

SEX RATIOS OF BRAZILIAN FREE-TAILED BAT (TADARIDA BRASILIENSIS) FATALITIES AT WIND ENERGY FACILITIES IN CALIFORNIA AND TEXAS Sarah LiCari, Amanda Hale, Sarah Weaver, Sarah Fritts, Todd Katzner, David Nelson, & Dean Williams

BACKGROUND

- industries [1]
- Collison mortalities at wind energy facilities are a major concern for migratory bat populations [2]
- in CA and TX [2]



- from 50:50

Objectives

Wind Energy Facilities in Study

California

- Texas

Sex Determination



[1] International Energy Agency (IEA). (2022). Wind Power, IEA, Paris. Available at https://www.iea.org/reports/wind-power. (Accessed 28 March 2023). [2] American Wind WIC. Washington, DC. Available at www.awwi.org. (Accessed on 28 March 2023). [3] Wedekind C. 2012. Managing bata Contained in AWWIC. Washington, DC. Available at www.awwi.org. (Accessed on 28 March 2023). [3] Wedekind C. 2012. Managing bata Contained in AWWIC. Washington, DC. Available at www.awwi.org. (Accessed on 28 March 2023). [3] Wedekind C. 2012. Managing bata population sex ratios in conservation practice: How and why? In: Povilititis T, editor. Topics in conservation biology. InTechOpen. p. 81-96, DOI:10.2307/1942378. [5] Russell AL, Medellin RA, McCracken GF. 2005. Genetic variation and migration in the Mexican free-tailed bat a structure of the s (*Tadarida brasiliensis mexicana*). Molecular Ecology. 14(7):2207-2222.



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RESULTS

Why do the proportions of female fatalities differ between **locations in TX?**

- Sex ratio of the migratory population is not a uniform 9:1 (F:M) across the landscape, instead varying by roost type (Bridge vs. Cave)
 - Bridges (Male-Skewed)
 - Average p_{female} = 0.44
 - Caves (Female-Skewed)
 - Average p_{female} = 0.78
- WFA is < 50km away from four bridge roosts

Sex Ratio of Fatalities at Wind Energy Facilities and Future

Conservation Actions

- from the assumed population sex ratio
 - population
- curtailment time
- - population over time
 - the trend continues

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DISCUSSION



• In California, the proportion of female fatalities was not significantly different

• There appear to be no sex-specific bat-turbine behaviors in the CA

• The proportion of female fatalities in Texas is influenced by location (proximity to roost type) and time, making it impossible to determine an optimum

 The proportion of female fatalities decreased over time • This could be cause for concern, and it could imply a change in the sex ratio of the migratory

More research needs to be done in TX to see if







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