



Introduction and Objectives

- *Sceloporus* lizards have an extensive communication system that includes species specific push up displays and chemical signals left on substrate, (Fleishman et al., 2019).

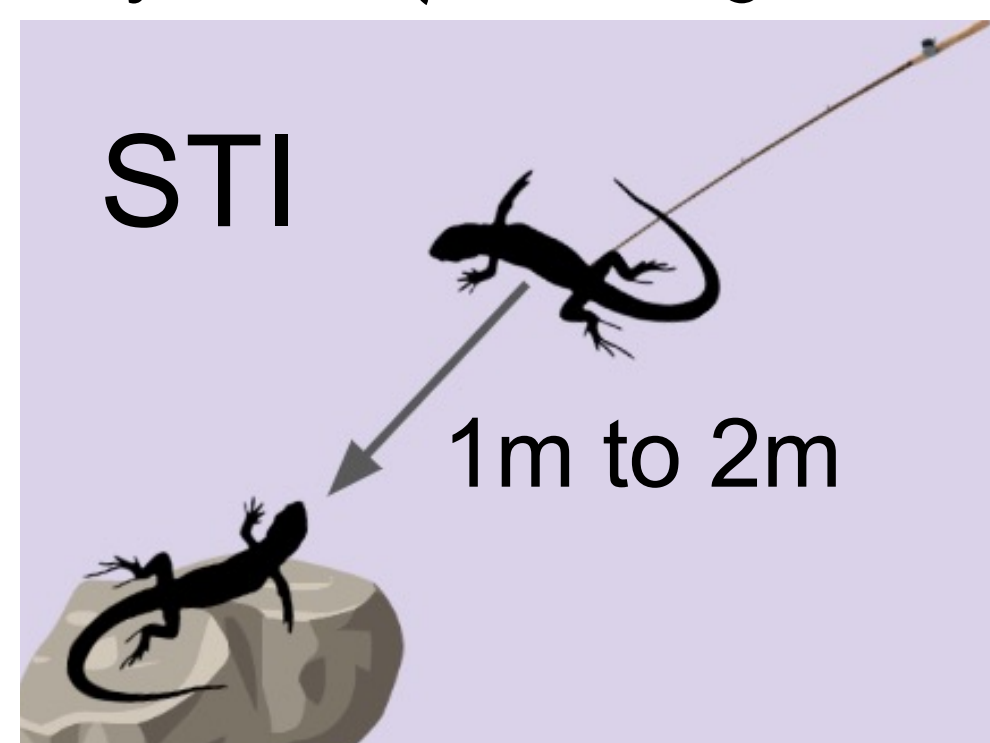
All communication is only successful if the signal is received by the intended audience. Interference can be lessened by prioritizing one modality. (see Martins et al., 2018) For example, turning the car radio down to better focus on signs while driving.

Overarching question: Do visual and chemical behavior of male lizards differ when undisturbed from when presented with another male conspecific lizard?

- I hypothesize that in the presence of a conspecific male the plateau fence lizard will tend to use one communication modality more than the other supporting the sensory isolation hypothesis. (Martins et al., 2018)

Methods

Location: ShowLow, AZ Date: May 2023 (Breeding season)



Filmed male plateau fence lizards in both: Baselines/B & Staged Territorial Intrusions (STI) settings.

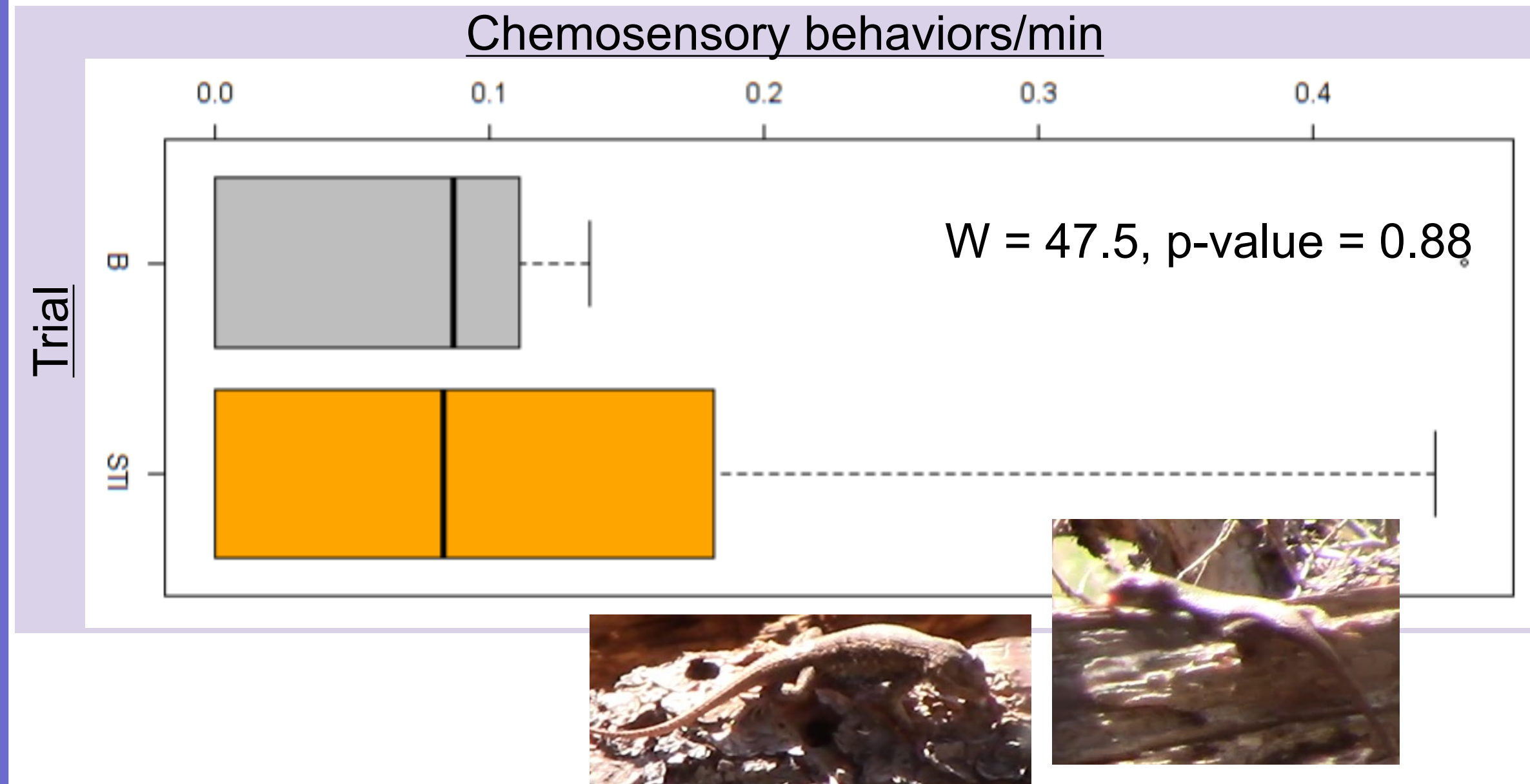
1. Recorded undisturbed behavior of focal male subjects for up to 30 min.
2. Presented male with a non-neighboring conspecific male at 2m & filmed for 5 min.

3. Following 5 min, we moved the tethered male 1 m from focal male, & filmed for another 5 min.

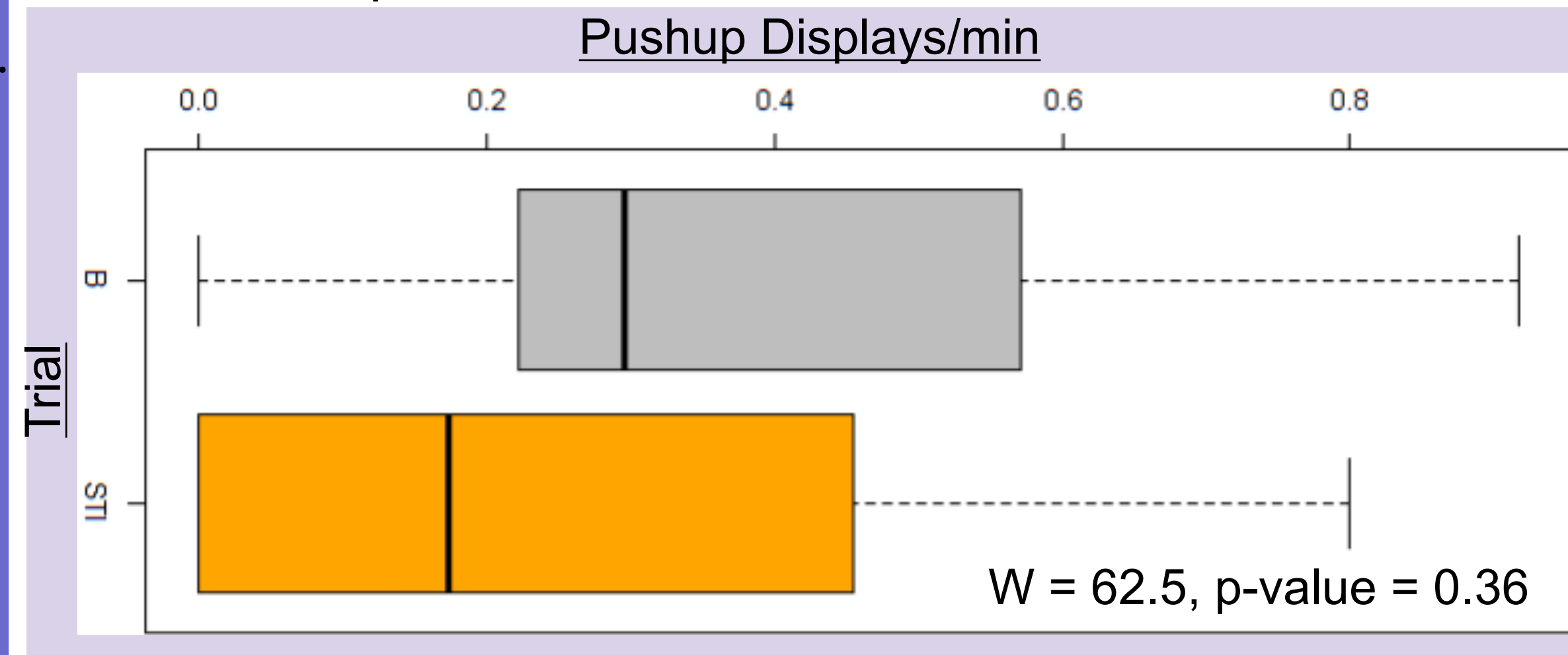
Minimum of 80m between focal location and stimulus capture site to estimate "non-neighboring"

Results

Wilcoxon rank sum test with continuity correction completed for both trials. **B sample size: 10. STI sample size: 11.**



- On average a similar rate of chemosensory behaviors are performed regardless of disturbance, although not significant.
- There is a larger variation of amounts of both acts/min in STIs compared to baselines.



- There are on average fewer visual behaviors exhibited when disturbed or in a STI, although not statistically significant.

Figure 1 & 2 . Box Plots of Pushup Displays (top), Chemosensory Acts (bottom). Behaviors counted in acts per minute (Act/min). **Orange** is STI data & **Grey** is baseline data.



Discussion & Conclusions

- Unlike most other spiny lizards (Romero-Diaz et al. 2021), *S. tristichus* does not seem to respond to a live conspecific with more pushup displays.
- I am currently working on scoring additional data to see if these patterns remain similar from a larger sample.
- This could provide insight into how multimodal communicators respond in situations like territorial intrusions!
- Larger variation in amount of both behaviors per min. produced in STIs over baselines suggests distance of stimulus likely affects behavior.

Literature Cited & Acknowledgements

- Davis, J., & Ford, R. G. (1983). Home Range in the Western Fence Lizard (*Sceloporus occidentalis occidentalis*). *Copeia*, 1983(4), 933.
- Fleishman, L. J., & Font, E. (2019). Sensory Processing in Relation to Signaling Behavior. In V. L. Bels & A. P. Russell (Eds.), *Behavior of Lizards* (1st ed., pp. 207–257). CRC Press.
- Martins, E. P., Ossip-Drahos, A. G., Vital Garcia, C., Zúñiga-Vega, J. J., Campos, S. M., & Hews, D. K. (2018). Trade-offs between visual and chemical behavioral responses. *Behavioral Ecology and Sociobiology*, 72(12), 189.
- Romero-Diaz, C., Pruett, J. A., Campos, S. M., Ossip-Drahos, A. G., Zúñiga-Vega, J. J., Vital-García, C., Hews, D. K., & Martins, E. P. (2021). Evolutionary loss of a signalling colour is linked to increased response to conspecific chemicals. *Proceedings of the Royal Society B: Biological Sciences*, 288(1947), rspb.2021.0256, 20210256.

I truly appreciate Cassandra Ozee for helping me score videos and Christina Palmrose-Krieger for moral support!