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# Nose to the Ground: Using Detector Dogs to Sniff Out the Cryptic Western Chicken Turtle (*Deirochelys reticularia miaria*)

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# Acknowledgements

## Acknowledgements

Background

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## Field Personnel:

Jason Nagro, Jimmy Welch, Brandi Stevenson, Mathew VanBemmel, Isabel Marzullo, Haley Welshoff, David Bontrager

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- Galveston Bay Foundation
- TPWD Gus Engeling WMA
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# *Deirochelys reticularia miaria* (Western Chicken Turtle, WCT)

Acknowledge.

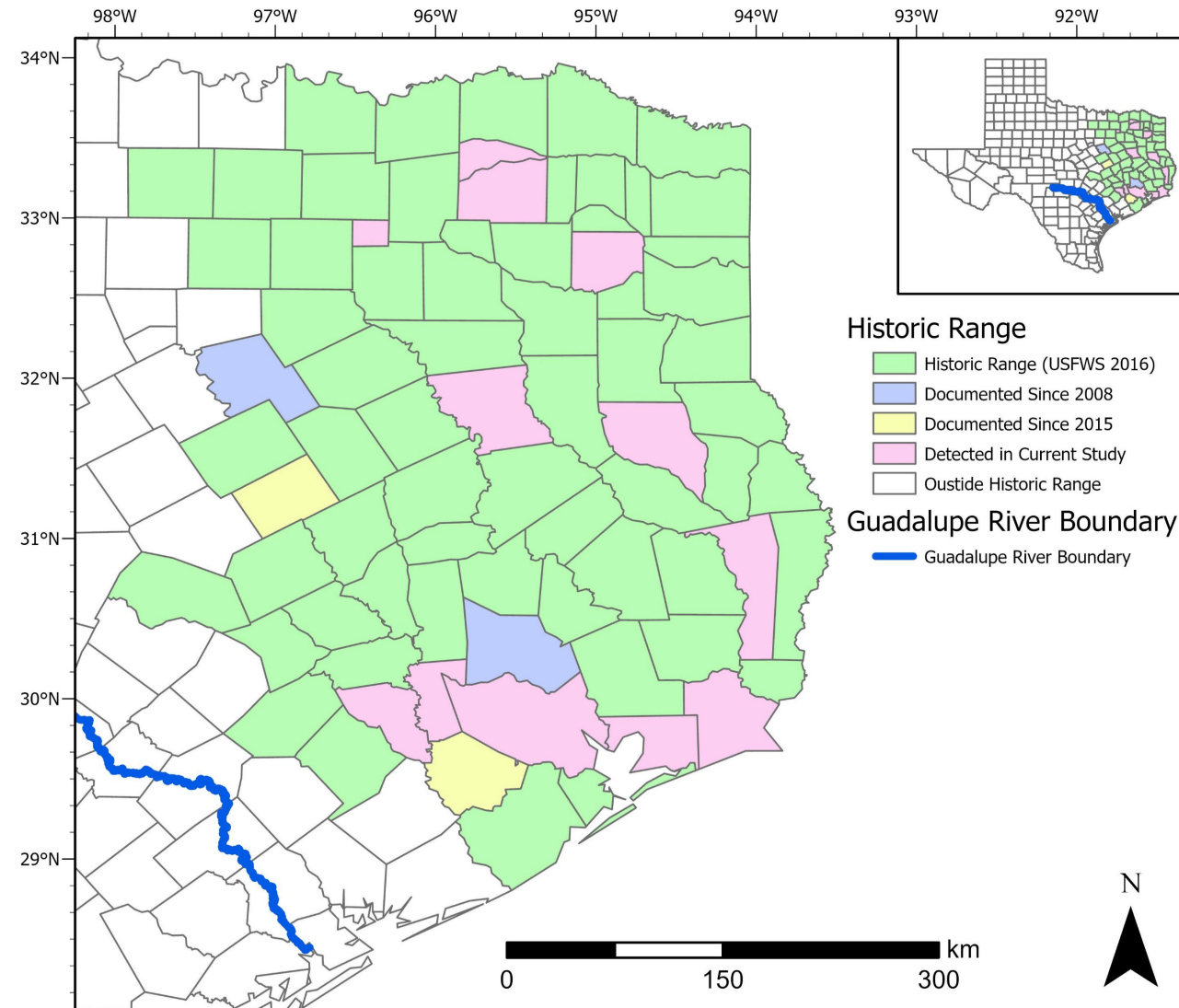
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- Historic range extends through east Texas to Guadalupe river basin<sup>1</sup>
- Typically in ephemeral or depressional wetlands<sup>2</sup>
- Short life span and smaller populations may increase perception of rarity<sup>3</sup>
- Exhibit discrete seasonal activity patterns<sup>4</sup>



<sup>1</sup>Dixon 2013; USFWS 2016

<sup>2</sup>Buhlmann et al. 2008; Bowers et al. 2021

<sup>3</sup>Dinkelacker and Hilzinger 2014

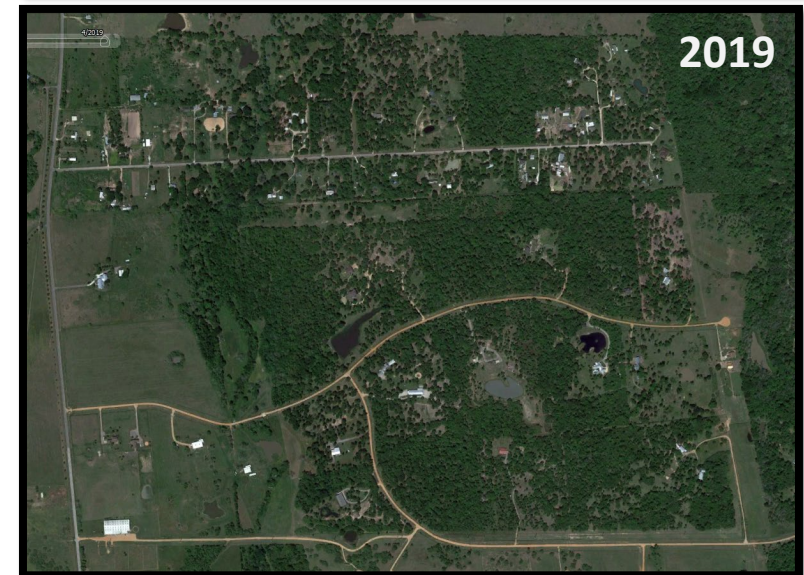
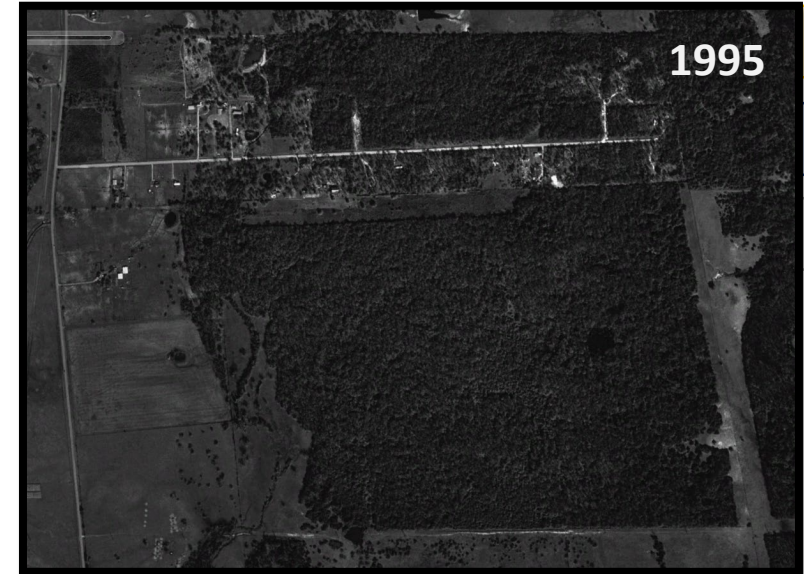
<sup>4</sup>McKnight et al. 2015

# Conservation Need

Acknowledge.

Background

- Petitioned for protection under Endangered Species Act<sup>1</sup>
- 4 of 5 factors with significant 90-day findings
  - Factor A: habitat alteration
  - Factor B: overutilization
  - Factor D: inadequate regulatory mechanisms
  - Factor E: natural and man-made factors
- Species Status Assessment (SSA) estimated for 2024
- Evaluating a suite of traditional and novel techniques for detecting WCT
  - Trapping
  - Visual Surveys
  - Environmental DNA
  - Small Unmanned Aerial Systems
  - Canid Scent Surveys with trained detector dogs





# Canid Scent Surveys with Detector Dogs

- Detector dogs used in myriad assessment types
  - Nuisance species<sup>1</sup>
  - Zoonotic diseases<sup>2</sup>
  - Wildlife surveys<sup>3</sup>
- Well documented in terrestrial and semi aquatic turtle surveys
  - Desert Tortoises (*Gopherus agassizii*)<sup>4</sup>
  - Box Turtles (*Terrapene carolina carolina*)<sup>5</sup>
- Little data related to wetland and aquatic turtle surveys



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<sup>1</sup>Hoffman 2014

<sup>2</sup>Kimble et al. 2017

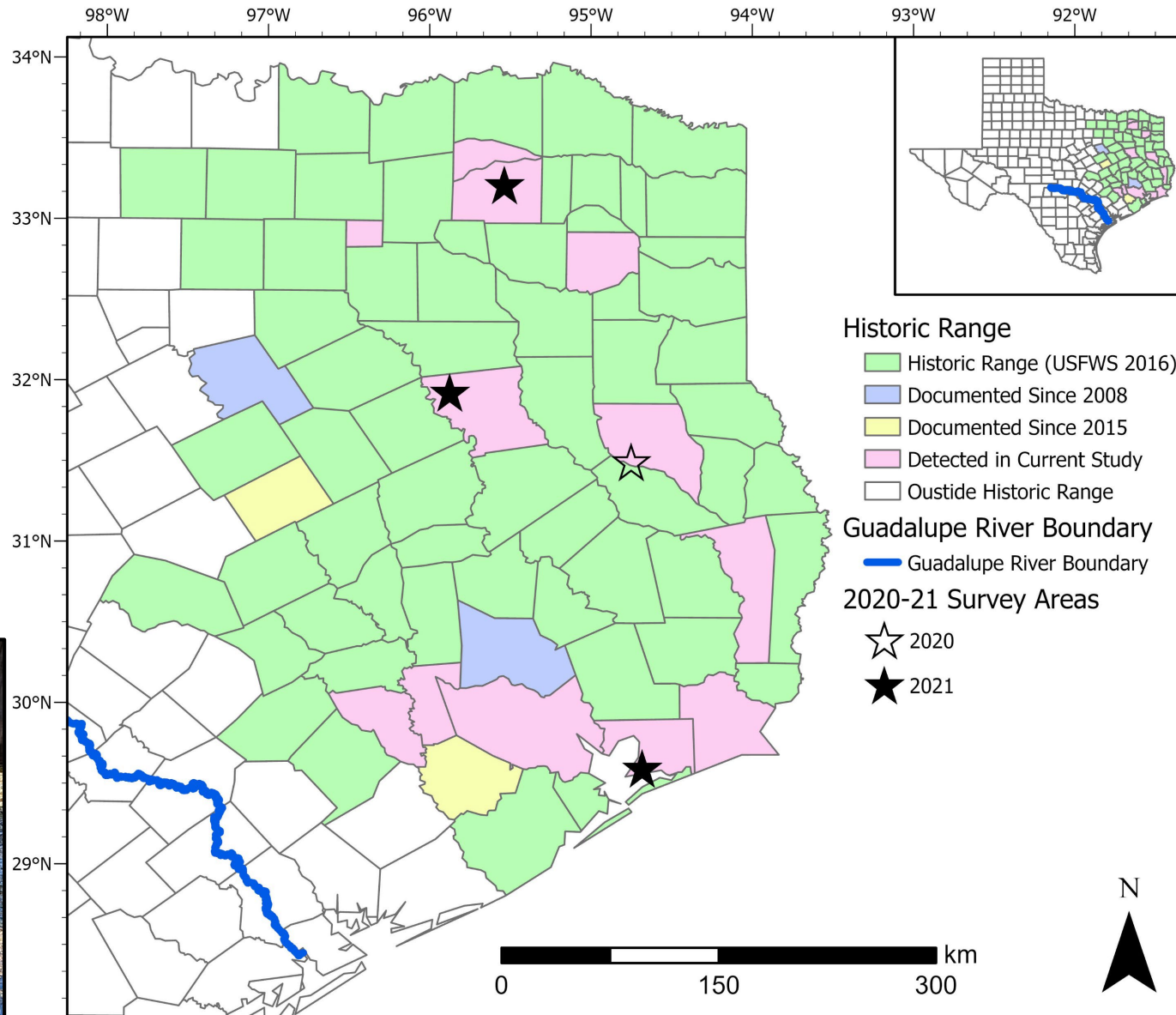
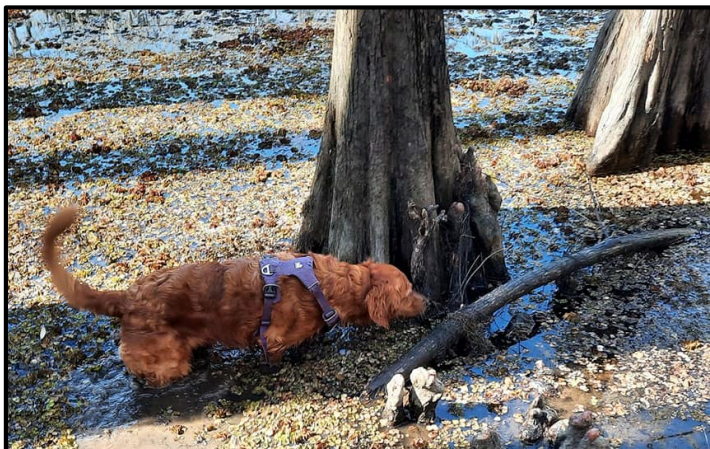
<sup>3</sup>Weldon and Fagre 1989; Vice and Engeman 2000; Rolland et al. 2006; Reindl-Thompson et al. 2006; Statham et al. 2020, Witherington et al. 2017

<sup>4</sup>Cablk et al. 2008; Cablk and Heaton 2006; Nagy and Medica 1986

<sup>5</sup>Boers et al. 2017; Harris et al. 2020a; Harris et al. 2020b; Williams 1961

# Survey Area

- 2020 – 1 site in Nacogdoches County
- 2021 – 3 sites
  - Chambers County
  - Hopkins County
  - Anderson County
- Sites selected based on WCT occupancy



Acknowledge.

Background

## Methods

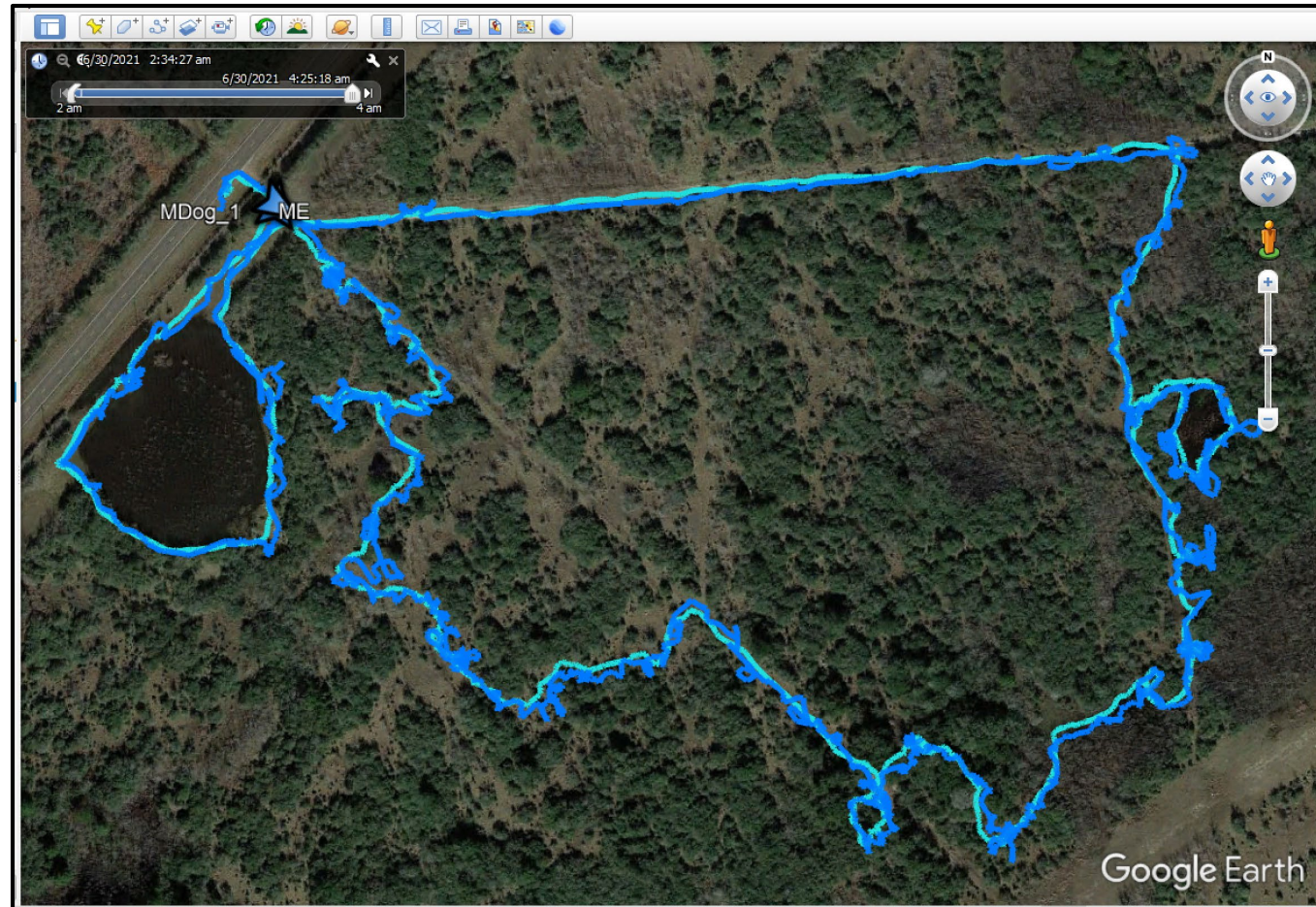
Prelim. Results

Future Plans



# Field Survey Methods

- 2020 & 2021 Detector: Raine (“generalist”)
- Dogtra Pathfinder GPS enabled collar (2021)
- Environmental Conditions
  - Air temperature ( $^{\circ}\text{C}$ , chest/ground)
  - Relative humidity (%)
  - Wind speed (mph) and direction
- Detections
  - Time, coordinates
  - Species detected
  - Microhabitat assessment



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# Preliminary Results

- Effort to date:
  - 2 surveys in 2020 (1 site)
  - 8 surveys in 2021 (3 sites)
  - 834 minutes cumulative survey duration
- WCT found at 2 sites
- Other species observed
  - *Kinosternon subrubrum*  
(Eastern Mud Turtle) = 2
  - *Terrapene carolina*  
(Eastern Box Turtle) = 8
  - *Trachemys scripta elegans*  
(Red-eared Slider) = 4



Raine with handler L. Speight

Acknowledge.

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**Preliminary Results**

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# Preliminary Results

Acknowledge.

Background

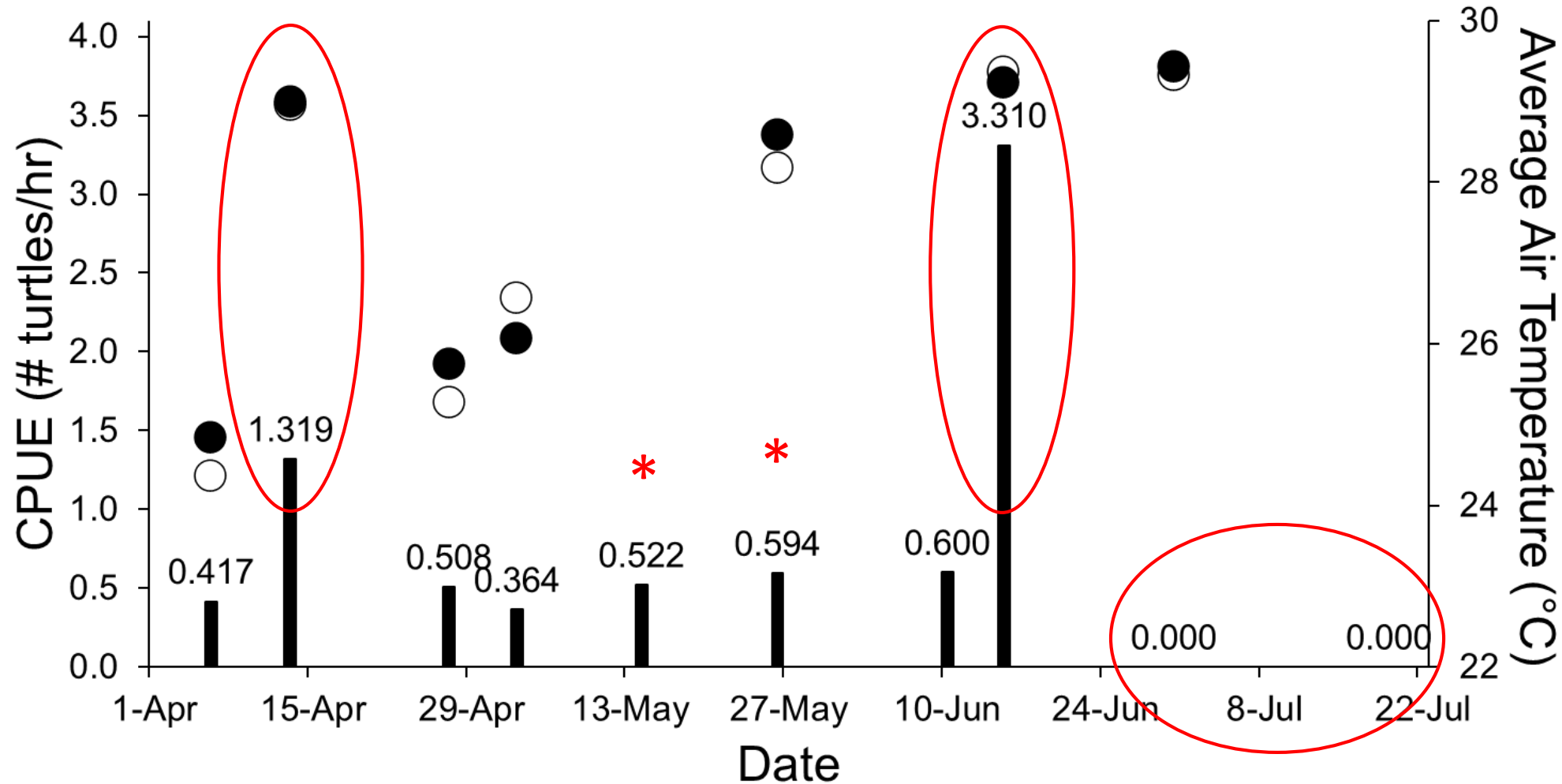
Methods

**Preliminary Results**

Future Plans

## Overall catch per unit effort (CPUE) for Surveys

■ CPUE (# turtles/hr) ● Avg. Air Temp (chest) ○ Avg. Air Temp (ground)





# Plans for 2022 Canid Surveys

- Focusing efforts at 2 locations
  - 2 consecutive days of surveys
  - Conducting surveys across wider area at each site
- One event per month per site from March-July 2022
- Addition of 2<sup>nd</sup> detector: Ghillie
  - Burrowing specialist
  - May help with detecting burrowed individuals



Acknowledge.

Background

Sea Turtle

WCT

Future Plans



# Thank you (and shameless plug)!

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Acknowledge.

Background

Sea Turtle

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