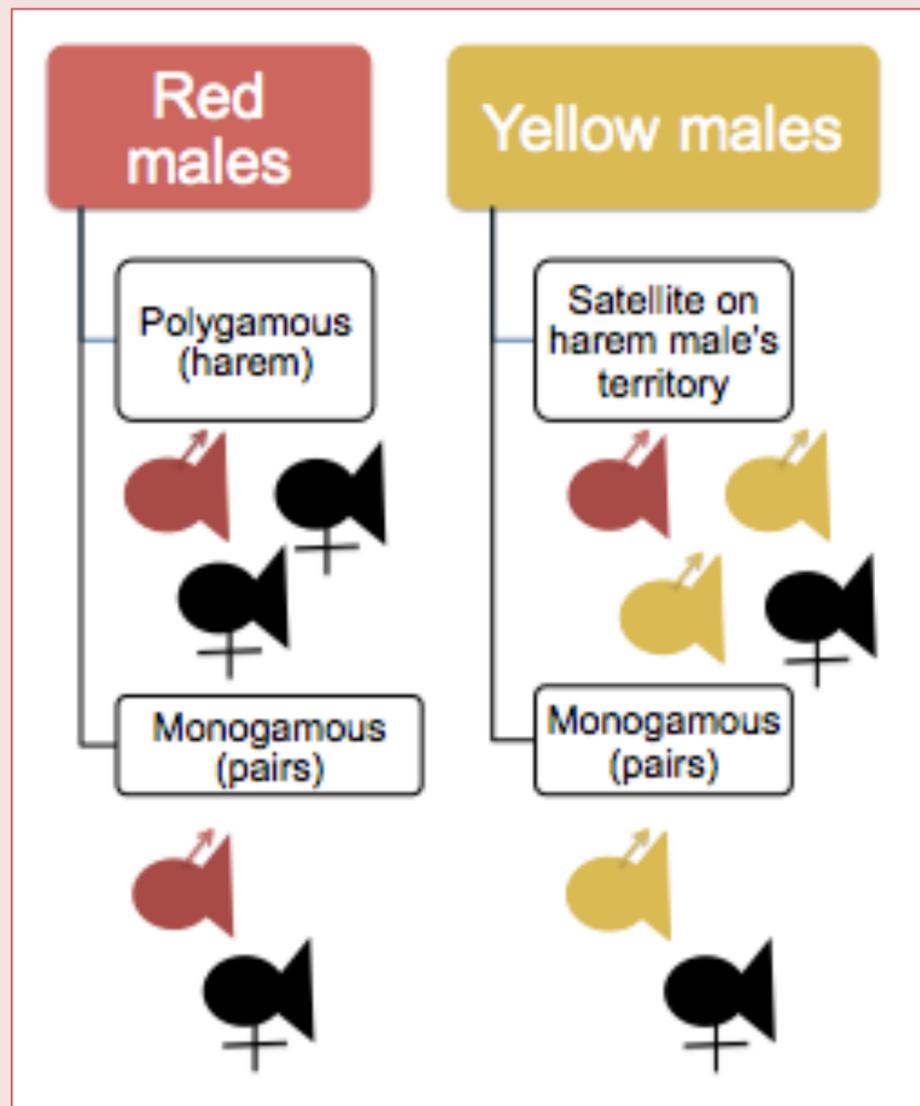
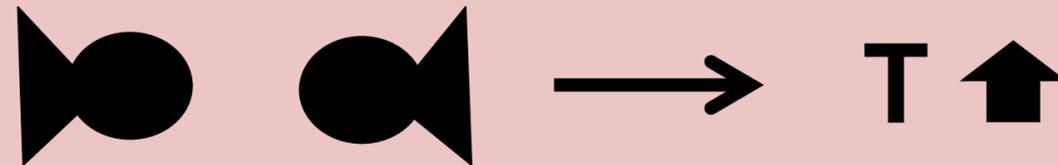


Red fish, yellow fish: morph-based

Alternate reproductive tactics & challenge hypothesis



- Challenge hypothesis investigates aggression and testosterone in mating.



- ARTs produce different mating situations among animals of the same species.

Our hypothesis:
Red males, yellow males, and females will differ in their testosterone response to an aggressive encounter / challenge.



Figure 1. Red (left) and yellow *P. pulcher* male morphs

differences in hormone response

Hulali Alford
Rose Driscoll

Pre- and post-challenge waterborne hormone assay

behavior

3 - day acclimation period;
Baseline hormone measures

Aggressive encounter assay

Post-encounter hormone measures

hormones

Filter water samples

Capture hormones

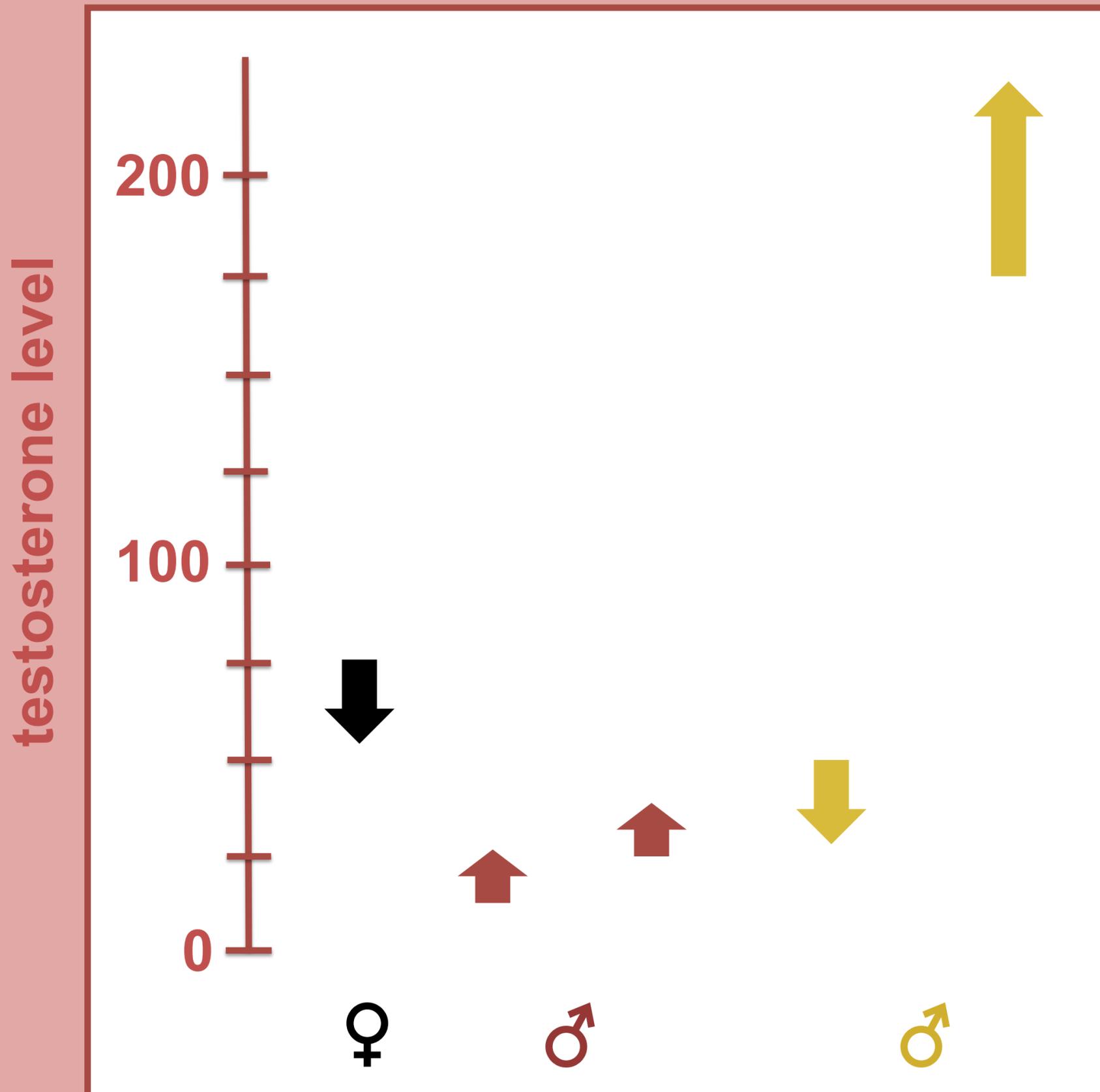
Perform ELISA

Analysis



Figure 2. *A. burtoni* (left) and *P. pulcher* during encounter

Baseline and response vary by sex / morph



Female

- Baseline: higher
- Response: decrease

Red males:

- Baseline: lower
- Response: increase

Yellow males:

- High individual variation in both baseline and response
- One of the yellow males is an extreme outlier – testosterone levels ~200

Challenge X ARTs

P. pulcher red males, which typically defend a territory and one or more females, show an increase in testosterone levels in response to an aggressive encounter.

Future directions:

Investigate hormonal responses to a challenge within a breeding context: nest defense

Literature Cited

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Figure 1: Reddon, A.R. & Hurd, P.L. *Zoology* **116** (2013) cover image.

Figures 2 & 3: Hulali Alford

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Figure 3. Experimental subjects in group tank. Female (with magenta belly) is prominent in center front.

