

Hirundinidae: Split Square-tailed Saw-wing (*Psalidoprocne nitens*) into two species

Under Avilist version 1, Square-tailed Saw-wing (*Psalidoprocne nitens*) is treated as a single species with two subspecies:

- ssp. *nitens*: "southern Guinea to Cameroon, Gabon, far western Democratic Republic of the Congo, and northwestern Angola"
- ssp. *centralis*: "northwestern Democratic Republic of the Congo (Tshuapa to Semliki Valley)" (NB this should read northeastern DRC)

Fishpool (2023) re-examined specimens of *P. nitens* and showed that *P. n. nitens* (hereafter *nitens*) and *P. n. centralis* (hereafter *centralis*) show marked plumage differences. He looked at 64 *nitens* specimens and 70 (putative) *centralis* specimens. He argued that *centralis* should be elevated to a full species based on significant morphological and genetic evidence. He also showed that *centralis* occurs throughout the entire interior forest zone of northern and central DRC. By contrast, in DRC, *nitens* only occurs in the extreme coastal west.

Plumage

Fishpool applied the Tobias et al. (2010) criteria to make a taxonomic assessment based on the morphological differences between *centralis* and *nitens*. The results can be summarised as follows:

- Adult plumage: *centralis* has a dark bottle green colour with intense gloss whereas *nitens* is blackish brown with a dull oily green gloss. This gets a Tobias score of 3 (Major character).
- Chin & throat: glossed green in *centralis* (uniform with body), unglossed grey-brown in *nitens* (contrasting with body). Tobias score 2 (Medium character)
- Immature plumage: *centralis* has dull green underparts (retaining something of adult gloss) whereas *nitens* has dark matt brown underparts. Tobias score 2 (Medium character)

Taken together the plumage differences were judged to score a 7 on the Tobias criteria which is the threshold for species level differences.

Figure 1 from Fishpool (2023) showing plumage differences between *centralis* and *nitens*



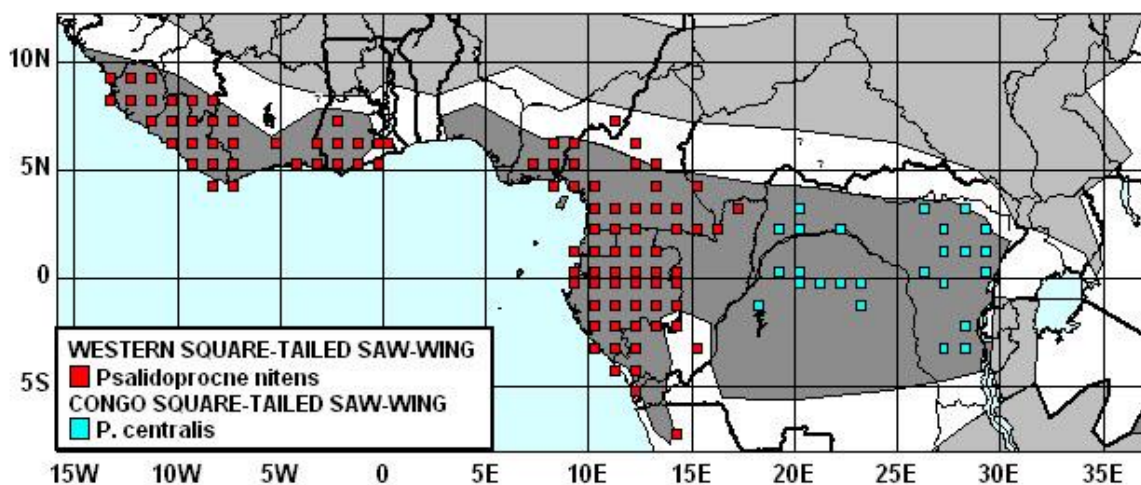
Figure 1a–c. Dorsal, ventral and lateral views, respectively, of Square-tailed Saw-wing *Psolidoprocne nitens centralis* (left two) and *P. n. nitens* (right two). Male *centralis* (far left) and female (second left) from Ndomo, Ituri, DR Congo; nominate *nitens*, both females, from (far right) Belabo, Cameroon, (second right) from Inang, Cameroon. Plumage of *centralis*, including the throat, with evident green gloss; in *nitens*, except for matt grey chin and throat, it is blackish and only faintly glossed. RMCA, Tervuren specimens, registration numbers (left to right) 126107, 126108, 75-56-A-46 and 123191 (L. D. C. Fishpool)



Range

Previous work had mistakenly thought that *centralis* was restricted to a small area of NE DRC (e.g. Chapin 1953, see Fishpool's paper for full history of previous scholarship establishing range). However, Fishpool's work shows that *centralis* occurs across the entire interior forest zone of northern and central DRC. By contrast *nitens* is known in DRC only from the extreme coastal west of the country. There is still an open question about what race the birds in northern Angola are but they are presumed to be *nitens* given proximity to other known *nitens* populations in western DRC and Cabinda. Michael Mills states he's not seen any photos or specimens of the Angolan birds.

A map of the distribution of the taxa was prepared by Bob Dowsett based on discussion with Lincoln Fishpool during the preparation of the Bull BOC paper:



Voice

There isn't enough vocal material available from *nitens* and *centralis* to make any meaningful comparisons. However, there are two recordings from *centralis* (based on range) on Macaulay Library: <https://macaulaylibrary.org/asset/1433> & <https://macaulaylibrary.org/asset/1434>. These recordings possibly suggest quite a buzzy downslurred call relative to the thinner calls of *nitens* but there's not enough material to make any firm conclusions.

Morphology

Fishpool (2023) identifies some statistically significant differences in morphology but these were not consistent across sexes between the taxa and so were ultimately given a Tobias score of 0 in the assessment.

Genetics

Barrow et al. (2016) constructed a molecular phylogeny of the genus *Psalidoprocne* based on two mtDNA genes (cytB and ND2). While the authors state that they weren't able to get samples of *centralis* which they believed (based on the previous received wisdom) was restricted to north-east

DRC, two of their samples fall from firmly within the newly-appreciated range of *centralis*. Fishpool visually examined the specimens at Royal Museum of Central Africa in Tervuren from which these samples were derived and was able to visually confirm that they were *centralis*.

Barrow et al. (2016) found that their *P. nitens* samples fell into two distinct clades: one clade from material from Upper Guinea (Liberia and Côte D'Ivoire) and one clade from the *centralis* DRC specimens. The sequence divergence between these two clades was c. 4%. Their analyses suggested that *P. nitens* (*sensu lato*) was sister to all other *Psalidoprocne* with mean sequence divergence of 3.7%. Thus, the size of the divergence between the two major *nitens* clades is comparable to that between them and the four other recognised *Psalidoprocne* species.

Importantly though, no samples of *nitens* from Lower Guinea (i.e. east of Dahomey Gap) were molecularly analysed by Barrow et al. (2016) so it remains to be shown that whether they are genetically closer to *centralis* than to *nitens* from Upper Guinea.

Taxonomic proposal

Fishpool (2023) advocates for *centralis* to be recognised as a separate species. This would lead to the following arrangement:

WESTERN SQUARE-TAILED SAW-WING *Psalidoprocne nitens*

- Guinea to Ghana; south-east Nigeria east to Central African Republic and Republic of Congo and south to Cabinda (Angola) and extreme western DR Congo.

CONGO SQUARE-TAILED SAW-WING *Psalidoprocne centralis*

- northern and central DR Congo.

As discussed before the plan is for the African Bird Names Committee to largely make decisions on English bird names but these are the ones which Fishpool proposes.

Overview

So we're left with a situation in which the range of *centralis* is much larger than previously appreciated. This definitely needs updating in the range description for next version of AviList.

The question we then is whether the plumage differences are sufficiently large to merit species (rather than subspecies) status. The difference in gloss in adult plumage is indeed marked. However, the adult plumage difference only takes us to a 3 on the Tobias scoring criteria. The remaining points are reached by treating chin/throat differences as well as differences in immature plumage as separate from overall adult plumage differences. Given that the difference in immature plumages between *centralis* and *nitens* mirror those between adults of the taxa it's hard to know whether this should truly merit a separate score?

The genetic difference is significant though based only on mtDNA data and without samples of *nitens* from Lower Guinea so must be evaluated in that context.

Open questions:

- What are the true range boundaries of *centralis*? Currently it seems to occur south and east of the Congo and Ubangi rivers but there is obviously much suitable habitat on the other side of those rivers so perhaps it also occurs in neighbouring parts of Central African Republic and Republic of Congo. Also does *centralis* range extend e.g. into the Semliki Forest of Uganda? Or is this truly a new DRC endemic?
- How do *nitens* from Lower Guinea cluster genetically with *nitens* from Upper Guinea compared to *centralis*? Would be ideal to show that *nitens* either side of Dahomey Gap is monophyletic with respect to *centralis*.

Lincoln Fishpool was asked to comment on this pre-proposal and provided the following input:

"Thanks for this, both for compiling the pre-proposal and for inviting me to comment. Overall, it is a good, accurate summary of the issues. The only point where I demur concerns this sentence in the 'Overview paragraph': 'Given that the difference in immature plumages between centralis and nitens mirror those between adults of the taxa it's hard to know whether this should truly merit a separate score?'. I am not sure that this is accurate. Adult nitens have an unglossed grey chin & throat versus a glossed green chin & throat in centralis. Immature nitens are matt brown throughout below (some limited dull glossing may be apparent) whereas centralis are uniform glossy green below, albeit rather duller than adult). But, given that the immature nitens has a brown throat and chin and the adult has a grey one, I am not sure this indicates that the plumage differences between immatures and adults mirror each other in the two races. In centralis, the only real difference appears to be - on the basis of the available material - that in centralis, immatures just become rather more glossy (they do not change colour), whereas in nitens, immatures turn from being dull brown throughout to dull glossy green from breast to vent and from brown to unglossed grey on the throat and chin (arguably, therefore, two changes in colour).

I also wondered whether centralis might extend into Uganda but, given its relatively conspicuous nature, one would have expected it to have been found by now, no? But if it doesn't, why doesn't it...?"

Conclusion

Overall the 7 Africa RAG members who provided input on this issue (Gabriel Jamie, Bob Dowsett & Françoise Dowsett-Lemaire, Michael Mills, Stratton Hatfield, Roger Safford & Nobby Cordeiro) are unanimously in favour of it.

References

[Barrow, L. N., Dalton, D. L., Kotzé, A., & Evans, S. W. \(2016\). Geographically widespread mitochondrial lineages of the African saw-wings inconsistent with species boundaries. *Ostrich*, 87\(3\), 271-275](#)

Chapin, J. P. 1953. The birds of the Belgian Congo. Part 3. Bull. Amer. Mus. Nat. Hist. 75A: 1–821.

[Fishpool, L. D. C. \(2023\). Square-tailed Saw-wing *Psolidoprocne nitens* in the Democratic Republic of the Congo: identity and taxonomic status. *Bulletin of the British Ornithologists' Club*, 143\(3\)](#)

[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: 724–746.](#)