Rhipiduridae: recognise *Rhipidura laguceria* (Cheerful Fantail) as a novel species from closely related *Rhipidura fuscorufa* (Cinnamon-tailed Fantail)

Taxonomic revisions on the basis of data presented in Eaton and Berryman (2026)

Introduction

The Babar Islands, in the Banda Sea, Indonesia, have long been known to host several endemic avian taxa, but only recently have some of these taxa been recognized at a species-level rank: Babar Whistler *Pachycephala sharpie* (AviList Core Team 2025) and Babar Myzomela *Myzomela babarensis* (Berryman et al 2025).

The genus *Rhipidura* comprises small insectivorous passerines with long tails which they characteristically fan, giving this group their common name ‘fantails’. In a recently published study, Eaton and Berryman (2026) investigated the internal taxonomy of Cinnamon-tailed Fantail *Rhipidura fuscorufa,* a monotypic fantail found on the Tanimbar Islands (from which it was described) and on the Babar Islands (135 km to the west). They compared differences between these populations using 19 specimens and 18 sound recordings, and document subtle plumage differences (Babar birds are slightly darker above, and are less extensively cinnamon below), and stark bioacoustics differences, with the two populations having consistently different songs. Moreover, across 132 playback experiments, they found that both populations consistently ignore allopatric songs, but generally respond to sympatric songs. On the basis that these lines of evidence likely represent reproductive barriers, they considered the population on the Babar Islands to be distinct from that on the Tanimbar Islands. In the absence of an available name, they describe it as a new species, *Rhipidura laguceria* (Cheerful Fantail).

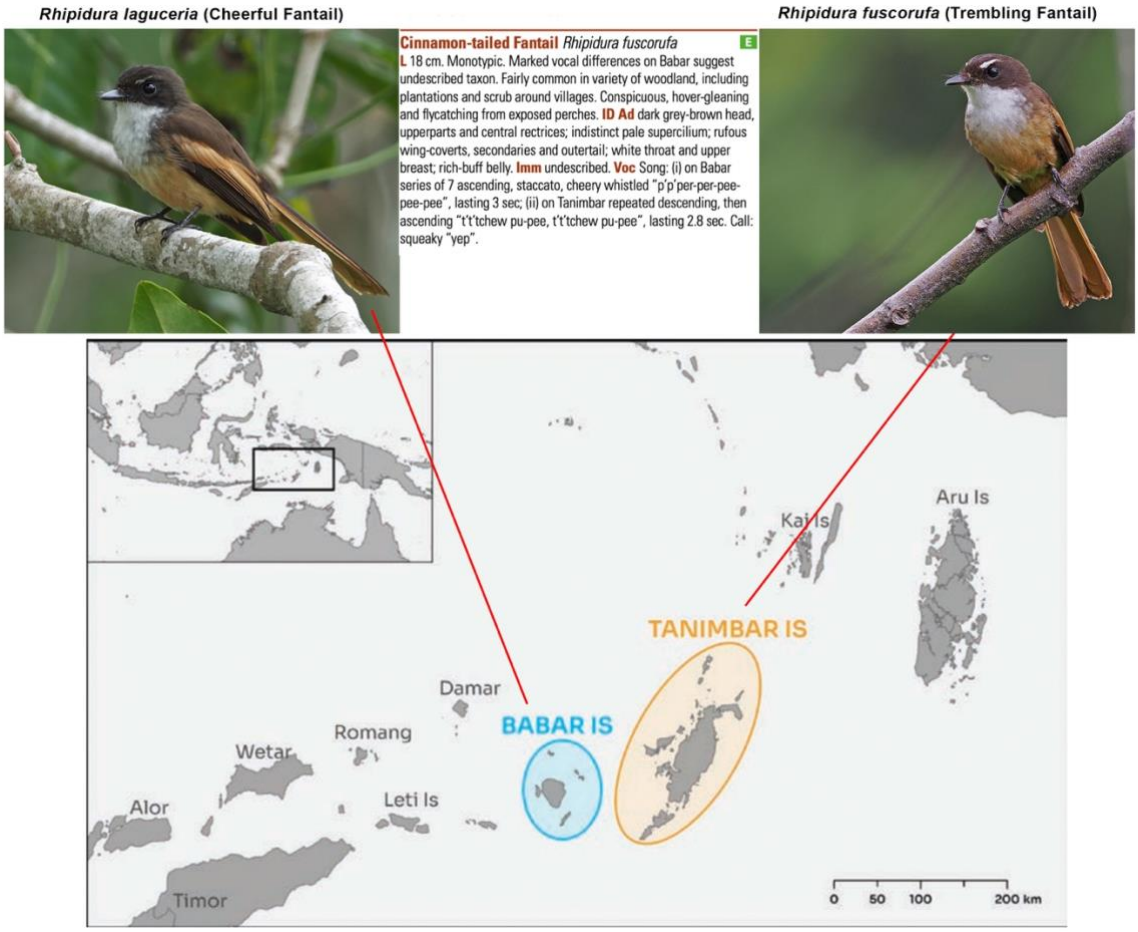

Figure 1 map, distribution and summary of *Rhipidura fuscorufa* (Cinnamon-tailed Fantail), and proposed taxonomic change. Text from Eaton et al (2021), map modified from Eaton and Berryman (2026).

Birds of the World account: https://birdsoftheworld.org/bow/species/citfan1/cur/introduction

Bioacoustics

Recordings of songs from the two populations were analysed, including eleven from Tanimbar Islands and seven from Babar island. Four parameters were quantified (number of notes in a strophe, strophe length, minimum and maximum frequency of entire strophe) and analysed using PCA. It's also worth noting that the authors (in particular JAE) have heard dozens more individuals that went unrecorded during multiple visits to both islands, and noticed the consistency in song differences across the two populations.

For each recording, four temporal and three frequency parameters were measured as follows: (1) number of notes in a strophe; (2) duration of the strophe; (3) mean time between notes; (4) mean length of notes; (5) minimum frequency of the strophe; (6) max. frequency of the strophe; and (7) the difference between the peak frequency of the first and last note in a strophe.

The two taxa had such different vocalizations that they easily separated out on a PCA – sonograms show the diversity in song types between the two taxa.

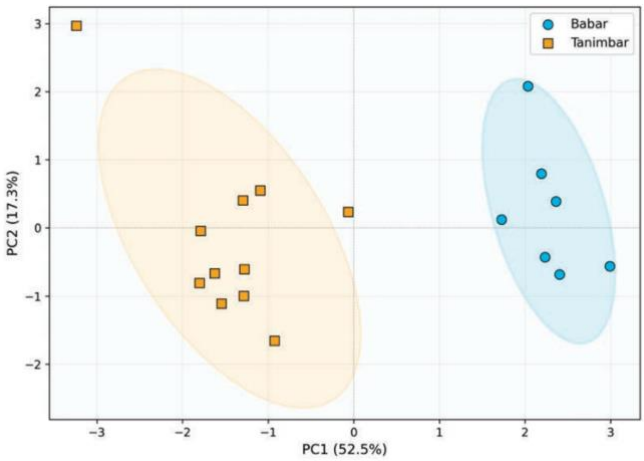

Figure 2 Principal component analysis (PCA) for all vocal parameters showing differences in populations of Cinnamon-tailed Fantail *Rhipidura fuscorufa* on the Tanimbar Islands and Babar. Explained variance for each axis is given in parentheses. Figure and caption from Eaton and Berryman (2026).

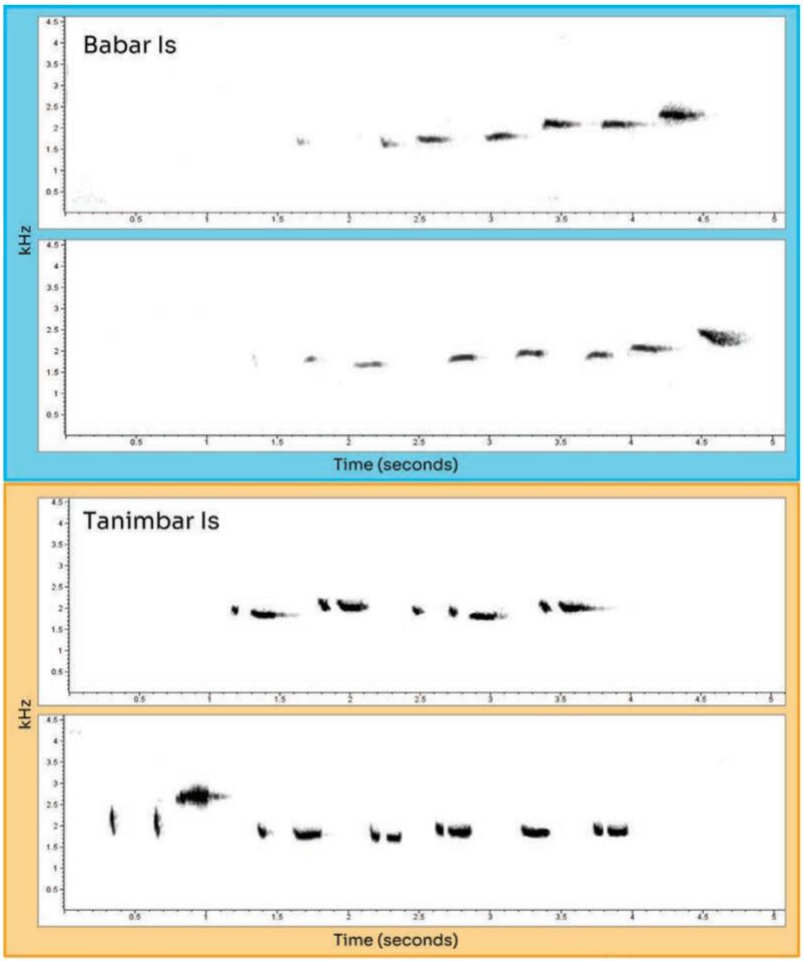

Figure 3 Example spectrograms of Cinnamon-tailed Fantail *Rhipidura fuscorufa* song. From top to bottom: Babar XC 161447 (Frank Lambert), XC 939421 (Philippe Verbelen); Tanimbars XC 161629 (Frank Lambert), ML 613983295 (Andrew J. Spencer). Sonograms were visualised in Raven Pro Version 1.6 (Bioacoustics Research Program, Cornell Lab of Ornithology, Ithaca, NY) with an optimised window size of 1,048 for all recordings. Figure and caption from Eaton and Berryman (2026).

Table 1 Mean and standard deviation (in bold) and range (in parantheses) of each vocal parameter of Tanimbar and Babar populations of Cinnamon-tailed Fantail *Rhipidura fuscorufa*. The *p*-values represent the statistical probability of differences in the mean between the two populations using Welch's unpaired *t*-tests, where * denotes the significance threshold is met with a Bonferroni correction. The magnitude of differences (effect size) was measures using Cohen's *d* coefficient. The diagnosability of parameters was analysed using the Isler criterion (Isler et al. 1998), where YES = diagnosable. Table and caption from Eaton and Berryman (2026).

Population	Number of notes in a strophe	Length strophe (s)	Mean time between notes (s)	Mean length of notes (s)	Minimum frequency of strophes (Hz)	Max. frequency of strophes (Hz)	Delta peak freq. first and last note (Hz)
Tanimbars ($n = 11$)	**10.7 ± 2.7** (8–18)	**3.3 ± 0.7** (2.3–5.1)	**0.20 ± 0.02** (0.17–0.24)	**0.13 ± 0.02** (0.11–0.17)	**1,620 ± 104** (1,333–1,699)	**2,207 ± 306** (1,957–2,924)	**85 ± 87** (0–290)
Babar ($n = 7$)	**6.6 ± 1.2** (5–9)	**2.8 ± 0.6** (2.1–3.9)	**0.33 ± 0.03** (0.30–0.39)	**0.24 ± 0.04** (0.19–0.29)	**1,579 ± 53** (1,510–1,652)	**2,364 ± 63** (2,270–2,466)	**593 ± 73** (459–689)
Statistics	$p < 0.001$* $d = 1.8$ Isler: NO	$p = 0.128$ $d = 0.8$ Isler: NO	$p < 0.001$* $d = 5.4$ Isler: YES	$p < 0.001$* $d = 3.8$ Isler: YES	$p = 0.287$ $d = 0.5$ Isler: NO	$p = 0.127$ $d = 0.6$ Isler: NO	$p < 0.001$ $d = 6.2$ Isler: YES

Qualitative song descriptions and quantitative results summary from Eaton and Berryman (2026):

The songs of the two Cinnamon-tailed Fantail populations differ considerably [Fig. 2 and 3]. *The song of Babar birds is typically a series of single whistles that rise in pitch towards the end, while that of Tanimbar birds typically combines very short with longer whistles rendering it a much more rhythmic cadence, and pitch typically goes up and down. While strophes of Tanimbar and Babar birds are similar in duration (mean 3.3 vs. 2.8 seconds respectively), those of Tanimbar birds contain significantly more notes (mean 10.7 vs. 6.6), which average shorter (mean 0.13 vs. 0.24 second) and have shorter gaps between them (mean 0.20 vs. 0.33 second)* [Table 1]. *The minimum and max. frequencies of the two populations are similar, but the structure of notes is very different. While the pitch of Tanimbar strophes is fairly level (or fluctuates randomly), songs of Babar birds ascend in pitch* [Fig. 3]. *This results in a small difference in the peak frequency of the first and last notes in Tanimbar birds (mean 85 Hz; range 0–290 Hz), but a large one in Babar birds (mean 593 Hz; range 459–689 Hz). Overall, the impression—to the human ear—is of two very different songs.*

In statistical comparison, the two populations are significantly different in four of the seven vocal parameters measured, and three of these prove 'Isler' diagnosable: (i) mean time between notes, (ii) mean length of notes, and (iii) delta peak frequency between the first and last notes [Table 1]. *These same three parameters also had very high effect scores of 5.4, 3.8 and 6.2 respectively* [Table 1]. *For context, Cohen (1988) described effect sizes greater than 0.8 as large, whilst Tobias et al. (2010) used higher thresholds of 2–5 as 'Medium' and 5–10 as 'Major'. The two populations are clearly separated in PCA space* [Fig. 2].

For more details on songs, see:

Rhipidura laguceria: https://xeno-canto.org/161450

Rhipidura fuscorufa: https://xeno-canto.org/161629

Playback experiments

Table 2 Results of playback experiments on Cinnamon-tailed Fantails *Rhipidura fuscorufa* being played sympatric or allopatric song. Values in bold represent response scores, calculated as the proportion of birds subjected to experiments that responded to playback of each song type. Total sample sizes in parentheses. SR = strong response, MR = moderate response, NR = no response. Shading denotes the results of allopatric playback experiments.

		Song played	
		Babar	**Tanimbar**
Population tested	**Tanimbar**	**0.82** (n = 38) 18 SR, 13 MR, 7 NR	**0.00** (n = 39) 39 NR
	Babar	**0.00** (n = 25) 25 NR	**0.85** (n = 30) 12 SR, 14 MR, 4 NR

Results from extensive playback experiments conclusively proved that both *Rhipidura* taxa were generally responsive to songs recorded from their own island(s), but not to songs belonging to taxa from other island(s). Notable, there were no strong or medium responses to songs recorded from taxa from other island(s). Given the importance of passerine song in mate recognition, we believe that these results represent the most compelling evidence in this proposal that these populations are evolutionarily distinct and would not recognize each other as potential mates.

Morphology

R. laguceria is noticeable darker on the upperparts and less extensively cinnamon on the underparts – this was noticeable in the field before the closer examination of specimens.

Figure 4 Comparison of specimens of Cinnamon-tailed Fantail *Rhipidura fuscorufa* at the American Museum of Natural History, New York (AMNH): dorsal (top) and ventral (bottom). Birds from Babar (left side from left to right: AMNH 651390, 651388, 651389) and Tanimbars (right side from left to right: AMNH 651399, 651393, 651392). Note darker, less rufous/warm upperparts of Babar birds. Figure and caption from Eaton and Berryman (2026).

There are no statistically significant biometric differences between the two taxa (Table 3).

Table 3 Measurements of *Rhipidura fuscorufa* from the Babar and Tanimbar Islands. Values in bold represent the mean of each character (rounded to nearest mm) with standard deviation; parenthetic values are the range. In no character did the mean between sexes or populations differ statistically. *The combined total for specimens from the Tanimbar Islands includes three unsexed specimens.

Population		Wing	Tail	Bill	Tarsus
Tanimbar Islands	Males (n = 5)	**86 ± 1.0** (85–87)	**85 ± 2.9** (82–88)	**19 ± 0.4** (19)	**13 ± 0.4** (13–14)
	Females (n = 4)	**84 ± 0.1** (84–85)	**83 ± 0.9** (83–84)	**19 ± 0.4** (19)	**14 ± 0.8** (13–14)
	Combined* (n = 12)	**85 ± 1.6** (82–87)	**85 ± 3.9** (81–89)	**19 ± 0.3** (19)	**14 ± 0.5** (13–14)
Babar Islands	Males (n = 2)	**84 ± 3.3** (82–87)	**82 ± 4.3** (79–85)	**19 ± 0.6** (19–20)	**14 ± 0.1** (14)
	Females (n = 5)	**85 ± 1.4** (84–87)	**85 ± 5.5** (78–93)	**19 ± 0.2** (18–19)	**13 ± 0.5** (13–14)
	Combined (n = 7)	**85 ± 1.8** (82–87)	**84 ± 5.1** (78–93)	**19 ± 0.4** (18–20)	**14 ± 0.5** (13–14)

Genomics

Thus far, no genetic work has been done on this complex.

Yardsticks

Note that other species have been accepted on very similar basis. Four recent examples:

1. The recently described Babar Myzomela *Myzomela babarensis* (Berryman et al 2025), which has the same distribution as *Rhipidura laguceria*, and is primarily split based on very different song, and similar playback experiments, while showing just minor morphometrical differences.
2. Penan Hawk-Cuckoo *Hierococcyx tiganada* was recently described on the basis of bioacoustic differences from Dark Hawk-Cuckoo *H. bocki*, despite a lack of morphometric differences (Rheindt et al 2025) and two Isler diagnosable vocal parameters.
3. Also in the region, Sula Cuckoo-dove *Turacoena sulaensis* was split from White-faced Cuckoo-dove *T. manadensis* purely on the basis of bioacoustic differences (Ng and Rheindt 2016).
4. Within the *Macropygia* brown cuckoo-doves, species-level recognition has previously been based on a single Isler-diagnosable vocal parameter. For example, *M. tenuirostris* and *M. emiliana*, which were formerly treated as a single species, are now recognized as separate species in AviList v2025 based on vocal differentiation. In contrast, the current proposal identifies three Isler-diagnosable vocal parameters separating the taxa.
5. Three fantail taxa from Wallacea that differ in bioacoustics despite very minor plumage differences have been underscored by genomic data, demonstrating the importance of song for species recognition within *Rhipidura* fantails, with some taxa in the region even showing vocal leapfrog patterns (Ng et al 2017 – see Appendix). See below for discussion from Berryman and Eaton (2026):

> From a yardstick perspective, other fantail taxa have recently been split as species with similar justification to that we offer above. Both Eaton *et al*. (2016, 2021) and del Hoyo & Collar (2016) independently used similar lines of evidence to divide 'Northern Fantail' *R. rufiventris* into multiple species, whilst Rheindt *et al*. (2020) described Peleng Fantail *R. habibiei* as a species separate from the morphologically very similar Sulawesi *R. teysmanni* and Taliabu Fantails *R. sulaensis* in part because of its distinctive vocalisations. Vocalisations were also the main line of evidence that led del Hoyo & Collar (2016) to split the visually almost identical Mindanao *R. superciliaris* and Visayan Blue Fantails *R. samarensis* (see also Boesman 2016), and were also cited as a key reason for separating Streaked Fantail *R. verreauxi* into three and Brown Fantail *R. drownei* into two (del Hoyo & Collar 2016, AviList Core Team 2025).

Note that several of the fantail taxa mentioned above (Peleng, Taliabu and Sulawesi Fantail; Mindanao and Visayan Blue Fantail; Bougainville and Guadalcanal Fantail [=formerly 'Brown Fantail'] and Vanuatu Streaked, Fiji Streaked and New Caledonian Streaked Fantail [=formerly 'Streaked Fantail']) are recognized as species by AviList v2025.

Conclusion

The Tropical Asian RAG supports Eaton and Berryman (2026) description of *Rhipidura laguceria* (Cheerful Fantail) as a new species to science. In this proposal, we support this description at a species-level primarily based on strong bioacoustics differences between Tanimbar and Babar populations (well-defined PCA clusters and three Isler diagnosable vocal parameters), and the results of playback experiments conducted in the field which seem to indicate that their vocal differences have reproductive significance.

The two taxa (*fuscorufa* and *laguceria*) are allopatric. Importantly, the islands they occupy are separated by deep sea exceeding 300m in depth. Thus, although Tanimbar islands and Babar islands are separated by only 100km, they were not connected during Pleistocene sea level fluctuations, giving ample time for speciation and for differences between taxa to accrue.

Regarding English names, the authors propose names 'Tanimbar Fantail' and 'Babar Fantail' as ostensibly appropriate for *R. fuscorufa s. s.* and *R. laguceria* respectively, but the Tanimbar islands host two other sympatric fantail species—Supertramp Fantail *R. semicollaris* and Long-tailed Fantail *R. opistherythra*—the second of which is also endemic to the islands. Therefore, we concur with the publication authors and propose the English names 'Trembling Fantail' for *R. fuscorufa* and 'Cheerful Fantail' for *R. laguceria*, given that their distinctive vocalisations have led us to propose separating them taxonomically.

References

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Appendix

Excerpt of Fantail leapfrog discussion presented in Ng et al (2017):

4.2. Vocal leapfrog pattern across Sulawesi, Peleng, and Taliabu

Besides finding strong evidence of genomic differentiation among populations from all three landmasses (Sulawesi, Peleng, Taliabu; Fig. 4, Fig. 5), we additionally analyzed bioacoustic material from all three taxa to investigate whether the observed genomic divergences are at the species level or below. *Rhipidura* fantails are songbirds in which vocalizations are of utmost importance in sexual selection, species coherence and the maintenance of species limits (Catchpole and Slater, 1995, Ball and Hulse, 1998, Marler and Slabbekoorn, 2004). Depending on whether vocal differences between taxa are clinal or discrete, we expected to be able to determine whether two lineages would view each other as different species at earth-historic times when their ranges might come into secondary contact, such as during a glaciation across a Pleistocene landbridge. The nameless, undescribed taxon of fantail from Peleng Island proved vocally highly distinct, with a song that showed no overlap to either of the two geographically adjacent taxa (*R. (t.) sulaensis*, *R. t. toradja*; Fig. 8). In fact, when we first detected it in the field, the bird was highly conspicuous through its non-fantail like song (Rheindt et al., 2010). While *R. t. toradja* and *R. (t.) sulaensis*, which are geographically remote and divided by the intervening population on Peleng, have more song similarities in common, this may merely indicate the retention of the ancestral song type as the two taxa differ in properties relating to the contact call (Fig. 8). This is the second instance of such a leapfrog pattern of vocal differentiation being discovered across these three islands (Rheindt et al., 2011), and highlights the potential importance of sexual selection in the speciation of these birds.