Call of the Wild: Variations in the Vocalizations of Western Mexican Chachalacas in Chamela Jalisco, Mexico

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What We Were Investigating

- Frequency and duration of calls in relation to time of day and habitat type
- Conducted over four days at the Estacion Biologia de Chamela UNAM
- $H_A$: The frequency of call will be different at different times of day and in different habitat types
- $H_A$: The duration of calls will be different at different times of day
Western Mexico Chachalaca  
(*Ortalis poliocephala*)

- Large, chicken-like bird
- Frugivores
- Breeding season begins in April
- 2-3 eggs laid in June/July and incubated by mother
- Young have adult plumage by six months
- No sexual dimorphism

(Hidalgo, 2002)
Mexican Tropical Dry Forest

- Dry season from November to June
- One of the most threatened habitat types

Images courtesy of Dr. Beck
Wet season photo courtesy of Dr. Beck
Predictions

- Calling will be more frequent in the morning
- More sightings/ vocalizations in the arroyo
- Call duration will be highest in the morning

(Caziani et al. 1994, Brown et al. 2003)
Methods – Call Frequency

- Hiked Eje Central and Tejón on three mornings between 08:00 and 12:00
- Reversed direction every day
- Calls constant in morning
- Took 10min recording at app. nearest point to a group
- Noted the number of groups and the habitat type (arroyo vs. ridge)
- Could not discern the number of individual birds
Call Frequency (cont’d)

- Hiked in various areas in afternoon between 15:30 and 19:00
- Approximately equal time spent in arroyo and on ridge
- Virtually no calls in afternoon
- Noted sightings of birds even when no calls were heard
- Number of calls in each recording was later counted
Methods - Call Duration

- Observed calls for 30 min. periods throughout mornings and afternoons
- Recorded approximate duration of calls in seconds
Results

Frequency
Figure 1 A bar graph showing the number of chachalaca calls heard in the morning (08:00-12:00) and in the afternoon (15:00-19:00).

- Performed the Wilcoxon signed rank test for both data sets
- Time of Day ($W = 19.5$, $p$-value = 0.007)
- Location ($W = 36$, $p$-value = 0.036)

Figure 2 A bar graph showing the number of chachalaca call heard in the arroyo and on the ridge.
Kruskal-Wallis one way analysis of variance
(Kruskal-Wallis chi-squared = 8.2889, df = 3, p-value = 0.040)

Kruskal Wallis Multiple Comparisons Test

Figure 3 A bar graph showing the number of calls heard under each condition for time of day and location.
Results

Duration
Figure 4 Histograms showing the frequency of different call lengths during half hour periods across the morning.

- 08:40-09:10
- 09:10-09:40
- 09:30-10:10
- 10:25-10:55
Performed the K-sample equality of medians test

Pearson $\chi^2(3) = 17.7875 \quad P < 0.0001$

Figure 5 A scatterplot showing the quartiles, median, minimum and maximum values for syllables per call for the four observation periods.
Discussion

- Statistically significant results for all test
- The Kruskal-Wallis multiple comparison test only showed a true difference between the arroyo afternoon and ridge morning
What are these birds talking about?

- Staking out breeding territories
- Protecting food supplies
  - Our data does not support as calls were not heard all day
  - Does location of individual groups change over time?
- Courtship
  - Possible, need to observe birds actually calling and determine if they were mated pairs
- Locating other groups after the night
  - Depends on the interacting between groups
- Is communicating intragroup or intergroup?
Acknowledgements

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Literature Cited

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