

University of Montana

ScholarWorks at University of Montana

University of Montana Conference on Undergraduate Research (UMCUR)

Apr 27th, 11:00 AM - 12:00 PM

Quantifying False Positives in Avian Survey Data

Kaitlyn M. Strickfaden

kaitlyn.strickfaden@umontana.edu

Follow this and additional works at: <https://scholarworks.umt.edu/umcur>

Let us know how access to this document benefits you.

Strickfaden, Kaitlyn M., "Quantifying False Positives in Avian Survey Data" (2018). *University of Montana Conference on Undergraduate Research (UMCUR)*. 15.

<https://scholarworks.umt.edu/umcur/2018/amposters/15>

This Poster is brought to you for free and open access by ScholarWorks at University of Montana. It has been accepted for inclusion in University of Montana Conference on Undergraduate Research (UMCUR) by an authorized administrator of ScholarWorks at University of Montana. For more information, please contact scholarworks@mso.umt.edu.

QUANTIFYING FALSE POSITIVES IN AVIAN SURVEY DATA

Kaitlyn Strickfaden, Avian Science Center at the University of Montana (Faculty Advisor: Dr. Victoria J. Dreitz)

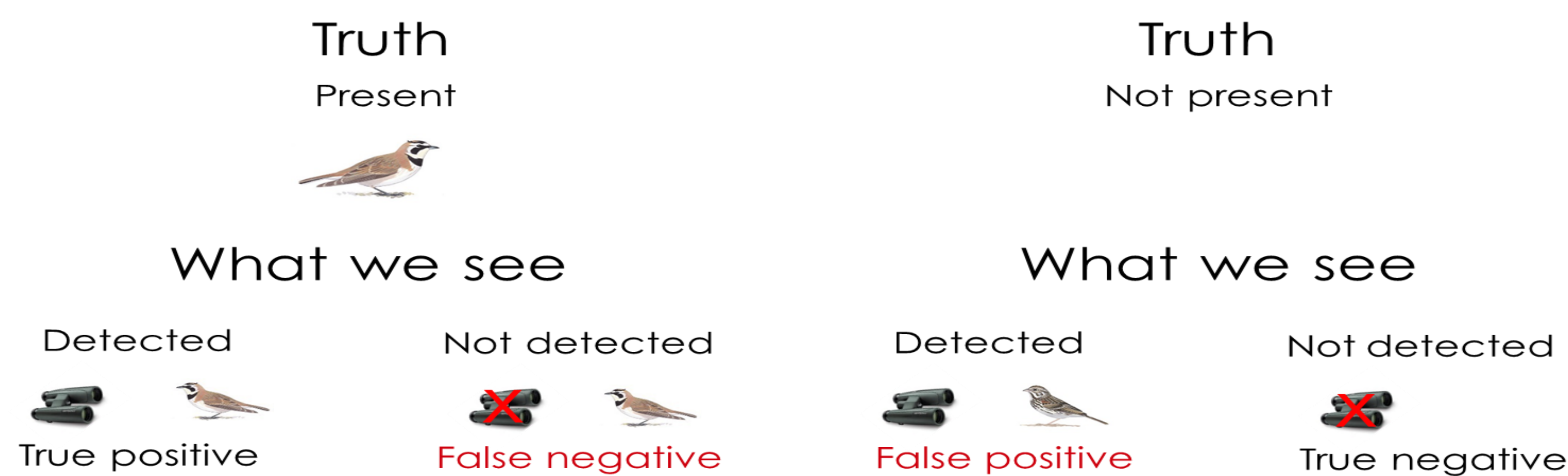


Questions:

1. Do paired observers report fewer false positives than unpaired observers?
2. Do experienced observers report fewer false positives than inexperienced observers?

Imperfect Detection

©Jessie Golding



Methods:

- ❑ Vocalizations of 10 Montana grassland songbird species obtained from Cornell library; background noise filtered out
- ❑ Surveys of filtered vocalizations randomly generated in R
- ❑ Observers identified vocalizations either alone or in pairs
- ❑ Observed data compared to computer-generated data (truth) in R
- ❑ False positive rates compared between:
 - Paired vs. unpaired observers
 - Experienced vs. inexperienced observers

Results:

False Positive Rate by Survey Method

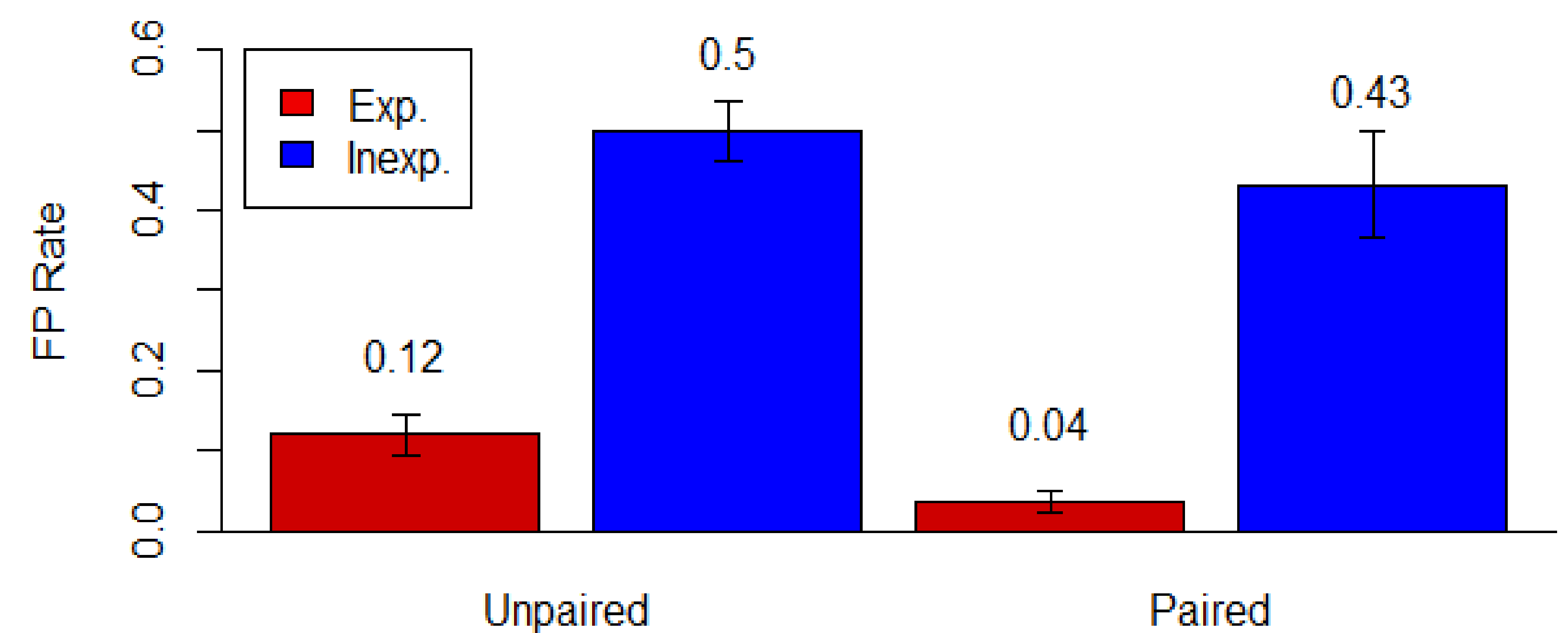


Figure 1: False positive rates in auditory avian survey data by observer experience level and survey method. Mean false positive rate is displayed above each bar. Error bars are 95% confidence intervals.

Discussion:

- ❑ Survey method does make a difference with experienced observers
- ❑ Survey method may not make a difference with inexperienced observers
- ❑ Experienced observers report far fewer false positives (but still report them)

When making conservation recommendations, especially for threatened or endangered species, managers should recognize that false positives do occur in avian surveys, no matter the experience level of observers.

- ❖ How much do false positive rates change with visual detections?
- ❖ How much do false positives bias population estimates?

References:

- R Core Team (2013). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. ISBN 3-900051-07-0, URL <http://www.R-project.org/>.
- Miller, D.A., L.A. Bailey, E.H. Campbell Grant, B.T. McClintock, L.A. Weir, and T.R. Simons. 2015. Performance of species occurrence estimators when basic assumptions are not met: a test using field data where true occupancy status is known. *Methods in Ecology and Evolution* 6: 557–565.
- Nichols, J. D., J. E. Hines, J. R. Sauer, F. W. Fallon, J. E. Fallon, and P. J. Heglund. 2000. A double-observer approach for estimating detection probability and abundance from point counts. *The Auk* 117: 393–408.

Acknowledgements: I would like to thank Dr. Victoria Dreitz for providing her expertise, resources, guidance, and especially her encouragement in helping me to complete this project. I would also like to thank Alan Harrington, Jessie Golding, Danielle Fagre, Jason Tack, and Kaitlyn Reintsma for their contributions. Last but certainly not least, I want to thank my many volunteers who collected this data and without whom I would have nothing to present.

