



Environment and Natural Resources Trust Fund (ENRTF) M.L. 2017 LCCMR Work Plan

Date of Submission: September 14, 2016

Date of Next Status Update Report: December 31, 2017

Date of Work Plan Approval: 06/07/2017

Project Completion Date: June 30, 2019

Does this submission include an amendment request? ☐

PROJECT TITLE: Minnesota Biological Survey – Continuation

Project Manager: Bruce Carlson

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Location: Aitkin, Becker, Carlton, Carver, Cass, Chippewa, Chisago, Clay, Crow Wing, Dakota, Dodge, Fillmore, Houston, Itasca, Kittson, Koochiching, Lac qui Parle, Lake of the Woods, Mahnommen, Marshall, Meeker, Mille Lacs, Mower, Nicolet, Norman, Ottertail, Pennington, Polk, Pope, Red Lake, Rock, St. Louis, Scott, Swift, Wabasha, Washington, Wilkin, Wright.

Total ENRTF Project Budget:

ENRTF Appropriation: \$2,900,000

Amount Spent: \$0

Balance: \$2,900,000

Legal Citation: M.L. 2017, Chp. 96, Sec. 2, Subd. 03d

Appropriation Language:

\$2,900,000 the first year is from the trust fund to the commissioner of natural resources for continuation of the Minnesota biological survey to provide a foundation for conserving biological diversity by systematically collecting, interpreting, monitoring, and delivering data on plant and animal distribution and ecology, native plant communities, and functional landscapes. This appropriation is available until June 30, 2020, by which time the project must be completed and final products delivered.

I. PROJECT TITLE: Minnesota Biological Survey

II. PROJECT STATEMENT:

The Minnesota Biological Survey (MBS) collects, interprets and delivers foundational data on native plants, animals, plant communities and landscapes. These data help prioritize actions to conserve, manage and restore Minnesota's biological diversity and ecological systems.

The Minnesota Biological Survey (MBS) will in this project 1) continue toward statewide completion of baseline surveys started in 1987; 2) provide targeted field surveys for sensitive species, pollinators, and high-quality native plant communities; 3) process, store and deliver field survey data; and 4) provide new biological reports, book drafts, technical guidance, and outreach.

This work plan will bring to completion baseline field surveys (Activity 1) in all of Lake of the Woods County, at least 90% of St. Louis County, and at least 25% of Koochiching County. Targeted field surveys (Activity 2) are proposed in select native prairies, wetlands, and forests in response to needs identified in various plans and assessments such as the Minnesota Prairie Conservation Plan, the State Wildlife Action Plan, forest plans and third-party forest certification.

This work will build off of decades of MBS efforts to process and deliver new data, collections, and products (Activities 3 and 4) that are foundational to biodiversity conservation and management in Minnesota. Recent examples of delivery and interpretation of data by MBS include identification, restoration and management of Scientific and Natural Areas; updates and revisions to Minnesota's list of endangered, threatened and special concern species; development of pollinator best-management practices; site selection and seed mix development for cover crop, buffer, and clean water initiatives; and technical support tools for stream and watershed management.

III. OVERALL PROJECT STATUS UPDATES:

Project Status as of December 31, 2017

Project Status as of May 31, 2018

Project Status as of December 31, 2018

Overall Project Outcomes and Results: Submitted between June 30 and August 1, 2019.

IV. PROJECT ACTIVITIES AND OUTCOMES:

ACTIVITY 1: Statewide Baseline Biological Survey.

Description: Conduct baseline field surveys in Lake of the Woods, Koochiching and St. Louis counties on the distribution and ecology of native plants and animals, native plant communities, and the most intact landscapes. Conduct baseline aquatic plant surveys in high quality and moderate quality lakes in eight central Minnesota counties. Conduct vegetation field surveys to inform native plant community mapping.

Plant ecologists, botanists and zoologists review existing relevant natural resource data and record information using Geographic Information Systems and other DNR information systems to consolidate and organize data. Examples of these data include forest inventories, wetlands inventories, aquatic plant surveys, wildlife habitat inventories, park surveys, soil surveys, land-use data, historical public land surveys, academic research, and records from museum collections. Using these data, supplemented by the interpretation of aerial photography or other imagery, staff identify MBS sites and species habitats for targeted surveys.

Staff notify and coordinate activities with other DNR Divisions, universities, counties, municipalities, tribal natural resource departments, watershed districts, federal natural resource agencies, conservation

organizations, corporations, and individual landowners. This is critical to the success of field surveys, data richness, and outreach.

Ground surveys to assess MBS site and native plant community quality and condition include the collection of vegetation samples in coordination with other sampling (soils, water chemistry, etc.) when possible. Additional specialized techniques are used during field seasons to survey selected rare species or groups of species (e.g., plants, birds, mammals, reptiles, amphibians, insects, fishes).

In Lake of the Woods County, ground surveys to assess sites, native plant communities and rare plants will focus primarily on the Northwest Angle in the far northern reaches of the county and state. This area is difficult to access and requires considerable planning and collaboration to achieve field survey goals. Data entry and mapping of sites and native plant communities will be completed for this county during this biennium. In addition, animal surveys will be conducted throughout the county.

In Koochiching County, ground surveys to assess sites, native plant communities and rare species will continue from last biennium. Koochiching County contains many large, remote areas that meet MBS preliminary survey priority criteria (e.g. areas of intact vegetation, good potential for rare species, minimal fragmentation). These areas take considerable effort to access and survey. Surveys will focus primarily on peatlands, forested wetlands, river terraces and floodplain forests throughout the county.

In St. Louis County, MBS will focus survey work in the two remaining subsections in the county: the Littlefork-Vermillion Uplands and Border Lakes. MBS has completed field surveys in much of St. Louis County during previous biennia. Data entry and mapping of sites and native plant communities will continue for all portions of the county. Animal surveys will be completed in this biennium.

The baseline survey for aquatic lake plants will continue with this biennium's focus in the central part of the state. Lakes to be surveyed will include a mix of high quality lakes with a high probability of rare plant populations and lower quality lakes that are predicted to have lower potential for rare species but have never been surveyed. Lake plant species lists are used for the Index of Biotic Integrity assessments of Minnesota lakes and are available on Lakefinder on the DNR Website.

MBS continues to make progress mapping native plant communities and sites for areas where MBS is complete. This work often requires limited but very specific field survey to address mapping questions. During this biennium, field survey to inform mapping efforts may occur in Crow Wing, Cass, Itasca, St. Louis, Lake, Cook, and Beltrami counties.

Summary Budget Information for Activity 1:

ENRTF Budget: \$ 812,885
Amount Spent: \$ 0
Balance: \$ 812,885

Outcome	Completion Date
1. Baseline field survey Lake of the Woods County – bring to 100% complete.	Sept. 2018
2. Baseline field survey St. Louis County – bring to >90% complete.	June 2019
3. Baseline field survey Koochiching County – bring to >25% complete.	June 2019
4. Baseline field survey for aquatic (lake) plants – ~125 lakes in 8 counties.	Ongoing
5. Ground truthing and verification for native plant community mapping.	Ongoing

Project Status as of December 31, 2017

Project Status as of May 31, 2018

Project Status as of December 31, 2018

Final Report Summary: Submitted between June 30 and August 1, 2019.

ACTIVITY 2: Targeted Field Surveys

Description: This work is distinct from Activity 1 (i.e. it is not part of the statewide systematic baseline survey) and occurs in different locations than where Activity 1 occurs (see map). Activity 2 focuses field survey in specific locations to collect and deliver field survey data and provide analysis on select native plant communities, sensitive species, or pollinators. This work delivers new data and analysis that either 1) add value to existing ENRTF investments in data collection and analysis or 2) address foundational needs in Minnesota science and collaborative plans and projects.

Field survey needs in Minnesota have been highlighted in a number of initiatives such as the Minnesota Prairie Conservation Plan, Minnesota Wildlife Action Plan, and third-party Forest Certification. For example, in the prairie region vegetation surveys in high quality prairie sites provide a basis from which to assess the effect of cattle grazing on native vegetation and rare species. Previous work in this area has revealed the presence and biodiversity values of wetland complexes within the prairie matrix. These prairie wetlands are under-surveyed and not yet adequately described in DNR's native plant community classification.

During this biennium, MBS staff will target prairie wetlands on end moraines and glacial river terraces in Big Stone, Swift, Chippewa and Lac Qui Parle counties. Vegetation plots (relevé), rare species searches, and mapping are the priority tasks. These activities will help identify significant natural areas, locate sites for monitoring the effects of cattle grazing in prairie wetlands, and improve ecological classification of prairie wetland plant communities.

Vegetation and rare species surveys in previously undocumented prairie sites will continue to provide new data that improves scientific understanding, expands the known extent of Minnesota prairie, and provides critical contributions to achieving the goals of the collaborative-based Minnesota Prairie Conservation Plan. About 200 sites in 14 counties will be visited during this biennium.

Surveys will be conducted throughout the prairie region of Minnesota to continue documenting and monitoring the extent, status and range of small white lady's slippers in Minnesota. This will include surveying new sites, resurveying and updating old sites, and follow-up surveys at sites where management activities have occurred. MBS will compile data on population size, associated habitat, invasive species, and other observed activities or conditions that may be impacting populations. This work will continue the statewide effort to assess the state's population of small white lady's slippers. Minnesota holds the world's largest concentration of this rare and sensitive species by a large margin. Volunteers from across the state provide invaluable field survey assistance with this project.

Targeted surveys will be conducted in MBS sites in northern, central and southeast Minnesota where the baseline MBS survey was done ten or more years ago. Outstanding and high biodiversity sites with high potential to support rare species populations will be visited in order to document and map native plant communities and rare species with greater precision than was possible in the past. This is now possible because of better technology (GPS units and LiDAR) and better digital imagery. In addition, now that baseline surveys have been completed for major sections of the state, MBS has developed a more comprehensive landscape perspective that helps to target some of the most significant sites with focused, detailed surveys. The information will be used to assist landowners and managers with protection, management and restoration of these sites, and to broaden our understanding of rare species populations and native plant communities. This work is also relevant to achieving sustainable forest management in Minnesota and will assist multiple public and private forest land owners and managers in their efforts to maintain third-party certification of their forest lands.

MBS will add two entomologists to the program to focus on targeted field survey of insects and insect pollinators in native plant communities, sites of biodiversity significance, and other priority insect survey locations. The new entomologists will expand work with moths and butterflies and/or establish new surveys for under-sampled insect taxa (e.g. beetles or flies). The work will be new and distinct from other MBS insect and pollinator projects (e.g. wild bees, imperiled butterflies). Precise plans for field survey will be developed based on the specific entomologists hired and their area(s) of expertise in combination with broader MBS priorities as outlined in this work plan and MBS program plans. Specific plans for this Outcome will be provided in the first Work Plan activity update.

Summary Budget Information for Activity 2:

ENRTF Budget: \$ 634,346

Amount Spent: \$ 0

Balance: \$ 634,346

Outcome	Completion Date
1. Targeted, plant and vegetation field surveys in high-quality prairie wetland complexes in Lac qui Parle, Big Stone, Swift, and Chippewa counties.	June 30, 2019
2. Vegetation and botanical field surveys in previously undocumented native prairies, forests and wetlands in the Prairie and Aspen Parklands Province. ~200 sites in 11 counties.	June 30, 2019
3. Sensitive prairie orchid field surveys and volunteer coordination. ~75 sites in 24 counties. >500 volunteer hours.	Ongoing
4. Targeted field surveys of native plant communities and rare species in MBS Sites of Biodiversity Significance. ≥10 sites in SE, east-central and/or northern Minnesota.	June 30, 2019
5. Pollinator (insect) field survey in MBS Sites of Biodiversity Significance.	June 30, 2019

Project Status as of December 31, 2017

Project Status as of May 31, 2018

Project Status as of December 31, 2018

Final Report Summary: Submitted between June 30 and August 1, 2019.

ACTIVITY 3: Data, Specimens, and Maps

Description: Process and enter data from Activities 1 and 2 into existing DNR databases. Prepare and submit plant and animal specimens to Minnesota collections (e.g., Bell Museum of Natural History, Science Museum). Create digital maps (GIS polygon data) for high-quality native plant communities and sites. This results in long-term storage of collections and databases for analysis and broad dissemination to individuals, organizations, and agencies with diverse natural resource goals.

The collection and management of data utilizes GIS, GPS, web-based tools and products, electronic field data recorders. Data collected by MBS are entered into manual and computerized files in the DNR's information systems. Key databases are part of the DNR Natural Heritage Information System (NHIS) and include those tracking locations and associated data for plants and animals, rare features, relevés (vegetation plot samples), aquatic plants, sites of biodiversity significance, and native plant communities.

Native plant community and MBS site polygon data are made publicly available on the Minnesota Geospatial Common. The NHIS is integrated with Biotics, a global biodiversity information system that is the standard of many Natural Heritage Programs in other states and countries. Photographic vouchers, imagery, and other digital media are stored at the DNR, St. Paul. Field data sheets or data collected on field data recorders are filed electronically (scanned if paper) or manually.

MBS participates in the DNR's Data Governance efforts to continuously improve data standards and quality, integration of databases, and information delivery. Data delivery using the web requires data standards, data security, metadata, and other documentation.

MBS also coordinates with other state and national information system developments. MBS will continue to collaborate with museums on developments related to collections management and information delivery. Specific attention related to the rapidly changing revisions of floral and faunal taxa will continue. Long-term monitoring of species and habitats is especially influenced by the need to "crosswalk" new and old names of species, which is critical to reliable analysis, interpretation and communication of results.

All plant and animal specimens are identified and collections are prepared for permanent storage and deposited in appropriate repositories at the University of Minnesota's J.F. Bell Museum of Natural History, the Science Museum of Minnesota, or the University of Minnesota Entomology collection.

Summary Budget Information for Activity 3:

ENRTF Budget: \$ 1,078,115

Amount Spent: \$ 0

Balance: \$ 1,078,115

Outcome	Completion Date
1. Field data processed and entered into DNR information systems.	Ongoing
2. Plant and animal collections prepared and delivered to Minnesota repositories.	Ongoing
3. Digital maps (GIS polygon data) created for native plant communities and sites.	Ongoing

Project Status as of December 31, 2017

Project Status as of May 31, 2018

Project Status as of December 31, 2018

Final Report Summary: Submitted between June 30 and August 1, 2019.

ACTIVITY 4: Outreach and Technical Guidance

Description: Provide interpretation of results of Activities 1, 2 and 3 through products and technical assistance to guide conservation and management of native plant communities, rare species, and ecological systems (e.g., watersheds, sites of biodiversity significance). This activity includes website maintenance; book publications; biological reports; and technical guidance to public agencies, private citizens, tribal organizations and conservation and management planning initiatives.

MBS will deliver a first draft of a new book on the mammals in Minnesota and a final draft and publication of a new book on the sedges and rushes of Minnesota. Both books bring forth decades of ENRTF investments in MBS field survey, data management, collections management and technical guidance.

The book, *Mammals in Minnesota* (tentative title), incorporates the substantial statewide data set on mammalian distribution collected by MBS since the last state mammal book in 1982. It addresses changes to the distribution and abundance of over 85 wild mammal species, including three new species documented since the last publication. For each species, their natural history is described and illustrated with photographs and distribution maps. A guide to identification will be included. A first draft of the book is intended under this work plan.

The book, *Sedges and Rushes of Minnesota* (tentative title), will be the first of its kind for Minnesota. It will be a field guide to the identification, distribution and ecology of the sedges and rushes of Minnesota, which number

about 250 species. Each species is described in detail, and fully illustrated with original photographs. The book is intended to be published by MN Press within this biennium.

The book, *A Guide to the Aspen Parkland and Red River Valley*, will be delivered for publishing by the University of Minnesota Press. It is in part a response to interest from local residents of northwestern Minnesota who suggested this publication several years ago to fill a void in natural history coverage of the area. It will provide substantive information to interpret and increase appreciation of this landscape and its native plant communities and rare species by residents, decision-makers and visitors of the region. The MBS biologists who conducted field surveys in the region over the past 30 years are the lead authors with specialties in plant ecology, rare species biology and natural history. The book will also include a guide to important sites that highlight distinctive biological and surficial geological features of this landscape.

See also Section V. Dissemination.

Summary Budget Information for Activity 4:

ENRTF Budget: \$ 374,654
Amount Spent: \$ 0
Balance: \$ 374,654

Outcome	Completion Date
1. First draft of a new book on the mammals of Minnesota.	June 30, 2019
2. New book on sedges and rushes of Minnesota published by University of Minnesota Press.	June 30, 2019
3. Final draft of the book, Minnesota's Red River Valley and Aspen Parkland: A Guide to Native Habitats, delivered for publishing by University of Minnesota Press	June 30, 2019
4. Biological reports, technical guidance, presentations, and trainings delivered.	Ongoing
5. DNR's website and social media updated with current survey results.	Ongoing

Project Status as of December 31, 2017

Project Status as of May 31, 2018

Project Status as of December 31, 2018

Final Report Summary: Submitted between June 30 and August 1, 2019.

V. DISSEMINATION:

Description: MBS data are stored primarily in the Division of Ecological and Water Resources information systems, which are increasingly linked to other databases in the MN DNR. In addition, MBS procedures, updates, recent maps, and links to related data are presented on the DNR website. Many GIS datasets are delivered to clients through the web. MBS regularly provides vegetation plot data from the relevé database to researchers at academic institutions, other agencies and organizations. Data on rare species are available through agreements with the requesting agency and the DNR. For data on locations or rare features, a data request form is available via the web: <http://www.dnr.state.mn.us/nhnrp/nhis.html>

MBS publishes and distributes survey results in a variety of formats for various audiences. Many products are available as enterprise datasets on the DNR website, including GIS shape files of native plant communities and MBS sites, native plant community field guides, and guides to sampling techniques such as vegetation plot data collection using the relevé method. MBS web pages are updated with new information and have links to associated resources. <http://www.dnr.state.mn.us/mbs/index.html>

The DNR and Legislative libraries and other local information repositories (such as libraries within counties) have access to published products, including books, maps, reports, field guides and digital media. MBS has published several books and field guides.

Staff routinely make presentations that describe MBS methodologies and results to a wide range of audiences including county boards, local planning groups, citizen advisory groups, other biologists, land managers, and students. MBS staff provide local planners with ecological interpretations describing important sites of biodiversity identified during the Survey to assist with management plans.

Physical collections are deposited at Minnesota repositories, primarily at the University of Minnesota's J.F. Bell Museum of Natural History and at the Science Museum of Minnesota, St. Paul. As part of a larger network of museums and herbaria, these cooperators are essential to the documentation and sharing of MBS results. MBS and museum staff meet periodically to address curatorial, data management, and interpretive needs.

MBS also delivers data through an international organization, NatureServe, and also shares data with cooperators at colleges and universities.

Project Status as of December 31, 2017

Project Status as of May 31, 2018

Project Status as of December 31, 2018

Final Report Summary: Submitted between June 30 and August 1, 2019.

VI. PROJECT BUDGET SUMMARY:

A. Preliminary ENRTF Budget Overview:

***This section represents an overview of the preliminary budget at the start of the project. It will be reconciled with actual expenditures at the time of the final report.**

Budget Category	\$ Amount	Overview Explanation
Personnel:	\$ 2,354,666	Botanists, Plant Ecologists, Research Ecologist, Zoologist, Mammologist, Entomologists, Data Manager, Data Assistant, Information Officer for baseline surveys, targeted field survey, data entry and management, map development, book development, technical guidance and outreach. 3 Botanists (2 classified 1.8 FTE for two years; 1 unclassified 0.5 FTE for two years) position# 1 1.0 FTE, 81% salary, 21% benefits; position #2 0.8 FTE, 79% salary 21% benefits; position #3 0.5 FTE, 80% salary, 20% benefits). 9 Plant Ecologists (8 unclassified 6.3 FTE for two years) position #1 80% salary, 20% benefits; positions #2 71% salary, 29% benefits; position #3 70% salary, 30% benefits; position # 4 67% salary, 33% benefits; position #5 67% salary, 33% benefits; positions #6 77% salary, 23% benefits; position #7 78% salary, 22% benefits; position #8 61% salary, 39% benefits; position #9 70% salary, 30% benefits. 1 Research Ecologist (1 classified 0.5 FTE for two years) 72% salary, 28% benefits. 1 Zoologist (1 unclassified 0.5 FTE for two years) 70% salary 30% benefits. 1 Mammologist (1 classified 0.5 FTE for two years) 82% salary 18% benefits. 2 Entomologists (2 unclassified 2.0 FTE for two

		years) positions TBD per DNR competitive hiring process. 1 Data Manager (1 classified 0.2 FTE for two years) 68% salary, 32% benefits. 1 Data Assistant (1 unclassified 1.0 FTE for two years) position TBD per DNR competitive hiring process. 1 Information officer (1 unclassified 1.0 FTE for two years) 69% salary 21% benefits.
Professional/Technical/Service Contracts:	\$ 207,936	Sole-source contract with MN.IT for GIS and database services. Contracts TBD with biologists, MN.IT service-level agreements, MN Press book development/publishing. Work orders with Conservation Corps Minnesota for project assistance.
Equipment/Tools/Supplies:	\$ 40,000	Equipment, tools, and supplies necessary to complete baseline and targeted field surveys. Examples include GPS units, digital cameras, watercraft (non-motorized), communication equipment, increment borers, soil probes, collections materials, notebooks, compasses, hand lenses, data recorders, taxonomic references, batteries, aerial photography, etc. Equipment is used from previous survey periods when at all possible but each year some of this equipment needs replacing or updating.
Travel Expenses in MN:	\$ 120,000	Travel expenses for MN travel only. This is related to field survey in Activities 1 & 2. Travel expenses are subject to State of MN labor agreements and DNR policy. Most travel expenses are related to the 4-6 months of time when staff are conducting field work that requires food, transportation in seasonal DNR fleet vehicles, and lodging. Also includes travel expense reimbursement to volunteers.
Other: DNR Direct & Necessary	\$ 177,398	DNR's direct and necessary costs pay for activities that are directly related to and necessary for accomplishing appropriated projects. HR Support (~\$41,997), Safety Support (~\$11,763), Financial Support (~\$36,436), Communication Support (~\$1,316), IT Support (~\$84,794), Planning Support (~\$912), and Procurement Support (~\$197).
TOTAL ENRTF BUDGET:		\$ 2,900,000

Explanation of Use of Classified Staff: Any classified staff position paid for by ENRTF will either: 1) Be backfilled with a new position OR 2) the work done by this position will be delayed, eliminated, or completed by the start of the project. The activities of all or portions of the following four classified staff are directly related to this work program.

A portion of the time of one research ecologist (0.5 FTE for two years) is directed to targeted field survey (Activity 2), data analysis, and technical guidance. Due to decades of field experience and ecological analysis work in the prairie, this ecologist brings knowledge and perspectives that will result in high quality results.

A portion of the time of one mammologist (0.5 FTE for two years) is directed to writing a draft of a new mammals of Minnesota book to be published by the Minnesota Press. Due to decades of field experience, data analysis, technical writing, outreach, and technical guidance, this mammologist brings expertise, experience, and perspectives not available elsewhere.

2 botanists (1.8 FTE for two years) are needed for plant baseline field survey, rare orchid monitoring, verification of MBS plant collections, coordination with collections repositories (e.g. herbaria), data management, outreach and technical guidance. Due to many years of experience, these botanists bring unparalleled expertise, experience, and perspectives to this project.

Explanation of Capital Expenditures Greater Than \$5,000: N/A

Total Number of Full-time Equivalents (FTE) Directly Funded with this ENRTF Appropriation: 28.6

Total Number of Full-time Equivalents (FTE) Estimated to Be Funded through Contracts with this ENRTF Appropriation: TBD

B. Other Funds:

Source of Funds	\$ Amount Proposed	\$ Amount Spent	Use of Other Funds
Non-state			
State Wildlife Grant (Federal)	\$550,000	\$	Animal surveys and monitoring, data management, outreach, technical guidance
Federal Endangered Species	\$70,000	\$	Monitoring, analysis, volunteer coordination for federally listed plant species in Minnesota.
State			
General Fund	\$750,000	\$	A portion of MBS program management and supervision; office space; program operations.
Game & Fish Fund	\$120,000		Field survey to monitor prairie management effects on native plants and plant communities.
Heritage Enhancement	\$1,225,000	\$	Fund senior ecologists and zoologists who lead and provide oversight to field survey efforts and associated analysis. Associated operations budget.
TOTAL OTHER FUNDS:	\$ 2,715,000	\$	

VII. PROJECT STRATEGY:

A. Project Partners:

Partners receiving ENRTF funding: N/A

Partners NOT receiving ENRTF funding

- The Bell Museum, University of Minnesota, plant and animal collections
- The Science Museum, animal collections
- University of Minnesota, Entomology Department, insect collections
- Superior National Forest, US Forest Service, vegetation plot (relevé) collection
- NatureServe, data management, database structure, data distribution, data standards

B. Project Impact and Long-term Strategy: MBS will pursue future funding proposals to address priority needs such as field survey to fill data gaps and improve scientific understanding; field survey under-surveyed species groups and ecological systems; field survey of MBS sites and other priority areas to add precision or depth to ecological data; update priority areas first surveyed in the 1980-90s or before with new ecological data; monitor ecological response to policies and management on ecological sites, native plant communities, and species populations; and provide new data and analysis in response to advances to technology, data collection, analysis, modeling, and information delivery.

C. Funding History:

Below is the most recent summary of significant MBS funding. General Fund is used for MBS supervisors, office space for all staff, and most non-field operations. State Wildlife Grant dollars fund most of the MBS animal survey. Heritage Enhancement is used to fund senior ecologists and zoologists who lead field survey efforts and associated analysis. Game and Fish Fund is used to fund field operations for a senior prairie Research Scientist and assistants co-leading (with DNR Wildlife) a field study assessing the effects of prairie management on native plants and plant communities. The ENRTF dollars listed are previous allocations for the ongoing project entitled, Minnesota (County) Biological Survey.

Funding Source and Use of Funds	Funding Timeframe	\$ Amount
ENRTF M.L. 2015, Chp. 76, Sec. 2, Subd. 03c	July 1, 2015 - June 30, 2017	\$2,450,000
General Fund	July 1, 2015 - June 30, 2017	\$ 773,273
State Wildlife Grant (Federal dollars)	July 1, 2015 - June 30, 2017	\$ 568,103
Heritage Enhancement	July 1, 2015 - June 30, 2017	\$ 1,237,920
Game & Fish Fund	July 1, 2015 - June 30, 2017	\$ 140,549
ENRTF M.L. 2013, Chp. 52, Sec. 2, Subd. 03a	July 1, 2013 - June 30, 2015	\$2,650,000
General Fund	July 1, 2013 - June 30, 2015	\$ 420,000
State Wildlife Grant	July 1, 2013 - June 30, 2015	\$ 450,000
Heritage Enhancement	July 1, 2013 - June 30, 2015	\$1,162,000
ENRTF M.L. 2011, First Special Session, Chp. 2, Art.3, Sec. 2, Subd. 03a	July 1, 2011 - June 30, 2013	\$2,250,000
General Fund	July 1, 2011 - June 30, 2013	\$ 520,000
State Wildlife Grant	July 1, 2011 - June 30, 2013	\$ 500,000
Heritage Enhancement	July 1, 2011 - June 30, 2013	\$ 934,000
RIM Critical Habitat	July 1, 2011 - June 30, 2013	\$ 226,500

VIII. REPORTING REQUIREMENTS:

- The project is for 2 years, will begin on 07/01/17, and end on 06/30/19.
- Periodic project status update reports will be submitted December 31, 2017, May 31, 2018 and December 31, 2018.
- A final report and associated products will be submitted between June 30 and August 15, 2019.

IX. VISUAL COMPONENT or MAP(S): See attached map.

Environment and Natural Resources Trust Fund
M.L. 2017 Project Budget



Project Title: Minnesota Biological Survey - Continuation

Legal Citation: M.L. 2017, Chp. 96, Sec. 2, Subd. 03d

Project Manager: Bruce Carlson

Organization: Department of Natural Resources

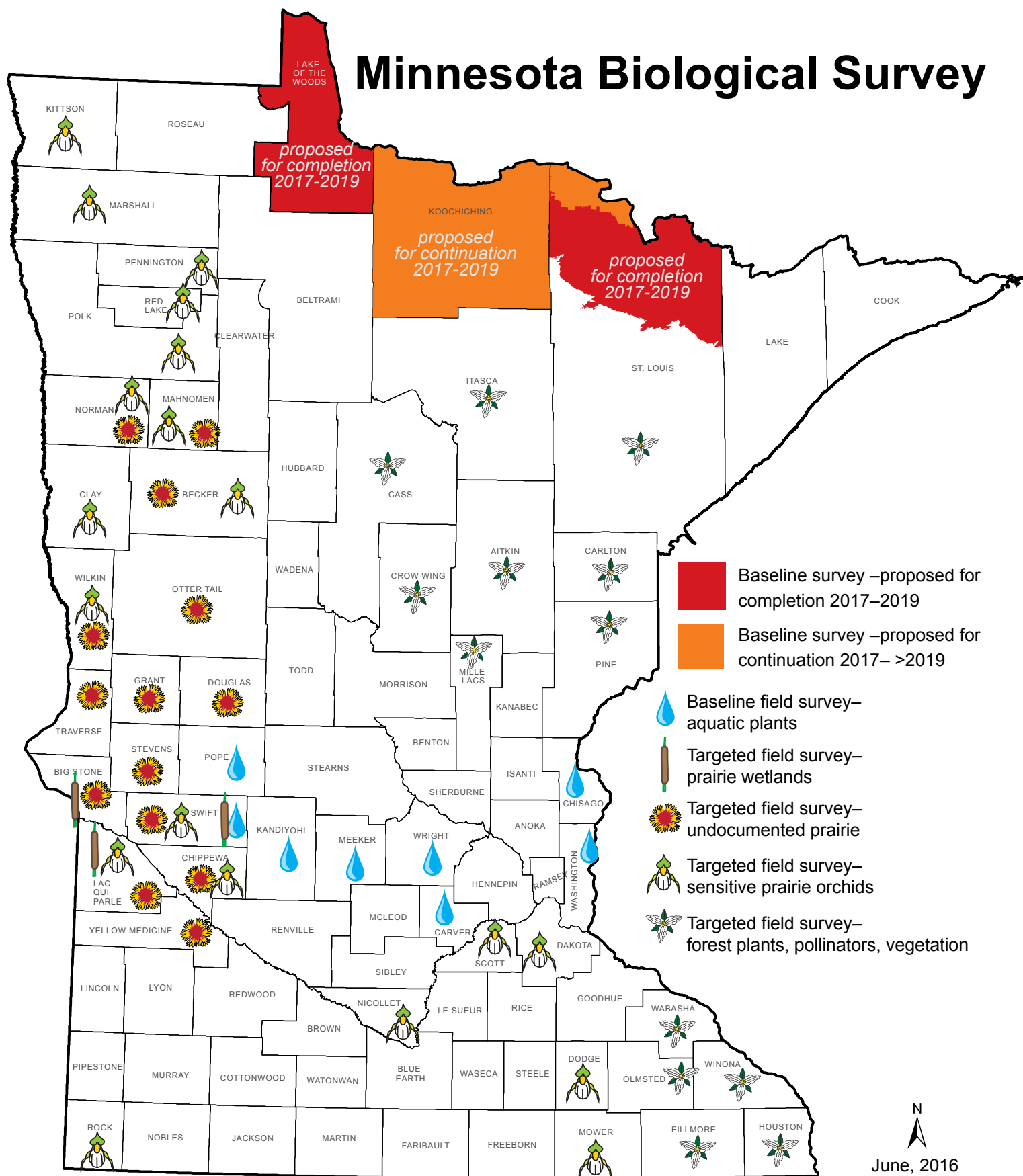
M.L. 2017 ENRTF Appropriation: \$2,900,000

Project Length and Completion Date: 2 Years, June 30, 2019

Date of Report: September 14, 2016

ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET	Activity 1 Budget	Amount Spent	Activity 1 Balance	Activity 2 Budget	Amount Spent	Activity 2 Balance	Activity 3 Budget	Amount Spent	Activity 3 Balance	Activity 4 Budget	Amount Spent	Activity 4 Balance	TOTAL BUDGET	TOTAL BALANCE
BUDGET ITEM	Statewide Biological Survey			Targeted Field survey			Data, Specimens, and Maps			Outreach and Technical Guidance				
Personnel (Wages and Benefits)	\$621,891	\$0	\$621,891	\$474,189	\$0	\$474,189	\$977,478	\$0	\$977,478	\$281,108	\$0	\$281,108	\$2,354,666	\$2,354,666
3 Botanists (2 classified 1.8 FTE for two years; 1 unclassified 0.5 FTE for two years) position# 1 1.0 FTE, 81% salary, 21% benefits; position #2 0.8 FTE, 79% salary 21% benefits; position #3 0.5 FTE, 80% salary, 20% benefits). Total estimated														
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1 Zoologist (1 unclassified 0.5 FTE for two years) 70% salary, 30% benefits). Totoal estimated														
1 Mammologist (1 classified 0.5 FTE for two years) 82% salary 18% benefits. Total estimated														
2 Entomologists (2 unclassified 2.0 FTE for two years) positions TBD per DNR competitive hiring process. Total estimated \$269,717.														
1 Data Manager (1 classified 0.2 FTE for two years) 68% salary, 32% benefits. Total estimated														
1 Data Assistant (1 unclassified 1.0 FTE for two years) position TBD per DNR competitive hiring process. \$115,388.														

1 Information officer (1 unclassified 1.0 FTE for two years) 69% salary 21% benefits. Total estimated \$181,938.														
Professional/Technical/Service Contracts														
MN.IT for day-to-day GIS and IT services. MN.IT staff embedded in DNR 0.5 FTE.	\$30,000	\$0	\$30,000	\$30,000	\$0	\$30,000	\$30,000	\$0	\$30,000	\$30,000	\$0	\$30,000	\$120,000	\$120,000
Contract biologists to be selected competitively per State contract rules for biological field survey.	\$21,323	\$0	\$21,323	\$11,129	\$0	\$11,129	\$0	\$0	\$0	\$0	\$0	\$0	\$32,452	\$32,452
Joint Powers Agreement with University of Minnesota Press for book publication.	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$21,984	\$0	\$21,984	\$21,984	\$21,984
Service Level Agreements with MN.IT for specific database, GIS, and map projects.	\$5,000	\$0	\$5,000	\$5,000	\$0	\$5,000	\$5,000	\$0	\$5,000				\$15,000	\$15,000
Work Order with Conservation Corps Minnesota for program support purposes per DNR-CCM Master Contract Agreement.										\$18,500	\$0	\$18,500	\$18,500	\$18,500
Equipment/Tools/Supplies														
Equipment, tools, and supplies for ~14 FTEs necessary to complete baseline and targeted field surveys. Equipment is used from previous survey periods when at all possible but each year some of this equipment needs replacing or updating. Examples include GPS units, digital cameras, communication equipment, increment borers, soil probes, biological specimen materials, notebooks, compasses, hand lenses, data recorders,	\$15,000	\$0	\$15,000	\$5,000	\$0	\$5,000							\$20,000	\$20,000
Entomology-specific field survey equipment, lures/baits/traps, and collections materials and storage cabinets.				\$20,000	\$0	\$20,000							\$20,000	\$20,000
Travel expenses in Minnesota														
Travel expenses for MN travel only. This is related to field survey in Activities 1 & 2. Travel expenses covered per Commissioner's Plan. Travel expenses are for ~12 FTEs for ~6 months of field work each year. Most travel occurs between St. Paul or Duluth and field work locations in northern, western, central, and SE MN. This includes food, transportation in DNR fleet vehicles, and lodging. Also includes travel expense reimbursement to	\$70,000	\$0	\$70,000	\$50,000	\$0	\$50,000							\$120,000	\$120,000
Other														
Direct and Necessary: DNR's direct and necessary costs pay for activities that are directly related to and necessary for accomplishing appropriated projects. HR Support (~\$41,997), Safety Support (~\$11,763), Financial Support (~\$36,436), Communication Support (~\$1,316), IT Support (~\$84,794), Planning Support (~\$912), and	\$49,671	\$0	\$49,671	\$39,028	\$0	\$39,028	\$65,637	\$0	\$65,637	\$23,062	\$0	\$23,062	\$177,398	\$177,398
COLUMN TOTAL	\$ 812,885	\$ -	\$812,885	\$ 634,346	\$ -	\$634,346	\$1,078,115	\$ -	\$1,078,115	\$ 374,654	\$ -	\$374,654	\$ 2,900,000	\$ 2,900,000



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June, 2016