

Notes on the vocalizations of Rufous-fronted Thornbird (*Phacellodomus rufifrons*)

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In the following we briefly analyze and compare voice of the different races of Rufous-fronted Thornbird (*Phacellodomus rufifrons*). 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).

Song is similar to several other members of the genus, a loud series of nearly-identical staccato notes. In typical song of a single individual, series starts with well-spaced notes, slowly accelerating, intensifying and increasing in pitch, then slowing, decreasing and fading. Often however, at least two birds sing together, and when excited, deliver very long series of nearly-identical notes, at some point ending abruptly.

When comparing *inornatus/castilloi* with all other races, it is quickly obvious that song is much higher-pitched. We have therefore measured all basic parameters in a number of recordings, in order to quantify differences:

inornatus/castilloi (n=7)

Max. freq.	4450-4900Hz
Min freq.	950-1150Hz
Freq. range of single note	3050-3900Hz
Note length	0.05-0.07s
# notes to reach max pitch	4-6 (only measured for typical rising/falling songs)
song length	2.4-3.08s (idem)
# of notes	15-19 (idem)
pace*	0.13-0.19

peruvianus (n=3)

Max. freq.	1680-2200Hz
Min freq.	650-850Hz
Freq. range of single note	900-1500Hz
Note length	0.075-0.11s
# notes to reach max pitch	6 (only measured for typical rising/falling songs)
song length	3.4s
# of notes	15
pace	0.23

sincipitalis (n=3)

Max. freq.	2000-2100Hz
Min freq.	800-1000Hz
Freq. range of single note	1200-1250Hz
Note length	0.07-0.115s
# notes to reach max pitch	4-5 (only measured for typical rising/falling songs)
song length	6.4-8s
# of notes	27-32
pace	0.23-0.25

specularis/rufifrons (n=5)

Max. freq.	1650-3400Hz
Min freq.	680-1140Hz
Freq. range of single note	900-2250Hz
Note length	0.05-0.10
# notes to reach max pitch	4-6 (only measured for typical rising/falling songs)
song length	1.9-9.5s
# of notes	14-76
pace	0.13-0.17

* pace measured here as period: duration of note + pause

There seem to be three vocally different groups (Fig. 1).

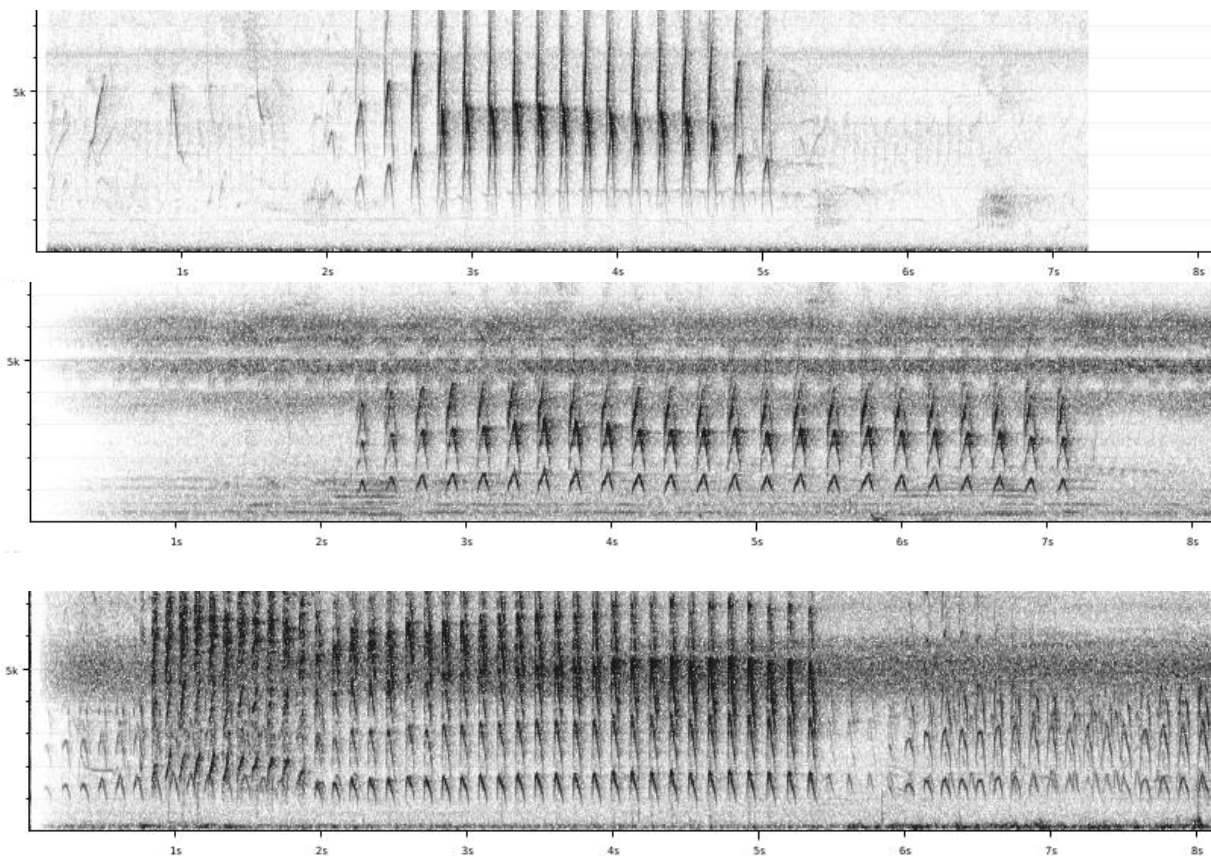


Figure 1: typical song of group 1 *inornatus/castilloi* (top), group 2 *peruvianus/sincipitalis* (middle) and group 3 *specularis/rufifrons* (bottom)

The largest difference is between *inornatus/castilloi* and *peruvianus/sincipitalis*, as the former has clearly higher max. freq. (score 3) with weaker harmonics and notes with a high frequency range (score 2), shorter note lengths (score 1) and a faster pace of delivery (score 2). This would lead to a total vocal score of about 5 when applying Tobias criteria.

specularis/rufifrons shares the low frequency with *peruvianus/sincipitalis*, but the faster pace with *inornatus/castilloi*.

If *inornatus/castilloi* has to be compared with all others in one single enlarged group, then only the higher max. freq. and frequency range remain, leading to a total score of 4 or 5.

This note was finalized on 16th April 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.

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.

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