

***Fight or Feed:* food-seeking approach in juvenile male garter snakes is dependent on body size**

Emily Merfeld and Nicolette Tapia

Garter snakes have been shown to aggressively guard limited resources such as food, habitat, and mates [1, 2]. Feeding and aggression behaviors are easy to observe and quantify.

Hypothesis: Larger snakes engage in more fights and more food-seeking behavior than smaller snakes as a result of size-based dominance.



Experimental Design

Measure body weight and length, ID with color codes

2 week acclimation

Feed and record behavior (5 trials)

Use linear regression to evaluate weight::fights and weight::latency

Latency to approach: simple ethogram

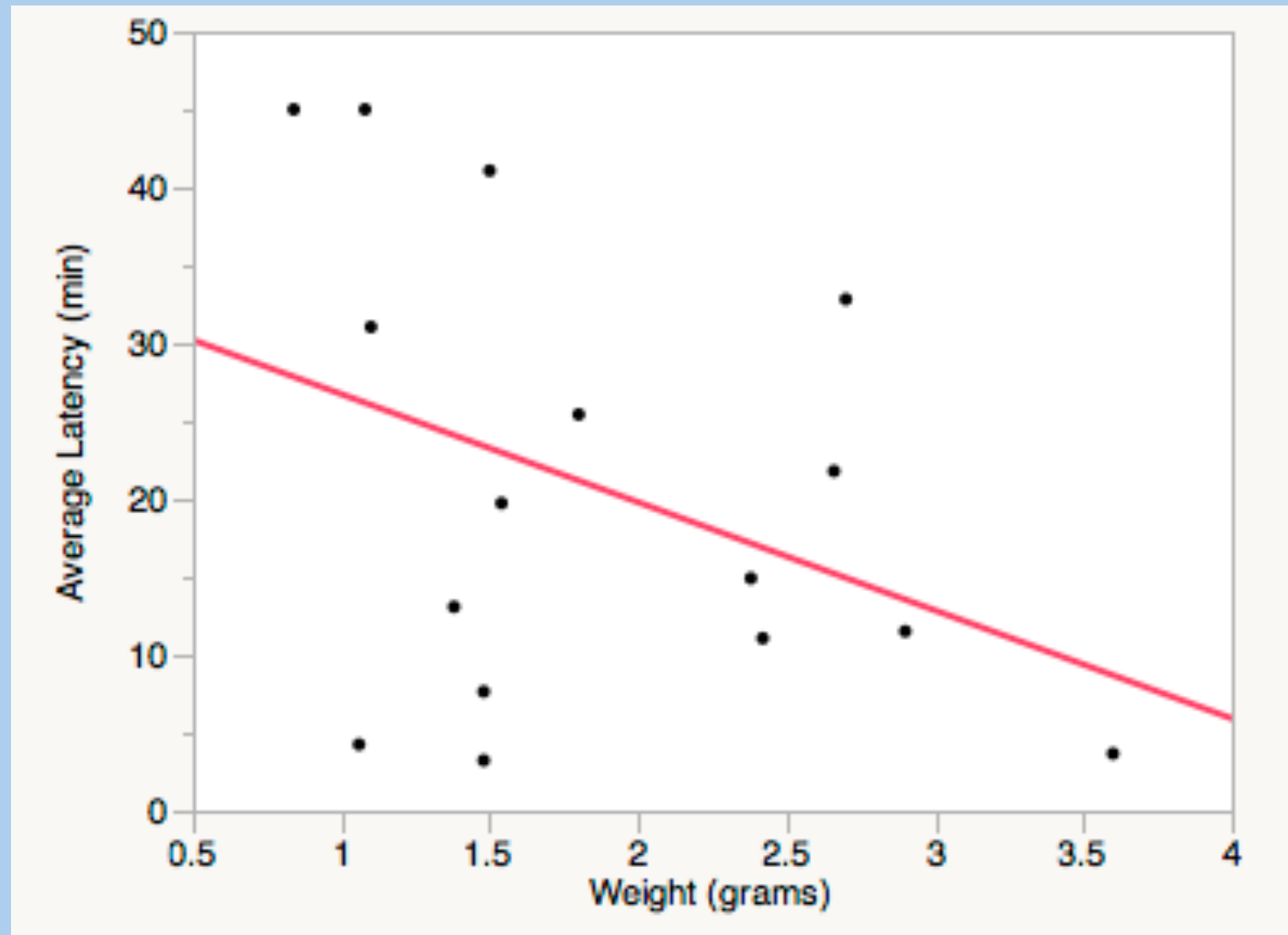
Fights: focal sampling



Results

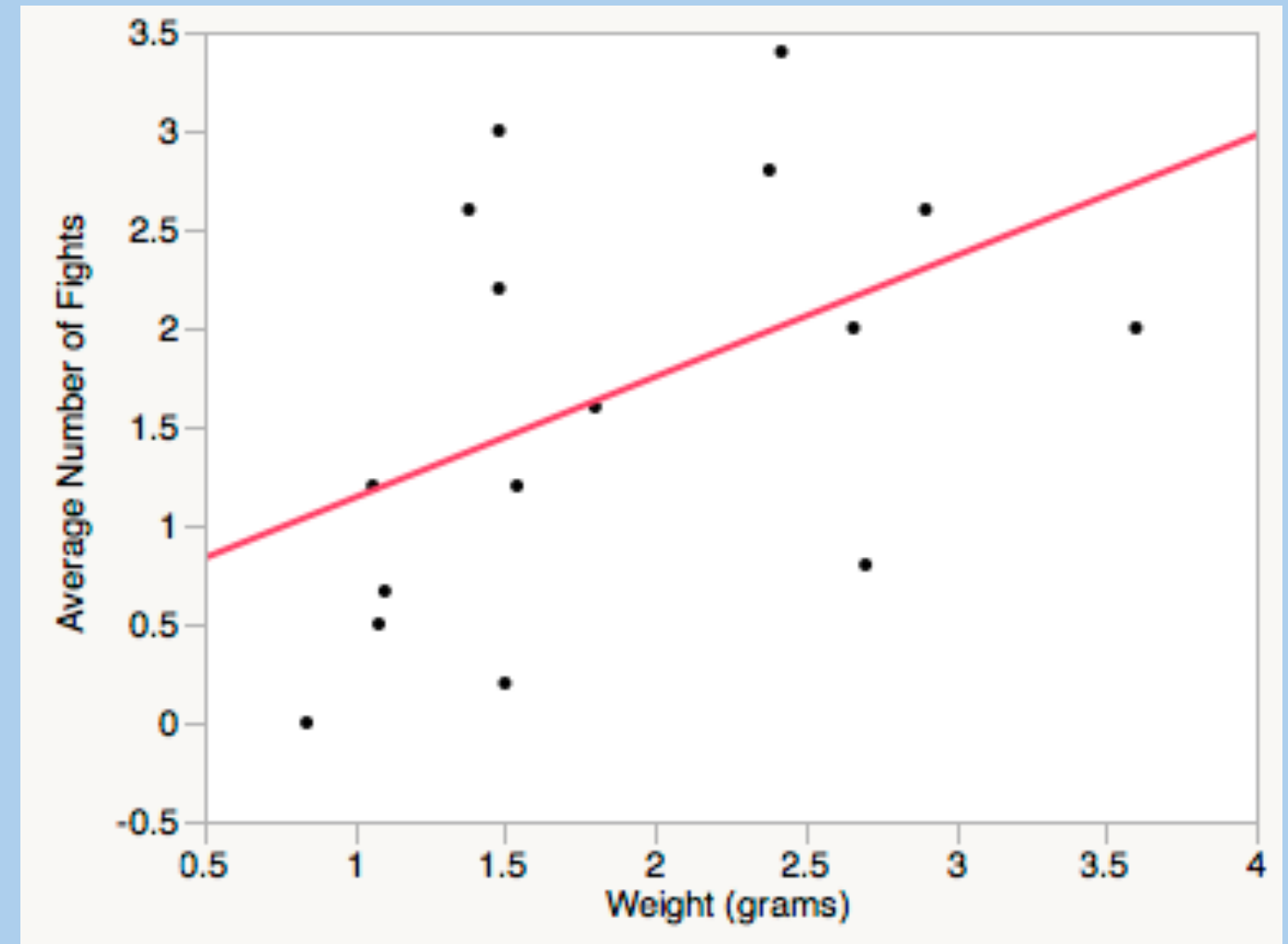
Bigger snakes tend to approach food quickly and have more fights!

Body size is inversely correlated with latency to approach food ($p=0.14$, $R^2=0.15$).



Average number of fights: $0.5275617 + 0.6124893 \cdot \text{Weight}$

Body size is positively correlated with fighting behavior ($p=0.069$).



Average number of fights: $33.680162 - 6.9411888 \cdot \text{Weight}$

Conclusions

Conclusion: dominance hierarchy may be established based on initial body weights

Future Directions:

1. *Chicken or egg?* Does larger body size increase dominance, or does dominance confer access to more food and thus increase body size?
2. *Conduct more trials* to reduce “noise” of individual variations and increase data’s robusticity
3. *Determine ideal housing* for smaller snakes

References:

- [1] Edgehouse, M., Latta, L.C., Brodie III, E.D., Brodie Jr., E.D. (2014). Interspecific Aggression and Habitat Partitioning in Garter Snakes, PLoS One 9(1), 1–5.
- [2] Shine, R. and Mason, RT. (2005). Does large body size in males evolve to facilitate forcible insemination? A study on garter snakes. *Evolution* 59(11): 2426-32.

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