

Request for Funding

Lessard-Sams Outdoor Heritage Council Fiscal Year 2016 / ML 2015

Program or Project Title: Minnesota Trout Unlimited Coldwater Fish Habitat Enhancement, Phase 6

Funds Requested: \$2,130,000

Manager's Name: John Lenczewski

Title:

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Organization Web Site:

County Locations: Beltrami, Dakota, Fillmore, Lake, and St. Louis.

Ecological Planning Regions:

- Northern Forest
- Southeast Forest
- Metro / Urban

Activity Type:

- Enhance

Priority Resources Addressed by Activity:

- Forest
- Habitat

Abstract:

Minnesota Trout Unlimited volunteers, chapters and partners will enhance habitat for fish, game and wildlife in and along numerous coldwater streams on existing Aquatic Management Areas and other public lands around the state, while leveraging \$3 million for this work.

Design and Scope of Work:

The problem being addressed.

Minnesota's remaining coldwater streams are under increasing threats. While they are often the highest quality aquatic systems remaining in the state, and prized by both anglers and the general public because of this, many have badly degraded habitat. Given their relatively scarcity, being just six percent of total stream and river miles, this is a conservation issue of statewide importance that requires accelerated investment in projects which enhance or restore this habitat. This year we have a fleeting opportunity to leverage more than \$2 million in other funds and convert isolated bank stabilization efforts in the Duluth area into comprehensive, enduring trout habitat restoration projects.

Minnesota Trout Unlimited ("MNTU") proposes to improve degraded habitat on numerous priority streams located on existing AMAs and public land around the state. Our members have demonstrated the capacity to complete these projects with Fiscal Year 2016 funding from the Outdoor Heritage Fund ("OHF"). MNTU respectfully proposes to partner with the Lessard-Sams Outdoor Heritage Council and the citizens of Minnesota to enhance habitat in and along the following public waters (in these counties):

1. Amity Creek (St. Louis)

2. East Branch of Amity Creek (St. Louis)
3. West Branch of Amity Creek (St. Louis)
4. Chester Creek (St. Louis)
5. Stewart River (Lake)
6. Vermillion River (Dakota)
7. Root River (Fillmore)
8. Clearwater River (Beltrami)
9. Numerous other streams (prioritized vegetation maintenance list)

Since these projects are so varied, individual project descriptions are provided in an attachment.

Goals and scope of work.

The goal of each project is to increase the carrying capacity and trout population of the stream, increase angling access and participation, improve water quality and provide other benefits to aquatic and terrestrial wildlife. FY 2016 funded projects will use methods similar to those used on successful projects recently completed by MNTU chapters. MNTU will leverage our experience to optimize project design and implementation. We will also partner with Lake County Land Department as part of a watershed scale project to restore forest cover in riparian areas, improve hydrology and groundwater base flow, and thereby sustain and improve coldwater fisheries in the Stewart River watershed.

In consultation with professionals within the Minnesota Department of Natural Resources (“MNDNR”), MNTU will use the best available stream restoration and coldwater aquatic science to select specific habitat improvement methods for each stream that reflect the distinct characteristics of the watershed and ecological region, address the specific limiting factors (e.g. spawning substrate, adult cover, invertebrate production, etc.), and account for the land use practices.

Objectives: Projects will accomplish these objectives: (a) increase adult trout abundance, (b) reduce stream bank erosion and associated sedimentation downstream, (c) reconnect streams to their floodplains to reduce negative impacts from severe flooding, (d) increase natural reproduction of trout and other aquatic organisms, (e) increase habitat for invertebrates and non-game species, (f) improve connectivity of habitat along aquatic and riparian (terrestrial) corridors, (g) improve angler access and participation, and (h) protect productive trout waters from invasive species.

Methods: Habitat enhancement methods typically include: (1) sloping stream banks back to both remove streamside sediments that have previously been transported from uplands areas and better reconnect the stream to its floodplain, (2) removing shallow rooted woody vegetation (invasive box elder, buckthorn, etc.) to enable removal of accumulated sediments, reduce competition with desirable plant and grass species, and allow beneficial energy inputs (sunlight) to reach the streams, (3) stabilizing eroding stream banks, (4) installing overhead bank and other in-stream cover for trout, (5) utilizing soil erosion prevention measures, (6) seeding exposed banks and taking steps to firmly establish vegetation (including using native prairie grasses where appropriate and feasible), (7) improving angling accessibility, (8) fencing riparian corridors where appropriate to facilitate managed grazing and prevent damage from over-grazing, (9) restoring large cover logs to the channels of Northern forested streams to increase deep pool habitat, and (10) planting long lived trees along Northern forested streams to shade and cool the water, and provide a source of future cover logs.

These actions directly enhance physical habitat, and typically increase overall trout abundance, the number of larger trout, and levels of successful natural reproduction. Additional benefits, typically extending many miles downstream from the project, include reduced erosion and sedimentation, cooler water temperatures, improved water quality, and increased connectivity of aquatic and riparian habitat corridors.

How priorities were set.

MNTU focuses on those watersheds likely to continue to support viable, fishable populations of naturally reproducing trout and steelhead fifty years and more from now. Work is done only where degraded habitat is a limiting factor for a quality, sustainable fishery. Priority locations are determined using MNTU members’ extensive knowledge of the watersheds, MNDNR management plans and surveys, other habitat and conservation planning efforts, consultations with MNDNR professionals, and science based criteria. All things being equal, we consider the potential to draw new anglers outdoors, increase public awareness of the threats facing coldwater fisheries and watersheds, engage landowners and residents in conservation, foster partnerships, and increase public support for OHF projects.

Urgent conservation opportunities.

The targeted stream segments are no longer providing habitat or clean water benefits, angling opportunities, or other enticements which increase outdoor recreation and encourage public appreciation and stewardship of aquatic ecosystems. By creating productive fisheries in visible and accessible areas, these projects will increase citizens' use of our coldwater ecosystems, tangibly re-connect Minnesotans to the land and water, foster understanding of threats to them, and motivate citizens to advocate for watershed and water quality improvements.

Stakeholder support.

We continue to receive strong support for these projects from landowners, rural communities (especially since most funding pays local contractors and suppliers for direct construction expenses), and local civic and sporting organizations. We will continue to gather local input and develop partnerships in the planning and implementation stages. Landowners typically become very enthusiastic partners, working side-by-side with TU volunteers, donating materials, and helping secure additional conservation funding.

Budget numbers are estimates only. Construction efficiencies and leveraging funds may permit us to lengthen and projects.

How the request addresses MN habitats:

Each of these streams has historically provided good trout habitat, as well as great recreational opportunities for anglers and citizens.

Please explain the nature of urgency:

Only through funding this year can we seize a once in a lifetime opportunity to leverage more than \$2 million in funding targeted for isolated bank stabilization efforts (which provide little habitat) and convert the dollars and work into nearly 3 miles of enduring, high quality brook trout habitat restoration.

Planning

MN State-wide Conservation Plan Priorities:

- H3 Improve connectivity and access to recreation
- H6 Protect and restore critical in-water habitat of lakes and streams

Plans Addressed:

- Long Range Plan for Fisheries Management
- Strategic Plan for Coldwater Resources Management in Southeastern Minnesota

Please describe the science based planning and evaluation model used:

MNTU reviews DNR watershed specific fisheries management plans and other conservation planning efforts, consults with DNR area managers, and applies ranking criteria developed by the DNR. Projects must have the potential to increase the carrying capacity (fish numbers), the streams have natural reproduction, and have public access.

LSOHC Northern Forest Section Priorities:

- Protect shoreland and restore or enhance critical habitat on wild rice lakes, shallow lakes, cold water lakes, streams and rivers, and spawning areas

LSOHC Metro Urban Section Priorities:

- Enhance and restore coldwater fisheries systems

LSOHC Southeast Forest Section Priorities:

- Protect, enhance, and restore habitat for fish, game, and nongame wildlife in rivers, cold-water streams, and associated upland habitat

Accelerates or Supplements Current Efforts:

While our members and chapters have been planning, fundraising for and executing quality fish habitat restoration and enhancement projects around Minnesota for four decades, the availability of funds to hire heavy equipment operators and purchase materials remains the limiting factor in the amount of habitat work we can complete. Each discrete project is an additional “stand alone” project which supplements the amount of habitat work which MNTU chapters have traditionally been able to complete. Our partnership with the L-SOHC and taxpayers has dramatically increased the amount of degraded habitat we are restoring and enhancing for the benefit of all Minnesotans.

Members play vital roles in planning, designing, overseeing, directing and providing manual labor on what are essentially construction projects, but we must hire excavation contractors and purchase rock, lumber and other materials put into the project sites. The knowledge, passion and commitment of our volunteers continue to increase, as does their successful acceleration of the pace of habitat improvement. To ensure we finish what we start, we continue developing a pool of qualified external contractors and consultants to assist with critical tasks.

Non-OHF Money Spent in the Past:

Appropriation Year	Source	Amount
n/a	n/a - all are new projects	0

Sustainability and Maintenance:

MNTU’s coldwater aquatic habitat restoration and enhancement projects are designed for long-term ecological and hydraulic stability. Once in-stream work is completed and riparian vegetation well established, no significant maintenance is usually required in order to sustain the habitat outcomes for at least several decades. Reconnected flood[plains allow floodwater to quickly spread out and dissipate energy, reducing the destructive impact of a flood. Flood waters typically flatten streamside vegetation temporarily and do not damage the in-stream structures. A tenfold increase in trout populations and three fold increase in large trout are not uncommon following completion of a southeast Minnesota project, and these gains are sustainable through natural reproduction.

We anticipate that long-term monitoring of the integrity of the improvements will be done in conjunction with routine inspections and biological monitoring conducted by local MNDNR staff, MNTU members, or landowners as appropriate. This monitoring will not require separate OHF or other constitutional funding. In the event that there are other maintenance costs, potential sources of funding and volunteer labor include MNTU, MNDNR AMA maintenance funding, and other grant funds and organizations. MNTU volunteers will help provide long-term monitoring and periodic labor.

Maintain Project Outcomes:

Year	Source of Funds	Step 1	Step 2	Step 3
periodic - every 5 years	MNTU, DNR, AMA maintenance	inspection	consultation with DNR	assist DNR with maintenance or seeking funding

Applicable Criteria:

If funded, this proposal will meet all applicable criteria set forth in MS 97A.056? - Yes

Best Management Practice:

Will restoration and enhancement work follow best management practices including MS 84.973 Pollinator Habitat Program? - **Yes**

Permanent Protection:

Is the activity on permanently protected land per 97A.056, subd 13(f), tribal lands, and/or public waters per MS 103G.005, Subd. 15? - **Yes (AMA, County/Municipal, Public Waters)**

Accomplishment Timeline

Activity	Approximate Date Completed
Begin project planning, design and permitting work following a July 2015 appropriation.	Begin July 2015
Begin habitat enhancements during 2016 fieldwork season, following completion of design, permit approvals and contracting.	2016 fieldwork season
Complete riparian and in-stream habitat enhancements	October 2018
Cutting, burning and/or spot spraying vegetation to ensure grasses and other appropriate vegetation becomes well established.	summers 2018 & 2019
Tree plantings in riparian corridors of northern project sites in the May-June following in-stream work	By July 2018

Outcomes

Programs in the northern forest region:

- Improved aquatic habitat indicators *Fish, macro invertebrate and substrate surveys*

Programs in metropolitan urbanizing region:

- Improved aquatic habitat indicators *Fish, macro invertebrate and substrate surveys*

Programs in southeast forest region:

- Rivers, streams, and surrounding vegetation provide corridors of habitat *Fish, macro invertebrate and substrate surveys*

Relationship to Other Funds:

- No Relationships Listed

Budget Spreadsheet

Total Amount of Request: \$2,130,000

Budget and Cash Leverage

Budget Name	LSOHC Request	Anticipated Leverage	Leverage Source	Total
Personnel	\$100,000	\$0		\$100,000
Contracts	\$1,197,000	\$1,540,000	; DNR; SWCD; City of Preston;	\$2,737,000
Fee Acquisition w/ PILT	\$0	\$0		\$0
Fee Acquisition w/o PILT	\$0	\$0		\$0
Easement Acquisition	\$0	\$0		\$0
Easement Stewardship	\$0	\$0		\$0
Travel	\$5,000	\$0		\$5,000
Professional Services	\$63,000	\$0		\$63,000
Direct Support Services	\$0	\$0		\$0
DNR Land Acquisition Costs	\$0	\$0		\$0
Capital Equipment	\$0	\$0		\$0
Other Equipment/Tools	\$0	\$0		\$0
Supplies/Materials	\$765,000	\$1,300,000	BWSR/City of Dyuluth; DNR; SWCD; City of Preston	\$2,065,000
DNR IDP	\$0	\$0		\$0
Total	\$2,130,000	\$2,840,000		- \$4,970,000

Personnel

Position	FTE	Over # of years	LSOHC Request	Anticipated Leverage	Leverage Source	Total
Program manager	0.40	2.00	\$60,000	\$0		\$60,000
Watershed coordinator	0.10	2.00	\$10,000	\$0		\$10,000
Program assistant	0.25	2.00	\$30,000	\$0		\$30,000
Total	0.75	6.00	\$100,000	\$0		- \$100,000

Amount of Request: \$2,130,000

Amount of Leverage: \$2,840,000

Leverage as a percent of the Request: 133.33%

Output Tables

Table 1a. Acres by Resource Type

Type	Wetlands	Prairies	Forest	Habitats	Total
Restore	0	0	0	0	0
Protect in Fee with State PILT Liability	0	0	0	0	0
Protect in Fee W/O State PILT Liability	0	0	0	0	0
Protect in Easement	0	0	0	0	0
Enhance	0	0	76	209	285
Total	0	0	76	209	285

Table 2. Total Requested Funding by Resource Type

Type	Wetlands	Prairies	Forest	Habitats	Total
Restore	\$0	\$0	\$0	\$0	\$0
Protect in Fee with State PILT Liability	\$0	\$0	\$0	\$0	\$0
Protect in Fee W/O State PILT Liability	\$0	\$0	\$0	\$0	\$0
Protect in Easement	\$0	\$0	\$0	\$0	\$0
Enhance	\$0	\$0	\$84,000	\$2,046,000	\$2,130,000
Total	\$0	\$0	\$84,000	\$2,046,000	\$2,130,000

Table 3. Acres within each Ecological Section

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	Northern Forest	Total
Restore	0	0	0	0	0	0
Protect in Fee with State PILT Liability	0	0	0	0	0	0
Protect in Fee W/O State PILT Liability	0	0	0	0	0	0
Protect in Easement	0	0	0	0	0	0
Enhance	64	0	89	0	132	285
Total	64	0	89	0	132	285

Table 4. Total Requested Funding within each Ecological Section

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	Northern Forest	Total
Restore	\$0	\$0	\$0	\$0	\$0	\$0
Protect in Fee with State PILT Liability	\$0	\$0	\$0	\$0	\$0	\$0
Protect in Fee W/O State PILT Liability	\$0	\$0	\$0	\$0	\$0	\$0
Protect in Easement	\$0	\$0	\$0	\$0	\$0	\$0
Enhance	\$360,000	\$0	\$680,000	\$0	\$1,090,000	\$2,130,000
Total	\$360,000	\$0	\$680,000	\$0	\$1,090,000	\$2,130,000

Table 5. Average Cost per Acre by Resource Type

Type	Wetlands	Prairies	Forest	Habitats
Restore	\$0	\$0	\$0	\$0
Protect in Fee with State PILT Liability	\$0	\$0	\$0	\$0
Protect in Fee W/O State PILT Liability	\$0	\$0	\$0	\$0
Protect in Easement	\$0	\$0	\$0	\$0
Enhance	\$0	\$0	\$1,105	\$9,789

Table 6. Average Cost per Acre by Ecological Section

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	Northern Forest
Restore	\$0	\$0	\$0	\$0	\$0
Protect in Fee with State PILT Liability	\$0	\$0	\$0	\$0	\$0
Protect in Fee W/O State PILT Liability	\$0	\$0	\$0	\$0	\$0
Protect in Easement	\$0	\$0	\$0	\$0	\$0
Enhance	\$5,625	\$0	\$7,640	\$0	\$8,258

Target Lake/Stream/River Feet or Miles

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Parcel List

Section 1 - Restore / Enhance Parcel List

Beltrami

Name	TRDS	Acres	Est Cost	Existing Protection?
Clearwater River	14835231	5	\$0	Yes

Dakota

Name	TRDS	Acres	Est Cost	Existing Protection?
Vermillion River	11418229	30	\$0	Yes

Fillmore

Name	TRDS	Acres	Est Cost	Existing Protection?
Root River	10210206	17	\$0	Yes

Lake

Name	TRDS	Acres	Est Cost	Existing Protection?
Stewart River	05311215	7	\$0	Yes
Stewart River	05411226	84	\$0	Yes

St. Louis

Name	TRDS	Acres	Est Cost	Existing Protection?
Amity Creek	05113232	8	\$0	Yes
Chester Creek	05014215	8	\$0	Yes
East Branch, Amity Creek	05113231	8	\$0	Yes
West Branch, Amity Creek	05113231	8	\$0	Yes

Section 2 - Protect Parcel List

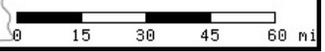
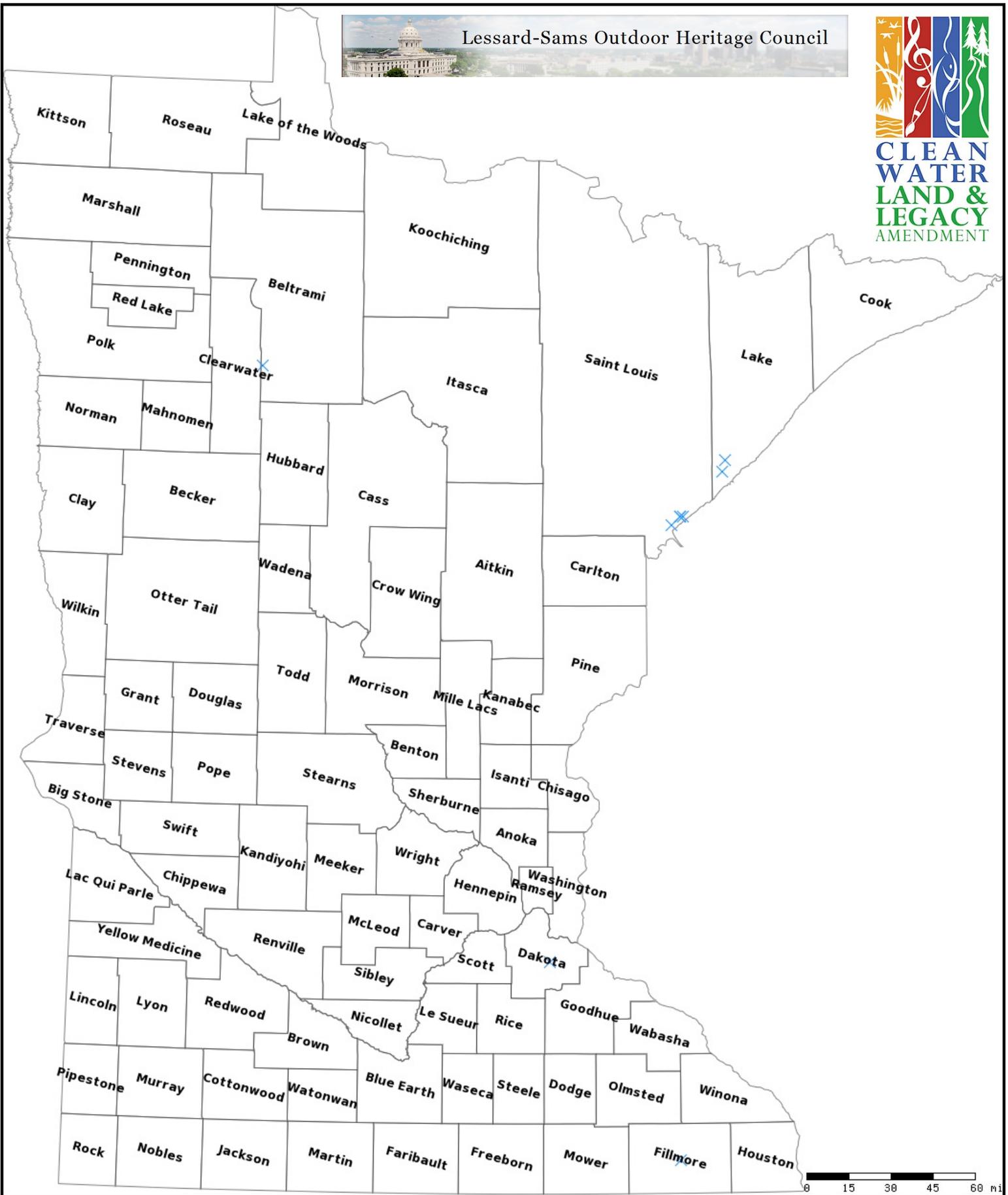
No parcels with an activity type protect.

Section 2a - Protect Parcel with Bldgs

No parcels with an activity type protect and has buildings.

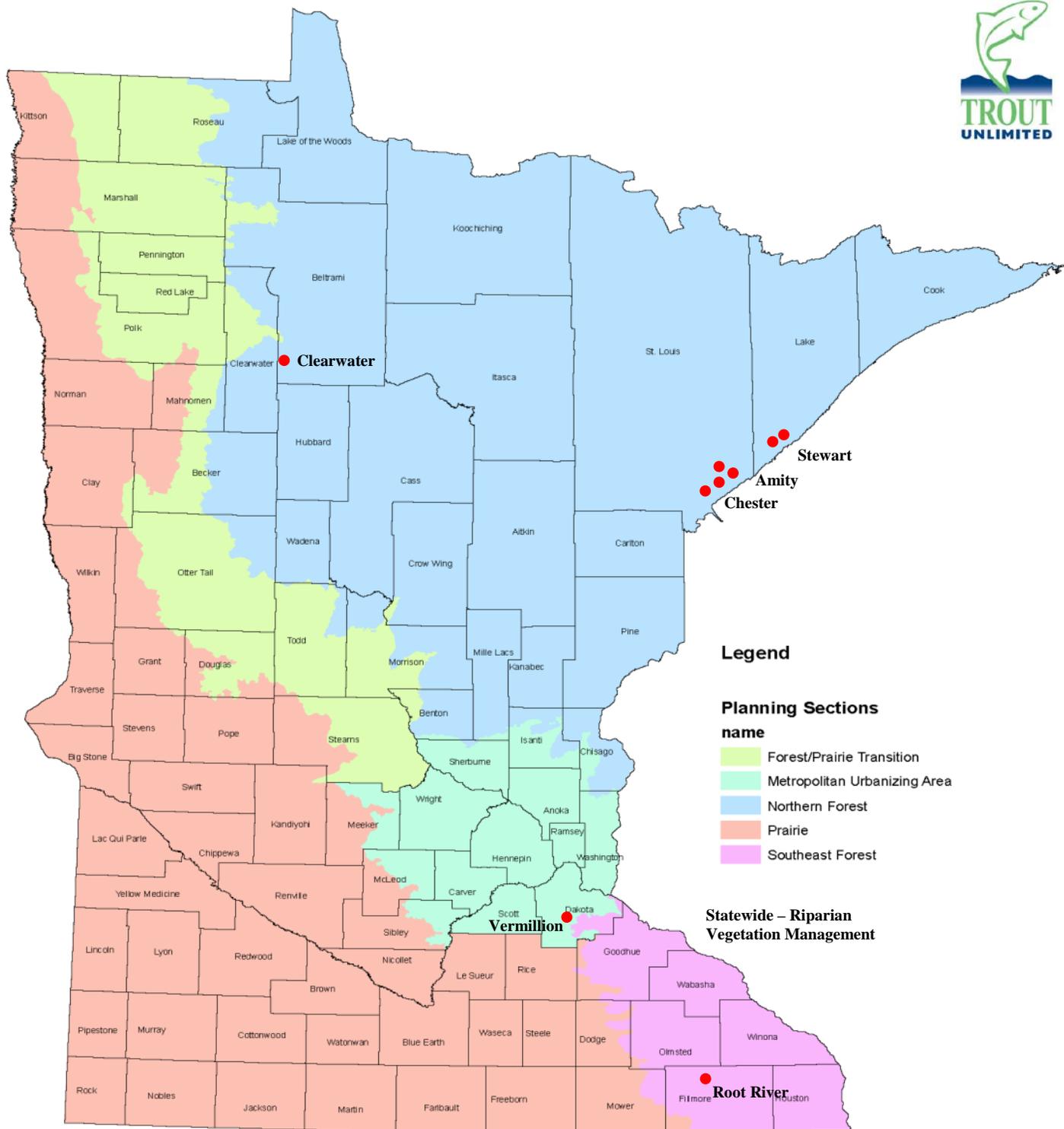
Section 3 - Other Parcel Activity

No parcels with an other activity type.



Minnesota Trout Unlimited Coldwater Fish Habitat Enhancement, Phase 6

- Legend
- Protect in Easement
 - ▲ Protect in Fee with PILT
 - Protect in Fee W/O PILT
 - ★ Restore
 - ✕ Enhance
 - +



Locations of Fy2016 Coldwater Habitat Projects Proposed by Minnesota Trout Unlimited

Individual Project Descriptions - Minnesota Trout Unlimited - Fiscal Year 2016

This attachment briefly summarizes the priority habitat enhancement projects which Minnesota Trout Unlimited proposes to complete using FY 2016 funding from the Outdoor Heritage Fund. Additional priority habitats projects may be completed depending upon funds leveraged and construction efficiencies realized. Actions to be performed, opportunities seized and partnerships being fostered are outlined. All projects will enhance and/or restore habitat on existing public property, on land permanently protected by a conservation and management easement under the aquatic management area system, or in public waters. No acquisitions are involved.

Northern Forest Section

Amity Creek, East Branch of Amity Creek and West Branch of Amity Creek (St. Louis)

Duluth area streams were hammered by unprecedented flooding in June 2012, decimating what had been good brook trout habitat and leaving most streams with very unstable channels. Flood relief funding, channeled through BWSR, has been allocated to stabilize many stream banks, but is not available to restore decimated trout habitat. Minnesota TU has worked with the City of Duluth to seize the fleeting opportunity which construction will present to convert isolated bank stabilization work into full scale trout habitat restorations. We have agreed upon an approach of revising designs and pairing the City's planned construction effort in such a way that habitat funding (just 25% of the total) will transform these projects into high quality habitat projects at a fraction of the typical cost. Nearly three miles of habitat will be restored on historically good brook trout waters.

More than two miles of Amity Creek, East Branch of Amity Creek and West Branch of Amity Creek will be restored by incorporating principles of natural channel design into design and construction. Entire reaches of the stream channels, not just isolated banks, will be stabilized and will incorporate cover rock, root wads, and other good trout habitat. The project sites are located above Skyline Parkway, behind Hawk Ridge, as well as along the scenic Seven Bridges Road which follows Amity Creek down the hillside to Lake Superior. This is a very popular area for outdoor recreation and well used by citizens and tourists alike.

Chester Creek (St. Louis)

The 3,700 foot long project stretches from Kenwood Avenue to Skyline Parkway Scenic Byway and encompasses all of the popular Chester Bowl Park. We will coordinate our efforts with the DNR and City to ensure the best possible trout habitat is created. This setting is a short hike or bike ride for thousands of kids and families. If construction

costs turn out to be lower than budgeted for on this and the Amity Creek projects, we will pursue other good opportunities to improve more historic brook trout water.

Clearwater River (Beltrami)

The Clearwater River is a highly utilized trout stream in Beltrami County, MN, an area of the state with few remaining trout waters. The project is located within a 7 mile stretch of contiguous, publicly accessible trout water. A handicap-accessible boardwalk and fishing platforms were constructed on nearby public land in 2004, which was one of the first such projects constructed in the state of Minnesota. Public use of the resource is significant due to its proximity to the population center of Bemidji, MN and the rather limited coldwater resources and stream trout fishing opportunities in Northwest Minnesota.

While much of the river corridor remains healthy, negative impacts from human activities are evident in some reaches of the Clearwater River. The project is located on the site of an old logging splash dam, and has been used as a cattle pasture since the 1950s. The site contains some of the most degraded habitat in this stream. Indeed, the MNDNR recently completed an assessment of the entire river and identified this site as the top priority for habitat restoration.

The pastured site is heavily grazed with no cattle exclusion from the Clearwater River and is a significant source of nutrient runoff and sedimentation. The stream banks have been denuded and trampled down due to overgrazing. The stream channel is braided and overly wide, and no longer conveys the river's sediment load. The overly wide and shallow channel contributes to warming of the river, provides little trout cover (depth) and its substrates, essential for food production and spawning, are buried.

We will work with the DNR to restore proper channel dimensions and stabilize stream banks on 2,000 linear feet of the Clearwater River using natural channel design methods. Work will include using toe wood to stabilize banks, providing fish habitat improvements and promote scouring of the stream channel through the placement of rock and/or log vanes.

We will restore/enhance the riparian corridor to provide channel stability, shading, future inputs of woody cover, and to intercept runoff from the pasture. Exclusion fencing will be installed to keep cattle out of the riparian corridor while still allowing cattle to access water at a controlled crossing (a riffle which will provide good aquatic food production). Design and permitting in 2015 will enable construction in summer 2016.

Stewart River Watershed (Lake)

The Stewart River, located outside Two Harbors, MN, is known for its productive and popular steelhead fishery. MNTU's Fy2013 appropriation from the OHF included dollars for two projects on the Stewart River designed to improve habitat for juvenile steelhead and other salmonids and restore riparian canopy to lower water temperatures. MNTU successfully leveraged this state funding to secure federal Great Lakes Restoration funding. A portion of the federal funding is being used to hire a watershed coordinator from the community to engage landowners and area residents in a comprehensive, watershed scale effort to improve water quality, hydrology and aquatic habitat. A major goal of the watershed effort is to slow the flow of water on the landscape and increase water storage capacity, including through reforestation efforts.

A. Forest habitat enhancement.

Like other North Shore rivers, human alterations of the watershed cause the Stewart River to experience unnaturally high water temperatures in the summer. North Shore trout streams, unlike those in southeast Minnesota, lack significant groundwater flows and are kept cold by the shade provided by trees along their banks. Without cold water steelhead and trout will perish. This project component will increase shade cover by planting a mixture of long lived tree species, both coniferous and deciduous, within the riparian corridor. One mile of riparian corridor will be planted by watershed residents, Minnesota Trout Unlimited members and other volunteers.

We will plant several long lived tree species appropriate to the site. By planting a mix of larger potted and bare root trees the project will quickly begin providing shade and help reduce summer water temperatures. Due to rough terrain and accessibility little maintenance can be accomplished once volunteers have hauled trees in by hand and planted them. Consequently matting must be used to keep weed growth down, and the larger trees caged or bud capped to inhibit deer browsing losses.

Tree plantings will remedy the pressing threat of elevated water temperatures relatively quickly, and help sustain the coldwater fisheries by providing many other benefits, including: stabilizing the stream channel, curbing erosion and sedimentation, providing a source of future in-stream cover habitat as trees eventually recruit to channel, energy inputs via leaf litter to drive the food chain for juvenile trout and steelhead. Efforts to restore healthier riparian forests in northern parts of the state are often hampered by unnaturally high beaver densities tied to second or third growth forest conditions. To prevent inundation of planted areas, as well as to prevent excessive warming of the water, some beaver management may also be undertaken.

A key finding of a technical team organized by the Minnesota Forest Resources Council is that land use changes, including land conversion from forests to agriculture and high

rates of forest harvesting in sub-watersheds, lead to an increase in channel-forming bankfull flows that destabilize channels. It further noted that managing forests to keep no more than 50% of hydrologically significant sub-watersheds in young forest or open land is key to preventing increased peak flows, channel scour and sedimentation which degrade trout habitat. An important means of sustaining and improving trout fisheries is to strategically replant areas declining to brush and grass. The Lake County Land Department, which is a major land manager in the watershed, has embraced our efforts to improve aquatic resources by restoring forest cover. Working with the Lake County Forestry we have identified a key site where restoration of degraded forest habitat will not only protect and restore forest cover in riparian areas (a Statewide Funding Priority identified by the LSOHC) but also improve hydrology and base flow vital to sustaining and improving the coldwater fisheries. Seventy-six acres of forest will be planted, in addition the narrower riparian corridor which volunteers will plant.

B. In-stream habitat work

A 3,000' reach of the Stewart River which was decimated by the June 2012 flood will be restored in partnership with the DNR and Lake County SWCD. The project will use natural channel design methods and is being designed by the preeminent national expert in stream restoration. Approximately \$600,000 in other funding is being leveraged for this project and related work improving habitat conditions for trout and steelhead in the watershed. Trout habitat restoration work will take place in summer 2016.

Metro Urbanizing Section

Vermillion River (Dakota)

The project will enhance habitat on a new 62 acre Aquatic Management Area which the DNR recently acquired using Outdoor Heritage Funds and other funding. The Vermillion River is a unique urban trout fishery located in Dakota County within a half-hour drive of downtown St. Paul. This large river harbors a self-sustaining population of trophy-sized brown trout. The number of large trout per mile rivals any stream in the state, with some fish approaching 30 inches in length. Its close proximity the majority of the state's residents ensures significant use by metro anglers, hunters and wildlife watchers who do not always have time for a several-hour drive. As a general use AMA, the parcel is open to both angling and hunting.

Twenty-five Trout Unlimited volunteers have already been busy cutting invasive buckthorn and box elder in the tangled riparian corridor. Additional work days are already planned for this fall and early next spring to tackle these invasive species and set the table for in-stream work. We anticipate this forest habitat enhancement may be completed on as much as 30 acres of this mixed site.

The South Branch of the Vermillion River provides spawning and thermal refuge habitat for wild trout, especially during the summer. This reach currently has limited spawning and holding cover for trout due to an accumulation of sand and fine sediment. The stream appears to be overly wide and incapable of properly transporting sand and sediment through the site. The sand smothers substrates important for food production, YOY trout habitat and spawning areas, and fill holes which would otherwise provide deep cover habitat.

Habitat will be enhanced by narrowing the channel in places to improve sediment transport. This should expose gravel and cobble substrates used for spawning, food production and year-round habitats for young trout and other species. Flood plain connections will be reestablished adding wetland habitats which benefit wildlife and other species. Cover rock and logs may also be used to encourage scour and provide more adult trout habitat. In-stream work will be done during low water conditions in summer 2016. We may also partner with Pheasants Forever and local sportsmen's groups on the grassland habitat work.

Statewide

Habitat enhancement through riparian vegetation management

Many trout stream corridors are being choked by shallow rooted, invasive trees which are severely limiting macroinvertebrate (food) production and trout abundance in the streams. In-stream conditions and riparian wildlife will often benefit from removal of this detrimental canopy and allow a return to more deeply rooted riparian grasses and beneficial sunlight, which triggers the food production cycle. Many streams with good groundwater input need only this vegetation management to improve habitat and allow the streams to naturally narrow and deepen.

A prioritized list of stream corridors needing vegetative treatment is being prepared by the DNR with input from Minnesota Trout Unlimited. Sites will be selected which do not need other, more extensive measures such as major bank sloping. Treatment methods will vary based upon site conditions and may include logging, brushing, controlled burns, and herbicide applications. Efforts to restore healthier riparian forests in northern parts of the state are often hampered by unnaturally high beaver densities tied to second or third growth forest conditions. To prevent inundation of planted areas, as well as to prevent excessive warming of the water, some beaver management may also be undertaken.

Southeast Forest Section (Driftless area)

Root River (Fillmore)

We will improve habitat along a 1.4 mile reach of the South Branch of the Root River which flows through the City of Preston, MN. The river is heavily utilized by residents, being in

located no more than 500 yards from any home in Preston. It is also a popular angling destination and is readily accessible via the Root River Trail, which runs along its entire length.

The South Branch of the Root River is a larger river with highly variable flows ranging from winter lows of 50 cfs to high spring and summer floods which can exceed 9,000 cfs. The sheer force of the river dictates the use of larger in-stream structures, such as rock "J hooks", than the wooden structures used on smaller streams. Project design and related work will be done by McGhie & Betts in Rochester, MN, building upon draft designs. Design input will be obtained from the DNR and MNTU and the design approved by MNTU. Construction will occur in summer 2016. There are numerous partners on the project, several providing substantial in-kind contributions. The entire 1.4 mile project is on public land and will be maintained by the City of Preston.