U.S. Fish and Wildlife Service

Determination for Issuing a Single Source Financial Assistance Award

Instructions: In accordance with Service policy 516 FW 6, *Issuing Discretionary Grant and Cooperative Agreement Awards without Competition*, complete this form to document the justification for issuing a single source grant or cooperative agreement award. This form must be signed by both a program representative and the employee with signature authority for the award to be issued (see 516 FW 3, *Signature Authority for Grant and Cooperative Agreement Awards*). The completed and signed form must be maintained in the official award file.

Recipient Name: Center for Natural Lands Management

Project Title: Habitat Restoration for a Desert Pupfish Refuge

Program Contact: Jenness McBride

Select all criteria that apply (from 505 DM 2):

	(1) Unsolicited Proposal: The proposed award is the result of an unsolicited application that represents a unique or innovative idea, method, or approach that is not the subject of a current or planned award, but is found to be advantageous to program objectives.
	(2) Continuation: The activity to be funded is necessary for the satisfactory completion of, or is a continuation of, an activity we are funding and holding a competition would have a significant adverse effect on continuing or completing the activity.
	(3) Legislative Intent: The language in the applicable authorizing legislation or legislative history clearly indicates the intent of Congress to restrict the award to a particular recipient or purpose.
✓	(4) Unique Qualifications: The applicant is uniquely qualified to perform the activity based on a variety of demonstrable factors such as location; property ownership; voluntary support capacity; cost-sharing ability, if applicable; technical expertise; or other such unique qualifications.
	(5) Emergencies: Because of a compelling and unusual urgency, or substantial danger to health or safety, there is not enough time to follow adequate competitive procedures.

Explain below why competition for this award is not practical. As applicable, summarize the program legislative history, unique capabilities of the proposed recipient, and any cost-sharing contribution offered by the proposed recipient. Be brief and specific:

This project will fund elimination of crayfish in desert pupfish ponds and develop and implement a monitoring protocol to manage desert pupfish habitat at the Thousand Palms Oasis and range-wide. The Center for Natural Lands Management (CNLM) has been working in partnership with U.S. Fish and Wildlife Service since 1987 to assist in re-establishing desert pupfish at the Thousand Palms Preserve, which is owned and managed by CNLM. Since 2009, CNLM has focused intensively on eradicating crayfish from the Preserve and on educating Preserve visitors on desert pupfish recovery. The CNLM Preserve Manager for the Coachella Valley and her staff have the on-the-ground knowledge and expertise for managing desert pupfish and invasive species within the Preserve. This project is contingent upon availability of funds.

I have determined that this project meets the requirements for a single source award and recommend that it be awarded to the recipient named above.

G. Mendel Stewart 7/2/15

Program Representative Sign and Date

G. Mendel Stewart, Field Supervisor

Printed Name of Program Representative

I, as the Service employee with signature authority for this award under 516 FW 3, have reviewed this program recommendation and find that it meets the requirements for a single source award.

7/7/15

Authorized Signator Sign and Date

Darrin Thome, Deputy ARD, ES, Region 8

Printed Name of Signator

SCOPE OF WORK

IMPLEMENTING STRATEGIC HABITAT CONSERVATION FOR THE DESERT PUPFISH IN THE COACHELLA VALLEY: HABITAT RESTORATION FOR A PUPFISH REFUGE

Prepared by:
Ginny Short
Center for Natural Lands Management

Partners:
US FWS Palm Springs Office
CDFW Bermuda Dunes Office

May 11, 2015

Synopsis: The Center for Natural Lands Management (CNLM) has been working with Federal and State agencies to assist in their efforts to recover, conserve, and protect the desert pupfish (*Cyprinodon macularius*) in the Coachella Valley. One such effort is the re-establishment of desert pupfish populations in the Simone/McCallum Pond located within the Thousand Palms Preserve. Currently, the pond is occupied by red-swamp crayfish (*Procambarus clarkii*), which need to be removed prior to stocking desert pupfish. Therefore, CNLM proposes a two-phased project to: 1) identify the appropriate pesticide strategy to eliminate crayfish while minimizing impacts to other fauna that utilize the pond; and 2) develop and implement a monitoring protocol to effectively manage desert pupfish habitat and provide a standard protocol that can be used to monitor pupfish habitat at the Thousand Palms Oasis and range-wide. The budget for the full proposal is $35,573; partial funding ($19,963) would be accepted for implementation of phase 1.

1. INTRODUCTION

The Center for Natural Lands Management (CNLM) has been working with Federal and State agencies to assist in their efforts to recover, conserve, and protect the desert pupfish (*Cyprinodon macularius*) in the Coachella Valley, California. One task identified in the Desert Pupfish Recovery Plan (Marsh and Sada 1993) calls for refugia to be established to augment the native population and provide a restocking option in the event of catastrophic loss – a significant threat to the species, particularly in light of the limited water supply in the region and long-term drought resulting from climate change (USFWS 2010). In 1987, the Simone/McCallum Pond, located within CNLM's Thousand Palms Oasis Preserve, was stocked with desert pupfish from Salt Creek in Riverside County. Prior to this introduction, efforts to remove and eradicate tilapia and bullfrogs were successful, and it was thought that the pond provided population security as required by the Recovery Plan (Marsh and Sada 1993). Unfortunately, red-swamp crayfish (*Procambarus clarkii*), a predator/competitor, was not removed. In 2009, only two male desert pupfish remained, and these were removed and repatriated to the Salt Creek. It is thought that the crayfish was the major cause for the extirpation of the desert pupfish population in the pond via predation, competition, and degradation of water quality (Whitledge and Rabeni 1997).

In 2009, in partnership with the US Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW), CNLM began an intensive effort to eradicate the remaining red-swamp crayfish from the Simone/McCallum Pond. CNLM has taken an integrated pest management approach to solve the problem. To date, we have dried out the pond, studied the effects of several pesticides on the crayfish, studied their population dynamics, and tested various traps and baits. CNLM has contributed at least $130,000 in materials and labor towards the restoration of the pond.

2. SCOPE

This proposal is one component of the larger effort to implement strategic habitat conservation in the Coachella Valley through the Coachella Valley Multiple Species Habitat Conservation Plan, and focuses on the restoration of two desert pupfish refugia. The desert pupfish was historically found in several springs, seeps and slow-moving streams in the Salton Sink Basin as well as backwaters and sloughs along the lower Colorado River. It currently occurs in remnant habitats throughout its historical range. There are currently 14 active refugia for the desert pupfish (CDFW In Preparation) throughout the historic range. With removal of the crayfish, Simone/McCallum Pond could be reestablished as an important refugium, helping to accomplish Task 2 in the Recovery Plan. In addition, the oasis receives well over 20,000 visitors a year, providing an ideal opportunity to inform and educate the general public about desert pupfish, helping to accomplish Task 7 of the Recovery Plan. Another advantage of establishing a desert pupfish refugium at the Simone/McCallum Pond is that it is less likely to be affected by aquifer overdraft because of high salinities in the Desert Hot Springs subbasin, the aquifer that feeds the Simone/McCallum Pond springs. Desalinating this water is prohibitively expensive, and it is unlikely to be cost effective in the future (Steve Bigley, Coachella Valley Water District Environmental Services Director, pers. comm.). Therefore, the water that feeds the ponds in the Thousand Palms Oasis is a relatively stable water source.

While much has been learned about crayfish control techniques, the final goal of eradicating the crayfish has not been accomplished. CNLM has worked closely with Joel Trumbo of the CDFW Pesticide Division to identify effective pesticides to eradicate the crayfish and minimize harm to the aquatic system. Preliminary and rough tests show that permethrins and synthetic permethrins are effective at killing crayfish. Based on this information, we propose to identify the most effective synthetic pyrethroid, examine modes of delivery (e.g., bait vs direct water application), and begin the application of the selected pesticide. Because the Simone/McCallum Pond is a closed system, use of a pesticide can be done with little harm to the aquatic system with careful planning and implementation. The goal of the restoration would be the reintroducing of the desert pupfish.

Finally, to achieve and maintain a stable, healthy population of desert pupfish, population trends, vegetation conditions, and water quality parameters should be monitored. This holistic monitoring approach would meet the goal of Task 5 identified in the Recovery Plan. As phase 2, we plan to develop this holistic monitoring approach based on the model of stream monitoring found in Rehn (2014). This includes water level monitoring (by installing monitoring wells) and invertebrate sampling. We will include camera traps to monitor use by other animals. Fish monitoring will follow CDFW standard protocols. All these data together can help to determine if there is a problem long before it becomes evident. Additionally, an established protocol could

then be implemented at strategic locations such as Salt Creek and San Felipe Creek, two important natural desert pupfish locations that have never been holistically monitored.

To reestablish a stable desert pupfish population in the Simone/McCallum Pond, we propose separate phases to 1) identify the appropriate pesticide strategy to eliminate crayfish while minimizing impacts to other fauna that utilize the pond; and 2) set up a monitoring protocol to effectively manage desert pupfish habitat and provide a standard protocol that can be used to monitor pupfish habitat at the Thousand Palms Oasis and range-wide. We would accept partial funding to begin the project by implementing phase 1.

Methods

Methods associated with the pesticide study will include:

1. A literature search and consultation with experts to identify effective synthetic pyrethroids.
2. Ex situ testing to determine effective concentrations, mode and rate of application, and persistence in water.
3. In situ application of selected pesticide based on testing results and in combination with trapping removal methods.
4. Crayfish sampling to assess effectiveness

Methods associated with water monitoring protocol development include:

1. A literature search and consultation with experts to identify proven protocols to assess the health of the aquatic system prior to re-introducing desert pupfish.
2. Develop a monitoring protocol that include proven methods for data collection, management, analysis, and reporting and quality assurance (for example, see Case et. al 2013).
3. Implement habitat monitoring protocol.

3. PERIOD OF PERFORMANCE

TBD

4. EVALUATION AND ACCEPTANCE

Phase 1 Deliverables:

1. Report of results and findings on the efficacy of pesticide treatment on crayfish

Phase 2 Deliverables:

1. Habitat Monitoring Protocol and plan to implement it in specific locations

5. PARTNERS

CNLM: Ginny Short, Preserve Manager, Coachella Valley
USFWS: Felicia Sirchia, Fish and Wildlife Biologist
CDFW: Sharon Keeney, Environmental Scientist/Fishery Biologist

6. BUDGET

Funds requested for phase 1 (pesticide study only): $19,963

Funds requested for phase 2 (monitoring protocol): $15,610

References

Case III, H.L., J. Boles, A. Delgado, T. Nguyen, D. Osugi, D.A. Barnum, D. Decker, Steve Steinberg, Sheila Steinberg, C. Keene, K. White, T. Lupo, S. Gen, and K.A. Baerenklau. 2013. Salton Sea ecosystem monitoring and assessment plan: U.S. Geological Survey Open-File Report 2013-1133, 220 p.

CDFW (In Preparation). Desert Pupfish Refuge Management Plan.

Marsh, P. C. and D. W. Sada. 1993. Desert Pupfish (*Cyprinodon macularius*) Recovery Plan. U.S. Fish and Wildlife Serive, Phoenix, AZ.

Rehn, A. C. 2014. Hydrologic Conditions Across a Gradient of Nonperennial Streams in the San Diego Region, California Department of Fish and Wildlife.

USFWS. 2010. Desert Pupfish (*Cyprinodon macularius*) 5-Year Review: Summary and Evaluation. Arizona Ecological Services Office, Phoenix, Arizona.

Whitledge, G.W., and C.F. Rabeni. 1997. Energy sources and ecological role of crayfishes in an Ozark stream—Insights from stable isotopes and gut analysis: Canadian Journal of Aquatic Sciences, 54:2,555–2,563.