

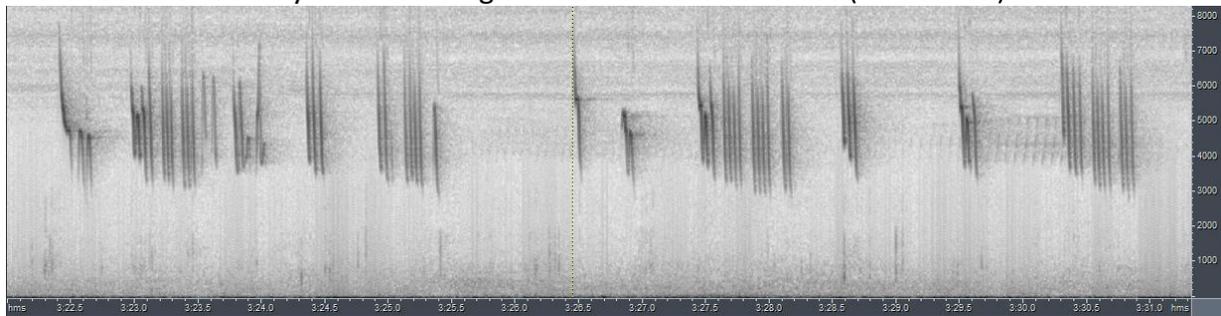
Notes on the vocalizations of Brown-headed Nuthatch (*Sitta pusilla*)

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In the following we briefly analyze and compare voice of the two races of Brown-headed Nuthatch (*Sitta pusilla*). 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).

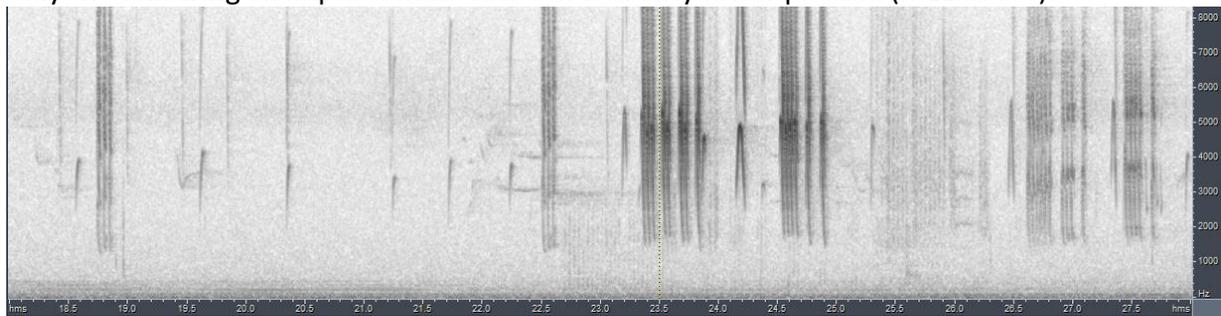
Our main interest is to compare voice of race *insularis* form the Bahama's with the mainland race.

There seems to be only one recording on-line from the Bahamas (ML163289):

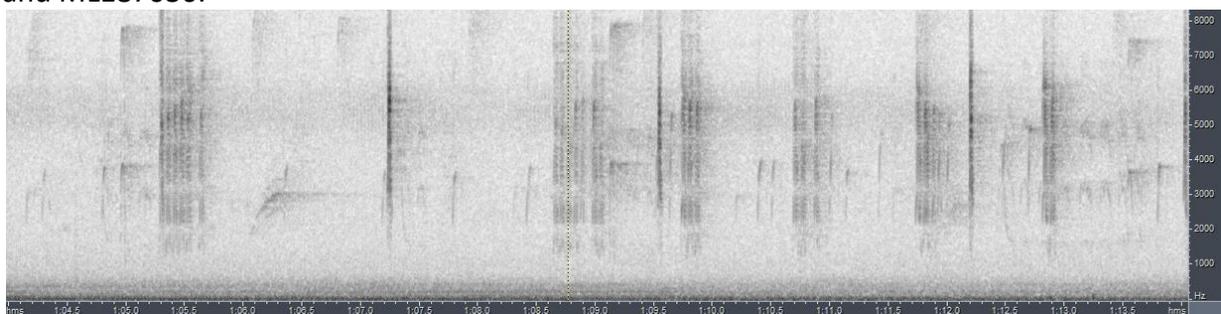


To be compared with voice of the mainland. Surprisingly, we haven't found many homologous vocalizations (none of the 49 XC recordings!).

Only the following example comes close but is clearly lower pitched (ML196494):



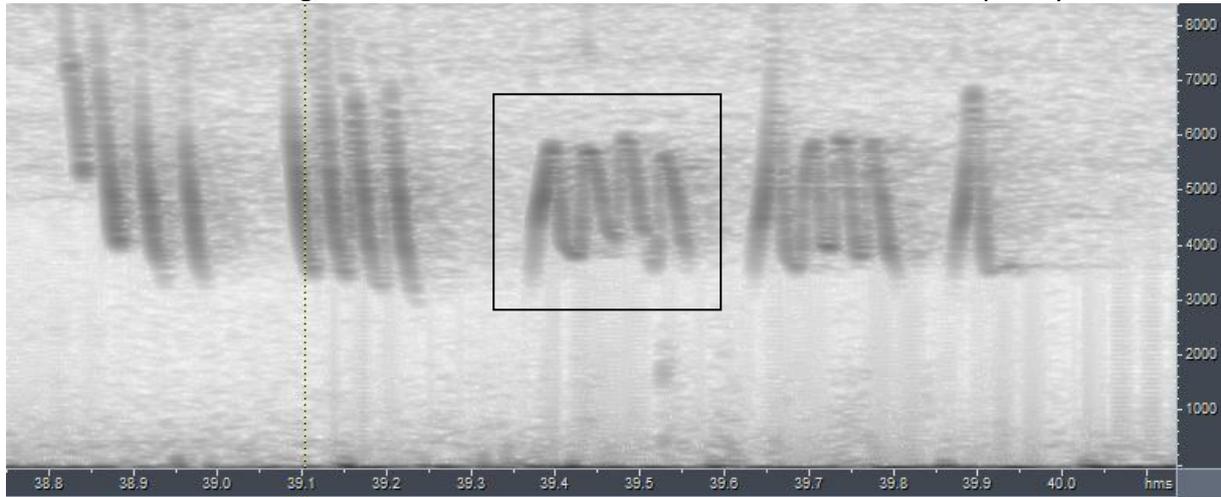
and ML187036:



Clearly not much can be said based on a single recording of call notes, but it is intriguing not a single matching recording could be found from the mainland.

Voice has however already been studied previously (Hayes *et al.* 2004). Findings are e.g. that from 3 identified calls, the most distinctive one is a high-pitched 'warble-call' bearing no resemblance whatsoever to any call from the mainland. This call is illustrated with a sonogram, and is described as having 3-7 (usually 4-5) oscillating elements in the 3-4kHz range. This call was frequently heard.

This seems to confirm our above findings, and the described 'warble call' is also clearly visible in 'our' recording, illustrated here with a more detailed time and frequency scale:



Both sources combined are thus a strong indication of true vocal difference, and the playback experiments (Hayes *et al.* 2004) are an additional argument.

As it is not fully clear which is the homologous call of mainland populations, quantification of the vocal difference is not straightforward, we therefore estimate the vocal score to be about 3 based on a unique call which seems to be the principal vocalization (deducted from playback experiments).

This note was finalized on 14th April 2016, 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

Hayes, W.K., Barry, R.X., McKenzie, Z. & Barry, P. (2004). Grand Bahama's Brown-headed Nuthatch: a distinct and endangered species. *Bahamas J. Sci.* **12(1)**: 21–28.

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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