

Notes on the vocalizations of White-fringed Antwren (*Formicivora grisea*)

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In the following we briefly analyze and compare voice of the different races of White-fringed Antwren (*Formicivora grisea*). 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).

The difference in vocalization between 'Northern' and 'Southern' White-fringed Antwren has been discussed in Hilty (2003), but is decidedly more complex than suggested there. In fact, all races have a comparable 'song' which consists of a single 'note', which is repeated for shorter or longer periods:

hondae: repeated note has the shape of a small letter 'n'

pace	0.17-0.25(measured here as the period, duration between 2 subsequent notes)
max. freq.	2100-2500Hz
note length	0.07-0.09s
freq. range.	1100-1300Hz

fumosa: repeated note has the shape of a small letter 'n'

pace	0.16-0.22
max. freq.	1900-2000Hz
note length	0.06-0.07s
freq. range.	1000-1100Hz

intermedia: repeated note has the shape of a small letter 'n' or 'h' (often only a few notes repeated)

pace	0.15-0.17
max. freq.	2200-3000Hz
note length	0.06-0.07s
freq. range.	1100-1800Hz

orenocensis: repeated note has the shape of a small letter 'h'

pace	0.14-0.15
max. freq.	2900-3200Hz
note length	0.04-0.05s
freq. range.	1300-1600Hz

tobagensis: repeated note has the shape of a small letter 'n'

pace	0.22
max. freq.	2500-2700Hz
note length	0.06s
freq. range.	1100-1200Hz

rufiventris repeated 'note' has the shape of a very long 'h' and preceded by a short sharply downslurred note (inaudible by human ear)

pace 0.29-0.32
max. freq. 3600-3900Hz
note length 0.04-0.07s
freq. range. 2600-3000Hz

grisea: repeated 'note' has the shape of a sharply falling line, barely recognizable as an 'h' and often preceded by a short sharply down-slurred note or more complex shape (inaudible by human ear)

pace 0.31-0.46
max. freq. 3200-4400Hz
note length 0.06-0.08s
freq. range. 2500-3400Hz

when grouping the above taxa into two groups, we get:

'Northern' group (n>10) (*hondae*, *fumosa*, *intermedia*, *orenocensis*, *tobagensis*)

Repeated note has the shape of a small letter 'n' or 'h' (Fig.1)

pace 0.14-0.25
max. freq. 1900-3200Hz
note length 0.04-0.09s
freq. range. 1000-1800Hz

'Southern' group (n>10) (*rufiventris*, *grisea*)

Repeated note has the shape of a sharply falling line, somewhat like an 'h' and often preceded by a short sharply down-slurred note or more complex shape (inaudible by human ear) (fig. 1)

pace 0.29-0.46
max. freq. 3200-4400Hz
note length 0.04-0.08s
freq. range. 2500-3400Hz

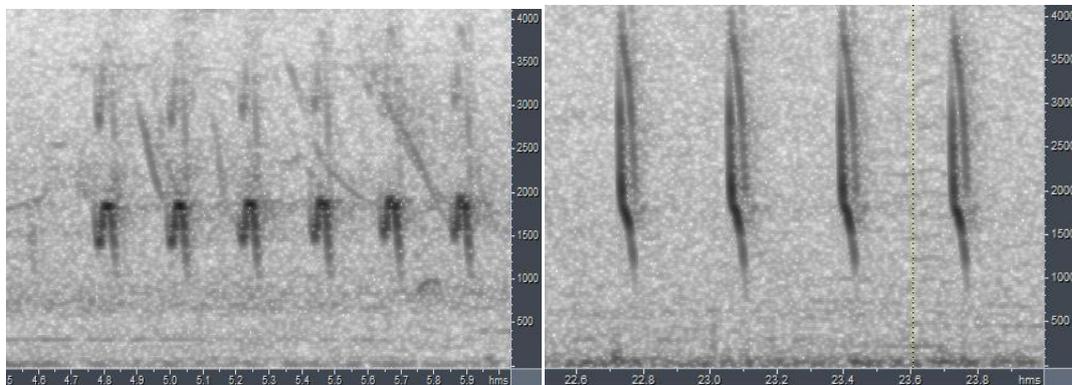


Figure 1: typical example of 'Northern' group (left, race *fumosa*) and 'Southern' group (right, race *grisea*)

The main vocal differences between the two groups can thus be quantified based on frequency range and maximum frequency of repeated notes (score 2 or 3) and pace (score 1 or 2), leading to a total score of about 4.

Besides this 'song', there are other clear differences in voice. E.g., a very distinct vocalization is 'a long whistle followed by a trill'. This has been documented for *hondae*, *intermedia* and *orenocensis*, and would thus seem unique for 'Northern White-fringed Antwren'. Possibly there are more differences to be found when analyzing the complete vocabulary.

As a final remark, there is no info about *albicincta*, other than a description like 'repeated chup notes'

This note was finalized on 6th May 2015, 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

Hilty, S.L. (2003) Birds of Venezuela. Princeton University Press & Christopher Helm, Princeton & London

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

Boesman, P. (2016). Notes on the vocalizations of White-fringed Antwren (*Formicivora grisea*). *HBW Alive Ornithological Note* **46**. In: *Handbook of the Birds of the World Alive*. Lynx Edicions, Barcelona. (retrieved from <http://www.hbw.com/node/931754> on 29 April 2016).