

Edwards Aquifer Authority 2014 Ecological Modeling Work Plan

The development of a mechanistic Ecological Model is assigned to the Edwards Aquifer Authority (EAA) per section 6.3.3 of the Edwards Aquifer Habitat Conservation Plan (EAHCP). The purpose of the ecological model is to evaluate potential adverse effects to Covered Species and their critical habitat, and to the extent such effects are determined to occur, quantify their magnitude and develop alternate strategies. The actual 2014 Scope of Work will depend on the progress made in implementing the existing “Predictive Ecological Model(s) for the Comal & San Marcos Ecosystems” contract issued in 2013

Long Term Objective: Development of a comprehensive mechanistic ecological. This information will be critical to the Adaptive Management Process (AMP), especially the strategic AMP.

Assumptions: The EAA will soon enter into a 2013 contract for “Predictive Ecological Model(s) for the Comal & San Marcos Ecosystems.” This contract will extend to May 31, 2014. Therefore, the first 5 months of 2014 will be devoted to completing the tasks scheduled in the 2013 contract.

Target Performance Measures for 2014: Completion of the 2013 contract and execution of a second contract (or extension of the first) to complete recommendations and next steps identified in the “Deliverables and Recommendations” section of the initial contract; leading to a fully functional Ecological Model in 2015.

Methodology: In 2012, with authorization from the Implementing Committee, the EAA entered into a contract with BIO-WEST and the Meadows Center for the Environment using designated "year zero" funds to develop a strategic plan for the ecological modeling program. This strategic plan incorporated the recommendations of the expert modeling panel assembled in August 2012. BIO-WEST and the Meadows Center provided their recommendations in the “Technical Memorandum: Recommendations for Development of the Ecological Modeling Work Plan¹” (Technical Memorandum), including the identification of seven questions to guide development of the ecological modeling program. These questions were slightly modified following Implementing Committee review and the following reflects the final questions provided in the Scope of Work:

- (1) What will be the response/dynamics of native and key non-native aquatic vegetation during extended periods of low flow followed by increased flows as projected under the HCP?

¹ *Technical Memorandum: Recommendations for Development of the Ecological Modeling Work Plan.* BIO-WEST and Meadows Center for the Environment, December 2012.
http://www.eahcp.org/files/admin-records/NEPA-and-HCP/Ecosystem_Modeling_Report_by_BIO-WEST_and_Meadows.pdf

- (2) What will be the response/dynamics of the aquatic macroinvertebrate community to potential responses/dynamics of the aquatic vegetation during the projected flow regimes of the HCP?
- (3) What will be the response/dynamics of fountain darter populations relating to growth, survival, and movement during projected flow conditions as anticipated under the HCP during a repeat of the drought of record?
- (4) What will be the response/dynamics of Comal Springs riffle beetles to projected flow conditions as anticipated under the HCP during a repeat of the drought of record?
- (5) How successful will native aquatic vegetation restoration (EAHCP § 6.3.4.3) and Texas wild-rice enhancement (EAHCP § 6.3.5) be?
- (6) What will be the response/dynamics of gill parasites and non-native host snails (EAHCP § 6.3.6) to projected flow conditions as anticipated under the HCP during a repeat of the drought of record?
- (7) What will be the response/dynamics of fountain darter populations relative to aquatic vegetation, macroinvertebrate, gill parasite, and non-native species reactions to projected flow conditions as anticipated under the HCP during a repeat of the drought of record? This question will also include an evaluation of alternative scenarios related to human activity impacts such as recreation and water quality changes.

In 2013, the EAA retained BIOWEST et al to implement the Scope of Work presented to the Implementing Committee and approved, with recommended changes, on January 17, 2013. BIOWEST will be required to submit a written report within 365 days of the execution of a contract with the EAA. This requires that fulfillment of this contract extend into 2014. Utilizing the provided results and recommendations of the initial contract coupled with the findings of the Technical Memorandum, the EAA will develop a new Scope of Work to be reviewed by the Science Committee and Implementing Committee. The EAA may then either extend the contract already established with BIOWEST, or utilize the EAA competitive procurement process.

Monitoring: All Ecological Modeling contracts will be closely monitored by EAHCP staff. Contractors will be required to submit regular status reports on their activities.

Science Committee Review: The 2013 Ecological Modeling Scope of Work was reviewed by the Science Committee at their November 29, 2012 meeting. Upon completion of the 2013 contract, a new Scope of Work will be developed and submitted to the Science Committee for review in 2014.

Budget:

Budgeted Amount 7.1: \$175,000

Work Plan Budget Amount: \$175,000

Budget Justification: Since the development of the Ecological Model is a priority project that will involve multiple years of work. The Scope of Work for activities scheduled in 2014 will utilize the full budget amount in Table 7.1 of the EAHCP.

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