash grain farming are the main enterprises. The main hazards are erosion and runoff. Use is limited in areas of these soils that are underlain by dolomite bedrock because of a slightly lower available water capacity.

8. Dickinson-Meridian Association: Deep, nearly level to sloping soils that have a loamy subsoil; underlain by outwash sand or sand and gravel. This association is on benches of Sugar River, Allen Creek, Story Creek and Little Sugar River. Slopes are predominantly nearly level and gently sloping. This association occupies about 4% of the county. Dickson soils make up about 25% of it; Meridan soils, about 19%; and minor soils, about 56%.

   Minor soils in this association are in the Billet, Dakota, Fox, Lawler, Marshan, Matherton, Maumee, Ockley, Schiffer and Thackery series. Most Fox, Matherton, Ockley and Thackery soils are on benches in the Story Creek Valley between Belleville and Brooklyn. These four soils are underlain, at a depth of 20 to 60 inches, by calcareous and gravel outwash. Most of the soils in this association are used for cultivated crops or pasture. In places trees have been planted in very sandy areas. Corn, soybeans, oats and alfalfa are the main crops. Dairying and growing cash grain crops are the main enterprises. Wind erosion is a major hazard on this soil. Use of these soils is limited by restricted root zones, low available water capacity and in some areas, shallow depth to the seasonal high water table[5].

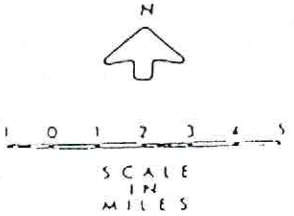
SOIL ASSOCIATIONS MAP

GREEN COUNTY



SOIL ASSOCIATIONS

- DODGEVILLE - EDMUND ASSOC.
- NEW GLARUS - SOGN ASSOC.
- FAYETTE - TAMA ASSOC.
- DUNBARTON - WHALAN ASSOC.
- HEBRON - SAYLESVILLE ASSOC.
- ORION - HUNTSVILLE - ETTRICK ASSOC.
- DURAND - MYRTLE - ROCKTON ASSOC.
- DICKINSON - MERIDIAN ASSOC.



A widely used system of classification of soils primarily for agricultural purposes is called "land capability classification". This system is based on the most intensive longtime use for this land; site, surface and subsoil characteristics; soil limitations for safe use in crop production; and conservation practices for most intensive long time land use needed to correct limitations and/or potential soil management problems, serve as classification criteria. In this classification system, soils are grouped according to their potentialities and limitations (if any) for sustained production of common crops. This classification system places all soils into eight capability classes. The risk of soil damage or limitations in use becomes greater in progressing from Class I through class VIII. Soils in Classes I, II, III and IV, with good soils conservation management, are suited for pasture, woodland, and wildlife. Soils in Class VIII generally are non-productive for agricultural purposes and are recommended for wildlife habitat.

Capability Classification by Acreage - Green County, Wisconsin		
Capability Classification	Total Acres	% of County
I	6,259	1.7%
II	127,855	34.1%
III	107,187	28.6%
IV	71,399	19.1%
V	1,915	0.5%
VI	31,057	8.3%
VII	28,515	7.6%
VIII	112	0.03%

A visual representation of the distribution of Prime Farmland areas, as defined by the Town of Albany as being soils in Classes I - IV, can be reviewed on the following page. As noted in the agricultural portion of this plan element, the Town of Albany has a strong desire to preserve and protect its farming heritage and rural character. Specifically the Town wishes to comply with S. 16.965(4), Wis. Stats.: Goal #4 - "Protection of economically productive areas, including farmland & forests." To accomplish this State Statutory goal, the town is advocating that new development be restricted in Prime Farmland areas throughout the township, by methods found in the Implementation Element of this Comprehensive Plan.

Farmland Classifications
Town of Albany

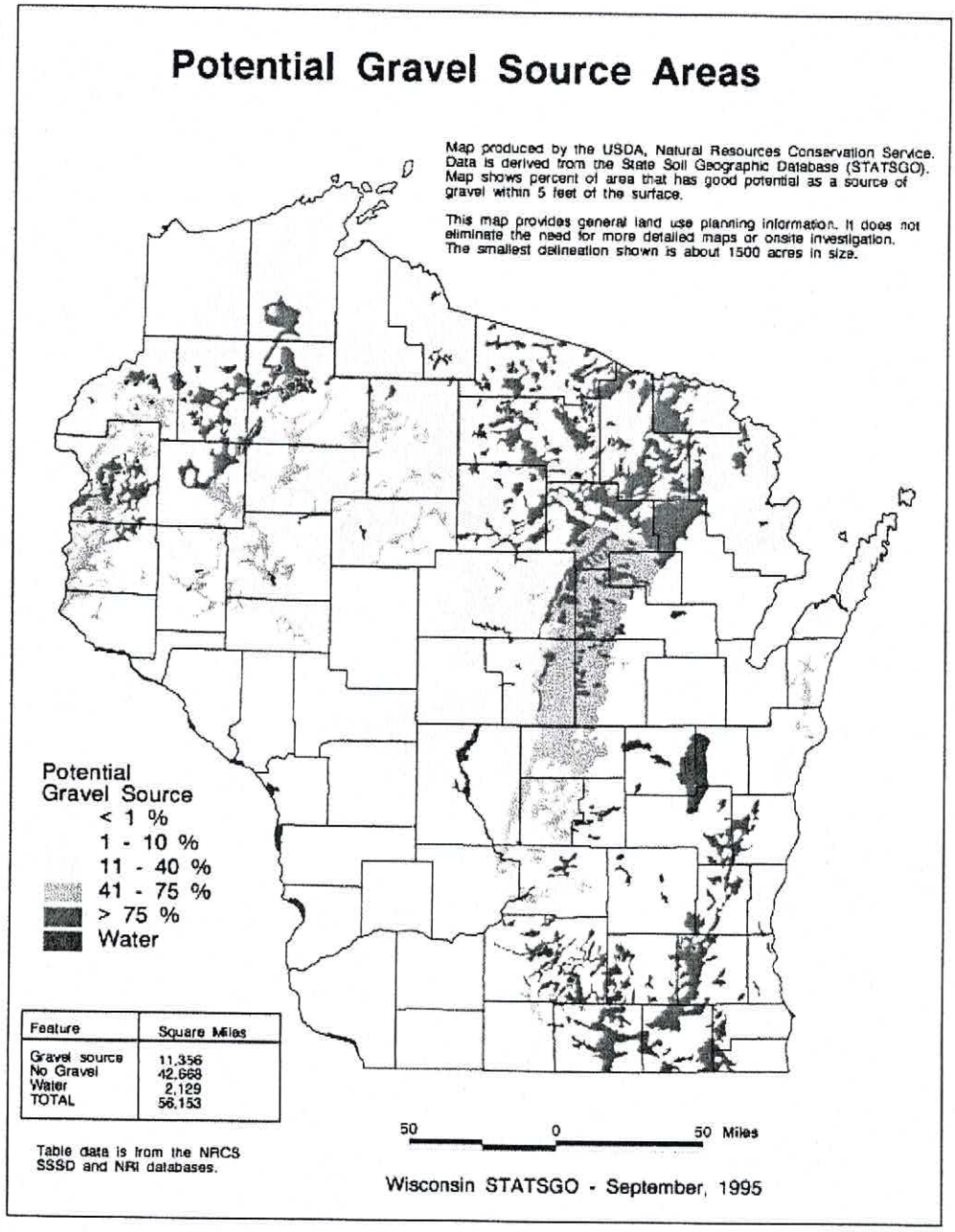
Legend

Prime Farmland
- Not Prime Farmland
- Prime Farmland
- Where Drained
- Where Protected From Flooding
- Where Drained and Protected From Flooding

Parcels
- State Highways
- County Highways
- Town Roads
- Surface Water

VIERBICHER ASSOCIATES
Committed to Quality Service Since 1976

Another asset of northeastern Green County and the Town of Albany, is the potential accessibility of non-metallic mineral resources. As an asset these resource can provide for economic activity within the township. As a caution this asset also represents potential erosion concerns and groundwater infiltration concerns. Scattered throughout the north and eastern portion of the township, these assets must be carefully managed so as to avoid any potential negative impacts through their development and use. If accessed and used, it is critical that mitigation plans be put into place in order to ensure a pre-disturbance landscape in appearance and usability once they have yielded their resources. Additional concerns on noise, hours of operation, dust, and blasting impacts are also concerns.



Green County is comprised of seven different watersheds, which are all part of the Sugar-Pecatonica River Basin. In addition there are twelve sub-watersheds within the county that are currently on the Wisconsin Department of Natural Resources 303(D) list of waters not currently meeting water quality standards. None of these named impaired water bodies are geographically within the Town of Albany. Three of the eight major watershed boundaries overlap into the Town of Albany. They are:

The Middle Sugar River watershed (SP12) - Covering approximately just under 1/3 of the township in area in the southern portion of the township.
The Allen Creek and Middle Sugar River watershed (SP13) - Covering approximately just over 1/3 of the township in area in the northern portion of the township, and
The Little Sugar River watershed (SP14) - Covering approximately just under 1/3 of the township in area in the western/northwestern portion of the township.

Each of these watersheds with their sub-watersheds can be described as follows:

Lower Middle Sugar River Watershed (SP12) - The Lower Middle Sugar River Watershed is located in eastern Green County and a very small portion in Rock County. Agriculture is the predominant land use within the watershed. Two permitted wastewater treatment facilities discharge to surface water in the watershed; the Village of Albany and the City of Broadhead. A large wetland complex exists adjacent to the Sugar River in this watershed. Other large areas of wetlands have been drained and put into cultivation. The Sugar River in this watershed is considered to be exceptional resource waters (ERW) under the states antidegradation rules.

Norwegian Creek - Norwegian Creek, a small stream tributary to the Sugar River above Broadhead, has a diverse forage fishery, though game fish may be found near its mouth. Much of the stream has been straightened. The least darter, a species on the state watch list, has been found in the stream. The stream has recently been added to the state's antidegradation list under administrative code NR 102 as an exceptional resource water (ERW). A narrow wetland buffer exists along the stream's lower reaches. Many of these wetland areas have been disturbed by grazing or prior farming. Other large areas of wetlands have been drained and put into cultivation.

Sugar River - The Sugar River, in this reach, is classified and managed as a warm water sport fishery, and possess an excellent diversity of sport fish. The Green County reach was recently added to the state's antidegradation waters list as exceptional resource waters (ERW). One state threatened and one state watch species of clam are known to reside in this reach of the stream. The gravel chub, on the state's endangered species list, and the river redhorse, redfin shiner and the weed shiner, on the state's watch species list have also been found in this reach.

Allen Creek and Middle Sugar River (SP13) - The Allen Creek and Middle Sugar River Watershed is in northeast Green County, northwest Rock County and south central Dane County. The dominant land use in the watershed is agriculture, though some low intensity urban development exists in the upper reaches of the watershed. Municipal wastewater

treatment plant discharges to surface water in the watershed come from Belleville, Brooklyn and Evansville.

Allen Creek - Allen Creek rises in southern Dane County, flows through northwest Rock County and northeast Green County before emptying into the Sugar River. About 4.5 miles of the stream above Lake Leota are classified as Class II and Class III trout waters. Allen Creek below Evansville was recently added to the state's antidegradation list (NR 102) as an exceptional resource water (ERW), affording it a greater level of protection. The stream below Evansville has a very good, diverse warm water sport fishery.

Gill Creek - Gill Creek is a warm water forage fishery stream. It has the potential to support a cold water sport fishery but is limited by polluted runoff. Gill Creek was recently added to the state's antidegradation list (NR 102) as an exceptional resource water (ERW), affording it a greater level of protection.

Liberty Creek - Liberty Creek is classified as a Class II and Class III trout stream for about four miles of its length. About 2.5 to three miles are within the Liberty Creek State Wildlife Area. A high quality wetland complex exists adjacent to the creek. Liberty Creek was recently added to the state's antidegradation list (NR 102) as an exceptional resource water (ERW), affording it a greater level of protection. The least darter, a Wisconsin watch species of fish, has been reported in the stream.

Ross Crossing Creek - Ross Crossing Creek is a warm water forage fishery with the potential to become a cold water sport fishery. The redfin shiner, a fish on the Wisconsin watch list, has been found here. The stream was recently added to the state's antidegradation (NR 102) list as an exceptional resource water (ERW), affording it a greater level of protection.

Albany Lake (Lake Winnetka) - This lake is an impoundment of the Sugar River at Albany. It has poor water quality, similar to other impoundment's in the driftless area. This 102 acre lake has a drainage area of about 465 square miles. Sedimentation and turbidity impair uses of the lake. A best-case scenario for the Sugar River at Albany is that the dam be operated as "run of the river" dam, allowing much of the existing millpond to become a riverine wetland complex. The Albany State Wildlife Area borders the northwest corner of the lake.

Little Sugar River (SP 14) - The Little Sugar River Watershed lies in north central Green County and a very small portion of southern Dane County. Agricultural land uses dominate, especially dairying, cash crops and feeder operations. Two municipal wastewater treatment plants discharge to surface water in the watershed: New Glarus and Monticello. New Glarus is the beginning of the Sugar River State bicycle trail which parallels the Little Sugar River and Sugar River from New Glarus to Broadhead.

Burgy Creek - Burgy Creek is a tributary to the West branch of the Sugar River below Monticello. It's existing biological use is as a warm water forage fishery. Though it has a diverse forage fishery, it has the potential to be a trout stream.

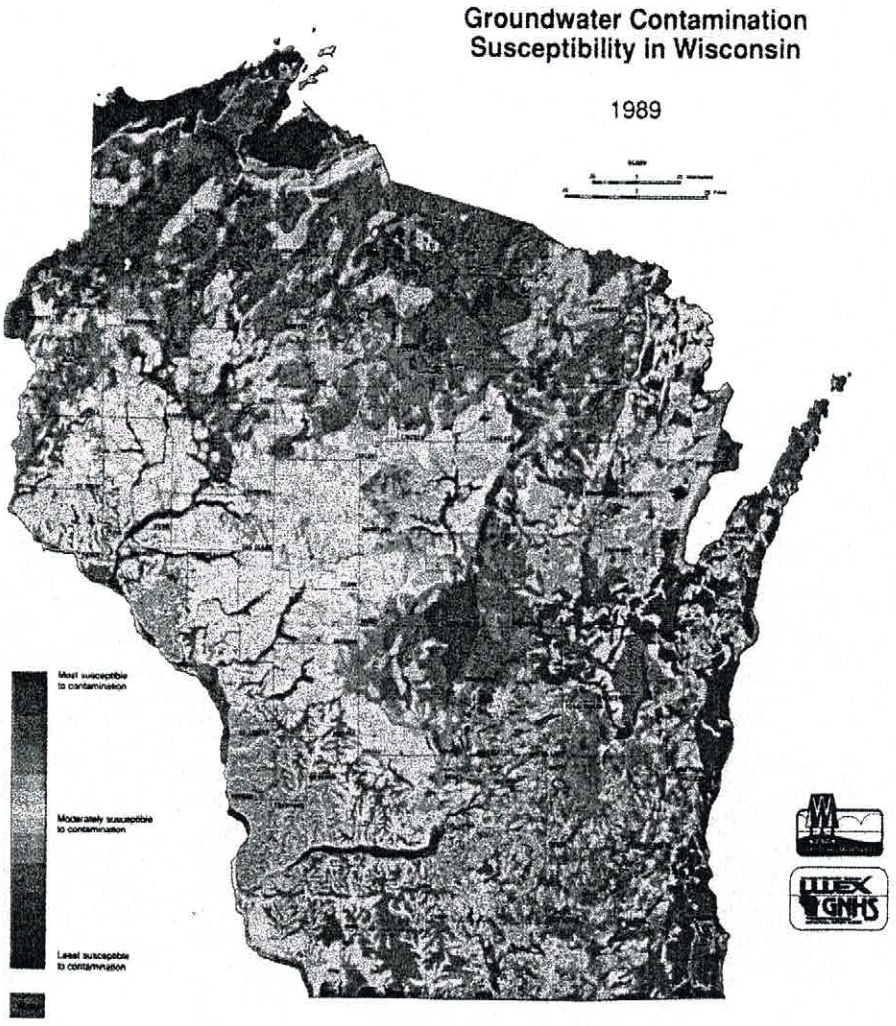
Historically, brook trout were found in the upper reaches. Stream channel ditching, runoff from farm fields, and streambank grazing have resulted in siltation in the stream. Burgy Creek was added to the state's exceptional resource waters list under administrative code NR 102 and NR 207, the state's antidegradation rule.

Little Sugar River - The Little Sugar River rises in southwest Dane County and flows south easterly to the Sugar River at the Albany Millpond. The river above New Glarus is a class II trout stream and is considered an exceptional resource water (ERW) under NR 102 and NR 207, the state's antidegradation rule. Below New Glarus the stream becomes wider. Some larger wetland complexes exist adjacent to the stream, which both buffer the stream and provide important wetlands functional values. Other wetland areas have been drained and put into agricultural production. Much of the remaining wetland area is in the Albany State Wildlife Area. There are potential sources of polluted runoff, but their impacts on the stream are unevaluated.[6]

While surface water conditions in the Town of Albany warrant special attention, they also offer the potential for economic development opportunities as a tourism enticement. Careful management and planned development of the areas adjacent to these water resources can maximize their potential while minimizing any negative impacts. In accomplishing this balanced approach, the Town of Albany can preserve and embellish its natural resource base.

While surface water resources are more readily understandable because of their ability to be seen, ground water resources, the "hidden water resource" is also in need of protection within the Town of Albany. As a rural Wisconsin township, local residents are reliant upon private wells and methods of waste disposal systems. In addition as an active agricultural area, great caution must be paid to the use and application of chemicals to productive fields. Chief among the concerns to local groundwater resources is that infiltration and contamination of the groundwater table do not occur.

The threat of this possible occurrence can be witnessed through the examination of the 1989 UWEX/WIDNR State mapping of areas susceptible to groundwater contamination. This map illustrates that a large portion of Green County and the Town of Albany do have existing conditions which make the area susceptible to groundwater contamination. Proper care and management of groundwater resources to avoid this possible contamination are needed.



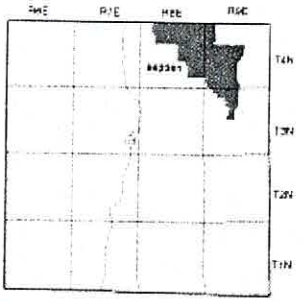
An existing condition of concern is the active ban of the use of atrazine within the north central portion of the township. DNR water quality standards as measured through local monitoring wells have determined that the concentrations of this chemicals components already exist at high enough levels within the ground water table to issue this ban. To ensure that additional contamination issues are managed for the health, safety and welfare of township residents, periodic testing of private wells by land owners needs to be encouraged.

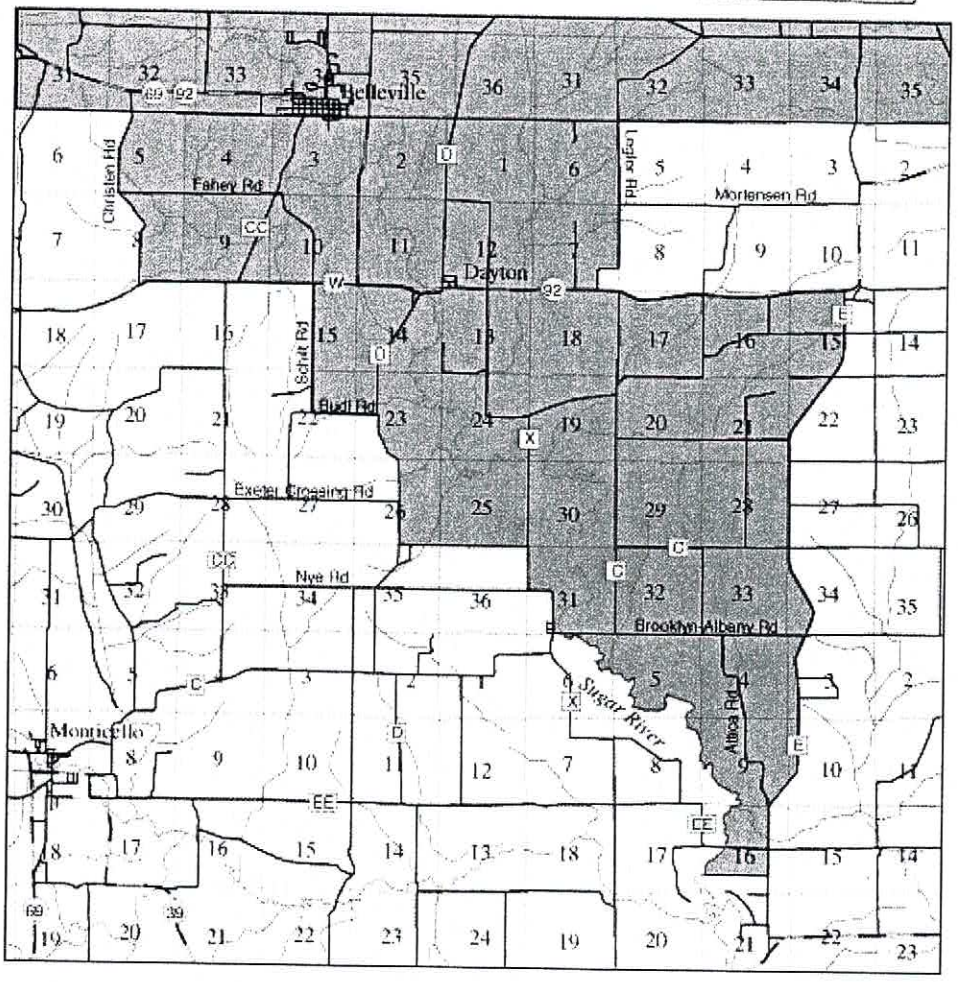
Green County

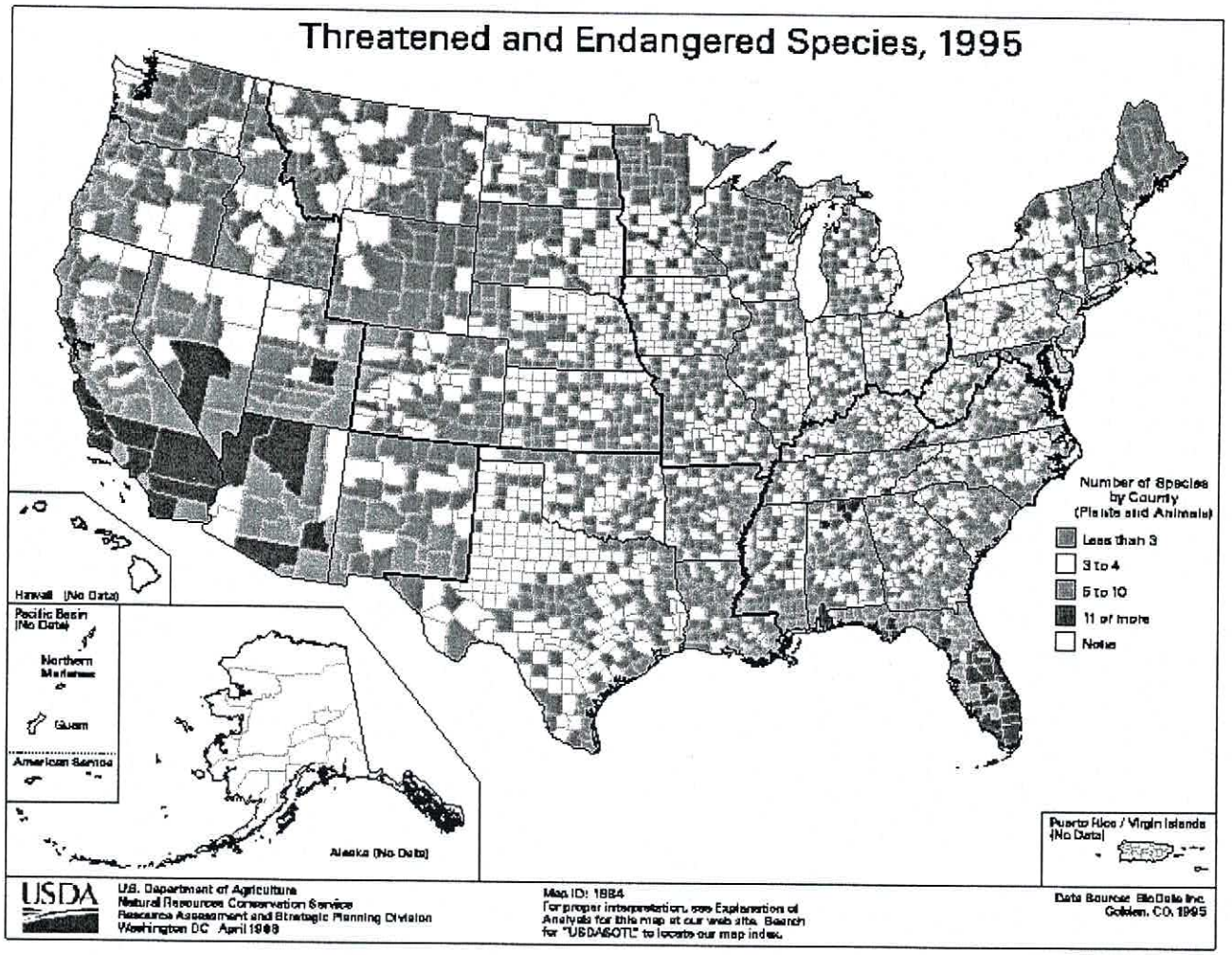
Towns of Albany, Exeter & Brooklyn

T3-4N R8-9E **PA 96-23-01**

All uses of atrazine are prohibited on lands within the shaded region shown on the map. There is only one prohibition area in Green County.







While on a national level Green County is home to 3 or less endangered species, many threatened and special watch species are in existence. Green County's regional landscape can be noted as being the following:

Regional Landscape Ecosystems of Michigan, Minnesota, and Wisconsin

SUBSECTION V.4. Rock River Hill Country

Dissected Wisconsinan- and pre-Wisconsinan-age till and loess over bedrock; tallgrass prairie and oak forests.

DISCUSSION: The Rock River Hill Country subsection is an area of steep, dissected topography, which also contains broad outwash plains. Soils are often thin, developed from

a recent silt-loam cap of loess over old Altonian- and Illinoian-age glacial drift. This subsection continues south into Illinois, where its western portion is called the Rock River Hill Country, and its eastern portion is called the Green Section of the Northeastern Morainal Division (Schwegman 1973).

SUB-SUBSECTIONS: None.

ELEVATION: 740 to 1,157 feet (226 to 353 m).

AREA: 1,048 square miles (2,716 sq km).

STATES: Wisconsin (this subsection also continues south into Illinois).

CLIMATE: Growing season ranges from 150 to 160 days (Wisconsin Agricultural Statistics Service 1987). Average annual precipitation is 32 to 36 inches, and average annual snowfall ranges from 32 inches in the south to approximately 40 inches in the north (Wendland *et al.* 1992). Extreme minimum temperature ranges from approximately -30½F in the south to -35½F farther north (Reinke *et al.* 1993).

BEDROCK GEOLOGY: Subsection is underlain by Ordovician-age dolomite, with some limestone and shale (Ostrom 1981, Morey *et al.* 1982). Cambrian sandstone is exposed in the valleys of the Rock and Sugar Rivers. Bedrock is within 3 to 4 feet of the surface locally (Hole and Germain 1994).

LANDFORMS: The topography consists of dissected uplands of pre-Wisconsinan till and Wisconsinan-age outwash deposits, which form broad, flat to rolling plains (Hole and Germain 1994). Glaciation within the subsection is considered to date from at least 25,000 years ago (Zenda Formation at the east edge). Over much of the subsection, glaciation occurred as long as 130,000 years ago (Walworth Formation) (Clayton *et al.* 1991).

LAKES AND STREAMS: No lakes within the subsection; numerous small creeks within this highly dissected landscape. Among the larger streams are the Rock and Sugar Rivers.

SOILS: Pre-Wisconsinan till, and paleosols derived from this till, underlie a silt cap (loess) and are exposed on dissected uplands (Hole 1976). Wisconsinan-age outwash deposits form extensive rolling plains. Loess is about 2 feet deep over either leached sandy loam or loam, which is calcareous at a depth of about 6 feet. Under oak savannas, Typic Hapludalfs form; under prairie, Typic Argiudolls are representative soils (Hole and Germain 1994).

PRESETTLEMENT VEGETATION: The dominant vegetation over most of the landscape was upland prairie and oak forest. Tallgrass prairie was concentrated on a broad till plain in Green County and on both till and outwash plains on both sides of the Rock River in Rock County. Oak forest was quite extensive, especially along the more dissected bluffs and ravines of the numerous small streams of the subsection. Sugar maple-basswood was locally present along some streams, where the topography was hilly and often rocky. The largest areas of sugar maple-basswood forest occur along Sugar and Richland Creeks in Green County. Sedge meadow, wet prairie, and shrubs form linear corridors along several of the

small creeks and also along the Sugar River. The Sugar River supports a significant corridor of flood-plain forest.

NATURAL DISTURBANCE: Fire maintained upland prairie and oak forests over much of the landscape. Native American land management with fire may be partially responsible for the persistence of tallgrass prairie. The Azatlan (Juntunen) culture had villages along the Rock River between circa 1400 and 1600, and the Green tribe had villages along the Rock River between 1810 and 1830 (Tanner 1986).

PRESENT VEGETATION AND LAND USE: Heavy agriculture has caused major fragmentation and reduction of natural vegetation.

RARE PLANT COMMUNITIES: Tallgrass prairie, including mesic, wet-mesic, and wet prairie, along with a site for oak opening.

RARE PLANTS: *Besseya bullii* (kitten-tails), *Chaerophyllum procumbens* (wild chervil), *Diarrhena americana* (beak grass), *Hypericum sphaerocarpum* (round-fruited St. John's-wort), *Napaea dioica* (glade mallow).

RARE ANIMALS: *Dendroica dominica* (yellow-throated warbler), *Hesperia ottoe* (Ottoe skipper), *Nyctanassa violacea* (yellow-crowned night heron), *Speyeria idalia* (regal fritillary).

NATURAL AREAS: State Natural Areas: Abraham's Woods, Oliver Prairie, Browntown Oak Forest, Swenson Wet Prairie, Avon Bottoms, Newark Road Prairie, Lima Bog, Ward/Swartz Decatur Woods, Kessler Railroad Prairie, and Muralt Bluff Prairie.

CONSERVATION CONCERNS: The pursuit of a joint "grassland" management project with Illinois, focused on the Sugar River corridor, has been suggested. Elsewhere the landscape is highly disturbed and fragmented. There is a great potential for managing this landscape, where management would target rare and declining grassland bird species, and, east of the Sugar River, the ornate box turtle.

BOUNDARIES: I chose to combine parts of two divisions recognized in Illinois, the Green Section of the Northeastern Morainal Division and the Freeport Section of the Rock River Hill Country Division (Schwegman 1973). I separated the Green Section, which has Altonian-age glacial drift that is better drained, from the adjacent Morainal Section of the Northeastern Morainal Division, which has many glacial lakes and poorer drainage. The Freeport Section to the west has both Illinoian and early Wisconsinan (Altonian) drift. Outwash is more extensive in the Green Section, and eroded bluffs and dells are more common in the Freeport Section, but both of these features are shared by both sections. There may well be justification for dividing this subsection (V.4) into two sub-subsections.

I also chose to include this subsection as part of the savanna province, rather than as a part of the prairie province (cf. Bailey and Cushwa [1981], who treat Subsection V.4 as part of the Tall-grass Prairie Province). I had two reasons for this. First, the vegetation in Subsection V.4 is a mosaic of maple-basswood and oak forests, oak savannas, and prairie, in contrast to Section I and Section II, where prairie dominates broad expanses of land, and

both savannas and forests are uncommon. Second, the annual precipitation in Subsection V.4 is heavier than in most of the tallgrass prairie, with a gradual increase in annual precipitation, and possibly more important, winter precipitation farther to the east. This climatic difference may be as important as the changes in topography for resulting in a mosaic of forest and prairie.[7]

The state of Wisconsin is replete with natural beauty. Our state contains a large diversity of native plant communities ranging from eastern deciduous, northern coniferous, and boreal forests to prairies and savannas. Wisconsin's glacial past left the soils that support these diverse communities. The glaciers also left Wisconsin a legacy of aquatic features including bogs, lakes, spring ponds, and wetlands. And one cannot overlook the rivers that led early explorers to the awesome sights they beheld. This landscape hosts a wide array of native species, many of which we observe and cherish while others are yet to be discovered and studied.

People are also part of the Wisconsin landscape. The natural wealth of our state has provided generations of farmers with fertile soils for crops. The northern and southern forests are a key resource for the building and manufacturing economy so important to the livelihood of many of Wisconsin's citizens. The enjoyment that people receive from outdoor activities, such as hunting and fishing, hiking and camping, and observing nature, is part of our culture. Thus, the ties that bind people to nature are diverse and deep.

But much of this natural splendor has been lost through human use of the landscape and its natural resources. How much of the remainder can and should be preserved? This is one of the biggest questions facing the people of Wisconsin today. In order to make decisions about what, where, and how much can and should be saved, we must first know what remains, where it is, and whether or not something threatens its continued existence. The Wisconsin Natural Heritage Inventory is one of the critical tools used in making these decisions.

Wisconsin's Natural Heritage Inventory (NHI), established in 1985 by the Wisconsin Legislature, is maintained by the Wisconsin Department of Natural Resources' (WDNR) Bureau of Endangered Resources. The NHI program is responsible for maintaining data on the locations and status of rare species, natural communities, and natural features in Wisconsin. The Wisconsin NHI program is part of an international network of inventory programs that collect, process, and manage data on the occurrences of natural biological diversity using standard methodology. This network was established, and is still coordinated by The Nature Conservancy (TNC), an international non-profit organization. The network now includes natural heritage inventory programs in all 50 states, most provinces in Canada, and many countries in Central and South America.

Wisconsin's Natural Heritage Inventory program's three objectives are to: collect information on occurrences of rare plants and animals, high-quality natural communities, and significant natural features in Wisconsin; standardize this information, enter it into an electronic database, and mark locations on base maps for the state; and use this information to further the protection and management of rare species, natural communities, and natural features

RARE, THREATENED AND ENDANGERED SPECIES AND NATURAL COMMUNITIES IN GREEN COUNTY

PLANTS		
Common Name	Species Name	Wisconsin Status[1]
American Fever-Few	*Parthenium integrifolium*	Threatened
American Gromwell	*Lithospermum latifolium*	Special Concern
Brittle Prickly-Pear	*Opuntia fragilis*	Threatened
Broad Beech Fern	*Phegopteris hexagonoptera*	Special Concern
Clustered Broomrape	*Orobanche fasciculata*	Threatened
Flodman Thistle	*Cirsium flodmanii*	Special Concern
Glade Fern	*Diplazium pycnocarpon*	Special Concern
Glade Mallow	*Napaea dioica*	Special Concern*
Hill's Thistle	*Cirsium hillii*	Threatened*
Kitten Tails	*Besseya bullii*	Threatened
Large Roundleaf Orchid	*Platanthera orbiculata*	Special Concern
Marbleseed	*Onosmodium hispidissimum*	Special Concern
Nodding Pogonia	*Triphora trianthophora*	Special Concern
Nodding Rattlesnake-Root	*Prenanthes crepidinea*	Endangered
One-Flowered Broomrape	*Orobanche uniflora*	Special Concern
Pale Green Orchid	*Platanthera flava var herbiola*	Threatened
Pale-Purple Coneflower	*Echinacea pallida*	Threatened
Pink Milkwort	*Polygala incarnata*	Endangered
Pomme-De-Prairie	*Psoralea esculenta*	Special Concern
Prairie False-Dandelion	*Nothocalais cuspidata*	Special Concern
Prairie Indian Plantain	*Cacalia tuberosa*	Threatened
Prairie Milkweed	*Asclepias sullivantii*	Threatened
Prairie Parsley	*Polytaenia nuttallii*	Threatened
Prairie White-Fringed Orchid	*Platanthera leucophaea*	Endangered**
Purple Meadow-Parsnip	*Thaspium trifoliatum var flavum*	Special Concern
Reflexed Trillium	*Trillium recurvatum*	Special Concern
Richardson Sedge	*Carex richardsonii*	Special Concern
Rock Stitchwort	*Minuartia dawsonensis*	Special Concern
Rough Rattlesnake-Root	*Prenanthes aspera*	Endangered
Roundfruit St. John's-Wort	*Hypericum sphaerocarpum*	Threatened
Roundstem Foxglove	*Agalinis gattingeri*	Threatened
Short's Rock-Cress	*Arabis shortii*	Special Concern
Slender Sedge	*Carex gracilescens*	Special Concern
Small White Lady's-Slipper	*Cypripedium candidum*	Threatened
Small Yellow Lady's-Slipper	*Cypripedium parviflorum*	Special Concern
Snowy Campion	*Silene nivea*	Special Concern
Spreading Chervil	*Chaerophyllum procumbens*	Special Concern
Sycamore	*Platanus occidentalis*	Special Concern
Vasey Rush	*Juncus vaseyi*	Special Concern
Wafer-Ash	*Ptelea trifoliata*	Special Concern
Whip Nutrush	*Scleria triglomerata*	Special Concern
Wilcox Panic Grass	*Panicum wilcoxianum*	Special Concern

Wild Hyacinth	*Camassia scilloides*	Endangered
Wooly Milkweed	*Asclepias lanuginosa*	Threatened
Yellow Gentian	*Gentiana alba*	Threatened
Yellow Giant Hyssop	*Agastache nepetoides*	Threatened

Nodding Rattlesnake-root (Great White Lettuce)
(Prenanthes crepidinea)

Synonym:
Status: endangered in Wisconsin
Habitat: low prairies, moist woodlands, and openings in second-growth Southern Mesic Forests
Range: Crawford, Green, and Sauk
Comments: One known site
Phenology: flowers in August and September across its US range
Field Guides:
Britton and Brown, p.3:519/p.3:519
Gleason 1963, p.755
Gleason 1991, p.617
Classification
Curtis: Wet Mesic Prairie
Kotar:
Forest Cover:

Pink Milkwort
(Polygala incarnata)

Synonym:
Status: endangered in Wisconsin
Habitat: dry-mesic prairies
Range: Crawford, Dane, Grant, Green, Iowa, Jefferson, Kenosha, and Rock
Comments:
Phenology: flowers from August to November
Field Guides:
Britton and Brown, p.2:471/p.2:471
Gleason 1963, p.437
Gleason 1991, p.348
Peterson, p.244
Classification
Curtis: Dry-Mesic Prairie
Kotar:
Forest Cover:

Prairie White-fringed Orchid
(Platanthera leucophaea)

Synonym: *Habenaria leucophaea*
Status: endangered in Wisconsin; threatened in U.S.
Habitat: mesic prairies, especially on calcareous, rich, sandy or deep black soils, and degraded sedge meadows
Range: Dane, Grant, Green, Jefferson, Kenosha, La Crosse, Milwaukee, Ozaukee, Racine, Rock, Sauk, Sheboygan, Walworth, Waukesha, and Green
Comments: because this long-lived plant apparently can go dormant, local populations may fluctuate greatly from year to year
Phenology: flowering times are variable, but peak times are mid-June to August
Field Guides:
Britton and Brown (*Habenaria leucophaea*), p.1:463/p.1:463
Gleason 1963 (*Habenaria leucophaea*), p.225
Gleason 1991 (*Habenaria leucophaea*), p.858
Newcomb (*Habenaria leucophaea*), p.42/p.43
Peterson (*Habenaria leucophaea*), p.16/p.17
Voss I (*Habenaria leucophaea*), p.443
Zimmerman (*Habenaria leucophaea*), p.12/p.12
Classification
Curtis: Wet-Mesic Prairie, Mesic Prairie, Southern Sedge Meadow, and Tamarack Fen
Kotar:
Forest Cover:

Wild Hyacinth, Eastern Camass
(Camassia scilloides)

Synonym:
Status: endangered in Wisconsin
Habitat Description: damp prairie soils, roadsides and railroad right-of-ways
Habitat Classification
Curtis: Wet-Mesic Prairie, Mesic Prairie
Kotar:
Forest Cover:
Range: Dane, Green, Iowa, Lafayette, Rock, Walworth
Comments: Associated with roadsides and railroad tracks.
Phenology: flowers in April and May across its US range
Field Guides:
Britton and Brown, p.1:421/p.1:421
Gleason 1963, p.206

Gleason 1991, p.829
Newcomb, p.332/p.333
Peterson, p.316/317
Voss I, p.423/p.421
Zimmerman, p.7/p.6

ANIMALS			
Common Name	Species Name	Wisconsin Status[1]	Taxa
Barn Owl	*Tyto alba*	Endangered	Bird
Cerulean Warbler	*Dendroica cerulea*	Threatened	Bird
Grasshopper Sparrow	*Ammodramus*	Savannarum	Bird
Loggerhead Shrike	*Lanius ludovicianus*	Endangered*	Bird
Northern Harrier	*Circus cyaneus*	Special Concern	Bird
Upland Sandpiper	*Bartramia longicauda*	Special Concern	Bird
Yellow-Breasted Chat	*Icteria virens*	Special Concern	Bird
Leonard's Pawnee Skipper	*Hesperia leonardus pawnee*	Special Concern	Butterfly
Ottoe Skipper	*Hesperia ottoe*	Special Concern	Butterfly
Regal Fritillary	*Speyeria idalia*	Threatened*	Butterfly
American Eel	*Anguilla rostrata*	Special Concern	Fish
Black Buffalo	*Ictiobus niger*	Threatened	Fish
Gravel Chub	*Erimystax x-punctatus*	Endangered	Fish
Least Darter	*Etheostoma microperca*	Special Concern	Fish
Ozark Minnow	*Notropis nubilus*	Threatened	Fish
Pallid Shiner	*Notropis amnis*	Endangered	Fish
Redfin Shiner	*Lythrurus umbratilis*	Threatened	Fish
Redside Dace	*Clinostomus elongatus*	Special Concern	Fish
River Redhorse	*Moxostoma carinatum*	Threatened	Fish
Silver Chub	*Macrhybopsis storeriana*	Special Concern	Fish
Slender Madtom	*Noturus exilis*	Endangered	Fish
Blanchard's Cricket Frog	*Acris crepitans blanchardi*	Endangered	Frog
A Heptageniid Mayfly	*Pseudiron centralis*	Special Concern	Mayfly
An Ephemerid Mayfly	*Pentagenia vittigera*	Special Concern	Mayfly
An Oligoneurid Mayfly	*Homoeoneuria ammophila*	Special Concern	Mayfly
Abbreviated Underwing Moth	*Catocala abbreviatella*	Special Concern	Moth
Newman's Brocade	*Meropleon ambifusca*	Special Concern	Moth
Silphium Borer Moth	*Papaipema silphii*	Endangered	Moth
Whitney's Underwing Moth	*Catocala whitneyi*	Special Concern	Moth
Buckhorn	*Tritogonia verrucosa*	Threatened	Mussel
Winged Mapleleaf	*Quadrula fragosa*	Endangered**	Mussel
Eastern Massasauga	*Sistrurus catenatus catenatus*	Endangered*	Snake
Timber Rattlesnake	*Crotalus horridus*	Special Concern	Snake
Blanding's Turtle	*Emydoidea blandingii*	Threatened*	Turtle
Ornate Box Turtle	*Terrapene ornata*	Endangered	Turtle

Common Barn-owl
(*Tyto alba*)

Legal status in U.S.: not endangered
Legal status in WI: endangered
1997 numbers in WI: unknown
Length: 13-15 inches
Wingspan: 41-45 inches
Weight: female 17-25 ounces male 14-19 ounces

Description

What graceful, ghostly bird can locate a mouse by sound and catch it in the dark of night? The common barn-owl, one of Wisconsin's best natural mousetraps.
Barn-owls are sometimes called "monkey-faced owls" because of their white, heart-shaped faces and dark eyes. These crow-sized owls are distinguished from other Wisconsin owls by a pale face, long legs, light underparts and a rusty back speckled with black. Barn-owls and other owls are classified in the same bird order (*Strigiformes*), but barn-owls are in their own family (*Tytonidae*) because their skeletal structure and pale, stiff facial feathers differ from those of typical owls (*Strigidae*).

Barn-owls don't have ear tufts like great horned owls or screech owls. But this doesn't mean barn owls don't have ears. Ear tufts are just feathers; the owl's real ears are behind its round facial disks, which help direct sound into the ears. Barn owls' ears also are asymmetrical; they are different sizes and one is located higher on the head than the other. This enables the bird to sense direction and distance by differences in the intensity of the sound that reaches each ear. Barn owls use their ears to locate food. They are very accurate hunters, even in the pitch black. Barn owls also have special feathers on the front edges of their wings that reduce the amount of noise they make when flying. Their quiet flight prevents prey from hearing them approach.

Hearing a barn-owl's voice is unforgettable: "*A shriek broke the stillness of the black night, a ghostly shadow passed by and my skin crawled.*" Not an overly flattering description of a barn-owl vocalization! Barn-owls' high-pitched screeches or hiss-screams are memorable, but the birds are not harmful. They make these sounds to warn their young of danger, to announce their arrival at the nest and to proclaim their territory.

Food

Why are barn-owls called one of Wisconsin's best natural mousetraps? Because they eat 1.5 times their weight in food, mostly mice and meadow voles each day. That's like a 100-

pound person eating 150 pounds of food every day! A barn-owl family of two adults and six young may eat as many as 1,000 rodents during the nesting period. Although barn-owls eat mostly mice and meadow voles, they also consume shrews, rats and, when other food is scarce, small birds. They occasionally eat insects, amphibians and reptiles.
Nighttime is when barn-owls hunt. Their excellent hearing helps them capture prey, which they usually swallow whole. They are unable to digest the fur, feathers or bones of the animals they eat, and cough up the undigested parts in a dark, odorless lump called an owl pellet. We can find out what an owl has eaten by examining the remains in the pellet.

Breeding Biology

When they are one year old, barn-owls can breed. The male courts the female by chasing her, bringing her mice and uttering a series of rapid squeaking noises. A pair may use the same nesting site each year. Barn-owls select well protected nesting sites, usually in tree cavities, abandoned buildings, church steeples, silos or the location that gave them their name. . .barns. Before settlement, barn-owls nested in tree cavities and on cliff ledges.
Barn-owls can breed year-round. In Wisconsin they usually rear a brood of young in the spring and, if food is plentiful, may rear a second brood in the late summer or early fall. Eggs are laid on a bare surface or, if the nest was used the previous year, on a thick mat of flattened pellets. The female lays an egg every two days until 5-7 white eggs are in the nest. When the first egg is laid, she begins incubating. Thus, when the first egg hatches about 30 days later, that owlet is older than the next one to hatch. It often is stronger and more able to take food from the parents.

Both adults hunt food for their snow-white, downy young. They bring prey to the nest, where the owlets swallow it whole. Sometimes the younger nestlings don't get enough food and die. The older, stronger owlets may even eat the weaker ones. Great horned owls and raccoons also eat young barn-owls. The young owls fledge when 8-10 weeks old.
Barn-owls have difficulty surviving severe winter weather. Their bodies store little fat, so the birds have minimal extra energy to draw on when deep snow hides the small mammals they eat. If they don't find a constant supply of food, especially during cold spells when they use a lot of energy to keep warm, they may die. On average, barn-owls live 3-4 years.

Distribution

If you traveled to Europe or Africa, South America or Southeast Asia, Australia or North America, you could see barn-owls. They live in temperate and tropical regions nearly worldwide. In Wisconsin, barn-owls generally live only in the southern third of the state. Since severe winter weather limits where they can survive, southern Wisconsin forms the northern edge of their North American range. Barn-owls hunt along uncultivated field edges, fence rows and wetland edges, where their prey is most available. They nest and roost in dark, secluded places. During the winter, some adults wander locally while others migrate southward. Young owls generally move south the winter after they fledge and may return the following spring. A map outlining Pre-1977 and 1997 to Present Distribution is also available.

History in Wisconsin

Although Wisconsin's barn-owl population was never high, a decrease in sightings since the

1950s suggests that it has been declining. No one factor has been clearly defined as the major cause for this decline. There appear to be several contributing factors:

- Some modern agricultural practices have reduced barn-owl habitat. For example, shifts from cover crops such as oats and hay to row crops like corn remove food and shelter for mice and voles, barn-owls' primary prey. Development of land, removal of hedgerows and draining of wetlands also have destroyed much barn-owl habitat.
- Fewer nesting sites may be limiting the barn-owl population in Wisconsin. Modern metal farm buildings have few entry windows, which prevents them from being used by nesting barn owls. Woodlot management which removes large dead trees that have good nest cavities also reduces the number of possible nesting places.
- Even though barn-owls help farmers by eating large numbers of grain-consuming mice, they have been blamed for poultry losses. As a result, they are sometimes unjustly and illegally shot or poisoned.

Current Status

Barn-owls were placed on the Wisconsin Endangered Species List in 1979. At present, the status of the barn-owl population in Wisconsin is unknown. The last reported nesting occurred in 1985, when a pair occupied a large silver maple in Deerfield (eastern Dane County).

Research and Management

When research showed that the number of barn-owls in Wisconsin was declining, the DNR recommended that barn-owls be listed as a state endangered species and that action be taken to increase the barn-owl population in the state. Since 1981, the Milwaukee County Zoo has bred barn-owls in captivity and the DNR has released them in southeastern Wisconsin. To date, 79 birds have been released, but it is not known if any have nested in Wisconsin. Researchers and volunteers are also building and installing nestboxes in suitable barn-owl habitat. These nestboxes have been successful in Ohio and New Jersey, and hope is high that the boxes will be used by barn-owls in Wisconsin.
In 1985, DNR biologists began attaching radio transmitters to some of the owls it released. The transmitters broadcast a signal to receivers that allow researchers to locate an owl's daytime roost and monitor nocturnal movements. These and future studies will help provide needed information about how far barn-owls go to hunt, what kind of habitat they use and where they go after the nesting season.

What You Can Do

Wisconsin citizens can help restore barn-owls by volunteering time and by contributing to the DNR's Endangered Resources Fund on their state income tax forms. Contributions will help the DNR and volunteers build and install barn-owl nest boxes and will be used to purchase radio equipment for tracking barn-owls. Also, please help researchers by reporting any sightings of barn-owls to the Bureau of Endangered Resources.

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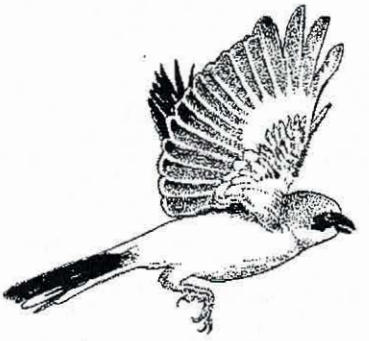
Loggerhead Shrike
(*Lanius ludovicianus*)

Legal status in WI: endangered
1987 numbers in WI: less than 10 breeding pairs
Length: 7-9 inches



Description

The loggerhead shrike is a masked, hook-billed songbird known for its habit of impaling prey on thorns or barbed wire. It is a gray, black and white bird, with a slim tail, large head, hooked black beak and distinctive black mask. When a shrike flies, you can see two white wing patches. Males and females are similar in size and color.

Because of its size, color and wing patches, the loggerhead shrike is easily confused with mockingbirds and more common northern shrikes. Mockingbirds, however, have longer tails, larger wing patches and no mask. Northern shrikes are slightly larger than loggerheads and have a barred breast, paler head, whiter rump and longer bill. Unlike the loggerhead's entirely black bill, the northern shrike's bill has a light-colored lower mandible. The song of loggerhead shrikes is an often repeated medley of low warbles and harsh, squeaky notes and phrases. The bird's call is a harsh "*shack-shack.*"

Comparison of Similar Species

	Loggerhead Shrike	Northern Shrike	Mockingbird
Size	9"	9-10.5"	9-11"
Facial Markings	Mask meets over bill	Mask ends at bill	None
Breast Coloration	No marking	Faintly barred	No marking
Bill Color	All black	Lower mandible lighter--	All black
Special Markings	White wing and tail patches	White wing and tail patches	Large white wing and tail patches
Body Description	Big-headed and slim-tailed	Big-headed and slim-tailed	Slim, long-tailed
Seasonal Status	Rare summer resident and migrant; present March - September	Uncommon winter resident and migrant; present October - April	Rare visitor throughout year

Food

Grasshoppers, beetles and other large insects are the main summer food of shrikes. In the fall and winter, mice and small birds make up more of their diet.

How does the shrike - a songbird that, unlike birds of prey, has weak feet, no talons and a small beak - capture and kill its prey? It drops onto prey from a perch or pursues the prey until it's tired, then hits and stuns it. The shrike quickly carries the prey in its bill to a thorn or piece of barbed wire and impales it. Once the prey is dead, the shrike tears away and eats small pieces with its sharp beak. The habit of impaling its prey has earned the shrike another name, "*butcher bird.*" Not all of what shrikes consume is digestible. The birds regurgitate hard insect parts, feathers and fur in pellet form.

Breeding Biology

By mid-spring, loggerhead shrikes return to Wisconsin from their wintering range in more southerly states. Individuals often return to the area where they nested the previous year, but may select a different mate.

The pair builds a nest 3-12 feet above the ground in the crotch of a tree branch. The nest is made of thick twigs and is lined with fine roots, fibers, mud, feathers and fur.

The female loggerhead lays an average of 6 light-yellow, dark-speckled eggs. She begins incubating once she lays the second-to-last egg and is fed by the male during the 16-day incubation period. Both parents feed the downy, buff-colored chicks. The chicks fledge when about 16 days old and stay with the adults another 3-4 weeks.

Distribution

The breeding range of loggerhead shrikes extends from southern Canada through the lower

48 states to southern Mexico. Virginia, southern Illinois and northern California form the northern edge of their winter range.
Loggerheads arrive in Wisconsin in late March or early April, and leave in September and October. An occasional bird may be seen during the winter. Northern shrikes are more common in the winter, however, and are easy to confuse with loggerheads. Northerns breed in the Canadian arctic and overwinter in the northern half of the U.S.
Within their range, shrikes prefer "edge" habitat, nesting along roadsides and hedgerows in agricultural regions. They prefer tree species with thorns (e.g., hawthorn, locust, crab apple, osage orange), on which they impale their prey. A map outlining Pre-1977 and 1997 to Present Distribution is also available.

History In Wisconsin
Loggerhead shrikes once bred commonly in Wisconsin as far north as Douglas County. By the late 1960s, however, populations began declining and have never regained former levels. Causes of the decline are unknown, but increased use of pesticides is thought to be a main culprit. Pesticides have reduced the supply of insects, shrikes' main food, and have adversely affected the birds' reproductive physiology. The removal of farm fence rows has destroyed habitat where shrikes nest, also contributing to their decline.

Current Status
So few loggerhead shrikes remain in Wisconsin that they were placed on the Endangered Species List in 1979. Since 1980, observers have seen only 2-8 nesting pairs each year. These birds have nested in central and west central Wisconsin and in Door County.

Research and Management
Little research has been done on the status and biology of loggerhead shrikes in Wisconsin. The DNR Bureau of Endangered Resources (BER) is developing a shrike management plan. The plan recommends that biologists survey nesting sites, study habitat needs, examine eggs for contaminants, determine ways to protect and increase shrike populations and inform the public about shrike conservation work.

What You Can Do
The BER encourages you to participate in breeding bird surveys or informal birdwatching in your area and report any loggerhead shrike sightings to BER biologists at the address below. You also can help by: maintaining farm and roadside hedgerows that provide habitat for shrikes and other wildlife; reducing your use of pesticides; supporting legislation banning especially harmful pesticides; and contributing to the Endangered Resources Fund on your Wisconsin income tax form.

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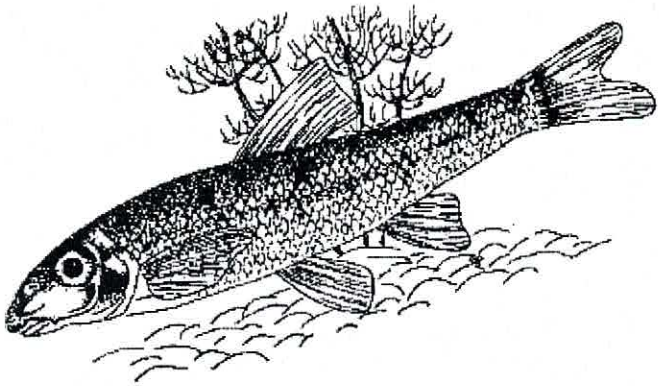
Gravel Chub
(Erimystax x-punctatus)

Status: State Endangered (1979).

Occurrence: The lower Rock River drainage, including lower Pecatonica River, lower Sugar River, the main channel of Rock River and lower Turtle Creek. A map outlining Pre-1977 and 1997 to Present Distribution is available.



Aid to ID: Olive green dorsally, silvery on sides, silvery and white on belly. Large "bug" eyes. Scattered "X"-shaped markings on back and sides. Adult length: 3 inches (76 mm).

Habitat: Deep, swift waters of medium-to-large-sized rivers over pea-gravel bottom. Avoid rooted aquatic plants and larger species of algae and aquatic mosses.

Food Habits: Probe under rocks and crevices for desmids, diatoms, plant debris and other vegetation.

Natural History: Gravel chubs spawn in early spring in swift gravel raceways or channels.

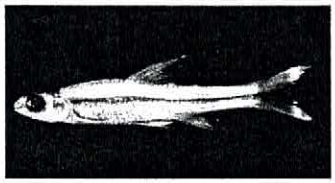
Management Considerations: The main reason for the gravel chub's decline is a general lack of its highly specialized habitat and increasing turbidity and siltation of existing sites resulting from agricultural run off. Specific microhabitat requirements may be beneath rocks in riffle areas where the effects of swift water are reduced, but where the current sweeps the gravel bottom clean of silt.
Information compiled from publication ER-091.

Pallid Shiner
(Notropis amnis)

Status: State Endangered (1979).

Occurrence: Mississippi River and the lower portions of major tributaries. A map outlining Pre-1977 and 1997 to Present Distribution is available.

Aid to ID: Body slender and fragile. Back pale olive yellow, sides silvery, belly silvery white and fins unpigmented. Adult length: 2 inches (51 mm).



Habitat: Medium to large rivers and streams, often at the end of sand and gravel bars. Primarily found over sand and mud in shallow, slow-moving, moderately clear, warm and well-oxygenated waters in impoundments with little or no current.

Natural History: Virtually nothing is known except that they most likely spawn in March.

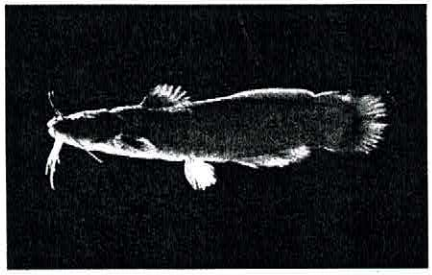
Management Considerations: Access to the floodplains for spawning may be essential for the reproduction and survival of the pallid shiner. See summary fish management section.
Information compiled from publication ER-091.

Slender Madtom
(Noturus exilis)

Status: State Endangered (1979).

Occurrence: The Rock and Pecatonica River systems, which is the northern limit of their range. A map outlining Pre-1977 and 1997 to Present Distribution is available.

Aid to ID: Distinguished from other catfish species by the combination of its slender body, subequal jaws and black margins on the fins. Blunt snout with two short, feeler-like barbels pointing upwards from nostrils. An additional four barbels protrude from the underside of chin. Dark gray or blackish with vague yellow blotches on the back. Adult size: 3-4 inches (76-102mm).



Habitat: Clear, moderately swift waters at depths of 4-12 inches (10-30cm) over gravel and boulder substrate interspersed with fine sand. Generally occurs in streams 29-36 feet (9-12m) wide, but may also be found in larger rivers with suitable current and substrate.

Food Habits: Eat caddisflies, midgeflies and other insects, and filamentous algae on the benthic (bottom) surface.

Natural History: Slender madtoms are mostly nocturnal. Spawning occurs in late May and June. From 150-200 eggs are laid in a large adherent mass under a flat rock where water can percolate between the developing eggs. Newly hatched young crowd together in a tight cluster.

Management Considerations: Slender madtom eludes most predatory fish and wading birds because of secretive daytime habits as well as maneuverability and quickness over short bursts. Populations have declined dramatically since the late 1970's. Reasons for declines appear related to siltation and turbidity in the farming areas over most of their

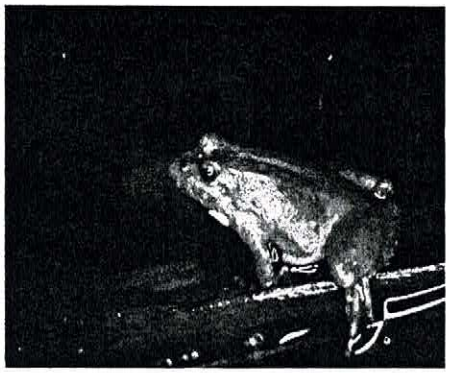
range. Some of the declines can also be attributed to the improper operation of hydroelectric facilities resulting in the dewatering of habitat.
Information compiled from publication ER-091.

Blanchard's Cricket Frog
(Acris crepitans blanchardi)

Legal status in U.S.: none
Legal status in WI: endangered

Description

The Blanchard's cricket frog is a tiny (7/8 to 1 1/4 inch long, snout to vent), nonclimbing member of the treefrog family which lives in ponds and streams of southwestern Wisconsin. The frog is named for the biologist who first described it, Frank Nelson Blanchard, and for its distinctive cricket-like call. Male and female Blanchard's cricket frogs look alike, but females are usually larger. Males have a dark vocal sac on their throats that they inflate to help make their mating call. Back color is variable, but is usually brown, gray, olive, or tan, sometimes with a green or reddish stripe running down the middle. Their moist skin has raised reddish spots, or warts. There is a dark triangle or V-shaped spot between their eyes, often rust or lime green in color. Bellies are white and each thigh has dark, ragged crossbars that create a somewhat netlike pattern.



Distribution

Historically, Blanchard's cricket frogs were found from Southwestern Ontario, Michigan, and Ohio west to Nebraska and south to include most of Texas. Small populations extend into eastern Colorado and New Mexico. Today, this species has almost disappeared from much of the Northern portion of its range, including Ontario, most of Michigan, Minnesota, Wisconsin, Illinois, and Iowa. In Wisconsin, the historical range of the Blanchard's cricket frog was limited to the southern half of the state. A map outlining Pre-1977 and 1997 to Present Distribution is available.

Habitat

Cricket frogs require reasonably permanent water in open country. Open mud flats and stream banks with abundant, low emergent vegetation are preferred. They inhabit marshes, fens, and wet prairies near permanent or flowing water. In lakes and ponds they prefer aquatic sites where submergent vegetation grows along the shorelines. They need soft muddy bottoms to hibernate in through the winter.

Habits

Cricket frogs live mostly on the edges of ponds and streams with submerged or emergent vegetation. Look for them sitting on aquatic plants or sitting at the water's edge.
Cricket frogs can leap great distances, despite their small size. With long legs that are over half of their extended body length, cricket frogs can jump more than three feet. That's like

a six foot tall person jumping 200 feet! Cricket frogs escape predators (e.g. fish, snakes, herons, mink) with a quick series of zig-zagging, erratic leaps. Cricket frogs are cold-blooded. This means that they cannot maintain a steady body temperature like birds and mammals. To survive Wisconsin's freezing winters, they hibernate from late November until late March.

Life History

Cricket frogs are mostly diurnal (active during the day) in spring and fall, but also nocturnal (active after dark) in May through July when males call night and day to attract mates. Their distinctive mating call sounds like steel marbles clicking together. It starts slowly, accelerates, then slows down quickly. Cricket frogs are sexually mature when one year old. They breed in late May to late July. A male will mate with any female that approaches him. He grasps her body, stimulating her to release eggs while he releases sperm. The eggs are attached to submergent vegetation in clumps of 10 - 15 and are fertilized outside the body. A single female may lay up to 300 eggs. Eggs hatch in a few days into tiny tadpoles (0.4 inches long) that have a black-tipped tail. No other tadpoles have this trait. Tadpoles metamorphose (change) between late July and late August. The average lifespan of an adult cricket frog is four months. This very short lifespan means that the entire population can turn over in only 16 months.

Frogs, along with toads and salamanders, are amphibians. "Amphibian" means "double life," a name given to these animals because, with few exceptions, they spend part of their life cycle in water and part on land. Frog eggs hatch into tadpoles which live in the water. Tadpoles metamorphose from gilled animals into air-breathing adults that are able to live on land.

Food Habits

Blanchard's cricket frogs mostly eat tiny insects including beetles, spiders, midge larvae, water boatmen, springtails, and small slugs and crickets. They feed both day and night and consume large numbers of prey. One study estimated that in Wisconsin, 100 cricket frogs living around a small pond would consume 480,000 insects and other small vertebrates in one season.

Status in Wisconsin

Prior to 1970, Blanchard's cricket frogs were quite common in southern Wisconsin. Then the population declined rapidly. During the 1980s, biologists and volunteers found no cricket frogs in many of the sites where they existed previously. A 1991 survey of 40 historic cricket frog sites found that only 19 of those sites were occupied by cricket frogs. In a 1994 follow-up study of 24 sites (including 12 sites active in 1991) only 5 were active. None of the sites had strong populations. However, two new sites, with fairly large cricket frog numbers, were discovered in 1994. In recent years this frog has been documented in three southwestern Wisconsin counties; Grant, Lafayette, and Iowa.

While the cause of this dramatic decline is not certain, it is known that cricket frogs can't survive in polluted water. Several factors are suspected to be involved, including drought (especially during winter), increased amounts of pesticides, fertilizers, highway salts, and other pollutants that degrade water quality and the loss or fragmentation of wetlands in

the southern part of the state. The tremendous flooding of 1993 which resulted in the flushing of several key rivers twice during cricket frog breeding is suspected to be the cause for the most recent declines. Low populations and a very limited life span will severely limit recovery. Because of the rapid decline in their numbers and their low population, Blanchard's cricket frogs were placed on the Wisconsin Endangered Species List in 1982. Only a few hundred cricket frogs are currently estimated to exist in the state.

Research and Management

Since frogs are sensitive to changes in water quality, they can serve as indicators of environmental problems. As the cricket frog populations decline, concerns about the deteriorating condition of their habitat increase. In 1981, the Wisconsin Frog and Toad Survey was initiated to determine the abundance and distribution of frogs and toads in the state, and to assess the quality of their wetland habitats. This study was expanded in 1984, becoming a statewide volunteer program designed to obtain long-term information about Wisconsin frog and toad population trends. While no cricket frog management plan has been developed, the DNR encourages citizens to reduce the use of environmental contaminants that get into the water supply, and discourages the destruction of the wetlands so critical to the survival of Blanchard's cricket frogs and other Wisconsin wildlife.

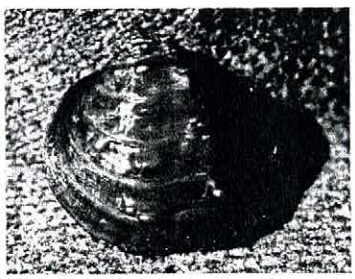
What You Can Do

The Wisconsin Frog and Toad Survey requires the assistance of many people. Volunteer observers survey select wetland sites three times during the frog and toad breeding season. Observers listen for the distinctive calls of Wisconsin's twelve species of frogs and toads, and record information about species presence and estimated abundance. If you are interested in becoming a long term volunteer observer, contact the BER at the address given below. Maintaining the existence and quality of Wisconsin's wetlands is essential to the survival of many wetland plants and animals. Wetlands also help humans by filtering and helping to purify our ground water. To find out more about the importance of wetlands and how to prevent and solve the problem of water pollution and wetland destruction, contact the DNR and your local government and environmental organizations.

Winged Mapleleaf
(*Quadrula fragosa*)

Legal Status in U.S.: Endangered
Legal Status in WI: Endangered
Range in US: Lower St. Croix River, Minnesota and Wisconsin
Size: About 3-4 inches long as adult

Mussels belong to the group of animals known as Mollusks. These soft-bodied animals include such familiar examples as slugs and snails, oysters and octopi. Within Mollusks, mussels and clams are part of a smaller group known as the bivalves, animals having two external shells. Freshwater mussels (unionids) are long-lived aquatic animals found in virtually all North American fresh-water environments.



They are most abundant and reach their greatest diversity in large riverine systems. The greatest global diversity occurs in eastern North America. Historically, the winged mapleleaf mussel was found in the Mississippi, Tennessee, Ohio, and Cumberland River drainages in at least eleven different states. However, this mussel has always been uncommon and was found sporadically within its range. Today, the winged mapleleaf is restricted to only one small area in the lower St. Croix River, a Minnesota and Wisconsin boundary water. Research indicates that the relatively pristine condition of this river is responsible for maintaining the winged mapleleaf along with an abundant mussel diversity.

Description

The winged mapleleaf mussel (*Quadrula fragosa*) grows from three to four inches in length. Its shell has two radial ridges, and its distinct rings are apparent. These growth rings or annuli, are dark narrow lines formed by slower fall, winter and spring growth. The annuli can indicate the approximate age of the mussel, similar to a tree. The shell is heavily textured, unlike a clam shell which is smooth. Juvenile shells are tan to greenish in hue, while adults vary from a dark yellowish to seal-brown. As in most populations of freshwater mussels, there is a high degree of variability in shell appearance.
The stone-axe shaped foot is well-developed, and serves as a burrowing, and as a creeping organ. In order to move, the foot is first extended in the direction in which the animal wishes to go. Fluid is then forced into it, so that it swells out serving as an anchor, when by contraction of the pedal muscle the shell is hauled toward it. Young mussels possess a gland toward the back of their foot for spinning horny threads by which they can anchor themselves to stones. These threads can save the mussel from being washed downstream during periods of high water velocity.

Internally, the cavity of the shell is moderately large, but the cavity within the beak is deep and compressed. The beak is the oldest part of the shell, the point at which growth began. It usually differs in shape and markings from the later growth. A series of projections, known as teeth are present on the inside of the interlocking valves. These "teeth" are large, erect and saw-toothed in the winged mapleleaf. They prevent the valves from shifting when closed.

Biology

Mussels produce huge numbers of eggs. The Swan Mussel, for example, lays from 14,000 to 2,000,000 eggs. The eggs are stored in a special brood-pouch, or marsupium, located in the gill folds of the female. The eggs hatch within the female and the young, known as glochidia, will exist within the marsupium, until a host fish is found for them to parasitize. The female expels her young near the host's mouth and the young attach to its gills or fins. They will remain there for a period of two to three weeks normally, but it can be up to three months. This parasitic relationship is critical to the mussels' survival. The internal organs of the young mussel will grow and develop at this time. Upon completion of this process, the young will drop off and land in the substrate, probably far from the place of their origin. If the substrate is unsuitable, the young will simply die. But if the substrate is suitable, the mussels will use their muscular foot to partially bury and anchor themselves. There they will spend the rest of their lives as free-living bottom-dwelling filter feeders.

Bivalves, being headless,usually have no eyes but it is believed that they do sense light and sound. Otocysts, small nerve-supplied cavities filled with fluid in which grains of shelly material float are believed to be the hearing organs.

Oxygen uptake is accomplished by a set of gills. Powerful cilia, hair-like projections, move back and forth keeping a constant current of water flowing over the gills. This supplies the animal with fresh oxygen and conveys the microorganisms on which it feeds into the digestive tract. The filtering process that mussels use to feed themselves is also responsible for cleaning the bodies of water in which they live. Two full grown mussels can clean a three gallon tank of dirty water in a matter of hours. Ecologically, the water-filtering of these organisms is very important in riverine systems.

Winged mapleleaf mussels are used as a food source by several predators. They are favored by muskrats, but other predators include mink, raccoons, fish, turtles, and waterbirds.

Habitat

Little is known about the specific habitat requirements of the winged mapleleaf mussel. The substrate in which the young land is a key element of a mussel's world. The only substrate the winged mapleleaf is found in is sand and gravel, while a closely related species, the mapleleaf (*Quadrula quadrula*), is found in a variety of substrates including silt. Water is the second key element in a mussel's world. Optimal water depth for the winged mapleleaf is not known, although presently they exist at water levels of about one meter. Water temperature affects the behavior and health of mussels. Waters that are too hot or too cold may be lethal. Mussels handle the extremes of Wisconsin winters by remaining in the substrate and passing the winter in an inactive state. Mussel existence is also determined in part by the pH level of the water. In waters that are neutral or alkaline, calcium is available for proper shell growth. Mussels are not able to exist in waters that are too acidic and where there is no calcium available. Contaminated water, with high levels of suspended solids and/or chemicals has resulted in the decline or extinction of many species of mussels throughout the world.

Use

Winged mapleleafs have been used in the past as food by Native Americans. They have also been utilized as fish bait. Winged mapleleafs were not collected extensively for the button or pearl industry due to their rarity, but they were used.

Current Status

About 99% of the winged mapleleaf's habitat has been lost due to human alterations including damming, dredging, and channelization of rivers; agricultural cultivation; and pollution. As a result of these human alterations, many gravel bottomed rivers have been transformed into silty beds. Most mussel species do not tolerate siltation and eventually suffocate as the silt buries these relatively immobile animals. This loss of habitat has severely impacted winged mapleleaf numbers.

The lack of knowledge concerning the biology of the winged mapleleaf has hindered conservation efforts. It is not known what the glochidia of winged mapleleafs look like. The fish host species for these glochidia is also unknown. Based on life history information of

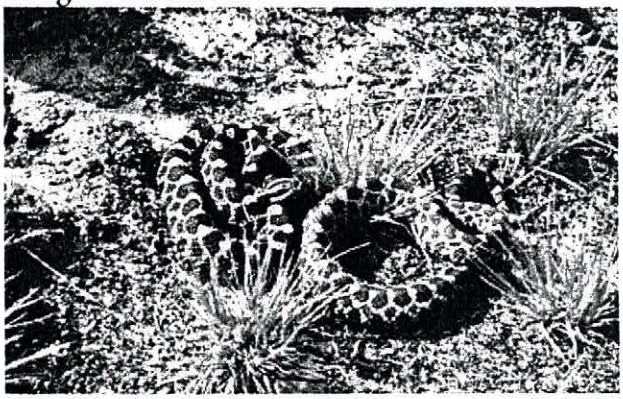
closely related species, it is presumed that the brooding season is in May and June but this has not been documented. Thus, many opportunities for mussel research exist today. In the United States alone, more than forty species of mussels are now listed as endangered or threatened, and more than sixty others are being considered. Of the 297 species and subspecies recognized, eighteen species are presumed to be extinct. Mussels are the most severely threatened group of animals. It is prohibited to "take" or possess winged mapleleaf mussels. However, some are still being harvested illegally for human consumption or to be used as fishing bait. It is also possible that recreational and commercial vessels are causing disturbance to the mussel beds by physically disturbing the substrate. In times of drought, mussels can be killed when they become stranded and exposed. This is a threat to winged mapleleafs due to hydroelectric peaking operations. These peaking operations hold back water to produce electricity more efficiently. The result is that downstream of the dam, the river becomes partially dewatered. Mussels can also be killed from stress due to freezing water.

Possibly the greatest recent threat to the winged mapleleaf is the accidental introduction of the zebra mussel (*Dressena polymorpha*). Zebra mussels were transported across the ocean from Europe in the ballasts of ships. When these ships dumped their ballast into the Great Lakes, they inadvertently also dumped their stowaways. Zebra mussels are fast invading inland waterways; they attach themselves to barges and recreational boats harbored in the Great Lakes. When these vessels move to other waterways, the zebra mussels are also transported there. A heavy infestation of zebra mussels could extirpate a sparse population of native mussels. In the case of the winged mapleleaf mussel, extinction is a real possibility.

You can help in the campaign to slow the spread of zebra mussels. Clean the hull of your boat each time you remove it from the water and clean your bait buckets and any other items left in the water for extended periods of time. Most importantly, drain your motor and clean the inside where there are likely to be juvenile mussels hiding. Your actions can make a difference.

Massasauga Rattlesnake, Eastern
(Sistrurus catenatus catenatus)

Legal status in WI: Endangered
Length: 2 to 3 feet



History

Even though you may have never seen the eastern massasauga, if it were called "swamp rattler" you would get a very vivid picture of this animal. You may imagine the massasauga to be a vicious serpent, poised and ready to strike. The term rattlesnake immediately strikes fear in the hearts of most people. This is the product of years of bad publicity for a species that is in reality very shy and secretive. The massasauga is one of the two poisonous snakes in Wisconsin, the timber rattlesnake being the other. Until 1975 there was a bounty(a fee paid to people who kill "pest" species) in Wisconsin on rattlesnakes, paying up to 5 dollars a tail. In 1975 the bounty was lifted and the massasauga was placed on the Wisconsin Endangered and Threatened Species List. Some people feared that as a result of this new protection, the massasauga would multiply out of control, but in fact their numbers appear to be steadily declining. While habitat loss continues to be a factor, the number of snakes harvested for bounty may have reduced the population to such low levels that recovery is not occurring in some areas of the state.

Description

The adult massasauga is usually two to three feet in length, while the adult timber rattler is usually longer than three feet. The massasauga has chocolate brown backsaddles and triple rows of brownish-black side patches which merge with a marbled dark gray or black belly. Body patches appear edged in black. The tail has five to seven dark cigarband rings and is tipped by a grayish-yellow rattle. The head is flattened and broad with one white and three dark stripes radiating from it's face. Nine enlarged plate scales helmet its head. The timber rattler lacks these large plates and has only small random shaped head scales. In addition, the tail of the timber rattlesnake is solid black just forward of its rattle.

Habitat

"Massasauga" means "great river mouth" in Chippewa, so named because it is usually found in river bottom forests and nearby fields. Massasaugas are characteristic of mesic prairies and lowland places, such as along rivers, lakes, and marshes.

Range

Wisconsin falls into the center of the massasauga's range which runs from central New York and southern Ontario to Iowa and Missouri. Historically, massasaugas were found across the southern half of Wisconsin. The draining and dredging of many wetland areas has resulted in much of their habitat being lost. Old records indicate that thousands of massasaugas were killed back in the late 1800's as the city of Milwaukee expanded. The bounty, which lasted until 1975, also played a role in the destruction of this species in Wisconsin.

Breeding Biology

Breeding takes place in the spring and the fall. Eight to 20 young are usually born in late August. Massasaugas are ovoviviparous, which means that the young are born live rather than from an external egg. They have a nonfunctional egg tooth which suggests that they may have evolved from egg layers. The newborn snakes are about the thickness of a lead pencil and could wrap around a silver dollar. They are typically born beneath a log, wood

pile, or in abandoned mammal burrows. They stay inside the "nest" for about 4 or 5 days while they shed their skin the first of many times. The purpose of the "molt" is to replace the skin they are born with; the old skin has been stretched and aged due to the rapid growth of the developing young. The new skin will allow protection and growth until it is again stretched and worn. Massasaugas mature in 2-3 years and can live up to 14 years.

Habits

Massasaugas do not hibernate communally as do many other snake species. Instead they individually seek out crayfish or mammal burrows, sawdust piles, or old root canals. Crayfish burrows, which are built in river bottom dugouts with above ground mud chimneys, are the favorite of most massasaugas. Massasaugas hibernate in these burrows at or near water level. Since the massasauga cannot make its own burrows, other animals such as crayfish must be included in management plans to insure their preservation. Massasaugas are active on warm, humid, overcast days and tend to sun themselves while coiled motionless in vegetation that conceals them. They are usually shy, secretive animals which rely on their coloration to avoid being detected. A common myth exists that all rattlesnakes will rattle before they strike. This is not always true, and the human tactic of listening for the rattle and killing the snake may be increasing the occurrence of rattlesnakes avoiding the use of the rattle.

The infamous rattles are actually modified epidermal scales with a bony core. Each time the snake sheds its skin a new "button" is added to the rattle, therefore these rattles are not an indication of age, but the amount of times the animal has shed its skin. Massasaugas can shed their skin between 3 and 5 times a year, depending on their health and growth rate. The rattles are believed to serve as warning communications to predators. The rattle produces a buzzing sound similar to that of a grasshopper or cricket.

Food Habits

The massasauga is a member of the "pit vipers" family. They were given this name because of the heat sensitive pits they have under each eye which alert the snake to prey or intruders. Massasaugas are preyed upon by raccoons, hogs, skunks, foxes, hawks, and eagles. They in turn will eat cold-blooded prey, such as frogs and other snakes, but they usually prefer warm-blooded prey like mice and voles.

Rattlesnakes attack their prey by striking. They must strike because their venom must be injected into the blood stream to be toxic. A three foot snake can strike about 12 inches or about one-third of its body size. The fangs of a massasauga are hollow and the venom is secreted into them by glands. When they are not in use, the fangs rotate and fold backward against the roof of its mouth. Massasaugas have the control to move each fang separately at will.

Rattlesnake Bites

Since 1900, no one in the state of Wisconsin has died from a massasauga rattlesnake bite. Drop for drop, the massasauga's venom is more toxic than the timber rattler, but because of the smaller volume of venom, a bite would probably not cause severe harm to an adult human. Very few large domestic animals have ever been killed by rattlesnake bites. If the venom won't kill a human it won't have much effect on a horse or cow. The hog is usually unaffected by a rattlesnake bite because the layer of fat contained on its body prevents the

fangs from injecting the venom into the blood stream. For this reason hogs are an efficient predator of rattlesnakes. Ever since the introduction of hogs to Wisconsin the numbers of rattlesnakes has decreased.

Many home remedies for rattlesnake bites have been used in the past, most of them based on folklore. Some of the external antidotes included: salt and onions; a mixture of gunpowder, salt and egg yolk; black mud and tobacco; ammonia; and many different concoctions including whiskey! It is interesting to note that rattlesnakes can control the injection of venom when biting. Medical experts familiar with snake bites indicate that up to 60% of all snake bites to humans by poisonous snakes are "dry" bites containing no venom. Experts feel that the snakes may be voluntarily withholding the venom for use on prey and conserving it in some defense situations. However, these animals should always be treated with cautious respect. The best thing to remember is that if you don't bother the massasauga it generally won't bother you. By wearing hiking boots and staying on the trail you can greatly reduce your chance of being bitten. If you are bitten, by knowing first aid and staying calm you can lessen the effects of the bite.

Status in Wisconsin

There is no solid evidence of the numbers of massasaugas actually left in Wisconsin. The bounty on the species and loss of habitat are probably the major reasons for the species' decline. The massasauga is also a favorite captive venomous species, so native populations have suffered from illegal capturing of these animals for the pet trade. Today the massasauga is found only in several isolated localities in southeastern, central, and westcentral Wisconsin. They are endangered, and without management and added protection this species could be lost in Wisconsin and throughout its range. Endangered or threatened throughout most of its range, the massasauga is being considered for federal listing by the U.S. Fish & Wildlife Service.

Management and Research

No recovery or management plan is in place for this species in Wisconsin due in large part to a lack of information about the species. Life history studies have been proposed, and hopefully with the information gathered from these studies a management plan can be created. Without the protection of its wetland habitats, the massasauga has no chance for survival.

What can you do

You can report any sightings of the massasauga or other endangered or threatened species to the Bureau of Endangered Resources. The Endangered and Threatened Species List is available from the Bureau if you want more information on what species are included. Unfortunately, as a species becomes more and more scarce, poaching and illegal capturing become more and more of a problem. Please report any violations of wildlife laws toll free to the Wisconsin Emergency Hotline at 1-800-847-9367.

Ornate Box Turtle

(Terrapene ornata)

Legal status in U.S.: none

Legal status in WI: endangered

Description

Although in the same family as the huge Galapagos tortoise, the ornate is only five inches long and has a hand painted look about it, thus the name. Conspicuous yellow dashes crest its dark brown or black carapace (upper shell) and radiate from the center of each shell segment down the sides like fine brush strokes. The ornate's plastron (lower shell) is brown with radiating yellow lines, a characteristic that distinguishes ornates from all other box turtles. Adult males typically have a more solid colored head that can vary from slate blue to dark green to gold and have bright red eyes. The foreleg scales are often colored bright red, yellow, or orange. The males are equipped with a sharply curved first claw on their hind feet - used to grasp female during breeding. Females have lighter tan or faded yellow spots on a light brown head, and brown eyes. Jaws are often lined with pale yellow, the upper jaw being slightly notched at the front edge.

Habitat

In Wisconsin, ornate box turtles are strictly associated with sandy soils, dry prairies and oak savannahs. They prefer southern and western exposures where temperatures are higher and soils are drier. This species requires deep sandy soil to burrow into for hibernation in the winter. Ornate box turtles will use oak savannahs and edges of oak woods in the summer, to avoid excessively warm temperatures.

Distribution

Ornate box turtles are found from Indiana west to southern South Dakota and southeast Wyoming, south through Texas and into the coastal prairies of Louisiana. In Wisconsin, this species is limited to the southwestern part of the state, primarily in areas where broad deep sand deposits have settled out within the original Wisconsin River floodplain.

Life History

Defense

The ornate box turtle is the only strictly terrestrial (land dwelling) turtle species in Wisconsin. The high-domed shell serves as a helmet to shield its fleshy body from predators such as skunks, raccoons, opossums, foxes, raptors, and snakes.

When threatened, box turtles literally box themselves in. Tucking head and limbs inside, special hinges draw the plastron up tightly against the carapace. But, unfortunately, turtle shells are no defense against the wheels of automobiles or plow disks and these have taken their toll on ornate box turtle populations.

Feeding

Box turtles eat a variety of foods found in their dry prairie habitat, including beetles, grasshoppers, caterpillars, carrion, berries, prickly pear cactus and other succulent vegetation. The ornate does not often drink water due to its efficient system for metabolizing liquid from the plant and animal material it eats.

General

Turtles are toothless but have sharp, horny jaws. The ornate may often hiss and bite if handled. Box turtles emerge from winter hibernation in early to late April. During hot weather they seek shade and are most active after rain. Ornate box turtles are slow to mature but may live 40 years or more. Males reach maturity at eight to nine years and females at ten to eleven. In the wild, mating can occur throughout the active season, but is generally most intense and successful in late summer. The male's plastron (lower shell) is slightly concave to rest on the female's domed shell. The male uses his recurved first claw on his hind feet to wedge between the female's shells so she can't shut him out during mating.

In June, female turtles dig nest holes in open sandy areas. They lay two to eight brittle, white eggs, then cover the nest, sweeping away any trace. Eggs incubate in the nest 59-70 days. Hatchlings are nickel sized and may overwinter before ever emerging, digging deeper below the nest chamber to avoid freezing.

Fall triggers hibernation, and ornates dig burrows with their front and hind feet, or occasionally use tunnels excavated by small mammals. Even during active months, box turtles take shelter in burrows on cool nights and hot days. In Wisconsin, ornates may burrow as much as 1.75 meters (5.5 ft) deep to avoid frost, although the average hibernation depth is about 1 meter (3.25 ft). For this reason, they are restricted to dry prairies or savannahs with loose sand that is easily burrowed into.

Current Status

Guarded only with its shell, the box turtle is an easy target for pet suppliers and casual collectors, both of which have taken their toll on population numbers. Humans are the most successful predator of adult ornate box turtles and are listed by several studies as the primary cause of decline in turtle populations. As the ornate's habitat has become more fragmented by roads and development, deaths due to automobiles and losses due to pet collection have increased. The development of irrigation systems over the past 30 years has allowed much of the previously unproductive sandy soil along the lower Wisconsin River floodplain to be converted from dry prairie to productive agricultural land for corn soybeans, and potatoes and, is another major factor in the ornate's endangered status. Since being added to the original Wisconsin Endangered and Threatened Species List in 1972, possession of ornate box turtles is by permit only for scientific research and educational purposes. Unfortunately, the laws protecting this species can be difficult to enforce, and pet collecting still drains the wild population. The ornate's slow maturity and high hatchling mortality make recovery of its population numbers nearly impossible without human intervention. Left in the wild, a box turtle may produce more than 200 eggs in its lifetime, but in captivity they are not given the chance to contribute their offspring.

Research and Management

A recovery outline was developed for the ornate in 1992 and has been in the

implementation phase. A landowner contact program established in 1992 revealed that ornates were once quite abundant as recently as the early 60's but have been steadily declining since. The Bureau of Endangered Resources, along with the UW Madison Department of Zoology and Wisconsin Power and Light, began several studies in late 1992 which continue today to look at recovery strategies for this species. The most promising prospect is translocation. This is where researchers gather turtles from very small remnant populations and then transport them to a common site in hopes of building a larger population which is capable of reproducing and growing, using Wisconsin turtles. This method first involves "imprinting" turtles to the site. Imprinting is a process of teaching the animal to identify with its surroundings and learn that its new surroundings are home. This involves maintaining the animals in a large enclosure for a period long enough for them to go through at least one cycle of breeding and hibernation. Imprinted animals are less likely to wander away from the site. The methods used for this are new, but experiments have proved to be highly successful thus far.

We are also working on a headstarting program which collects eggs from the wild ornate turtle burrows, incubates the eggs, and the young are raised in a controlled environment to an age where they are less vulnerable to predators. The "headstarted" young are then released into the wild and hopefully will have a greater chance of surviving to breeding age. This study will take years of experimenting before meaningful results will be available.

A third aspect of the recovery effort is looking at the potential of using northern Nebraska ornates to create new and viable populations in areas of Wisconsin where ornate populations have disappeared. To date, the Nebraska turtles show promise as they are surviving quite well in Wisconsin's climate. We have not yet determined, however, if they will be able to successfully breed in Wisconsin. This recovery option would only be considered as a last resort to help Wisconsin's ornates recover.

What You Can Do

Through public education, we can hopefully eliminate, or at least lessen, the demand in the marketplace for wild creatures that should be left in their native environments. Education about the prairie ecosystems of Wisconsin and their importance to many species will help the public to see these areas as more than just weeds and wastelands. This education, combined with community-based conservation programs, should help to provide extra protection for the ornate box turtle as the community becomes aware of their plight. Other programs, such as "turtle-crossing" areas and translocation of animals in high risk areas, may help to reduce mortality due to automobiles. You can help the box turtle most by leaving it in its natural habitat. The removal of even one individual of this endangered species can have a serious effect on the health of the entire remaining population.

Natural Communities Important examples of the following natural community types have been found in this county. Although communities are not legally protected, they are critical components of Wisconsin's biodiversity and may provide the habitat for rare, threatened and endangered species.		
Bird Rookery	Floodplain Forest	Southern Mesic Forest
Cedar Glade	Mesic Prairie	Southern Sedge Meadow
Dry Cliff	Moist Cliff	Wet Prairie
Dry Prairie	Southern Dry Forest	
Dry-Mesic Prairie	Southern Dry-Mesic Forest	

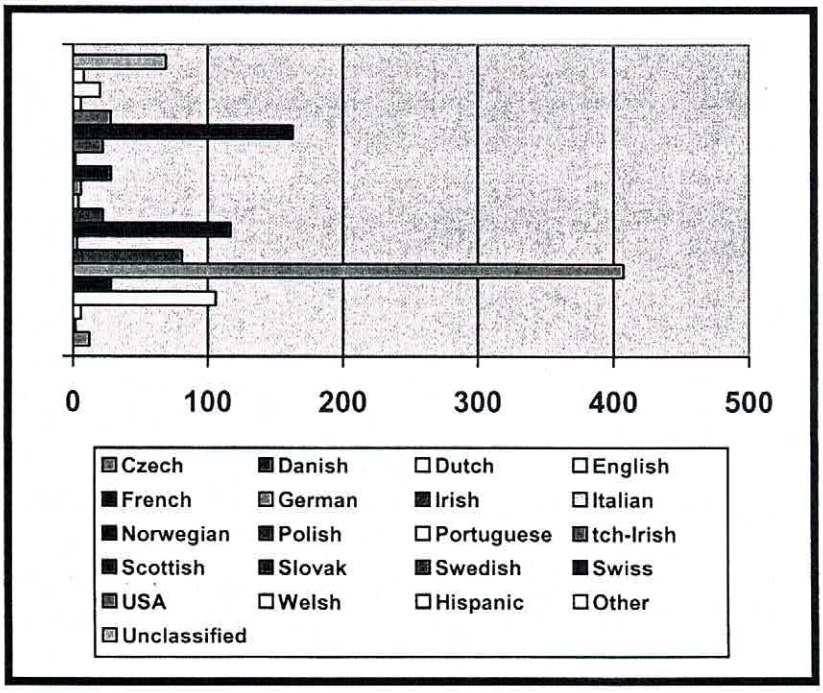
[1]Wisconsin Status:
Endangered: continued existence in Wisconsin is in jeopardy.
Threatened: appears likely, within the foreseeable future, to become endangered.
Special Concern: species for which some problem of abundance or distribution is suspected but not yet proven.
Rule: protected or regulated by state or federal legislation or policy; neither endangered nor threatened.
* indicates: A candidate for federal listing.
** indicates: Federally Endangered or Threatened.

Understanding the Town of Albany and Green County's abundant threatened and endangered species allows for proper examination of any potential negative impacts proposed developments may have. While not defined in this Comprehensive Plan Element to specific geographic locations, field investigations at proposed new development locations may be called for in the review and approval process. Collaborative relationships with County staff and State Agency representatives will serve as valuable networks to ensure that these resources are protected and preserved within the Town of Albany. By taking these actions the Town of Albany will be achiving S. 16.965(4), Wis. Stats.: Goal #3 - "Protection of natural areas, including wetlands, wildlife habitats, lakes, woodlands, open spaces and groundwater resources."

Albany's historic Settlement Church or Norwegian Evangelical Lutheran Church

C. CULTURAL RESOURCES

The Town of Albany is rich in its cultural heritage and current diversity. With founding ethnic origins of Welsh and English decent, current ethnic background is predominantly German and Swiss. Located in the Wisconsin county known as America's "Little Switzerland" the Town of Albany boosts many unique attractions from its heritage base. The historic Settlement Church or Norwegian Evangelical Lutheran Church stands in the countryside serving as an active reminder of generations past and present.



The Union Church Cemetery stands as a reminder of the church, which used to be located right next to it. Fire claimed this historic structure years ago. Currently there are 17 buildings throughout the township registered in the State Historical

Society of Wisconsin's "Wisconsin Architecture & History Inventory" of historic buildings.

Albany's Union Church Cemetery

The Architecture and History Inventory (AHI) is a collection of information on historic buildings, structures, sites, objects, and historic districts throughout the Wisconsin. This Inventory is housed at the State Historical Society of Wisconsin in Madison and is maintained by the Society's Division of Historic Preservation. The AHI is comprised of written text and photographs of each property, which document the property's architecture and history.

Most properties become part of the Inventory as a result of a systematic architectural and historical survey. From its beginning in the mid-1970s until 1980, reconnaissance surveys were conducted by summer students. Starting in 1980, intensive surveys were funded by subgrants and conducted by professional historic preservation consultants.

Old buildings have a special relevance to our lives today, bringing a "sense of place" to our lives and our communities.

They also tell the social, cultural, economic, and political history of people in a way that no printed word or photograph can. Thus, telling the story of Wisconsin's historic architecture is a way of documenting the diverse experiences of Wisconsin people and places.

Just as the preservation and protection of Historic sites and buildings is important to the Town of Albany so is the protection and preservation of archaeological sites.

Preservation of Wisconsin Archaeological Sites

Panther effigy mound surrounded by modern graves at Forest Hill cemetery in Madison, WI

It is estimated that nearly 80% of the archaeological sites that once existed in the state have been destroyed or severely damaged, primarily by modern land practices such as development and farming. Many sites have also been damaged by looting.

Laws and Statutes

Federal Projects

Section 106 of the National Historical Preservation Act of 1966, As Amended requires federal agencies to insure that their actions (grants, funding, permits, activities such as highway building, etc.) do not adversely affect archaeological sites on or eligible for the National Register of Historic Places.

State Projects

Archaeological sites can be protected during the course of state agency activities (grants, funding, permits, ground disturbing projects) if the sites have been recorded with the Office of the State Archaeologist. See Section 44.40 Wisconsin Statutes.

Political Subdivision Projects
Archaeological may be protected during the course of village, city, county and other political subdivision projects (e.g. building, road construction, etc.) but only if the site is listed on the National Register of Historic Places. See Section 44.43 Wisconsin Statutes

Burial Sites
All human burial sites, including cemeteries and Indian mounds, are protected under state law Section 157.70 Wisconsin Statutes. The laws applies to both public and private lands. Owners of burial sites may receive property tax exemptions. The law is administered by the SHSW Burial Sites Program.

Rock Art Sites
Destruction and vandalism of ancient rock art sites listed on the National Register of Historic Places without landowner permission is a felony under Section 943.01 Wisconsin Statutes.

Public Lands
Federal Lands: It is illegal to remove artifacts or otherwise disturbed archaeological sites on federal lands without a permit under the Archaeological Resource Protection Act of 1979. Federal lands in Wisconsin include National Forests, National Parks, and federal trust lands such as Indian Reservations.

State Lands: It is illegal to remove artifacts or otherwise disturb archaeological sites on state or or political subdivision (village, city, county) lands without a permit under The Field Archaeology Act Section 44.47 Wisconsin Statutes. The law applies to both archaeological sites on public lands and submerged sites such as Shipwrecks on publicly owned the bottomlands under lakes and rivers. Permits are administered by the Office of the State Archaeologist. Permits are normally only give to professional archaeologists.

Tax Incentives

Most types of archaeological sites are **NOT** protected from destruction by private landowner activity on privately owned lands. Exceptions are covered above. As an incentive for private landowners to protect archaeological sites on their lands, the state offers a property tax exemption if the landowner formally agrees to protect the site.

Local Preservation Efforts

Significant Archaeological sites in your community may be protected by special community landmarks ordinance. Contact your local landmarks commission. For more information on ways to preserve archaeological sites in your community, contact the SHSW Regional Archaeologist near you.

Native American Tribal Preservation Programs

The eleven Wisconsin Indian tribes are very active in the preservation of archaeological sites and sacred areas. Most have historic preservation programs or contacts.

Archaeological Consultants

The Office of the State Archaeologist maintains a list of archaeological consultants qualified to to conduct archaeological studies to identify and evaluate sites under various federal and state historic preservation laws and statutes.

The Town of Albany is also home to a unique and active Amish culture. To better understand this community and its

influence on the township an explanation of what the Amish culture is follows.

"Amish Origins
The Amish originated from the Anabaptist movement of the early 1500s in Switzerland. Jacob Amman, who believed in conserving traditions and separation from the world more than the other Anabaptist, led a split from the Swiss "Mennonite" Brethren in 1693.

There are approximately 150,000 Amish in North America. The largest group is in Holmes County, Ohio, with significant populations in Pennsylvania, northern Indiana and Iowa. Others are located in the eastern and mid-western states and Ontario, Canada.

Amish Agriculture
The Amish are primarily farmers. Some, however, are carpenters and cabinet makers, blacksmiths, buggy and

harness makers, all geared toward supporting the Amish lifestyle. Because farmland is expensive, and becoming increasingly scarce, some younger members have taken jobs in nearby factories and restaurants. Others work in general stores that provide the Amish community with goods necessary to their lifestyle that they cannot produce themselves.

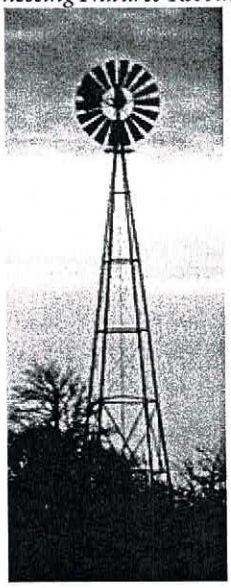
An Amish Horse & Buggy

In reality, the Amish lifestyle is very much like that of the *Englisher* ancestors of a century or so ago.

Their neat Amish farms, without electric and telephone lines, look very much like those of the *Englishers* around them. The houses are comfortable structures with numerous rooms to support typically large families.

Many of their conveniences were used in America's 19th Century or earlier houses. Wood or coal fueled stoves provide heat. Cooking stoves are powered by propane, kerosene or wood. Kerosene or clear gas lamps provide light.

Harnessing Natures Resources



A distinctive feature of America's Amish country is the windmill, used to pump water for house or farm use. While some also use gasoline engines to operate pumps with pressure tanks to provide running water for bathrooms and kitchen sinks, the old fashioned hand pump is still used in many houses.

Some use kerosene-fired water heaters. Others run a system of pipes through the kitchen stove (fired with wood, kerosene

or propane) to obtain hot water for kitchen or bathroom use.

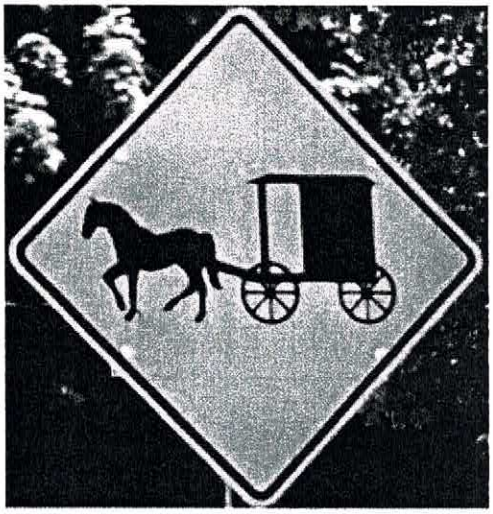
Those lucky enough to have natural gas on their property will use it to heat their house, provide hot water, fuel their refrigerator and provide light at night.

What is Amish?

Not every horse and buggy seen in America's Amish country may be driven by an Amish person. A number of groups share a common Anabaptist heritage with the Amish. Small, distinct sects of Brethren and Old Order Mennonites also use horse and buggies.

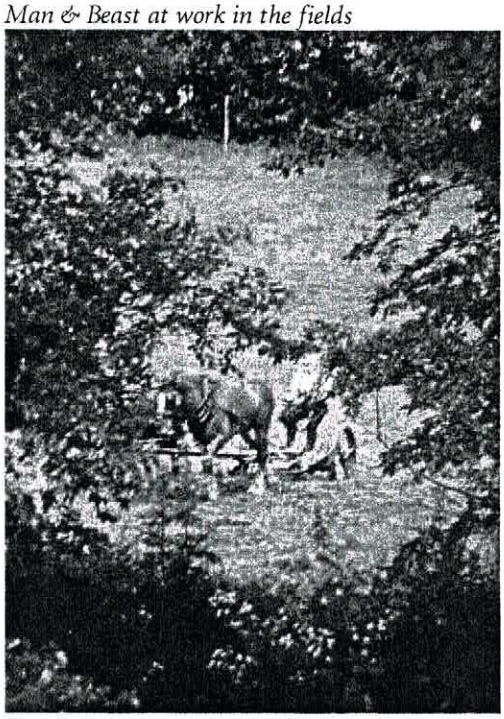
The Amish themselves can be generally categorized into several groups broadly defined as New Order, Old Order and a few groups more conservative than the Old Order.

Drive with caution



Within these groups, there are numerous differences. The Old Order has the most members and are probably the most familiar to *Englishers*. The Old Order use few modern conveniences, avoiding such things as motor driven equipment. They do use steel wheeled tractors for stationary power sources to power thrashing equipment or to pull equipment on the highway. They do not use tractors to work in the fields except in hot climates where horses cannot withstand the high heat.

Man & Beast at work in the fields



Some Old Order have indoor plumbing and running water. While the New Order retain many of the Old Order traditional practices, they can be considered the most progressive of the Amish groups. Some groups may allow telephones, use air-filled tires on tractors and even allow electricity in the house.

The more conservative groups, such as the Swartzentrubers and related groups, the Nebraska Amish of Central Pennsylvania, avoid indoor plumbing, do not use motorized equipment of any kind and wear conservative clothing.

The Nebraska Amish do not use suspenders or bonnets and are not permitted to have screens on their doors and windows.

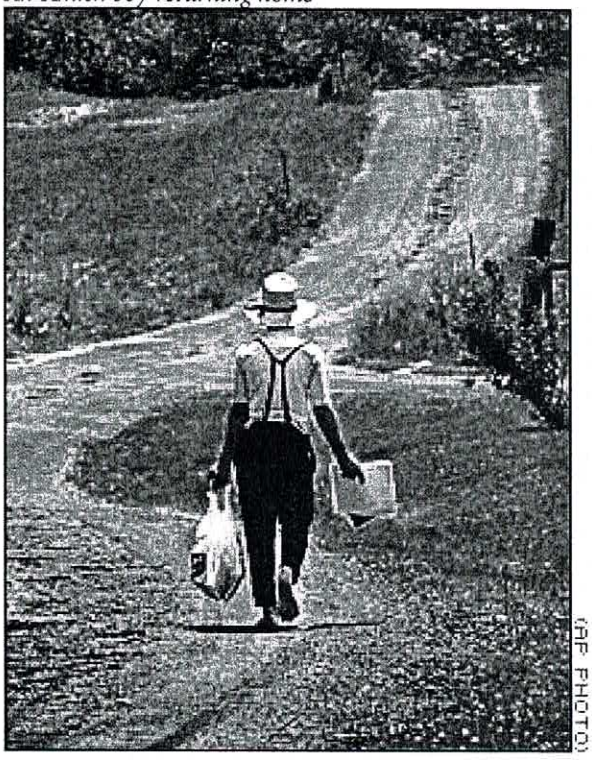
Amish people will not accept public welfare aid or retirement income. They do pay income and real estate taxes and

are exempt from social security taxes if they farm or are self-employed.

Group Lifestyles Vary

Deeply devoted to their religious beliefs, they hold church every other Sunday at a different house in their church district (usually consisting of 25-30 families). The approximately three hour services is followed by lunch and several hours of socializing.

An Amish boy returning home



(AP PHOTO)

In this way, too, they are able to monitor the lifestyle of each family to assure compliance with the rules of the church. Those who do not are confronted. If they refuse to comply, they are shunned until they either do so or are excommunicated from the church. Amish youth usually join the church in their early twenties. They can do so earlier but must do so before they marry. They are not forced to join; however most usually do because of their strong faith in the Amish lifestyle.

"Rules of order," or the Ordnung, are set by the local church district Bishop. The rules which govern the Amish community cover almost every aspect of their lives. They include types of buggy wheels, length of hair for men (the women do not cut their hair), width of hat brims, etc. This explains the variances found between Amish variances.

Amish Population Gaining in Numbers

What about the future of the Amish? It seems secure. Despite the few who leave the faith each year, their population has been gaining in total number. This is due chiefly to increased longevity common to the general American population and families that average seven children.

While most immigrants are assimilated into America's culture, the Amish remain a religious community forming a subculture almost three hundred years after their arrival.

Although the Amish are seemingly a paradox in 21st Century America, they live a lifestyle that allows them to comfortably and peacefully follow their religious beliefs".[8]

The Town of Albany recognizes and values this unique community cultural asset. Along with its desire to preserve its ethnic and cultural heritage, the Town is seeking to achieve S. 16.965(4), Wis. Stats.: Goal #6 - "Preservation of cultural, historic & archaeological sites" in managing its growth and development.

GOALS, OBJECTIVES & POLICIES

▼ AGRICULTURE

The Town of Albany places a high value on its local agricultural base. Specifically farming and small business, a rural atmosphere and well-managed land use are all elements of the town's vision, which speak to this point. After consideration of existing plans and policies, local preferences and abundant public input the Town of Albany is committed to the following agricultural goals.

Goal #1
Provide continuing support to existing operations and agriculture activities throughout the township.

Objective: Continue to provide information and education on agricultural assistance and education provided through agency programs and services to the local agricultural community.

Objective: Draft and adopt a local right to farm ordinance confirming the towns commitment to agricultural activities.

Objective: Manage roadway speed limits and usage so as to minimize conflicts between farm machinery and vehicular uses.

Goal #2
Preserve the town's agricultural land base protecting its aesthetics, rural character and agricultural heritage for future generations.

Objective: Encourage the use of conservation easements and deed restrictions by private landowners to keep prime agricultural land from being developed.

Objective: Encourage Green County to create and budget for an active countywide conservation easement acquisition program.

Objective: Amend the local land division/subdivision ordinance to call for formal town review and approval of all new land divisions.

Objective: Establish a land division and development review process which incorporates consideration of the following components for granting approval:

- Existence of prime farmland
- Soil types and suitability
- Existence of wetlands and other hydrographic conditions
- Topography and slope
- Proximity to adjacent large tracts of agricultural lands
- Environmental conditions and resources

- Farmability of the parcel

Objective: Direct new development to the concentration areas of existing rural subdivisions and the extaratorial area surrounding the Village of Albany.

Goal #3
Preserve and protect agriculturally productive soils in the Town of Albany.

Objective: Encourage all farm operations in the Town of Albany to work with the Green County Land and Water Conservation Department to create, file and operate under farm management plans.

Objective: When considering new development proposals, full consideration of farmable land and prime farmland soils should be undertaken in the decision making process.

Goal #4
The Town of Albany advocates that state and federal agency policies should consider the town's preservation efforts when reviewed for interpretation and application within the township. Specifically, farmers should be allowed greater access to limited wetlands, once tiled and farmed, based on the town's efforts to direct growth away from these areas.

▼ NATURAL RESOURCES

The Town of Albany is home to a verity of highly valued natural resource amenities. These amenities play a vital role in the communities economy, its heritage, its sense of place and its environmental health. After consideration of existing plans and policies, local preferences and abundant public input the Town of Albany is committed to the following natural resource goals.

Goal #1
Preserve and protect environmental corridors for wildlife, water quality values, habitat protection, ecosystem and ecology purposes.

Objective: Work in cooperation with the Green County Land & Water Conservation department to implement its water quality and conservation programs locally, encouraging their use by local residents and property owners.

Objective: Meet with DNR land managers periodically to understand and assist with the management of the Albany Wildlife Area and the Liberty Creek Wildlife Area.

Objective: Create and adopt a no development buffer zone around the Albany Wildlife Area and the Liberty Creek Wildlife Area to protect these valuable resources.

Objective: Review the County shoreland and wetland zoning district ordinances and consider the need for greater restrictions and local adoption.

Objective: Review Green County General Agricultural zoning district standards and advocate to the county the need for creation of a rural residential zoning district which would incorporate animal density standards on a unit per acre under ownership basis. Such a standard could be the following:

Example Table
Number of Animal Types Equivalent to 1,000 Animal Units and Animal Equivalency Factors

Number Equivalent to 1,000 Animal Units	Subcategory of Animal Types	Animal Equivalency Factor
	DAIRY CATTLE:	
700	Milking and Dry Cows	1.4
910	Heifers (800 to 1,200 lbs)	1.1
1,670	Heifers (400 to 800 lbs)	0.6
5,000	Calves (under 400 lbs)	0.2
	BEEF CATTLE:	
1,000	Steers or Cows (1,000 lbs to Mkt)	1.0
1,250	Steers or Cows (600 to 1,000 lbs)	0.8
2,000	Calves (under 600 lbs)	0.5
700	Bulls	1.4
	SWINE:	
2,500	Pigs (55 lbs to Mkt)	0.4
10,000	Pigs (up to 55 lbs)	0.1
2,500	Sows	0.4
2,000	Boars	0.5
	SHEEP:	
10,000	Per Animal	0.1
	HORSES:	
500	Per Animal	2.0
	DUCKS:	
5,000	Per Bird (Wet Lot)	0.2
100,000	Per Bird (Dry Lot)	0.01
	CHICKENS:	
100,000	Layers	0.01
200,000	Broilers	0.005
	TURKEYS:	
55,000	Per Bird	0.018
	COMBONATION ANIMAL UNITS:	
1,000	Calculated Total	

Objective: Fully consider the impacts of new development on all natural resources the land division and development review process including the potential impacts to:

- Water quality
- Habitat and reproduction

- Ecosystems
- Movement corridors
- Endangered and threatened species
- Aesthetic values
- Etc.

Goal #2
Preserve and protect the Town of Albany's natural resource base from potential degradation and contamination.

Objective: Draft and adopt a storm water and erosion control ordinance to preserve and protect soils and water quality.

Objective: Assist in enforcing Green County's non-metallic mining ordinance to ensure the wise use of available resources incorporating reclamation procedures that will allow for a safe and reusable site.

Objective: Draft and adopt a local nuisance control ordinance. The ordinance should address issues of health safety and welfare with respect to noise, air pollution, soils contamination, ground and surface water protection, etc.

Goal #3
Actively seek to provide long term and permanent protection to the Town of Albany's natural resource base.

Objective: Encourage the use of conservation easements and deed restrictions by private landowners to keep natural resource areas from being developed.

Objective: Encourage Green County to create and budget for an active countywide conservation easement acquisition program.

Goal #4
Encourage and assist with the planning for and wise management of the town's natural resource base.

Objective: Advocate the need for the creation of a lake and river associations.

Objective: Support and assist when appropriate, existing natural resource preservation groups and associations.

Objective: Encourage the active involvement of the Green County Land and Water Conservation Department in the development review process at both the county and local level.

▼ CULTURAL RESOURCES

The Town of Albany is steep with a rich cultural heritage. From its historical Norwegian Evangelical Lutheran Church to its multiple listings in Wisconsin's architecture and history inventory, the town values its heritage and benefits economically from the tourism industry that it generates. After consideration of existing plans and policies, local preferences and abundant public input the Town of Albany is committed to the following cultural resource goals.

Goal #1
Promote and preserve the town's cultural resource base.

Objective: Fully inventory all cultural resources within the Town of Albany.

Objective: Contact and meet with the local and/or State Historical Society representatives to better understand programs and opportunities.

Objective: Work with local, regional and state tourism promotional groups such as the Green County Tourism Councile, The State Heritage Tourism Council and the Wisconsin Department of tourism to promote and protect local cultural resources.

Objective: Continue to value the town's ethnic diversity actively seeking to involve all groups in activities and governance.

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[1] USDA Office on Sustainable Development.
[2] Farming On The Edge, American Farmland Trust

[3] Data are from the National Resources Inventory of 1992 by the National Resources Conservation Service of the U.S. Department of Agriculture. The urban-built up areas are defined by the Bureau of Census, U.S. Department of Commerce (1991). © 1996 American Farmland Trust

[4] Green County Land & Water Resource Management Plan Summary, 1999.
[5] Soil definitions taken from: Green County Land and Water Conservation Plan, 1999.
[6] Definitions from Green County Land and Water Resource Management Plan, 1999.
[7] Taken from USGS Northern Prairie Wildlife Research Center report, Dr, Burton V. Barens primary author, fourth revision, July 1994.
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