

Notes on the vocalizations of Olive-striped Flycatcher (*Mionectes olivaceus*)

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In the following we briefly analyze and compare song of the different races of Olive-striped Flycatcher (*Mionectes olivaceus*). 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).

M. o. olivaceus (E Costa Rica and W Panama)

Song is a peculiar high-pitched (seemingly) continuous note going up and down in pitch. Inaudible to the human ear, this continuous note is in fact a chain of very short notes (c. 0.03-0.04s long)(Fig. 1).

Measurements (n=5)

max. freq.	10.000-11.600Hz
min. freq.	8000-8600Hz
note length	3.9-7.9s (consisting of a long chain of notes c. 0.035s long)
pause	(between the short notes pauses are hardly measurable, c. 0.01s)

M. o. hederaceus (Panama (E from Veraguas), N & W Colombia (Cauca Valley, W slope and lowlands) and W Ecuador (S to Loja))

Song is a long regular series of high-pitched notes which go up and down in pitch (typically 2 notes up and 2 notes down, ABCBABCBA.., sometimes more). Note shape is very constant, a curly S-shape.

Measurements (n=19)

max. freq.	9500-11000Hz
min. freq.	7700-9000Hz
note length	0.24-0.35s
pause	0.18-0.35s
pitch change	600-1300Hz

M. o. galbinus (Santa Marta region of N Colombia)

We only have one recording of this taxon. Song is long irregular series of high-pitched notes which go up and down in pitch without clear pattern. Note shape is irregular. Shows some similarity with previous race, but very irregular.

Measurements (n=1)

max. freq.	10700Hz
min. freq.	7400Hz
note length	0.30-0.43s
pause	0.1-0.2s
pitch change	1100Hz

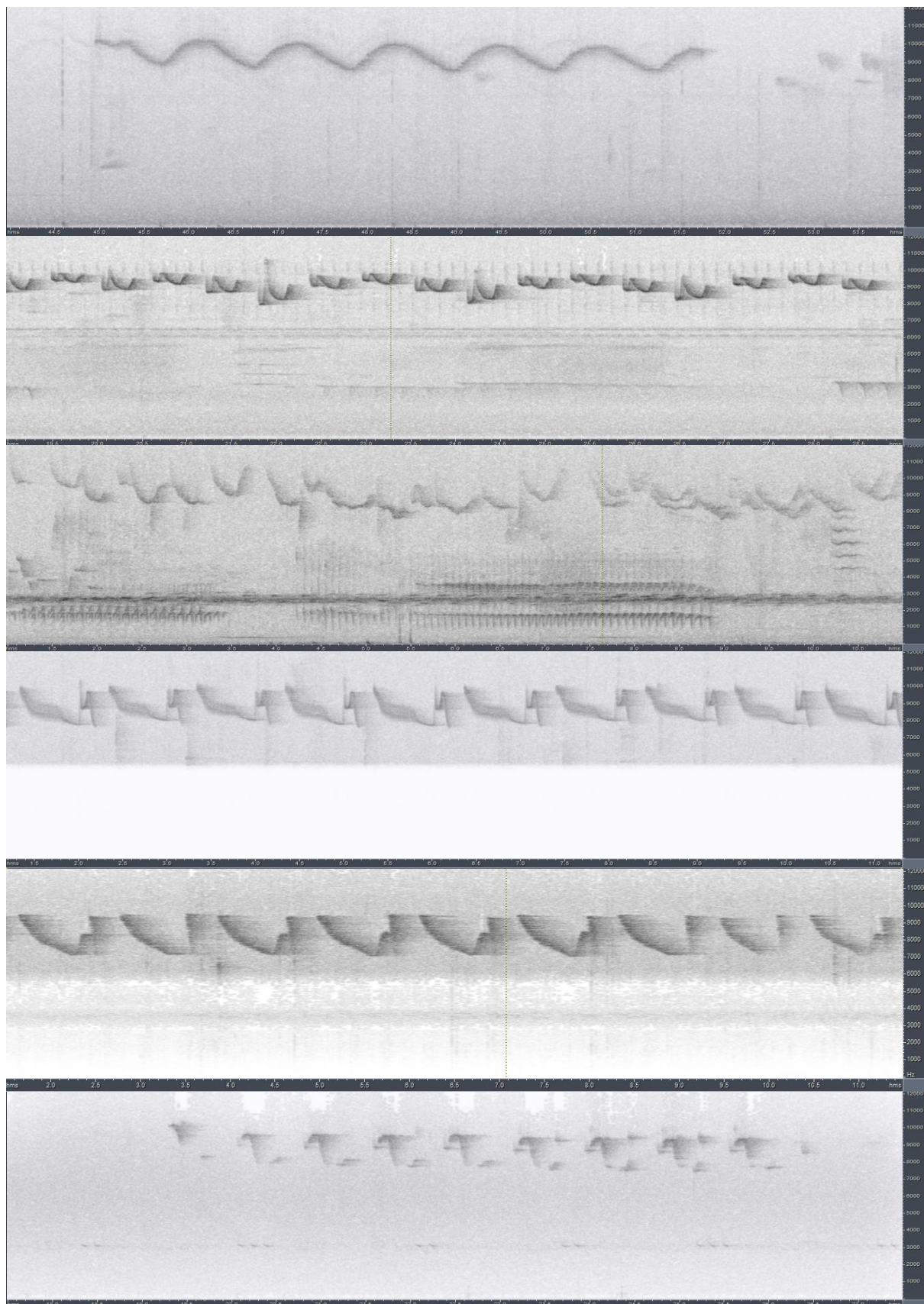


Figure 1: From top to bottom: typical song of *olivaceus*, *hederaceus*, *galbinus*, *venezuelensis* (Merida), *fasciaticollis* (NE Peru) and *venezuelensis* (Caripe, NE Venezuela)

M. o. venezuelensis (N Venezuela and S along E base of Andes to S Colombia; also Trinidad)

M. o. fasciaticollis (E base of Andes from S Colombia S to S Peru and extreme N Bolivia)

Song is a high-pitched phrase which is endlessly repeated. This phrase is identical for 2 available recordings of the Venezuelan Andes, very similar for the E Andes in Ecuador and Peru, and somewhat different for one available recording from NE Venezuela (presumably as a result of disjunct range prohibiting gene-flow, evolving into distinct taxon).

Measurements (n=6)

max. freq.	9400-11200Hz
min. freq.	6800-7800Hz
note length	0.52-0.98s
pause	0.12-0.32s
pitch change	0-100Hz

If we cluster *hederaceus* and *galbinus*, we can distinguish 3 groups with very different song:

M. o. olivaceus has extremely short notes (score 4 vs. all others) at an extremely rapid pace (score 4 vs. all others) going up and down in pitch. If we apply Tobias criteria and consider note length and pace independent, this leads to a total vocal score of 8 vs. other groups.

The song abruptly changes in W Panama from Chiriqui (*olivaceus*) to W Panama state (*hederaceus*)

hederaceus/galbinus differs from *venezuelensis/fasciaticollis* in having medium length notes (score 2-3) going up and down in pitch (score 3-4), while the latter has longer notes with a broad frequency range, always repeated at same pitch. Total vocal score about 6.

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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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