

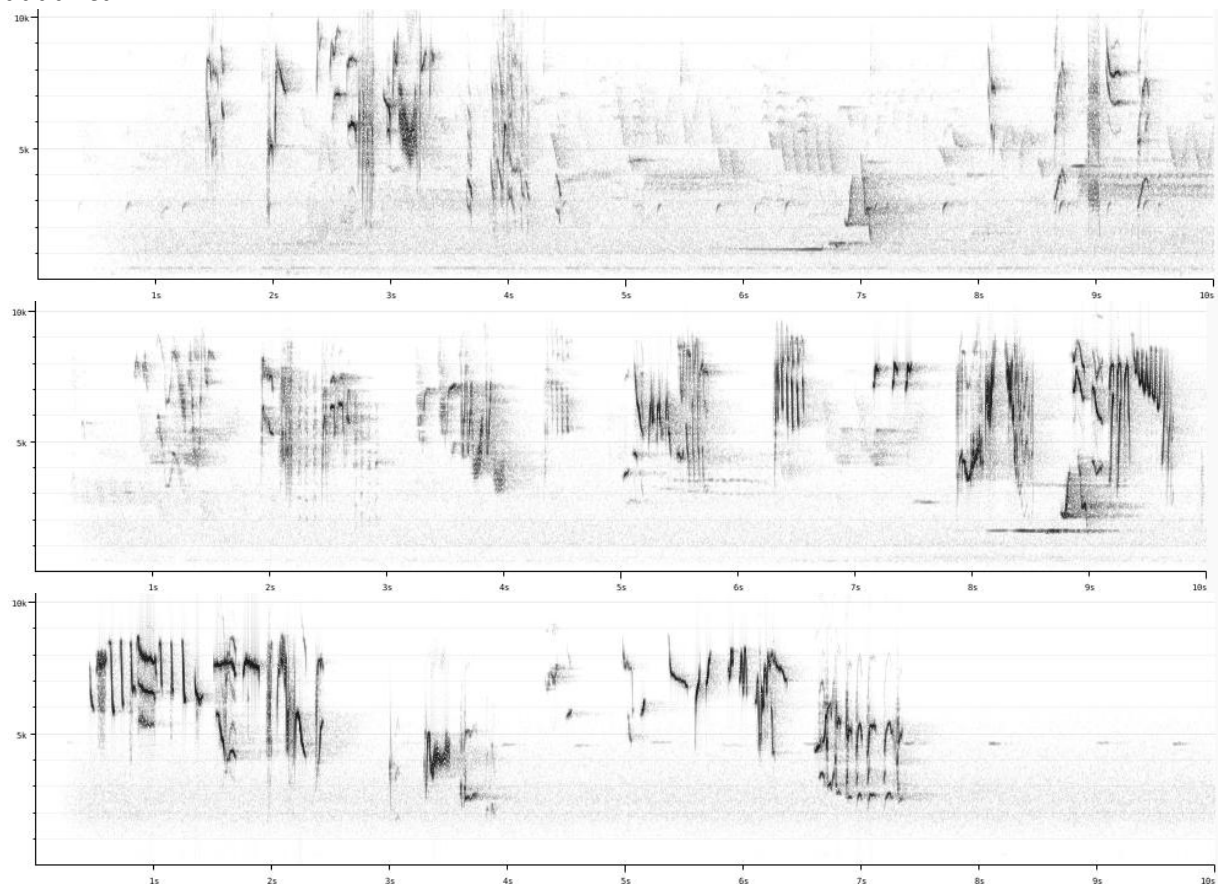
Notes on the vocalizations of Asian Brown Flycatcher (*Muscicapa dauurica*)

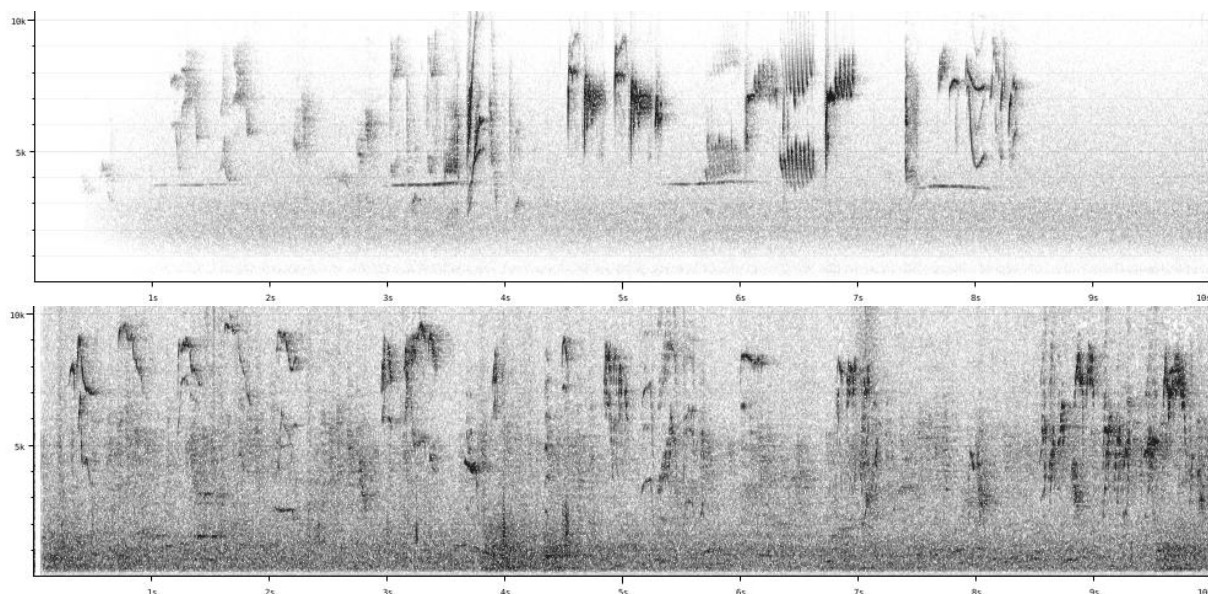
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In the following we briefly analyze and compare voice of the different races of Asian Brown Flycatcher (*Muscicapa dauurica*). We also try to quantify the extent of any vocal differences using the criteria proposed by Tobias *et al.* (2010), as a support 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 recently described *M. sodhii* (Harris 2014) with other related taxa. Few recordings of song are available for many taxa in the genus *Muscicapa* (and about 50% of ML recordings for *Muscicapa* are restricted). An overview per race:

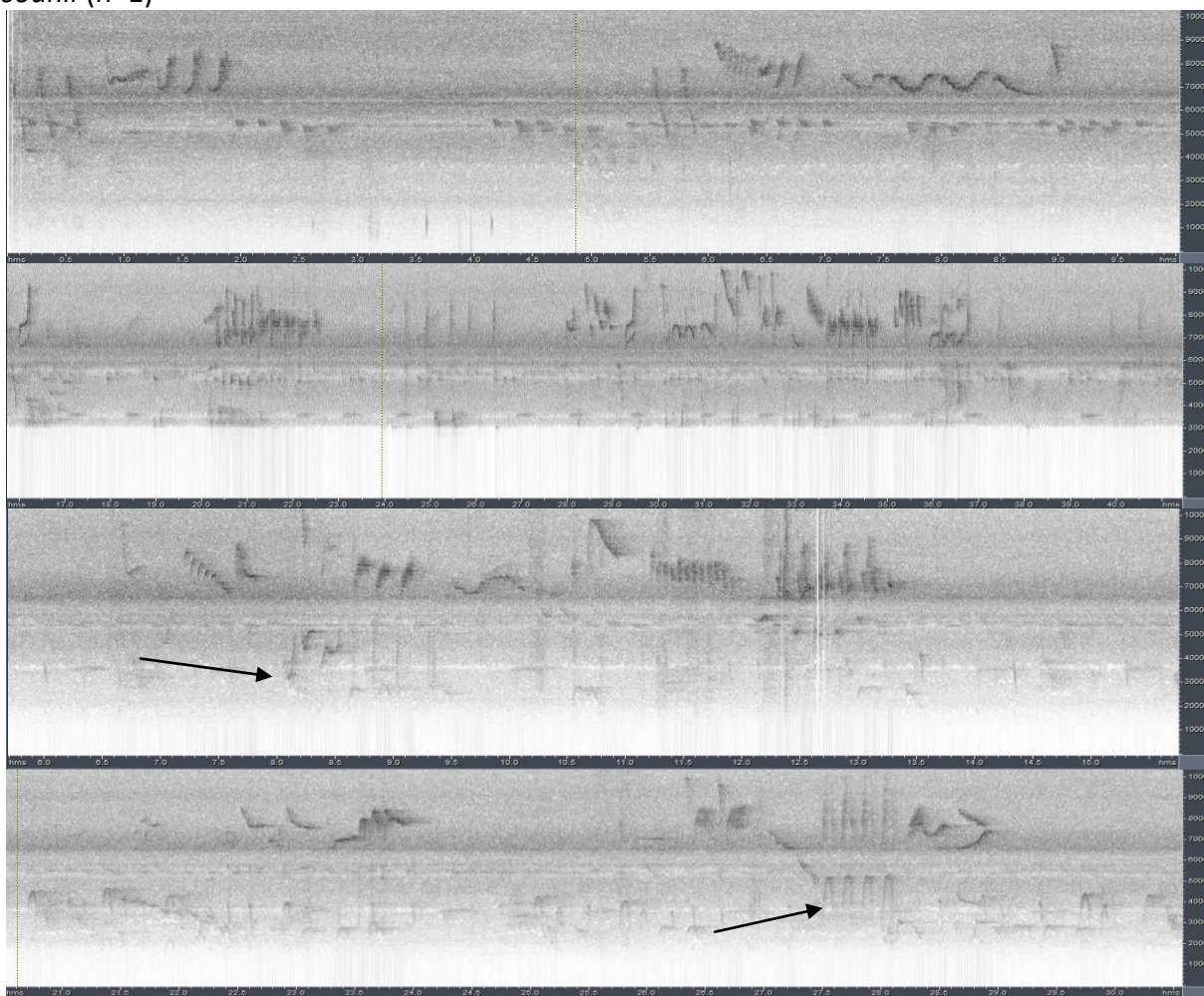
dauurica

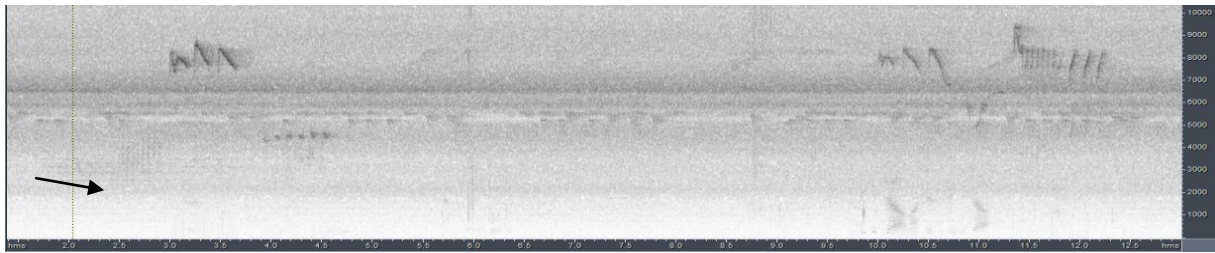




Max. freq. 10.5kHz, most notes in range 2.5 - 9.5kHz

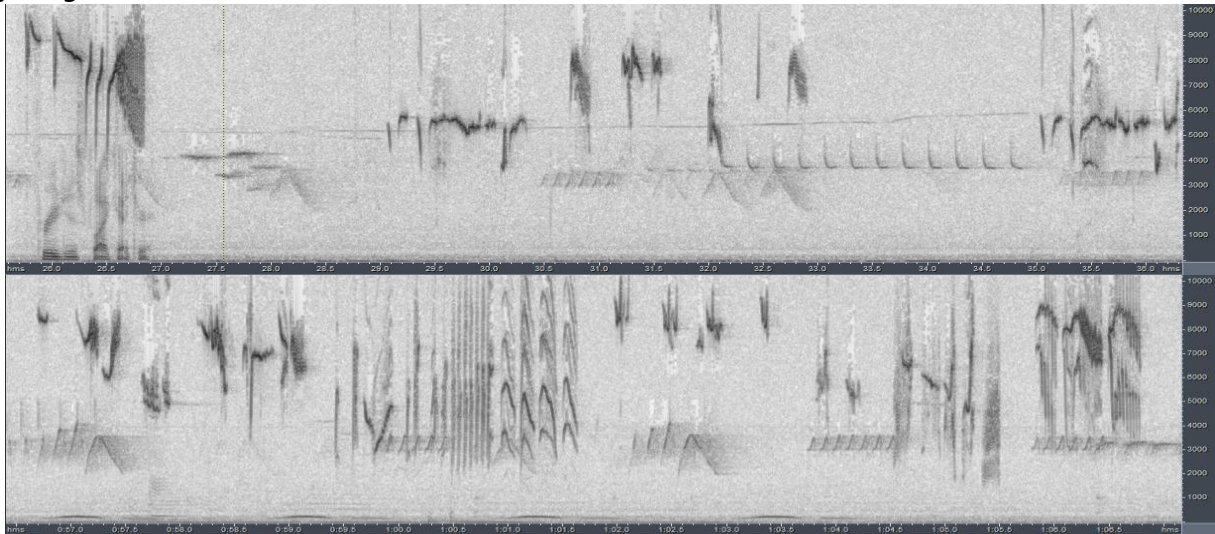
sodhii (n=1)





Max. freq. 10kHz, most notes in range 5-9.5kHz , some down to 2.2kHz (!)

ferruginea



Max. freq. exceeds 10kHz, most notes in range 3-10kHz

Main vocal difference seems to be that notes in recording of *sodhii* song are mainly above 5kHz and have a narrower frequency range.

More detailed measurements are given in Table 8 by Harris *et al.* (2014), leading to the conclusion that main vocal difference between *sodhii* and other *Muscicapa* taxa are maximum note frequency, minimum note frequency and frequency of maximum power. This being said, we have the following critical remarks about the vocal data by Harris *et al.*:

- * vocal difference is based on a single individual of *sodhii*, and comparison with other taxa is also based on just 1-3 individuals/taxon. Given that at least *M. dauurica* is known to mimic (Japan), this is rather tricky. A Principal Component Analysis based on just so few samples would seem to be nothing more than a theoretical statistical exercise.

- * measurements of *sodhii* recordings: the lowest frequency Harris *et al.* measured was 5.75kHz. They seem to have 'overlooked' quite a few lower-pitched notes, the lowest I found reaching 2.2kHz, as indicated by arrows on above sonograms (not facilitated by the fact that at least some recordings were heavily filtered to mute all sound below 3kHz...!, with possible additional high pass filtering with cut-off frequency as high as 6.5kHz??). The statement that min. freq. of *sodhii* is much higher thus becomes really questionable.

- * It should be said that in the case of poor quality recordings, obviously the fainter parts of song can become almost invisible on a sonogram (especially with high contrast settings as in Fig. 5 of the aforementioned paper). E.g. the last sonogram above of *dauurica* also shows mainly the high-pitched frequencies (despite having low contrast settings).

* measurements of other taxa: I only checked maximum frequency for *dauurica* (Table 8 gives max. freq. 8.7kHz, above examples: up to 10.5kHz) and *ferruginea* (Table 8 gives max. 9.2kHz, above examples 10.1kHz). Max. freq. for the recording of *sodhii* thus falls within the range of both *dauurica* and *ferruginea*

* If min. and max. freq. are in the same range, then obviously frequency range (bandwidth) of song is also similar.

Etc.

As an additional remark, we should be aware that the race of *M. dauurica* geographically closest to *sodhii* is *umbrosa* from NE Borneo, of which apparently there are no recordings of song available.

While there is a clear indication that song of *sodhii* has relatively more high-pitched notes with a fairly narrow frequency range, caution is needed as this is based on song of a single individual. Furthermore, measurements of the *sodhii* recordings were definitely not flawless (!).

If more recordings confirm that indeed a larger % of notes are above 5kHz, this could lead to a vocal score of about 2-3 vs related *Muscicapa* taxa by application of Tobias criteria.

This note was finalized on 26th July 2016, using sound recordings available on-line at that moment. We would like to thank in particular the sound recordists who placed their recordings for this species on XC and AVoCet, in particular Pamela Harrison/Bert Harris for the recording from Sulawesi of race *sodhii*.

References

Harris, J.B.C., Rasmussen, P.C., Yong, D.L., Prawiradilaga, D.M., Putra, D.D., Round, P.D. & Rheindt, F.E. (2014). A new species of *Muscicapa* flycatcher from Sulawesi, Indonesia. *PLoS ONE* 9(11): e112657.

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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