

Notes on the vocalizations of Black-and-white Triller (*Lalage melanoleuca*)

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In the following we briefly analyze and compare voice of the two races of Black-and-white Triller (*Lalage melanoleuca*). 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), Macaulay Library (ML) and Avian Vocalization Center (AVoCet), and a larger set kindly provided by Rob Hutchinson, for a total of 8 recordings of *minor* and 15 of *melanoleuca*.

Song of both taxa is a short phrase repeated several times (typically 3-12). After a pause either this same song boud is repeated, or there is a switch to a slightly different one. The phrase typically consists of one or more short buzzy/scratchy notes followed by one or more whistles.

In *melanoleuca*, there seem to be on average more buzzy/scratchy notes, with longer series as an introduction to an entire song boud, and the whistles are typically overslurred (sounding 'weew'). In *minor*, there are usually only one or two buzzy/scratchy notes, and whistles are typically NOT overslurred (sharply rising or falling, or underslurred).

Also, in *melanoleuca*, the song boud may have two alternating slightly different phrases, something not found clearly in the recordings of *minor* (some examples are given in Fig. 1).

Differences are thus quite subtle or with overlapping characteristics, but nonetheless some are clearly quantifiable:

The longest whistles in every phrase of *melanoleuca* are longer than in *minor* (range 0.17-0.45s vs. 0.05-0.22s). The whistles in every phrase of *melanoleuca* reach marginally lower frequencies than in *minor* (range 1500-1700Hz vs. 1650-1950Hz).

Calculation of Effect Size:

	<i>minor</i>	<i>melanoleuca</i>	Effect Size
Note length	Av. 0.16s SD 0.049s	Av. 0.276s SD 0.06s	2.11
Min. Freq.	Av. 1764Hz SD 109Hz	Av. 1573Hz SD 134Hz	1.56

When applying Tobias criteria, this leads to a total calculated vocal score of $2 + 1 = 3$

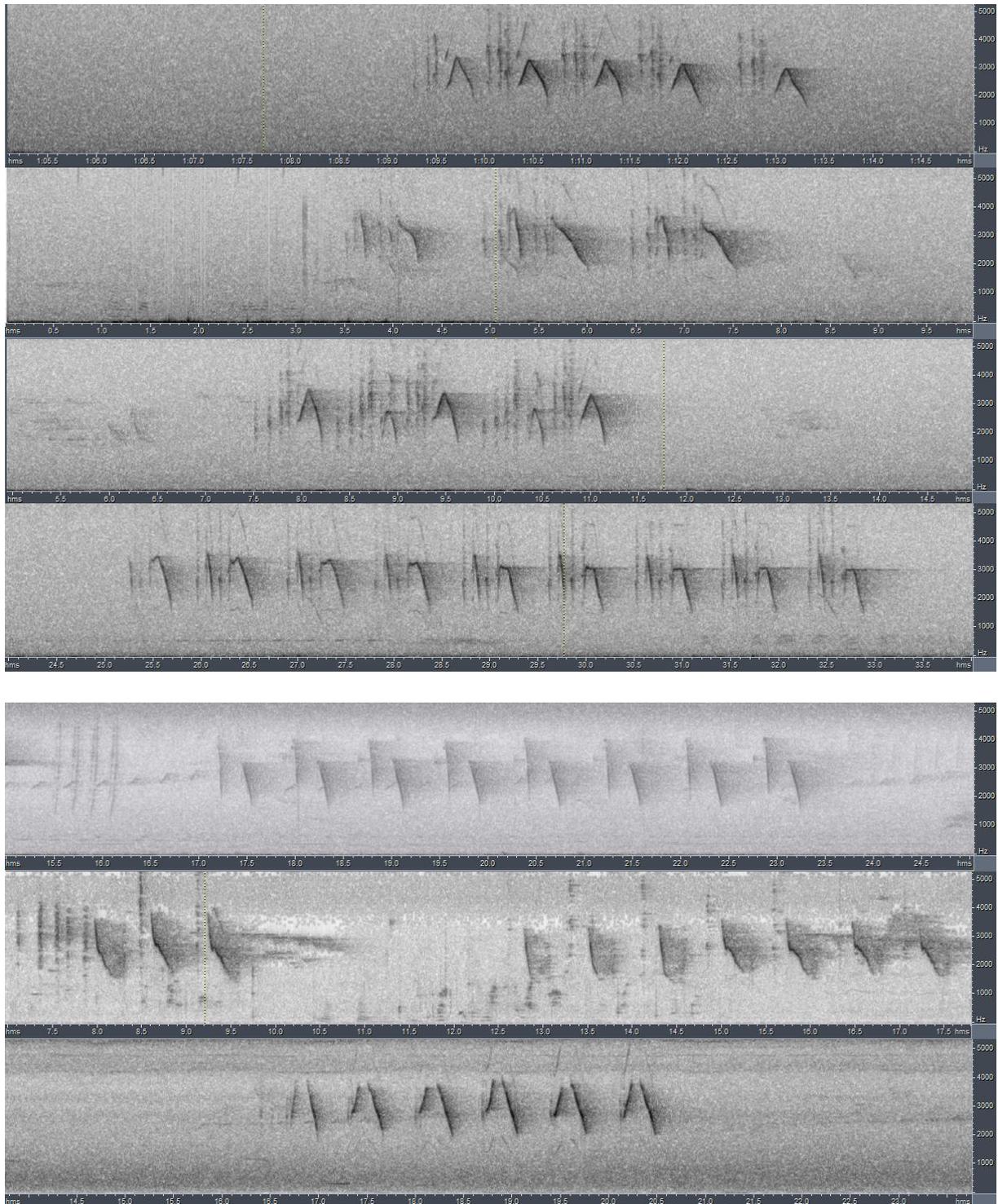


Figure 1: typical song of *melanoleuca* (top four) and *minor* (bottom three)

This note was finalized on 7th January 2016, using sound recordings available on-line at that moment. We would like to thank in particular the sound recordists: Desmond Allen, Rob Hutchinson, Robert Kennedy, Mike Nelson and Pam Rasmussen.

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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