

**Environment and Natural Resources Trust Fund
Final Reports for 2020**

Line #	Year	Subd	Title	Organization	First Name	Last Name	Funding Amount	Link to Final Report	Soundbite
FINAL REPORTS ENDING JUNE 30, 2020 (38 Final Reports)									
1	2014	Sec 8 - 01	MITPPC #1: Novel Diagnostic Tools for Rapid and Early Detection of Oak Wilt	U of MN - MITTPC	Abdenour	Abbas	\$ 271,911	https://www.lccmr.leg.mn/projects/2014-index.html#201408-01	This project developed a novel, patented Nanoparticles Enhanced Chemiluminescence assay for the rapid detection of the fungus Bretziella fagacearum that causes oak wilt disease. Early detection of invasive forest pathogens is expected to have a significant economic impact by preventing the spread of diseases and the conservation of natural resources.
2	2015	06b	Emerald Ash Borer Ecological and Hydrological Impacts – Phase II	U of MN	Anthony	D'Amato	\$ 400,000	https://www.lccmr.leg.mn/projects/2015-index.html#201506b	Project demonstrates great vulnerability of Minnesota's ash forests to emerald ash borer, including potential shifts from forested to marsh-like vegetation once ash trees have been killed. Promising strategies to mitigate these impacts through establishment of non-ash species using tree planting and other methods have been demonstrated through this project.
3	2015	08g	Minnesota State University Moorhead Science Center Restoration and Monitoring	Moorhead State University	Brian	Wisenden	\$ 527,000	https://www.lccmr.leg.mn/projects/2015-index.html#201508g	Tall grass prairie is critically endangered habitat. This project enlarged the Bluestem Prairie complex by 189 acres and restored the new area to prairie habitat. Faculty and students at MSUM monitored changes in ecosystem structure providing educational benefits for current students and training them for a future as restoration biologists.
4	2015	09b	Metropolitan Regional Park System Land Acquisition - Phase IV	Metropolitan Council	Emmett	Mullin	\$ 1,000,000	https://www.lccmr.leg.mn/projects/2015-index.html#201509b	The Metropolitan Council along with Washington County and Three Rivers Park District acquired three properties to increase recreational opportunities for the Regional Parks System. These critical acquisitions protected nearly a half mile of St. Croix River shoreline and 122 acres of high quality natural resource land in Washington and Hennepin Counties.
5	2015	10-3	Deer Movement Related to Potential CWD Prion Transmission	MN DNR	Christopher	Jennelle	\$ 353,427	https://www.lccmr.leg.mn/projects/2015-index.html#201510	This project provided a foundation for understanding deer movements in southeastern Minnesota that can facilitate spread of chronic wasting disease. Deer had westward movement trajectories, underscoring risk of CWD spread towards the Minnesota interior. In southeastern Minnesota, hunting is the primary source of mortality for yearling deer.
6	2016	03a	Data-Driven Pollinator Conservation Strategies	U of MN	Daniel	Cariveau	\$ 520,000	Pending due to COVID	Pending due to COVID
7	2016	03c1	Prairie Butterfly Conservation, Research, and Breeding - Phase II	Minnesota Zoo	Erik	Runquist	\$ 421,000	https://www.lccmr.leg.mn/projects/2016-index.html#201603c	Many prairie butterflies are declining, and some are in danger of extinction. The Minnesota Zoo is supporting disappearing populations of Dakota skipper and Poweshiek skipperling through wild reintroductions and releases, and Zoo-based insurance populations. We are researching stressors to wild populations and the conditions needed for them to thrive.
8	2016	03c2	Prairie Butterfly Conservation, Research, and Breeding - Phase II	MN DNR	Jessica	Petersen	\$ 329,000	https://www.lccmr.leg.mn/projects/2016-index.html#201603c	Searches of western prairies suggest that seven of the 13 species considered are locally extirpated. Monitoring populations of extant prairie butterflies provides the foundation for adaptive management to conserve what remains. Surveys of the Dakota skipper at the reintroduction and adjacent sites indicate that dispersal is limited.

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9	2016	04h	Protection of State's Confined Drinking Water Aquifers - Phase II	US Geological Survey	Jared	Trost	\$ 433,000	https://www.lccmr.leg.mn/projects/2016-index.html#201604h	Groundwater flowing downward through till confining units (leakage) replenishes water pumped from confined aquifers, a water source for thousands of Minnesota residents. Till properties are variable over short distances and profoundly affect leakage rates, demonstrating the importance of site-specific till data for understanding sustainability of groundwater withdrawals from confined aquifers.
10	2016	04r	Morrison County Performance Drainage and Hydrology Management	Morrison Soil and Water Conservation District	Shannon	Wettstein	\$ 209,000	https://www.lccmr.leg.mn/projects/2016-index.html#201604r	Morrison SWCD documented locations, elevations and construction conditions of culverts throughout 23 townships in Morrison County. This data provides an understanding of drainage capacity for watershed analysis and protection, will prevent wetlands from being drained due to improperly placed culverts and presents opportunities for habitat and wildlife restoration areas.
11	2016	06e1	Elimination of Target Invasive Plant Species - Phase II	Minnesota Department of Agriculture	Monika	Chandler	\$ 511,000	https://www.lccmr.leg.mn/projects/2016-index.html#201606e	We educated about, found, documented and managed highly damaging invasive plant populations before they spread statewide. We also initiated a response to Palmer amaranth in conservation plantings that was continued by the project Palmer Amaranth Detection and Control. Mitigating these invasive plant threats protected Minnesota forests, grasslands and riparian areas.
12	2016	06e2	Elimination of Target Invasive Plant Species - Phase II	U of MN	Angela	Gupta	\$ 239,000	https://www.lccmr.leg.mn/projects/2016-index.html#201606e	We educated about, found, documented and managed highly damaging invasive plant populations before they spread statewide. We also initiated a response to Palmer amaranth in conservation plantings that was continued by the project Palmer Amaranth Detection and Control. Mitigating these invasive plant threats protected Minnesota forests, grasslands and riparian areas.
13	2016	08b	Measuring Pollen and Seed Dispersal for Prairie Fragment Connectivity	U of MN	Lauren	Sullivan	\$ 556,000	Pending due to COVID	Pending due to COVID
14	2017	03e	Minnesota Wildflowers Online Botanical Reference – Phase II	MN Wildflowers Information	Katy	Chayka	\$ 270,000	https://www.lccmr.leg.mn/projects/2017-index.html#201703e	The Minnesota Wildflowers online botanical reference now covers over 80% of all Minnesota's flora, providing the most complete, free, user-friendly plant resource for the state, targeting a wide range of users from all age groups and experience levels.
15	2017	03g	Drainage Records Modernization Cost Share - Phase II	Board of Water and Soil Resources	Mark	Hiles	\$ 540,000	https://www.lccmr.leg.mn/projects/2017-index.html#201703g	Grants provided to 12 103E public drainage authorities to advance local drainage records preservation and use for enhanced system management and provide hydrographic data in the statewide GIS Database. All grantees set up an account with Minnesota Geospatial Information Office (MnGeo) and uploaded public drainage system hydrography data to the Minnesota Geospatial Commons website.
16	2017	03h	Groundwater Contamination Mapping	Minnesota Pollution Control Agency	Hans	Neve	\$ 400,000	https://www.lccmr.leg.mn/projects/2017-index.html#201703h	The Minnesota Groundwater Contamination Atlas maps areas of groundwater contamination concern and tells the contamination story in a way that is understandable to the general public and is meaningful for technical users. The Atlas currently includes 92 of the thousands of properties where environmental contamination may exist in Minnesota.

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17	2017	03j	Moose Calf Surveys and Monitoring	U of MN	James	Forester	\$ 348,000	NOT RECEIVED	NOT RECEIVED
18	2017	04a	Assessment of Household Chemicals and Herbicides in Rivers and Lakes	U of MN	William	Arnold	\$ 236,000	https://www.lccmr.leg.mn/projects/2017-index.html#201704a	The levels of quaternary ammonium compounds (QACs), which are used widely as disinfectants and for other purposes, were measured in Minnesota wastewaters and sediments. The QACs are present at microgram per liter levels in wastewater. While the QACs are slowly degraded in surface waters by bacteria and light, they accumulate in sediments. The QACs form specific suspected carcinogens during water disinfection in very low yield, and QACs are likely less important than other precursors for these toxins. The results provide information on current QAC levels and provide insights on how to lower them if desired.
19	2017	04g	Identification of Chemicals of Emerging Concern in Minnesota Fish	Grand Portage Band of Lake Superior Chippewa	Seth	Moore	\$ 400,000	https://www.lccmr.leg.mn/projects/2017-index.html#201704g	This is the first study to comprehensively analyze Chemicals of Emerging Concern (CECs) within fish tissues, waters, and sediments in 28 Minnesota lakes and in Lake Superior. We found 117 CECs with 101 found in water samples, 67 in sediments, and 35 in fish tissues.
20	2017	04h	Techniques for Water Storage Estimates in Central Minnesota	U of MN	John	Nieber	\$ 250,000	https://www.lccmr.leg.mn/projects/2017-index.html#201704h	A combination of ground-based monitoring and satellite data were used to quantify freshwater in Central Minnesota. Quantification of stored water is essential to improve water resources management and planning.
21	2017	05g	Increasing Residential Environmental Learning Center Opportunities	Osprey Wilds Environmental Learning Center	Bryan	Wood	\$ 130,000	https://www.lccmr.leg.mn/projects/2017-index.html#201705g	This project connected 1,254 K-12 Minnesota students to nature through multi-day environmental learning experiences at Osprey Wilds Environmental Learning Center (formerly Audubon Center of the North Woods). This was accomplished through translating fieldtrip forms into three new languages, purchasing and lending outdoor gear to students, and providing K-12 student scholarships.
22	2017	06d	Adapting Stream Barriers to Remove Common Carp	U of MN - MAISRC	Przemyslaw	Bajer	\$ 301,000	https://www.lccmr.leg.mn/projects/2017-index.html#201706d	We developed a new, practical and largely automated technology for removing common carp during seasonal migrations with minimal human labor. The technology includes electric guidance systems to aggregate the carp and submersed conveyers to remove them. This system is ready for commercial applications to manage carp across Minnesota.
23	2017	06e	Tactical Invasive Plant Management Plan Development	Minnesota Department of Agriculture	Monika	Chandler	\$ 296,000	https://www.lccmr.leg.mn/projects/2017-index.html#201706e	To protect natural resources from the damaging impacts of invasive plants and improve the efficiency and efficacy of invasive plant management, we developed a plan that identified regional priorities for invasive plant management and provided interactive tools to communicate best practices.
24	2017	06f	Maximize Value of Water Impoundments to Wildlife	Audubon Minnesota	Alexandra	Wardwell	\$ 195,000	https://www.lccmr.leg.mn/projects/2017-index.html#201706f	Audubon Minnesota undertook a three-year hybrid-cattail management project at the Agassiz Valley Impoundment. The three-phase management approach increased the amount of open water available to birds and other wildlife. Vegetation measurements (NDVI) decreased in 78% of the plots and the total number of bird species seen or heard increased overtime.

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25	2017	08b	Promoting Conservation Biocontrol of Beneficial Insects	U of MN	Vera	Krischik	\$ 400,000	https://www.lccmr.leg.mn/projects/2017-index.html#201708b	All objectives on integrated pest management (IPM) and cultural methods for conserving beneficial insects were completed. The insecticide chlorantraniliprole was toxic to butterflies and cannot be used near butterfly habitat but is safe for bees. Pesticide residue was highest on wildflowers near potato fields and demonstrates the need for buffer strips. Download outreach/research products at https://ncipmhort.cfans.umn.edu/
26	2017	09c	Minnesota State Parks and State Trails Land Acquisition	MN DNR	Brandon	Helms	\$ 1,500,000	Pending due to COVID	Pending due to COVID
27	2017	09d	Minnesota State Trails Acquisition, Development and Enhancement	MN DNR	Kent	Skaar	\$ 1,038,000	Pending due to COVID	Pending due to COVID
28	2018	03a	County Geologic Atlases - Part A	U of MN - MN Geological Survey	Barbara	Lusardi	\$ 1,240,000	https://www.lccmr.leg.mn/projects/2018-index.html#201803a	We have completed 1 county, started 4 new counties, and continued work in 11 counties. Based on the time spent, this is equivalent to "completing" about 4 atlases with one year's worth of funding. Atlas maps and data provide foundational information that supports water management activities to the benefit of drinking water and aquatic habitat.
29	2018	03f	Develop a System to Assess Wildlife Health Threats in Minnesota	U of MN	Kimberly	VanderWaal	\$ 280,000	https://www.lccmr.leg.mn/projects/2018-index.html#201803f	The project created a dashboard and database that aggregates data from The Raptor Center and Wildlife Rehabilitation Center. Data can be visualized, mapped, and analyzed in real-time, allowing stakeholders to interact with their data in new and informative ways and facilitating earlier detection of health threats or emerging environmental issues.
30	2018	05a	Prairie Sportsman Statewide Environmental Broadcasts and Videos	Pioneer Public Television	Cindy	Dorn	\$ 300,000	https://www.lccmr.leg.mn/projects/2018-index.html#201805a	Prairie Sportsman inspires Minnesotans to connect with the outdoors, explores advances in environmental science, and shows ways we all can protect natural resources. This project has produced 26 Prairie Sportsman episodes and 78 individual video segments that have aired on all Minnesota PBS stations and are distributed online.
31	2018	05i	Update International Wolf Center Exhibits	International Wolf Center	Sharon	Reed	\$ 1,000,000	https://www.lccmr.leg.mn/projects/2018-index.html#201805i	The success of wolf recovery over the past three decades in Minnesota led us to a major overhaul of the exhibit. This updated exhibit will now celebrate Minnesota's historic success in recovering this endangered species, as well as to educate Minnesotan's about the need for their management.
32	2018	09c	Harmony State Trail Extension Land Acquisition	City of Harmony	Jerome	Illg	\$ 235,000	https://www.lccmr.leg.mn/projects/2018-index.html#201809c	This project provided funding to purchase fee title interest in 20 parcels to create a corridor for the extension of the Harmony-Preston state trail from the City of Harmony to the Iowa border, with a spur to Niagara Cave.
33	2018	09f	Enhancement Plan for Superior Hiking Trail	Superior Hiking Trail Association	Lisa	Luukkala	\$ 100,000	https://www.lccmr.leg.mn/projects/2018-index.html#201809f	The Superior Hiking Trail is well placed to lessen the environmental impact of trail users and the Association is better equipped to build and maintain a more sustainable hiking trail.

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34	2018	12	Contract Agreement Reimbursement	MN DNR	Katherine	Sherman-Hoehn	\$ 135,000	https://www.lccmr.leg.mn/projects/2018-index.html#201812	This appropriation was used to support the ENRTF contract management program, which ensured that ENRTF grantees expended grant funds in compliance with state law, session law, approved work plans, and Office of Grants Management grants policies.
35	2019	03m	Improving Statewide GIS Data by Restoring the Public Land Survey	Minnesota Association of County Surveyors	Patrick	Veraguth	\$ 135,000		Due in December
36	2019	04t	Managed Aquifer Recharge	U of MN - Water Resources Center	John	Bilotta	\$ 350,000		Due in December
37	2019	09i	Britton Peak to Lutsen Mountain Bike Trail	Superior Cycling Association	Tim	Kennedy	\$ 350,000		Due in December
38	2019	09n	Crane Lake to Vermilion Falls Trail	Voyageur Country ATV	Bruce	Beste	\$ 400,000		Due in December