

Notes on the vocalizations of Mexican Jay (*Aphelocoma ultramarina*)

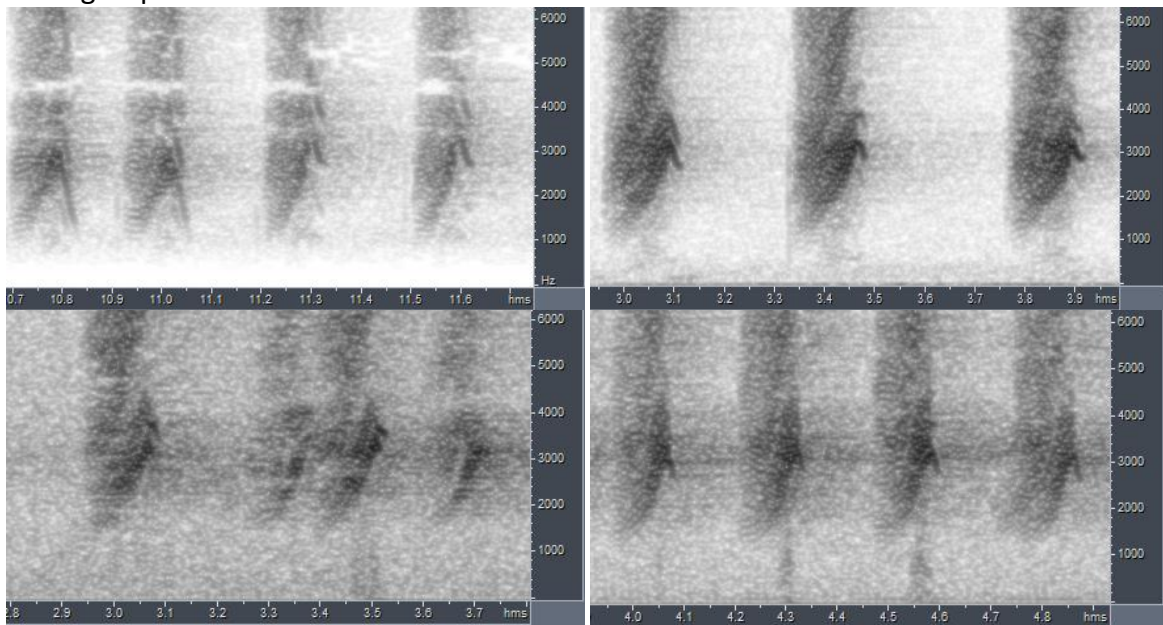
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In the following we briefly analyze and compare voice of the different races of Mexican Jay (*Aphelocoma ultramarina*). We also try to quantify the extent of any vocal differences using the criteria proposed by Tobias *et al.* (2010), as a support for taxonomic review. We have made use of sound recordings available on-line from Xeno Canto (XC) and Macaulay Library (ML).

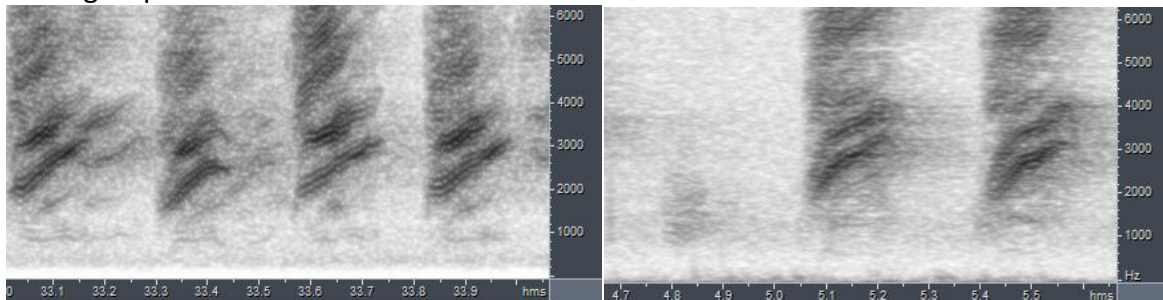
Vocabulary of the Mexican Jay is quite limited, the most common vocalization being an upslurred grating call note, repeated singly, doubled or in series.

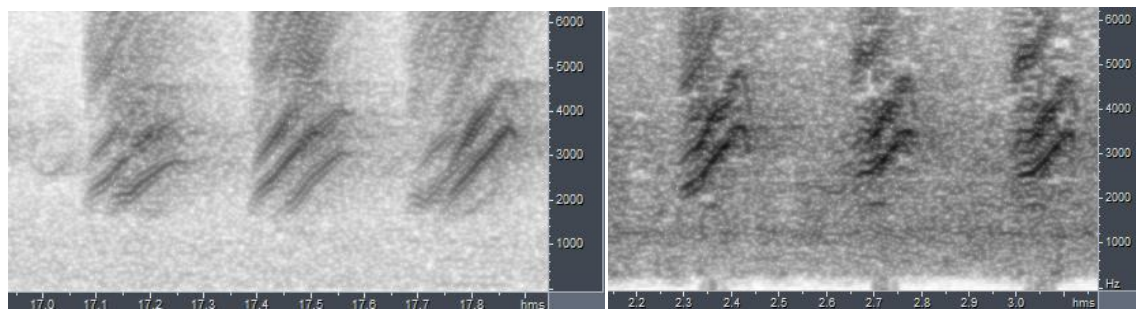
As comparison of voice between the different races basically boils down to putting this call note 'under the microscope', I have taken randomly some 5 recordings of the 3 groups: EAST group (*couchii*), WEST group (*arizonae*, *wollweberi*, (*gracilis*=no recordings)) and SOUTH group (*colimae*, *ultramarinae*).

EAST group

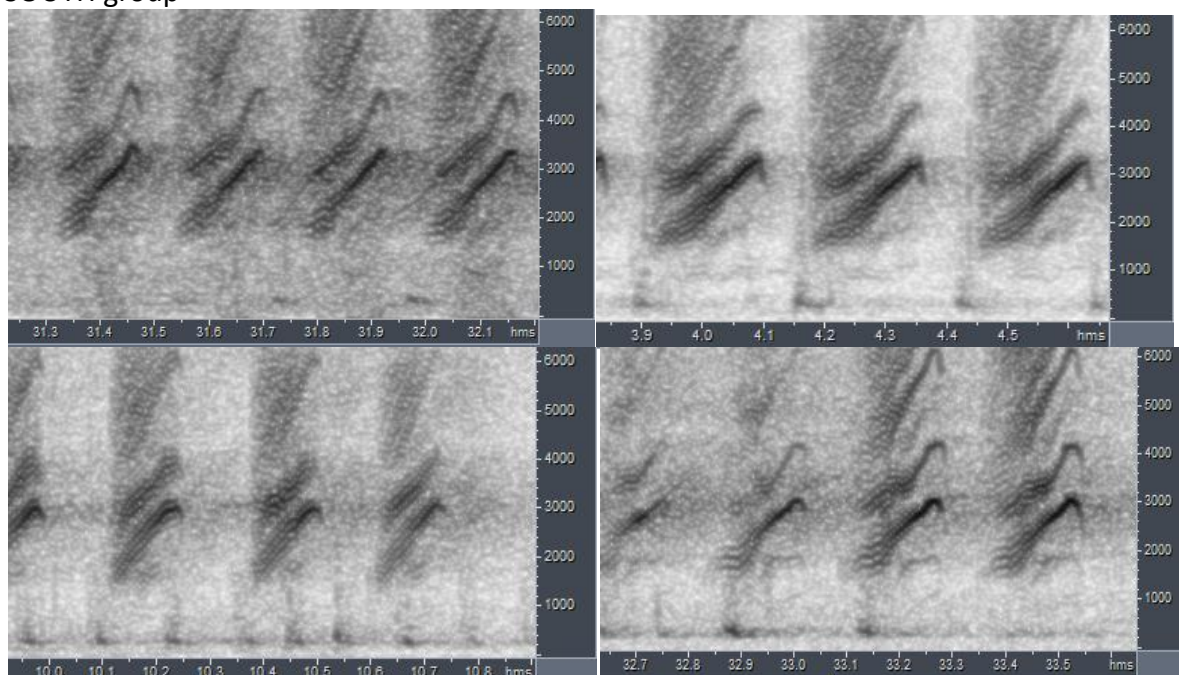


WEST group





SOUTH group



Call notes are remarkably constant within each group.

Surprisingly, the eastern group is the most diagnostic, having shorter notes with steeper increase in pitch and lowest two frequency bands are close and 'smudged together'.

Differences between WEST and SOUTH are much more subtle, the latter seems to start every note typically grating and ends rather less so.

Some measurements:

| | longest note | gap between lowest 2 freq. bands | min. freq. |
|-------|--------------|-------------------------------------|----------------|
| EAST | 0.11 - 0.15s | 600 - 1000 Hz | 900 - 1100Hz |
| WEST | 0.14 - 0.18s | 900 - 1100 Hz | 1400 - 1800 Hz |
| SOUTH | 0.17 - 0.20s | 1000 - 1200 Hz | 1200 - 1500 Hz |

Which would lead to following scores for vocal difference:

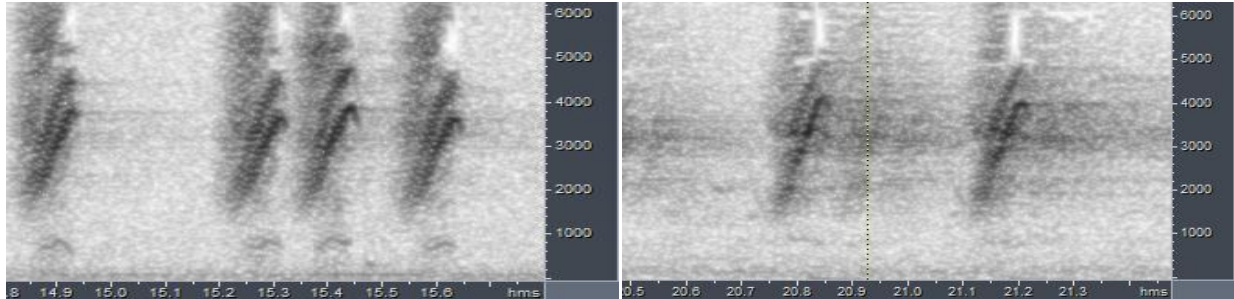
EAST vs. SOUTH: 2 for note length and 2 for min. freq. -> total score 4

WEST vs. SOUTH: 1 for note length and 1 for min. freq. and freq. band pattern -> total score 2

EAST vs. WEST: 2 for note length and 2 for min. freq. -> total score 4

Vocally, EAST group is thus the most distinctive. WEST and SOUTH groups only differ in minor details. (We should also note that the frequency measurements are less precise than length measurements here, due to 'smudging' on the sonogram).

We have finally also analyzed two recordings of the so-called CENTRAL group (*potosina*):



the call notes look less 'smudged' than *couchii*, but measurements are closest to EAST group:

| | longest note | gap lowest 2 freq. bands | min. freq. |
|---------|--------------|-----------------------------|---------------|
| CENTRAL | 0.10 - 0.12s | 700 - 900Hz | 1100 - 1150Hz |

Thus, if we merge EAST group and CENTRAL group, this hardly changes the picture of vocal differences, as explained above.

In conclusion, the EAST/CENTRAL group (*couchii* and *potosina*) shows the highest vocal differentiation, while WEST group (*arizonae*, *wollweberi*, (*gracilis*=no recordings)) and SOUTH group (*colimae*, *ultramarinae*) show minor vocal differences.

Other vocalizations may add information to this conclusion, but at present there are hardly any recordings of these.

This note was finalized on 3rd March 2016, using sound recordings available on-line at that moment. We would like to thank in particular the many sound recordists who placed their recordings for this species on XC and ML.

References

Tobias, J.A., Seddon, N., Spottiswoode, C.N., Pilgrim, J.D., Fishpool, L.D.C. & Collar, N.J. (2010). Quantitative criteria for species delimitation. *Ibis* 152(4): 724–746.

Recommended citation

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