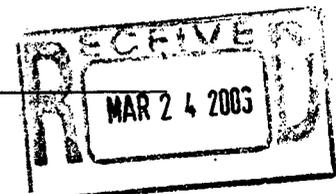


Project Statement

MN. Recovery activities for selected federally listed species.

Page 1 of 10

Federal



PROJECT STATEMENT

State: Minnesota

Project #: E-8-R

Project Period: 04/19/06 – 12/31/07

PROJECT TITLE: MN. Recovery activities for selected federally listed species.

This project involves recovery activities (including monitoring, data management and analysis, and habitat management) related to four federally listed species in Minnesota.

These species include the Minnesota dwarf trout lily (*Erythronium propullans*), western prairie fringed orchid (*Platanthera praeclara*), and prairie bush clover (*Lespedeza leptostachya*) and Topeka shiner (*Notropis topeka*).

NEED

1. At the time of listing, survey and site protection were the two primary recovery needs for the three plant species. Today, the majority of potential habitat has been searched, sites are generally known, and many large populations are protected. The highest priority research questions for these plants involve understanding the relationship between species biology and site conditions to inform management. In addition, in view of broader scale changes such as global climate change, it is vitally important to continue annual monitoring of selected populations to track their status and in the case of western prairie fringed orchid, to collect phenological data for use in modeling that relates events such as emergence to measurable climatic variables that may vary from year to year.
2. The Pembina Trail Experimental Management Study is a 16 year project that evaluates the impacts of 4 different treatment regimes of mowing and burning on western prairie fringed orchid. Statistical analysis of the results of this study to date is needed to insure that the current research design is adequate to test the hypotheses and the results are scientifically valid. The 2006 field season will mark the completion of the second treatment cycle and the halfway point in the 16-year projected life of the study. This is the scheduled time for mid-term data analysis.

Project Statement

MN. Recovery activities for selected federally listed species.

Page 2 of 10

3. Appropriate management to maintain and improve habitat is a key element of recovery for listed species. In the case of prairie bush clover, historic patterns of disturbance maintained the prairie habitats on which this species depends. Prairie bush clover in Minnesota tends to concentrate within sites in more mesic microhabitats that are prone to invasion by woody species in the absence of fire or grazing. On sites where fire suppression has allowed woody vegetation to flourish, removal of these woody invaders is necessary to counteract competition that is detrimental to prairie bush clover. Proactive woody species management at large, complex sites will avert the need for more intensive and costly future removal of large trees.
4. The consensus among Topeka shiner researchers is that the species has declined compared to its abundance and distribution prior to European settlement of North America. However, recent surveys in Minnesota have shown that the species is more common than previously believed. Topeka shiners exist in populations that are subject to local extirpation, but re-colonization events appear to occur if source populations are near. Therefore, all streams and associated off-channel pools within the Rock and Big Sioux watersheds of SW MN have been designated as critical habitat. On-going population monitoring will provide DNR with a tool for detecting changes in the overall presence/absence of Topeka shiners within MN.
5. Recovery of listed species requires high quality data on their status. Improving the quality of data in the Natural Heritage Information System will make the data more relevant for a variety of uses, including for supporting adaptive management and recovery planning, and for evaluating potential impacts of development projects.
6. Throughout the year, the state receives numerous requests for technical assistance from FWS staff related to federally listed species. Additional time is spent by state employees related to coordination of recovery activities for federally listed species, and in administration of Section 6 funds. These investments are crucial to the effective implementation of recovery activities, compliance with the FWS/DNR Section 6 Cooperative Agreement, and compliance with state and federal fiscal and administrative policies.

Project Statement**MN. Recovery activities for selected federally listed species.****Page 3 of 10****OBJECTIVES**

The overall objective of this project is to strengthen Minnesota's capacity to manage and recover federally listed species by tracking the long term trends in selected populations; by analyzing results of a long term research project on western prairie fringed orchid, by enhancing management for prairie bush clover at three of the state's largest protected populations; and by obtaining, entering and managing more specific location and status information than has hitherto been available for three federally listed plant species.

Specific objectives are listed below by job.

Job 1. Monitoring of three federally listed plant species in Minnesota

- To document the spatial distribution of colonies of Minnesota dwarf trout lily at Nerstrand Big Woods State Park and River Bend Nature Center as it relates to erosion, sedimentation, trails, and management, and to document rates of anomalous development at Grace Nature Preserve and the Minnesota Landscape Arboretum.
- To assess trends in the number of flowering plants of western prairie fringed orchid at selected populations, to relate patterns between population differences and population stability (as measured by within-population variance) to ambient environmental conditions and management, to compare recruitment and mortality at key populations that represent the full latitudinal range of the species across the state, and to better determine dates of emergence and seed dispersal in order to reduce the impacts of management activities like fire and seed harvest.
- To maintain long term demographic data on selected populations of prairie bush clover through the present and upcoming period of global climate change. Recruitment and early survival are the most vulnerable periods in the species' life cycle. Annual monitoring is needed to detect changes in these rates.

Job 2. Mid-term statistical analysis of data from Pembina Trail Experimental Management Study

- To assure that the data collected are sufficient for analytical methods intended in the final analysis, and to evaluate whether the current research design is adequate to test the hypotheses.

Project Statement

MN. Recovery activities for selected federally listed species.

Page 4 of 10

Job 3. Management of woody vegetation at 3 prairie bush clover sites

- To maintain populations of prairie bush clover at their current levels, contributing significantly to the overall range-wide recovery goal, and to reduce the need for and cost of future management if succession by woody species were allowed to continue without being checked.

Job 4. Monitoring of Topeka shiner distribution within designated critical habitat in Minnesota.

- To assess trends in the local distribution of Topeka shiner throughout designated critical habitat in Minnesota.

Job 5. Improving the quality of data in the Natural Heritage Information System

- To create consistent datasets for comparison of populations by delineating locations of 3 federally listed plant species as polygons that reflect the species' actual distribution within sites, and so improve data for use in protection planning and management.

Job 6. Coordination related to federally listed species (other than the lynx) and administration of Section 6 funding.

- To provide timely technical assistance in response to requests from FWS and others, and to administer projects in compliance with state and federal standards.

EXPECTED RESULTS AND BENEFITS

Job 1. Monitoring of three federally listed plant species in Minnesota

- The activities conducted under this project will provide land managers and policy makers with improved knowledge about populations of the target species for use in making land use and management decisions, and for prioritizing acquisition and landowner assistance programs. Documentation of anomaly rates in *E. propullans* lays the groundwork for future research into the causes of these anomalies.
- Monitoring across the latitudinal gradient of Minnesota for western prairie fringed orchid will enable researchers to better relate the species' flowering patterns, recruitment and survivorship to geographic, climatic, soils and/or hydrological data.
- Continued monitoring of selected plots of prairie bush clover at Kilen Woods State Park will supplement long-term data collection that could prove useful in light of

Project Statement**MN. Recovery activities for selected federally listed species.**

Page 5 of 10

global climate change.

Job 2. Mid-term statistical analysis of data from Pembina Trail Experimental Management Study

- Statistically valid research results will be available regarding the effects of prairie management on western prairie fringed orchid, and researchers will have increased confidence in the power of the methodology to address the hypotheses.

Job 3. Management of woody vegetation at 3 prairie bush clover sites

- Habitat will be improved for prairie bush clover at three populations, contributing to the health of the populations, and reducing future management costs.

Job 4. Monitoring of Topeka shiner distribution within designated critical habitat in Minnesota.

- Continued monitoring of Minnesota's Topeka shiner population will allow the evaluation of protection and recovery efforts for the species, will provide data on a random sample of potential habitats, and will provide insight into the health of the species' broader prairie stream ecosystem. Data will be entered into the Natural Heritage Information System using other funding sources.

Job 5. Improving the quality of data in the Natural Heritage Information System

- More precise and ecologically meaningful data about locations of 3 federally listed plant species will be available to guide acquisition and management.

Job 6. Coordination related to federally listed species (other than the lynx) and administration of Section 6 funding.

- Technical input will be available to FWS and other partners in a timely manner, and projects will be managed efficiently in compliance with standards.

APPROACH**Job 1: Monitoring of three federally listed plant species in Minnesota**

Minnesota dwarf trout lily: A team of volunteers, supervised by DNR staff or experienced volunteers, will count flowering plants in established grids at Nerstrand Big Woods State Park and Grace Nature Preserve, and in selected colonies located by known GPS locations, at River Bend Nature Center and the Minnesota Landscape Arboretum. Any instances of apparently anomalous development will be described and photo-

Project Statement

MN. Recovery activities for selected federally listed species.

Page 6 of 10

documented. All access to sites will be on foot. No takings will occur. To avoid spreading garlic mustard into sites, no access will be through areas with known garlic mustard infestations. When working in areas known to have both garlic mustard and MN dwarf trout lilies, volunteers will survey uninfested areas first, bag their boots when entering infested areas, and remove the bags when leaving the area.

Western prairie fringed orchid: A team of volunteers, supervised by DNR staff, TNC staff, or experienced volunteers will count flowering plants within the boundaries of previously counted areas at a minimum of 15 known sites of Western prairie fringed orchid. These counts will be complemented by demographic monitoring of plants in all life stages in permanently marked transects at four sites and phenological monitoring of flowering plants at Blue Mounds State Park and Pembina Trail Preserve. Access to all work areas will be on foot. No takings will occur. Volunteers walk at a distance of several meters from each other and pass through areas only one time, so trampling of orchids is avoided during the census work. The exact locations of orchids are known and flagged during demography and phenology work, so trampling of these marked plants will be avoided.

Prairie bush clover: Volunteers will record data about individual plants in all life stages at a subset of plots in an established monitoring transect at Kilen Woods State Park, Jackson Co. Observers stand outside the marked plots, so no trampling or other damage to plants will occur.

Job 1 Total cost: \$16,000

Job 2. Mid-term statistical analysis of data from Pembina Trail Experimental Management Study

The Department of Natural Resources will contract with a graduate student, university faculty, or an independent biometrician for mid-term analysis of data from the Pembina orchid management study. Statistical methods will be determined in consultation with the biometrician.

Principal investigator: Nancy Sather.

The final report will be prepared according to guidelines for research projects in the Federal Aid Manual and will describe the statistical methods, provide a summary of the

Project Statement
MN. Recovery activities for selected federally listed species.
Page 7 of 10

analytical results and any recommendations for changes in experimental design.

Job 2 Total cost: \$5,000

Job 3. Management of woody vegetation at 3 prairie bush clover sites

Habitat management will be done at Prairie Bush Clover Scientific and Natural Area (SNA) (Jackson Co.), Des Moines River Prairie SNA (Jackson Co.), and Cottonwood Prairie SNA (Brown Co.). Management activities will involve cutting and either scattering brush on site for subsequent burning, or removal of cut material from the site. The work will be directed by DNR staff and implemented by contractors and/or volunteers. Work will proceed from the interior of populations outward. Woody plants will not be piled, scattered, or pulled through areas where prairie bush clover plants occur. Some herbicide treatment of large tree or buckthorn stumps may be necessary. In these cases, herbicide will be applied by a licensed applicator directly to the cut surface of the targeted stump. No broadcasting of herbicides will occur. Herbicides will be chosen that are not transferred from the roots of the target organism into the soil.

Job 3 Total cost: \$7,300

Job 4. Monitoring of Topeka shiner distribution within designated critical habitat in Minnesota.

Monitoring will be conducted by a contract ichthyologist working with the assistance of DNR staff. Methods will be identical to those implemented during the previous two years. Twenty 1-mile-length stream reaches will be randomly selected from Minnesota's designated critical habitat. Access permission will be obtained from landowners for all lands adjacent to the selected stream reaches. Within each stream reach, aerial photography and reconnaissance will be used to select the ten sampling sites within the reach that are most likely to support Topeka shiners. Sites within the stream reach will be thoroughly sampled using a 10' x 5' eighth-inch mesh minnow seine until either Topeka shiners are found, or it is concluded that no Topeka shiners are present within the stream reach. All captured fish will be returned to their habitat after voucher photographs are taken. Care will be taken to avoid mortality. Minnesota has applied for renewal of its Topeka shiner Recovery Permit, which expired 12-31-05. The permit will include seining work within the range of Topeka shiner as it has in the past. Data entry into the

Project Statement

MN. Recovery activities for selected federally listed species.

Page 8 of 10

Natural Heritage Information System will be funded with other funds.

Job 4 Total cost: \$6,800

Job 5. Improving the quality of data in the Natural Heritage Information System

Site and element occurrence information will be used to prioritize sites that require field visits to reconfirm population status and obtain more precise location data for the three federally-listed plant species listed in Job 1. In the field, a minimum of the three highest priority sites for each of the three plant species will be visited on foot and GPS points will be obtained to delimit the location and size of subpopulations. Polygons derived from these data will be used to create new source features in Biotics. Where those data indicate a need to lump or split former "occurrences" to meet Biotics data specifications, occurrences will be adjusted accordingly. When confirming numbers of plant for inclusion in the new records, personnel will flag around the outside of patches, then approach them from the least dense approach, standing just outside the patch and using a clicker counter to enumerate plants. There will be no negative impacts to the plants from this work. Other funding sources will be used to incorporate the results of Job 4 into Biotics records.

Job 5 Total cost: \$11,083

Job 6. Coordination related to federally listed species (other than the lynx) and administration of Section 6 funding.

Requests for technical assistance will be responded to through phone conversations, in-person meetings, e-mail or written documents. Project expenditures will be tracked via the state cost coding system. Fiscal reports will be reviewed monthly to insure that coding is done properly and project elements are within budget.

Job 6 Total cost: \$7,661

BUDGET OVERVIEW

Total project cost:	\$ 53,844
Federal Share:	\$40,383 (75%)
Non-Federal Match:	\$13,461 (25%)

Costs include labor, direct and indirect costs, travel, supplies, equipment, materials,

Project Statement

MN. Recovery activities for selected federally listed species.

Page 9 of 10

contracts, training, fleet costs and other charges necessary to accomplish these activities. For jobs that involve volunteers, the value of volunteer time will be used at a rate of \$15.00 per hour (equivalent to the middle of the salary range for Natural Resource Technicians) as part of the non-federal share. MNDNR uses detailed cost coding system to identify all costs associated with federal grants. The level of accounting for this work * will be at the grant level.

PERSONNEL

Jobs 1-3 will be coordinated by Nancy Sather, MNDNR Natural Heritage and Nongame Research Program, and portions will be implemented in collaboration with experienced volunteers, DNR staff and contractor(s). Job 2 will be administered by Nancy Sather and coordinated collaboratively with Brian Winter of the Minnesota Chapter of The Nature Conservancy. Statistical work will be done by a contractor. Job 3 will be coordinated by MNDNR SNA staff; work will be done by a Minnesota Conservation Corps crew, in collaboration with SNA staff. Job 4 will be directed and administered by Rich Baker, and conducted by a contractor and a Natural Resource Specialist. Job 5 will be accomplished by a Natural Resource Specialist, working under the guidance of Nancy Sather and the supervision of Bonita Eliason, Coordinator, MNDNR Natural Heritage and Nongame Research Program. Coordination and technical assistance related to the three federally-listed plants will be by Nancy Sather and for the Topeka shiner by Rich Baker. Overall project administration will be done by Bonita Eliason.

LOCATION OF WORK

Fieldwork on the Minnesota dwarf trout lily will be conducted at sites in Rice, Goodhue, and Steele Counties, Minnesota. Fieldwork for the western prairie fringed orchid will be conducted throughout the species statewide range, with monitoring spanning the latitudinal gradient of extant populations in Ecoregion 251. Prairie bush clover monitoring will be done at Prairie Bush Clover SNA, Kilen Woods State Park, Jackson Co., but collection of field data for the data management job will span the range of the species in the state. Woody vegetation management will be done at SNAs in Jackson and Brown Counties. Data management will take place in the central office of the Minnesota Department of Natural Resources in St. Paul, MN. Analysis of orchid data will be

Project Statement

MN. Recovery activities for selected federally listed species.

Page 10 of 10

conducted off site at the facilities of the contractor. Topeka shiner monitoring will be conducted at randomly selected sites within Minnesota's Topeka shiner critical habitat.

National Environmental Policy Act

The Minnesota Department of Natural Resources believes that this grant complies with the National Environmental Policy Act (NEPA) and is covered by the categorical exclusion 1.4A (2) and 1.4B(1, 2, & 8). A NEPA checklist has been completed and is attached.

Protection of Threatened and Endangered Species

Implementation of this grant will not jeopardize the continued existence of any federally listed threatened, endangered or candidate species or result in the destruction or adverse modification of critical habitats of these species. Minnesota DNR has applied for renewal of its Topeka shiner Recovery Permit, which expired 12-31-05. The permit will include seining work within the range of Topeka shiner as it has in the past.

Protection of Cultural Resources and Historic Properties

Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires federal agencies to consider the effects of their actions on historic properties. The Divisions of Fish and Wildlife and Ecological Services contract with a licensed archeologist to administer compliance with Section 106. The activities included in this grant comply with procedures developed in cooperation with the State Historic Preservation Office to ensure the protection of cultural and historic resources.