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Western Chicken Turtles in Texas

- Historic range extends through east Texas to north of the Guadalupe river basin¹
- Typically found in ephemeral or depressional freshwater wetlands²
- Shorter life span and smaller population size may increase perception of rarity³
- Exhibit discrete seasonal activity patterns⁴

¹Dixon, 2013; USFWS, 2016
²Buhlmann et al., 2008; Ryberg et al., 2017
³Dinkelacker and Hilzinger, 2014
⁴McKnight et al., 2015
Western Chicken Turtle Identification

Western Chicken Turtle (*Deirochelys reticularia miaria*) Identification Sheet

- Long neck with horizontal yellow stripes
- No “red ears” or other vertical yellow marks or crescents present in sliders, cooters, or map turtles
- The rim of the carapace (top of the shell) is yellow

- The rear of the thigh has alternating black and yellow bars, also may be described as "stripy pants"
- The bridge that connects the carapace with the plastron (bottom of the shell) has a dark horizontal strip

- The forearms have a wide yellow patch that runs the length of the limb from the shoulder to the feet
- The plastron is usually unmarked and varies from yellow to orange

Developed by: Paul Crump (TPWD) and Brandon Bowers (TAMU-TNRI)
Environmental DNA Detection

• Less invasive than traditional surveying or trapping techniques\(^5\)
• Used across a wide range of vertebrate species, especially hard to find species\(^6\)
• Especially useful for cryptic or seasonally active species in freshwater systems\(^7\)

\(^5\)McKee et al., 2015
\(^6\)Piaggio et al., 2014; Davy et al., 2015; Barnes and Turner, 2016; Lacoursiere-Roussel et al., 2016; Nevers et al., 2018
\(^7\)Jerde et al., 2011; Wilcox et al., 2013; Sigsgaard et al., 2015; de Souza et al., 2016
Environmental DNA Study Design

- Goal: sample 87 sites throughout the western chicken turtle historic range
- Randomized Site Design:
  - Counties associated with historic accounts
  - Counties without historic accounts
  - Variety of wetland types from NWI\textsuperscript{8}
- Combination of sample types:
  - Ambient water
  - Resuspended sediment
  - Soil

\textsuperscript{8}USFWS, 2019
2020 eDNA Sampling

- 27 sites sampled
  - Restricted to southeast Texas due to COVID-19
- eDNA detections at 4 sites (15%)
- 9 observations through visual surveys

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BAVS = Binocular Assisted Visual Surveys; CSS = Canid Scent Surveys
Future Directions

- 60 eDNA site remaining
  - Includes sites in north and central east Texas watersheds
  - Pending landowner access approval
- Intensification of efforts at sites with positive eDNA detections
  - UAV surveys
  - Trapping efforts
  - Remote sensing
Distribution and Habitat Associations of the Western Chicken Turtle in Texas

Purpose/Objectives

The primary objectives for this study are to:

1. Conduct surveys utilizing various methods at sites representative of all habitat types within the western chicken turtle’s range in Texas.
2. Estimate the current range and distribution and determine habitat associations for the western chicken turtle in Texas.
3. Evaluate the efficacy and efficiency of various survey methods for western chicken turtles.

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

Report sightings on iNaturalist.org
Thank You

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Research funded by:

Texas Comptroller of Public Accounts