

Behavioral modifications following tail loss in lizards

Caudal autonomy –

- Effective predator avoidance strategy
- Common among lizards
- Tail loss has potential energetic, social, and survival costs (Vitt & Caldwell 2008)



Social interactions

- ◉ Females prefer some trait variants over others, and males with preferred traits have enhanced mating success (Wagner 1997)
- ◉ Size relates strongly to social rank in lizards (Ruby 1981). Tail loss has been shown to reduce social status and mating success (Fox et al. 1990) (Martín and Salvador 1992).
- ◉ Tail loss will decrease female preference and lower male social status



Brown anole: *Anolis sagrei*

Video Analysis

- ◉ Spatial proximity: measured distance from male to female at 30 second intervals
- ◉ Social behaviors:
 - > Spatial behaviors: move toward, move away, contact/mating
 - > Social signals: head bobs, dulap extensions

Olfaction Behavior

- African fat-tailed gecko: *Hemitheconyx caudicinctus*



- Three stimuli:
 - 1. Control = deionized water
 - 2. Nonsense control = 1:500 dilution of hand soap
 - 3. Prey = cricket scent

Swab Test

- Pre-caudal autonomy, one week post-caudal autonomy, and 50% regrowth



Olfaction Trials



Tongue-flick rate
(**TFR**)
Flicks / 60 sec

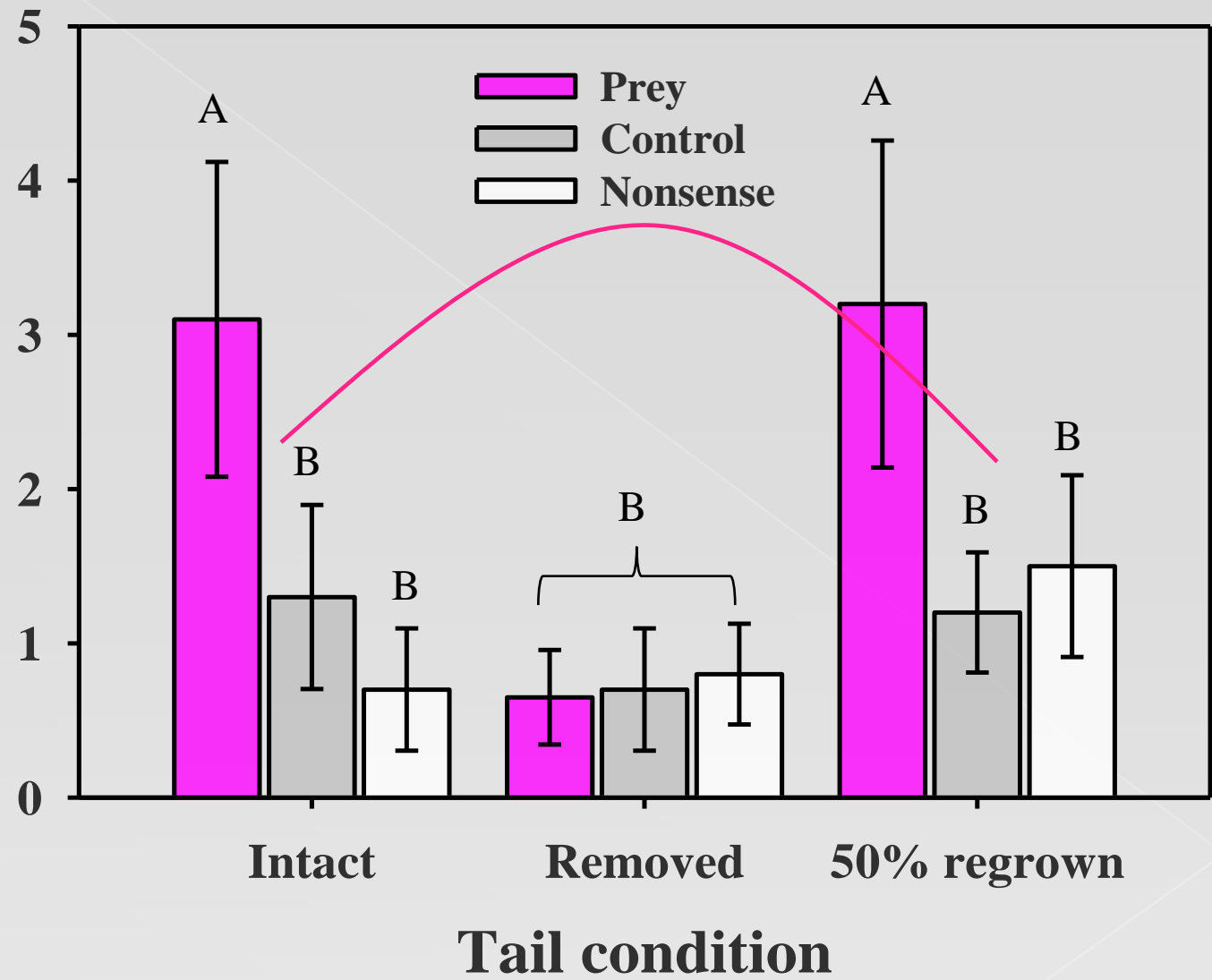
Latency to bite
(**LTB**)
sec elapsed
before bite

Tongue-flick attack
score (**TFAS**)
= $TFR + (60 - LTB)$
Index of response
strength

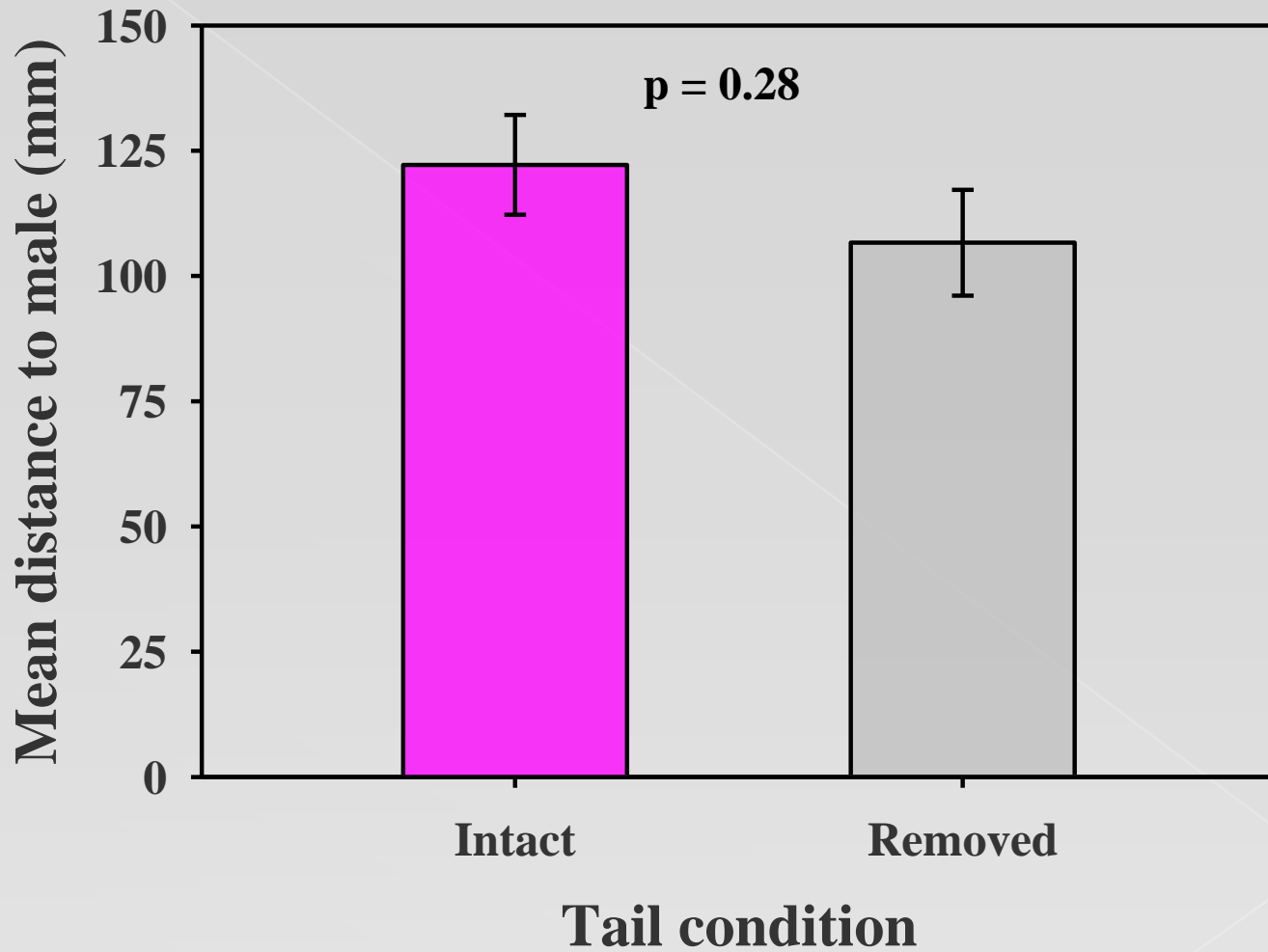
	<u>TFR</u>	<u>LTB</u>	<u>TFAS</u>
•Control	4.2	60	4.2
•Non-sense	39.3	34	65.3
•Prey	46	46.5	59.1

TFAS

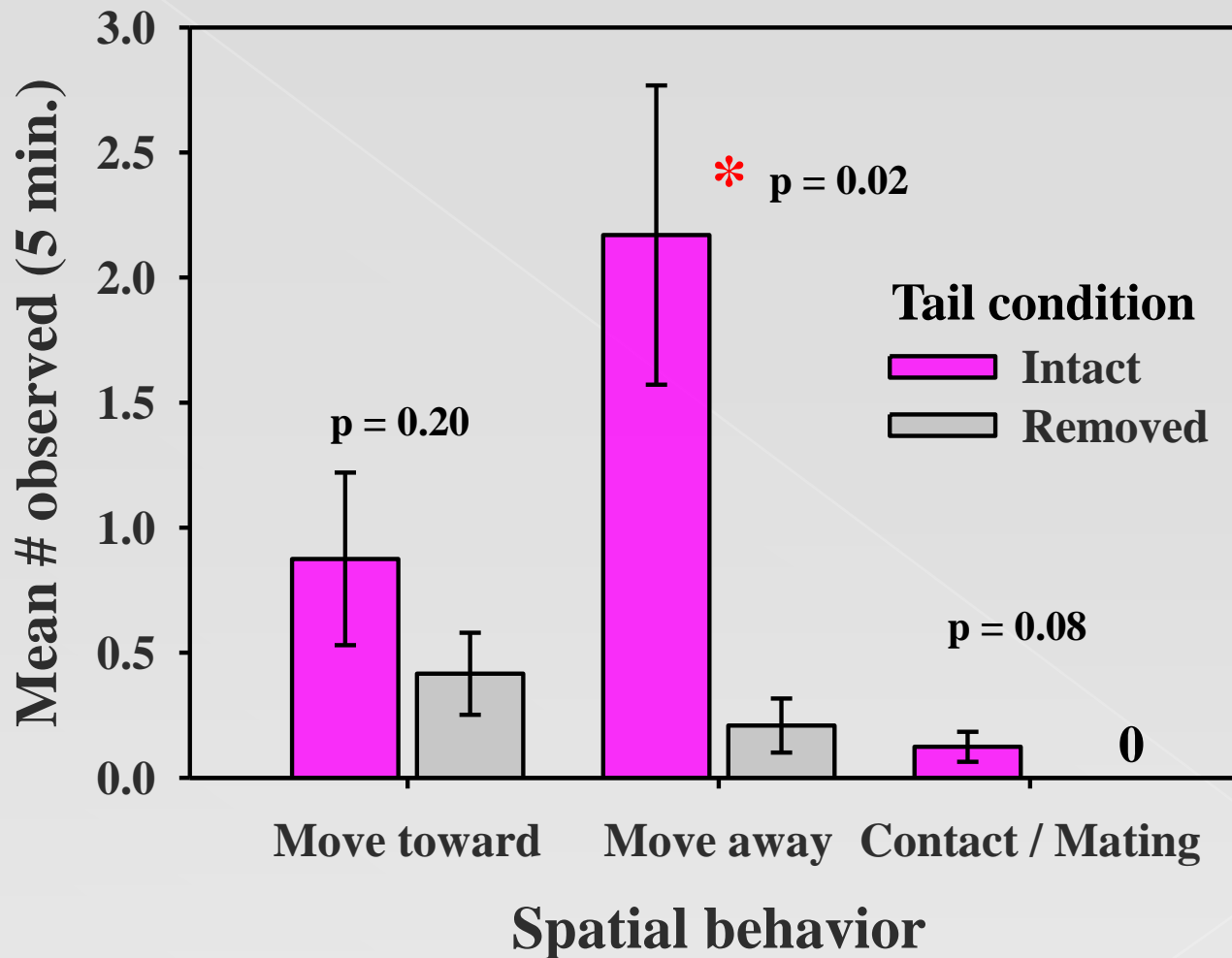
Tongue-flick attack score (TFAS)



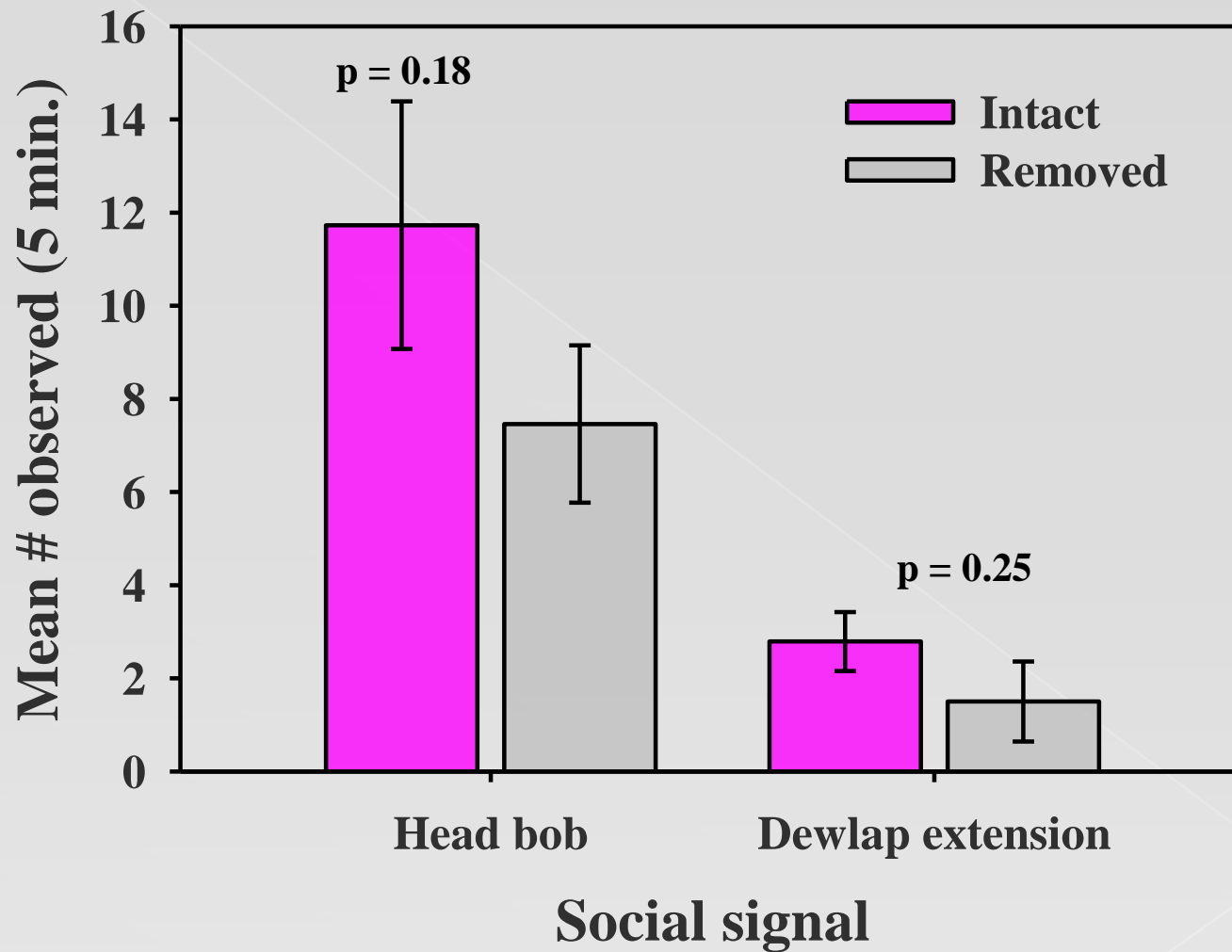
Distance to male



Spatial behaviors



Social Signals



Conclusions

- Significant decrease in response toward prey stimuli after tail removal
 - > Stress response
 - > Tail loss reduces activity
- Tail loss did not effect the social status of males or the female preference toward the male
 - > Significant difference between the females moving away from the intact males versus males with removed tails supports findings lizards are less active post-caudal autonomy (Formanowicz et al., 1990; Salvador et al., 1995; Downes & Shine, 2001; Cooper Jr, 2007, McConnachie & Whiting, 2003).
- Future direction:
 - > Add another angle to the camera setup
 - > Change stimulus in prey detection study
 - > Increase sample size

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