Lessard-Sams Outdoor Heritage Council
Fiscal Year 2021 / ML 2020 Request for Funding

HA 03

CLEAN WATER LAND & LEGACY AMENDMENT

Date: May 30, 2019

Program or Project Title: Resilient Habitat for Heritage Brook Trout

Funds Requested: $9,021,000

Manager's Name: John Lenczewski
Organization: Minnesota Trout Unlimited
Address: Southeast Trout Partnership
Address 2: PO Box 845
City: Chanhassen, MN 55317
Office Number: 612-670-1629
Mobile Number: 612-670-1629
Email: jlenczewski@comcast.net

County Locations: Not Listed

Eco regions in which work will take place:

- Southeast Forest

Activity types:

- Protect in Easement
- Restore
- Enhance
- Protect in Fee

Priority resources addressed by activity:

- Wetlands
- Forest
- Prairie
- Habitat

Abstract:

Minnesota Trout Unlimited, the Minnesota Land Trust, The Nature Conservancy, and Trust for Public Land will combine their expertise in six targeted watersheds to increase the resilience of remnant populations of brook trout unique to Southeast Minnesota. We will protect and enhance habitat in floodplains, along gullies, above steep slopes, and on bluffs to slow runoff, increase infiltration, and keep aquatic habitat productive. This holistic watershed approach, combined with in-stream enhancements designed for Heritage Brook Trout, will protect the long term health of these unique coldwater communities and amplify the impact of past stream habitat and protection efforts.

Design and scope of work:

Word has spread that Southeast Minnesota's streams support a robust trout fishery and trout fishing now generates $800 Million annually to local communities. Less well known is that a small number of these streams hold remnant populations of native brook trout unique to Southeast Minnesota. They have persisted for thousands of years and through the time of European settlement. These "Heritage Brook Trout" populations are indigenous to this unique area and a Species in Greatest Conservation Need. Yet their long-term persistence is far from secured.

Small populations of Heritage Brook Trout persist in perhaps 20% of Southeast trout streams, and are abundant in just 17 streams. These face growing challenges from land conversion, parcelization, intensified agricultural practices, poor land management and an increasingly wet and warm climate. Recent DNR research suggests that consistent baseflow from groundwater springs can provide a level of resilience to these coldwater systems. Coldwater streams with ample spring baseflow may provide a climate refugia for brook trout and other coldwater species.

Minnesota Trout Unlimited and DNR Fisheries have made significant investments in restoration and enhancement of in-stream habitat in Southeast Minnesota. Protecting the health of the surrounding watersheds will be critical to maintaining these coldwater streams and gaining the maximum benefit from in-stream improvements. Improved riparian habitat and connectivity are key factors in stream quality; they also provide important corridors for terrestrial wildlife, connecting large habitat cores.

Program partners Minnesota Trout Unlimited, Minnesota Land Trust, The Nature Conservancy, and Trust for Public Land used several resilience factors to identify six subwaterhseds where conservation of robust populations of Heritage Brook Trout is most achievable: Beaver Creek, East Indian Creek, Rush Creek-Pine Creek, South Fork Root River, Zumbro Tributaries, and Whitewater River. Partners will harness their collective expertise in land protection and terrestrial and in-stream habitat restoration/enhancement to increase the resiliency of these coldwater systems and their Heritage Brook Trout.

While restoring in-stream habitat has improved stream bank and aquatic habitat in many coldwater reaches, little work has been done restoring broader floodplain areas surrounding DNR easement corridors. Restoring floodplain forests, wet prairies and wetlands provides significant benefits to stream health and corridors provide habitat connectivity.

Because of the Driftless Area's rugged terrain, the vast majority of its natural communities occupy steep slopes that play an important role in the region's hydrology. Protecting through targeted fee and easement acquisition and improving the condition of these forests and prairies through restoration and enhancement will improve their ability to slow runoff and increase infiltration. This will reduce sediment and nutrient delivery to streams and improve the hydrology of the watershed by reducing peak flows and increasing baseflows, while also improving plant diversity and habitat for wildlife in one of the most biologically diverse parts of Minnesota. Restoring habitat along the upper edges of steep forested slopes will help buffer the natural communities, while significantly slowing the formation and spread of gullies that deliver large amounts of sediment and nutrient runoff directly to streams.

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:

- Driftless Area Restoration Effort
- Outdoor Heritage Fund: A 25 Year Framework

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

OHF 25 Year Framework
Indicator 1: Protect forest habitat through acquisition in fee or easement to prevent parcelization and fragmentation and to provide the ability to access and manage landlocked public properties.
Indicator 2: Protect, enhance and restore habitat for wildlife in rivers, cold water streams and associated upland habitat.
Indicator 4: Restore forest based habitat that has experienced substantial decline in area in recent decades.

Driftless Area Restoration Effort:
Indicator 1: Reduce sediment and nutrient inputs to Driftless Area rivers and streams.
Indicator 2: Conserve, Restore, and expand habitats that will increase natural abundance, diversity, and health of fish and other aquatic life.

Which LSOHC section priorities are addressed in this proposal:

Southeast Forest:

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

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:

Our program will protect, restore, and enhance habitat on the most significant landforms affecting hydrology and watershed health within the 6 priority subwatersheds. While many of the streams in our priority areas are protected under trout angling easements held by DNR Fisheries, our program will protect riparian and floodplain areas beyond the 66 ft. covered under those easements, guaranteeing the full benefit of riparian connectivity for both aquatic and terrestrial habitat.

Our restoration and enhancement work will be focused on the most important areas to slow runoff and increase infiltration. Maintaining the health of prairies and forests on steep bluff slopes preserves their collective ability to slow runoff and hold soil in place. Restoring native communities to the upper edges of bluffs slows water down before it hits the steep slopes, reducing erosion and increasing the water quality benefit of the entire bluff community.

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:

Minnesota DNR's Watershed Health Assessment Framework (WHAF) provides health scores for watersheds across the state at a catchment level based on multiple metrics. We used a subset of those metrics to identify watersheds containing coldwater trout streams that will be most resilient to changing conditions. Features we considered most important for coldwater stream resilience include aquatic and riparian connectivity, density of known springs, high proportions of perennial cover, hydrological factors (such as high perennial cover and minimal wetland loss and impervious cover), and the quality of the current aquatic biotic community (IBI scores). We also emphasized watersheds of streams that support "Heritage Brook Trout" populations - genetic strains that are native to the region and pre-date modern stocking efforts.

Based on those criteria, we selected watersheds that contained the highest scoring catchments. Expanding the project areas to the larger watersheds includes upstream catchments that may not score as highly, but where conservation will benefit resilient areas downstream. Within these priority watersheds, individual projects will focus on landscape features that have maximum impact on water quality and hydrology. These include riparian areas, floodplains, wetlands, steep slopes and highly erodible areas, and transition zones from upland agricultural areas to the steeper, often forested, slopes of bluffs. This focus will direct our work towards the land most critical for watershed health while minimizing impact on the most productive cropland.

The selected watersheds also contain areas of biodiversity significance identified by the MN County Biological Survey and corridors that score highly on the Wildlife Action Network. Protection, restoration, and enhancement in these watersheds will expand and connect existing public land areas and stream easements held by MN DNR Department of Fisheries to develop and strengthen corridors and complexes of habitat. This will provide multiple benefits for the game and non-game wildlife of these areas while protecting watershed health.

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:

This proposal focuses principally on the protection and restoration/enhancement of priority coldwater stream systems through a watershed approach. Though with a focus on Heritage Brook Trout populations, this work will also benefit a large number of associated coldwater stream species.

Sedimentation and erosion are major threats to fish in the region. Protecting and enhancing upland natural communities, especially on the steep bluffs that flank most trout streams, will help prevent additional erosion. Aquatic habitat also benefits from protection of trout stream banks and floodplains. The water quality benefit that comes with the protection of forested upland areas is significant and contributes to improved trout and non-game fish and mussel habitat. In-stream restoration of coldwater streams will amplify the conditions necessary to support Heritage Brook Trout and other coldwater species.

Watersheds selected as priorities for this work contain significant high-quality examples of native plant communities ranging from oak savanna and bluff prairie to maple-basswood and white pine-oak/maple forests, and oak-hickory woodlands. These habitats support species including: tri-colored and northern long-eared bats, timber rattlesnake, Blanding's turtle, western foxsnake, North American racer, American ginseng, great Indian plantain, plains wild indigo and red-shouldered hawk. Protection and restoration efforts will create and build off of existing complexes of protected lands and habitat blocks.

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

Brook trout and brown trout are key indicator species for in-stream and riparian corridor habitat work. Our activities protect, restore and/or enhance stream habitat that typically support a biomass of 100 to 130 pounds per acre of brook or brown trout in southeast Minnesota trout streams. These averages are generated from available data and published sources, and do not capture the variability inherent in populations of fish. Natural populations, including healthy populations with good habitat, vary among locations, and also rise and fall based upon weather, climatic conditions, flood events, etc. Most fish surveys conducted by DNR produce an index of abundance (catch per unit effort) rather than a population estimate. The program also benefits other Species in Greatest Conservation Need including rusty patch bumblebee, monarch butterfly, Blanding's turtle, Louisiana water thrush, wild turkey and whitetail deer.

Outcomes:

Programs in southeast forest region:

- Stream to bluff habitat restoration and enhancement will keep water on the land to slow runoff and degradation of aquatic habitat

Conservation easement (MLT) - acres and shoreline protected. Fee acquisition (TPL) - acres and shoreline protected. Restoration and enhancement (TNC, MLT and MNTU) - acres restored/enhanced; instream feet restored.

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

TPL - Tracts acquired in fee will be transferred to the state for ongoing management. Acquisition projects will be near or adjacent to existing protected lands, including state-owned lands and lands under conservation easement, allowing for the expansion of management activities that are already taking place. MN DNR has been successful in securing federal habitat enhancement funding.

TNC – Restoration and enhancement work will occur primarily on state land. Activities will be closely coordinated with DNR partners to ensure the projects completed will fit within their overall management plans and strategies. The goal of all restoration and enhancement projects will be to return a community to a condition where typical maintenance-level management will be sufficient to keep it healthy.

MLT - The land protected through conservation easements will be sustained through the state-of-the-art stewardship standards and practices. MLT is a nationally accredited and insured land trust with a successful easement stewardship program that includes annual property monitoring and defending the easements as necessary.

MNTU - Construction contracts will include maintenance/warranty provisions to ensure habitat work is well established. Afterwards no significant maintenance is usually required to sustain the habitat outcomes for decades.

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

Year	Source of Funds	Step 1	Step 2	Step 3
One year after grant ends	MNTU volunteers or part of regulary agency visits.	In-stream enhancements: inspect structural elements and vegetation	In-stream enhancements: If needed, alert DNR and develop actions needed.	In-stream enhancements: Conduct maintenance with volunteers and/or contractors if DNR does not.
Every 3 years thereafter	MNTU volunteers and/or agency.	In-stream enhancements: Inpsect structural elements and vegetation.	In-stream enhancements: If needed, develop action plan with DNR.	In-stream enhancements: Perform or assist DNR with maintenance if needed.
Every 4-6 Years	Game and Fish Fund	Prescribed Fire where appropriate		
Every 4-6 Years	Game and Fish Fund	Survey for invasive species and overall plan community development	Control invasive species as necessary	

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

After being nearly wiped out by catastrophic flooding and sedimentation in the early 20th century, Southeast Minnesota's coldwater stream communities have made an impressive recovery. This recovery, made possible in large part by widespread conservation practices following the dust bowl era, demonstrates that ecological restoration is possible, but also a long and slow process. It is also threatened by new challenges facing Driftless Area streams. Warmer climates will place increased importance on groundwater sources of cool water during summer. Agricultural intensification and expansion are growing stressors of watershed health. Fragmentation and parcelization of upland habitat reduce the ability to manage natural communities. From 2008 to 2012, Southeast MN experienced significant loss of perennial cover. Protecting key habitat, and the ecosystem services it provides, is essential to preserving the success of Southeast Minnesota's trout fishery and coldwater communities.

Does this program include leverage in funds:

Yes

MLT: Minnesota Land Trust encourages landowners to fully or partially donate the value of conservation easements as part of its landowner bid protocol. An estimated leverage of $390,000 of donated value from landowners from easement acquisition is a conservative estimate.

TPL & TNC - Partners are also leveraging private funds to cover a portion of travel and direct support services cost totaling $143,800.

MNTU: TU will contribute a portion of its direct support service cost. TU members and chapters will donate in-kind labor/services. We hope to leverage federal EQIP funds, US Fish & Wildlife Service funds, and other sources.

Relationship to other funds:

- Not Listed

Describe the relationship of the funds:

Not Listed

Per MS 97A.056, Subd. 24, Any state agency or organization requesting a direct appropriation from the OHF must inform the LSOHC at the time of the request for funding is made, whether the request is supplanting or is a substitution for any previous funding that was not from a legacy fund and was used for the same purpose:

Funding procured by MLT, MNTU, TPL or TNC through the Outdoor Heritage Fund via this proposal will not supplant or substitute any previous funding from a non-Legacy fund used for the same purpose associated with any of the recipient organizations.

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

Not Listed

Activity Details

Requirements:

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

Will county board or other local government approval be formally sought prior to acquisition, per 97A.056 subd 13(j) - **No**

TPL - TPL will follow the county/township board notification processes as directed by current statutory language.

Is the land you plan to acquire (fee title) free of any other permanent protection - **No**

Some parcels for protection may include stream frontage under a trout stream easement held by MN DNR Dept. of Fisheries. These easements only extend 66 ft from the centerline of the stream, and provide public access for angling purposes only. Such protection projects will only be undertaken when protecting the larger parcel will significantly expand the benefits beyond those of the easement. We will follow guidance established by the Outdoor Heritage Fund to proceed.

Is the land you plan to acquire (easement) free of any other permanent protection - **Yes**

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

Is the restoration and enhancement activity on permanently protected land per 97A.056, subd 13(f), tribal lands, and/or public waters per MS 103G.005, Subd. 15 - **Yes (WMA, SNA, AMA, Permanently Protected Conservation EasementsPublic Waters, State Forests)**

Do you anticipate federal funds as a match for this program - **No**

Land Use:

Will there be planting of corn or any crop on OHF land purchased or restored in this program - **Yes**

Explain

Short-term use of agricultural crops is an accepted best practice for preparing a site for prairie restoration. For example, short-term use of soybeans could be used for restorations in order to control weed seedbeds prior to prairie planting. In some cases this necessitates the use of GMO treated products to facilitate herbicide use in order to control weeds present in the seedbank; however, neonicotinoids will not be used.

Is this land currently open for hunting and fishing - **Yes**

Some parcels acquired in fee currently have angling easements that cover 66 feet from the centerline of the stream. Acquisition of these properties will expand the protection beyond the 66 feet, and open the property to other uses, including hunting.

Will the land be open for hunting and fishing after completion - **Yes**

None.

Will the eased land be open for public use - **No**

Are there currently trails or roads on any of the acquisitions on the parcel list - **Yes**

Describe the types of trails or roads and the allowable uses:

MLT - Most conservation easements are established on private lands, many of which have driveways, field roads and trails located on them. Often, these established trails and roads are permitted in the terms of the easement and can be maintained for personal use if their use does not significantly impact the conservation values of the property. Creation of new roads/trails or expansion of existing ones is typically not allowed.

TPL - TPL is not aware of any trails or roads on potential acquisitions. If any are discovered, they will be managed per DNR policy for WMAs, AMAs, SNAs or State Forests.

Will the trails or roads remain and uses continue to be allowed after OHF acquisition - **Yes**

How will maintenance and monitoring be accomplished:

MLT - Existing trails and roads are identified in the project baseline report and will be monitored annually as part of the Land Trust's stewardship and enforcement protocols. Maintenance of permitted roads/trails in line with the terms of the easement will be the responsibility of the landowner.

Will new trails or roads be developed or improved as a result of the OHF acquisition - **No**

Accomplishment Timeline

Activity	Approximate Date Completed
Initiate protection and restoration projects	July 2020
Complete fee protection projects	June 2023
Complete easement protection projects	June 2023
Complete restoration and enhancement projects	June 2025

Budget Spreadsheet

Total Amount of Request: $9,021,000

Budget and Cash Leverage

Budget Name	LSOHC Request	Anticipated Leverage	Leverage Source	Total
Personnel	$669,500	$0		$669,500
Contracts	$1,994,000	$94,000	Federal EQIP and USFWS	$2,088,000
Fee Acquisition w/ PILT	$2,950,000	$0		$2,950,000
Fee Acquisition w/o PILT	$0	$0		$0
Easement Acquisition	$1,560,000	$390,000	Landowner donation of easement value	$1,950,000
Easement Stewardship	$288,000	$0		$288,000
Travel	$40,000	$2,000	Private	$42,000
Professional Services	$648,000	$0		$648,000
Direct Support Services	$202,500	$161,800	TNC DSS Value,TU,Private	$364,300
DNR Land Acquisition Costs	$40,000	$0		$40,000
Capital Equipment	$0	$0		$0
Other Equipment/Tools	$27,000	$0		$27,000
Supplies/Materials	$512,000	$80,000	Federal EQIP and USFWS	$592,000
DNR IDP	$90,000	$0		$90,000
Total	$9,021,000	$727,800	-	$9,748,800

Personnel

Position	FTE	Over # of years	LSOHC Request	Anticipated Leverage	Leverage Source	Total
TNC PRoject Management and Grant Administration	0.32	3.00	$92,000	$0		$92,000
MNTU/TU Enhancement Staffers	0.30	5.00	$100,000	$0		$100,000
MLT Protection Staff	0.75	3.00	$205,000	$0		$205,000
MLT Restoration Staff	0.50	3.00	$135,000	$0		$135,000
TPL Protection Staff	0.28	3.00	$137,500	$0		$137,500
Total	2.15	17.00	$669,500	$0	-	$669,500

Budget and Cash Leverage by Partnership

Budget Name	Partnership	LSOHC Request	Anticipated Leverage	Leverage Source	Total
Personnel	The Nature Conservancy	$92,000	$0		$92,000
Contracts	The Nature Conservancy	$450,000	$0		$450,000
Fee Acquisition w/ PILT	The Nature Conservancy	$0	$0		$0
Fee Acquisition w/o PILT	The Nature Conservancy	$0	$0		$0
Easement Acquisition	The Nature Conservancy	$0	$0		$0
Easement Stewardship	The Nature Conservancy	$0	$0		$0
Travel	The Nature Conservancy	$3,000	$0		$3,000
Professional Services	The Nature Conservancy	$0	$0		$0
Direct Support Services	The Nature Conservancy	$42,000	$93,800	TNC DSS Value	$135,800
DNR Land Acquisition Costs	The Nature Conservancy	$0	$0		$0
Capital Equipment	The Nature Conservancy	$0	$0		$0
Other Equipment/Tools	The Nature Conservancy	$2,000	$0		$2,000
Supplies/Materials	The Nature Conservancy	$10,000	$0		$10,000
DNR IDP	The Nature Conservancy	$0	$0		$0
Total	-	$599,000	$93,800	-	$692,800

Personnel - The Nature Conservancy

Position	FTE	Over # of years	LSOHC Request	Anticipated Leverage	Leverage Source	Total
TNC PRoject Management and Grant Administration	0.32	3.00	$92,000	$0		$92,000
Total	0.32	3.00	$92,000	$0	-	$92,000

Budget Name	Partnership	LSOHC Request	Anticipated Leverage	Leverage Source	Total
Personnel	Minnesota Trout Unlimited	$100,000	$0		$100,000
Contracts	Minnesota Trout Unlimited	$740,000	$94,000	Federal EQIP and USFWS	$834,000

Fee Acquisition w/ PILT	Minnesota Trout Unlimited	$0	$0		$0
Fee Acquisition w/o PILT	Minnesota Trout Unlimited	$0	$0		$0
Easement Acquisition	Minnesota Trout Unlimited	$0	$0		$0
Easement Stewardship	Minnesota Trout Unlimited	$0	$0		$0
Travel	Minnesota Trout Unlimited	$10,000	$0		$10,000
Professional Services	Minnesota Trout Unlimited	$250,000	$0		$250,000
Direct Support Services	Minnesota Trout Unlimited	$20,000	$20,000	TU	$40,000
DNR Land Acquisition Costs	Minnesota Trout Unlimited	$0	$0		$0
Capital Equipment	Minnesota Trout Unlimited	$0	$0		$0
Other Equipment/Tools	Minnesota Trout Unlimited	$10,000	$0		$10,000
Supplies/Materials	Minnesota Trout Unlimited	$500,000	$80,000	Federal EQIP and USFWS	$580,000
DNR IDP	Minnesota Trout Unlimited	$0	$0		$0
Total	-	$1,630,000	$194,000	-	$1,824,000

Personnel - Minnesota Trout Unlimited

Position	FTE	Over # of years	LSOHC Request	Anticipated Leverage	Leverage Source	Total
MNTU/TU Enhancement Staffers	0.30	5.00	$100,000	$0		$100,000
Total	0.30	5.00	$100,000	$0	-	$100,000

Budget Name	Partnership	LSOHC Request	Anticipated Leverage	Leverage Source	Total
Personnel	Minnesota Land Trust	$340,000	$0		$340,000
Contracts	Minnesota Land Trust	$554,000	$0		$554,000
Fee Acquisition w/ PILT	Minnesota Land Trust	$0	$0		$0
Fee Acquisition w/o PILT	Minnesota Land Trust	$0	$0		$0
Easement Acquisition	Minnesota Land Trust	$1,560,000	$390,000	Landowner donation of easement value	$1,950,000
Easement Stewardship	Minnesota Land Trust	$288,000	$0		$288,000
Travel	Minnesota Land Trust	$27,000	$0		$27,000
Professional Services	Minnesota Land Trust	$268,000	$0		$268,000
Direct Support Services	Minnesota Land Trust	$92,000	$0		$92,000
DNR Land Acquisition Costs	Minnesota Land Trust	$0	$0		$0
Capital Equipment	Minnesota Land Trust	$0	$0		$0
Other Equipment/Tools	Minnesota Land Trust	$15,000	$0		$15,000
Supplies/Materials	Minnesota Land Trust	$2,000	$0		$2,000
DNR IDP	Minnesota Land Trust	$0	$0		$0
Total	-	$3,146,000	$390,000	-	$3,536,000

Personnel - Minnesota Land Trust

Position	FTE	Over # of years	LSOHC Request	Anticipated Leverage	Leverage Source	Total
MLT Protection Staff	0.75	3.00	$205,000	$0		$205,000
MLT Restoration Staff	0.50	3.00	$135,000	$0		$135,000
Total	1.25	6.00	$340,000	$0	-	$340,000

Budget Name	Partnership	LSOHC Request	Anticipated Leverage	Leverage Source	Total
Personnel	Trust for Public Land	$137,500	$0		$137,500
Contracts	Trust for Public Land	$250,000	$0		$250,000
Fee Acquisition w/ PILT	Trust for Public Land	$2,950,000	$0		$2,950,000
Fee Acquisition w/o PILT	Trust for Public Land	$0	$0		$0
Easement Acquisition	Trust for Public Land	$0	$0		$0
Easement Stewardship	Trust for Public Land	$0	$0		$0
Travel	Trust for Public Land	$0	$2,000	Private	$2,000
Professional Services	Trust for Public Land	$130,000	$0		$130,000
Direct Support Services	Trust for Public Land	$48,500	$48,000	Private	$96,500
DNR Land Acquisition Costs	Trust for Public Land	$40,000	$0		$40,000
Capital Equipment	Trust for Public Land	$0	$0		$0
Other Equipment/Tools	Trust for Public Land	$0	$0		$0
Supplies/Materials	Trust for Public Land	$0	$0		$0
DNR IDP	Trust for Public Land	$90,000	$0		$90,000
Total	-	$3,646,000	$50,000	-	$3,696,000

Personnel - Trust for Public Land

Position	FTE	Over # of years	LSOHC Request	Anticipated Leverage	Leverage Source	Total
TPL Protection Staff	0.28	3.00	$137,500	$0		$137,500
Total	0.28	3.00	$137,500	$0	-	$137,500

Amount of Request:	$9,021,000
Amount of Leverage:	$727,800
Leverage as a percent of the Request:	8.07%
DSS + Personnel:	$872,000
As a % of the total request:	9.67%
Easement Stewardship:	$288,000
As a % of the Easement Acquisition:	18.46%

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

MLT - In a process that was approved by the DNR on March 17, 2017, Minnesota Land Trust determined our direct support services rate to include all of the allowable direct and necessary expenditures that are not captured in other line items in the budget, which is similar to the Land Trust's proposed federal indirect rate. We will apply this DNR approved rate only to personnel expenses to determine the total amount of the direct support services.
TPL - DSS request is based upon our federal rate which has been approved by the DNR. 50% of these costs are requested from the OHF grant, 50% is contributed as leverage.
TNC - DSS is based on TNC's Federally Negotiated Rate (FNR) as proposed and subsequently approved by the US Dept. of Interior on an annual basis. In this proposal we are requesting reimbursement of 7.5% of eligible base costs as determined by our annual FNR and based on suggestions from the Council in last year's hearings. The portion of the approved rate unrecovered through the life of the grant is offered as leverage.
MNTU - The DSS requested represents a portion of TU's federal rate, which is approved annually. The requested amount likely represents one third of what we would be eligible to claim based upon past DNR approval. TU is donating the other portion.

What is included in the contracts line?

MLT: Contracts for restoration work; writing of habitat management plans; outreach via SWCD offices.
TPL: Potential site clean-up and initial restoration activities.
TNC: Contract line item are dedicated to enhancement and restoration work. Typical contractors include private vendors and Conservation Corps of MN/IA.
MNTU: Enhancement services, including labor.

Does the amount in the travel line include equipment/vehicle rental? - Yes

Explain the amount in the travel line outside of traditional travel costs of mileage, food, and lodging:

MLT often rents vehicles for grant-related work in Southeast Minnesota.

Describe and explain leverage source and confirmation of funds:

TPL - Will leverage privately sourced funds to cover half of direct support services (DSS) costs and funds for travel.
MLT - Expected landowner donation of easement value.
TNC - Will leverage privately sourced funds for non-grant reimbursed (DSS) costs.
MNTU - We hope to secure EQIP and USFWS funds.

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:

The proposal is partially scalable. Full funding allows larger projects to be completed. Personnel costs are associated with projects. Larger protection, enhancement and restoration projects (despite higher acquisition, easement or contract costs) allow for greater efficiency in personnel and administrative costs.

What is the cost per easement for stewardship and explain how that amount is calculated?

The average cost per easement to perpetually fund the Minnesota Land Trust's long-term monitoring and enforcement obligations is $24,000. This figure has been determined by using a detailed stewardship funding calculator or "cost analysis" which is the industry standard according to the Land Trust Accreditation process. This cost analysis examines seventeen different categories of future annual expenditures related to the management of the easement and then calculates what the Land Trust needs in one-time funding to cover these various expenditures in perpetuity. In addition, the Land Trust seeks private contributions whenever possible to further leverage these state funds. The Minnesota Land Trust reviews and updates this cost-analysis periodically to ensure that the organization will have the capacity to fulfill its ongoing obligations. This cost-analysis is on file with the Lessard-Sams Outdoor Heritage Council staff and the Land Trust shares a new version with the Council whenever updates are made.

Output Tables

Table 1a. Acres by Resource Type

Type	Wetlands	Prairies	Forest	Habitats	Total
Restore	0	0	25	220	245
Protect in Fee with State PILT Liability	0	350	350	0	700
Protect in Fee W/O State PILT Liability	0	0	0	0	0
Protect in Easement	0	0	0	1,625	1,625
Enhance	0	25	125	48	198
Total	0	375	500	1,893	2,768

Table 1b. How many of these Prairie acres are Native Prairie?

Type	Native Prairie
Restore	0
Protect in Fee with State PILT Liability	0
Protect in Fee W/O State PILT Liability	0
Protect in Easement	0
Enhance	0
Total	0

Table 2. Total Requested Funding by Resource Type

Type	Wetlands	Prairies	Forest	Habitats	Total
Restore	$0	$0	$50,000	$738,500	$788,500
Protect in Fee with State PILT Liability	$0	$1,823,000	$1,822,700	$0	$3,645,700
Protect in Fee W/O State PILT Liability	$0	$0	$0	$0	$0
Protect in Easement	$0	$0	$0	$2,487,500	$2,487,500
Enhance	$0	$120,500	$348,800	$1,630,000	$2,099,300
Total	$0	$1,943,500	$2,221,500	$4,856,000	$9,021,000

Table 3. Acres within each Ecological Section

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	Northern Forest	Total
Restore	0	0	245	0	0	245
Protect in Fee with State PILT Liability	0	0	700	0	0	700
Protect in Fee W/O State PILT Liability	0	0	0	0	0	0
Protect in Easement	0	0	1,625	0	0	1,625
Enhance	0	0	198	0	0	198
Total	0	0	2,768	0	0	2,768

Table 4. Total Requested Funding within each Ecological Section

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	Northern Forest	Total
Restore	$0	$0	$788,500	$0	$0	$788,500
Protect in Fee with State PILT Liability	$0	$0	$3,645,700	$0	$0	$3,645,700
Protect in Fee W/O State PILT Liability	$0	$0	$0	$0	$0	$0
Protect in Easement	$0	$0	$2,487,500	$0	$0	$2,487,500
Enhance	$0	$0	$2,099,300	$0	$0	$2,099,300
Total	$0	$0	$9,021,000	$0	$0	$9,021,000

Table 5. Average Cost per Acre by Resource Type

Type	Wetlands	Prairies	Forest	Habitats
Restore	$0	$0	$2,000	$3,357
Protect in Fee with State PILT Liability	$0	$5,209	$5,208	$0
Protect in Fee W/O State PILT Liability	$0	$0	$0	$0
Protect in Easement	$0	$0	$0	$1,531
Enhance	$0	$4,820	$2,790	$33,958

Table 6. Average Cost per Acre by Ecological Section

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	Northern Forest
Restore	$0	$0	$3,218	$0	$0
Protect in Fee with State PILT Liability	$0	$0	$5,208	$0	$0
Protect in Fee W/O State PILT Liability	$0	$0	$0	$0	$0
Protect in Easement	$0	$0	$1,531	$0	$0
Enhance	$0	$0	$10,603	$0	$0

Automatic system calculation / not entered by managers

Target Lake/Stream/River Feet or Miles

4.5

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:

MLT - The Land Trust uses a competitive, market-based approach via RFP to identify and prioritize parcels for easement acquisition. All proposals are evaluated and ranked relative to their ecological significance on three primary factors: 1) size of habitat; 2) condition of habitat; and 3) the context (amount/quality of remaining habitat and protected areas) within which the parcel lies. We encourage landowners to contribute easement value to the program (see attached sign-up criteria). Restoration and enhancement work will take place on private lands over which MLT has secured permanent conservation easements.

TNC - Restoration and Enhancement parcels will be selected based on expected benefit to watershed health and hydrology. Projects in riparian and floodplain areas and known paths of erosion and runoff, such as gullies, will be the top priority, followed by projects that slow water at the top of bluffs, preventing gully formation and encouraging infiltration of runoff before it gains energy on steeper slopes. Enhancement of steep bluff slopes will be undertaken when a clear benefit to soil stabilization and runoff reduction is expected.

TPL - As explained above, the 6 Priority Heritage Brook Trout subwatersheds were based on several factors related to resilience. Working together, the partners with input from DNR and local stakeholders will prioritize individual parcels for protection based upon a number of factors including: (a) proximity to heritage brook trout streams, (b) their ability to slow runoff and increase infiltration thus reducing sediment and nutrient delivery to trout streams, (c) quality o

Section 1 - Restore / Enhance Parcel List

No parcels with an activity type restore or enhance.

Section 2 - Protect Parcel List

No parcels with an activity type protect.

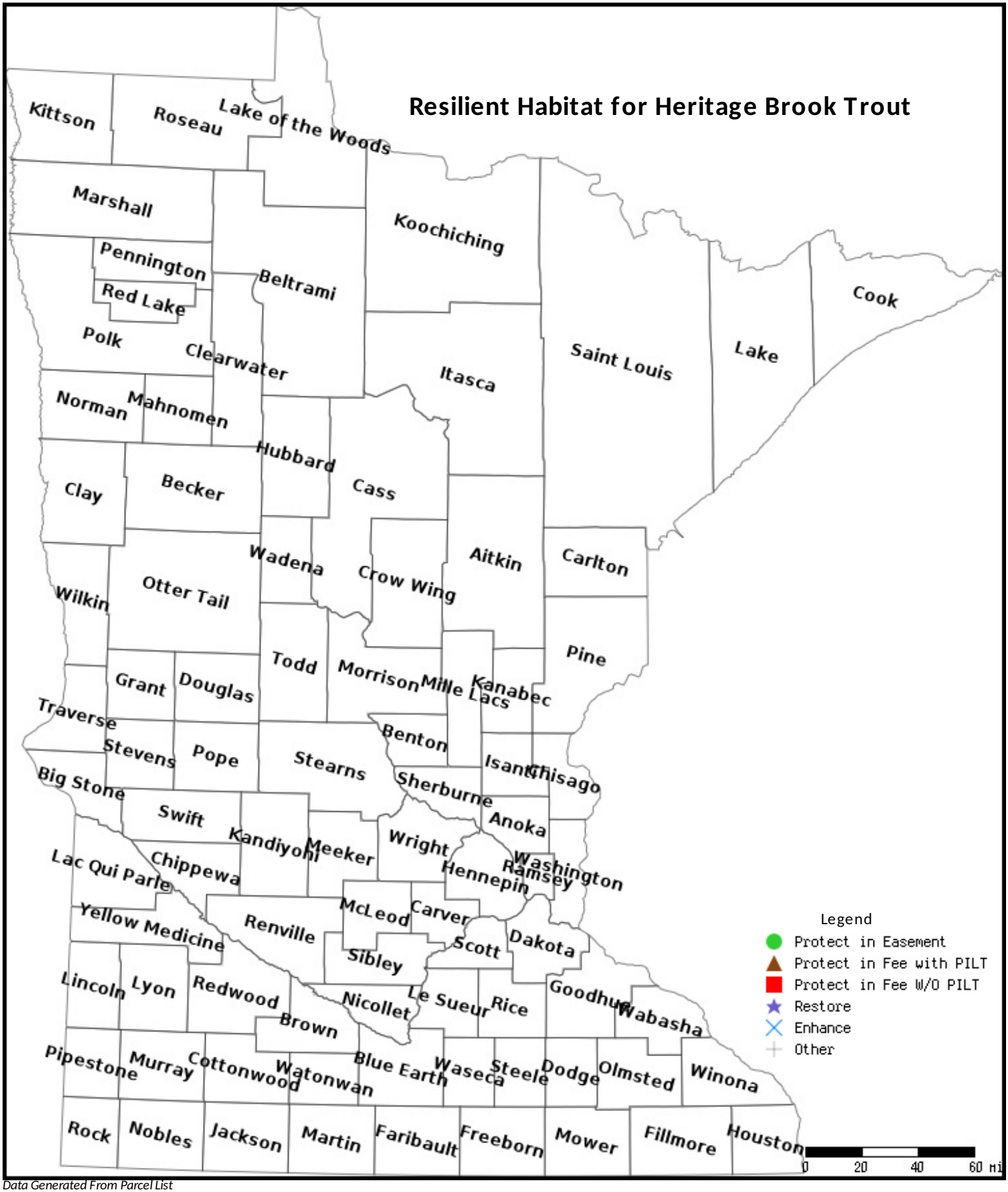
Section 2a - Protect Parcel with Bldgs

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

Resilient Habitat for Heritage Brook Trout

Trout Unlimited, The Nature Conservancy, Trust for Public Land, and Minnesota Land Trust are requesting $9,020,100 for the Resilient Habitat for Heritage Brook Trout Program.

Research on trout genetics in Southeast Minnesota's Driftless Area has identified remnant populations of brook trout that have persisted from before European settlement. These "Heritage Brook Trout" populations are genetically native to the region and are considered a Species in Greatest Conservation Need. Coldwater streams supporting these populations face growing challenges from land conversion, parcelization, intensified agricultural practices, and climate change. Six subwatersheds have been prioritized and partners will harness their collective expertise in land protection and terrestrial and in-stream restoration/ enhancement to increase the resiliency of these coldwater systems and associated Heritage Brook Trout populations.

Outdoor Heritage Fund Request:

$9,020,100 for:

- 1,625 acres of perpetual conservation easements.
- 700 acres of fee land acquisition.
- 443 acres of restoration & enhancement.

For more information about this proposal:

John Lenczewksi,
Southeast MN Trout Partnership
Trout Unlimited

jlenczewksi@comcast.net
(612) 670-1629

How Does the Program Support State Goals?

Our program will protect, restore, and enhance habitat to improve watershed health within six priority subwatersheds. These actions have been identified in conservation plans for Minnesota, including *Driftless Area Restoration Effort* and *Outdoor Heritage Fund: A 25 Year Framework.*

Hansi Johnson

What Are the Outcomes?

- Stream to bluff habitat restoration and enhancement will keep water on the land to slow runoff and degradation of aquatic habitat
- Conservation easement (MLT) - 1,695 acres and shoreline protected.
- Fee acquisition (TPL) - 700 acres protected.
- Restoration and enhancement (TNC, MLT and TU) - 443 acres restored/enhanced; 4 instream miles restored.

Priority Watersheds

Remnant populations of native brook trout unique to Southeast Minnesota have persisted in ~20% of Southeast trout streams, and are abundant in just 17. Recent DNR research suggests that consistent baseflow from groundwater springs can provide a level of resilience to these coldwater systems. Using several resilience factors, the Partnership has identified six subwaterhseds where conservation of robust populations of Heritage Brook Trout is most achievable: Beaver Creek, East Indian Creek, Rush Creek-Pine Creek, South Fork Root River, Zumbro Tributaries, and Whitewater River.

The selected watersheds also contain areas of biodiversity significance. Protection, restoration, and enhancement in these watersheds will expand and connect existing public land areas and stream easements held by MN DNR Department of Fisheries to develop and strengthen corridors and complexes of habitat.

MINNESOTA TROUT UNLIMITED
P.O. Box 845
Chanhassen, MN 55317

(612) 670-1629

jlenczewksi@comcast.net

The Nature Conservancy
1101 West River Pkwy.
Suite 200
Minneapolis, MN 55415

(612) 331-0700

minnesota@tnc.org

THE TRUST FOR PUBLIC LAND
2610 University Ave. W
Suite 300
St. Paul, MN 55114

(651) 917-2240

Bob.McGillivray@tpl.org

MINNESOTA LAND TRUST
2356 University Ave. W.
Suite 240
St. Paul, MN 55114

(651) 647-9590

mnland@mnland.org

MINNESOTA LAND TRUST

A Decision Support Tool for Prioritizing Conservation Easement Opportunities

The Minnesota Land Trust often employs within its conservation program areas an RFP (Request for Proposals) model to both identify high-quality projects and introduce a level of competition into the easement acquisition process. Below, we briefly discuss how the system works and the framework put in place to sort the varied opportunities that come before us.

How the Ranking System Works

The parcel ranking framework employed through the Minnesota Land Trust's RFP process is intended as a ***decision support tool*** to aid in identifying, among the slate of landowners submitting bids for conservation easements, the most ecologically significant opportunities for the price. Using this framework, the Land Trust and its partners use an array of weighted data sets tailored to the specific circumstances inherent in a program area to identify those worthy of consideration.

It is important to note that this parcel ranking framework enables the Land Trust to rank projects *relative* to one another. That's important to do, but it's also important to understand how a project (or suite of projects) relates to the ideal situation (i.e., a project that is of exceptional size, condition and superb landscape context). If, for example, an RFP generated 20 proposals in a program area, the framework would effectively sift among them and identify the relatively good from those relatively bad. However, this information alone would not determine whether any of those parcels were of sufficient quality to pursue for protection (all may be of insufficient quality to warrant expenditure of funds). To solve this problem and make sure ranked projects are high priorities for conservation, we step back and evaluate them relative to the ideal - i.e., is each project among the best opportunities for conservation we can expect to find in the program area?

As part of its proposals to LSOHC, the Land Trust included easement sign-up criteria that laid out at a general level the framework utilized by the organization. Below is a more detailed description of the process the Land Trust utilizes in ranking potential parcels relative to one another, and identifying those with which a conservation easement will be pursued. We also include a ranking form illustrating the representative weighting applied to each criteria. These weightings will be refined as we move forward in applying this approach in each program area.

The Framework

We evaluate potential projects based on two primary factors: ecological significance and cost. Both are assessed independent of one another.

Factor 1: Ecological Significance

The Ecological Significance score is determined by looking at 3 subfactors, each weighted equally (as a default). Each of these constitutes 1/3 of the total ecological significance score.

Subfactors:

- **Size or Quantity** – the area of the parcel to be protected (how big is it?), length of shoreline, etc. The bigger the better.
- **Condition or Quality** – the condition of the natural communities and/or target species found on a parcel. The higher quality the better.
- **Landscape Context** – what's around the parcel, both ecologically and from a protected status standpoint. The more ecologically intact the surrounding landscape the better; the extent to which a parcel builds off of other protected lands to form complexes or corridors, the better.

Note that we have the ability to emphasize one subfactor over another if the specific circumstances warrant it, but we begin with a default standard at the onset. At present, all of our geographies are using the default standard.

Indicators:

A suite of weighted indicators is used to score each parcel relative to each of the above subfactors. Indicators are selected based on their ability to effectively inform the scoring of parcels relative to each of the respective subfactors. Weightings for each criterion are assessed and vetted to ensure that a set of indicators for each subfactor produces meaningful results, then applied across each of the proposed parcels. Finally, we vet and make improvements to the scoring matrix when we identify issues or circumstances where results seem erroneous.

Data sets used for this purpose must offer wall-to-wall coverage across the program area to ensure that bias for or against parcels does not creep into the equation. Where gaps in such coverages exist, we attempt to fill them in to the extent feasible (via field inventory, etc.). Finally, we vet and make improvements to the scoring matrix when we identify issues or circumstances where results seem erroneous.

Factor 2: Cost

Cost is a second major factor used in our consideration of parcels. Although ecological significance is *the* primary factor in determining the merits of a project, our RFP programs also strive to make the greatest conservation impact with the most efficient use of State funds. As such, we look at the overall cost of each project relative to its ecological significance; we also ask landowners to consider donating all or some of their easement value to the cause and to better position their proposals. Many landowners participate in that fashion.

Cost, as a primary factor, is assessed independently of the ecological factors. Given equal ecological significance, a project of lower cost will be elevated over those of higher cost in the ranking. That said, exceptionally high quality projects are likely to be pursued even if no or modest landowner donation is put forward. Alternatively, there are projects offered as full donations that are not moved forward because their ecological significance is not acceptable. The degree to which cost factors into the ranking of parcels relative to one another is made on a case-by-case basis.

MINNESOTA LAND TRUST METRO BIG RIVERS PROTECTION PROGRAM Conservation Easement Selection Worksheet		SITE 1	SITE 2	SITE 3	SITE 4	SITE 5	SITE 6	SITE 7	SITE 8	SITE 9	SITE 10	SITE 11	SITE 12	Notes
	COUNTY													
100 Pts	ECOLOGICAL SIGNIFICANCE													
Weighting Factor	**Size/Abundance of Habitat (33 points)**													
	a) Size (33 pts): Acres of Habitat to be Protected by an Easement **SUBTOTAL:**	0	0	0	0	0	0	0	0	0	0	0	0	
Weighting Factor	**Quality of Natural Resources to be Protected by the Easement (33 points)**													
	a) Habitat Quality (28 pts): Quality of Existing Ecological Systems (Terrestrial & Aquatic) **b) Imperiled Species (5 pts):** Occurrence of Documented Rare Species on Parcel **SUBTOTAL:**	0	0	0	0	0	0	0	0	0	0	0	0	
Weighting Factor	**Landscape Context (34 points)**													
	Current Status (30 points) **a) Protection Context (15 points)** i. Size of Contiguous Protected Lands (8 pts) ii. Amount of Protected Lands within 3 miles of Property : Protected Land within 0.5 miles of Property (4 pts) : Protected Land 0.5-3 miles from Property (3 pts) **b) Ecological Context (15 points)** i. Size of Contiguous Ecological Habitat (8 pts) ii. Amount of Ecological Habitat within 3 miles of Property : Ecological Habitat within 0.5 miles of Property (4 pts) : Ecological Habitat 0.5-3 miles from Property (3 pts) **Future Potential (4 points)** **a) Conservation Plan Context (2 pts)** **b) Amount of Existing Activity (2 pts)** **SUBTOTAL:**	0	0	0	0	0	0	0	0	0	0	0	0	
	TOTAL ECOLOGICAL VALUE POINTS	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
	COST													
	i. Bid amount ($)/acre	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
	ii. Estimated donative value ($)/acre	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
	TOTAL ACQUISITION COST ($)	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	

KEY	
	Priority
	Possible
	Out

Heritage Brook Trout Habitat Project Descriptions - Minnesota Trout Unlimited – FY 2021

This attachment briefly summarizes the types of priority habitat enhancement projects which Minnesota Trout Unlimited proposes to complete as part of the comprehensive watershed program "Resilient Habitat for Heritage Brook Trout".

Heritage Brook Trout context. Prior to European settlement native brook trout inhabited all the current coldwater trout streams in southeast Minnesota, and almost certainly additional streams which have not recovered from degradation in the 1800s and early 1900s. Over thousands of years brook trout evolved at the edge of their species range in the unique conditions found in this corner of the state. During the mid-1800s logging and intense agriculture degraded southeast trout streams and by the late 1800s it was presumed that most native brook trout populations and been wiped out. Stockings of eastern strain brook trout and brown trout were begun to provide fishable populations. Since then land use has improved and most trout stocking has ceased as wild, self-sustaining trout populations have flourished. Given the historic stream degradation, years of stockings of eastern origin brook trout, and abundant brown trout populations, it had been assumed as late as the 1990s that Minnesota's native brook trout were extinct. However, recent research and genetic testing has revealed that remnant populations of brook trout indigenous to southeast Minnesota have persisted in a small number of streams. Current conditions are favorable to preserving and expanding the range and resilience of these native fish populations.

Habitat Enhancement Methods. Precise methods used in southeast Minnesota vary by project site. MNTU consults with professional in the MNDNR and uses the best available stream restoration and coldwater aquatic science to select specific habitat improvement methods for each stream site 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. 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, and (8) fencing riparian corridors where appropriate to facilitate managed grazing and prevent damage from over-grazing.

These actions directly enhance physical habitat, and typically increase overall trout abundance (biomass), the number of larger trout, and levels of successful natural reproduction. Additional

benefits include reduced erosion and sedimentation, cooler water temperatures, improved water quality, and increased connectivity of aquatic and riparian habitat corridors.

Heritage Brook Trout habitat. Research and past habitat work around the Driftless Area suggest that native brook trout are able to thrive in slightly different habitat than is aimed at wild brown trout. In general, native brook trout can outcompete brown trout in colder, shallower reaches with smaller/shorter sections of continuous overhead bank cover. Consequently, where brown trout are common habitat methods must be tailored to enhance brook trout populations while not encouraging increases in brown trout numbers. Research continues in this area and both project sites and enhancement methods will be carefully chosen with these challenges in mind.

Candidate Streams.

Streams within the six targeted subwaterhseds which contain remnant populations of heritage brook trout include Badger, Swede Bottom, Coolridge, Hemingway, Cold Spring, Mazeppa, East Indian, Maple, Nepstad, Vesta, Middle and others. While in-stream and riparian corridor habitat enhancement work might be completed in any of these based upon ongoing review with DNR, at this time work on the following candidate streams is most likely:

1. Maple Creek (Fillmore)

Maple Creek is a tributary of the South Fork of the Root River near Choice, Minnesota and part of a large connected complex of high-quality trout streams. Recent work of our land protection partners in Maple Creek's watershed and adjacent ones (Vesta Creek, etc.) make this a prime candidate for enhancement of in-stream and riparian habitat. Maple Creek currently supports a healthy population of heritage strain brook trout, despite the presence of brown trout. While habitat is good in many places, some reaches need thoughtful enhancement work to further improve habitat and bolster the brook trout population for the long-term. Bank erosion will be addressed, and riparian trees managed for long term improvement of in-stream habitat.

2. Vesta Creek (Fillmore)

The heritage brook trout population in Vesta Creek is closely connected to Maple Creek's population and individuals can move freely the relatively short distance between them via the Root River. This connectivity with populations of heritage brook trout in Maple Creek, as well as Nepstad Creek, make protection and enhancement work here a top priority. The lower third of this stream and watershed was recently protected by TNC's acquisition utilizing OHF funds. Further protection in the upstream portions seems likely. While the stream and surrounding land is protected for the future, the in-stream habitat needs work. We will work closely with DNR researchers and the Lanesboro Area Fisheries Office to develop good habitat work which boosts the native brook without creating conditions which might cause seasonally transitory brown trout to establish a large year-round population.

3. Hemingway Creek (Winona)

Hemingway Creek is located close to Coolridge Creek in the western part of the Rush-Pine watershed. Individuals from these connected heritage brook trout populations have been used for restoration stockings elsewhere. Habitat work here will create a more robust, resilient population here and ensure a source for future restorations of Minnesota's indigenous brook trout in streams where they have been extirpated. We will partner with the MNDNR Lanesboro Area Fisheries Office.

4. East Indian Creek (Wabasha)

The portion of East Indian Creek located upstream of recent habitat work is less degraded, but still needs thoughtful enhancement work to make the brook trout population more robust. The stream channel in the upper 3 miles of this stream is less incised and bank erosion less prevalent and severe. In order to discourage year-round colonization by brown trout, it is likely that less intensive work will be utilized which does not create long sections of continuous overhead bank cover. We will work with DNR researchers and Fisheries managers to develop good habitat work which boosts the native brook without creating conditions which might cause seasonally transitory brown trout to establish a large year-round population.

Work on priority sections on the other streams noted may be substituted or added depending upon new information and/or understandings of DNR. All projects will enhance and/or restore degraded habitat on public property, on land permanently protected by a conservation and management easement under the aquatic management area system, or in public waters

Notes:

The terms "restore" and "enhance" are used interchangeably throughout the grant proposal and the individual project descriptions since the dividing line is not clear and definitions (or interpretations) not well settled. The projects proposed here will enhance habitat, and some may also restore it.

These are construction projects and estimates of the relative mix of contract versus materials are rough estimates only.

If substantial contracting efficiencies and/or leveraged funding allows we may extend the length of projects or add other streams with LSOHC approval.