

Taking Stock of Plants, Wildlife, Ecosystems

The Minnesota County Biological Survey is an ambitious plan to identify county by county the rich biological diversity of our state's flora and fauna

Carmen Converse and Barbara Coffin

ACROSS the nation and around the world a consensus is growing: We must take stock of the status and distribution of the earth's biological diversity — the sum total of our plants, animals, and natural ecosystems.

Every day we hear about deforestation, destruction of wetlands, pollution of rivers and lakes, erosion of croplands, and other threats to our natural heritage. The time left to protect natural areas and rare species is running out. E.O. Wilson, renowned Harvard biologist, wrote:

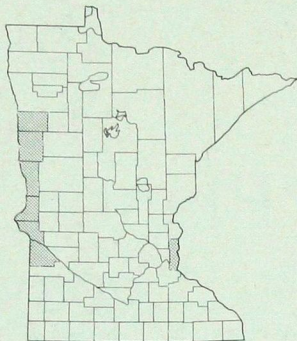
"We are locked into a race. We must hurry to acquire the knowledge on which a wise policy of conservation and development can be based for centuries to come, before opportunities of unimaginable magnitude are closed forever."

The loss of biological diversity is a

serious issue in Minnesota. In Minnesota's rapidly expanding metropolitan regions, natural areas are being lost to expanding housing developments and shopping centers. In out-state areas, fields of wildflowers converted to cropland reduce natural habitat for wildlife.

To forestall further threats to our natural regions, the Department of Natural Resources has initiated a new program, the Minnesota County Biological Survey. Conducted by the DNR's Natural Heritage and Non-game Wildlife programs, the survey is designed to locate, evaluate, and describe our state's ecologically significant natural areas county by county. These areas might include unplowed prairie-wetland complexes, old-growth pine woods, and undisturbed wetland seeps.

Minnesota County Biological Survey explored ecologically significant natural areas in six counties in western Minnesota — from north to south on map: Norman, Clay, Wilkin, Traverse, Big Stone, and Lac qui Parle — and one county on eastern border, Washington.



Find and Protect. An additional goal of the survey is to identify the distribution and habitat of selected rare plants and animals. Finding new sites and collecting additional data on previously known sites can help us understand the status of our rare species and natural features and thus protect them.

Collaboration between the DNR, a public agency, and the Minnesota Chapter of The Nature Conservancy, a private conservation organization, makes the survey possible. Public funds — a grant from the Legislative Commission on Minnesota Resources — are matched by private dollars raised by TNC.

Six counties in the western part of the state — Norman, Clay, Wilkin, Traverse, Big Stone, Lac qui Parle — and one metropolitan county, Washington, east of St. Paul on the Wis-

consin border, have been selected for the two-year pilot phase of the survey which began last July.

The six western counties were selected primarily to identify remnants of the once vast Minnesota prairie and its rare plant and animal species. Prairie once covered about one-third of Minnesota's 84,068 square miles. Most of it is now under cultivation. Many prairies now exist as fragments along railroads, on stony slopes, or as hay meadows in areas too wet to plow.

In northwestern Minnesota, however, a few areas are large enough to display the full range of prairie habitat from wetlands to dry hillsides. Because so few opportunities remain in Minnesota to protect and manage these rare prairie landscapes, conservation plans receive a high priority.

Washington County was chosen for another reason: Rapid urbanization has led to dramatic alteration of the remaining natural landscape. Because of the survey, commercial developers and conservation groups will be

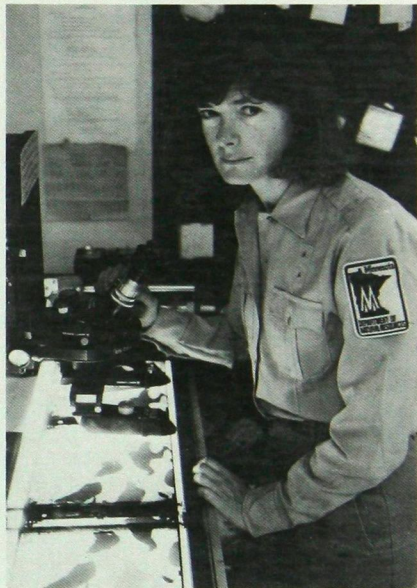
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alerted to the presence of bluff prairies, rare mussel beds, and rare plant habitats. These places can then be protected.

County Review. Before the field survey, a biologist learns as much as possible about the county's natural history. He or she reviews past reports and biological studies of the area as well as maps of related resources (soils, forest cover types, geology, historical land use, hydrology, etc.). He also studies characteristics of plant communities or rare species in the county. These characteristics might include blooming period and distinctive combinations of plant species. Nest sites of threatened animal species can also be noted.

The success of a survey of an area's rare natural features depends on the skills of biologists in the field. However, the search for natural areas can be accomplished in a shorter time because of recent refinements in mapping technology. Before stepping foot onto a prairie, bog, or forest, a biologist can pinpoint potential sites by viewing satellite imagery and aerial photography of the county to be surveyed.

In Washington County, for example, color-infrared photographs from low-flying survey planes are so clear that individual tree branches can be seen. By viewing infrared transparencies in three dimensions through a stereoscope, a biologist can determine species of plants growing on a site from characteristics of the vege-



Author Converse views infrared color transparency of county to be surveyed.

tation, color, shade, and topography.

Review of imagery and preparation of base maps is followed by low-level flights. This gives the biologist additional opportunity to select the most promising areas for a ground survey and to eliminate destroyed or degraded areas.

A composite of this data is plotted on maps and recorded on preliminary field forms. Equipped with the information, the biologist can make a more accurate assessment of a natural area while in the field.

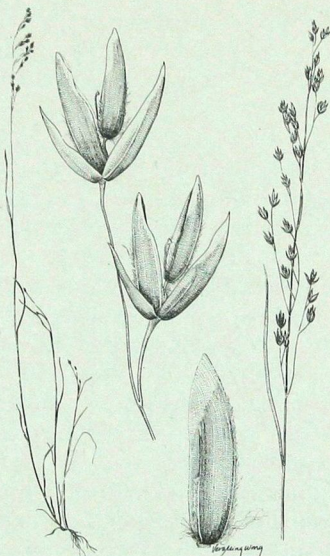
Unexpected Findings. Here are some outstanding discoveries that have resulted so far from the survey.

Biological Survey

- In Washington County, three new locations of bog bluegrass (*Poa paludigena*) listed as endangered in the state. Before the survey, biologists knew only one place in the entire state where it grew. This small, inconspicuous plant appears in isolated cold-water seeps, a habitat that is becoming rare throughout the North American range of the species

- A mussel bed in the St. Croix River. Extending from Marine-on-St. Croix in Washington County to Interstate State Park at Taylors Falls, the bed provides habitat for about 80 percent of the rare mussel species in the entire river. The rare elephant ear mussel (*Elliptio crassidens*), last documented in the state in the 1930s, was also found in this bed

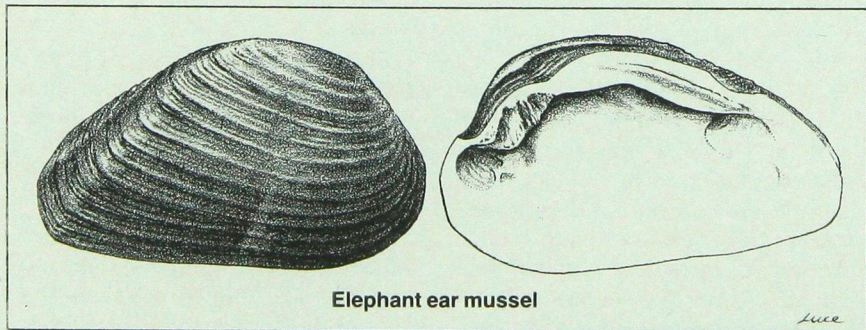
- In Wilkin County, a survey conducted on an 8,000-acre prairie-wetland known as the Rothsay Prairie revealed 50 rare features. This immense area provides the diverse habitat critical to prairie birds, such as sandhill cranes, upland sandpipers, marbled godwits, and greater



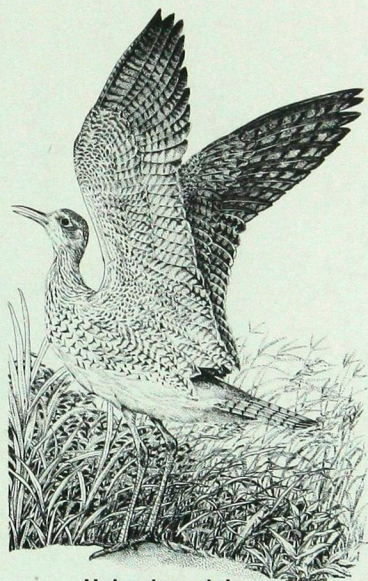
Bog bluegrass

prairie chickens. Private landowners and public land managers will work together to protect this rich habitat on an ecosystem level, a new approach to land management.

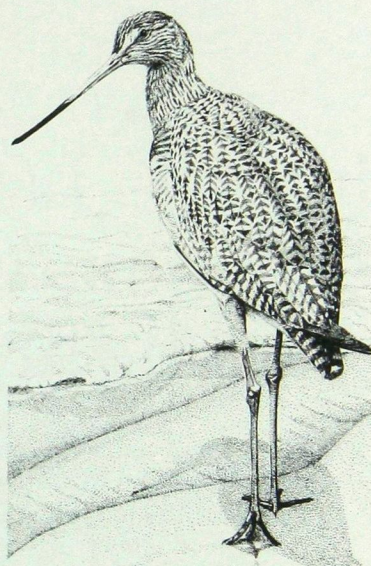
Records of these discoveries are now being added to the Natural



Elephant ear mussel



Upland sandpiper



Marbled godwit

Heritage Program database, a computer-based filing system that records locations of rare ecological features statewide. Conservation planners, land managers, research institutions, and private development consultants use this database to make informed decisions.

After only one field season, the value of the County Biological Sur-

vey is already evident. But the time to protect natural areas in a rapidly expanding area like the Twin Cities metro region is dwindling. The same can be said of our prairie region. With the Minnesota County Biological Survey, Minnesota is taking part in a global effort to record, and thus make possible to maintain, biological diversity on our planet. □



TNC Protects Special Lands Around Minnesota

THE Nature Conservancy is an international conservation organization committed to the global preservation of natural diversity. Its mission: to find, protect, and maintain the best examples of plant communities, ecosystems, and endangered species. The Minnesota Chapter, with 7,500 members, now protects 38,000 acres of prairies, forests, marshes, and islands in 131 projects around the state.

— The Nature Conservancy News