

## Notes on the vocalizations of Plain Xenops (*Xenops minutus*)

Peter Boesman

In the following we briefly analyze and compare voice of the different races of Plain Xenops (*Xenops minutus*). 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).

Based on a screening of all available recordings over the entire range, it would seem that there are clearly 3 vocal groups:

**NW group** (from Mexico to NW Ecuador, N Colombia and NW Venezuela)

Song is a fast series of high pitched notes, which typically starts with a few spaced notes. Within this group, northern birds south to about C Panama (*mexicanus*, *ridgwayi*) can be distinguished from birds further south (*littoralis*, *olivaceus*, *neglectus*): the former have a song that accelerates and goes up and down in pitch, the latter have a song rising in pitch with less acceleration and fewer notes (Fig. 1).

Measurements:

	northern subgroup (n=7)	southern subgroup (n=10)
# of notes	18-20	8-15
max. pace	0.05-0.065s	0.09-0.14s
max. freq.	6800-7600Hz	6630-8100Hz
min top freq.	3800-6200Hz	3800-7000Hz
min. freq.	2500-3300Hz	2400-3800Hz
min. note length	0.035-0.04s	0.05-0.055s
max. note length	0.055-0.07s	0.052-0.058s

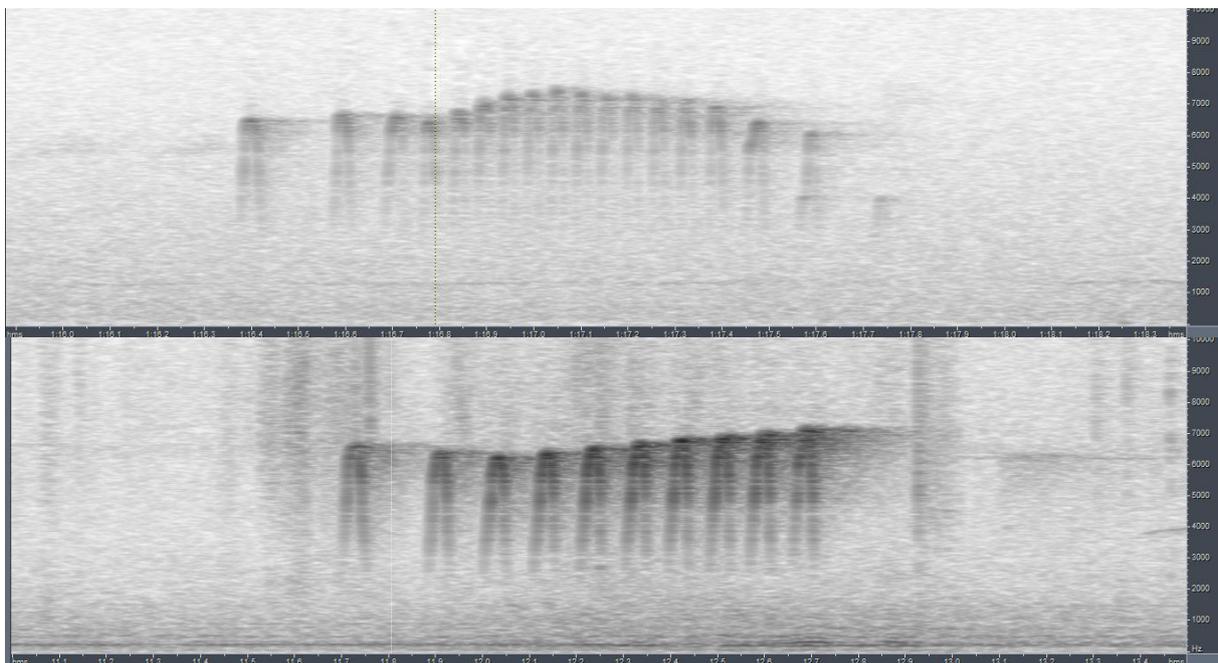


Figure 1: typical songs of NW group: northern subgroup (top) and southern subgroup (bottom)

**Amazonian/Guianan group with extreme NE Brazil** (S and E Venezuela, Guianas, E Colombia, E Ecuador, E Peru, Amazonian Brazil and extreme NE Brazil)

Song over most of its range (*remoratus*, *ruficaudus*, *obsoletus*) is a simple series of about 5-7 high-pitched overslurred notes delivered at a steady pace, and (usually) going up and down in pitch. In SE Amazonia (*genibarbis*) there seems to be a tendency to start with some faster notes (not always). In extreme cases, there is some resemblance with the southern subgroup of 'NW group'. This is apparently not seen in *alagoanus*, where typical song is delivered (Fig. 2).

Measurements:

	most of region (n=14)	SE subgroup (n=6)
# of notes	3-9	3-10
max. pace	0.16-0.25s	0.10-0.17s
max. freq.	6100-8000	6100-7000Hz
min top freq.	4300-7100Hz	5600-5800Hz
min. freq.	1800-2600Hz	1900-2300Hz
min. note length	0.06-0.08s	0.065-0.08s
max. note length	0.06-0.09s	0.085-0.09s

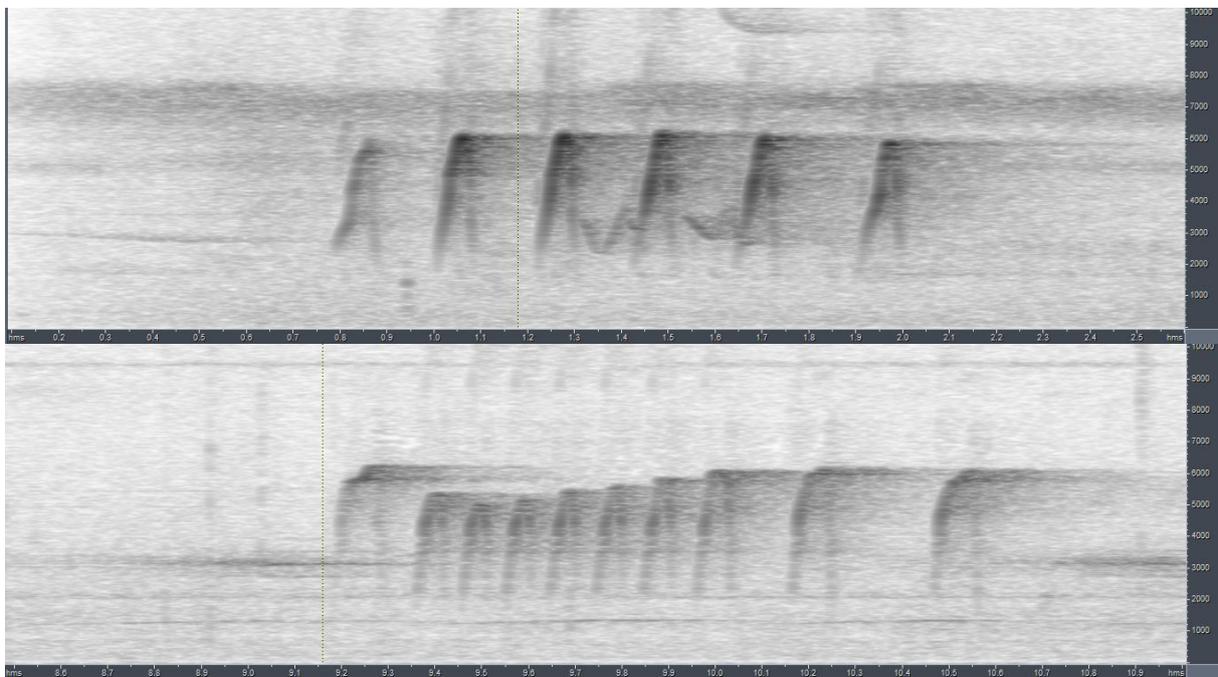


Figure 2: typical song (top) and extreme case of acceleration (SE Amazonian subgroup)(bottom)

**S Atlantic group** (from Bahia, Brazil to Argentina)(*minutus*)

Song over its entire range is a series of about 4-5 upslurred notes, the first one slightly lower-pitched and subdued (Fig. 3).

Measurements:

	most of region (n=14)
# of notes	2-6
max. pace	0.26-0.35s
max. freq.	6400-7600Hz
min top freq.	5300-6200Hz
min. freq.	3100-3700Hz
min. note length	0.12-0.18s
max. note length	0.15-0.23s

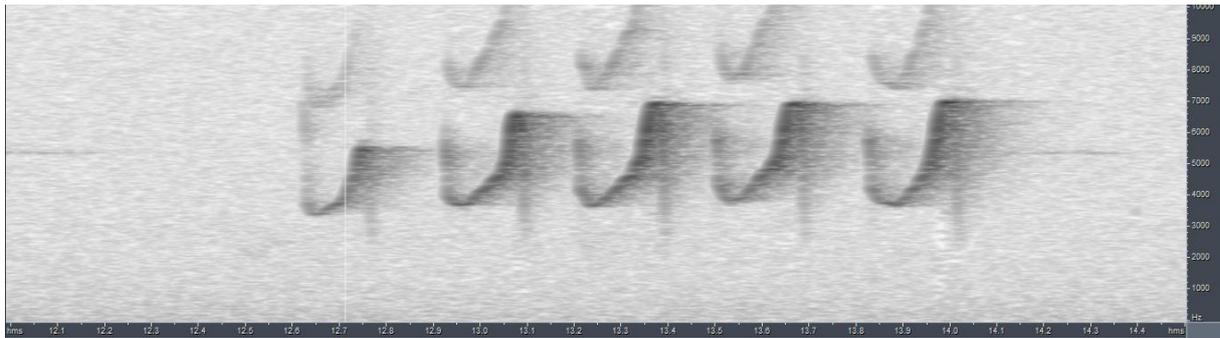


Figure 3: typical song of S Atlantic group

Differences among the 3 vocal groups are thus quite clear:

S Atlantic group (*minutus*) is unique in having longer upslurred notes (note length: score 3-4) and the slowest pace (score 2). It differs further from the NW group in having less notes, and from the Amazon/Guianan group in not reaching that low frequencies (score 1-2). This would lead to a total vocal score of 5-6 applying Tobias criteria.

The two remaining groups are also quite distinct, although the level of variation masks somewhat the obvious differences between typical songs. Nevertheless, the NW group has the highest number of notes (score 1-2), the fastest pace (score 1-2), higher low frequencies (score 1-2), and the shortest notes (score 2). This would lead to a total vocal score of about 4.

Furthermore, within the last two groups, two subgroups can be distinguished, having minor vocal differences.

This note was finalized on 28th August 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

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 Plain Xenops (*Xenops minutus*). *HBW Alive Ornithological Note* **85**. In: *Handbook of the Birds of the World Alive*. Lynx Edicions, Barcelona. (retrieved from <http://www.hbw.com/node/931979> on 18 July 2016).