

Lessard-Sams Outdoor Heritage Council

Laws of Minnesota 2014 Accomplishment Plan

Date: October 24, 2013

Program or Project Title: Knife River Habitat Rehabilitation Phase II

Funds Recommended: \$ 1,410,000

Manager's Name: Scott Kuiti

Title: Vice President

Organization: Lake Superior Steelhead Association

Street Address: PO Box 16034

City: Duluth, MN 55816-0034

Telephone: 218-727-1492

E-Mail: skuiti@hotmail.com

Organization Web Site: www.steelheaders.org

Legislative Citation:

Appropriation Language:

County Locations: Lake, and St. Louis.

Ecological Planning Regions:

- Northern Forest

Activity Type:

- Enhance

Priority Resources Addressed by Activity:

- Habitat

Abstract:

Degradation to trout habitat in the Knife River Watershed has occurred from past clear-cut forestry practices resulting in uncontrolled beaver colonization. This project will continue work on the West Branch and begin work on other Knife River tributaries.

Design and Scope of Work:

Introduction

The Knife River once held one of the largest populations of natural reproducing steelhead in the Great Lakes and provided spawning habitat in its upper watershed to thousands of steelhead each spring. Since the late 1970's, the Knife River steelhead population has seen a dramatic decrease. Once thousands of steelhead traveled upstream to spawn, now on average five hundred make this same journey. One of the primary reasons for the decrease in the Knife River's steelhead population is the degradation to the upper Knife River watershed riparian habitat.

Habitat Degradation and its Results to the Upper Knife River Watershed

The historic forest composition within the Knife River watershed was old growth coniferous trees. Extensive clear-cut logging removed the old growth coniferous trees throughout the Knife River watershed and were replaced by large stands of second growth aspen. This large-scale forest alteration attracted unprecedented beaver populations to the watershed because of the new food source. Once beavers colonized this area, dams were built blocking the stream flow and flooding the riparian tree cover. The flooded trees and shrubs along the riparian zone quickly died resulting in open water ponds. The impoundment of shallow water and lack of tree cover associated with the beaver pond caused the water temperature to quickly warm and has led to an increase in evaporation. This increase in beaver activity has resulted in 30 plus years of habitat degradation to the upper Knife River watershed.

DNR Habitat Work and Studies Conducted in the Upper Knife River Watershed

Recognizing the threat to the upper river, the DNR started performing limited stream studies. These studies have determined that habitat degradation to the upper watershed has resulted in poor rearing conditions for juvenile trout during the summer months. These poor rearing conditions (increase in water temperature, increase in evaporation and decrease in stream flows) are the direct result of beaver activity/habitat degradation in the Knife River watershed.

Stream Restoration

The LSSA proposes to use existing aerial data to locate and assess the beaver impacted areas on the upper Knife River and its tributaries. The LSSA will discuss and rank the locations for rehabilitation. The area of focus will be spawning tributaries within the Knife River watershed, which include the upper Main Knife River, West Branch, Stanley Creek, McCarthy Creek, Little West Branch, Captain Jacobson, Little Knife River, Little East Branch and Unnamed Tributaries of the Knife River. Only stream sections located on public lands and private lands with DNR easements will be considered for this project. There will not be any work performed on any private land unless a DNR easement is currently in place with an accompanying Stewardship Plan.

A field reconnaissance will be conducted to determine the stream's condition and to design the rehabilitation project. The assessment data that will be collected may include:

- Review aerial photo and GIS maps of beaver impacted areas.
- Mark GPS location of habitat degradation.
- Determine proximity to access points.
- Measure the area of impacted stream.
- Survey the depth of sediment deposition.
- Determine length and thickness of remnant dam(s).
- Survey the stream elevations.
- Quantify the amount of large and small woody debris.
- Calculate the percent of shade covering various stream sections.
- Monitor water temperature.
- Monitor stream flow.
- Document evidence of juvenile fish through shocking and adult spawning activity visually.
- Identify collapsed banks or erosion areas.
- Construct cross-section diagrams.
- Evaluate fish passage and connectivity.

The assessment will enable the LSSA to design the rehabilitation construction/tree planting projects. A draft of the proposed stream rehabilitation project design will be provided to project stakeholders and DNR Fisheries for input on the project.

- Remove in-stream beaver dams and silt deposits, collapsed stream banks and woody debris that inhibit fish migration and negatively alter stream flow.
- Planting of trees to enhance the overhead canopy.
- Removal of invasive vegetation.
- Enhance stream flow connectivity.
- Placement of large woody debris.
- Removal of small woody debris.
- Repair or stabilize eroded stream banks.

The project data and design parameters will be incorporated in a project permit and submitted for approval to the DNR and Army Corp. of Engineers.

Equipment Usage and Project Site Access

The goal of this project is to restore beaver impacted areas within the upper Knife River watershed. To accomplish this goal, mechanical equipment may be used in specified areas that have vehicle access or in logged areas. In areas with vehicle access to the watershed, heavy equipment may be mobilized to remove dams, stabilize stream banks, placement of large woody debris and plant mature trees. These areas will be given a high priority because rehabilitating these stream sections can provide an almost immediate benefit to the watershed.

Tree Planting

Tree planting will be a critical component of this restoration project. Tree planting will be focused on the riparian area of the stream or watershed. In remote areas of the watershed tree planting may be the only reasonable method of restoration employed due to lack of access. Plantings will vary between coniferous and deciduous trees and shrubs. The proposed species will consist of a various arrangement of bare root, potted and large root bundled trees. Some of the tree species that may be utilized include: spruce, tamarack, red pine, silver maple, alder, swamp oak, river birch and red maple. Tree species due to Climate Assisted Migration will also be evaluated.

Black Ash Stand Identification

Black ash stands currently comprise a large percentage of the riparian forest community in various sections of the Knife River watershed, most notably in the headwaters where young trout rear. The State of Minnesota and the Minnesota DNR expect that all ash stands in the state to eventually experience high to total mortality due to an infestation of the emerald ash borer. This project aims to attempt to identify and retain shade cover for the upper Knife River watershed by identifying black ash stands and planting additional tree species within the riparian corridor to diversify the forest. Forest comprised primarily of black ash will be targeted for this component of the project.

Planning:

MN State-wide Conservation Plan Priorities:

- H2 Protect critical shoreland of streams and lakes
- H5 Restore land, wetlands and wetland-associated watersheds
- H6 Protect and restore critical in-water habitat of lakes and streams
- H7 Keep water on the landscape
- LU6 Reduce Upland and gully erosion through soil conservation practices
- LU8 Protect large blocks of forest land
- LU10 Support and expand sustainable practices on working forested lands

Plans Addressed:

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

LSOHC Statewide Priorities:

- Address Minnesota landscapes that have historical value to fish and wildlife, wildlife species of greatest conservation need, Minnesota County Biological Survey data, and rare, threatened and endangered species inventories in land and water decisions, as well as long-term or permanent solutions to aquatic invasive species
- Are ongoing, successful, transparent and accountable programs addressing actions and targets of one or more of the ecological sections
- Ensures activities for "protecting, restoring and enhancing" are coordinated among agencies, non profits and others while doing this important work; provides the most cost-effective use of financial resources; and where possible takes into consideration the value of local outreach, education, and community

- engagement to sustain project outcomes
- Leverage effort and/or other funds to supplement any OHF appropriation
- Produce multiple enduring conservation benefits
- Provide Minnesotans with greater public access to outdoor environments with hunting, fishing and other outdoor recreation opportunities
- Restore or enhance habitat on permanently protected land
- Use a science-based strategic planning and evaluation model to guide protection, restoration and enhancement, similar to the United States Fish and Wildlife Service's Strategic Habitat Conservation model

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
- Provide access to manage habitat on landlocked public properties or protect forest land from parcelization and fragmentation through fee acquisition, conservation or access easement
- Restore and enhance habitat on existing protected properties, with preference to habitat for rare, endangered, or threatened species identified by the Minnesota County Biological Survey
- Restore forest-based wildlife habitat that has experienced substantial decline in area in recent decades

Relationship to Other Constitutional Funds:

- No Relationships Listed

Clean Water Fund money is being used for the Knife River Watershed's middle sections (clay bank sections). This money is being used to stabilize slumping clay banks as part of the TMDL implementation plan. This money has been provided to the South St. Louis Soil and Water Conservation District (SWCD). The LSSA and SWCD are working cooperatively on separate sections of river to insure the entire watershed is improved. The LSSA is primarily working on the upper river spawning and rearing tributaries on public land, while the SWCD is working on the middle river sections (clay bank section) and concentrating primarily on private lands.

Accelerates or Supplements Current Efforts:

This project phase of work will supplement the first grant project. During the first grant project, additional areas of concern were discovered within the West Branch during our assessment and new areas of concern were identified in other Knife River tributaries during stakeholders meetings. This project phase will focus on the new West Branch areas of concern and assess the other Knife River tributaries highlighted by stakeholders.

Sustainability and Maintenance:

A critical component of this project is to insure beaver do not re-impact areas that have been rehabilitated. To insure that the project areas are maintained after the project is complete, annual flights will be conducted to insure beavers do not re-colonize project areas. These beaver flights will be conducted in late autumn by the DNR as they have been previously done for the past 10 to 15 years. If dams or beaver activity is noted in the annual flight, the DNR will contract trappers to remove the beaver. This has also been performed for the past 10-15 years. The estimated cost of the flight and beaver removal throughout the entire Knife River watershed is \$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 are beaver flights and trapping, but also other tasks not included in the DNR budget. These other tasks are re-planting of trees, beaver dam removal and bank repair. These other tasks may not be necessary to be performed or funded annually, but have been listed in the TMDL plan in the event future maintenance and funding is necessary.

Permanent Protection:

Is the activity on permanently protected land and/or public waters per MS 103G.005, Subd.

15? - Yes (Public Waters)

Accomplishment Timeline

Activity	Approximate Date Completed
West Branch Tributary Habitat Enhancement (Beaver Dam Removal, Woody Debris, etc. as listed)	June 30, 2018
West Branch Tributary Habitat Tree Planting	June 30, 2018
Other Knife River Tributary Assessment	June 30, 2018
Black Ash Stand Identification on Knife River Tributaries	June 30, 2018

Outcomes

Programs in the northern forest region:

- Healthy populations of endangered, threatened, and special concern species as well as more common species *This project should increase the native naturally reproducing brook, brown and steelhead populations in the Knife River.*
- Improved aquatic habitat indicators *This project will improve in-stream habitat by installing large woody debris that was lost due to logging of old growth trees.*
- Increased availability and improved condition of riparian forests and other habitat corridors *This project will enhance the lost riparian zone.*
- Greater public access for wildlife and outdoors-related recreation *This project should increase the overall trout population and give anglers more areas to fish and provide better opportunities to catch more fish.*
- Improved availability and improved condition of habitats that have experienced substantial decline *This project will improve stream habitat for brook, brown and steelhead trout.*
- This project will retain water through increased transpiration via tree planting and reduce erosion through streambank stabilization.

Budget Spreadsheet

Budget reallocations up to 10% do not require an amendment to the Accomplishment Plan

Total Amount of Request: \$ 1410000

Budget and Cash Leverage

Budget Name	LSOHC Request	Anticipated Leverage	Leverage Source	Total
Personnel	\$152,000	\$0		\$152,000
Contracts	\$960,000	\$0		\$960,000
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	\$1,000	\$0		\$1,000
Professional Services	\$5,000	\$0		\$5,000
Direct Support Services	\$0	\$0		\$0
DNR Land Acquisition Costs	\$0	\$0		\$0
Capital Equipment	\$0	\$0		\$0
Other Equipment/Tools	\$35,000	\$0		\$35,000
Supplies/Materials	\$257,000	\$0		\$257,000
DNR IDP	\$0	\$0		\$0
Total	\$1,410,000	\$0		\$1,410,000

Personnel

Position	FTE	Over # of years	LSOHC Request	Anticipated Leverage	Leverage Source	Total
Manager	0.50	4.00	\$152,000	\$0		\$152,000
Total	0.50	4.00	\$152,000	\$0		\$152,000

Output Tables

Table 1. 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	612	612
Total	0	0	0	612	612

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	\$1,410,000	\$1,410,000
Total	\$0	\$0	\$0	\$1,410,000	\$1,410,000

Table 3. Acres within each Ecological Section

Type	Metro Urban	Forest Prairie	SE Forest	Prairie	N 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	612	612
Total	0	0	0	0	612	612

Table 4. Total Requested Funding within each Ecological Section

Type	Metro Urban	Forest Prairie	SE Forest	Prairie	N 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	\$1,410,000	\$1,410,000
Total	\$0	\$0	\$0	\$0	\$1,410,000	\$1,410,000

Table 5. Target Lake/Stream/River Miles

51 miles

Parcel List

For restoration and enhancement programs ONLY: Managers may add, delete, and substitute projects on this parcel list based upon need, readiness, cost, opportunity, and/or urgency so long as the substitute parcel/project forwards the constitutional objectives of this program in the Project Scope table of this accomplishment plan. The final accomplishment plan report will include the final parcel list.

Section 1 - Restore / Enhance Parcel List

Lake

Name	TRDS	Acres	Est Cost	Existing Protection?
West Branch of Knife River and other tributaries of the Knife River	053112	0	\$0	Yes
West Branch of Knife River and other tributaries of the Knife River	054112	0	\$0	Yes
West Branch of Knife River and other tributaries of the Knife River	052112	0	\$0	Yes

St. Louis

Name	TRDS	Acres	Est Cost	Existing Protection?
West Branch of Knife River and other tributaries of the Knife River	054122	0	\$0	Yes
West Branch of Knife River and other tributaries of the Knife River	052122	612	\$1,410,000	Yes
West Branch of Knife River and other tributaries of the Knife River	053122	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.