
Competition's Effect on Male Guppy Mate Choice

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Previous studies have indicated that male guppies:

- Prefer larger females
- May switch their mate choice in the presence of rival males
- Will be less conspicuous about courting a female in the presence of other males



Male guppies face fierce mating competition and engage in many alternative reproductive tactics, like sneak mating. The way that social environments spur changes in male guppy mating behavior currently being investigated

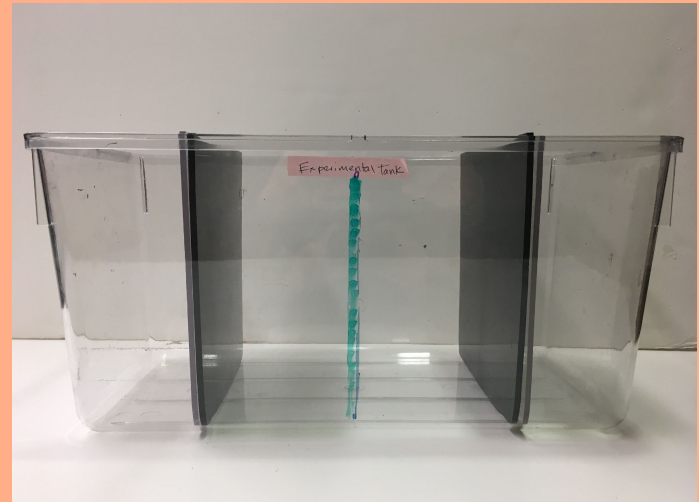
Experimental design

Methods

- **Females:** pregnant females were used, as they attract males but do not respond to their advances
- **Males:** focal males chosen were on average .3 cm larger than their rival males to increase their competitive response

Experiment:

- Focal males were observed and scored with Jwatcher in 3 different 15 minute conditions
 - 1. With no other males present
 - 2. With each female having a rival male near them
 - 3. With no other males, after seeing rivals around the females



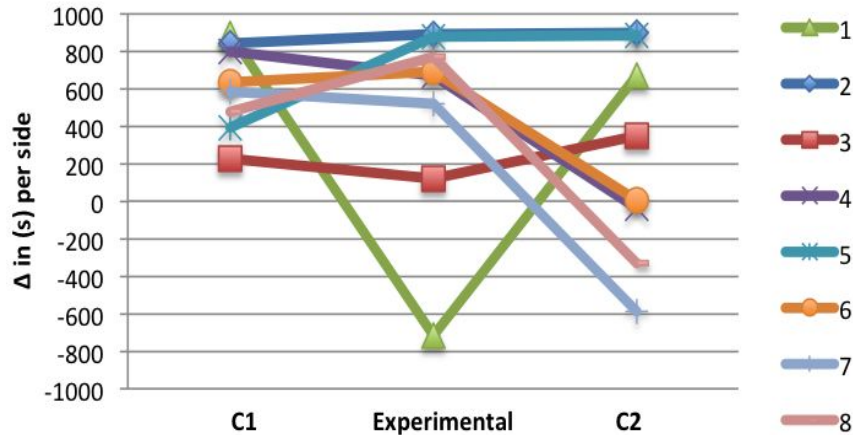
Above: The actual setup of physical tank

Right: The plan for how tanks will be during each phase of a trial.

Female 1	Control Tank 1 Focal Male	Female 2
Female 1 Competitive Male 1	Experimental Tank Focal Male	Female 2 Competitive Male 2
Female 1	Control Tank 2 Focal Male	Female 2

Results:

Time on Preferred Side

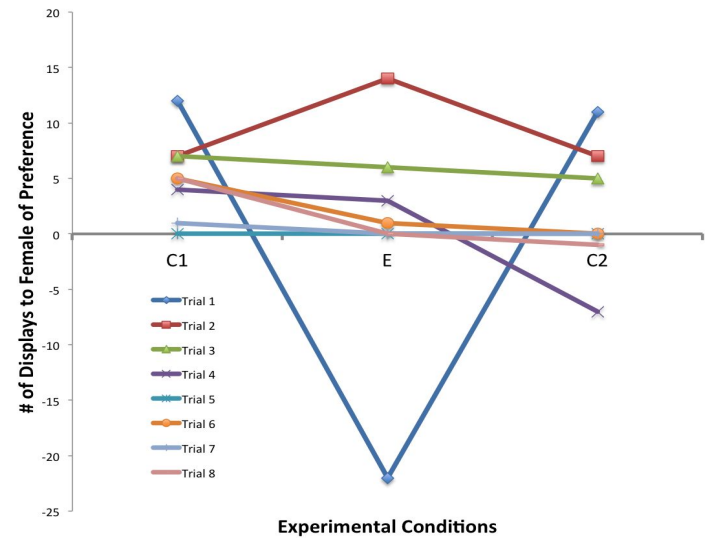


No significance related to competitive male presence.

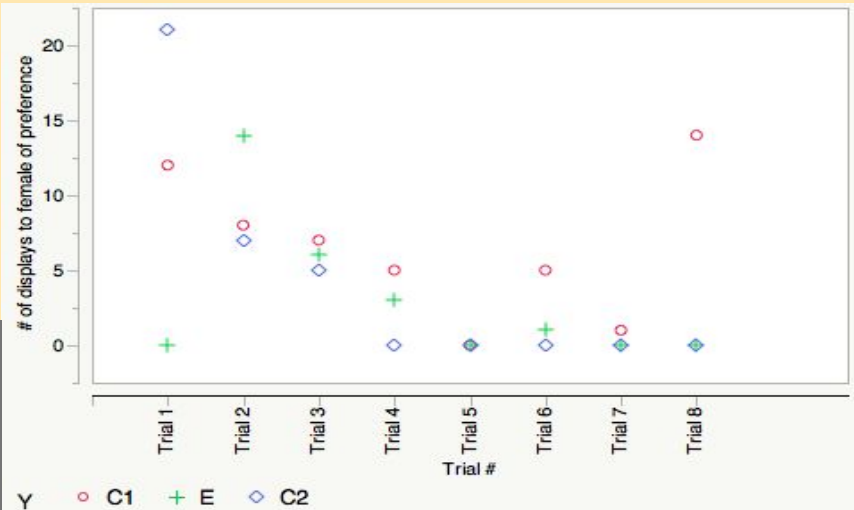
Males ended up choosing the smaller female in the second control the most. 4 out of 8 guppies chose the smaller female, 2 chose the larger female, and 2 showed no final preference

Positive correlation between time spent on each side and the number of displays. Males usually were the most active during the initial phase of the trials.

Change in Overall Preference in Conjunction with Experimental Conditions



No significance related to competitive male presence.



Conclusions:

- Our data did not support the findings that male guppies prefer the larger female
- Our data did show that the majority of guppies chosen changed their preference in response to seeing rival males, suggesting that alternative mating tactics are being used in response to changes in their social environment
- Guppy mating behavior was more varied and relied on more factors than anticipated



References:

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Auld, H.L., Jeswiet, S.B. & Godin, JG.J. Behav Ecol Sociobiol (2015) 69: 1191. doi:10.1007/s00265-015-1933-x

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Future Directions

- Future studies could determine whether or not the relative difference in size affects mating strategies of male guppies in a competitive environment
- Future confounds to control include precisely controlling the tank's water in chemical makeup and water height, controlling for side preference over female preference, and quantifying the desirability of the focal males