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Northeast Texas Aquatic Turtle Surveys: Western Chicken Turtles & Alligator Snapping Turtles



TPWD SPR-0504-383

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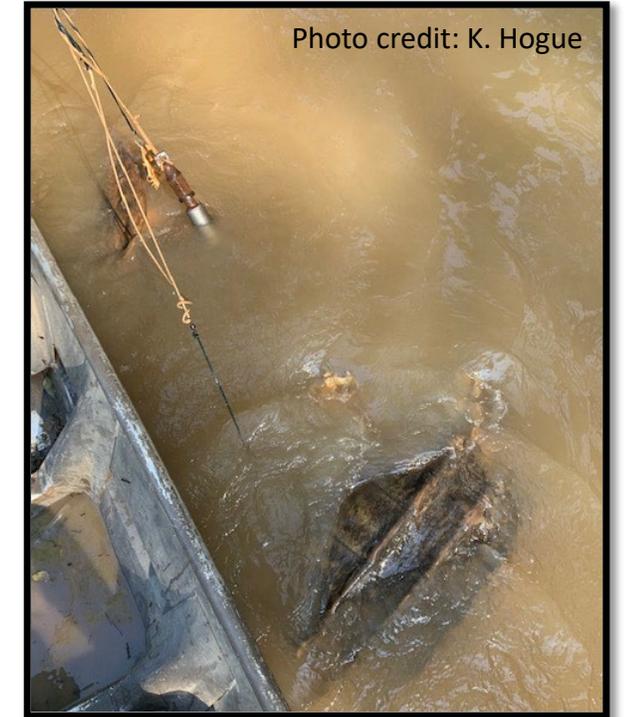


Sulphur River Basin Authority and Northeast Texas Municipal Water District Stakeholder Meetings

23 & 24 March 2022

Conservation Need

- Petitions for listing as part of the Endangered Species Act¹
- Significant 90-day findings for both species²
 - Factor A: habitat alteration – WCT and AST
 - Factor B: overutilization – WCT and AST
 - Factor C: disease or predation – AST
 - Factor D: inadequate regulatory mechanisms – WCT and AST
 - Factor E: natural and man-made factors – WCT
- Species Status Assessments (SSA)
 - WCT = due in 2024
 - AST³ = recommended listing as threatened (primarily due to limited data availability)



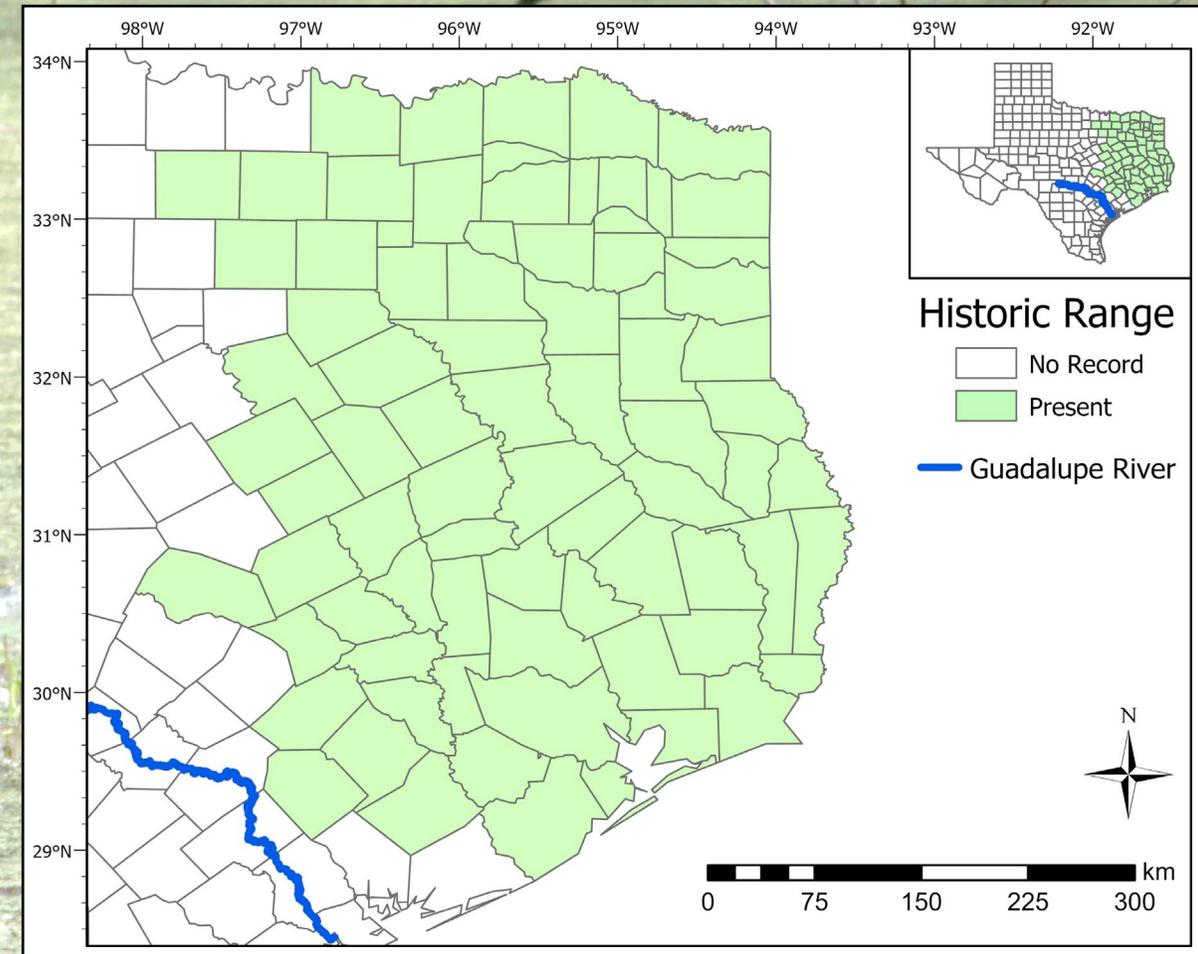
¹Center for Biological Diversity 2010, Geise et al. 2012

²USFWS 2011, 2015

³USFWS 2021

Western Chicken Turtles in Texas

- Historic range extends through east Texas to north of the Guadalupe river basin⁴
- Typically found in ephemeral or depressional freshwater wetlands⁵
- Shorter life span and smaller population size may increase perception of rarity⁶
- Exhibit discrete seasonal activity patterns⁷



⁴Dixon 2013, USFWS 2016

⁵Buhlmann et al. 2008, Bowers et al. 2021

⁶Dinkelacker and Hilzinger 2014

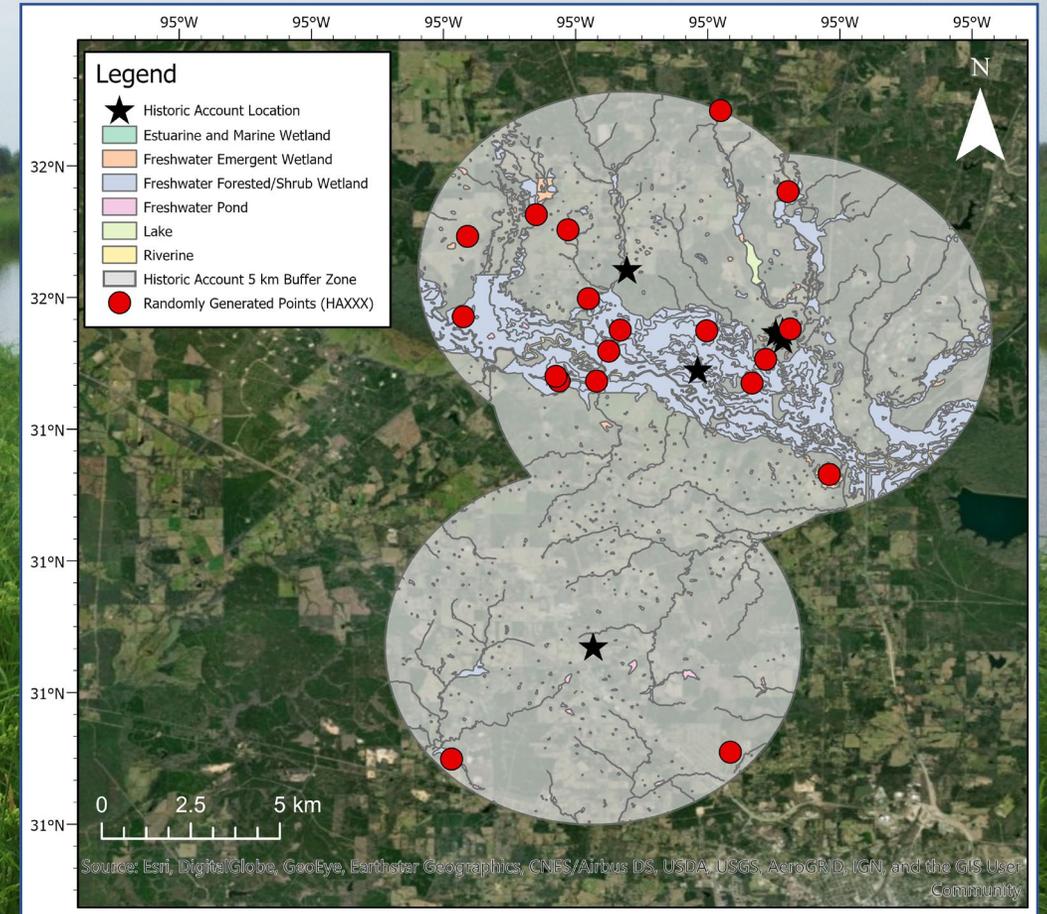
⁷McKnight et al. 2015

Western Chicken Turtle Sampling Methods

- 
- A researcher wearing a blue backpack and an orange safety vest is standing in a field of tall grass, looking through binoculars. The background is a dense forest of green trees.
- Environmental DNA (eDNA) – method study
 - Binocular Assisted Visual Surveys (BAVS)
 - Unmanned Aerial Vehicle (UAV)
 - Canid Scent Surveys (CSS)
 - Citizen Science via Online Reporting Tool
 - Walking Surveys
 - Road Surveys
 - Trapping (basking, game camera, fyke/hoop)

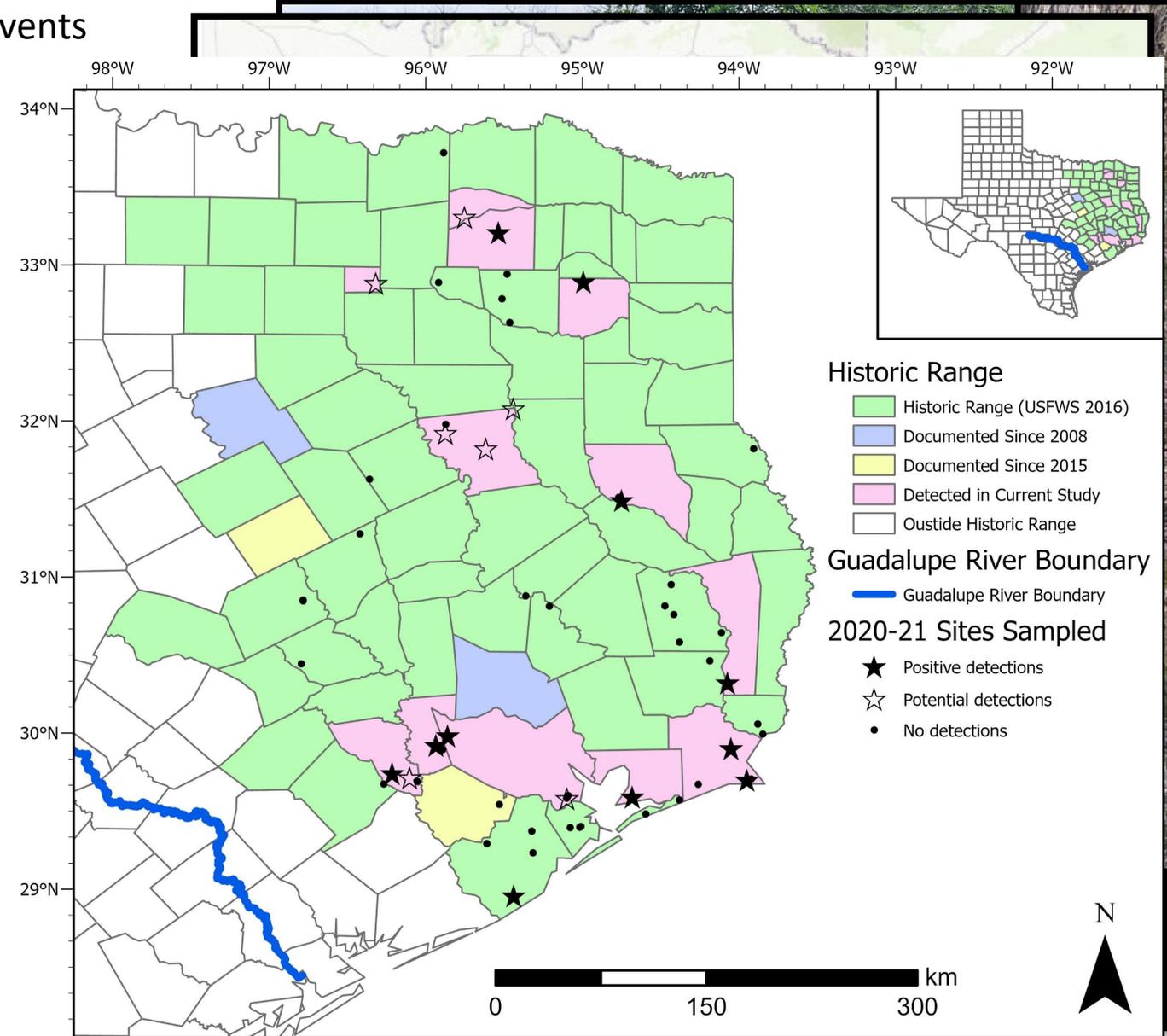
Western Chicken Turtle Study Design

- Goal: sample up to 87 sites throughout historic range
- Randomized Site Design:
 - Locations of historic accounts
 - Counties associated with historic accounts
 - Counties without historic accounts
 - Variety of wetland types from NWI⁷
- Paired methods at as many sites as possible



Western Chicken Turtle Select Method Results

- 54 sites (29 counties) in 2020-2021: 239 sampling events
- Environmental DNA (eDNA)
 - Positive detections at 11 sites (20.4%)
 - Potential detections at 7 sites (13.0%)
- Binocular Assisted Visual Surveys (BAVS)
 - Total survey time: 13,256 minutes
 - 13 observations of WCT (2 sites)
- Road Surveys
 - Total survey time: 1,659 minutes over 568.3 miles
 - 2 observations of WCT
- Small Unmanned Aerial Systems (sUAS) Surveys
 - 7 sites in 2021
 - 25,500 static images and 939 minutes of video imagery
 - 2 observations of WCT (1 site)
- Canid Scent Surveys (CSS)
 - Total survey time: 495 minutes
 - WCT confirmed at 2 sites
- Online Reporting Tool
 - 33 reports in Texas
 - 7 photo-verified reports of WCT (21.2%)
 - 2 reports included photos – confirmed not WCT



Western Chicken Turtle Online Reporting Tool

E-Services Hawk Card Class Schedule Outlook Blackboard Give UHCL Pearland Year in Review

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Distribution and Habitat Associations of the Western Chicken Turtle in Texas

Current Projects

Completed Projects

Equipment and Capabilities ▾

Publications ▾

Research Staff

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Chicken Turtle Reporting Tool

Purpose/Objectives



Access the Reporting Tool Here:

<https://arcg.is/11yWyn>

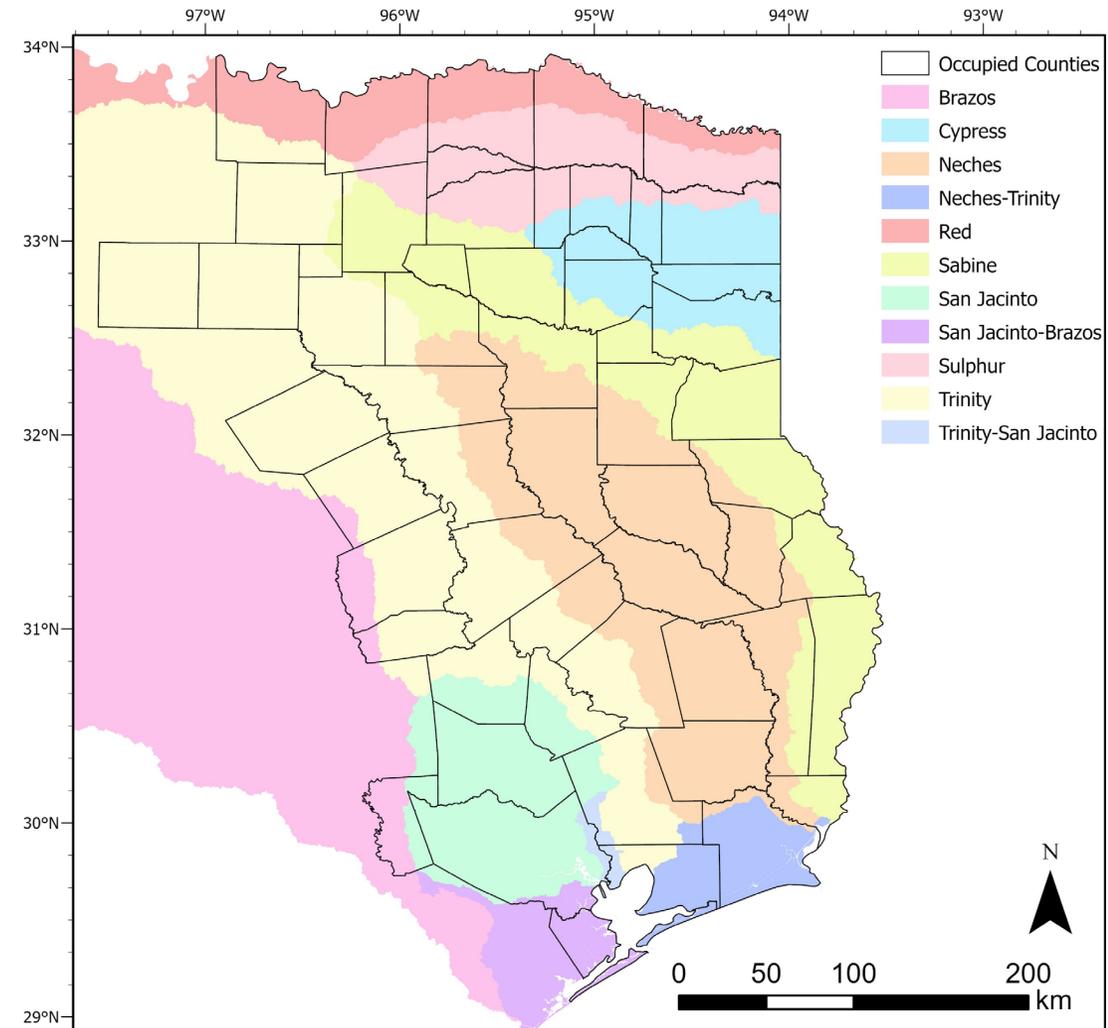
Or scan for mobile access now:



<https://www.uhcl.edu/environmental-institute/research/current-projects/western-chicken-turtle>

Alligator Snapping Turtles in Texas

- Historic range extends throughout east Texas river basins⁸
- Typically found in deep, slow moving freshwater associated with rivers⁹
- Rarely bask, generally nocturnal, spend most of the time submerged¹⁰
- Threatened species status in Texas¹¹



⁸Dixon 2013, Hibbitts and Hibbitts 2016, TexasTurtles.org 2021

⁹Ernst and Lovich 2009, Hibbitts and Hibbitts 2016

¹⁰Hibbitts and Hibbitts 2016

¹¹Texas Register 1987

Alligator Snapping Turtle Identification

Short neck with
fleshy tubercles

Three distinct
keels on carapace



Photo credit: B. Heffernan (USACoE)

Large, wide head
with pointed snout



Hooked "beak"

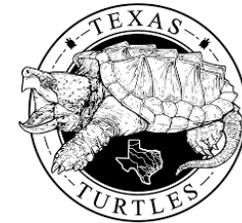
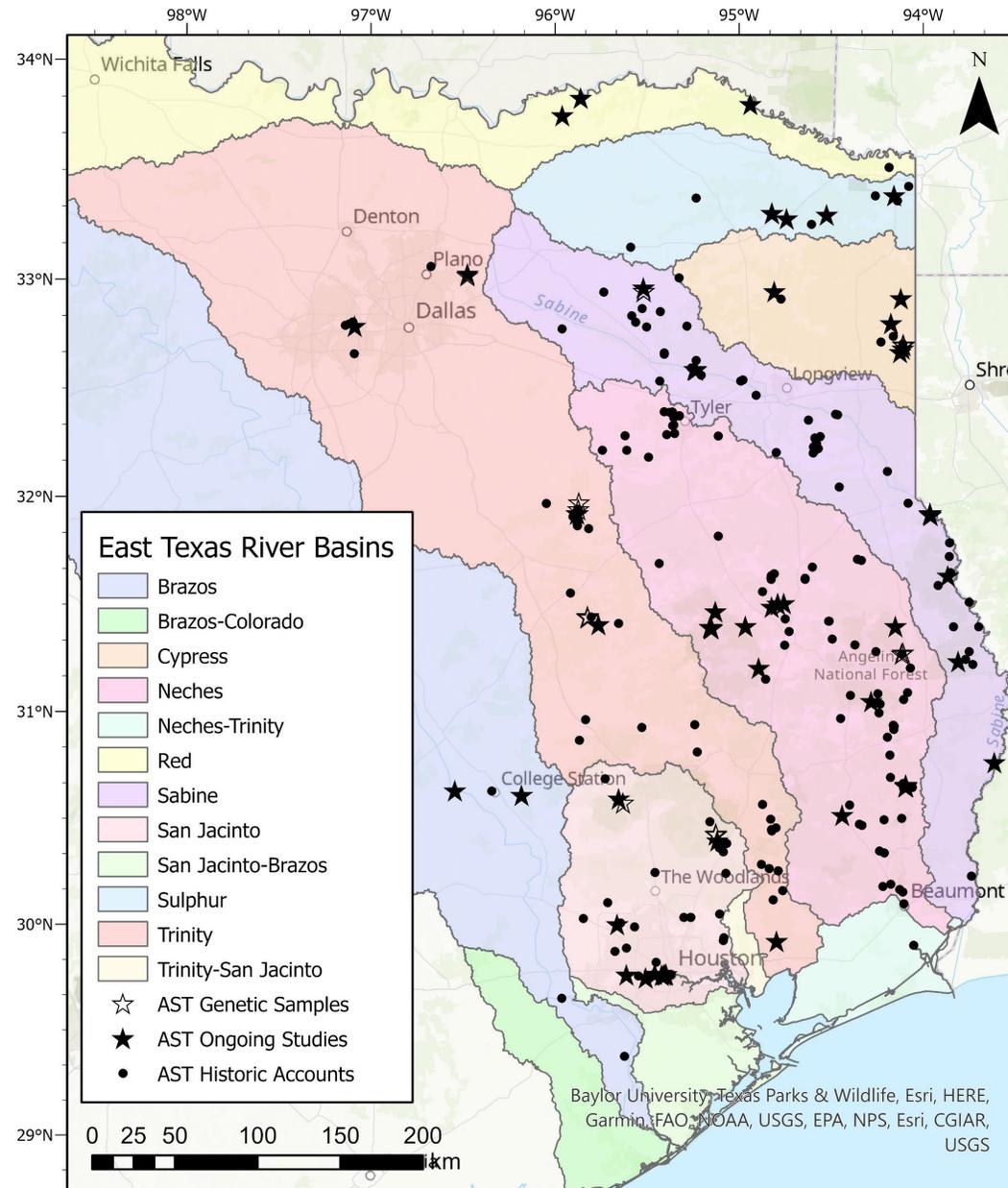
Grey or bright pink
"lure" on tongue

Baseline Assessment of Alligator Snapping Turtles

- Collaborative effort between ongoing studies
- 3-year state-wide assessment (2021-2023)
- Primary objectives:
 - Abundance and demographics
 - Population genetic structure in Texas
 - Training for future long-term surveys
 - Produce web-based viewer for future research
- Overall goal: fill the knowledge gap



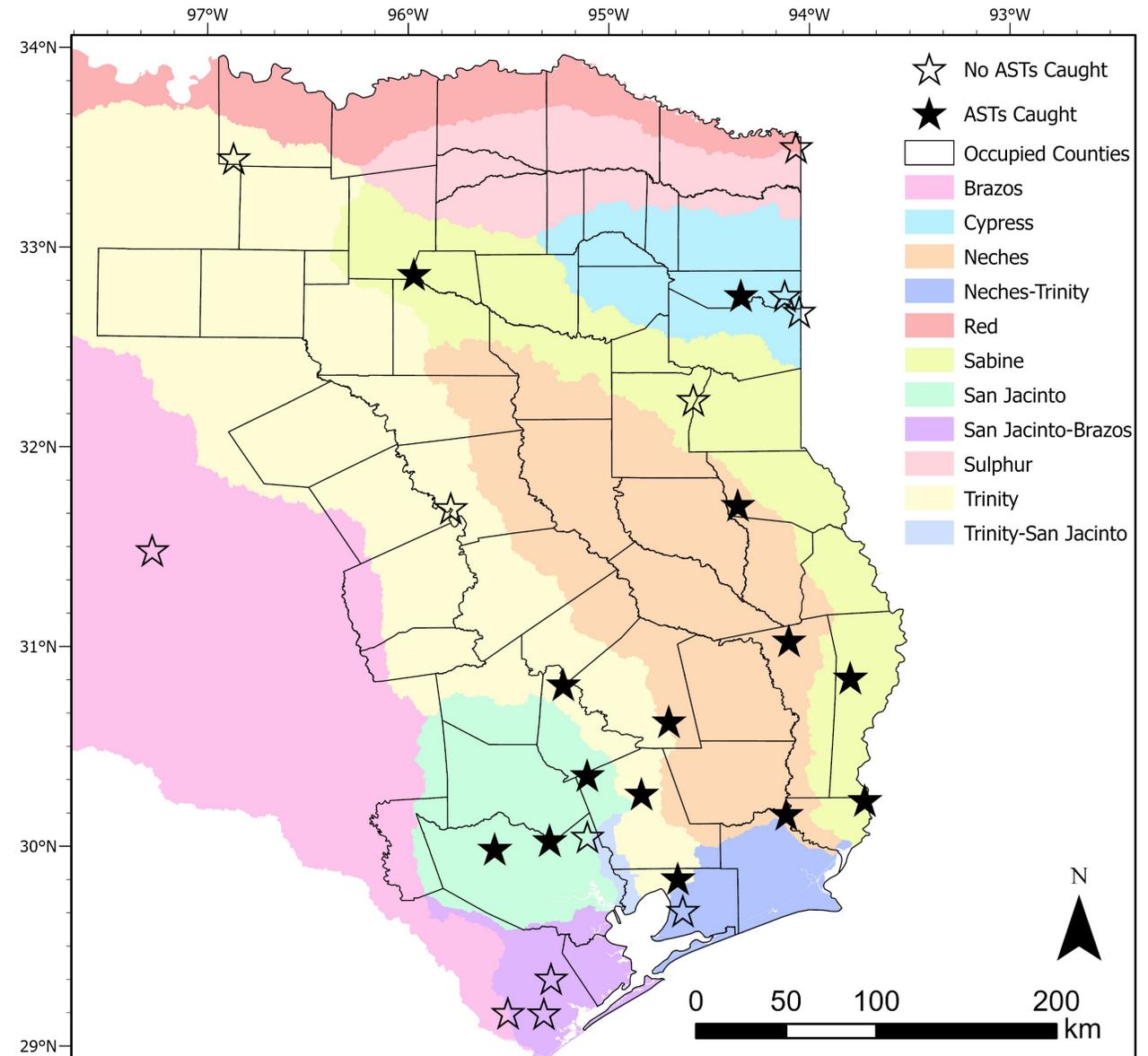
Baseline Assessment of Alligator Snapping Turtles



Baylor University, Texas Parks & Wildlife, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS, Esri, CGIAR, USGS

Alligator Snapping Turtles Sampling To Date

- 26 sites sampled to date
 - 598 trap nights
 - 9 of 11 east Texas basins
- 51 AST captured at 14 sites
 - Average CPUE = 0.092 turtles/trap hr
 - Cypress = 1 site (3 ASTs)
 - Neches = 4 sites (11 ASTs)
 - Sabine = 3 sites (3 ASTs)
 - San Jacinto = 3 sites (20 ASTs)
 - Trinity = 3 sites (12 ASTs)
- Largest AST = 627 mm SCL, 56.8 kg
- Smallest AST = 94 mm SCL, 0.3 kg
- 11 Females, 21 Males, 15 Juveniles



AST & WCT Project Plans

- Final season for WCT project
 - Implementation of additional methods
 - Confirmation of presence at sites w/ detections in 2020-21
 - Continued access to Online Reporting Tool
- Compilation of historic accounts for both species
- Additional AST reconnaissance trapping
 - Especially in Brazos, Sulphur, Cypress, and Red River basins
- Revisits to sites with and without AST captures in 2021
 - 2021 = record wet year
 - Have had incidences of false negative trapping events



Thank You

Field Personnel:

Jason Nagro, Jimmy Welch, Brandi Stevenson, Mathew VanBemmel, Isabel Marzullo, Haley Welshoff, David Bontrager, Nick Hughes, Aurora Alvarez, Cecilia Silva, Emily Yargeau, Kelly Garcia, Jason Watson, Terry Corbett, Bill Kirby, Colin McDonald, Web Mangham, Cody Turner, Floyd Boyett

Permitting:

TPWD permits SPR-0504-383 & SPR-0519-089; UHCL Institutional Animal Care & Usage Committee (protocol 0320.001.R1); TPWD, USFWS, US Forest Service, river authority, and private landowner special use permits

Funded by:



Texas Comptroller of Public Accounts

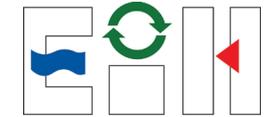


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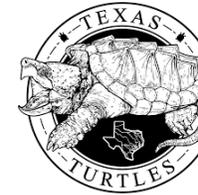
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