

# How to Quantify Female Mate Preference in Threespine Stickleback

Kaithren García<sup>1</sup>, Megan Tucker<sup>2</sup>, Meghan Maciejewski<sup>3</sup>, Usan Dan<sup>4</sup>, and Alison M. Bell<sup>3,4</sup>

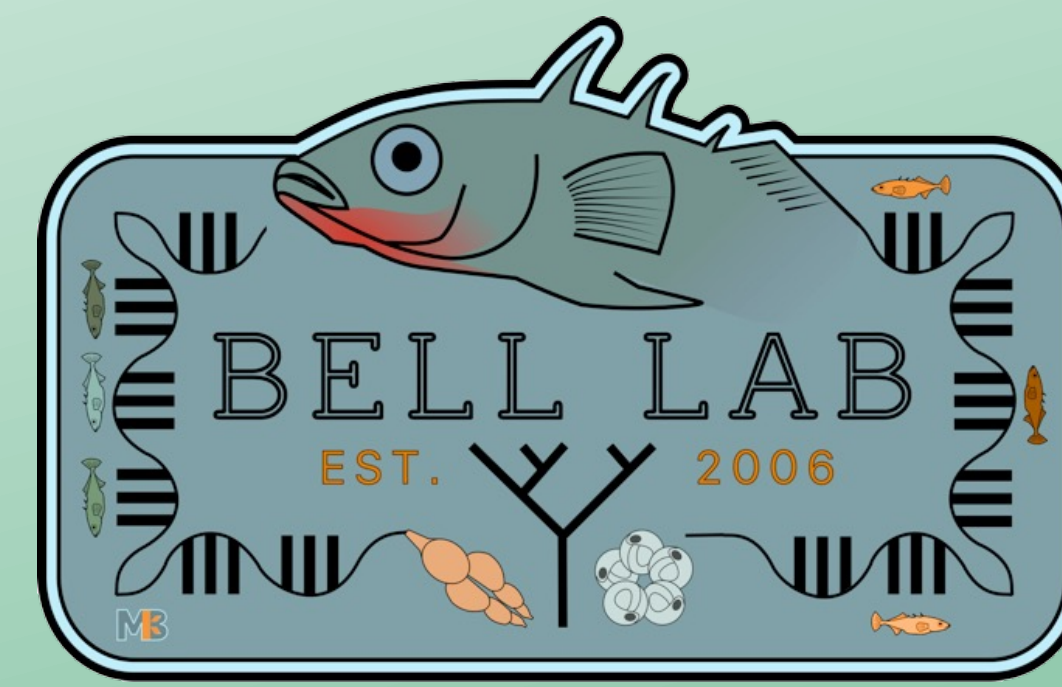
<sup>1</sup>Waubonsee Community College, Sugar Grove, Illinois

<sup>2</sup>Parkland College, Champaign, Illinois

<sup>3</sup>Department of Evolution, Ecology and Behavior, University of Illinois Urbana-Champaign

<sup>4</sup>Program in Neuroscience, University of Illinois Urbana-Champaign

**PRECS** Phenotypic Plasticity Research Experience for Community College Students



## Introduction

Social behavior is diverse. For example, males from two stickleback ecotypes (whites and commons, Fig. 1) are highly divergent in courtship and parental care behavior [1].

Little is known about ecotypic differences in female behavior.

In this study, we develop methods to quantify female preference in this system.



Fig. 1 White (top) and common (bottom) males differ in several social behaviors. Photo Credit: [1]



## Conclusions

- ❖ We identified 4 new female behaviors to add to the ethogram.
- ❖ In preliminary trials, females often showed uninterest via sinking or hiding, 2 of the new behaviors in our ethogram.
- ❖ Only 1 of 15 females displayed “interest” behaviors, making it difficult to measure female preference.
- ❖ *Future studies*: use transitional state analysis to identify which specific male behaviors females are responding to and examine preference for other traits such as coloration and body size.

## Methods

### Goal #1: Improve the Ethogram

- ❖ Previous ethogram included few female behaviors, limiting our ability to quantify female preference.
- ❖ We watched recorded videos of courtship to identify new female behaviors for the ethogram.

### Goal #2: Collect Preliminary Data on Female Preference

- ❖ We staged 15-minute courtship trials between pairs of males and females.
- ❖ We recorded male and female behaviors using the new ethogram.

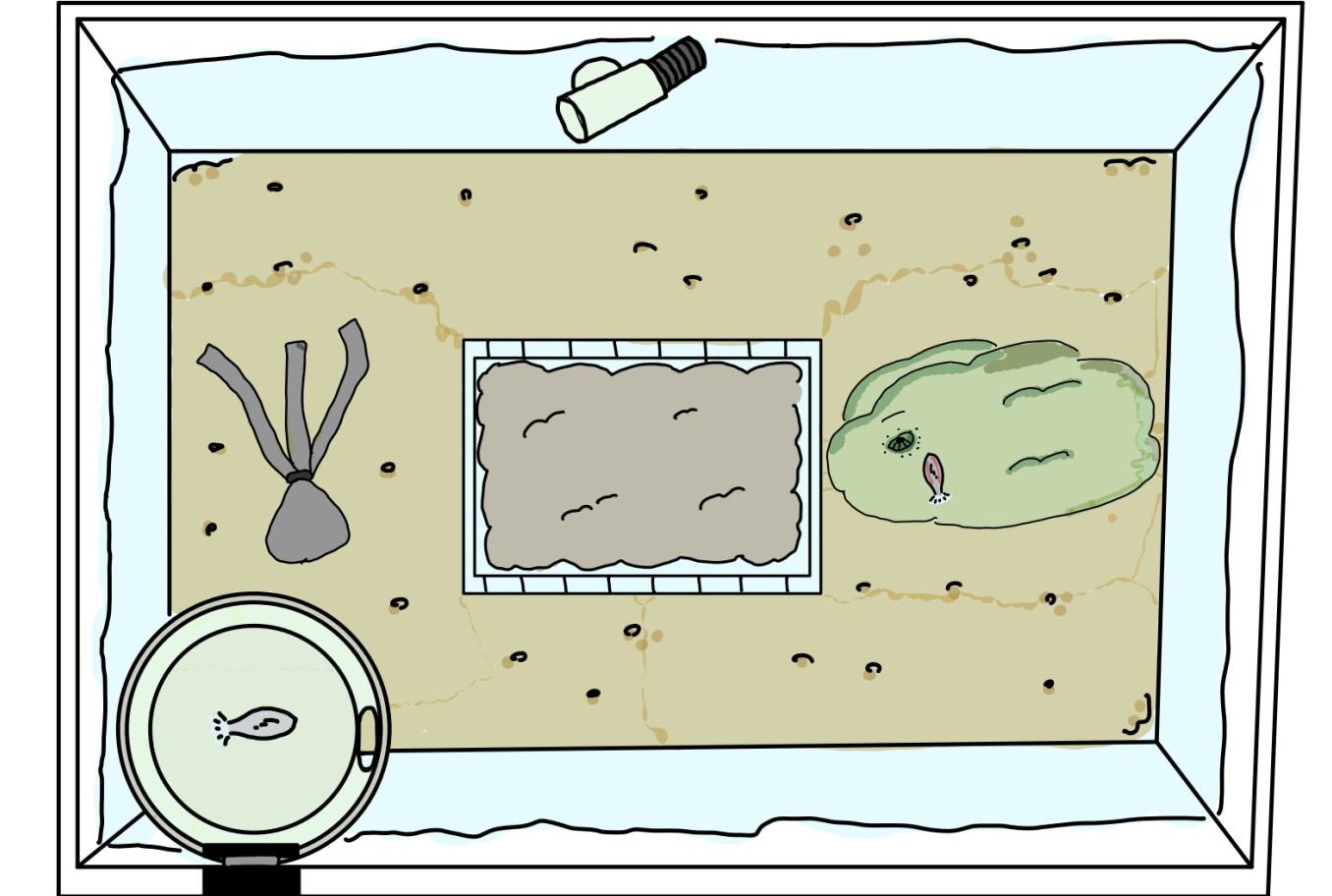
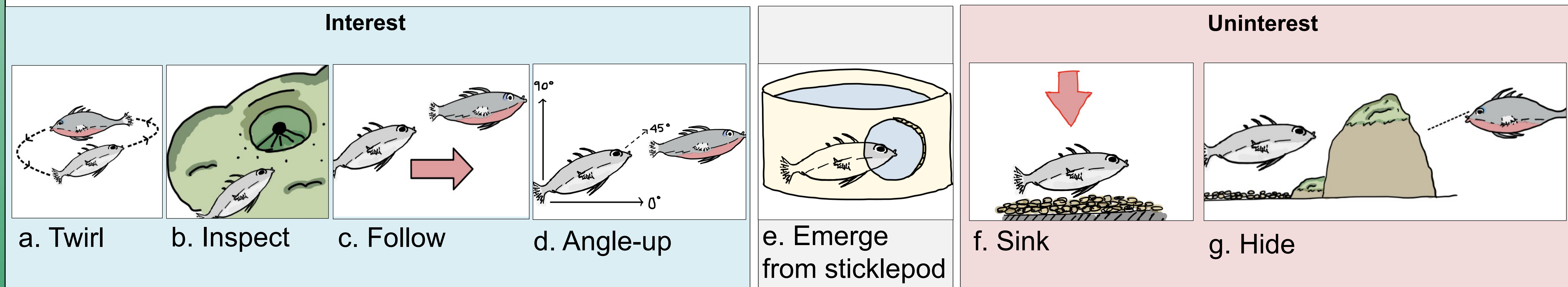
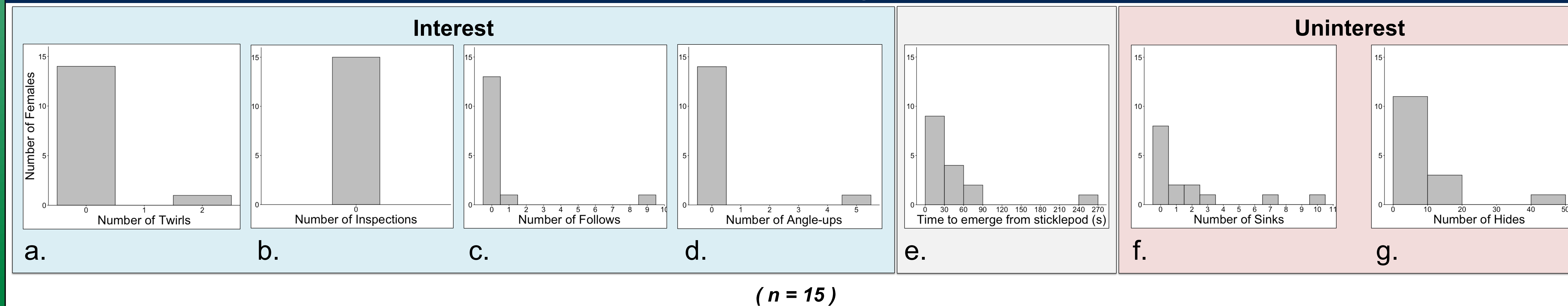


Fig. 2 Tank set-up for behavioral assay including (left to right) artificial plant, sand tray, and algae mass. Sticklepod is in front left.

## Goal #1 Results: Improve the Ethogram



## Goal #2 Results: Collect Preliminary Data on Female Behavior



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