Listening to What Females Have to Say:
Female Song Characteristics May Communicate
Information to Rival House Wrens
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Introduction
- Female song is thought to be rare in temperate zone songbirds.
- We have found a variety of female song types in our Michigan house wren (Troglodytes aedon) population.
- Females responded more aggressively to some songs than others (Krieg, unpublished data).

Do female songs contain information that can be conveyed to rival females?

Hypotheses:
- Female songs contain features that determine aggressive responses.
- Songs contain information about the caller relevant to the outcome of fights.

Methods
- We obtained songs from each female (n=66) by provoking her with a female song playback and measured her song characteristics using Raven.

Figure 1: The songs of certain females elicit more aggressive responses than others. Krieg, unpublished data 2012-2013.

Figure 2: Spectrogram view of female house wren song. Female songs can contain several different types of syllables.

Results
- Do female songs contain particular features that determine aggressive responses?

Figure 3: Songs with a higher diversity of syllables receive more aggressive responses.

Figure 4: Songs with more “HI” syllables receive more aggressive responses.

Figure 5: Removing “HI” syllables dramatically decreases aggressive responses.

Do these features communicate something about the individual singer that explains this response?

Figure 6: High syllable diversity is significantly correlated with a lower condition during drought years (a), but is weakly correlated with a higher condition during non drought years (b, c).

Figure 7: Condition cannot predict the change in HI syllables used by the female during the playback compared to the pre-playback (a), but aggression score can (b).

Discussion
- Varying degrees of aggressive response to a song are not random, but can be predicted based on its features.

Syllable Diversity
- Why is there a significant interaction between syllable diversity and body condition only during the drought year?
  - Highly diverse songs are rare, suggesting that they may be more difficult to produce.
  - Diverse songs may require a certain characteristic that is adversely affected by drought.

"HI" Syllable
- Could the "HI" syllable be used by females as a conventional aggressive signal?
  - Use of "HI" does not correlate with high condition.
  - "HI" is seen during aggressive contexts, predicts an escalation of aggression, and elicits more aggressive responses by rival females.
  - A bird should only give a "HI" syllable if it is prepared to be attacked.

Why do "HI" syllables receive more aggressive responses?
- Could indicate a consistent behavioral characteristic of the caller that presents a threat.
- Could indicate something about the rival’s immediate intentions that present a threat.

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References

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