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- Olmsted County : summary of the 19



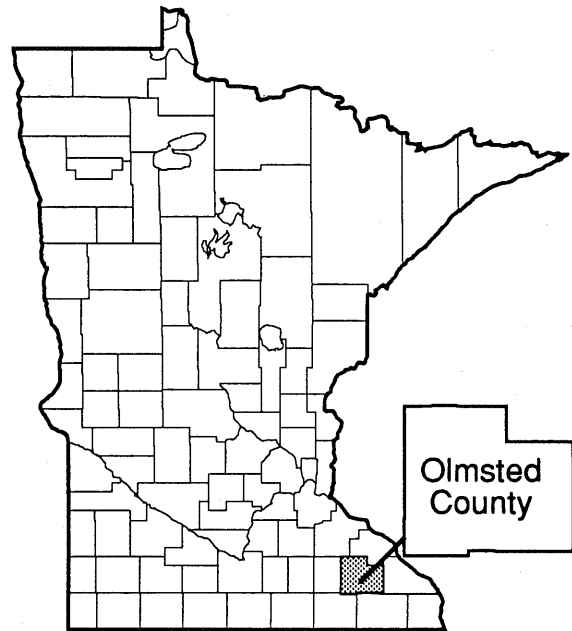
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MINNESOTA COUNTY BIOLOGICAL SURVEY

OLMSTED COUNTY: SUMMARY OF THE 1994 FIELD SEASON

In 1994, the Minnesota County Biological Survey (MCBS) completed its first field season in Olmsted County. The MCBS is a statewide, systematic inventory of rare biological features. The goal of MCBS is to identify significant natural areas and to collect and interpret data on the distribution and ecology of rare plants, rare animals, and natural communities. The information gathered by MCBS serves as a foundation for the conservation of critical components of Minnesota's biological diversity.



MCBS Procedures

In surveying a county, MCBS follows a multi-level process consisting of:

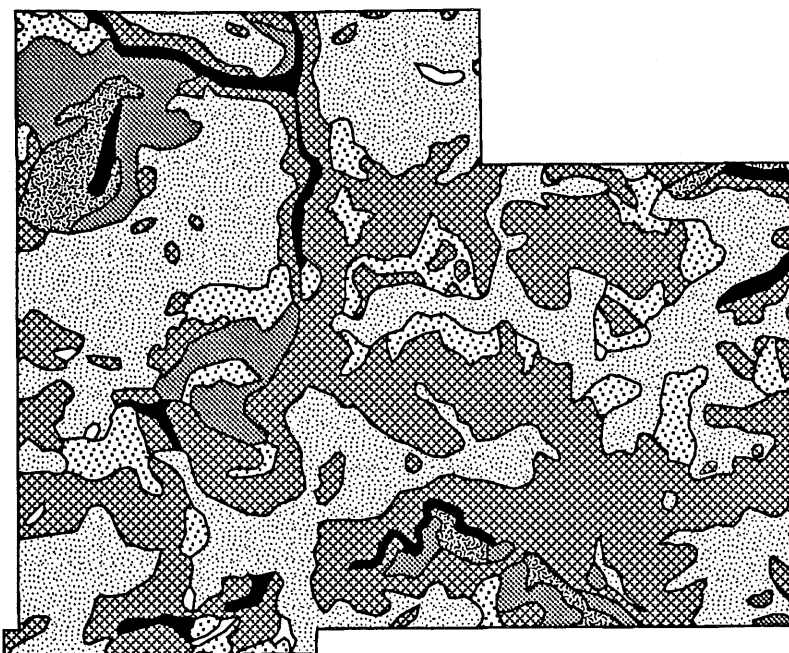
- Identification of potential natural areas using aerial photos. Potential natural areas are places where the land and native vegetation have not been altered significantly by activities such as cultivation, grazing, or recent logging. They are referred to as "MCBS sites."
- Assessment of the condition of MCBS sites using ground surveys. In general, this involves evaluating the quality of the natural communities present at a site.
- Surveys of selected rare species or groups of species.
- Entry of data collected into the Natural Heritage Information System, where it is available for distribution in the form of lists and brief reports.
- Processing of plant and animal specimens for herbaria and museum collections.
- Production of interpretive and educational material, including county maps, county summary reports, and evaluation reports of ecologically significant sites.

Original Vegetation

In 1853 and 1854, public land surveyors described Olmsted county's natural vegetation, shaped long ago by the county's topography, glacial history, fire history and soils. Much of the county consists of broad, rolling hills with deep, rich soils formed in windblown silt (loess) or coarser debris (drift) left by glaciers. Fires set mostly by Native Americans once burned these uplands, opening large areas for prairie dominated by big bluestem and other tall grasses, along with a diverse array of flowering plants, such as golden alexanders, rattlesnake master and purple prairie clover. Areas that burned less frequently supported more woody plants in a variety of oak-dominated communities, from dense shrub thickets to savannas and woodlands. Bur oaks were common trees in these areas, and early surveyors used them to record the locations of section corners more than any other tree species in the county. Soil conditions also influenced the distribution of plant community types. Sandy or gravelly soils supported dry prairie or savanna dominated by medium or short prairie grasses. Low wet areas among the hills contained wet prairie, wet meadows and fens dominated by wetland sedges and grasses.

Those areas dissected by streams and rivers have the most vertical relief in the county. Beginning before the last glaciation, streams emptying into the Root, Zumbro and Whitewater rivers carved deep valleys through previous glacial deposits and underlying sedimentary rocks to form the dramatic cliffs and bluffs for which southeastern Minnesota is well known. The rivers and cliffs formed natural firebreaks that allowed the establishment of more fire-sensitive trees, such as sugar maple. Sheltered hillsides with moist soils, typically on steep, north-facing slopes, harbored red oak-dominated forests. In a few, highly-protected areas these succeeded to maple-basswood forest, dominated mostly by sugar maple, basswood, American elm and red oak. Lowland forests of elm, silver maple, basswood, ash, and black willow covered bottomlands along rivers and streams. The dramatic topography also created steep south to west exposures with thin, dry soils among frequent rock outcrops. These steep, dry areas supported oak savannas and dry prairies commonly known as goat or bluff prairies.

-  Prairie
-  Wet Prairie
-  Brush Prairie
-  Oak Openings and Barrens
-  Upland Deciduous Forest
-  Aspen-Oak Land
-  River Bottom Forest

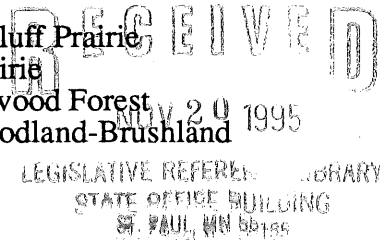


The original vegetation of Olmsted County as interpreted by Francis Marschner using Public Land Survey records from 1871-90.

Results of the 1994 Field Season

The ecologist identified 89 potential natural areas using aerial photographs. He located approximately 7000 acres of high quality remnants of original vegetation in the county. This amounts to less than 2% of the county land area, less than in neighboring counties inventoried by MCBS. Most of the present remnants occur on steep bluffs along the Root, Zumbro and Whitewater river valleys, and consist of the following natural community types:

- Calcareous Seepage Fen
- Dry Cliff
- Floodplain Forest
- Maple-Basswood Forest
- Mesic Oak Forest
- Wet Meadow
- White Pine-Hardwood Forest
- Dry Bedrock Bluff Prairie
- Dry Gravel Prairie
- Lowland Hardwood Forest
- Mixed Oak Woodland-Brushland
- Talus Slope
- Wet Prairie

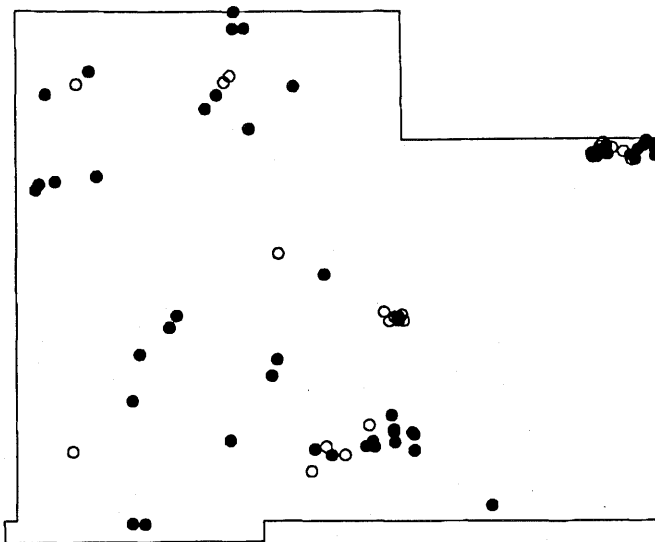


Whitewater Wildlife Management Area, which occupies almost 2000 acres in the northeast corner of the county, is the largest natural area in the county. A diverse range of natural communities occurs there, including some of the finest examples of maple-basswood forest, oak forest, white pine hardwood forest and bluff prairie in the county. Along the Whitewater River, this WMA also contains a massive, dolomite cliff, known as a maderate cliff, where cold water seeps out of cracks in the dolomite during much of the growing season. This cliff harbors one of Minnesota's four known populations of Leedy's Roseroot (*Sedum integrifolium* ssp. *Leedyii*), an endangered plant which requires these cold, moist conditions. Other maderate cliffs occur along the Whitewater and Root rivers.

Other high quality forest tracts occur in the Root and Zumbro river valleys. These contain mostly mesic (moist) oak forest dominated mostly by red oak. Intact oak forests are becoming less common in southeastern Minnesota, partly due to the lack of oak regeneration following heavy cutting for timber. Small areas of maple-basswood forest with a rich diversity of forest herbs remain on steep, sheltered, slopes. An outstanding example of maple-basswood forest has been maintained at Oxbow County Park north of Byron. Little of the original floodplain forests remain along the county's major rivers.

Very little prairie remains in the county today, as the rich soils of rolling uplands have largely been converted to cropland. Most of the existing remnants are bluff prairies on steep S-SW facing bluffs in river valleys. Small amounts of dry prairie remain on fairly level sandy or gravelly deposits left by glacial meltwaters at Chester Woods County Park and near the landfill southeast of the town of Oronoco. Occurrences of these prairie types are scarce, as they occur on landforms that have been utilized for sand or gravel resources, or have been heavily grazed.

Very few wetlands dominated by native plants occur in the county. Eastside WMA, on the southeast side of Rochester, is notable as the only natural marsh/sedge meadow of any significant size and quality in the county. Several small, calcareous seepage fens occur in the southwestern portion of the county. In southwestern Olmsted, these wetlands form where cold, mineral-rich groundwater seeps out from below ground on hillsides where deposits of old, glacial drift occur near the surface. The fens support populations of plants that require the cold, wet, mineral-rich conditions and are rarely seen in southern Minnesota.



The locations of natural communities in Olmsted County. Locations designated by a circle (o) were identified prior to the MCBS in Olmsted County. Those designated by a solid dot (•) were identified by the MCBS during the 1994 field season.

The ecologist found 72 new locations of rare plants in the county in 1994, including the following species:*

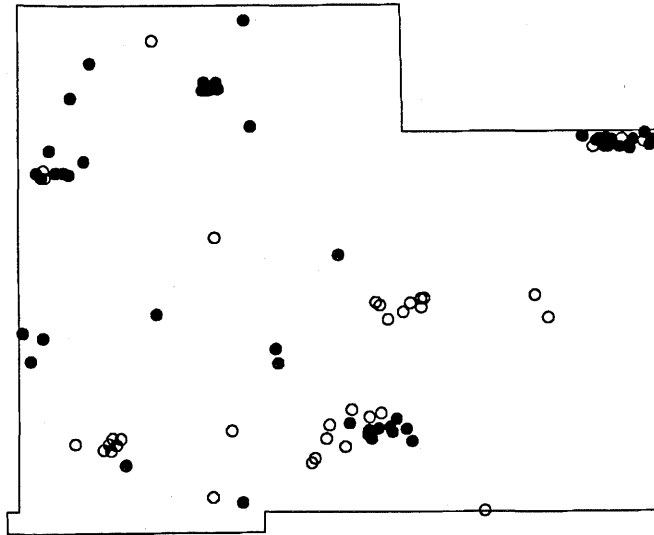
Species

Beaked snakeroot (*Sanicula trifoliata*)
 Big tick-trefoil (*Desmodium cuspidatum* v. *longifolium*)
 Canada snakeroot (*Sanicula canadensis*)
 Cliff goldenrod (*Solidago sciaphila*)
 Cream wild indigo (*Baptisia bracteata*)
 False mermaid (*Floerkea proserpinacoides*)
 Ginseng (*Panax quinquefolium*)
 Glade mallow (*Napaea dioica*)
 Goldenseal (*Hydrastis canadensis*)
 Goldie's fern (*Dryopteris goldiana*)
 Hill's thistle (*Cirsium hillii*)
 Illinois tick trefoil (*Desmodium illinoiense*)
 Muhlenberg's indian plantain (*Cacalia muhlenbergii*)
 Narrow-leaved spleenwort (*Athyrium pycnocarpon*)
 Rattlesnake master (*Eryngium yuccifolium*)
 sedge (*Carex formosa*)
 Squirrel corn (*Dicentra canadensis*)
 Sterile sedge (*Carex sterilis*)
 Sweet indian plantain (*Cacalia suaveolens*)
 Tuberos indian plantain (*Cacalia plantaginea*)
 Twinleaf (*Jeffersonia diphylla*)
 Valerian (*Valeriana edulis* ssp. *ciliata*)
 Wood's sedge (*Carex woodii*)
 Yellow pimpernel (*Taenidia integerrima*)

Minnesota Legal Status

special concern
 special concern
 special concern
 special concern
 special concern
 special concern
 endangered
 endangered
 special concern
 special concern
 threatened
 proposed special concern
 special concern
 special concern
 proposed endangered
 special concern
 threatened
 endangered
 threatened
 threatened
 threatened
 special concern
 special concern

*Minnesota's rare plant and rare animal species are listed and described in *Minnesota's Endangered Flora and Fauna*, edited by Barbara Coffin and Lee Pfannmuller and available in area bookstores.



The locations in Olmsted County of plants classified as rare in Minnesota. Locations designated by a circle (○) were identified prior to the MCBS in Olmsted County. Those designated by a solid dot (•) were identified by the MCBS during the 1994 field season.

Conservation

The small amount of natural vegetation remaining in Olmsted county provides habitats for hundreds of native species of plants and animals. These are areas where people can go to enjoy scenic beauty, hike, hunt, fish and learn about the natural environment. About 40% of the high quality natural areas identified by MCBS occur on state and county lands, and are open to the public. Some natural areas are on private land and access requires permission from the landowner.

Responsible stewardship will help ensure the continued existence of the remaining natural areas of Olmsted county for the benefit of ourselves and future generations. Several state and federal programs are available to assist landowners and land managers interested in conservation. Local resource professionals provide advice and assistance on a wide range of management issues. Conservation easements, in which landowners are financially compensated for their conservation effort, are available through public and private programs. Tax exemption programs enable landowners to receive tax benefits for qualifying prairie or wetlands on their property. For further information on natural area management, conservation programs, natural communities and rare species in Olmsted county, contact the DNR wildlife office in Rochester or the MCBS at the addresses given at the end of this report.

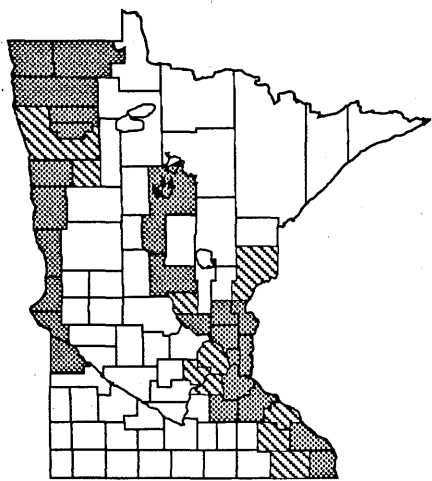
1995 and 1996 Field Seasons

Amphibian and reptile surveys will begin in 1995. Mammal and bird surveys will begin in 1996.

Minnesota County Biological Survey
Department of Natural Resources, Section of Wildlife
MCBS Supervisor: Carmen Converse

Olmsted County Field Staff
Fred Harris, Plant Ecologist

MCBS Statewide Status



■ COUNTY SURVEY COMPLETED 1987-1994
▨ SURVEY IN PROGRESS 1995

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Biological Report No. 51

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