

2016 Edwards Aquifer Habitat Conservation Plan Refugia Work Plan

Section 5.1.1 of the Edwards Aquifer Habitat Conservation Plan (EAHCP) provides for Edwards Aquifer Authority (EAA) to support and coordinate with three U.S. Fish & Wildlife Service (USFWS) facilities (San Marcos, Uvalde, and Inks Dam) to provide a series of refugia, with back-up populations, to preserve the capacity for these species to be re-established in the event of the loss of population due to a catastrophic event such as a severe reduction or loss of spring flow, or a chemical spill. On December 4, 2014, the Implementing Committee submitted to the USFWS a minor amendment to the EAHCP and Incidental Take Permit (ITP) to allow the EAA to establish a Refugia with someone else other than the USFWS. The USFWS approved that amendment on January 21, 2015.

The concept of a Refugia is to house and protect adequate populations of the Covered Species (see Table 1) and to conduct research activities to expand knowledge of their habitat requirements, biology, life histories, and effective reintroduction techniques. The use of this support will be limited to the Covered Species listed in the Edwards Aquifer Habitat Conservation Plan (EAHCP) and those associated species that have significant impact on the covered species such as predators, competitors, pathogens, parasites, food, cover, and shelter.

Table 1.-Covered eleven species identified in the Edwards Aquifer Habitat Conservation Plan and listed for coverage under the ITP.

Common Name	Scientific Name	ESA Status
Fountain Darter	<i>Etheostoma fonticola</i>	Endangered
Comal Springs Riffle Beetle	<i>Heterelmis comalensis</i>	Endangered
San Marcos Gambusia	<i>Gambusia georgei</i>	Endangered*
Comal Springs Dryopid Beetle	<i>Stygoparnus comalensis</i>	Endangered
Peck's Cave Amphipod	<i>Stygobromus pecki</i>	Endangered
Texas Wild Rice	<i>Zizania texana</i>	Endangered
Texas Blind Salamander	<i>Eurycea rathbuni</i>	Endangered
San Marcos Salamander	<i>Eurycea nana</i>	Threatened
Edwards Aquifer Diving Beetle	<i>Haideoporus texanus</i>	Petitioned
Comal Springs Salamander	<i>Eurycea</i> sp.	Petitioned
Texas Troglotic Water Slater	<i>Lirceolus smithii</i>	Petitioned

*The San Marcos gambusia was last collected in the wild in 1983 and may already be extinct.

Long-term Objective: A series of refugia, with back-up populations at other facilities, will preserve the capacity for these species to be re-established in the event of the loss of population due to a catastrophic event such as the loss of spring flow or a chemical spill.

Assumptions: In 2015, the EAA established a Salvage Stock Refugia, conducted research related to the propagation of the invertebrates, prepared information as to the resource and infrastructure requirements of a Refugia facility and conducted a public bid process for a full Refugia Program.

Proposals for EAA’s "Edwards Aquifer Habitat Conservation Plan Long Term Refugia Operations" are due on October 29, 2015 which will result in a contract in place by January 1, 2016. At this time, EAA will present a revised final 2016 Refugia Work Plan and budget.

Methodology:

- The Salvage Stock contractor will continue to implement the Salvage Stock Refugia Program of the EAHCP until a long-term Refugia Program is established.
- Research will continue to establish a successful captive propagation program for the invertebrate species covered under the EAHCP, including captive rearing, life history, and environmental requirement needs. Research will be conducted on five aquatic invertebrates species covered under the EAHCP:
 1. Comal Springs riffle beetle (*Heterelmis comalensis*); and
 2. Comal Springs dryopid beetle (*Stygoparnus comalensis*); and
 3. Peck’s cave amphipod (*Stygoparnus pecki*); and
 4. Edwards Aquifer diving beetle (*Haideoporus texanus*); and
 5. Texas troglobitic water slater (*Lirceoilus smithii*).
- EAA will negotiate and establish a contract for a full Refugia Program for the term of the ITP.

Budget:

Table 7.1 Refugia Budget:

\$ 1,678,597

2016 Budget

\$ 8,342,324

\$ 1,678,597

2016 Breakdown

Salvage Refugia	\$1,400,000
Refugia Construction	\$4,958,804 TBD
40% Construction Contingency	\$1,983,520 TBD
Total	\$8,342,324 TBD