HANDBOOK OF THE BIRDS OF THE WORLD Alive

ORNITHOLOGICAL NOTES

Notes on the vocalizations of Swainson's Thrush (*Catharus ustulatus*)

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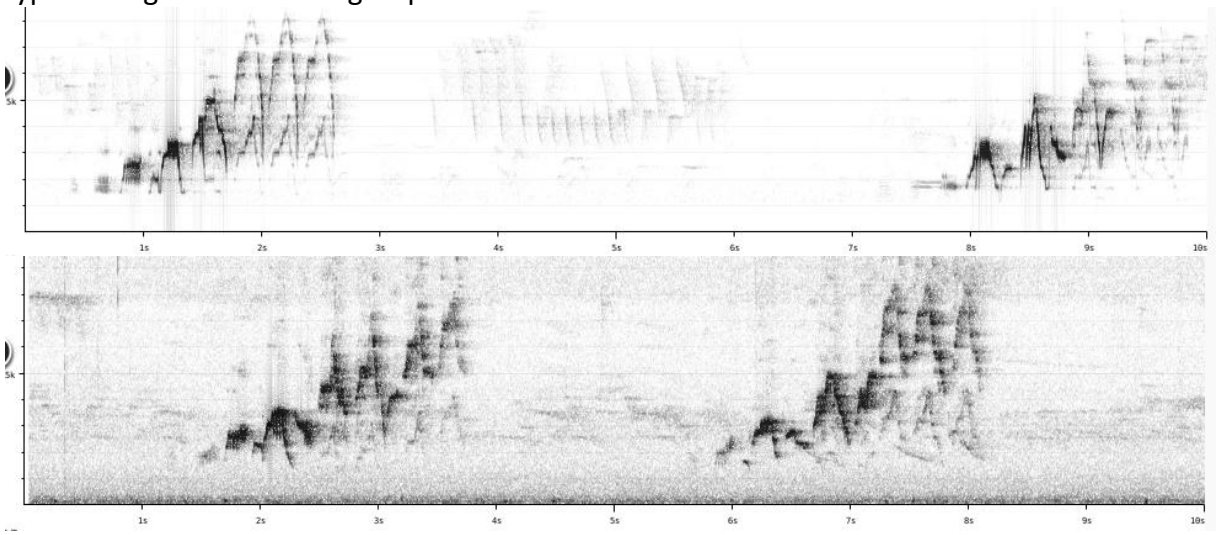
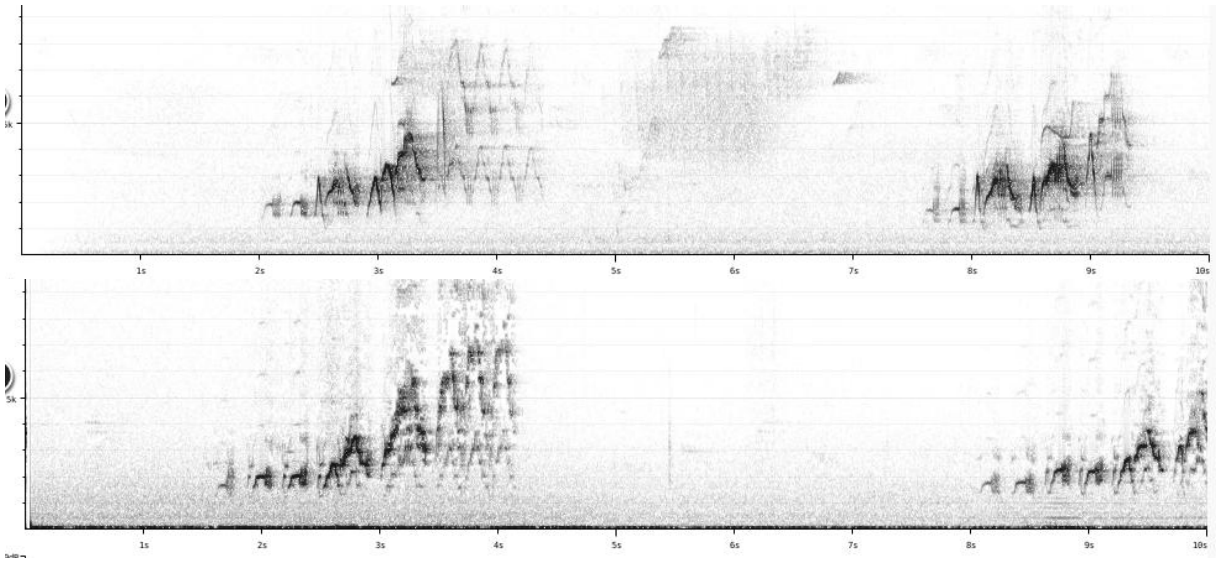
In the following we briefly analyze and compare voice of the different races of Swainson's Thrush (*Catharus ustulatus*). We also try to quantify the extent of any vocal differences using the criteria proposed by Tobias *et al.* (2010), as a support for taxonomic review.
We have made use of sound recordings available on-line from Xeno Canto (XC).

This well-known North-American passerine is typically classified in two groups: Russet-backed “nominate group” (also with *phillipsi* and *oedicus*) and olive-backed “*swainsoni* group” (also with *incanus* and *appalachiensis*).

Typical song of "*swainsoni* group"



Typical song of "*ustulatus* group"



There are subtle differences among the 2 groups.
One difference which seems to be quite consistent, is that *ustulatus* initiates song with 2-3 almost identical notes before starting its crescendo. *swainsoni* group on the other hand, immediately starts with notes rising clearly in pitch. Also the shape of these first notes is very different (*ustulatus* has inverted U notes with trilled ending, *swainsoni* has about fully trilled notes) (Fig. 1).

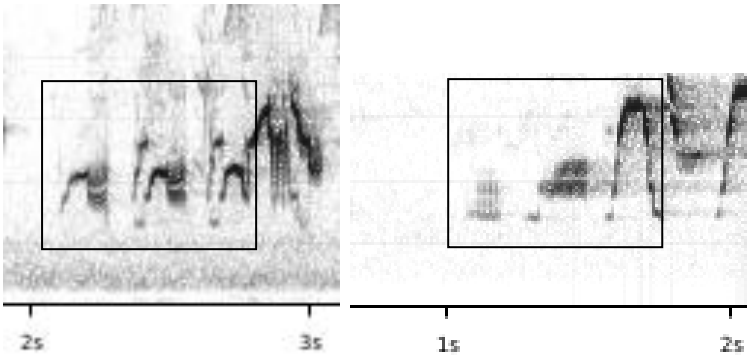
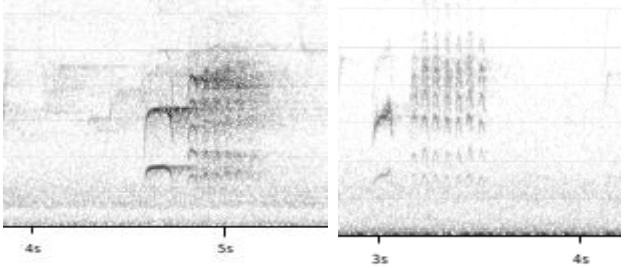


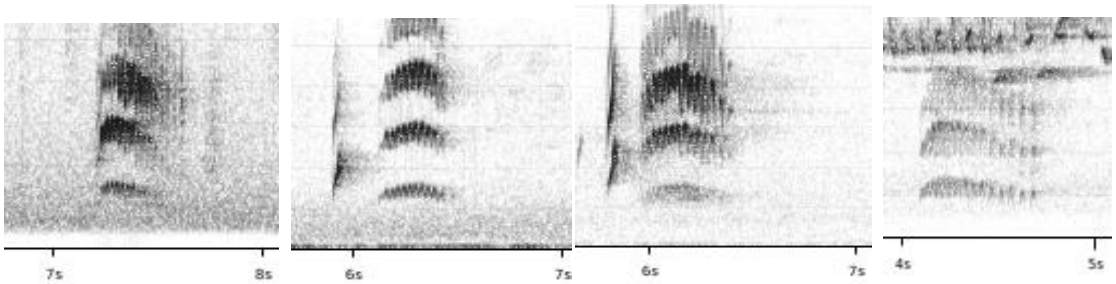
Figure 1: Left: start of *ustulatus* song illustrating 3 notes at roughly same pitch, with an inverted U shape and trilled ending, Right: start of *swainsoni* song, illustrating notes immediately rising in pitch of which first ones are fully trilled.

Surprisingly, we haven't found any reference in literature to this easily detected difference.

In literature, a few attempts have been made to differentiate voice of the two groups., and at least in one call type differences were found (Mldodinow *et al.* 2013, Pieplow 2013, see http://earbirding.com/blog/archives/4417).
The presumed alarm call, which is a two-part call ending in a low, loud semi-musical purr or chatter, is introduced with a short note in *swainsoni* "quit-BRRR", while its starts with a longer, more musical note in nominate group "weee-BRRR" (Mldodinow *et al.* 2013).
We can indeed confirm this by looking at on-line recordings:
ustulatus (Seattle and Vancouver)

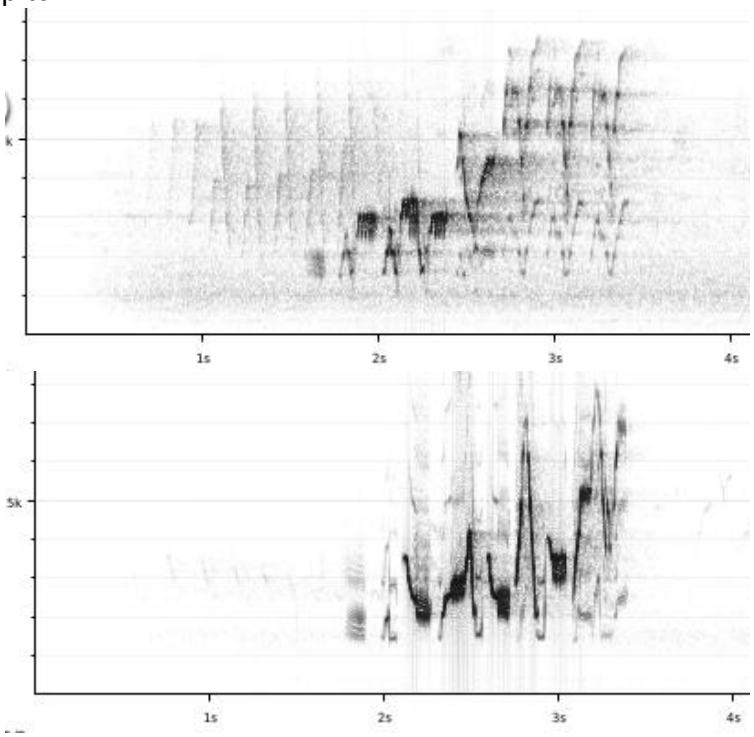


swainsoni

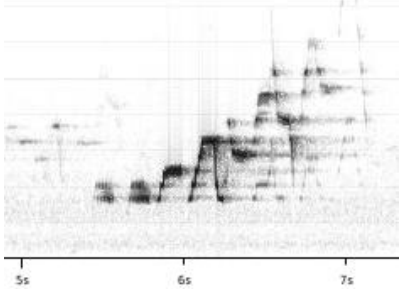


As a matter of fact, a further difference in this call note seems to be that the pace of the trilled part is much slower in *ustulatus* (and containing less elements in the trill).
For an alarm call, one would think these differences are quite important.

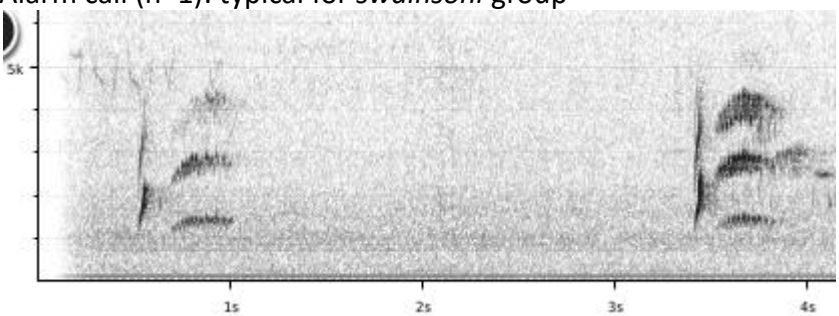
Given that the difference in song initiation has not been noted earlier despite being a well-studied North-American species, it seems wise to check this further for every single race:
***swainsoni* group**
race *incanus**(n=15):* 'no repeats of intro notes, mainly fully trilled notes, immediate rise in pitch'



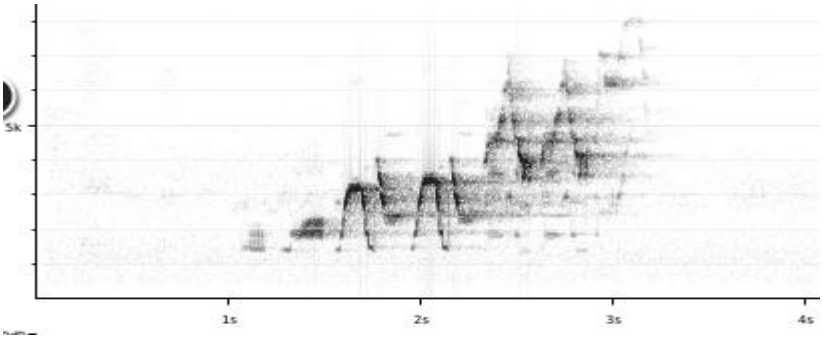
only occasional exceptions, e.g. following example with 2 nearly identical trilled intro notes (but note shape still typical for *swainsoni* group)



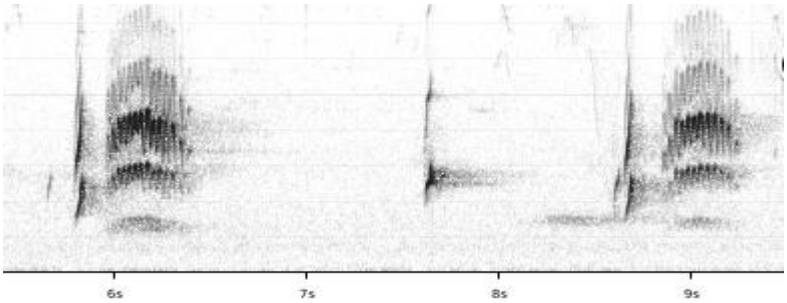
Alarm call (n=1): typical for *swainsoni* group



race *swainsoni* *(n= 15)*
'no repeats of intro notes, mainly fully trilled notes, immediate rise in pitch'
W Canada:

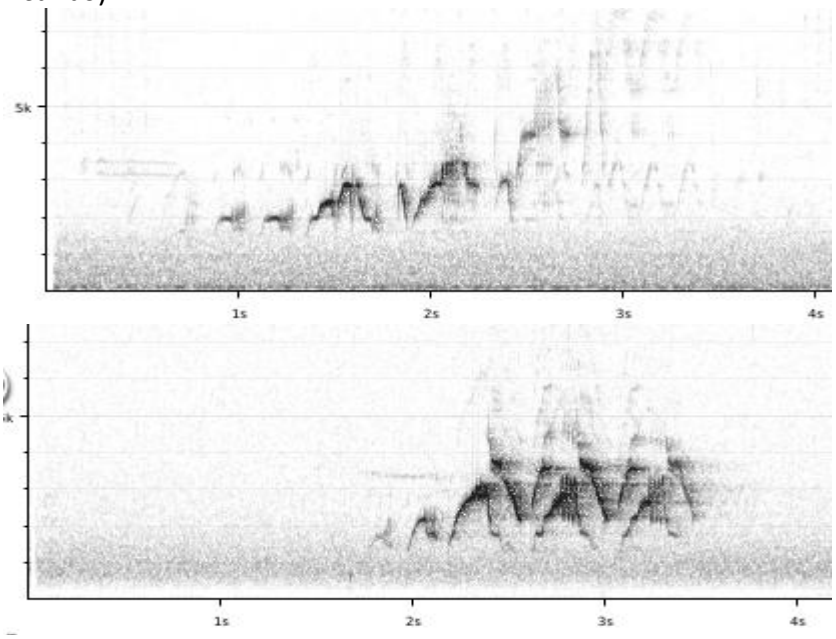


Alarm call:



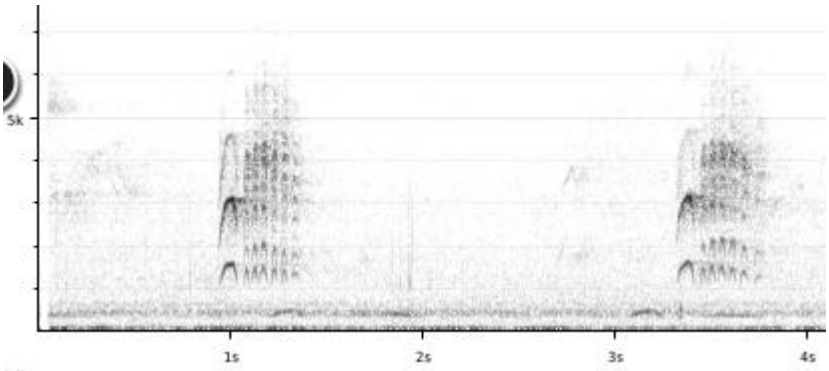
race *appalachiensis*
Given late migrating *swainsoni*, not clear which recordings may be of this race, but all recordings of E USA fit above described characteristics.

<u>nominate group</u>
race *ustulatus**(n=15)*** (Some caution needed here as possible confusion with migrating *incanus*)



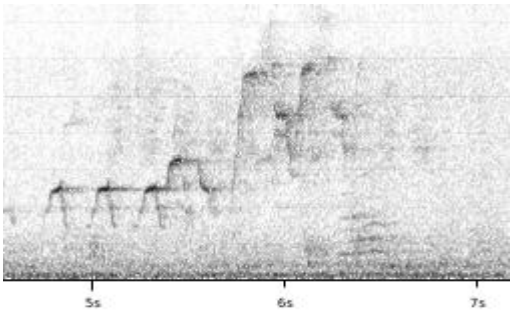
Initial note shape always inverted U with trilled end. Usually repeated 2 times, but not always (then either once or 3 times).

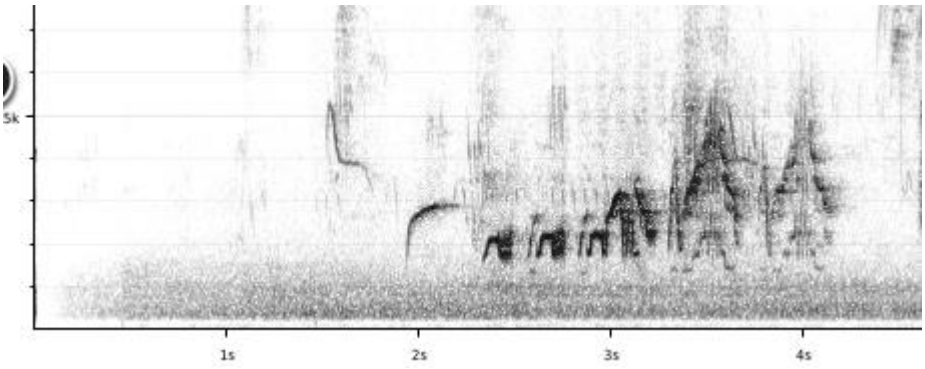
Alarm call



race *oedicus*

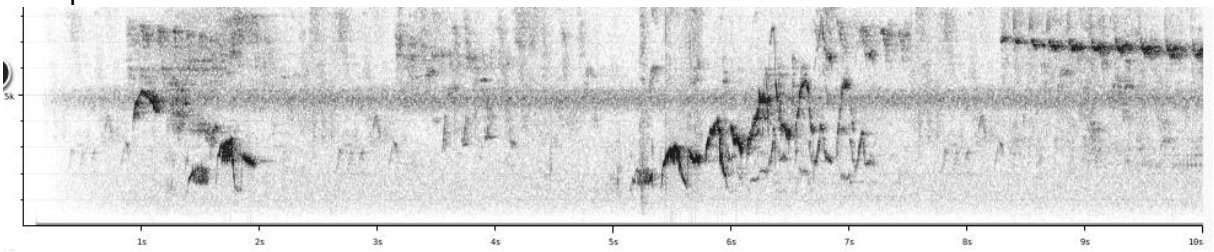
some caution needed here as possible confusion with migrating *ustulatus* and/or *incanus* (I have looked only at June recordings)





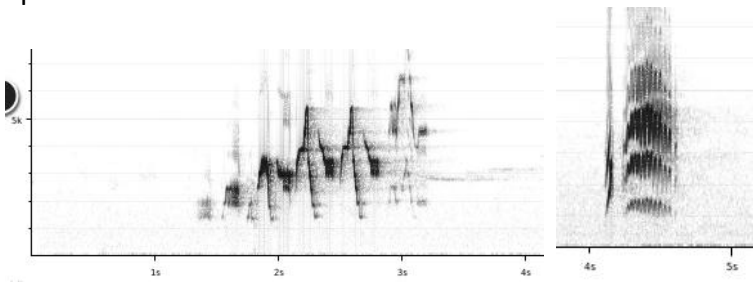
Usually 3 repeated intro notes (inverted U with trilled ending)
No examples found of alarm call.

Also in South-America, 'wintering song' is of the *swainsoni* group type (which corresponds with what is known).
Example from Ecuador:



The above-mentioned difference in song between the two groups thus seem to hold quite well when looking at song per race.

While Mlodinow *et al*. (2013) were instructive in looking for any possible difference (morphological and vocal) between the two groups, so that they could get a better understanding of their occurrence in the state of Colorado, some of their statements may actually have put people on the wrong foot.
We therefore add a few comments here:
* First of all, it should be clear that the 'Russet-backed form (*ustulatus* group)' is apparently only a vagrant in Colorado, mainly during spring migration. Similarly, table 2 of records of this form in other states east of the Continental Divide lack any records in June-August, indicating vagrant migrant birds.
* No voice of the 'Russet-backed form' has been described from Colorado. When stating *"in Colorado, it is probably impossible to separate Russet-backed from Olive-backed with confidence by song, at least on current knowledge",* this is purely based on data about voice from outside Colorado.
* All available recordings on XC from Colorado are clearly of the 'Olive-backed form': trilled intro note and immediate rise in pitch and typical alarm call with short intro note and rapid trill:



* They write: *Ruegg et al. (2006b), working in five locations in the Pacific Northwest, found statistically significant differences between the songs of the two forms, with the songs of Olive-backed averaging shorter, and the first part of their songs averaging lower in pitch. However, recordings from across the species' range suggest that continent wide variation in these characters is tremendous, and in Colorado, it is probably impossible to separate Russet-backed from Olive-backed with confidence by song, at least on current knowledge.* while it may be true that the parameters analyzed in Ruegg *et al.* don't hold on a continent-wide level (we did not check this, but basic sound parameters are probably too general to describe vocal differences among the two groups), the vocal difference in song which is explained in our above analysis seems to hold very well on a continent-wide scale. Admittedly, this is a small detail in the song, and it is unclear whether this is significant as a barrier between the two groups, but in any case, it is clearly detected on a sonogram of any good quality recording, and it allows correct identification in at least 95% of the cases, thus being diagnostic.
* Alarm call: "*especially contact and alarm calls, can lend support to the identification of these subspecies groups, but should not be considered diagnostic*." While they describe the alarm call as being different, it is said that it should not be considered diagnostic, which sounds rather contradictory. Our above analysis clearly shows that difference is substantial and consistent, both in the introductory note length and the pace of the trilled part (including number of elements in the trill). We assume the authors did not zoom in on this call note in the same way we have done here.

All in all, it would seem that vocal differences are minor but fairly consistent.
The difference in song could be scored about 2 (quantifiable by pitch rise in first 0.5s: lowest in *ustulatus,* with repeated intro notes of different shape). The different shape of the alarm call (with different length of the initial note and different pace of trilled part with different number of elements in the trill) would seem to allow a score of at least 1-2, given that it is not the primary vocalization, but nevertheless an important communication signal.
When applying Tobias criteria, this would lead to a total vocal score of about 3.

This note was finalized on 22nd June 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.

References

Mlodinow, S.G., Leukering, T. & Pieplow, N. (2013). Russet-backed Thrush in Colorado. Colorado Birds 47(2): 135-142.

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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