2022 ANNUAL REPORT SUMMARY

Edwards Aquifer Habitat Conservation Plan

The Edwards Aquifer Habitat Conservation Plan (EAHCP) is a regional plan to protect 11 species associated with the Edwards Aquifer while helping to ensure its stability as a regional water supply.

EAHCP
EDWARDS AQUIFER
HABITAT CONSERVATION PLAN

INSIDE ▶
Overview of activities and accomplishments in 2022, the tenth year of EAHCP implementation.

Overview of the Edwards Aquifer Habitat Conservation Plan (EAHCP)

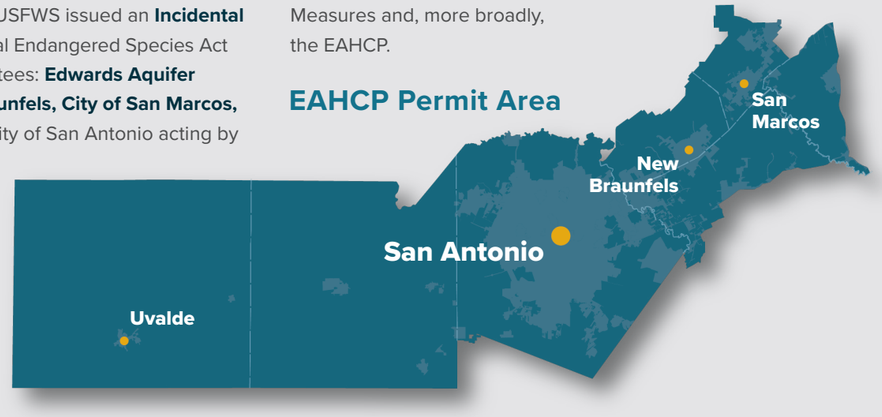
The ***Edwards Aquifer Recovery Implementation Program Habitat Conservation Plan*** **(EAHCP)** was approved by the U.S. Fish & Wildlife Service (USFWS) as a regional plan to protect eight federally listed and three non-listed species—termed **Covered Species**—associated with the Edwards Aquifer while helping to ensure its stability as a regional water supply.

After approval of the EAHCP, the USFWS issued an **Incidental Take Permit (ITP)** under the federal Endangered Species Act of 1973 to five cooperating Permittees: **Edwards Aquifer Authority (EAA), City of New Braunfels, City of San Marcos, Texas State University**, and the City of San Antonio acting by and through its **San Antonio Water System** Board of Trustees.

The area covered by the ITP **(Permit Area)** is bounded by EAA's jurisdictional boundary, which encompasses Uvalde, Medina, and Bexar counties and portions of Atascosa, Caldwell, Comal, Guadalupe, and Hays counties.

The EAHCP describes impacts that are likely to result from **Covered Activities**; identifies **Conservation Measures** to minimize and mitigate those impacts; and assures funding to implement those Conservation Measures and, more broadly, the EAHCP.

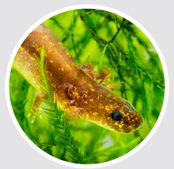
EAHCP Permit Area



Covered Species

Texas Wild-Rice
Zizania texana
ENDANGERED

Texas Blind Salamander
Eurycea rathbuni
ENDANGERED



San Marcos Salamander
Eurycea nana
THREATENED

Fountain Darter
Etheostoma fonticola
ENDANGERED

San Marcos Gambusia[1]
Gambusia georgei
ENDANGERED

Comal Springs Dryopid Beetle
Stygoparnus comalensis
ENDANGERED

Comal Springs Riffle Beetle
Heterelmis comalensis
ENDANGERED

Peck's Cave Amphipod
Stygobromus pecki
ENDANGERED

Texas Troglobitic Water Slater
Lirceolus smithii
PETITIONED

Edwards Aquifer Diving Beetle
Haideoporus texanus
PETITIONED

Comal Springs Salamander[2]
Eurycea sp.
NOT LISTED

[1] The USFWS published a proposed rule on September 30, 2021, to delist San Marcos gambusia due to extinction. Photo courtesy of Texas Parks & Wildlife Department.
[2] The petition to list the Comal Springs salamander was withdrawn in 2020.

Highlights of 2022

10 YEARS EAHCP IMPLEMENTATION

Program Administration

10-year highlight: Program staff updated the EAHCP logo in recognition of the plan's 10th anniversary.

- Program staff launched a multi-year ITP renewal process in coordination with the USFWS. Funding for this effort will come in part from a $1 million federal Habitat Conservation Planning Assistance Grant.
- The National Habitat Conservation Plan Coalition showcased the EAHCP during its 2022 Annual Meeting in Austin.
- In coordination with the USFWS, EAHCP staff helped bring fountain darters and Texas blind salamanders to display aquariums at the new EAA Education Outreach Center.

Springflow Protection

10-year highlight: Despite multiple periods of extreme drought (2013, 2014, 2018, 2021, 2022), the springflows were below average but stayed above the minimum flow requirements.

- La Niña drought conditions persisted through 2022, bringing above-average temperatures and below-average rainfall. In June, Comal and San Marcos springflows fell below Condition M levels; habitat mitigation and restoration activities were limited in accordance with the ITP. Condition M restrictions remained in place through 2022.
- 2022 drought impacted both spring systems, causing Spring Runs 1 and 2 to stop flowing temporarily in New Braunfels and reduced flow in San Marcos to historic lows.
- Springflow conditions below 635 feet mean sea level at the J-17 Bexar Index Well on October 1 triggered the Voluntary Irrigation Suspension Program Option. Participants in the program will suspend Edwards Aquifer pumping in 2023.

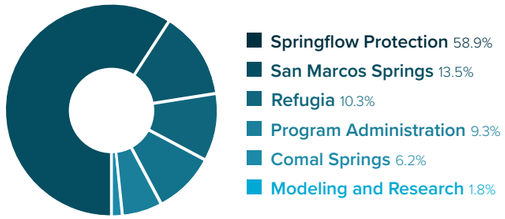
Habitat Restoration

10-year highlight: 10 years of restoration of aquatic and riparian habitat in the Comal and San Marcos springs systems.

- Since 2013, Texas wild-rice (TWR) has expanded from 5,020 m^2 in 2013 to 13,070 m^2 in 2022. Planting of TWR in the upper San Marcos River stopped in 2019, but TWR continues to expand naturally.
- Since 2013, *hygrophila*, an aggressive non-native aquatic present in both spring systems, has been drastically reduced in all of the Long-term Biological Goal Reaches.
- Since 2013, most non-native riparian plants have received initial treatment in the public parks along the Comal and San Marcos rivers, treatment of regrowth will continue until the end of the permit.

Fiscal Stability

Budget by Program Activity, 2022



The current financial projections and cost estimates for the EAHCP indicate an overall fiscally stable Program with an adequate budget for Program implementation in fiscal year 2023. The EAHCP Program has a reserve balance of $22,702,150 and a cash balance of $35,556,158. There are adequate funds for the EAHCP Program in fiscal year 2023.

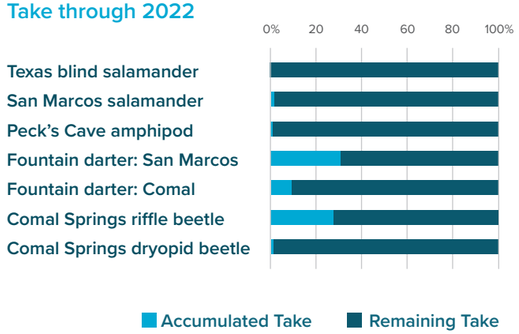
Incidental Take

Incidental take of listed species from Covered Activities is quantified annually and measured against the total take authorized by the ITP.

In the Comal Springs system, take totaled 5,064 fountain darters, 743 Comal Springs riffle beetles, 5 Comal Springs dryopid beetles, and 115 Peck's cave amphipod. The Comal invertebrate take was mostly due to severe drought conditions that reduced portions of occupied habitat.

In the San Marcos Springs system, take totaled 37,442 fountain darters and 3,559 San Marcos salamanders, primarily due to recreational impacts on aquatic vegetation in Spring Lake Dam and City Park monitored sections of the San Marcos River.

Covered Species Accumulated Take through 2022



Implementation of Conservation Measures

Conservation Measures are activities carried out by the Permittees in the Permit Area as part of EAHCP implementation. These measures encompass springflow protection, habitat conservation, and various supporting activities such as research and biological monitoring.

The tables at right summarize progress toward fulfilling the Conservation Measures. Implementation efforts are highlighted for 2022. As the EAHCP enters its 11th year of implementation, most Conservation Measures have either been fulfilled or are in an on-going or maintenance phase.

All efforts to implement the Conservation Measures were conducted in accordance with the Permittees' approved annual Work Plans.

SPRINGFLOW PROTECTION

HABITAT CONSERVATION

SUPPORTING ACTIVITIES

Status Key and Abbreviations

Implementation Status

W	Working toward fulfillment
✓	Fulfillment expected
✔	Fulfillment achieved or implemented
M	Maintenance
O	On-going
I	Implemented when triggered
T	Triggered
N	New opportunities sought contingent on funding
–	No activity

Permittees

CONB	City of New Braunfels
COSM	City of San Marcos
EAA	Edwards Aquifer Authority
SAWS	San Antonio Water System
TXST	Texas State University

2022 is the tenth year of EAHCP implementation

Springflow Protection Measures

		13	14	15	16	17	18	19	20	21	**22**	23	24	25	26	27
Aquifer Storage and Recovery Springflow Protection Program Enrollment	EAA, SAWS	W	W	W	W	W	W	W	✓	✔	✔	✔	W	W	W	W
Aquifer Storage and Recovery Springflow Protection Program Storage	EAA, SAWS	W	W	W	W	W	W	W	✔	I	I	I	I	I	I	I
Aquifer Storage and Recovery Springflow Protection Program Forbearance	EAA, SAWS	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Voluntary Irrigation Suspension Program Option Enrollment	EAA	W	W	✔	✔	✔	✔	W	W	✔	✔	✔	W	W	W	W
Voluntary Irrigation Suspension Program Option Implementation	EAA	I	T	✔	I	I	I	I	I	I	T	✔	I	I	I	I
Regional Water Conservation	EAA	W	W	W	W	W	W	W	✔	–	–	–	–	–	–	–
Stage V Critical Period Management (San Antonio Pool)	EAA	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Stage V Critical Period Management (Uvalde Pool)	EAA	T	T	T	I	I	I	I	I	I	I	I	I	I	I	I

Habitat Conservation Measures

		13	14	15	16	17	18	19	20	21	**22**	23	24	25	26	27
Management of Public Recreation	CONB, COSM, TXST	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Designation of Permanent Access Points/Bank Stabilization	COSM	W	✔	M	M	M	–	–	–	–	–	–	–	–	–	–
Native Riparian Habitat Restoration	CONB, COSM, TXST	W	W	W	W	W	W	W	W	W	W	✓	M	M	M	M
Native Riparian Habitat Restoration (Riffle Beetle)	CONB	W	W	W	W	W	W	W	✔	M	M	M	M	M	M	M
Texas Wild-Rice Enhancement	COSM, TXST	W	W	W	W	W	W	W	W	W	W	W	W	✓	M	M
Aquatic Vegetation Restoration and Maintenance	COSM, TXST	W	W	W	W	W	W	W	W	W	W	W	W	✓	M	M
Aquatic Vegetation Restoration and Maintenance	CONB	W	W	W	W	W	W	W	W	W	W	✓	M	M	M	M
Decaying Vegetation Removal and Dissolved Oxygen Management	CONB	T	T	T	T	I	I	I	I	I	T	I	I	I	I	I
Management of Floating Vegetation Mats and Litter	CONB, COSM, TXST	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Reduction of Non-native Species Introduction and Live Bait Prohibition	CONB	O	O	O	O	O	O	✔	O	O	O	O	O	O	O	O
Monitoring and Reduction of Gill Parasites	CONB	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Non-native Animal Species Control	CONB, COSM, TXST	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Flow Split Management	CONB	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Diversion of Surface Water	TXST	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Research Programs in Spring Lake	TXST	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Diving Classes (Spring Lake) and Boating (Spring Lake and Sewell Park)	TXST	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Management of Golf Course and Grounds	CONB, TXST	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Prohibition of Hazardous Material Transport Routes	CONB	W	W	W	✔	–	–	–	–	–	–	–	–	–	–	–
Prohibition of Hazardous Material Transport Routes	COSM	W	W	W	W	W	W	W	W	W	W	✓	–	–	–	–
Management of Household Hazardous Waste	CONB, COSM	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Minimizing Impacts of Contaminated Runoff	COSM	W	W	W	W	W	W	W	✔	N	N	N	N	N	N	N
Impervious Cover/Water Quality Protection	CONB, COSM	W	W	W	W	W	W	W	W	W	W	W	✓	N	N	N
Sessom Creek Sand Bar Removal	TXST	W	W	W	✔	–	–	–	–	–		–	–	–	–	–
Sediment Management	COSM, TXST	W	W	W	W	✔	–	–	–	–		–	–	–	–	–
Septic System Registration and Permitting Program	COSM	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Impervious Cover/Water Quality Protection: Coal Tar Sealant Ban	EAA	W	W	✔	–	–	–	–	–	–	–	–	–	–	–	–

Supporting Measures

		13	14	15	16	17	18	19	20	21	**22**	23	24	25	26	27
Net Disturbance	EAA	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Incidental Take	EAA	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Refugia	EAA	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Applied Research	EAA	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Biological Monitoring	EAA	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Water Quality Monitoring	EAA	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Ecological Modeling	EAA	W	W	W	W	✔	–	–	–	–	–	–	–	–	–	–
Groundwater Modeling	EAA	W	W	W	W	W	W	W	✔	–	–	–	–	–	–	–