Eurylaimidae: split *Cymbirhynchus affinis* (Ayeyarwady Broadbill) from *C. macrorhynchos* (Black-and-red Broadbill)

The split of *Cymbirhynchus affinis* (Ayeyarwady Broadbill) from *C. macrorhynchos* (Black-and-red Broadbill) was discussed by TaxCom and retained as a single species. However, since then, a more detailed review of the issue has been published (Berryman et al. 2025). This paper contains new information on mensural and plumage differences between the two species, as well as a thorough review of known localities of *C. affinis* useful when considering whether the two might have been parapatric historically. Therefore, a new, more detailed proposal is offered here.

The following proposal offers a short summary of the issue and does not attempt to repeat every argument made by Berryman et al. (2025), nor to repeat issues already discussed in TaxCom in response to the 2023 proposal.

Table 1 (below) offers a tabular summary of the taxonomic arrangement currently accepted by AviList (v2025); i.e. a polytypic Black-and-red broadbill comprising four subspecies.

Table 1: Taxonomy & distribution from Avilist v2025

Species	Subspecies	Range
Black-and-red Broadbill *Cymbirhynchus macrorhynchos*		
	macrorhynchos	Sumatra, Borneo, Bangka, Belitung, and Palau Laut
	malaccensis	far southern Thailand and Malay Peninsula
	siamensis	southern Myanmar, southern Thailand, Cambodia, southern Laos, and southern Vietnam
'Ayeyarwady Broadbill'	*affinis*	southwestern Myanmar

Cymbirhynchus macrorhynchos affinis		

Diagnosis

Berryman et al. measured six specimens of Ayeyarwady Broadbill for their morphometric analysis (see below) and obtained photographs of an additional three Ayeyarwady specimens for their plumage comparisons. These were compared to a sample of 10 specimens each of *C. m. siamensis*, *C. m. malaccensis* and *C. m. macrorhynchos* (i.e. the three Black-and-red Broadbill taxa accepted by AviList).

Morphometrics

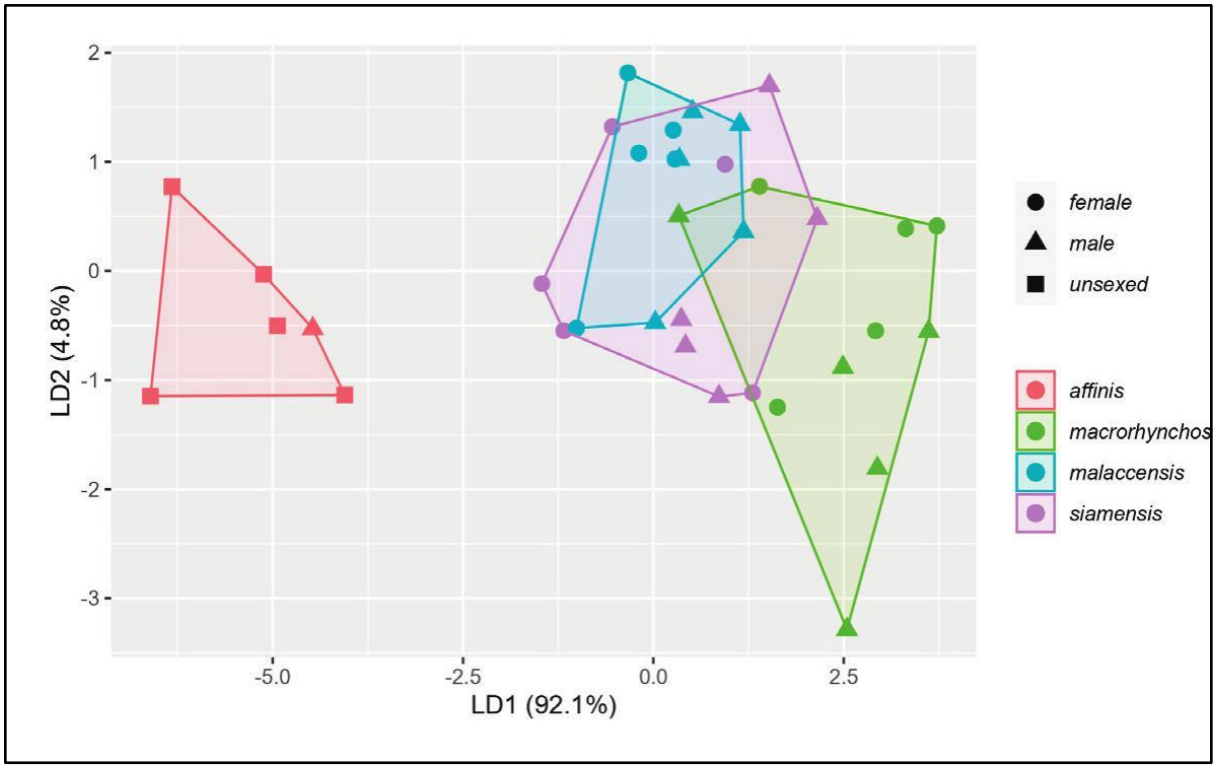
Ayeyarwady Broadbill is consistently smaller than all other Black-and-red Broadbill taxa (which otherwise all overlap extensively) (see Table & Figure from Berryman et al. 2025, reproduced below). There is no overlap in bill length, bill depth or tail length and only very minimal overlap in wing length. LDA analysis conducted by Berryman et al. (2025) found complete separation of Ayeyarwady Broadbill (see below).

"Compared to neighbouring *siamensis*, *affinis* is markedly smaller (10–17%) in length of bill (19.8 vs. 23.7 mm), wing (89.3 vs. 99.7 mm) and tail (70.5 vs. 84.5 mm) (hence overall size), and bill depth averages 22% (9.3 vs. 11.9 mm) less" (Berryman et al. 2025).

Table 1 from Berryman *et al*. 2025. Top row is Ayeyarwady Broadbill.

	n	Bill length	Bill depth	Wing	Tail
C. m. affinis	6	**19.8 ± 1.06** (18.4–21.3)	**9.3 ± 0.69** (8.2–10.0)	**89.3 ± 2.73** (85–92)	**70.5 ± 1.05** (69–72)
C. m. siamensis	10	**23.7 ± 0.96** (22.2–24.6)	**11.9 ± 0.65** (10.6–12.7)	**99.7 ± 3.92** (93–106)	**84.5 ± 3.41** (80–88)
C. m. malaccensis	10	**23.4 ± 0.56** (22.6–24.2)	**12.0 ± 0.39** (11.0–12.4)	**95.7 ± 3.06** (91–101)	**82.4 ± 3.44** (75–86)
C. m. macrorhynchos	10	**25.6 ± 1.05** (23.5–26.7)	**13.4 ± 1.04** (11.1–14.4)	**103.3 ± 3.56** (99–109)	**86.0 ± 3.02** (81–92)

Figure 3 from Berryman *et al*. 2025, showing complete separation of *affinis* (Ayeyarwady Broadbill) from the three other Black-and-red Broadbill taxa.



Plumage

Based on Berryman et al. (2025), there are four morphological characteristics that distinguish Ayeyarwady Broadbill from all Black-and-red Broadbill taxa. These were largely known and discussed at the time TaxCom previously casted its vote on this issue, but they are nonetheless expounded here with detailed photographs from Berryman et al. (2025) to illustrate the collective significance of these plumage differences. It feels pertinent to mention at this stage that Berryman et al. (2025) found no discrete plumage difference with which to diagnose any other taxon of Black-and-red Broadbill.

(1) Paler red underparts.

The underpart colour of Ayeyarwady Broadbill is not matched in any specimen of Black-and-red Broadbill and there is also no evidence that the colour is clinal between Black-and-red taxa.

Figure 1 from Berryman et al. (2025), showing much paler underparts of *affinis* (Ayeyarwady Broadbill; left) compared to neighbouring *C. m. siamensis* specimens (right). Note also the obvious smaller size of *affinis*, and much more extensive white in the undertail (see below).

(2) Three red crimson spots on the three innermost secondaries (tertials).

All nine specimens of Ayeyarwady Broadbill have three spots on the tertials. A review of 93 Black-and-red Broadbill specimens at NHMUK found that 91 of them had no such spots, while two had a single ‘tiny smudge of reddish’ (Berryman et al. 2025). Thus the presence of three large, elongate spots is unique to Ayeyarwady Broadbill.

(3) Much larger white spot (midway along the closed wing)

This spot (see below) is obvious on the closed wing of all Ayeyarwady specimens, but is either missing or barely noticeable in all specimens of Black-and-red Broadbill.

Figure 2 from Berryman et al. (2025), showing three elongate crimson spots on the tertials of *affinis* (Ayeyarwady Broadbill; right) in comparison with a specimen of neighbouring *C. m. siamensis* from Tenasserim, Myanmar (right). Note also the conspicuous white wing spot, and obvious smaller size of *affinis* (particularly bill length and depth).

(4) More extensive white in the tail.

From Berryman *et al*. (2025):
“The ‘broader white tips to the tail’ mentioned by Del Hoyo & Collar (2016) are formed by white extending subterminally onto the outer web on at least the outer two rectrices, so that it spreads across the entire feather, isolating a small dark tip. In a point missed by Del Hoyo & Collar (2016), this white occurs on all rectrices except the central pair (Fig. 6). In NHMUK specimens labelled or assigned to *siamensis* and *malaccensis* the white is restricted to the inner web, so there is no continuous white band across the feather, and even on the inner web the white is much less extensive, with a broad dark tip.”

Figure 6 from Berryman et al. (2025), showing more extensive white in the undertail of *affinis* (Ayeyarwady Broadbill; right) compared to neighbouring *C. m. siamensis* (right).

Acoustics
No data are available on the vocalisations of Ayeyarwady Broadbill since there is no documented record of it since 1874.

Behaviour
No data are available on this aspect. Habitat preferences, including altitude preferences, are at best conjectural in the absence of definitive location details (see Berryman et al. 2025 for more discussion on this point).

Genetics
No published research or dataset exists on the genetic sequence of Ayeyarwady Broadbill. Future data on this point are, of course, desirable, although there can be little doubt that Black-and-red and Ayeyarwady Broadbills are sister species.

Contact Zones
Uncertainty over the historical distribution of Ayeyarwady Broadbill makes consideration of former contact zones between these two 'species' challenging.

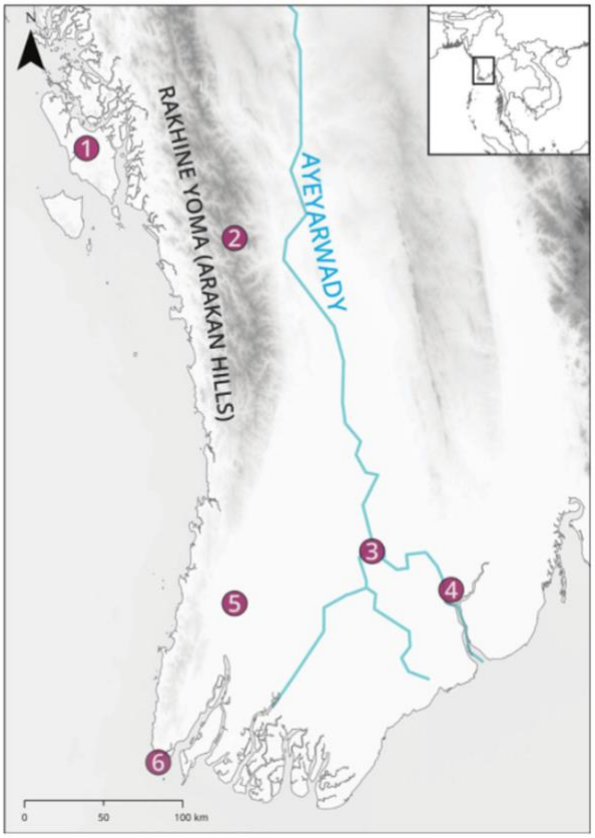
In the 2023 TaxCom discussion, whether the two 'species were always allopatric (narrowly or distantly), or parapatric, was considered. The evidence in favour of allopatry or parapatry hinges on the question of whether Ayeyarwady Broadbill once occurred in the (now almost entirely deforested) Ayeyarwady Delta, which bridges the gap between the Rakhine Yoma (Rakhine [Arakan] Hills) in the west – where Ayeyarwady Broadbill almost definitely occurred – and, to the east, the northwesternmost limit of '*siamensis*' Black-and-red Broadbill. If Ayeyarwady Broadbill *did* occur in the Delta, there is no obvious biogeographic barrier

separating it from the historical range of *siamensis* Black-and-red Broadbill, thus parapatry (or at most narrow allopatry) becomes more likely.

Berryman et al. (2025) provide a thorough review of all known localities of Ayeyarwady Broadbill, which are mapped in their Figure 7 (with caveats made clear about 'Site 6') following crosswalks to ensure that old names (invariably with different spellings) are correctly identified.

Figure 7 from Berryman et al. (2025), showing known localities of Ayeyarwady Broadbill

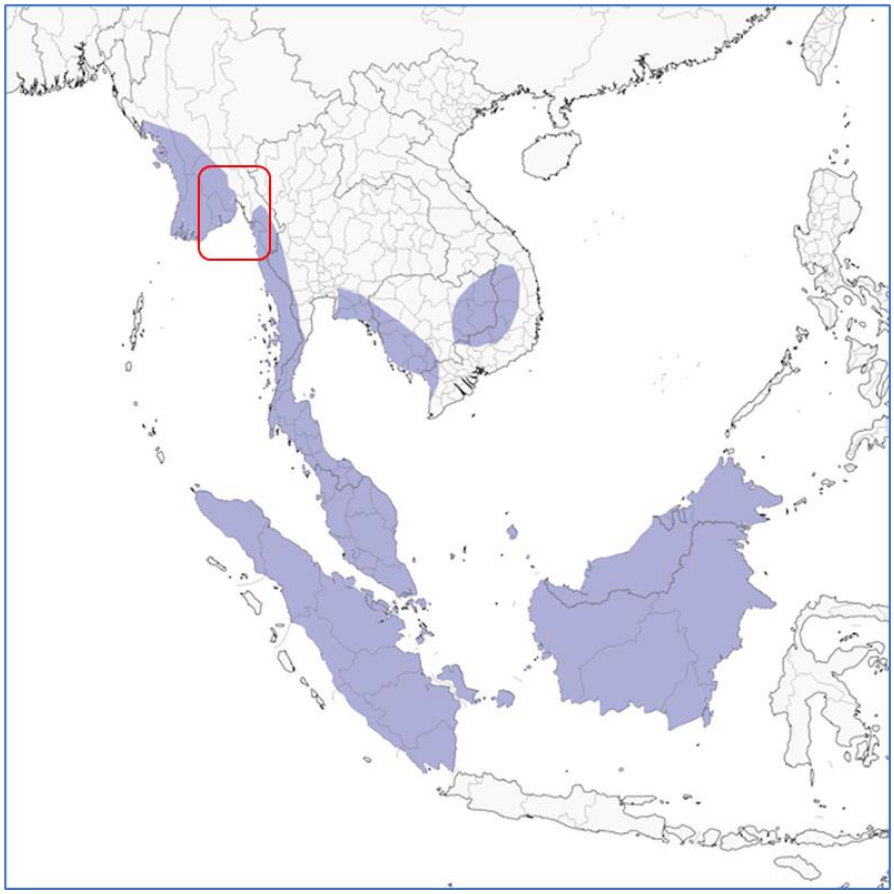
Localities of Ayeyarwady Broadbill *Cymbirhynchus* [*macrorhynchos*] *affinis* as discussed in Results. Shading represents elevation. Note that site 6 is not necessarily dependable (see Results).



While they concede that there is some uncertainty in all their localities, they find good evidence, from multiple accounts, of Ayeyarwady Broadbill once occurring in the Ayeyarwady Delta (see subheading 'Distribution and conservation status' in the Discussion of Berryman et al. 2025). They conclude that "it seems most likely that *affinis* once occupied both the Rakhine Yoma and Ayeyarwady Delta" following accounts that multiple specimens were collected in the latter.

It therefore seems plausible (perhaps even probable) that the two were once parapatric or, most conservatively, only narrowly allopatric.

Birds of the World map showing the box where the species may have been parapatric or narrowly allopatric



The yardstick

Morphologically, Ayeyarwady Broadbill differs from Black-and-red Broadbill taxa to a degree comparable to that of other broadbill species pairs accepted by AviList. E.g. Wattled *Sarcophanops steerii* and Visayan Broadbills *S. samarensis*, Silver-breasted *Serilophus lunatus* and Grey-lored Broadbills *S. rubropygius*.

Conclusion

While it is regrettable that there is no vocal or genetic material to support the morphological evidence presented here, Berryman et al. (2025) argue that the differences in morphology - coupled with the two historically being narrowly allopatric or parapatric - are enough to support species rank for *affinis*.

Although it is not a central component of the discussion here, nor in Berryman et al. (2025), it is notable that there appears to be no plumage trait unique to any of the other three Black-and-red taxa recognised by AviList as valid subspecies. Moreover, there is significant overlap in the measurements of these three forms (see Table 1 in Berryman et al. 2025). Therefore Berryman et al. (2025) argue that, in addition to elevating Ayeyarwady Broadbill to species rank, *C. m. siamensis* and *C. m. malaccensis* should be synonymised with *C. m. macrorhynchos* (thereby treating Black-and-red Broadbill as monotypic).

- Alex Berryman & Praveen J