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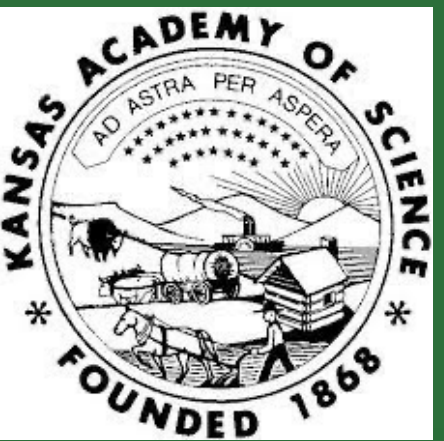
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Preliminary Movement and Distribution Model for Chihuahuan Green Toads, *Anaxyrus debilis*, in Western Kansas

Mackenzie Reh & Dr. William Stark



Introduction

- Chihuahuan Green Toads, *Anaxyrus debilis*, have been listed as a Kansas Threatened Species since 1987
 - Smallest anuran native to Kansas (32-50mm SVL)
 - Arid-adapted; stimulated by rain events
 - Utilize ephemeral pools for breeding
- Range
 - Chihuahuan Desert and the Southwestern US including Arizona, New Mexico, Colorado, Texas, and Oklahoma
 - Small population in Western Kansas along the Smoky Hill River in Logan and Wallace counties
- Morphology
 - Lack keratinized "spades" on their hindlimbs which is a common attribute for Anaxyrids.
 - Instead, *A. debilis* are dorso-ventrally flattened
 - Parotid glands located laterally behind the eyes.
 - May benefit *A. debilis* by allowing them to fit into pre-established burrows, tight rocks, or vegetative root systems.



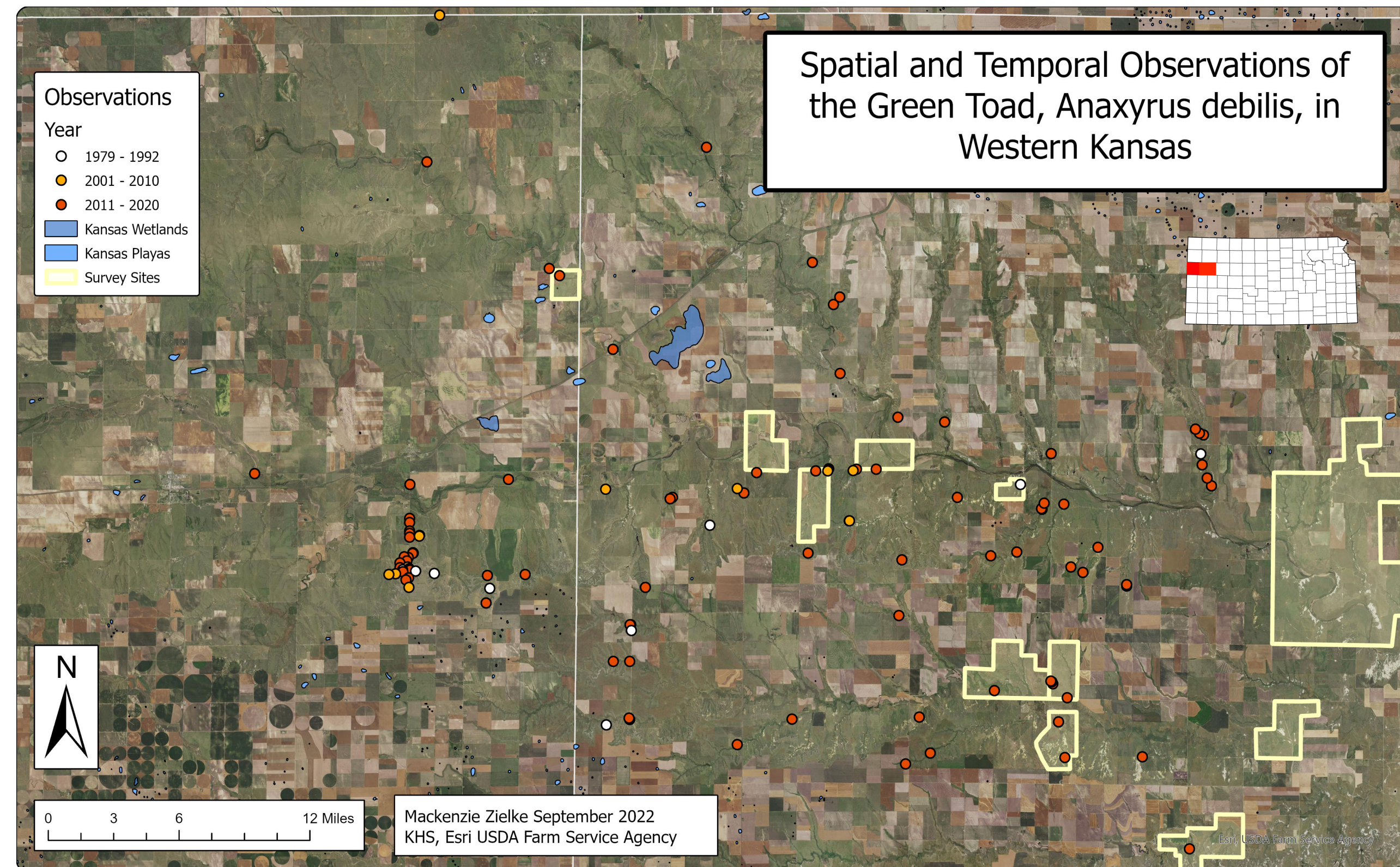
Objectives

- Survey for *A. debilis* in Western Kansas at historical and novel locations
- Equip *A. debilis* with Cellular Tracking Technologies (CTT) radio telemetry equipment to monitor their movement and distribution
- Define preferential habitat and create a Habitat Suitability Index for this species in their Western Kansas range for the Kansas Department of Wildlife and Parks

Materials and Methods

- 2022 Summer Field Season: 10 sites
 - Each site surveyed at least twice
- Song Meter Micro ARDs equipped at each site
 - Recorded for 10 consecutive days from sunset to sunrise
 - Recorded for 5 minutes every half-hour
- *A. debilis* encountered were measured SVL (mm), weighed (g), and sexed.

Preliminary Results

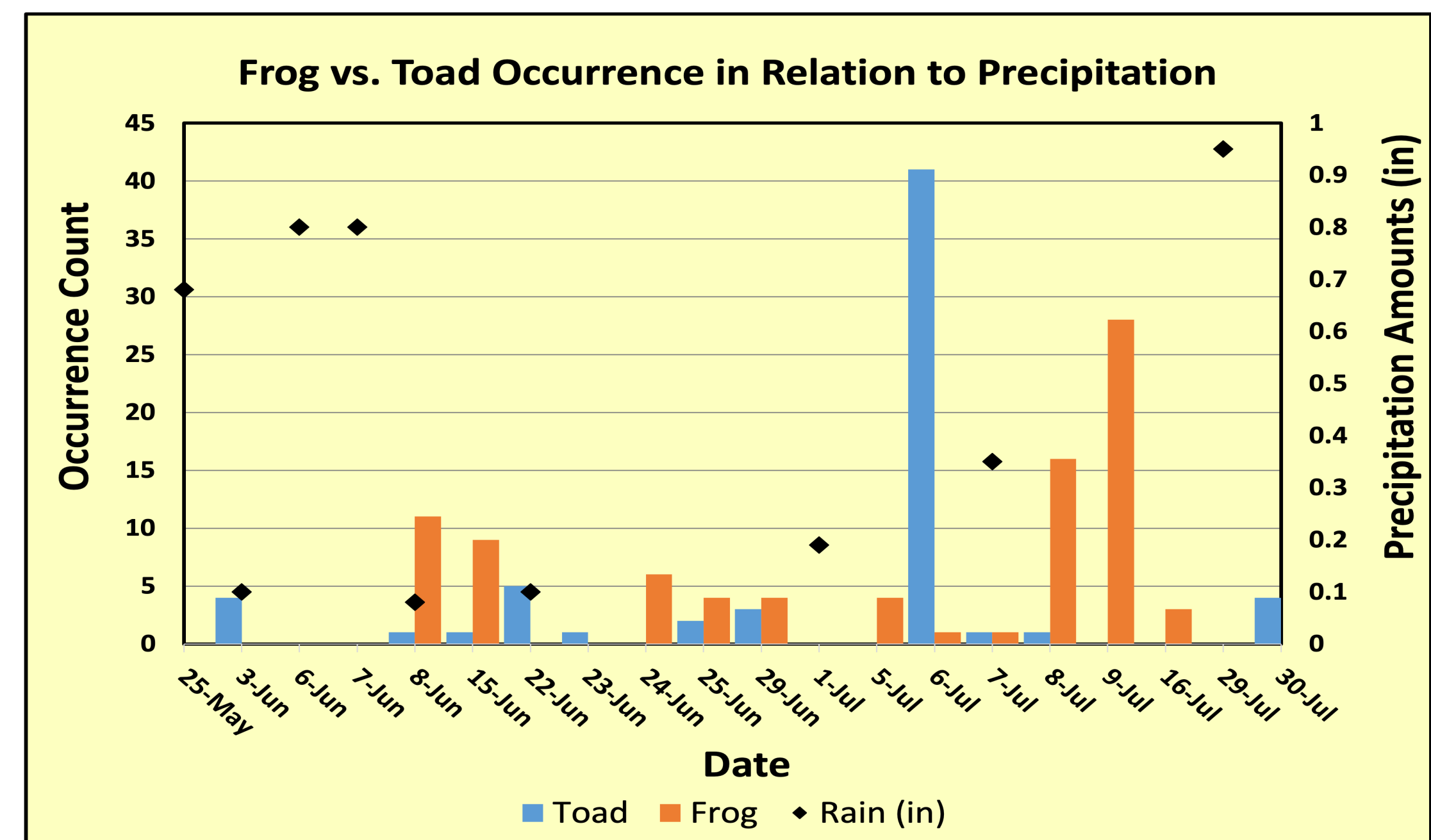
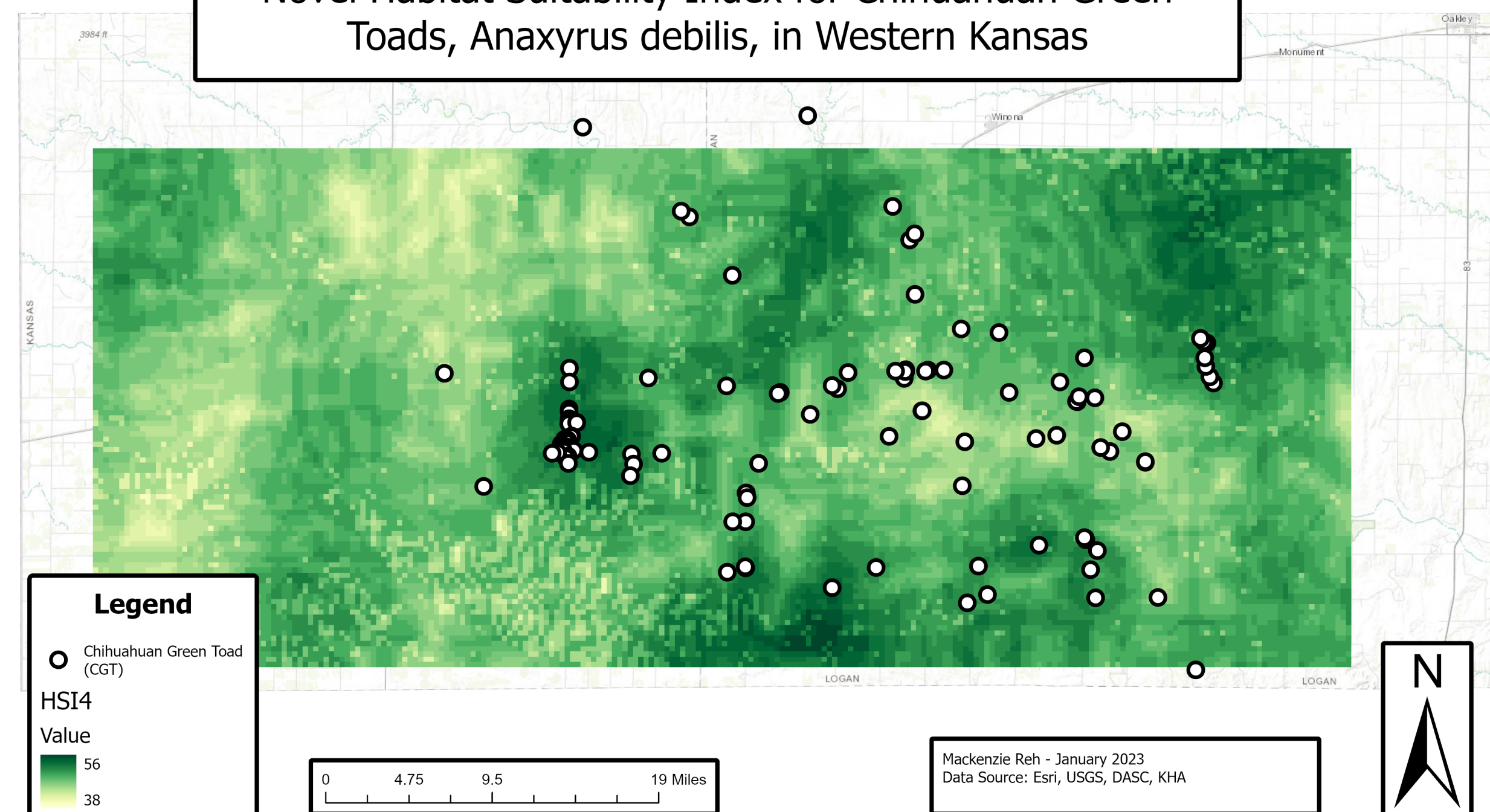


- 2022 Summer Field Season: 7 *A. debilis* were encountered
 - NW Kansas experienced a severe drought across study sites during season
- Great Plains Toad, *Anaxyrus cognatus*, and Plains Spadefoot Toad, *Spea bombifrons*, encounters were also sporadic
 - Behaviorally and ecologically similar to focal species

Research Effort	Total Search Effort
Number of Surveys	28
Total Survey Hours	252
ARD Circuits	7
Total ARD Circuit Hours	126
Total ARD Recording Hours	542
Total Hours Searching for CGT	378 hours
Search per Unit Effort	1.85 CGT found / 100 hours

Preliminary Habitat Suitability Analysis

Novel Habitat Suitability Index for Chihuahuan Green Toads, *Anaxyrus debilis*, in Western Kansas



Acknowledgements:

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If you have any questions, please feel free to email me personally at mgzielke@mail.fhsu.edu

variables used to create this analysis include:

- Slope – Elevation derived from micro-watersheds
- Roads – State and county systems
- Streams – Smoky Hill River and its tributaries
- Playas – Ephemeral pools utilized for breeding
- American Bullfrog and Plains Leopard Frog buffers – created from personal observation and Kansas Herpetological Atlas.