

Edwards Aquifer Habitat Conservation Plan (EAHCP)

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Purpose

To provide an overview of the EAHCP for city council agenda item 21-892 regarding the Interlocal Agreement between the City and Texas State University relating to the implementation of the EAHCP to, among other things, including a description of the duties and compensation of the Habitat Conservation Project Manager and extension of the agreement through March 31, 2028; and provide direction to the City Manager.



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History

Events that triggered the development of the EAHCP

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- ▶ 1956 Drought of Record– Comal Springs ceased flow for 6 months
- ▶ Endangered Species Act of 1973
- ▶ Increased pumping by
 - ▶ San Antonio: growing population of 2 million
 - ▶ Downstream communities
 - ▶ Industry/Agriculture
- ▶ Reduced recharge as development covers the recharge zone
- ▶ Magnified drought risk to spring fed rivers



Legal Challenges

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Sierra Club v USFWS 1991

- Sierra Club & CoSM (Plaintiff Intervenor) alleged that unrestricted withdrawals from the aquifer would cause take of Endangered Species. Courts agreed and established “take” and “jeopardy” flow rates; water supply restrictions

Senate Bill 1477 - 1993

- Established Edwards Aquifer Authority and set withdrawal limits
- Attempted HCP: September 1999- March 2005

Senate Bill 3

- Region realized that pumping cuts would be fiscally unfeasible
- 2007 - Senate Bill 3 directed EAA to form an HCP- the federal mechanism for curtailing pumping and enhancing riverine habitat



Edwards Aquifer Recovery Implementation Program (EARIP)

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- Senate Bill 3 created the EARIP as a collaborative stakeholder process to balance the water needs of the Edwards Aquifer (Endangered Species and Human).
- Senate Bill 3 allowed for state control, rather than federal, to resolve the threats to endangered species.
- Using an existing federal program, and with US Fish & Wildlife participation, the Edwards Aquifer Authority managed a process that successfully created an HCP that required compromise and consensus by all stakeholders



Building Blocks of the EAHCP



The building blocks are the habitat and flow Conservation Measures that each signatory is obligated to implement which ensure the flow rates, habitat conditions and water quality necessary to provide abundant quality habitat for conservation of the Comal and San Marcos endangered species.

Incidental Take Permit (ITP)

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- ITP issued in March of 2013 and will span until March 2028 (15 years).
- ITP covers take of listed species that occurs through activities such as pumping and recreation
- However, these activities must be managed so they don't pose a threat to endangered species populations

- Five Permittees:

Edwards Aquifer Authority

San Antonio Water System

City of San Marcos

City of New Braunfels

Texas State University





DOI Partners in Conservation Award

The development of the EAHCP was a big success for the Department of the Interior. In 2013, the five permittees received this award which recognizes outstanding examples of conservation legacies.



Texas Environmental Excellence Award - 2016

Plan Components

Springflow Protection Measures

- ▶ Stage V – requires a 44% reduction of groundwater pumping permits when the J17 and J27 wells hit designated triggers
- ▶ Regional Water Conservation Program – incentivizes municipalities to conserve an amount of water of which half would remain unpumped for 15 years
- ▶ Voluntary Irrigation Suspension Program – irrigators suspend use of all or a portion of their authorized withdrawal rights in exchange for financial compensation
- ▶ Aquifer Storage and Recovery – during high flows, San Antonio Water Systems stores water in the Carrizo Aquifer to use instead of pumping the Edwards aquifer when Edwards springs get low



EAHCP Monitoring, Modeling, & Research

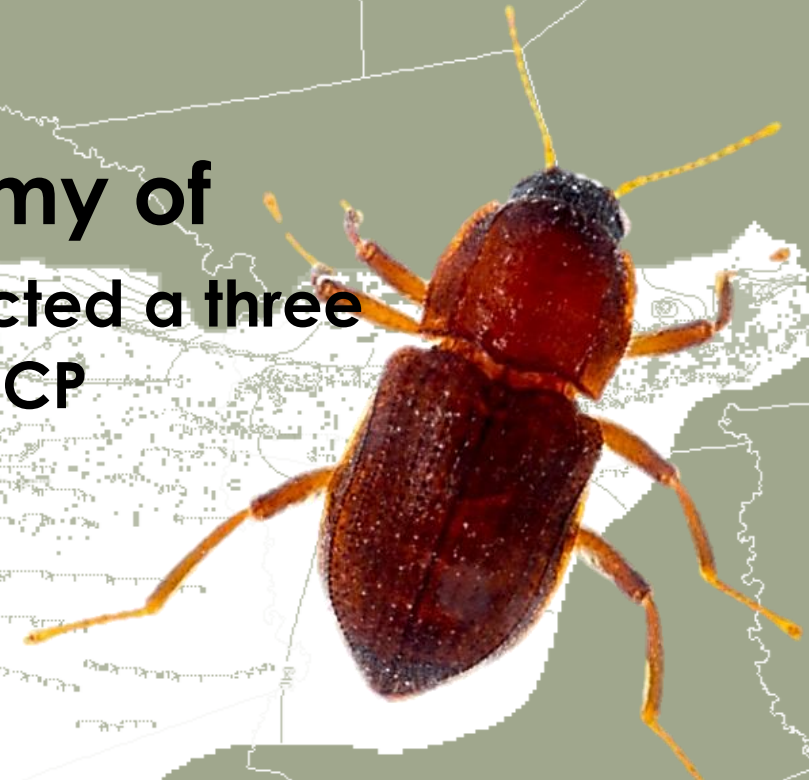


The EAHCP continues to be updated through knowledge gained via monitoring and modeling

- Ecological Models
- Groundwater Models

- Biological Monitoring
- Water Quality Monitoring

- Refugia
- National Academy of Sciences – conducted a three part review of the EAHCP



National Academy of Sciences (NAS)

[Edwardsaquifer.org/wp-content/uploads/2020/03/NAS_Report_1.pdf](https://edwardsaquifer.org/wp-content/uploads/2020/03/NAS_Report_1.pdf)

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The EAHCP Implementing Committee committed to a comprehensive review of the EAHCP by the National Academy Sciences for two main purposes:

1. To improve the EAHCP and implementation methods therein, and
2. To validate the plan and identify knowledge gaps

The NAS reports can be found at above weblink



City of San Marcos EAHCP Overview

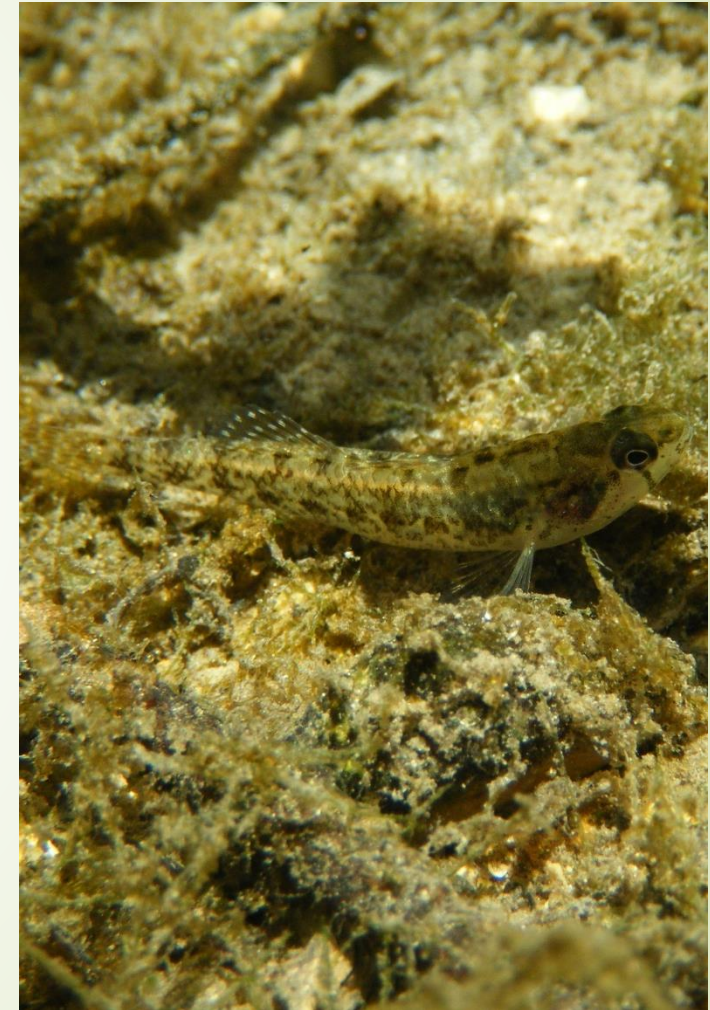


Edwards Aquifer HCP

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Conservation Measures (COSM)

- Texas Wild-Rice Enhancement and Restoration
- Control Non-native Plant Species
- Floating Vegetation Management
- Bank Stabilization/Access
- Riparian Restoration
- Control of Non-native Species
- Manage Recreation in key areas
- Impervious Cover Management
- Household Hazardous Waste



Fountain darter perched near Spring Lake Dam

Texas Wild Rice Enhancement and Restoration (5.3.1/5.4.1)

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- ▶ Long-term goal: To achieve 8,000 – 15,450 m² of Texas wild rice (TWR) and maintain existing and restored areas
- ▶ Total expended through 2020: \$1,101,169
- ▶ The TWR coverage goals from Spring Lake dam to IH35 have been exceeded & below IH-35 TWR goals are underway
- ▶ TWR plantings below IH35 are being funded by two federal grants

Control of Non-native Plant Species

5.3.8/5.4.3/5.4.12

- To decrease the density of non-native aquatic and littoral plants or eliminate as possible through monitored removal and increase native diversity in and along the San Marcos River to enhance fountain darter and Texas wild rice habitat
- Funding to date: \$1,628,019
- Hydrilla and Hygrophyla, along with other minor non-natives have been removed down to Cypress Island. Elephant ears have been initially removed to IH-35 and initial work continues below IH-35. All treated areas have been replanted.
- Removal and planting efforts below IH-35 are funded by two federal grants.

Riparian Restoration

(5.7.1)

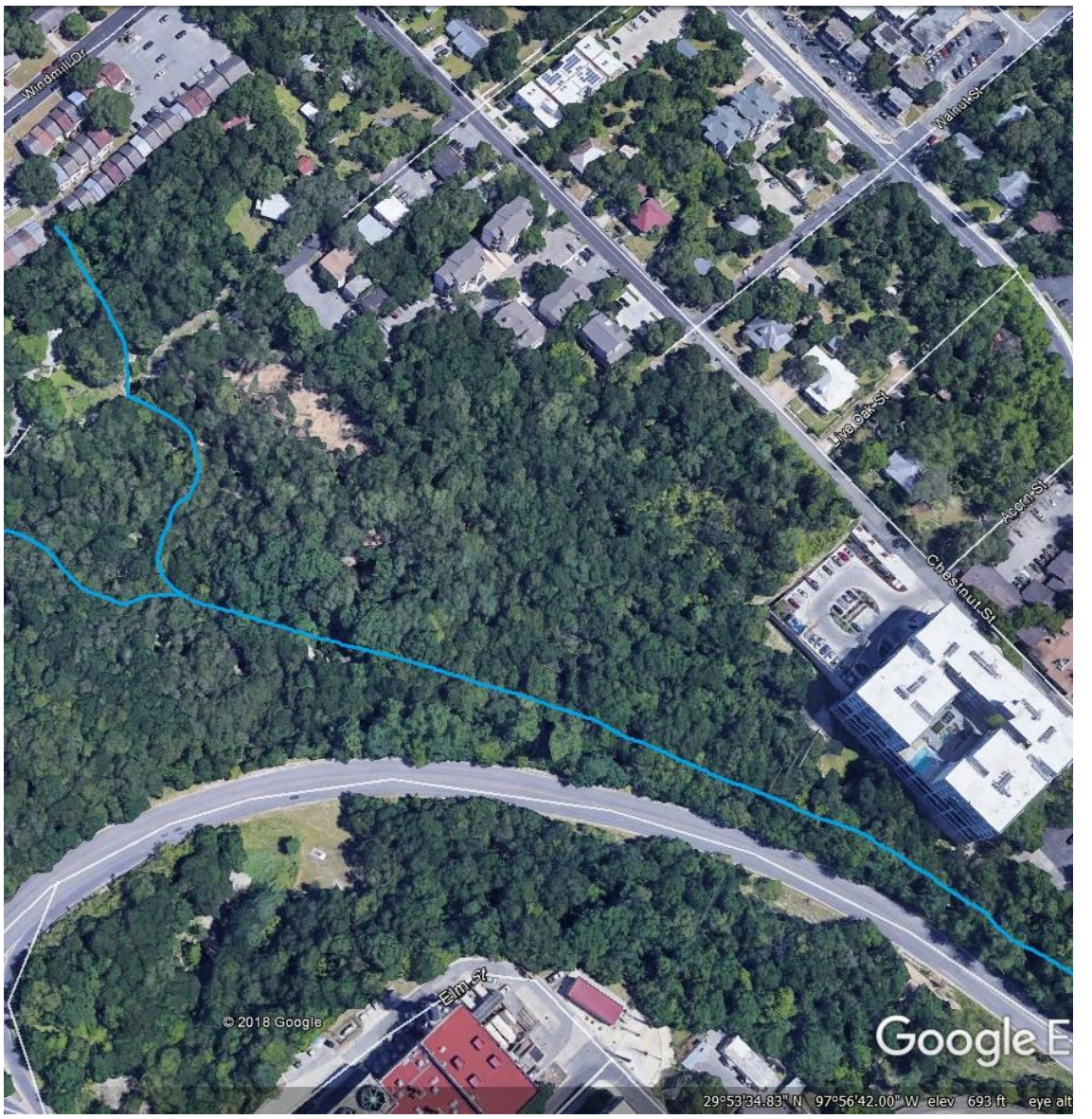
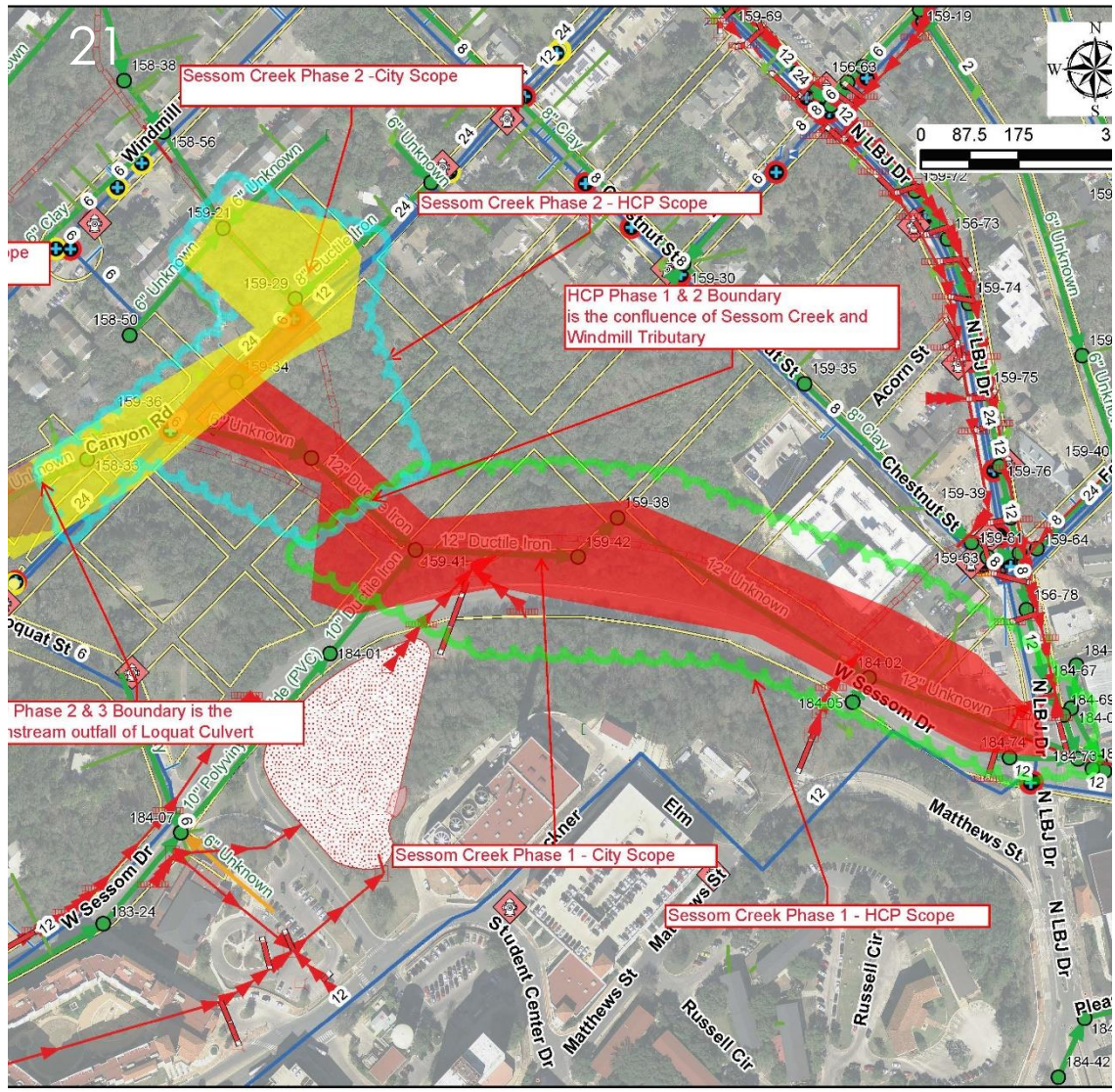
- Establish a robust native riparian and water quality buffer that benefits listed species. This buffer provides a protected edge habitat for Texas wild rice, prevents erosion and enhances the groundwater that provides a river's baseflow which is critical during drought.
- Funding to date: \$519,245
- Invasive riparian vegetation has been removed from headwaters to Willow Creek and a diversity of native plants restored.
- Efforts below IH-35 are funded by two federal grants.

Supportive Conservation Measures

(with amounts spent through 2020)

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- Vegetation Mat & Litter Removal (\$343,379) (5.3.3/5.4.3)
- Bank Stabilization/Access for water quality (\$1,153,493) (5.3.7)
- Non-native Species Control (\$210,955) (5.3.5/5.3.9/5.4.11/5.4.13)
- Management of Recreation in Key Areas (\$454,781) (5.3.2/5.4.2)
- Household Hazardous Waste (\$202,696) (5.7.5)
- Impervious Cover Management (\$1,770,454) (5.7.6)



Changes to the EAHCP

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- ✓ Eleven major changes have occurred since 2013
- ✓ Of those, five apply to CoSM operations – mostly Submerged Aquatic Vegetation and Sediment Management measures
 - ✓ 1/2016: creation of the Restoration Reaches for fountain darter habitat
 - ✓ 2/2016: adding fountain darter population counts for Texas wild rice and *Potamogeton* to fountain darter habitat goals.
 - ✓ 3/2016: removal of non-native plant (*Hygrophila*) from goal species.
 - ✓ 4/2017: Discontinue sediment removal and redirect funds to mitigate the sources upstream - Sessom Creek.
 - ✓ 5/2017: Changed the two ponds originally identified in the EAHCP to the ponds prioritized by COSM - Downtown pond and City Park pond

EAHCP Funding

- Expended to date: \$9,640,209
- Projected total expenditure by end of this ITP:
\$13,126,586

These funds have been expended to increase the resilience of the San Marcos River and the public's understanding of these actions which are required by the Incidental Take Permit for the purpose of covering recreational activities, etc. Compliance ensures continual flows to the spring-fed San Marcos River through managed aquifer pumping.

The Implementation matrix shows progress and remaining level of effort & is available on the EAHCP website

<https://www.edwardsaquifer.org/habitat-conservation-plan/>

2020 is the Eighth Year of the 15-Year Permit Term

TIMELINE

Implementation of EAHCP Conservation Measures

		'13	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23	'24	'25	'26	'27
SPRINGFLOW PROTECTION MEASURES																
Aquifer Storage and Recovery Leases	EAA								✓							
Aquifer Storage and Recovery Forbearance	EAA							✓								
Aquifer Storage and Recovery Operations and Maintenance	SAWS							✓								
Voluntary Irrigation Suspension Program Option	EAA								✓							
Regional Water Conservation	EAA								✓							
Stage V Management	EAA								✓							
HABITAT CONSERVATION MEASURES																
Flow Split Management	CONB															
Texas Wild-Rice Enhancement	COSM, TXST														•	•
Sediment Management	COSM, TXST					✓										
Sessom Creek Sand Bar Removal	TXST				✓											
Management of Floating Vegetation Mats and Litter	CONB, COSM, TXST															
Decaying Vegetation Removal and Dissolved Oxygen Management	CONB															
Control of Non-Native Plant Species	COSM, TXST															
Old Channel Aquatic Vegetation Restoration & Maintenance	CONB															
Landa Lake/Comal River Aquatic Vegetation Restoration & Maintenance	CONB															
Native Riparian Habitat Restoration	COSM, TXST															
Native Riparian Habitat Restoration	CONB															
Native Riparian Habitat Restoration (Riffle Beetle)	CONB								✓							
Non-Native Animal Species Control	CONB, COSM, TXST															
Reduction of Non-Native Species Introduction and Live Bait Prohibition	CONB								✓							
Septic System Registration and Permitting Program	COSM															
Minimizing Impacts of Contaminated Runoff	COSM								✓							
Impervious Cover/Water Quality Protection	CONB, COSM															
Impervious Cover/Water Quality Protection: Coal Tar Sealant Ban	EAA			✓												
Management of Recreation in Key Areas	COSM, TXST															
Management of Public Recreation	CONB															
Designation of Permanent Access Points/Bank Stabilization	COSM		✓	•	•	•										
Diving Classes (Spring Lake) and Boating (Spring Lake and Sewell Park)	TXST															
Research Programs in Spring Lake	TXST															
Monitoring and Reduction of Gill Parasites	CONB															
Diversion of Surface Water	TXST															
Management of Golf Course and Grounds	TXST															
Golf Course Management Diversions and Operations	CONB															
Prohibition of Hazardous Material Transport	COSM															
Prohibition of Hazardous Material Transport Routes	CONB					✓										
Management of Household Hazardous Waste	CONB, COSM															
SUPPORTING MEASURES																
Net Disturbance	EAA															
Incidental Take	EAA															
Refugia	EAA															
Applied Research	EAA															
Ecological Modeling	EAA					✓										
Biological Monitoring	EAA															
Groundwater Modeling	EAA								✓							
Water Quality Monitoring	EAA								✓							

IMPLEMENTING AGENCY

CONB City of New Braunfels
 COSM City of San Marcos
 EAA Edwards Aquifer Authority

SAWS San Antonio Water System
 TXST Texas State University

STATUS KEY

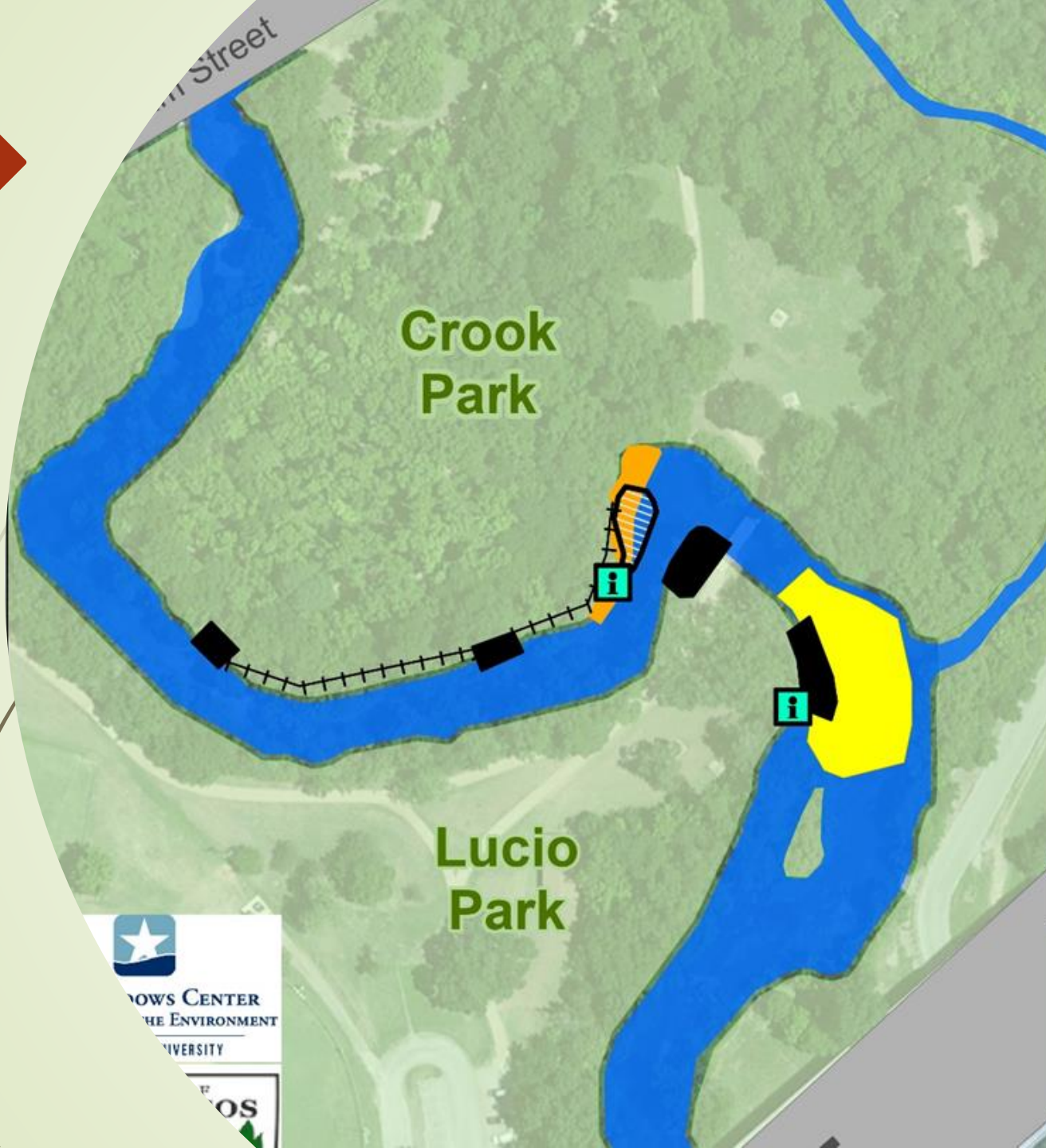
Working toward fulfillment (light blue)
 Fulfillment expected (medium blue)
 Fulfillment achieved (dark blue)
 Maintenance (blue with dot)
 Ongoing (green)
 Implemented when triggered (grey)
 New opportunities sought contingent upon funding (yellow)

EAHCP

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[EAHCP COSM Phase 1 Overview website](#)





San Marcos River

0.5 Mile

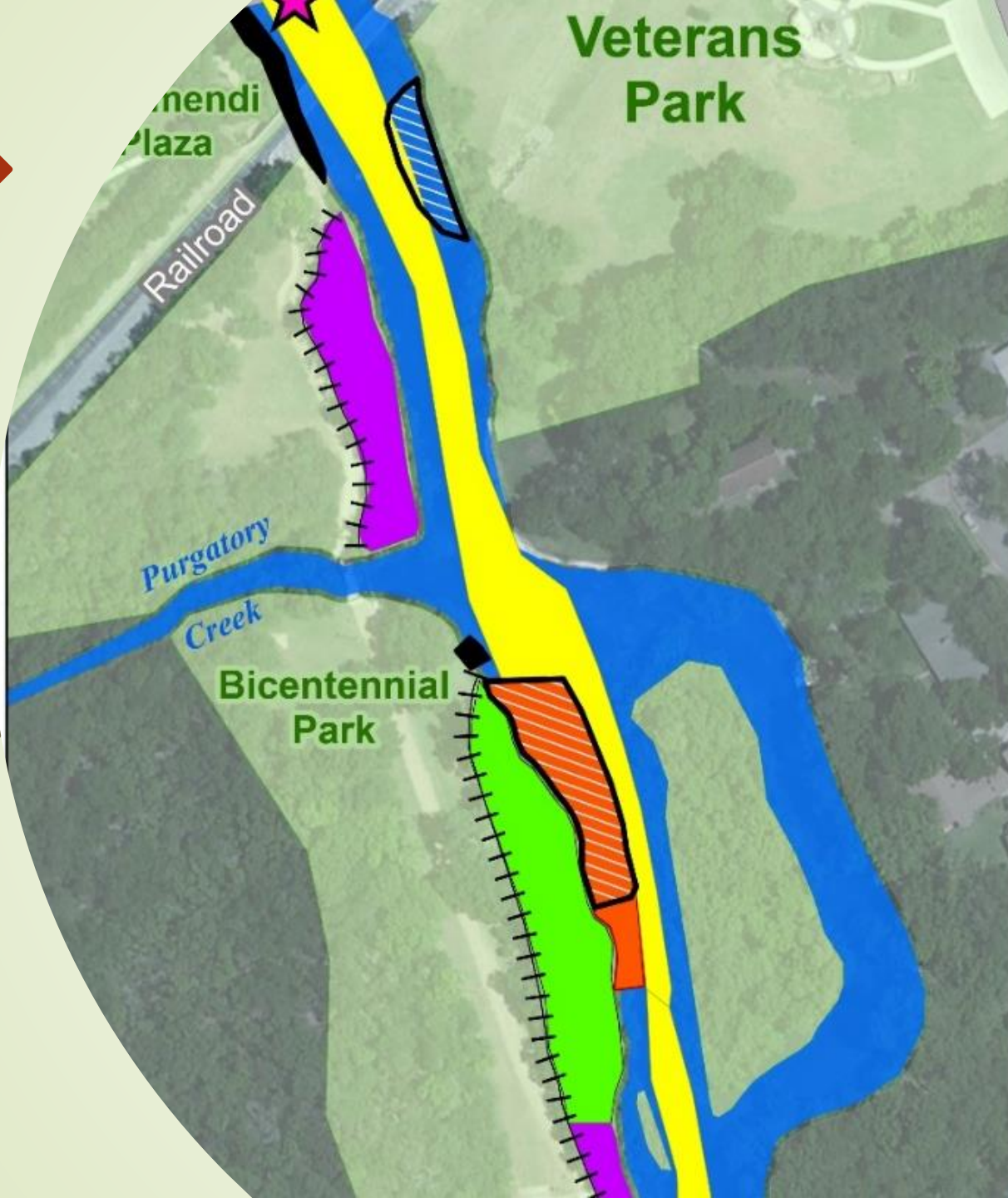
HABITAT
CONSERVATION
PLAN









- ★ Litter Boat
- +++++ Riparian Fence
- Designated Entrance
- Volunteer Work Sites**
- Invasive Veg Removal
- Litter (Snorkel)
- Riparian Planting

San Marcos River





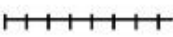





- +++++ Riparian Fee
-  SSA Exclusion
-  Designated Entrance
- Volunteer Work Sites**
-  Litter (Snorkel)
-  Riparian Planting
-  Floating Veg Removal
-  Invasive Veg Removal

San Marcos River



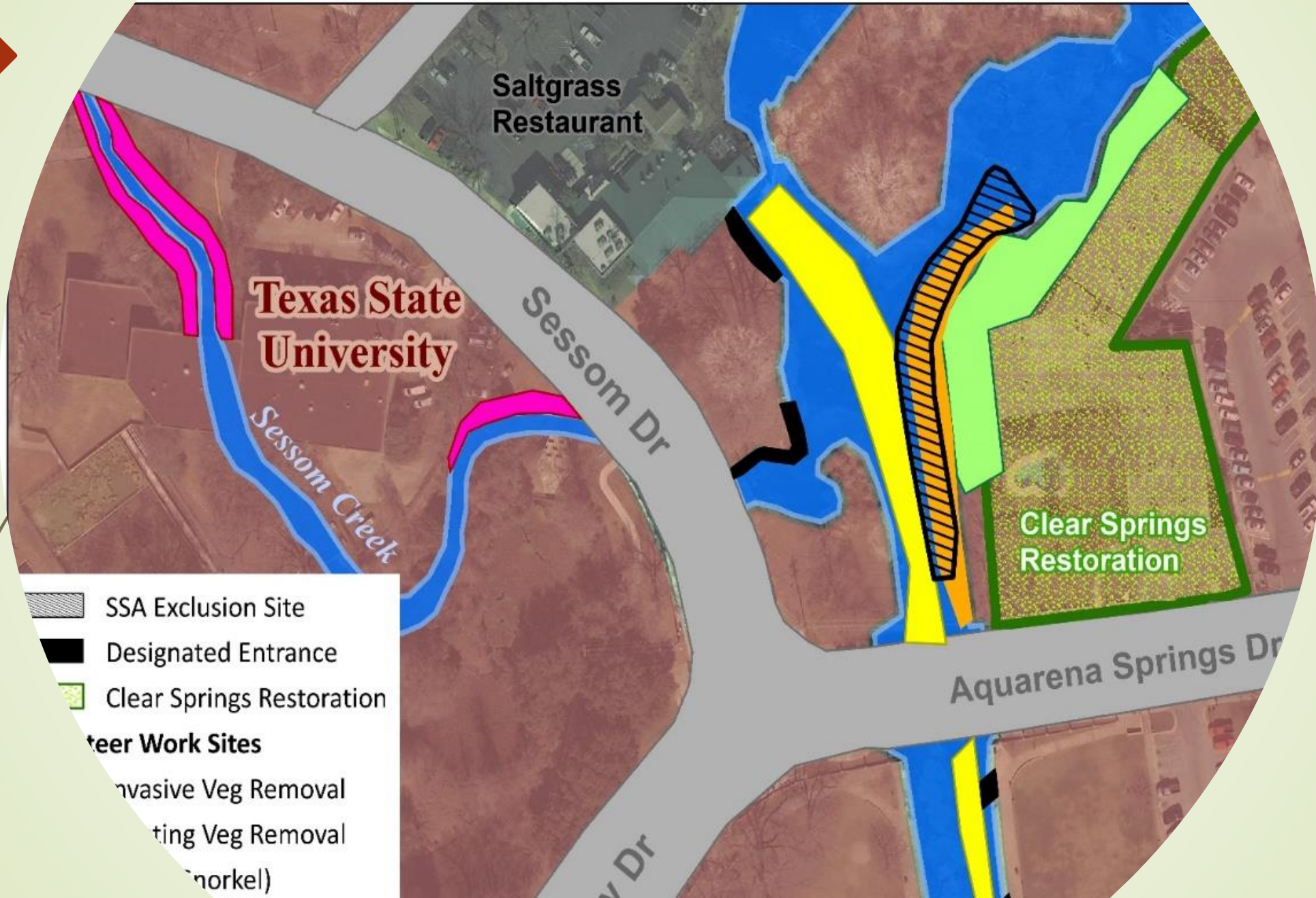


-  SSA Ex
-  Designated
-  Riparian Fence
- Volunteer Work Sites**
-  Riparian Planting
-  Litter (Snorkel)
-  Floating Vegetation

San Marcos River



Sewell Park and Sessom Creek



- SSA Exclusion Site
- Designated Entrance
- Clear Springs Restoration
- Volunteer Work Sites
- Invasive Veg Removal
- Native Veg Removal (snorkel)