

Notes on the vocalizations of Creamy-breasted Canastero (*Asthenes dorbignyi*)

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In the following we briefly analyze and compare voice of the different races of Creamy-breasted Canastero (*Asthenes dorbignyi*). 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 comparison of different races is somewhat hampered by the fact that there seems to be confusion about the exact boundaries of *dorbignyi/consobrina* and *consobrina/arequipae*. Also, voice variation is such that it is not straightforward to set aside wrongly identified recordings, which may further negatively affect preciseness of measured data. We have only compared songs, as few recordings of call notes are available.

A.d.dorbignyi (n=6, only recordings taken from Argentina and S Bolivia)

Song is either a series of well spaced notes gradually accelerating into a descending trill (Fig. 1), or simply a trill. In both cases, there can be sudden changes in note shape and related pace during the trill. At the end the trill always slows down while fading and decreasing in pitch. Sometimes two birds may utter a trill in response to one another, then one trill lower or higher pitched than the other.

There is quite some variation among the recordings, and we thus have to limit us to some general parameters:

length of full song	3.2-4s (length of trill 2-2.5s)
highest center freq.	6500-7500Hz
shortest note	0.02-0.03s
shortest pause	0.02-0.04s
longest note	0.03-0.06s

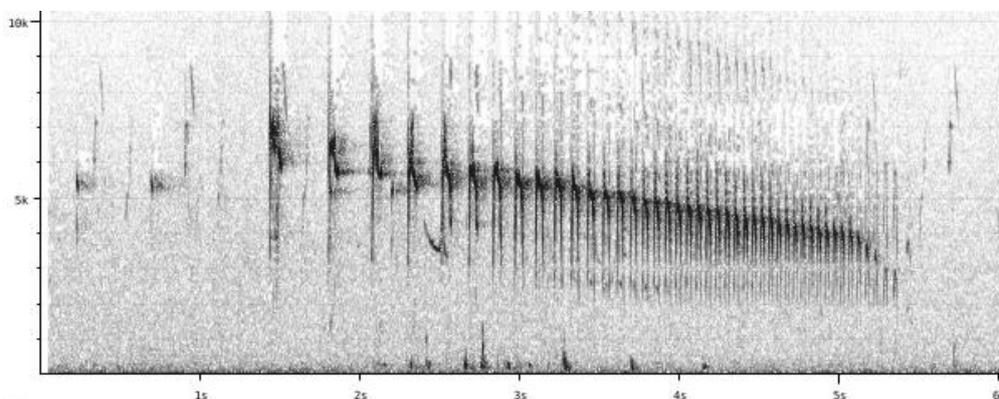


Figure 1: long song of *dorbignyi*

A.d.consobrina

4 recordings from W and C Bolivia presumably of this race are very similar to *dorbignyi*. Possibly on average lower-pitched with less high-pitched introductory notes (Fig. 2).

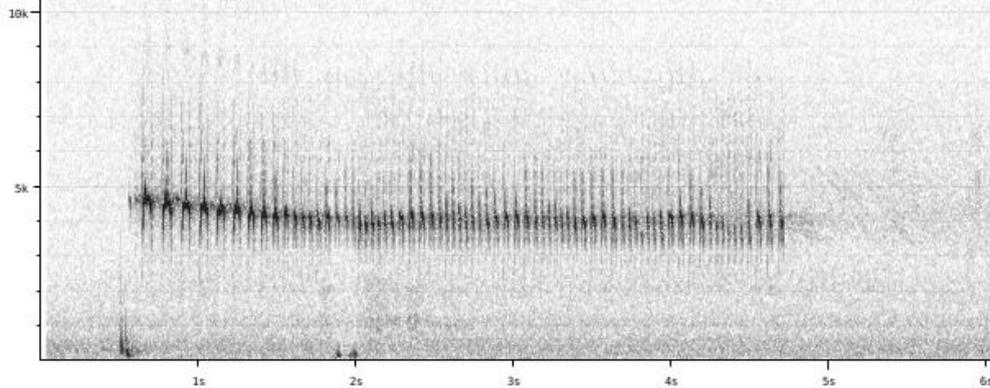


Figure 2: long song of *consobrina*

A.d.arequipae (n= 6, only recordings taken from N Chile and SW Peru)

Song is a trilled series of notes, typically abruptly shifting several times in pace and pitch. Often, a series of low-pitched longer overslurred notes is given within such a trilled song, with a quavering tonal quality (Fig. 3). Also, the song is often prolonged with additional shorter rattles. The song seems to lack an obvious pattern, such as in *dorbignyi* (= introductory notes accelerating into a trill). At least part of the notes in the song are nicely round overslurred notes with narrow frequency range and well-defined harmonics, a feature not seen in *dorbignyi*. Usually the base frequency of these notes is much lower than what could be defined as the center freq in the irregular notes of *dorbignyi*.

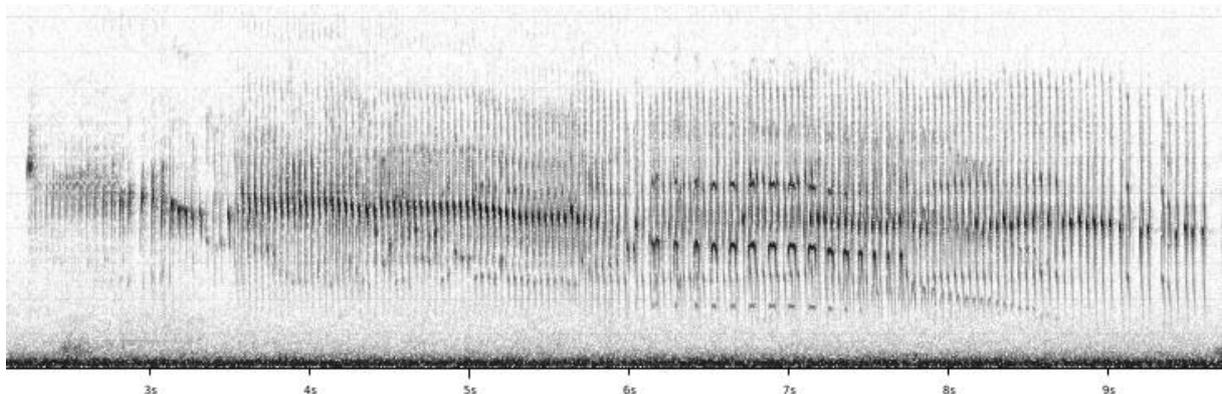


Figure 3: long song of *arequipae*

There are several recordings from around Nazca, lying outside the known region for *arequipae*, these are sometimes referred to as an undescribed taxon (pale iris, dull rump, less rufous in tail,..). These recordings all show the trilled nicely round overslurred notes as mentioned above. They do thus match rather well the recordings of 'true' *arequipae*.

A.d.usherii

(n=5)

Song is a short high-pitched trill at more or less even pitch, repeated at intervals. Notes accelerate slightly at first and slow down clearly towards the end. All notes have more or less the same shape, resulting in a monotonous-sounding trill (Fig. 4). Unlike *arequipae*, the song thus has a clear pattern, and song bouts repeated at intervals are very similar or identical.

length of song	1.2-2s
max freq of notes	8000-10500Hz
shortest note	0.02-0.03s
shortest pause	0.015-0.023s
longest note	0.03-0.04s

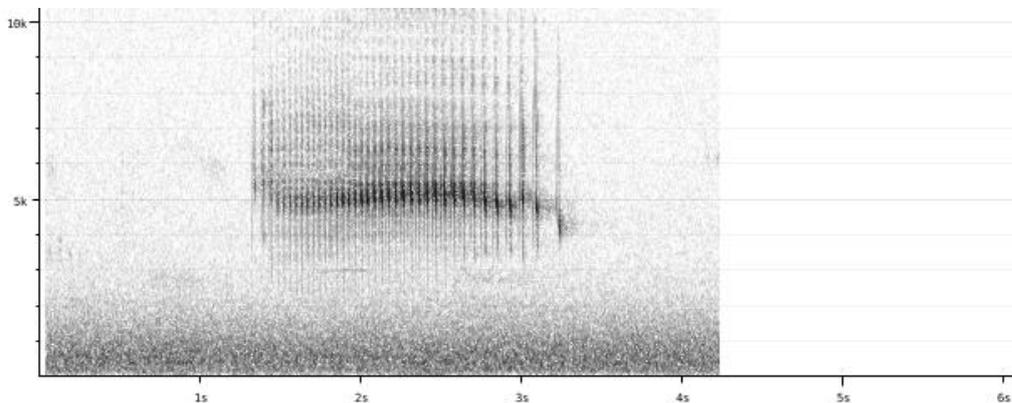


Figure 4: Song of *usherii*

A.d.huancavelicae

There seems to be only one recording of this race (XC31734). We assume here this is the typical song, but this obviously needs to be verified whenever more recordings become available.

Similar to *usherii*, song is a repeated trill. There are however clear differences (Fig. 5):

- the trill is longer in length
- the trill increases in pitch at first and decreases towards the end
- notes of the trill are lower pitched and longer in length
- note shape is curly, unlike the spiky conical shape of *usherii*

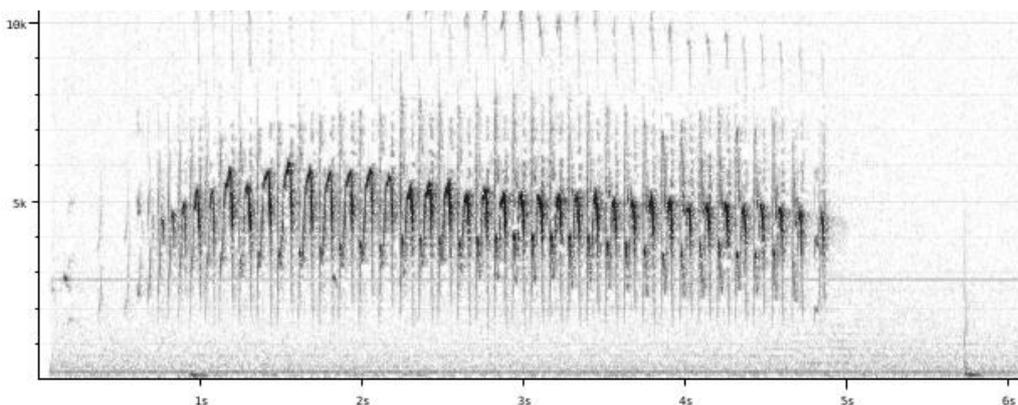


Figure 5: song of *huancavelicae*

length of song	2.5-3.6s
max freq of notes	5100Hz
shortest note	0.035-0.04s
shortest pause	0.03-0.035s
longest note	0.075-0.09s

A.d. ssp. nov.

The race from Ancash (after 25 years apparently still undescribed...) is documented quite well. (n=6) (rufous outer rectrices and rump, habitat,..)

Song is a series of well spaced notes gradually accelerating into a descending trill, or occasionally just a trill. At the end the trill sometimes slows down while fading and decreasing in pitch (Gig. 5). This is very similar to some songs of *dorbignyi/consobrina*. Possibly on average longer song and lower-pitched introductory notes

length of full song	3.4-5.3s (length of trill 1.9-5s)
highest center freq.	5500-6500Hz
shortest note	0.025-0.035s
shortest pause	0.02-0.04s
longest note	0.04-0.08s

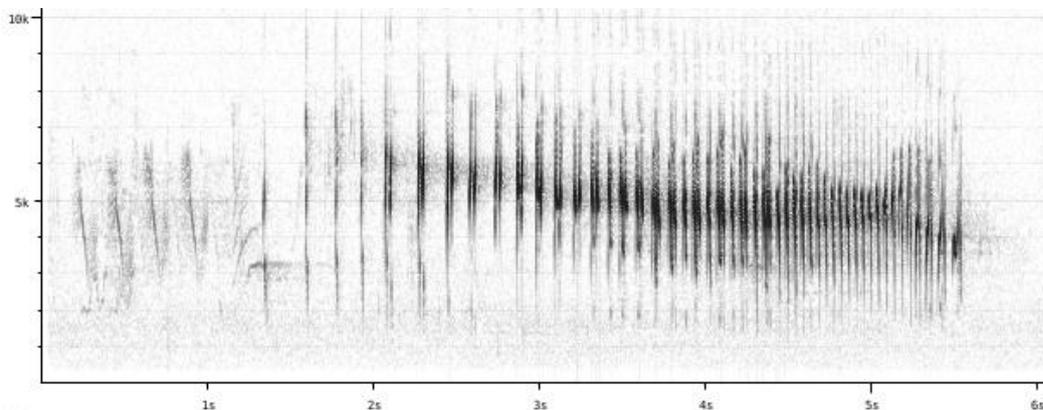


Figure 5: song of Ancash population

Vocal differences can be quantified as follows:

A.d. usheri vs. *A.d. huancavelicae*

Both songs are structurally similar and thus comparison of main parameters is quite straightforward. In *huancavelicae* the trill is longer in length (score 2), the trill increases in pitch at first and decreases towards the end (score 1), notes of the trill are lower pitched (score 2) and longer in length (score 3), note shape is curly, unlike the spiky conical shape of *usher*. This leads to a total vocal score of 5 (with the remark that more recordings are needed of *huancavelicae* to confirm above differences!)

These two races differ from all others in only delivering a repeated monotonous trill.

A.d.arequipae

Is the other race standing apart, because of its seemingly structureless song, with a wide variety of paces and pitches (3), and with unique fairly low-pitched rounded overslurred notes (2). Score vs. all other races 5.

dorbignyi group vs. *A.d. ssp. nov.* from Ancash

There is little difference in the song of these 2 groups, which is surprising as they occur geographically at the two extremes of this complex.

Possibly on average longer song and lower-pitched introductory notes, but a larger set would be needed to confirm this. A score of 1+1=2 is thus a best estimation.

We have not included Berlepsch's Canastero *A. berlepschi* in this analysis. It's song is closest to the *dorbignyi* group (Fig. 6), scoring of vocal differences would probably give a score lower than when comparing *dorbignyi* group vs *arequipae*, *usher* and *huancavelicae*.

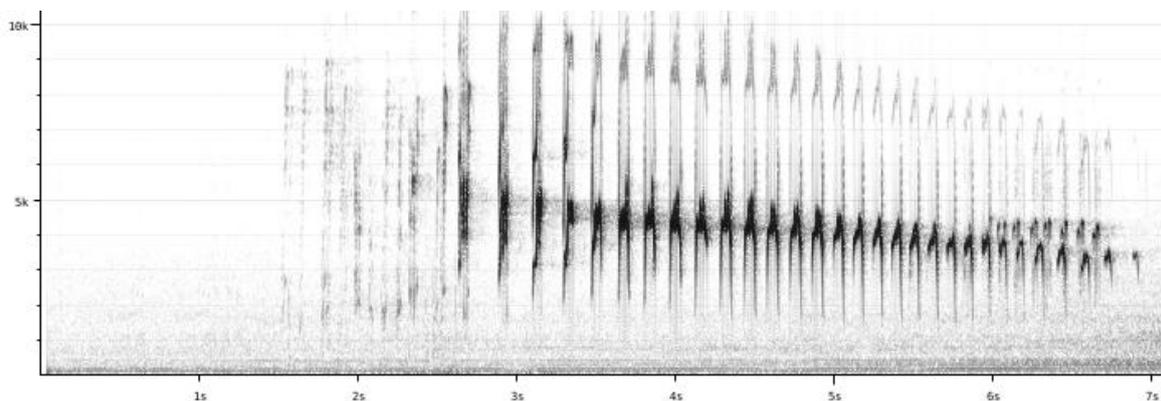


Figure 6: song of *A. berlepschi*

This note was finalized on 15th 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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