

Lessard-Sams Outdoor Heritage Council

Fiscal Year 2019 / ML 2018 Request for Funding



Date: May 25, 2017

Program or Project Title: Knife River Habitat Rehabilitation-Phase III

Funds Requested: \$3,600,000

Manager's Name: Kevin J. Bovee

Title: Secretary/Grant Manager

Organization: Lake Superior Steelhead Association

Address: P. O. Box 16034

City: Duluth, MN 55816

Office Number: 218-525-5960

Email: outriderduluth@msn.com

Website: www.steelheaders.org

County Locations: Lake, and St. Louis.

Regions in which work will take place:

- Northern Forest

Activity types:

- Enhance

Priority resources addressed by activity:

- Wetlands
- Forest
- Habitat

Abstract:

Poor historic forestry practices in the Knife River watershed have degraded trout habitat and resulted in a TMDL exceedance for turbidity. The LSSA proposes to locate, assess and rehabilitate identified stream impacts within the watershed. The LSSA will use the new MPCA and Natural Channel Design evaluation criteria to rank and prioritize locations for rehabilitation. Our major focus will be stabilizing streambanks, installation of instream habitat and replanting riparian forest. Only stream sections located on public lands and private lands with DNR easements will be considered for work. See the LSSA supplementary video for more information. www.steelheaders.org/projects.

Design and scope of work:

The Knife River watershed once held one of the largest populations of natural reproducing steelhead in the Great Lakes. Since the late 1970's, the Knife River steelhead population has seen a dramatic decline. One of the reasons for this decline is habitat loss. The habitat loss is a long-term result from historic logging. The pre-settlement forest composition within the Knife River watershed consisted primarily of old growth coniferous trees. Extensive clear-cut logging removed the old growth trees throughout the watershed, which were replaced by large stands of second growth aspen. This large-scale forest alteration removed the large trees that stabilized the stream banks and attracted unprecedented beaver populations to the watershed due to the new aspen food source. This combination has led to a rapidly deteriorating riparian zone that now includes slumping stream banks, dead trees and remnant beaver meadows. The slumping clay banks have also resulted in a TMDL exceedance for turbidity on the Knife River. Recognizing the threat to the upper river, the DNR started performing limited stream studies. These studies have determined that habitat degradation in the watershed has resulted in poor rearing conditions for juvenile trout.

The goal of this grant is to rehabilitate stream banks, wetlands, fish habitat and riparian zone trees that have been impacted over the past 100 years. The LSSA proposes to use a combination of aerial data (LIDAR) and river surveys to locate and assess impacted stream areas within the Knife River watershed. A field reconnaissance and detailed stream survey using MPCA and Natural Channel Assessment methodology will determine the stream's condition. Impaired areas will be ranked and the most impacted reaches will be rehabilitated. Rehabilitation projects will be conducted by using design/build construction following Natural Channel Design criteria to achieve a

stable stream reach. Our scope of work may include:

- Survey the stream using MPCA and Natural Channel Design methodology.
- Conduct baseline and periodic stream and biological data collection and monitoring on impact areas.
- Track fish movement within the watershed.
- Monitor water temperature and quality.
- Conduct fish shocking.
- Identify erosion areas.
- Measure streamflow.
- Complete permit applications
- Meet with regulators to receive project approvals.
- Conduct stakeholder meetings.
- Remove log jams and beaver blockages to restore connectivity.
- Restore stream flow.
- Create and restore wetlands and off-channel ponds.
- Perform design/build projects to stabilize streambanks, restore channels and install woody debris using natural channel methodology.
- Remove impounded silt and sediments from the streambed.
- Planting of trees and shrubs to restore the overhead canopy.
- Increase spawning and rearing habitat.
- Add large woody debris, rock vanes and “J” hooks into the stream.

The LSSA has been awarded two previous Knife River LSOHC grants and this project will be a continuation of these two phases. During the previous two grant phases, the LSSA has demonstrated its ability to manage the grants and their financial responsibilities. Our project work is consistent with the Minnesota Constitution, statutes and state laws and has been conducted in a transparent fashion using state of the art science.

Which sections of the Minnesota Statewide Conservation and Preservation Plan are applicable to this project:

- H2 Protect critical shoreland of streams and lakes
- H6 Protect and restore critical in-water habitat of lakes and streams

Which other plans are addressed in this proposal:

- Long Range Plan for Fisheries Management
- National Fish Habitat Action Plan

Describe how your program will advance the indicators identified in the plans selected:

The LSSA's Knife River Habitat Rehabilitation project aligns with Chapters 3.3, 7, 8 and Addendum #1 in the DNR's Ten Year Lake Superior Management Plan (LSMP) revisions. The LSMP written goals lists aspects of our project in its brook, brown and rainbow trout sections and the stream habitat section. This plan also states LSOHC funds can be used to improve stream habitat using Natural Channel Design methods. This project also benefits the watershed's forest by replanting lost old growth tree species. The trees we propose planting are long lived tree species including white spruce, tamarack, silver maple, red maple, river birch, yellow birch, red oak and swamp white oak. Our tree planting will include a “climate assisted migration” tree specie component to help alleviate potential changes in the riparian zone tree community due to climate change. Finally, we will also plant the riparian understory with shrubs and pollinator species.

Which LSOHC section priorities are addressed in this proposal:

Northern Forest:

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

Describe how your program will produce and demonstrate a significant and permanent conservation legacy and/or outcomes for fish, game, and wildlife as indicated in the LSOHC priorities:

The LSSA's Knife River steelhead rehabilitation project utilizes a restoration technique called Natural Channel Design (NCD). NCD methodology not only rehabilitates trout habitat, but also restores the stream's channel and stabilizes its banks. NCD uses a stepwise process to rehabilitate a stream reach. The first step is to perform a rapid assessment to identify stream impacts. Once the impacted stream reaches are identified, the sites are ranked and prioritized based on their ability to improve both water quality and trout habitat. Projects that can satisfy both restoration criteria are selected for rehabilitation making our project multidimensional.

Once an impacted stream reach is selected, a detailed assessment and survey is performed to collect data to compare the degraded stream reach to more stable stream reaches. The assessment data collected for this project include: stream width to depth ratios, bankfull elevation, erosion calculations, longitudinal profile, cross-sectional elevations and pebble counts.

After the assessment and survey are completed, the project's goal is to restore the impacted stream section and bring the channel back to stable state. This is accomplished by creating new floodplains, realigning the stream's shape and configuration, resizing the channel dimensions and profile and installing trout habitat features.

The creation of these new stream features allows floodwaters to crest the new streambank instead of eroding the face of an unstable slope. The result is a stream with a narrower and deeper channel. This new channel design is self-maintaining because it transports sediment to maintain deeper pools, which creates better trout habitat.

Describe how the proposal uses science-based targeting that leverages or expands corridors and complexes, reduces fragmentation or protects areas identified in the MN County Biological Survey:

The LSSA has assessed the Knife River water temperature to determine which stream sections support trout production. Our temperature monitoring uses data loggers to record water temperature every hour over a four-month summer time period. This assessment data has allowed the LSSA to conclude where the Knife River has suitable water temperature conditions to support trout survival. By overlaying this data on our watershed map, we have created what we call "trout zones".

After we mapped these "trout zones" in the Knife River, we realized that the upper watershed had the coolest water temperatures suitable for the growth of trout, the middle watershed had warmer water temperatures that were stressful for trout and the lower watershed had the hottest water that is lethal for trout. This data is being used in two ways. One, it tells us to avoid performing construction projects in the lower watershed because the summertime water temperatures are lethal for trout. So even if we created the best in-stream habitat features in the lower watershed, the water temperature would not allow for juvenile trout survival. Two, it gives us an area where we should construct projects to get the best return on investment.

Another assessment tool that we use is a full biological survey. This survey evaluates the fish population through shocking, invertebrate community through kick nets and using the new MPCA habitat numerical assessment protocol. Using the full biological assessment tool allows us to track if our project has had an impact in the stream reach that we are currently working on and if there is a positive impact downstream. It is anticipated after completing several projects, our cool water corridor would extend downstream because the river channel will be narrower and deeper, consist of a canopied riparian zone and have undercut banks. So over time, once the cool water corridor is extended downstream, the "trout zone" should increase on the Knife River. If our hypothesis is correct, our temperature and biological monitoring will open new areas to perform stream habitat improvement downstream.

How does the proposal address habitats that have significant value for wildlife species of greatest conservation need, and/or threatened or endangered species, and list targeted species:

The Knife River is a unique watershed on Minnesota's North Shore of Lake Superior. While the North Shore has over 60 tributaries that discharge to Lake Superior, only the Knife River does not have a barrier waterfall that limits upstream migration of steelhead or coaster brook trout. This lack of a barrier falls means the Knife River has over 70 miles open to anadromous Steelhead and coaster brook trout habitat.

The Knife River also has another unique feature; according to DNR research by Charles Kruger, the Knife River has a genetically distinct strain of steelhead. Not only are these steelhead genetically distinct from other North Shore watersheds, but the Knife River steelhead are genetically distinct within its watershed. So this means that Main Knife River steelhead are genetically different than steelhead that are produced in its tributaries of Stanley Creek, McCarthy Creek, Main West Branch, Little West Branch, Captain Jacobson and Little Knife River.

This proposal addresses the uniqueness of the Knife River fishery by enhancing the trout habitat so the steelhead and coaster brook trout are allowed to spawn, rear and migrate back to Lake Superior to grow and mature. This fact is even more critical because the Knife River is no longer stocked with trout. Stocking was discontinued in the Knife River to protect the unique genetics of over 100 years of natural steelhead production. Essentially the Knife River is a natural wild fish hatchery that continues to genetically evolve.

Identify indicator species and associated quantities this habitat will typically support:

The upper Knife River watershed is a cool water stream that is very conducive to trout production. However in the summer the water temperatures in the lower sections of the Knife River heat up to lethal conditions, and its lower named tributaries, the Little Knife River and Stanley Creek, can go dry during abnormally hot or dry summers.

The lower Knife River and its downstream tributaries are currently not conducive to trout production due to these warm summertime

water temperatures and this region has a survival rate of essentially zero. Our previous LSOHC habitat grant projects have performed limited evaluation into the potential of this area and to potentially extend the cool water “trout zone” downstream into this lower river region. If we could extend the cool water zone downstream to this region, the creation of trout habitat would be tremendous and far exceed anything we could do in the upper watershed.

The lower region does have some positive factors in its favor. These stream factors include good stream flow, more water volume, and deeper pool depths than the upper or middle trout zones. In theory, trout production could go from its current state of essentially zero fish to several hundred fish per river mile if this habitat could be converted from a warm water regime to one with cooler flow. This increase in stream habitat would also greatly exceed the DNR’s long term goal of 7,500 (2 year old) fish stated in the 2016 LAMP revisions.

Outcomes:

Programs in the northern forest region:

- Healthy populations of endangered, threatened, and special concern species as well as more common species *Outcomes will be measured by conducting a baseline assessment and periodic post-construction assessment(s) as necessary. All baseline and post-construction assessments will follow the MPCA Stream Habitat Assessment (MSHA) protocol. This MSHA protocol uses a standardized form to evaluate land use, riparian zone width, bank erosion, percent shade, substrate, embeddedness, siltation, cover type, cover amount, channel depth, channel stability, flow velocity, sinuosity, pool width, channel development and stream modifications. The final MSHA protocol derives a numeric value or score for the stream reach so habitat changes can be evaluated overtime and tracked using standardized scientific criteria as a basis for comparison.*

How will you sustain and/or maintain this work after the Outdoor Heritage Funds are expended:

A critical component of this project is to insure beaver do not re-impact areas that have been rehabilitated. To insure that these project areas are maintained after the project is complete, annual helicopter flights are conducted to insure beavers do not re-colonize the project areas. These beaver flights are conducted in late autumn by the DNR as they have been previously for over 15 years. If dams or beaver activity is noted in the annual flight, the DNR will contract with Federal trappers to remove the beavers and notch their dams. The estimated cost of the flight, beaver removal and dam notching throughout the entire Knife River watershed is approximately \$15,000. If the DNR loses funding for this project, the TMDL implementation plan has budgeted \$35,000 annually for this task. Included in this budget is beaver flights, trapping, dam notching and supplemental tree planting.

Explain the things you will do in the future to maintain project outcomes:

Year	Source of Funds	Step 1	Step 2	Step 3
July 1, 2018 - June 30, 2019	DNR	Beaver Flights	Beaver Trapping	N/A
July 1, 2018 - June 30, 2019	LSSA	N/A	Beaver Trapping	Tree Planting
July 1, 2019 - June 30, 2020	DNR	Beaver Flights	Beaver Trapping	N/A
July 1, 2019 - June 30, 2020	LSSA	N/A	Beaver Trapping	Tree Planting
July 1, 2020 - June 30, 2021	DNR	Beaver Flights	Beaver Trapping	N/A
July 1, 2020 - June 30, 2021	LSSA	N/A	Beaver Trapping	Tree Planting
July 1, 2021 - June 30, 2022	DNR	Beaver Flights	Beaver Trapping	N/A
July July 1, 2021 - June 30, 2022	LSSA	N/A	Beaver Trapping	Tree Planting

What is the degree of timing/opportunistic urgency and why it is necessary to spend public money for this work as soon as possible:

The LSSA has completed two previous LSOHC grant phases to get to this stage where major construction on several streambanks can occur. We have worked closely with the DNR to develop a protocol to accurately and efficiently assess, design and permit the restoration work. By delaying construction, the eroding streambanks will get worse and continue to discharge sediment into the stream, further impacting water quality and costing more money to rehabilitate.

The other reason timing is so critical is to reestablish the lost riparian canopy. A major component of rehabilitating a trout stream is to restore a mixed overhead canopy. This canopy takes 5 to 10 years for shrubs and 25 to 75 years for large trees to reestablish. The reestablishment of riparian cover is critical to minimize the colonization of invasive species, such as reed canary grass and buckthorn

that are already present in the watershed.

How does this proposal include leverage in funds or other effort to supplement any OHF appropriation:

The LSSA has used our charitable gaming funds to perform over \$500,000 for Knife River restoration work prior to the Legacy Amendment being passed. This funding donated money to the DNR for the Knife River fish traps, population assessments and creel census on the Knife River, stream access stairs and walking platforms to reduce bank erosion, signs to highlight regulation changes, in stream restoration, trees, tree planting materials and labor and stocking of fish.

We continued to use our gaming funds to supplement our first two phases of this LSOHC grant. The LSSA has spent is approximately \$60,000 to fund grant work on private, non-easement property design on the second falls restoration project and creation of an educational/promotional video on our Grant Funded Projects. The LSSA has also spent approximately \$20,000 on beaver flights, dam removal and beaver trapping in the watershed.

Finally, the LSSA has provided a large in-kind volunteer effort. This in-kind donation has amounted to over \$60,000 for equipment use and rental, volunteer labor, meals, travel and other expenses. The LSSA anticipates contributing \$50,000 a year to this project in the form of payments and in-kind donations.

Relationship to other funds:

- Clean Water Fund
- LCMR, GLRI, DNR

Describe the relationship of the funds:

In 2012 Legacy Clean Water Fund and Great Lakes Commission provided funds to the Lake County Soil and Water Conservation District for the Knife River watershed's private stream sections. this money was used to stabilize slumping clay banks as part of the TMDL implementation plan. This money was awarded to the Lake County SWCD. The Lake County SWCD has also received three buckthorn removal grants to protect the Knife River riparian zone.

The LSSA and SWCD have been working cooperatively on separate sections of the KnifeRiver to insure the entire watershed is addressed and improved. The LSSA is primarily working on the upper river habitat on public lands and private lands with DNR easements in place while the SWCD is working on the lower river sections and concentrating on private lands.

Describe the source and amount of non-OHF money spent for this work in the past:

Appropriation Year	Source	Amount
Fy 2012	Great Lakes Comission (GLRI) Hawk Hill Road Project	\$ 293,000.00
Fy 2012	Clean Water Fund-Copperhead Road Project	\$ 212,000.00
Fy 2015	LCMR-Buckthorn	\$ 54,000.00
Fy 2016	DNR-Buckthorn	\$ 12,800.00
Fy 2017	Clean Water Fund-Buckthorn	\$ 144,000.00

Activity Details

Requirements:

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

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

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 (County/Municipal, Public Waters)**

Do you anticipate federal funds as a match for this program - **Yes**

Are the funds confirmed - **No**

What is the approximate date you anticipate receiving confirmation of the federal funds - **Uncertain. We will be applying for the**

SOGL grant program and application is usually the end of February each year with awarding in June of that year.

Land Use:

Will there be planting of corn or any crop on OHF land purchased or restored in this program - **No**

Accomplishment Timeline

Activity	Approximate Date Completed
Biological Assessments	July 1, 2018 - June 30, 2022
Reach Survey, Project Design and Regulatory Permitting	July 1, 2018 - June 30, 2022
Design, Build, Restoration and Construction Activities	June 15, 2019 - June 30, 2022
Tree/Shrub Planting	July 1, 2018 - June 30, 2022

Budget Spreadsheet

Total Amount of Request: \$3,600,000

Budget and Cash Leverage

BudgetName	LSOHC Request	Anticipated Leverage	Leverage Source	Total
Personnel	\$360,000	\$30,000	Private Source-LSSA	\$390,000
Contracts	\$2,595,000	\$50,000	Private Source-LSSA	\$2,645,000
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	\$0	\$25,000	Private Source-LSSA	\$25,000
Professional Services	\$10,000	\$25,000	Private Source-LSSA	\$35,000
Direct Support Services	\$360,000	\$0	Private Source-LSSA	\$360,000
DNR Land Acquisition Costs	\$0	\$0		\$0
Capital Equipment	\$0	\$0		\$0
Other Equipment/Tools	\$25,000	\$10,000	Private Source-LSSA	\$35,000
Supplies/Materials	\$250,000	\$5,000	Private Source-LSSA	\$255,000
DNR IDP	\$0	\$0		\$0
Total	\$3,600,000	\$145,000	-	\$3,745,000

Personnel

Position	FTE	Over # of years	LSOHC Request	Anticipated Leverage	Leverage Source	Total
Grant Manager & Asst. Manager	0.70	4.00	\$360,000	\$30,000	Private Source-LSSA	\$390,000
Total	0.70	4.00	\$360,000	\$30,000	-	\$390,000

Amount of Request: \$3,600,000
 Amount of Leverage: \$145,000
 Leverage as a percent of the Request: 4.03%
 DSS + Personnel: \$720,000
 As a % of the total request: 20.00%
 Easement Stewardship: \$0
 As a % of the Easement Acquisition: -%

How did you determine which portions of the Direct Support Services of your shared support services is direct to this program:

Direct Support Service costs related to the grant project will be billed to the grant. Auxiliary Support Service costs relating to the grant project that are not billed to the grant will be considered LSSA Leverage or an in-kind donation. Indirect overhead costs will not be billed or included as LSSA Leverage or an in-kind donation to this grant.

Does the amount in the contract line include R/E work?

N/A

Describe and explain leverage source and confirmation of funds:

Lake Superior Steelhead Associations's charitable gaming account, general fund and in-kind d. Allocated by LSSA board approval. Other Knife River leverage estimated at \$ 150,000: DNR: weirs, creel census, stream shocking, temperature monitoring, beaver flights/dam removal, steelhead relocation, easement work. County forestry department also contributes.

Does this proposal have the ability to be scalable? - Yes

Tell us how this project would be scaled and how administrative costs are affected, describe the "economy of scale" and how outputs would change with reduced funding, if applicable:

We have several phases of work included in this grant. Project work would be scaled back to meet the funding level received.

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	0	900	900
Total	0	0	0	900	900

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	\$0	\$3,600,000	\$3,600,000
Total	\$0	\$0	\$0	\$3,600,000	\$3,600,000

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	0	0	0	0	900	900
Total	0	0	0	0	900	900

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	\$0	\$0	\$0	\$0	\$3,600,000	\$3,600,000
Total	\$0	\$0	\$0	\$0	\$3,600,000	\$3,600,000

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	\$0	\$4,000

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	\$0	\$0	\$0	\$0	\$4,000

Target Lake/Stream/River Feet or Miles

Approximately 19 miles of the Main Knife River stem and 16 miles of the Main West Branch may be affected.

I have read and understand Section 15 of the Constitution of the State of Minnesota, Minnesota Statute 97A.056, and the Call for Funding Request. I certify I am authorized to submit this proposal and to the best of my knowledge the information provided is true and accurate.

Parcel List

Explain the process used to select, rank and prioritize the parcels:

The LSSA's selected parcel list is based from data collected during our Knife River assessments. The assessments identified several areas where various degrees of rehabilitation work could be performed. After identifying these impacted parcels, the impacts have been ranked and prioritized so we rehabilitate the worst impacts, upstream impacts and impacts that can solve multiple watershed problems. Finally, the ranking takes into account if the parcel is public or private that contains an easement.

Section 1 - Restore / Enhance Parcel List

Lake

Name	TRDS	Acres	Est Cost	Existing Protection?
Knife River	05211204	0	\$0	Yes
Knife River	05211205	0	\$0	Yes
Knife River	05211208	0	\$0	Yes
Knife River	05211209	0	\$0	Yes
Knife River	05211217	0	\$0	Yes
Knife River	05211218	0	\$0	Yes
Knife River	05211219	0	\$0	Yes
Knife River	05212224	0	\$0	Yes
Knife River	05212225	0	\$0	Yes
Knife River	05311205	0	\$0	Yes
Knife River	05311207	0	\$0	Yes
Knife River	05311208	0	\$0	Yes
Knife River	05311217	0	\$0	Yes
Knife River	05311218	0	\$0	Yes
Knife River	05311220	0	\$0	Yes
Knife River	05311229	0	\$0	Yes
Knife River	05311232	0	\$0	Yes
Knife River	05311233	0	\$0	Yes
Knife River	05411232	0	\$0	Yes
Main West Branch	05211205	0	\$0	Yes
Main West Branch	05211206	0	\$0	Yes
Main West Branch	05211208	0	\$0	Yes
Main West Branch	05212201	0	\$0	Yes

St. Louis

Name	TRDS	Acres	Est Cost	Existing Protection?
Main West Branch	05312202	0	\$0	Yes
Main West Branch	05312203	0	\$0	Yes
Main West Branch	05312210	0	\$0	Yes
Main West Branch	05312215	0	\$0	Yes
Main West Branch	05312216	0	\$0	Yes
Main West Branch	05312223	0	\$0	Yes
Main West Branch	05312227	0	\$0	Yes
Main West Branch	05312228	0	\$0	Yes
Main West Branch	05312234	0	\$0	Yes
Main West Branch	05312235	0	\$0	Yes
Main West Branch	05312236	0	\$0	Yes
Main West Branch	05412235	0	\$0	Yes
Main West Branch	05412236	0	\$0	Yes
Main West Branch	05312222	0	\$0	Yes

Section 2 - Protect Parcel List

No parcels with an activity type protect.

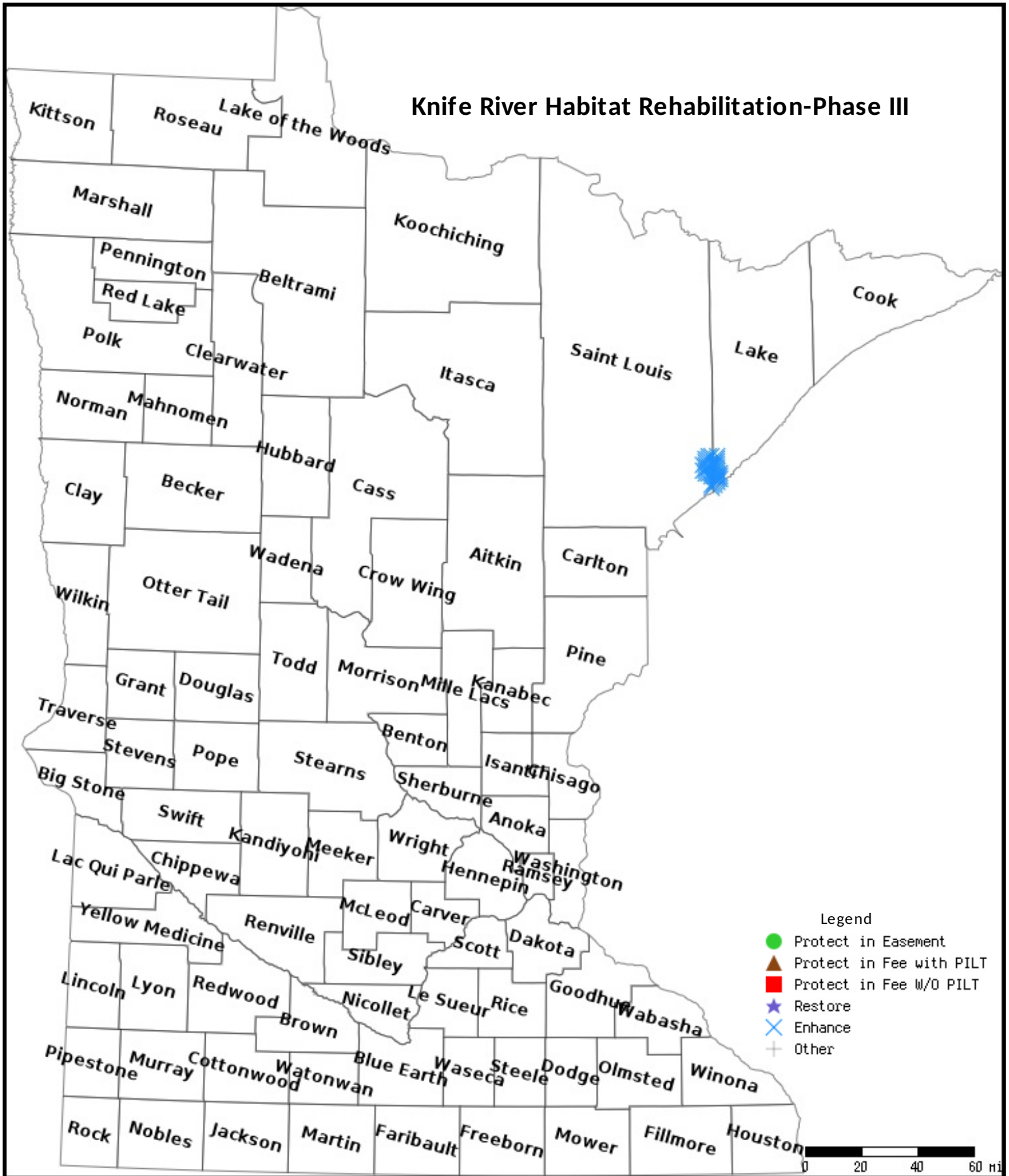
Section 2a - Protect Parcel with Bldgs

No parcels with an activity type protect and has buildings.

Section 3 - Other Parcel Activity

No parcels with an other activity type.

Parcel Map



Data Generated From Parcel List

The LSSA's Knife River steelhead rehabilitation project utilizes a restoration technique called Natural Channel Design (NCD). NCD methodology not only looks to rehabilitate trout habitat, but also restores the stream's channel so the stream functions at a more stable state. The first step is to perform a rapid assessment to identify impacted stream reaches. Once the impacted stream reaches are identified, the potential projects are prioritized and ranked based on their ability to improve both water quality and trout habitat. Projects that can satisfy both restorations criteria are selected for rehabilitation.



After an impacted section of stream is selected for rehabilitation, a detailed assessment and survey is performed to collect data to compare the degraded stream reach to more stable stream reaches. The assessment data collected for this project included: stream width to depth ratios, bankfull elevation, erosion calculations, longitudinal profile, cross-sectional elevations and pebble counts. After the assessment and survey are completed, the project's goal is to restore the impacted stream channel back to stable. This is accomplished by creating new floodplain and streambank elevations, realigning the stream's shape and configuration, resizing the channel dimensions and profiling and installing trout habitat features.

Historic stream projects used standard construction techniques like rip rap banks, concrete dams, steel weirs and metal culverts. NCD restoration projects use only natural materials, such as tree trunks, root wads, brush bundles, boulders, coconut matting, straw bales, soil and seed as the raw construction materials. The use of these natural materials not only stabilizes the stream, but also provides important substrate for trout and other aquatic life.



NCD methodology is so successful because by restoring the channels shape and profile to stable dimensions, stream function is maximized for the given site constraints. The restored stream channel can now withstand floods by redirecting the current flow away from its banks into the center of the stream channel. This reconfigured streamflow allows for the dissipation of floodwaters and the transport of sediment. This holistic watershed rehabilitation ultimately creates and maintains better trout habitat.

Proposed Project Locations



Reach 4 Eroding Streambanks



Upper Headwaters Spawning Area

Joel Coolidge
1443 Hwy. 12
Two Harbors, MN 55616

May 22, 2017

Lessard-Sams Outdoor Heritage Council

To Whom It May Concern:

I was asked by the Lake Superior Steelhead Association if I would write a letter of support for the project on the Knife River that took place on our property last summer.

I was first contacted in late 2015 regarding the LSSA's interest in working on the eroding clay towards the west end of our property along the Knife River. At that point a stream assessment was just underway and I would be contacted when plans were farther along for review but I did express our interest with the project.

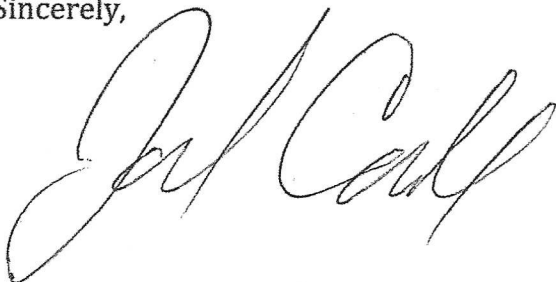
After reviewing the plans and again visiting the site in the spring of 2016, we agreed to proceed with the project. An Access Agreement was signed and work took place over the summer of 2016,

The LSSA kept us abreast of the project through many phone calls and in-person visits. Once the project began, all aspects of the construction unfolded as promised. The LSSA stayed in close contact with us on schedules and kept us abreast of the progress. The LSSA also restored all damage to the property as a result of equipment mobilization and material handling.

The bank project turned out to be beyond expectations. Once the trees and shrubs take hold and get well rooted, the site will be greatly enhanced and our bank will be well stabilized.

I would like to commend the LSSA on a job well done and offer my support and thanks for the work done on our stretch of the Knife River.

Sincerely,

A handwritten signature in black ink, appearing to read "Joel Coolidge". The signature is fluid and cursive, with the first name "Joel" being larger and more prominent than the last name "Coolidge".

Joel Coolidge

Becky Enfield

From: Sandy Smith
Sent: Tuesday, June 20, 2017 8:21 AM
To: Becky Enfield
Subject: FW: Zeitgeist "Stuff"
Attachments: Zeitgeist FA Interest Letter.pdf; FA Sentence-PH III.docx

From: KEVIN and MARIANNE [mailto:OUTRIDERDULUTH@msn.com]
Sent: Monday, June 19, 2017 4:46 PM
To: Sandy Smith <sandy.smith@lsohc.leg.mn>
Subject: Zeitgeist "Stuff"

Sandy:

Sorry to get back to you so late but Tony has been in meetings most of the afternoon. I am attaching a brief sentence that should go where Joe suggested in Design/Scope; last paragraph after the first sentence and then a copy of a letter from Tony on Zeitgeist letterhead to be added to the attachment portion of the Phase III proposal.

If you have any questions, please feel free to contact me at any time. I have a 7 am DNSSD meeting but will stop back before heading out to the field.

As always, thank you so much for your help.

K.

The LSSA is diligently working with a very reputable, local nonprofit (Zeitgeist Center for Arts & Community) for the purpose of guaranteeing a Fiscal Agent for Phase III of the Knife River Habitat Rehabilitation Project through the Lessard-Sams Outdoor Heritage Council. Please see Zeitgeist letter in Attachments.



June 19, 2017

To Whom it May Concern,

The Zeitgeist Center for Arts & Community is an integrated arts and community development organization in Duluth, MN. We practice the art of growing a connected, healthy community empowered to create and thrive. Our programming is governed by five core commitments: arts and culture, equity, the environment, community, and excellence.

Partnering with the Lake Superior Steelhead Association in the restoration of the Knife River would help advance our mission to grow a healthy community. We believe a healthy community includes a healthy environment, and the streams and rivers that supply Lake Superior are an essential part of our region's community.

The Zeitgeist Center for Arts & Community is excited to further explore the opportunity to serve as the fiscal agent for the Phase III Knife River restoration project, and potentially contribute to the success of this important initiative.

Zeitgeist will take the next number of weeks to ensure we will be able to fully and responsibly meet all the requirements of serving as the fiscal agent. This will require a more thorough review by members of our board of directors, and time to look over the list of suggestions and requirements of serving as a fiscal agent recently shared with us by the state.

Fiscal agency is a service Zeitgeist offers organizations and ad hoc efforts as long as our partnerships in the projects clearly help advance our mission. We also have experience managing large contracts that include a number of subcontracts worth \$450,000 – \$1,250,000. In the case of this project, we are hopeful to have the opportunity to work together. When the State of MN and local, community led organizations work together, great projects can be accomplished.

Best Regards,

Tony Cuneo
Executive Director