

# **Environment and Natural Resources Trust Fund**

# 2026 Request for Proposal

# **General Information**

Proposal ID: 2026-403

Proposal Title: Developing an Innovative Technology to Control Carp

# **Project Manager Information**

Name: Steve Donovan Organization: FarWide Conservation Trust, Inc. Office Telephone: (605) 695-4352 Email: sdonovan@farwide.com

# **Project Basic Information**

**Project Summary:** This project will develop and demonstrate an alternative, economical control technique for invasive carp using submersible ROV technology that was successfully developed to control invasive lionfish.

ENRTF Funds Requested: \$807,000

Proposed Project Completion: November 30, 2027

LCCMR Funding Category: Fish and Wildlife (D)

# **Project Location**

- What is the best scale for describing where your work will take place? Region(s): SW
- What is the best scale to describe the area impacted by your work? Statewide

When will the work impact occur?

During the Project and In the Future

# Narrative

#### Describe the opportunity or problem your proposal seeks to address. Include any relevant background information.

Invasive carp are a widespread problem in numerous water bodies across North America, including lakes in Minnesota. One species, the common carp, was introduced in North America in the 1800's by Europeans as a source of food. This species has caused widespread damage to aquatic habitats mainly due to its foraging behavior that stirs up sediments on the lake bottom, reducing water quality and light penetration. Large numbers of carp can affect water clarity, water quality, aquatic plant communities and other fish populations. This problem is particularly relevant in Minnesota's shallow lakes, like Lake Christina in Douglas County. Historically, Lake Christina would provide migration habitat to countless waterfowl, particularly diving ducks that fed on sago pondweed, wild celery, invertebrates and other foods. But changes in hydrology and the proliferation of carp turned the water turbid and drastically eliminated aquatic plant communities, devastating habitat needed by waterfowl, native fish and other species. Much effort has been put into various strategies to control carp populations. Commercial harvesting of carp is one strategy that has been employed on a limited basis. The ability to quickly, efficiently and economically catch large numbers of carp is one factor that has limited this strategy.

# What is your proposed solution to the problem or opportunity discussed above? Introduce us to the work you are seeking funding to do. You will be asked to expand on this proposed solution in Activities & Milestones.

Under this proposal, we will develop and demonstrate an alternative, economical carp control technique using submersible ROV technology. This technology was originally developed as a strategy to reduce invasive lionfish in saltwater habitats. Lionfish have commercial value as a human food. However, capturing lionfish required divers using spearfishing technology, which proved costly. A more economical harvesting technique was needed. The "reef sweeper", a submersible spearfishing drone, was developed to provide that new technique. A reef sweeper can catch 10 times more lionfish than the best diver could capture and also fish at depths far deeper than a diver could go. We propose to bring this technology to Minnesota, "train" the drone to target the common carp, and test the ability of this adapted vehicle to harvest carp more efficiently and economically than current methods used by commercial fishermen in Minnesota. If a more efficient method of capturing carp can be developed, it could lead to expanded markets for carp, which could then lead to reduced carp populations in Minnesota lakes. Reducing carp populations would benefit water quality, habitat quality, and native fish and wildlife populations. The technology could also be modified in the future to target other invasive fish species.

# What are the specific project outcomes as they relate to the public purpose of protection, conservation, preservation, and enhancement of the state's natural resources?

The common carp is an invasive species that has been demonstrated to cause significant, negative impacts to water quality and aquatic habitats. The purpose of this project is to develop an efficient and economical method of removing large numbers of non-native, common carp from a Minnesota lake using technology that was developed to remove invasive lionfish. If successful, this technology could be applied in numerous Minnesota lakes where common carp are causing significant damage to water quality, aquatic plant communities, and native fish and wildlife populations. The technology could also be then modified to target other non-native, invasive fish species.

# **Activities and Milestones**

# Activity 1: Project Preparation

#### Activity Budget: \$160,000

#### **Activity Description:**

During this phase of the project, a drone and related equipment is shipped to Minnesota from Bermuda. The drone and necessary equipment are acquired and attached to a boat rented for the duration of the project. The equipment is tested and prepared for use.

#### **Activity Milestones:**

Description	Approximate Completion Date
Shipping drone and equipment	April 30, 2027
Preparing drone, related equipment and the boat	April 30, 2027

#### Activity 2: Implementing capture of carp and modifying equipment and software.

#### Activity Budget: \$534,200

#### **Activity Description:**

During this phase of the project, the active capture of carp is implemented. Various capture scenarios are tested, including time of day, depths of water, types of underwater habitats, different bodies of water, etc. Also, the software is modified, as necessary, to maximize the ability of the drone to successfully identify carp while avoiding non-target species. The ability to capture large numbers of carp quickly and efficiently is the goal of the project and thus various scenarios will be tried to achieve success.

#### **Activity Milestones:**

Description	Approximate Completion Date
Testing Implementation	May 31, 2027
Testing phase completed	August 31, 2027

#### Activity 3: Developing Final Report and Equipment Demonstration

#### Activity Budget: \$112,800

#### **Activity Description:**

During the final phase of the project, various parties will be invited to attend an "open house" type of event where the use of the software and drone equipment will be demonstrated. We will also provide copies of our Final Report, which will include information on "Best Practices" for using the drone to capture common carp, while also providing any information as to the feasibility of modifying the technology to target other non-native, invasive fish species. In addition, during this phase, the equipment will be unloaded from the rental boat and shipped back to Bermuda.

#### **Activity Milestones:**

Description	Approximate Completion Date
Demonstration Day	September 30, 2027
Removal of Equipment and Shipping back to Bermuda	September 30, 2027

# **Project Partners and Collaborators**

Name	Organization	Role	Receiving Funds
Jorge Longoria	U.S. Lionshare LLC	Project Manager. Mr. Longoria will be one of the key partners working on the project, including equipment development, software development, and in-field management.	Yes
Darrius Martin	Atlantic Lionshare Ltd	Chief engineer. Mr. Martin will modify the drone, as needed, to capture carp in Minnesota waters. Mr. Martin will be responsible for modifications and repairs, as necessary, to maximize fishing efficiency.	Yes

# Long-Term Implementation and Funding

# Describe how the results will be implemented and how any ongoing effort will be funded. If not already addressed as part of the project, how will findings, results, and products developed be implemented after project completion? If additional work is needed, how will this work be funded?

The purpose of the project is to develop an efficient, economical method of removing large numbers of carp from Minnesota lakes. Carp are used in a variety of commercial products, including human food, fertilizer and pet food. One factor that limits the commercial viability of carp-based products is the ability to capture large numbers of carp efficiently. Developing a more efficient means of capturing carp reduces input costs and makes commercial uses more viable. If we are successful in developing a more efficient capture technique, commercial operators will use the technology, essentially self-funding future expansion of this technology.

# Project Manager and Organization Qualifications

#### Project Manager Name: Steve Donovan

Job Title: Executive Director

#### Provide description of the project manager's qualifications to manage the proposed project.

Mr. Donovan has been a wildlife biologist for over 35 years in several capacities for both governmental and nongovernmental conservation organizations. Mr. Donovan has been responsible for managing large and growing conservation programs, often with annual budgets of several million dollars. He has extensive experience in restoring, enhancing and acquiring both wetland and upland habitats, including projects to improve wetland habitat by controlling carp populations. In one project, Mr. Donovan helped implement a project to control carp on a 7,500-acre marsh on the Malheur National Wildlife Refuge in eastern Oregon by designing and constructing an innovative carp exclusion device. In his current capacity as Executive Director of FarWide Conservation Trust, Mr. Donovan is responsible for all aspects of identifying and implementing fish and wildlife conservation projects in several states. FarWide Conservation Trust has recently secured several million dollars through the North American Wetlands Conservation Act and other programs to implement a variety of habitat conservation efforts in Texas, Oklahoma, Iowa, South Dakota, Kansas and Nebraska.

Organization: FarWide Conservation Trust, Inc.

#### **Organization Description:**

FarWide Conservation Trust (FWCT) was established in 2021 with a purpose of conserving habitat for fish and wildlife while also expanding outdoor recreational opportunities for people. FWCT has worked with a variety of both public and private partners and landowners to develop and implement wildlife habitat projects. To date, FWCT is working on a variety of projects, mostly in South Dakota, Iowa, Texas, Oklahoma, Kansas and Nebraska. An example of projects includes a \$2.4 million North American Wetlands Conservation Act grant to implement 12 conservation projects, involving both acquisition and restoration efforts, in eastern Oregon. Another includes a \$9 million project in Texas to conserve several thousand acres of wetlands and associated upland habitats along the Texas Gulf Coast.

# Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineli gible	% Bene fits	# FTE	Class ified Staff?	\$ Amount
Personnel								
Steve Donovan		Program manager, grant manager			0%	0.15		\$22,400
							Sub Total	\$22,400
Contracts and Services								
U.S. Lionshare LLC	Service Contract	U.S. Lionshare will provide, modify and operate a custom built, modified drone capable of capturing fish. The drone will primarily be modified to capture and remove the common carp, a common non-native invasive species that causes significant environmental damage in certain waters.				1.5		\$410,600
TBD	Service Contract	Boat Captain, to operate the rented boat for approximately 4 months				0.33		\$50,000
TBD	Service Contract	Deck Hand. The deck hand will be responsible for numerous activities associated with operating the boat				0.33		\$30,000
							Sub Total	\$490,600
Equipment, Tools, and Supplies								
	Equipment	Specialized drone	We will rent (six months) and modify a drone specifically designed to capture fish					\$225,000
	Equipment	Shipping a drone to and from Bermuda	The drone is the main equipment needed for the project					\$6,000
	Equipment	Boat Lease	A large pontoon or flat bottom boat will need to be rented for approximatley six months to facilitate the project					\$35,000
	Equipment	Shipping materials	Equipment needed for the project, including 6-7 monitors, electrical tether, computer, batteries, and other material will be shipped from Bermuda and back after the project is completed					\$4,000

	Tools and Supplies	Personal Protection Equipment	certain personal protection equipment will be needed, including safety gloves, flotation devices, water-proof coats/waders, etc.		\$2,000
	Tools and Supplies	Boat fuel and maintenance	For operating the boat for 4-6 months		\$20,000
				Sub Total	\$292,000
Capital Expenditures					
				Sub Total	-
Acquisitions and Stewardship					
				Sub Total	-
Travel In Minnesota					
	Miles/ Meals/ Lodging	one person, 114 miles per trip, average 2 days per trip, 8 trips,	Project Manager trips to project area to manage, plan, coordinate, and implement project		\$2,000
				Sub Total	\$2,000
Travel Outside Minnesota					
				Sub Total	-
Printing and Publication					
				Sub Total	-
Other Expenses					
				Sub Total	-
				Grand Total	\$807,000

# Classified Staff or Generally Ineligible Expenses

Category/Name Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
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# Non ENRTF Funds

Category	Specific Source	Use	Status	Amount
State				
			State Sub	-
			Total	
Non-State				
			Non State	-
			Sub Total	
			Funds	-
			Total	

Total Project Cost: \$807,000

This amount accurately reflects total project cost?

Yes

# Attachments

# **Required Attachments**

Visual Component

File: 8c099831-682.pdf

#### Alternate Text for Visual Component

Picture of the Reef Sweeper (spearfishing drone)...

#### Financial Capacity

Title	File
Certificate of Authority to do business in Minnesota	0268bc0a-1dc.pdf
Form 990 2023	ae636015-01c.pdf

#### Board Resolution or Letter

Title	File
FarWide authorization letter	<u>fc361e95-470.pdf</u>

#### Supplemental Attachments

#### Capital Project Questionnaire, Budget Supplements, Support Letter, Photos, Media, Other

Title	File
Lionfish Document with link to video	461017b5-bf4.docx
Lionfish Project Summary	<u>9550d48a-70e.pdf</u>

# Administrative Use

Does your project include restoration or acquisition of land rights?

No

Do you understand that travel expenses are only approved if they follow the "Commissioner's Plan" promulgated by the Commissioner of Management of Budget or, for University of Minnesota projects, the University of Minnesota plan?

Yes, I understand the Commissioner's Plan applies.

Does your project have potential for royalties, copyrights, patents, sale of products and assets, or revenue generation?

Yes

Do you understand and acknowledge IP and revenue-return and sharing requirements in 116P.10?

Yes

Do you wish to request reinvestment of any revenues into your project instead of returning revenue to the ENRTF? If so, describe here (1) the source and estimated amounts of any revenue and (2) how you propose to use those revenues:

Yes, During the development, testing and demonstration of this alternative control technique for invasive carp, we will be capturing carp that may have a commercial value. It is unknown how many carp may be captured, whether or not there is a commercial opportunity to sell the carp, or how much revenue could be generated during the course of the project, though it is likely to be only a few thousand dollars at most. We would simply use those funds to pay for project costs, potentially saving a portion of the grant funds.

Does your project include original, hypothesis-driven research?

No

Does the organization have a fiscal agent for this project?

No

Does your project include the pre-design, design, construction, or renovation of a building, trail, campground, or other fixed capital asset costing \$10,000 or more or large-scale stream or wetland restoration?

No

Do you propose using an appropriation from the Environment and Natural Resources Trust Fund to conduct a project that provides children's services (as defined in Minnesota Statutes section 299C.61 Subd.7 as "the provision of care, treatment, education, training, instruction, or recreation to children")?

No

Provide the name(s) and organization(s) of additional individuals assisting in the completion of this proposal:

Jorge Longoria, US Lionshare LLC

Do you understand that a named service contract does not constitute a funder-designated subrecipient or approval of a sole-source contract? In other words, a service contract entity is only approved if it has been selected according to the contracting rules identified in state law and policy for organizations that receive ENRTF funds through direct appropriations, or in the DNR's reimbursement manual for non-state organizations. These rules may include competitive bidding and prevailing wage requirements

Yes, I understand