TO: Science Committee

FROM: Nathan Pence – HCP Officer

SUBJECT: Edwards Aquifer Habitat Conservation Plan (EAHCP) – Science Committee Update

DATE: November 13, 2012

EAHCP Science Committee,

This memo is intended to provide an update of progress to the Eco Modeling development process and Applied Research Facility design; both of which will be topics at the next Science Committee meeting on November 29th at 8am at the San Marcos Activity Center, located at 501 East Hopkins Street, San Marcos.

Eco Modeling Development

An ecological modeling workshop, conducted on August 28-29, 2012, with experts in the field of modeling, recommended that specific key ecological questions regarding the protection of covered species in the Comal and San Marcos Springs be identified and that the current state of knowledge available to answer the questions be compiled. The EAA contracted with BIO-WEST to follow through with this recommendation.

The draft report by BIO-WEST is due by November 15, 2012, with the final report to be submitted by December 15, 2012. The Science Committee will be provided a copy of the draft report as soon as available and will receive a presentation of the draft report at their November 29th meeting, to allow the opportunity to make comments or suggestions.

Applied Research Facility

Over the course of the EAHCP process, stakeholders voiced concerns about the applicability of laboratory research to natural systems. Specifically the application of fountain darter water quality and flow based research conclusions to the Comal and San Marcos systems. This concern lead the Stakeholder Committee to adopt a path forward that included/emphasized research being conducted in a field or natural setting (experimental channels). After investigating and dismissing other potential research facility locations, the EAHCP contemplates the use of the USFWS Fish Hatchery and Technology Center (NFHTC) in San Marcos, TX, as a potential site for the Applied Research Facility.

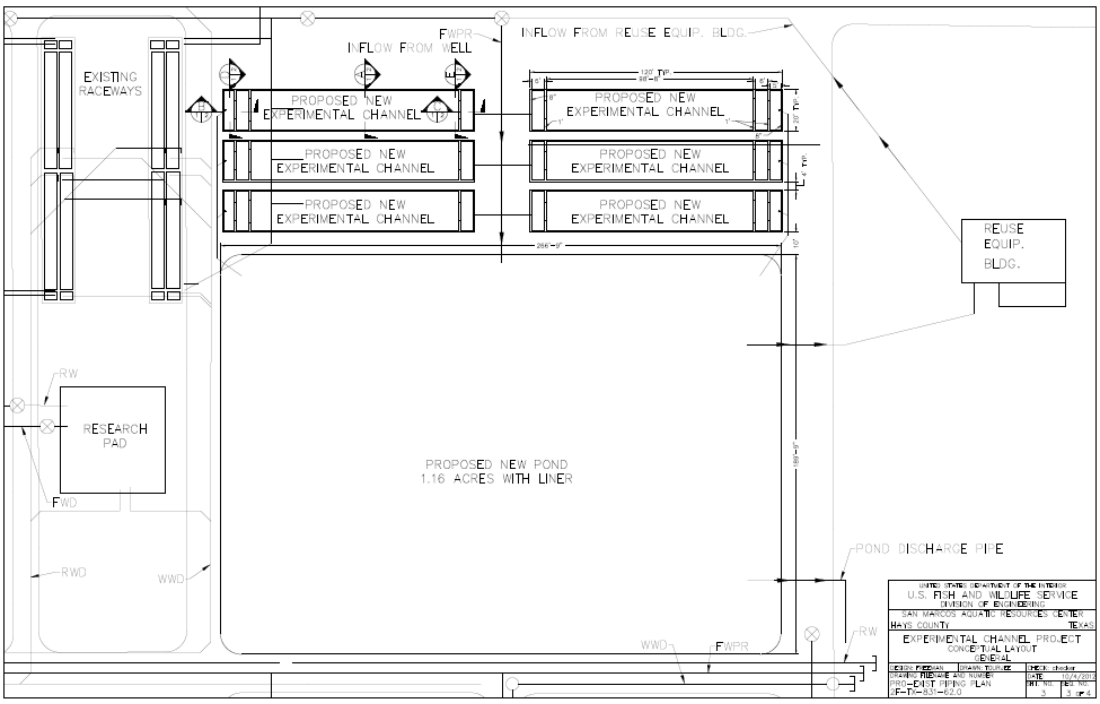
At the August 31, 2012 meeting of the Science Committee, EAHCP staff received recommendations from the committee about design requirements for an "experimental channel" research facility. These recommendations about facility needs and design were then provided to USFWS engineers in early October, who proposed a design with 4 experimental channels for an estimated cost of $2.9 million. This exceeds the available funding in the HCP which caps the costs for construction at $2.25 million. Additionally, a portion of the research identified by the EAHCP in Chapter 6 may best conducted in a laboratory facility, for which infrastructure needs associated with would also be funded from the available $2.25 million. Realizing the budget constraints, EAHCP staff requested a second draft of the design from the USFWS engineers that would conform into the specified funding amount. On November 1st USFWS engineers provided a revised budget estimate and conceptual design that included 2 experimental channels with no ability to manipulate water quality for $1.95 million. Due to the challenging logistics of such a facility, it is uncertain if we will be able to meet the desired conditions of the Science Committee for the applied research facility at the NFHTC.

Additionally, since the last meeting of the Science Committee, EAHCP staff have received additional comments raising issues associated with a research facility, including:

- The current design of the experimental channel research facility at NFHTC might have deficiencies in design (WQ, size, water source, etc) that limit flexibility in research.
- An experimental channel facility at NFHTC may not provide for adequate replication of treatments.
- Laboratory settings may allow for true and increased replication.
- Laboratory settings generally result in increased control of variables.
- Comal Springs Dryopid Beetle, Comal Springs Riffle Beetle, and salamander research might be best suited for a laboratory setting, rather than an experimental channel facility due to lack of containment.
- Smaller laboratory settings may be more conducive for research when considering the small size of the species of concern in the Edwards system.
- It might be necessary to design experimental channel facility infrastructure (shade, water quality manipulation capabilities, upwelling plumbing, reuse water, etc) in such a manner that it could be added at a later date when a specific research project identifies the need.

Recognizing the importance of the applied research facility and the information that will be generated from it, the EAHCP staff would like to get Science Committee input as to "what is the correct ratio and mix of research facilities/resources needed to conduct the research outlined in the EAHCP?"

To assist the Science Committee in evaluating the appropriate ratio and size of research facilities to be constructed, the EAHCP staff has provided the attached spreadsheet of research projects required by the HCP. The spreadsheet is intended to spawn productive thought about the number of aquarium, raceways, or experimental channels needed, as dictated by the type of research, number of variables, number of treatments, number of research projects running simultaneously, etc. Please consider these questions and be prepared to discuss research and facility needs at the next Science Committee meeting on November 29th at 8am at the San Marcos Activity Center, located at 501 East Hopkins Street, San Marcos.



Conceptual Design of Experimental Research Facility at NFHTC

$2.9 million estimate for 4 experimental channels

$1.95 million estimate for 2 experimental channels