

EVALUATION OF THE EFFECTS OF SEDIMENTATION ON THE COMAL SPRINGS RIFFLE BEETLE

PRELIMINARY SCOPE OF WORK

The Comal Springs Riffle Beetle (*Heterelmis comalensis*; CSRB) is found in “side-flow” springs that emerge from hillside near the water’s edge, in areas on the side of Landa Lake and in upwellings in the lake. The “side-flow” springs are often exposed to sedimentation carried downhill from surface runoff events that seldom impact upwelling springs. This study will investigate the effects of sedimentation on CSRB-preferred habitats and CSRB distribution based on spring habitat characteristics. It is anticipated that this study will require ex situ as well as in situ experimentation and observation to determine the effects of sedimentation on spring habitats and CSRB.

Task 1. Methodology Development

This task is divided into subtasks consisting of methodology development and Science Committee review. The Consultant shall discuss the process, approach, oversight, strategies, and budget requirements to complete each of the subtasks listed below:

Subtask 1.1 Develop Experimental Design and Detailed Methodologies

Consultant will conduct an extensive literature review on the spring habitat and substrate preferences of the CSRB focusing on the effects of siltation on habitat. The literature review should include ex situ and in situ studies. This background data search should also include any information on the levels and types of sedimentation in CSRB habitat areas of Landa Lake. The literature review will serve as the basis for developing the methodology and parameters for the study.

The Consultant will develop a valid study utilizing statistical analysis to answer the study question and will be required to provide justification for the selection of the environmental variables and the methodologies selected to conduct the study.

Subtask 1.2 Present Literature Review and Methodologies to the Science Committee for Review

Once proposed methodologies have been developed, the Consultant will present these methodologies to the EAHCP Science Committee for review prior to the implementation of any activities in the field. The Consultant will give a 30-minute presentation and must be prepared to answer any questions from the Science Committee. Recommendations provided by the Science Committee should be considered for inclusion in final research methodologies. The Consultant will provide detailed written justification to the EAA for any recommendations they do not incorporate into their final methodology.

Task 2. Conduct Applied Research

The Consultant will carry out experimentation consistent with the methodologies proposed in Task 1 and approved by the Science Committee. The Consultant will keep a project notebook containing a description of the assumptions and methodologies used in the study analysis. The notebook shall be organized in such a way as to allow replication of the steps, calculations, and procedures used by the Consultant to reach conclusions, described in the draft final report. The project notebook shall include a USB flash drive or other suitable electronic storage device containing all raw data collected during the project. The USB flash drive containing the project notebook and raw data will be submitted with the draft final report. In addition, the Consultant will take photographs of the experimentation (if applicable) throughout its various phases and make these photos available on the USB flash drive or other suitable electronic storage device and utilized in reports submitted to the EAA (where applicable).

Task 3. Draft and Final Reports

The Consultant will include in the Draft and Final Report a section describing the assumptions and methodology used by the Consultant in generating the data, analysis and conclusions. The reports will include details of the statistical analysis and conclusions, and will provide recommendations to the EAA for potential future research (if applicable). The Draft Report must be submitted to the Authority in an expedient manner to allow review and to allow the Consultant to develop and submit the Final Report on time. The Final Report, along with all data and the project notebook, must be submitted in hard copy and on a USB flash drive or other suitable electronic storage device in a Microsoft Office, or other agreed upon, format.

Task 4. Meetings and Presentations

The Consultant should budget for a minimum of two meetings with the Science Committee and when requested by the EAHCP Program Manager (1) to present the literature review and project methodologies, and; (2) to present the project results.