

**Notes on the vocalizations of Ethiopian Black-headed Oriole (*Oriolus monacha*), Mountain Oriole (*Oriolus percivali*) and Eastern Black-headed Oriole (*Oriolus larvatus*)**

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In the following we briefly analyze and compare voice of Ethiopian Black-headed Oriole (*Oriolus monacha*), Mountain Oriole (*Oriolus percivali*) and Eastern Black-headed Oriole (*Oriolus larvatus*). 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).

We will only compare song of the 3 species as most recordings are of this type, but there may be additional vocal differences in the call notes.

**Ethiopian Black-headed Oriole (*Oriolus monacha*)(n=6)**

Song phrase usually consists of a fast series of melodious, modulated whistles

total length	0.94 - 1.30s
min. freq.	880 - 1290Hz
max. freq.	3110 - 3400Hz
# of notes	4 - 8
max. freq. range single note	1200 - 2000Hz
total freq. range	2060 - 2520Hz

**Eastern Black-headed Oriole (*Oriolus larvatus*)(n=13)**

Song most often is a melodious whistle going up and down in pitch, usually preceded by 1 or 2 subdued short notes. (Occasionally song is more complex (reportedly at onset of breeding season), this song type is not included in the data below. In this case, closer resemblance with above species)

total length	0.27 - 0.74s
min. freq.	650 - 1570Hz
max. freq.	1950 - 2560Hz (1 exception, song??, 5070Hz)
# of notes	2 - 3
max. freq. range single note	1200 - 1520Hz
total freq. range	1200 - 1840Hz

**Mountain Oriole (*Oriolus percivali*) (n=5)**

Song resembles Eastern Black-headed Oriole, but has more variation and mainly lacks the typical up and down whistle of the latter.

total length	0.30 - 0.45s
min. freq.	450 - 870Hz
max. freq.	1450 - 2600Hz
# of notes	2 - 3
max. freq. range single note	900 - 1430Hz
total freq. range	1170 - 1730Hz

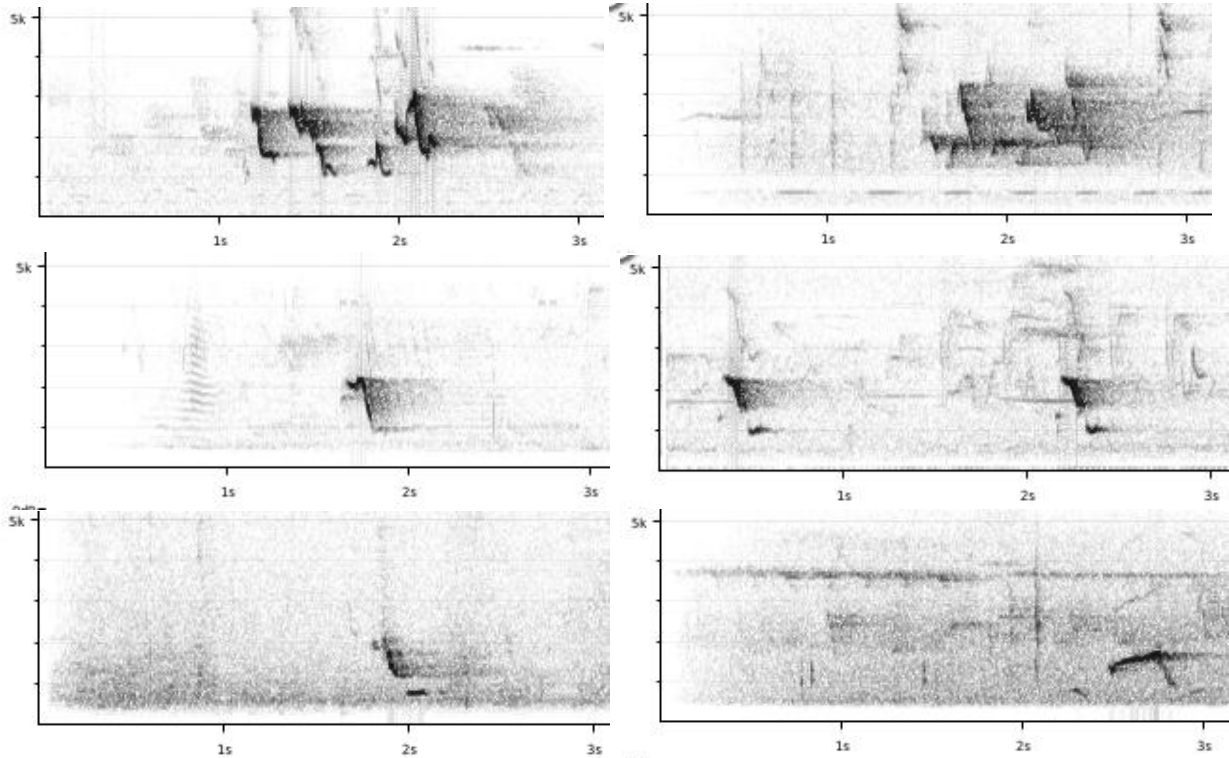


Figure 1: most commonly heard song of *O. monacha* (top), *O. larvatus* (middle) and *O. percivali* (bottom)

From the above, differences are quite clear:

Ethiopian Black-headed Oriole typically has a longer song phrase (score 2), with more notes which are modulated and sound less flute-like (score 2). Song reaches higher frequencies and a higher frequency range (score 2). If we apply Tobias criteria, this leads to a total vocal score of 4 in comparison with the two other species.

Mountain Oriole differs slightly from Eastern Black-headed Oriole, in having a more varied song, with whistles often downslurred or flat, rarely uttering whistles going up and down in pitch as in Eastern Black-headed Oriole. Basic sound parameters do mainly overlap however, and song probably not always safely told apart. Total vocal score 1.

We could also compare with the 2 races of Western Black-headed Oriole:

*brachyrhynchus* (n=9)

total length	0.42 - 0.90s
min. freq.	650 - 780Hz (Av 688Hz, SD 48Hz)
max. freq.	1290 - 1880Hz (Av 1560Hz, SD 191Hz)
# notes	3 - 5 (mainly 3)
longest note	0.15 - 0.31s
highest freq. range single note	300 - 900Hz
freq. range	640 - 1100Hz

*laetior* (n=6)

total length	0.32 - 0.69s
min. freq.	750 - 1000Hz (Av 850Hz, SD 91Hz)
max. freq.	1400 - 2700Hz (Av 1878Hz, SD 398Hz)
# notes	2 - 4
longest note	0.12 - 0.35s
highest freq. range single note	400 - 780Hz
freq. range	400 - 1900Hz

Without going into more detail, it is clear that vocal differences of all races in this complex except *monacha* are rather subtle.

This note was finalized on 13th October 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.

### Recommended citation

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