

# When females compete and males care: Phenotypic differences in the spotted sandpiper

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## INTRODUCTION

- Spotted sandpipers (*Actitis macularius*) are migratory shorebirds that exhibit sexual dimorphism and are sequentially polyandrous<sup>2</sup>
  - Females compete for multiple mates
  - Males care for offspring
- Midwestern population: females have larger body mass and feather spots<sup>1</sup>
  - Does our California population follow this pattern?
- Hypothesis:** Sexual dimorphism will be expressed in morphological traits

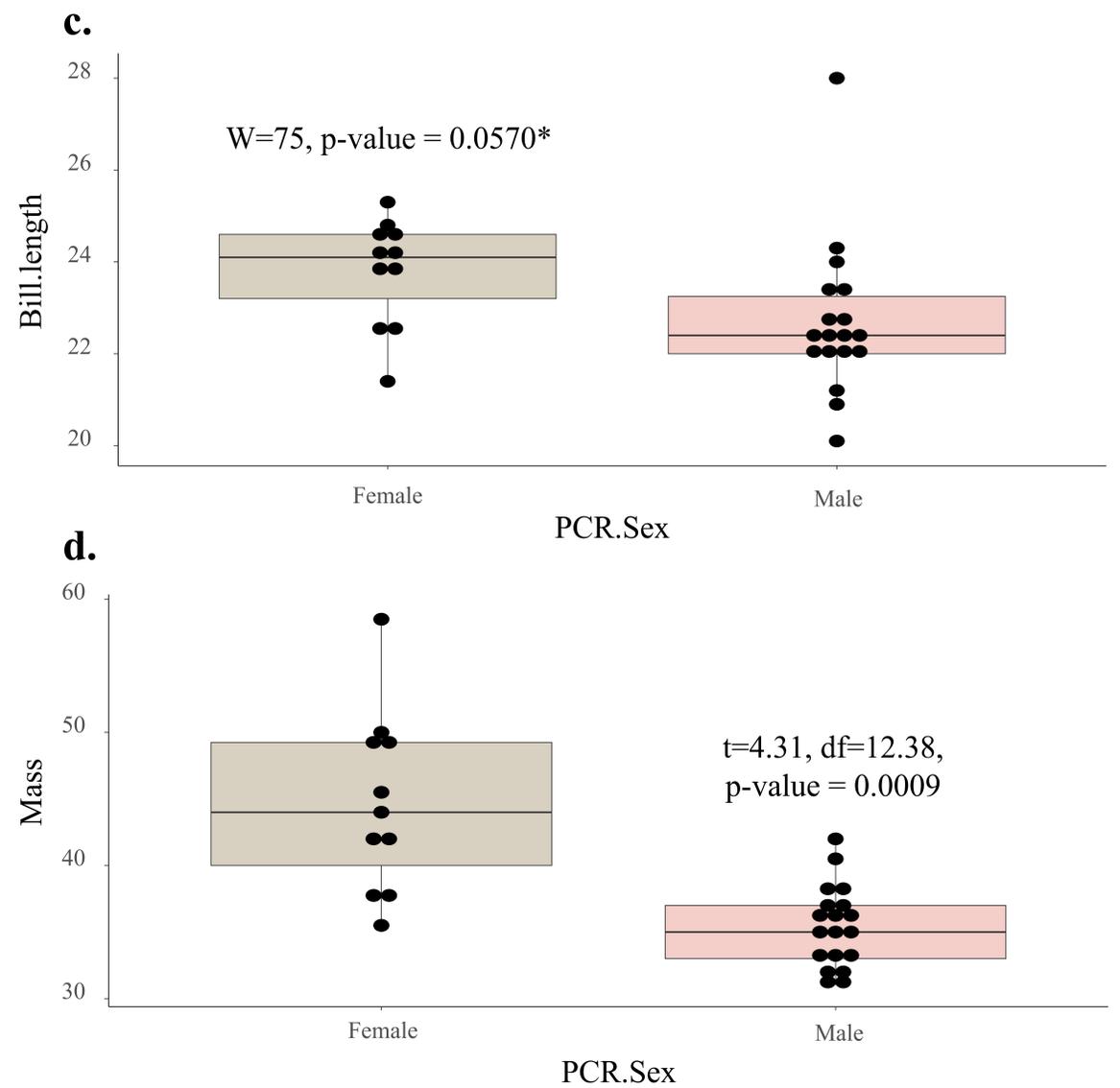
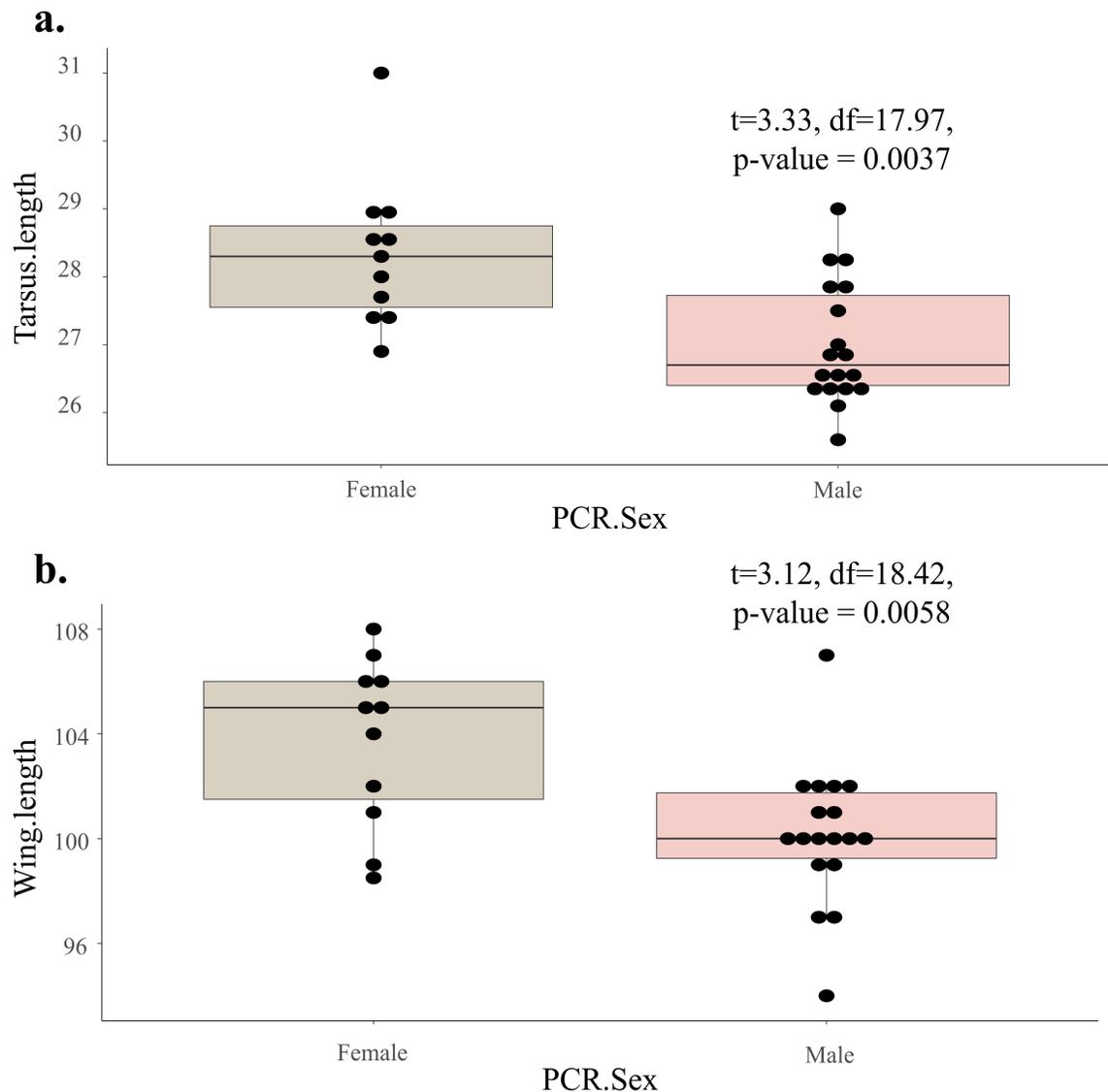


## METHODS

- Collected blood samples of 30 birds
- Measured morphological structures such as tarsus length, wing length, bill length, and body mass
- Conducted PCR and Gel electrophoresis to determine genetic sex
  - 19 males and 11 females
- Used R Studio to evaluate sexual dimorphism of morphological traits
  - Shapiro-Wilk normality test
  - Welch Two Sample t-test
  - Wilcoxon Rank Sum Test\*



## RESULTS



**Figure 1.** Morphological trait measurements between adult female and male spotted sandpipers. **a,b.** demonstrates that females have significantly longer tarsi and wings than males. **c.** reveals that females have marginally longer bills than males. **d.** shows that females significantly weigh more than males.



## CONCLUSION

- There are significant differences between the male and female spotted sandpipers for these certain morphological traits – sexual dimorphism is expressed
- The Midwestern and California populations have evolved similarly
- Samples size is small, so further investigation should be conducted to make hypothesis stronger
- For the future, we are planning on increasing our sample size by doing more fieldwork to further strengthen the hypothesis and the results

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## REFERENCES

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 [2] Emlen & Oring. 1977. *Science*.



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