

Notes on the vocalizations of Tawny Antpitta (*Grallaria quitensis*)

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In the following we briefly analyze and compare voice of the different races of Tawny Antpitta (*Grallaria quitensis*). 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).

There are only a few recordings available for the races other than *quitensis*. Based on these, it appears that loudsong of the 3 races is quite different (Fig. 1):

<i>quitensis</i>	3 evenly spaced notes 'tip..tuu..tuu'
<i>atuensis</i>	3 notes, last note after shorter pause bisyllabic and rising 'tip..tuu.tuee'
<i>alticola</i>	4 notes, last 3 notes in rhythmic sequence 'tip..pur.whe-tuu'

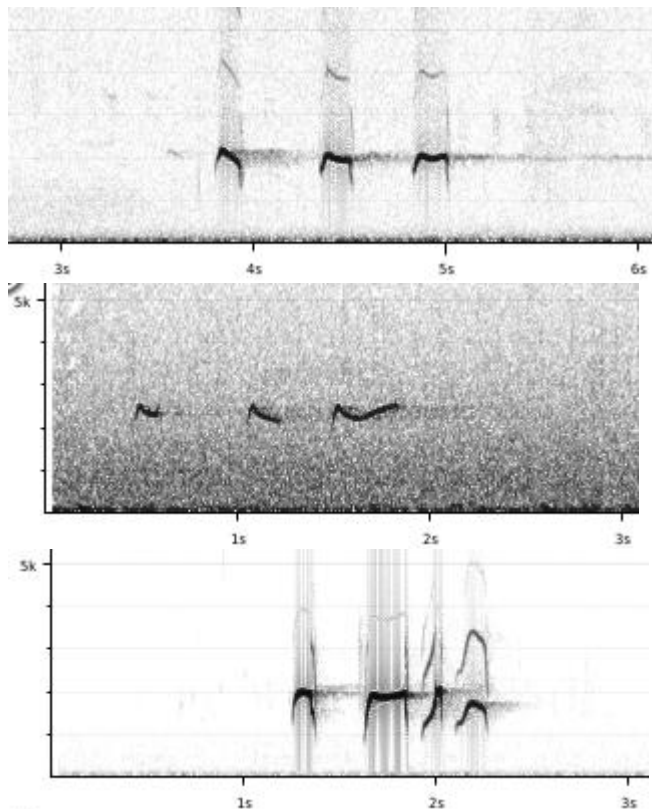


Figure 1: from top to bottom: loudsong of *quitensis*, *atuensis* and *alticola*

We have made some measurements for some basic sound parameters, with following results:

	<i>quitensis</i> (n=8)	<i>atuensis</i> (n=3)	<i>alticola</i> (n=1)
# notes	3	3	4
min. pause	0.26-0.35s	0.18-0.24s	0.05s
max. note length	0.17-0.23s	0.32-0.34s	0.25s
min note length	0.10-0.16s	0.14-0.2s	0.11s
max. freq.	1960-2200Hz	2400Hz	1980Hz
min. mid freq.	1800-1900Hz	2050-2100Hz	1500Hz

Assuming a larger sample size confirms these data, scoring would give:

atuensis differs from *quitensis* by long and rising end note (score 2) and higher pitch (score 1). Total score 3.

alticola differs from *quitensis* by a 4 note song with short pauses between last 3 notes (score 4) resulting in a rhythmic phrase, and also by reaching lower frequencies (score 1). Total score 5.

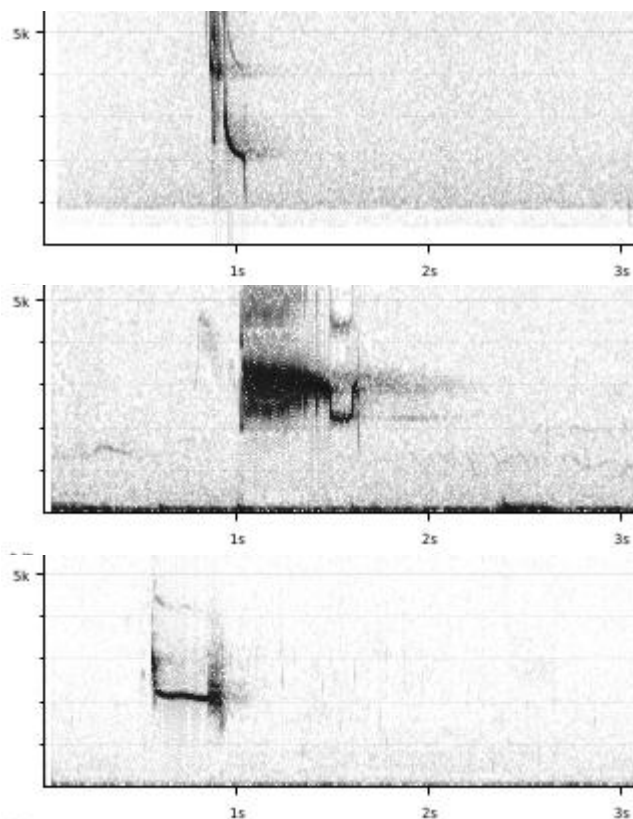


Figure 2: from top to bottom: commonest call of *quitensis*, *atuensis* and *alticola*

As the most common call note also seems to differ between the 3 races (Fig. 2), with especially *atuensis* very different, we have made also here some measurements:

quitensis (n=5)

total length	0.21-0.24s
min. freq.	850-1200Hz
max. freq.	4400-5200Hz
freq. range	3600-4050Hz
note shape	a modulated start followed by a downslurred whistle

atuensis (n=2)

total length	0.63-0.64s
min. freq.	1800Hz
max. freq.	3450Hz
freq. range	1650Hz
note shape	a long <u>very burry</u> start followed by an underslurred whistle

alticola (n=3)

total length	0.31-0.32s
min. freq.	1800-2300Hz
max. freq.	2200-3300Hz
freq. range	400-1000Hz
note shape	a smooth downslurred whistle

Main differences of *atuensis* vs. *quitensis*: *atuensis* has longer note length (score 3), smaller frequency range (score 2-3) and lower max. frequency (score 1-2), and a very distinct note shape. -> total score 5-6

Main differences of *atuensis* vs. *alticola*: *atuensis* has longer note length (score 3), higher frequency range (score 2), and a very distinct note shape -> total score 5

We can thus conclude that there are major vocal differences between all three races, both in loudsong and call note.

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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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