



Lessard-Sams Outdoor Heritage Council

DNR Fish Passage Enhancement through Targeted Culvert Replacement - Phase 1
Laws of Minnesota 2022 Accomplishment Plan

General Information

Date: 06/20/2022

Project Title: DNR Fish Passage Enhancement through Targeted Culvert Replacement - Phase 1

Funds Recommended: \$852,000

Legislative Citation: ML 2022, Ch. 77, Art. 1, Sec. 2, subd. 5(r)

Appropriation Language: \$852,000 the second year is to the commissioner of natural resources to restore and enhance fish passage in coldwater streams through targeted culvert replacement in Lake County. A list of proposed restorations and enhancements must be provided as part of the required accomplishment plan.

Manager Information

Manager's Name: Jamison Wendel

Title: Stream Habitat Supervisor

Organization: Minnesota DNR

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Location Information

County Location(s): Lake.

Eco regions in which work will take place:

- Northern Forest

Activity types:

- Enhance

Priority resources addressed by activity:

- Habitat

Narrative

Abstract

Undersized or improperly designed culverts often create barriers to critical cold water habitat needed to sustain robust Brook Trout populations along Minnesota's North Shore of Lake Superior streams in a changing climate. Protecting and restoring connectivity to the highest quality remaining habitat for Brook Trout is critical to continue populations into the future and is a cost effective strategy to increase resiliency to a changing climate. This programmatic request will work with a large, diverse group of partners to restore fish passage at 16 culverts identified as high priorities in the Manitou and Baptism River watersheds along Minnesota's North Shore.

Design and Scope of Work

Culverts are ubiquitous features across all landscapes of Minnesota. Undersized or improperly designed culverts often create barriers to diverse habitat needed to support robust fish populations. Cold water fish populations, such as Brook Trout along North Shore streams, are particularly sensitive to the impacts of culverts that block natural migrations.

Many streams and rivers along the North Shore in Minnesota support robust populations of wild Brook Trout as well as other fish and aquatic species that rely on these unique cold water resources. However, Brook Trout are particularly sensitive to current and predicted increases in stream temperatures and stream flow with a changing climate. Barriers to aquatic organism passage are particularly damaging to Brook Trout because they block access to cold headwater stream refugia during summer and block movement among habitats required at different life stages. Climate models predict available Brook Trout habitat will decrease by 34% along the southern half of the North Shore (Duluth to Silver Bay) by the year 2060. Protecting and restoring the highest quality remaining habitat for Brook Trout is critical to continue sustaining robust populations into the future and is a cost effective strategy to increase the likelihood that North Shore streams continue to support robust Brook Trout populations. Removing barriers also will allow fish and other aquatic animals to access diverse habitats that are critical for them to meet their needs at different life stages.

MNDNR and project partners propose to replace 16 culverts in the Manitou and Baptism River watersheds identified as high priorities to improve fish passage. Replacing these culverts would restore fish passage to 27.5 stream miles.

Prioritization occurred in two phases. First, watersheds were prioritized as priority refugia watersheds. After watersheds were prioritized, we identified the important values for individual potential culvert projects. The values included factors such as suitable water temperature for fish, amount of stream channel that will become accessible to trout by replacing a culvert, and what the stream temperature is predicted to be in the future. We gave those values scores and used the total score of individual culvert projects to prioritize culvert replacement within the watersheds.

Replacing these 16 culverts will provide many additional benefits beyond the immediate improvements to fish passage. These projects will allow streams to respond more naturally to rain and snowmelt events, while reducing the amount of sediment the streams transport. Culvert replacements will also allow more water to flow under roads after rain and snowmelt and decrease the risk of catastrophic road failure that jeopardizes public safety and causes costly infrastructure repairs.

The projects on our list have strong local support. A diverse group of local, state, federal, and non-profit partners are actively involved in this project and are critical to its success. Lake County Soil and Water Conservation District,

US Forest Service, Lake County Forestry, North Shore Forest Collaborative, Wolf Ridge Environmental Center, Trout Unlimited, Arrowhead Fly Fishers, MPCA, The Nature Conservancy, Lake County Highway Department, Crystal Bay Township, and MnDOT have all helped develop this initiative.

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

There are 68 species of greatest conservation need that utilize headwaters to large streams, including birds, turtles, frogs, fish, and insects. Stream habitat projects are not designed with one species in mind, but instead are intended to benefit multiple functions and habitats of the river both within the stream and in the riparian area, which will have benefits for many of these rare species.

The Manitou River watershed is a Conservation Focus Area in the Minnesota Wildlife Action Plan 2015-2025. As stated in the plan, "Conservation Focus Areas (CFA) are priority areas for working with partners to identify, design, and implement actions and to report on the effectiveness toward achieving the goals and objectives defined in the Wildlife Action Plan. Conservation Focus Areas are intended to focus conservation efforts over the next 10 years to maintain and enhance the resiliency of the Wildlife Action Network."

The Minnesota Wildlife Action Plan 2015-2025 also addresses the vulnerability of coldwater aquatic systems to climate change: "Warming air temperatures, reduction in groundwater inputs (as a result of higher air temperatures and evaporation), altered and more extreme precipitation patterns, increased impervious surface, agricultural drainage, and human demands on groundwater are expected to reduce the amount of available habitat for cold-water stream species such as brook trout." Restoring connectivity at the 16 road crossings included in this proposal will help ensure North Shore streams retain high quality coldwater aquatic systems for future generations.

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

Our proposal features projects intended to reduce fragmentation. Undersized and poorly designed culverts in rivers fragment areas of suitable habitat. By removing or modifying barriers in streams, we will allow fish and other aquatic life to move between different patches of habitat that may be critical for different life cycle activities, such as spawning. Connectivity protects fish populations from extreme events by allowing them movement within the watershed and allows them to recover after those events. Allowing fish access to as much of a watershed as possible also allows for expansion of fishing opportunities by acting as a conduit for recolonization should something catastrophic such as drought happen in one portion of a watershed. Replacing the 16 culverts identified as high priorities in the Manitou and Baptism River watersheds will restore connectivity to 27.5 miles of diverse, cold water stream habitat.

Prioritization occurred in two phases. First, high priority watersheds were identified based on coldwater habitat and ability to sustain Brook Trout populations into the future. These watersheds were also identified as high priority watersheds by partners such as The Nature Conservancy, US Fish and Wildlife Service, Minnesota Pollution Control Agency, and Coldwater Coalition. Additionally, the Manitou River watershed is a Conservation Focus Area in the current Wildlife Action Plan.

After watersheds were prioritized, we identified the important values for individual potential culvert projects. The values included things including suitable water temperature for fish, amount of stream channel that will become accessible to trout by replacing a culvert, and what was temperature is predicted to be in the future. We gave those

values scores and used the total score of individual culvert projects to prioritize culvert replacement within the watersheds. Prioritization and implementation will be completed in the following steps:

- 1 – Prioritize Watershed (by refugia and resiliency)
- 2 – Use characteristics of the streams and the watershed to prioritize projects
- 3 – Ground truth
- 4 – Develop partnerships and obtain funding
- 5 – Pre-project monitoring
- 6 – Replace culverts
- 7 – Post-project monitoring

Which two sections of the Minnesota Statewide Conservation and Preservation Plan are most applicable to this project?

- H5 Restore land, wetlands and wetland-associated watersheds
- H6 Protect and restore critical in-water habitat of lakes and streams

Which two other plans are addressed in this program?

- Minnesota DNR Strategic Conservation Agenda
- National Fish Habitat Action Plan

Which LSOHC section priorities are addressed in this program?

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

Does this program include leveraged funding?

Yes

Explain the leverage:

Crystal Bay township has committed \$10,000 for culvert replacements completed within that township. Lake County SWCD has committed \$12,500 for staff time related to culvert replacements.

Federal grants contributing to this project include \$201,000 from a National Fish Passage grant, \$46,000 from a Great Lakes Restoration Initiative grant, and \$230,000 from EPA.

Similar projects have been very successful in securing additional federal grants. For example, in 2019, Lake County SWCD was awarded a \$400,000 Sustain Our Great Lakes grant to use towards two culvert replacements identified as high priorities for fish passage on Hockamin Creek. We will continue to aggressively pursue additional grants for this proposal.

Per MS 97A.056, Subd. 24, Please explain 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.

This request is an acceleration of DNR aquatic habitat work to a level not attainable but for the appropriation.

Non-OHF Appropriations

| Year | Source | Amount |
|------|-------------------------------------|--------|
| 2017 | BWSR Grant | 77,000 |
| 2018 | Game and Fish Funds | 6,400 |
| 2016 | Lake Superior Coastal Program Grant | 20,000 |

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

Culvert upgrades have a life expectancy of 50 years with routine maintenance. Operation and maintenance agreements will be established that highlight necessary and routine maintenance activities. Project inspections will be conducted at years 1, 3, 9 after completion of the project.

Actions to Maintain Project Outcomes

| Year | Source of Funds | Step 1 | Step 2 | Step 3 |
|------|-----------------|------------------|-----------------------------|----------------------------|
| 2033 | Game and Fish | Inspect culverts | Inspect riparian vegetation | Make adjustments as needed |
| 2027 | Game and Fish | Inspect culverts | Inspect riparian vegetation | Make adjustments as needed |
| 2025 | Game and Fish | Inspect culverts | Inspect riparian vegetation | Make adjustments as needed |

How will the program directly involve, engage, and benefit BIPOC (Black, Indigenous, People of Color) and diverse communities:

The DNR Fish Passage Enhancement through Targeted Culvert Replacement proposal has the following specific ties to BIPOC and diverse communities. Projects included in this proposal provide benefits at the watershed scale. These benefits extend well beyond the footprint of each individual project and benefit all Minnesotans. For this program, we have engaged and received positive feedback from tribal representatives from the 1854 treaty authority (Grand Portage, Fond du Lac, Great Lakes Indian Fish and Wildlife Commission, and Red Cliff).

DNR's OHF projects aim to serve all Minnesotans. At the same time, we are bringing more focus in all our work to BIPOC and diverse communities. The Minnesota DNR has adopted advancing diversity, equity and inclusion (DEI) as a key priority in its 2020-22 strategic plan. The plan focuses on increasing the cultural competence of our staff, creating a workforce that is reflective of Minnesota, continuing to strengthen tribal consultation and building partnerships with diverse communities.

The OHF funds high quality habitat projects that provide ecosystem services like clean water and carbon sequestration that support environmental justice. OHF also supports public access and recreational opportunities on these lands. OHF projects and outcomes benefit BIPOC and diverse communities through recreational opportunities that are close-to-home, culturally responsive and accessible to Minnesotans with disabilities.

The DNR has diversity, equity and inclusion strategies that benefit all OHF projects:

- Multilingual and culturally specific hunting and fishing education programs take place on public lands.
- All hiring is equal opportunity, affirmative action, and veteran-friendly. Contracting seeks out Targeted Group, Economically Disadvantaged and Veteran-Owned businesses.
- Public engagement seeks out BIPOC voices and involves diverse communities. Outreach and marketing of projects has this focus as well.
- Partnerships are at the center of all projects. Tribes in particular are consulted in all pertinent areas of the DNR's work, under EO 19-24.

Activity Details

Requirements

If funded, this program 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 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

Where does the activity take place?

- County/Municipal
- Public Waters

Land Use

Will there be planting of any crop on OHF land purchased or restored in this program?

No

Timeline

| Activity Name | Estimated Completion Date |
|--|----------------------------------|
| Construction of Culvert Modification Projects | September 2025 |
| Permitting and Environmental Review of Culvert Modification Projects | December 2023 |
| Design Culvert Modification Projects | March 2023 |

Date of Final Report Submission: 10/31/2027

Availability of Appropriation: Subd. 7. Availability of Appropriation

(a) Money appropriated in this section may not be spent on activities unless they are directly related to and necessary for a specific appropriation and are specified in the accomplishment plan approved by the Lessard-Sams Outdoor Heritage Council. Money appropriated in this section must not be spent on indirect costs or other institutional overhead charges that are not directly related to and necessary for a specific appropriation. Money appropriated to acquire land in fee may be used to restore, enhance, and provide for public use of the land acquired with the appropriation. Public-use facilities must have a minimal impact on habitat in acquired lands.

(b) Money appropriated in this section is available as follows:

(1) money appropriated for acquiring real property is available until June 30, 2026;

(2) money appropriated for restoring and enhancing land acquired with an appropriation in this act is available for four years after the acquisition date with a maximum end date of June 30, 2030;

(3) money appropriated for restoring or enhancing other land is available until June 30, 2027;

(4) notwithstanding clauses (1) to (3), money appropriated for a project that receives at least 15 percent of its funding from federal funds is available until a date sufficient to match the availability of federal funding to a maximum of six years if the federal funding was confirmed and included in the original approved draft accomplishment plan; and

(5) money appropriated for other projects is available until the end of the fiscal year in which it is appropriated.

Budget

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

Totals

| Item | Funding Request | Antic. Leverage | Leverage Source | Total |
|-------------------------------|------------------------|------------------------|---|--------------------|
| Personnel | - | - | - | - |
| Contracts | \$852,000 | \$230,000 | Crystal Bay Township, Lake County SWCD, National Fish Passage, Great Lakes Restoration Initiative, EPA | \$1,082,000 |
| Fee Acquisition w/ PILT | - | - | - | - |
| Fee Acquisition w/o PILT | - | - | - | - |
| Easement Acquisition | - | - | - | - |
| Easement Stewardship | - | - | - | - |
| Travel | - | - | - | - |
| Professional Services | - | - | - | - |
| Direct Support Services | - | - | - | - |
| DNR Land Acquisition Costs | - | - | - | - |
| Capital Equipment | - | - | - | - |
| Other Equipment/Tools | - | - | - | - |
| Supplies/Materials | - | - | - | - |
| DNR IDP | - | - | - | - |
| Grand Total | \$852,000 | \$230,000 | - | \$1,082,000 |

Amount of Request: \$852,000

Amount of Leverage: \$230,000

Leverage as a percent of the Request: 27.0%

DSS + Personnel: -

As a % of the total request: 0.0%

Easement Stewardship: -

As a % of the Easement Acquisition: -

How will this program accommodate the reduced appropriation recommendation from the original proposed requested amount?

We will implement culvert removal projects based on our prioritized list, completing the highest priorities with available funding.

Describe and explain leverage source and confirmation of funds:

A total of \$230,000 has been committed to the completion of this project from Crystal Bay Township, Lake County SWCD, and various other federal grants.

Contracts

What is included in the contracts line?

100% of contracts are for R/E work.

Federal Funds

Do you anticipate federal funds as a match for this program?

No

Output Tables**Acres by Resource Type (Table 1)**

| Type | Wetland | Prairie | Forest | Habitat | Total Acres |
|--|---------|---------|--------|----------|-------------|
| Restore | - | - | - | - | - |
| Protect in Fee with State PILT Liability | - | - | - | - | - |
| Protect in Fee w/o State PILT Liability | - | - | - | - | - |
| Protect in Easement | - | - | - | - | - |
| Enhance | - | - | - | 8 | 8 |
| Total | - | - | - | 8 | 8 |

Total Requested Funding by Resource Type (Table 2)

| Type | Wetland | Prairie | Forest | Habitat | Total Funding |
|--|---------|---------|--------|------------------|------------------|
| Restore | - | - | - | - | - |
| Protect in Fee with State PILT Liability | - | - | - | - | - |
| Protect in Fee w/o State PILT Liability | - | - | - | - | - |
| Protect in Easement | - | - | - | - | - |
| Enhance | - | - | - | \$852,000 | \$852,000 |
| Total | - | - | - | \$852,000 | \$852,000 |

Acres within each Ecological Section (Table 3)

| Type | Metro/Urban | Forest/Prairie | SE Forest | Prairie | N. Forest | Total Acres |
|--|-------------|----------------|-----------|---------|-----------|-------------|
| Restore | - | - | - | - | - | - |
| Protect in Fee with State PILT Liability | - | - | - | - | - | - |
| Protect in Fee w/o State PILT Liability | - | - | - | - | - | - |
| Protect in Easement | - | - | - | - | - | - |
| Enhance | - | - | - | - | 8 | 8 |
| Total | - | - | - | - | 8 | 8 |

Total Requested Funding within each Ecological Section (Table 4)

| Type | Metro/Urban | Forest/Prairie | SE Forest | Prairie | N. Forest | Total Funding |
|--|-------------|----------------|-----------|---------|------------------|------------------|
| Restore | - | - | - | - | - | - |
| Protect in Fee with State PILT Liability | - | - | - | - | - | - |
| Protect in Fee w/o State PILT Liability | - | - | - | - | - | - |
| Protect in Easement | - | - | - | - | - | - |
| Enhance | - | - | - | - | \$852,000 | \$852,000 |
| Total | - | - | - | - | \$852,000 | \$852,000 |

Average Cost per Acre by Resource Type (Table 5)

| Type | Wetland | Prairie | Forest | Habitat |
|--|---------|---------|--------|-----------|
| Restore | - | - | - | - |
| Protect in Fee with State PILT Liability | - | - | - | - |
| Protect in Fee w/o State PILT Liability | - | - | - | - |
| Protect in Easement | - | - | - | - |
| Enhance | - | - | - | \$106,500 |

Average Cost per Acre by Ecological Section (Table 6)

| Type | Metro/Urban | Forest/Prairie | SE Forest | Prairie | N. Forest |
|--|-------------|----------------|-----------|---------|-----------|
| Restore | - | - | - | - | - |
| Protect in Fee with State PILT Liability | - | - | - | - | - |

| | | | | | |
|--|---|---|---|---|-----------|
| Protect in Fee w/o State PILT Liability | - | - | - | - | - |
| Protect in Easement | - | - | - | - | - |
| Enhance | - | - | - | - | \$106,500 |

Target Lake/Stream/River Feet or Miles

0.6

Outcomes

Programs in the northern forest region:

- Improved aquatic habitat indicators ~ *We will use routine fish surveys to gauge changes to the fish community and compare to pre-project data.*

Parcels

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.

Parcel Information

Sign-up Criteria?

No

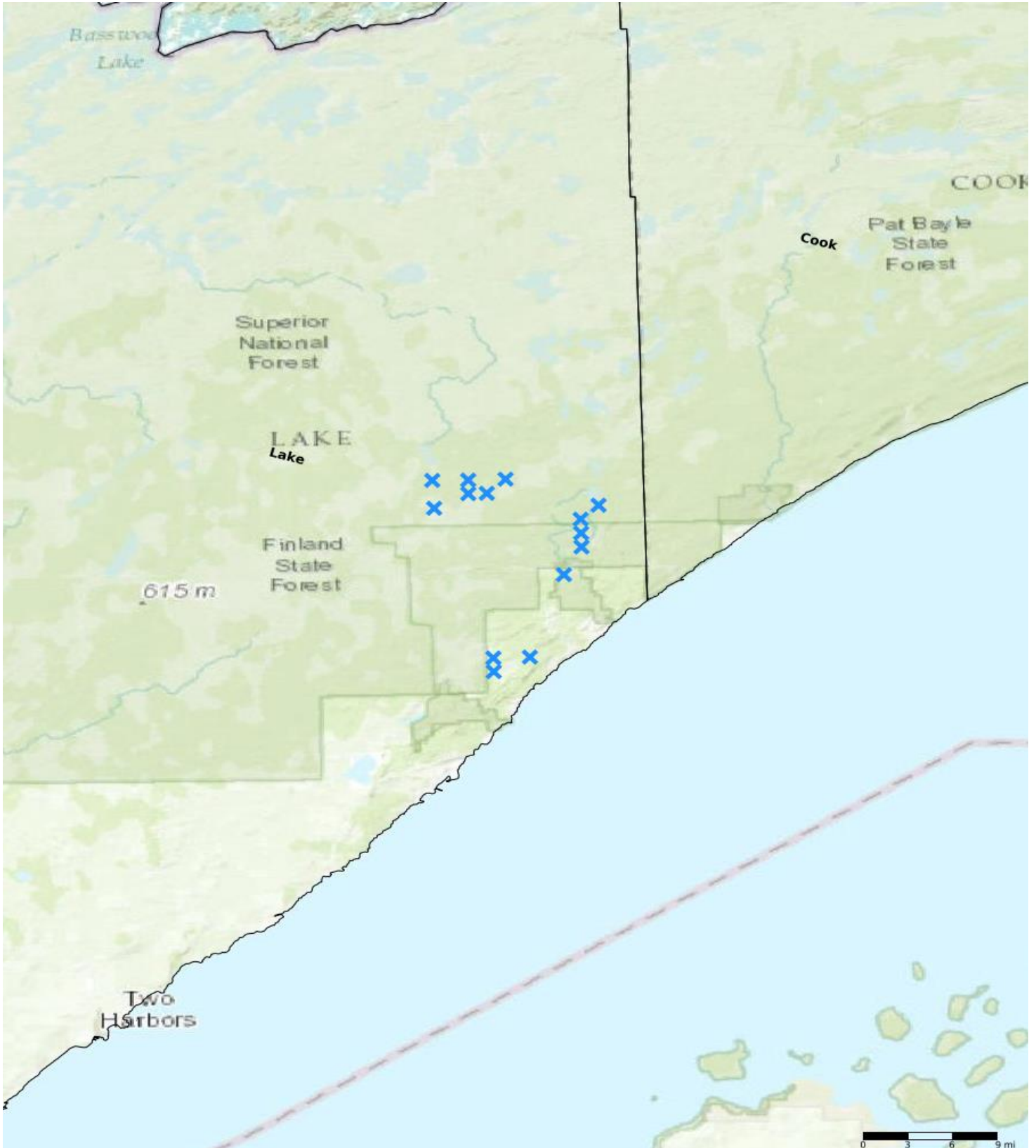
Explain the process used to identify, prioritize, and select the parcels on your list:

Prioritization occurred in two phases. First, watersheds were prioritized as priority refugia watersheds. After watersheds were prioritized, we identified the important values for individual potential culvert projects. The values included factors such as suitable water temperature for fish, amount of stream channel that will become accessible to trout by replacing a culvert, and what the stream temperature is predicted to be in the future. We gave those values scores and used the total score of individual culvert projects to prioritize culvert replacement within the watersheds.

Restore / Enhance Parcels

| Name | County | TRDS | Acres | Est Cost | Existing Protection |
|----------------------------|--------|----------|-------|-----------|---------------------|
| Cramer Road #1 | Lake | 05906233 | 1 | \$38,700 | Yes |
| Cramer Road #2 | Lake | 05806204 | 1 | \$357,900 | Yes |
| Cramer Road #3 | Lake | 05906227 | 1 | \$48,400 | Yes |
| Cramer Road #4 | Lake | 05806209 | 1 | \$26,600 | Yes |
| Cramer Road #5 | Lake | 05806220 | 1 | \$48,400 | Yes |
| East General Grade Road #1 | Lake | 05907221 | 1 | \$232,100 | Yes |
| Cranberry Road | Lake | 05707227 | 1 | \$135,600 | Yes |
| East General Grade Road #3 | Lake | 05907216 | 1 | \$31,400 | Yes |
| East General Grade Road #2 | Lake | 05907230 | 1 | \$140,300 | Yes |
| Forest Road 359 | Lake | 05907222 | 1 | \$43,500 | Yes |
| Forest Road 172D | Lake | 05907218 | 1 | \$396,600 | Yes |
| Little Marais Road #1-3 | Lake | 05707224 | 3 | \$406,800 | Yes |
| Hoist Lake Road | Lake | 05907214 | 1 | \$203,100 | Yes |
| Little Marais Road #4 | Lake | 05707222 | 1 | \$135,600 | Yes |

Parcel Map



- Protect in Easement
- ▲ Protect in Fee with PILT
- Protect in Fee W/O PILT
- ★ Restore
- ✕ Enhance
- ⊕ Other