WHAT'S SEX GOT TO DO WITH CONSERVATION?

OVERLOOKED SEX-SPECIFIC SURVIVAL PATTERNS IN NORTH AMERICAN BIRDS

Joanna X. Wu[1], James F. Saracco[2], Ryle Eskander[1], Tabassum Hossain[1], Morgan W. Tingley[1]

Contact: joannaxwu@ucla.edu, PhD Student. [1]Department of Ecology & Evolutionary Biology, University of California, Los Angeles; [2]The Institute for Bird Populations

Introduction

Effective conservation actions must fully account for drivers behind population declines. Cryptic female birds are sometimes overlooked, which is problematic when population parameters or habitat needs differ among sexes. There is some evidence for sex-based survival differences, but the extent is not known partly because sexes are not always analyzed separately.

Our first objective is to **(1) analyze and report survival rates of male and female birds separately.** Second, we want to **(2) assess the frequency with which published studies aggregate sexes in survival analyses.** Using 28 years of one of the largest effort-controlled bird banding datasets data across the United States and Canada, we seek to understand patterns of female and male survival.

Eastern Towhee
Birds of the World

Methods

Survival analysis via capture-mark-recapture

MAPS banding data 1989–2016

↓ *Filters: survival quality data, remove hatch years & unknown sex*

Filtered data

↓ *RMark survival modeling: Cormack-Jolly-Seber*

Sex-specific survival estimates

Literature analysis

1,043 unique types + key word "survival"

↓

Web of Science

↓ *Search outputs*

3,353 papers

Research assistants coded literature

Considered sex

Did not consider sex

Results & Discussion

Survival analysis via capture-mark-recapture

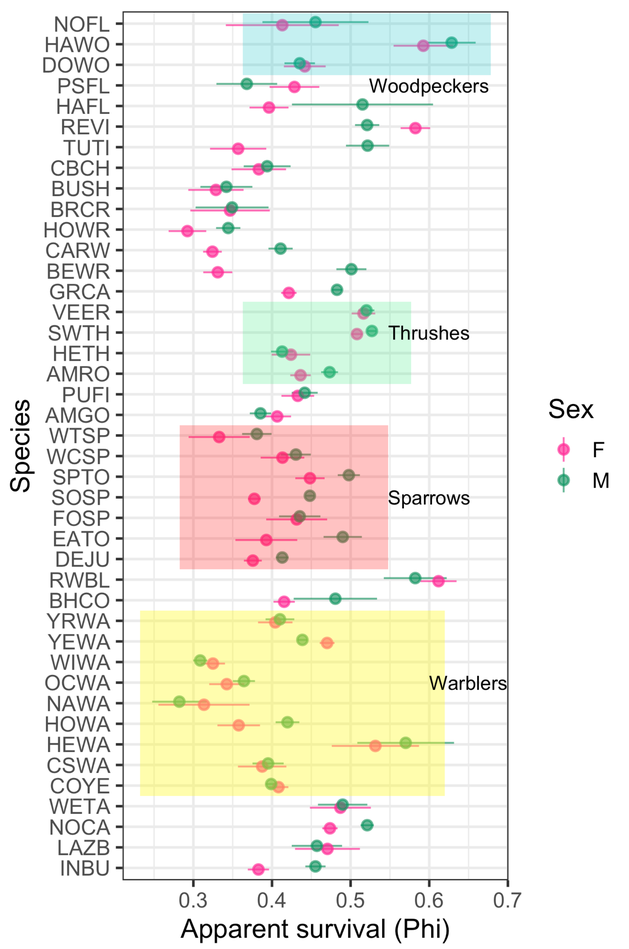


Figure 1. Preliminary average apparent survival rates ± SE across 42 species in 14 families were marginally lower for females (mean 0.42 ± SD 0.08) than males (0.45 ± 0.07; t = -1.7, df = 82.0, P = 0.09).

Literature analysis

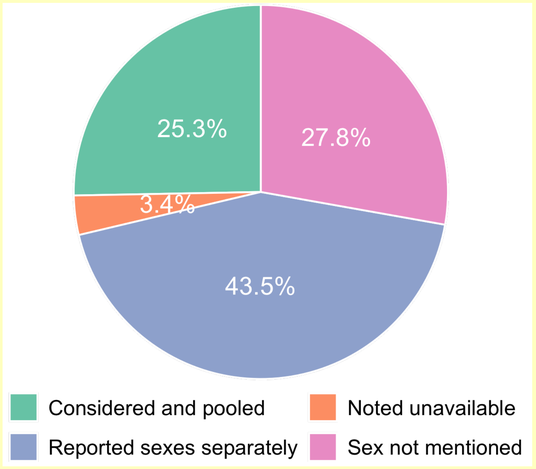
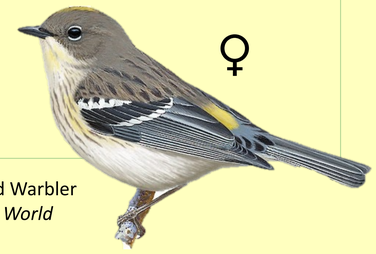


Figure 2. In 601 articles reviewed across ~200 species (penguins to passerines), 72.2% of analyses considered sexes could differ, but only 43.5% reported sexes separately.

Preliminary results suggest **female apparent survival rates are marginally lower than male survival rates.** The survival literature is largely considering sexes, although not always reporting them separately.



Yellow-rumped Warbler
Birds of the World

Next Steps

1. Relate degree of sex-based survival rate difference to conservation status.
2. Model sensitivity of population growth rate to female and male adult survival.
3. Test whether the number of species studied, gender of first and last author, and age of study is related to treatment of sex.
4. Research sex-based demographic impacts of climate variables.

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