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## Negative Assortative Mating in Prothonotary Warblers: Crown Feathers Reveal Mating Preference

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# Assortative Mating in Prothonotary Warblers: Does Ornamentation Drive Mate Preference?

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## BACKGROUND

Figure 1

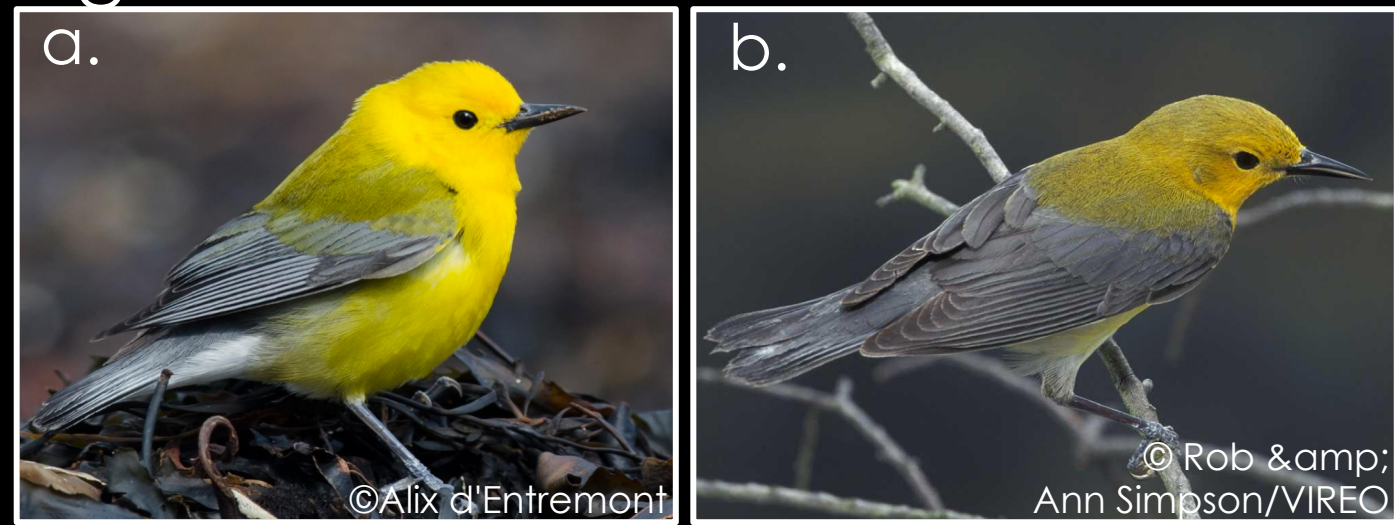


Figure 1. Both male (a) and female (b) prothonotary warblers boast bright yellow feathers.

Figure 2

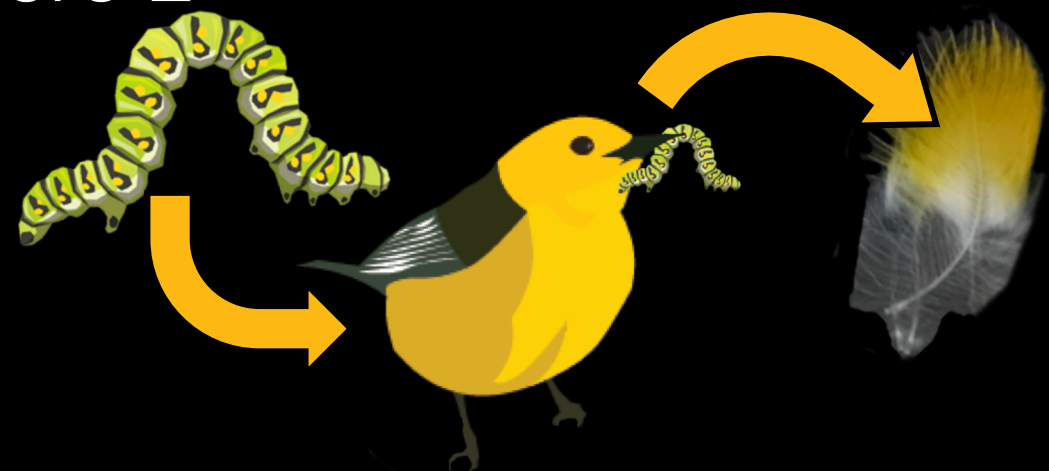


Figure 2. Carotenoids are acquired through diet.

## METHODS

Figure 3

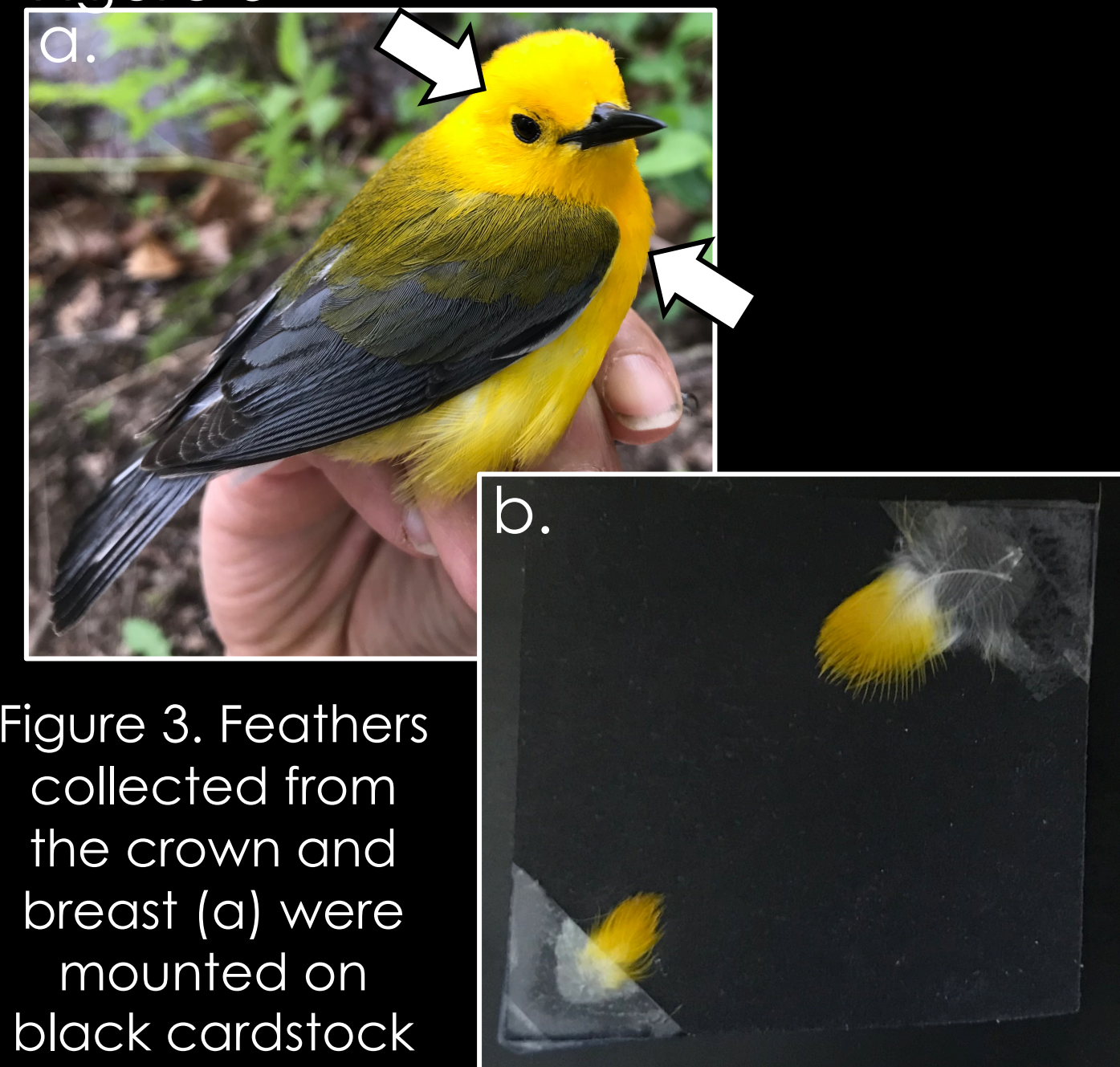
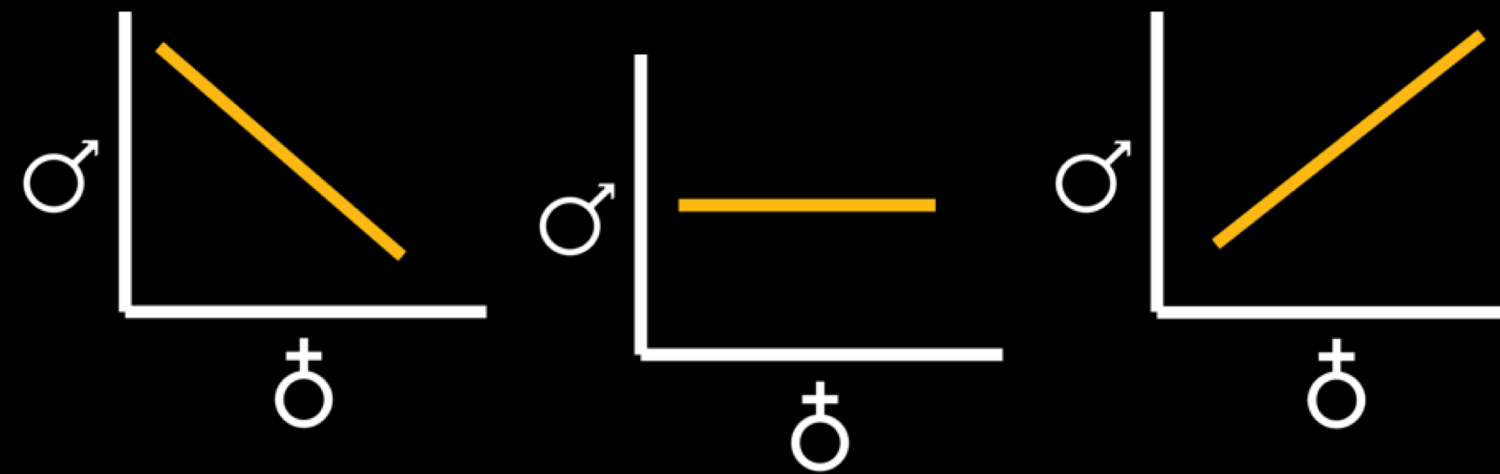


Figure 3. Feathers collected from the crown and breast (a) were mounted on black cardstock for spectral analysis (b).

## HYPOTHESES



## RESULTS

Figure 4

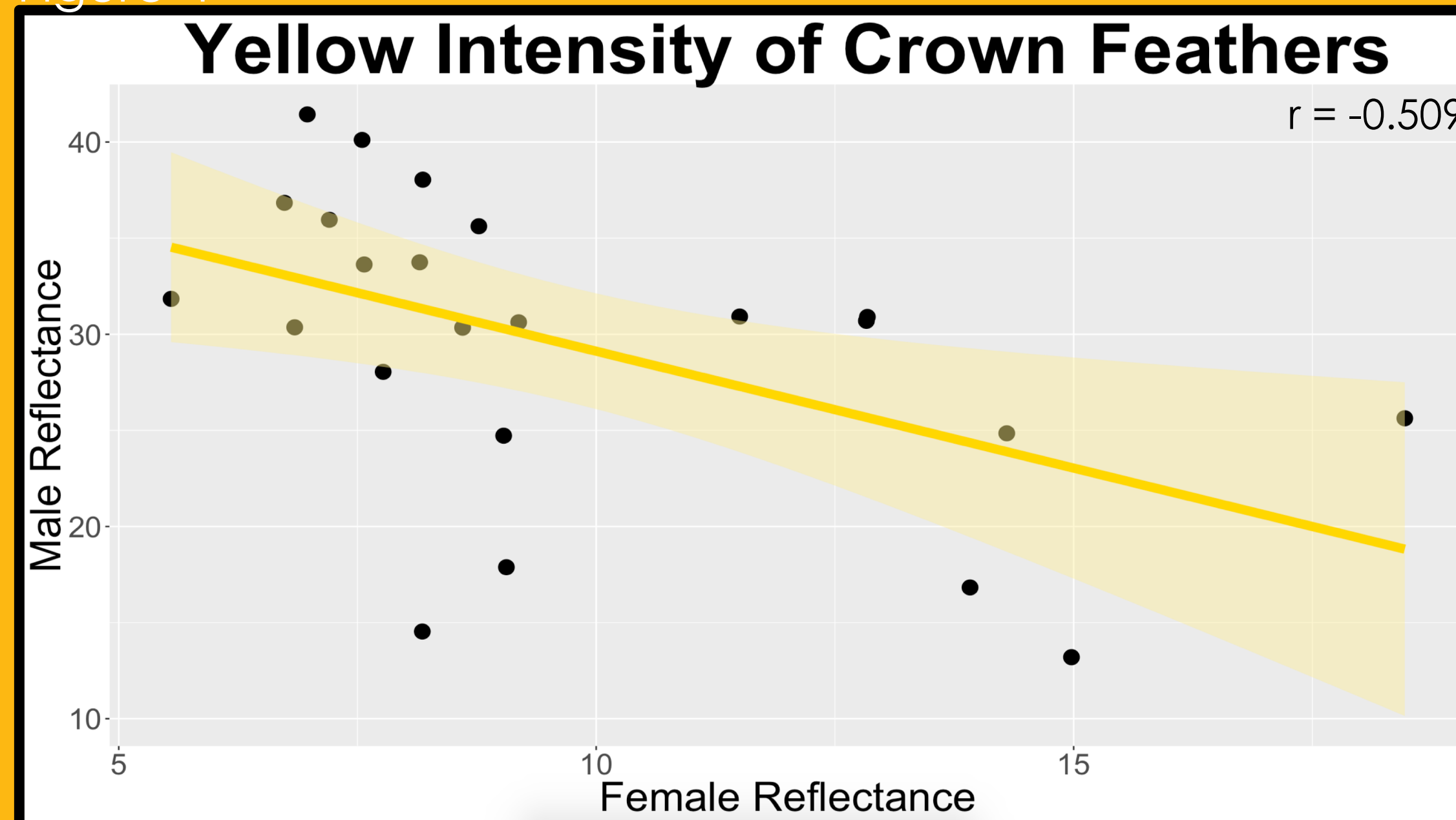


Figure 4. Crown and breast feathers were analyzed using a spectrophotometer for violet blue chroma (VBC), ultraviolet chroma (UVC), and yellow brightness intensity.

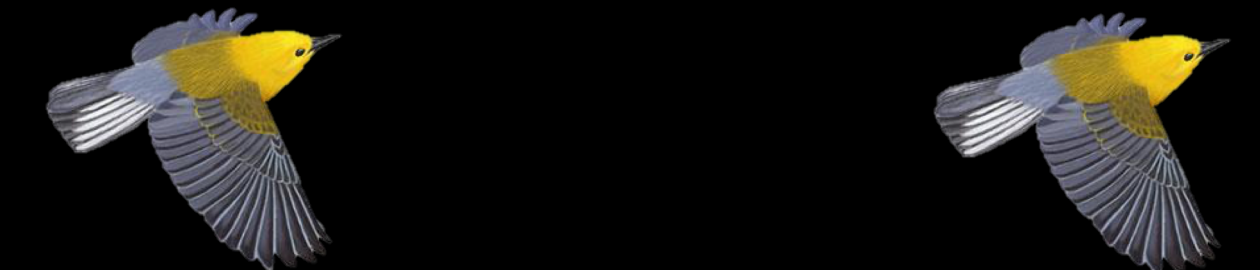
Yellow intensity was calculated as the minimum reflectance of the blue region (436nm – 500nm) subtracted from the average reflectance of the yellow region (501nm – 700nm).<sup>†</sup>

Analysis of yellow intensity of crown feathers in paired warblers revealed a statistically significant correlation ( $p=0.0132$ ).

## CONCLUSIONS

Females with bright yellow crown feathers are more likely to mate with males with darker crown feathers, suggesting a pattern of non-assortative mating.

Analysis of breast feathers and other spectral characteristics (VBC and UVC) did not reveal any statistically significant correlations.



## ACKNOWLEDGEMENTS

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## REFERENCES

<sup>†</sup>Montgomerie, R. (2006). Analyzing colors. In *Bird Coloration, Volume I: Mechanisms and Measurements* (G. E. Hill and K. J. McGraw, Editors). Harvard University Press, Cambridge, MA, USA. pp. 90–147.