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## Vocal comparison between Tabar Pitta *Erythropitta splendida* and New Britain Pitta *E. gazellae*

by Markus Lagerqvist, Roger McNeill & Ashley Banwell

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The taxonomy of the Red-bellied Pitta *Erythropitta erythrogaster* superspecies is currently in a state of flux. Irestedt *et al.* (2013) published a comprehensive study of the group employing molecular methods, as well as morphometric and plumage analyses. They also included sonograms for ten of the taxa. Their recommendation was to recognise 17 species, three of them in the Bismarck archipelago of Papua New Guinea: New Britain Pitta *E. gazellae* (monotypic), New Ireland Pitta *E. novaehibernicae* (including *E. n. extima*) and Tabar Pitta *E. splendida* (monotypic).

Collar *et al.* (2015) applied the criteria described in Tobias *et al.* (2010) to assign species rank to members of this complex, using morphological data alone, due to the lack of acoustic, behavioural and ecological information for many taxa. Thirteen taxa were considered species, including all three in the Bismarcks, an arrangement followed by Clements *et al.* (2016), but not by Gill & Donsker (2016), who recognised ten species, including just one in the Bismarcks, due to the lack of vocal evidence (F. Gill pers. comm.). Thus, one key to settling species limits are sound-recordings, which are lacking for several taxa. In July–August 2016 we visited Tabar Island, to search for Tabar Pitta *E. splendida*, one of the least-known taxa. We obtained several recordings of its song, which we compare here to recordings of its closest relative, New Britain Pitta *E. gazellae*, made on the same trip.

**Tabar Island.**—At dawn on 30 July we travelled by boat to Tabar, the main island in the Tabar group, off north-east New Ireland. On Tabar, we stayed at Tau Dikana Lodge, near Wang village, and spent the day in forest in the south of the island, during which we estimated that four pairs and six different individuals were heard in c.1.5 km<sup>2</sup>, both in primary forest (02°59.295'S, 152°02.550'E) and secondary forest with an understorey dominated by ginger plants near the village (02°59.604'S, 152°02.433'E). Thus it appears fairly common within its limited range and tolerant of degraded habitat. We are unaware of other recent observations of this taxon, but G. Dutson (*in litt.* 2016) saw up to eight individuals in two hours in 1997 and estimated territory sizes as small as 4 ha in favoured areas such as patchy old growth and tall but logged forest with natural thickets of undergrowth on level terrain. We obtained high-quality sound-recordings of songs and alarm calls. Using playback, we observed multiple individuals but the birds were quite shy. Next morning we returned to the area to obtain better observations and photographic documentation. To our knowledge, these are the first-ever published photographs of *E. splendida* (Figs. 1A–B).

**New Ireland.**—At 11.00 h on 1 August we left Tabar by boat for New Ireland, where we spent 1.5 days. Our time there was spent mainly along the road to the Lelet Plateau. We hoped to acquire sound-recordings of *E. novaehibernicae* but we heard just two individuals calling briefly and too distant to record. We found the habitat heavily degraded, with 'good' forest only some distance from the road.

**New Britain.**—On 2 August we left New Ireland for a five-night stay at Walindi Plantation Resort in West New Britain, to search for New Britain Pitta. Despite being a popular site for birders visiting New Britain, there are relatively few records of the pitta and, to our knowledge, no photographs or sound-recordings have been published. During our stay, we heard at least four different individuals: one was heard briefly at Garu Wildlife



Figure 1A–B. Tabar Pitta *Erythropitta splendida*, southern Tabar Island, New Guinea, 31 July 2016 (Markus Lagerqvist)

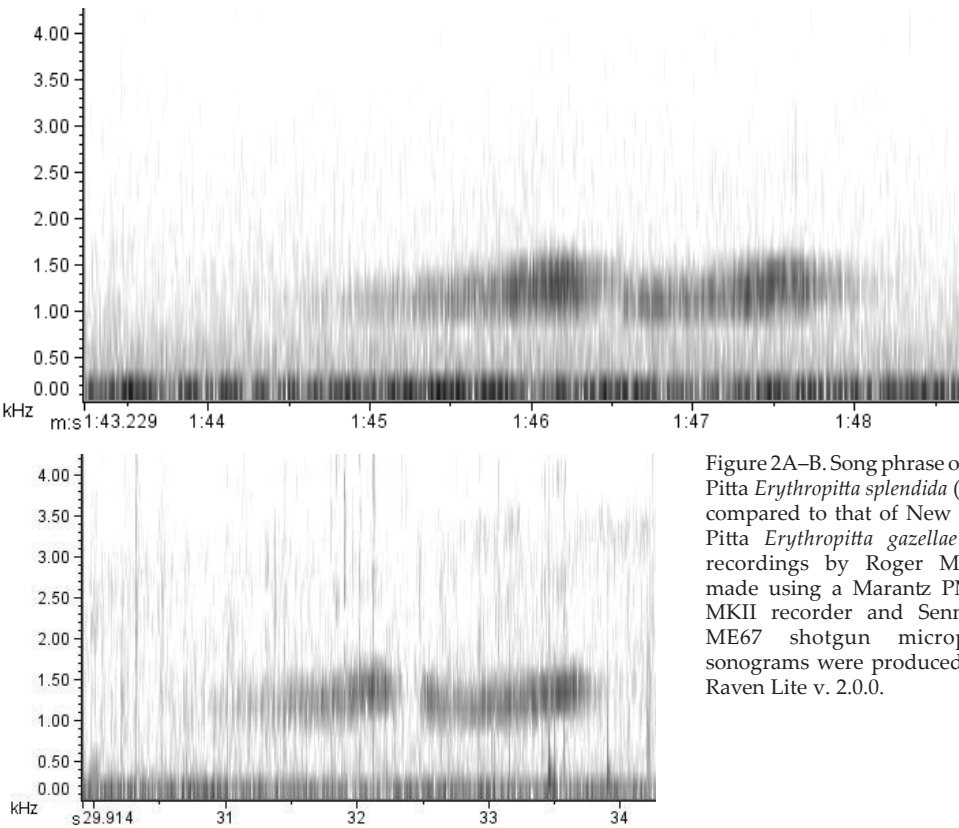


Figure 2A–B. Song phrase of Tabar Pitta *Erythropitta splendida* (above) compared to that of New Britain Pitta *Erythropitta gazellae* (left), recordings by Roger McNeill, made using a Marantz PMD661 MKII recorder and Sennheiser ME67 shotgun microphone; sonograms were produced using Raven Lite v. 2.0.0.

Management Area (05°29.106'S, 149°59.008'E), at least two in the narrow band of secondary forest near the Kulu River (e.g. at 05°32.773'S, 150°01.118'E) and one on the other side of the main river, bordering the large oil-palm plantations that dominate the area. The birds were quite vocal and we obtained good recordings of the song. Obtaining photographs or even a good view proved very difficult, as the birds appeared extremely shy and less responsive

than Tabar Pitta. We managed only brief observations, including birds in flight, and no photographs.

**Acoustic comparison.**—For those familiar with the *Erythropitta* complex, it will be immediately apparent upon hearing the song of *splendida* or *gazellae* that they belong to the ‘red-bellied pitta’ complex. Compared with each other, they sound more similar than to birds from mainland New Guinea, which is unsurprising as they belong to the same phylogroup and are even more genetically similar than those birds just a few kilometres away on New Ireland (Irestedt *et al.* 2013).

Our analysis is based on 45 two-note phrases from at least five different individuals of *splendida* and 19 two-note phrases from three different *gazellae*. All recordings were made using a Marantz PMD661 MKII recorder and Sennheiser ME67 shotgun microphone. Sonograms were produced and calls analysed using Raven Lite v. 2.0.0. The recordings are available via Cornell’s Macaulay Library (<http://macaulaylibrary.org/>). Songs of both taxa consist of a pair of ‘rollercoaster’ notes often repeated incessantly for several minutes. Typically, each phrase starts with a slow upward whirr speeding up as it reaches its first peak, followed by a <1-second pause, thereafter the sound whirrs again, achieving a second peak, before descending into a c.20-second pause before the next two-note phrase.

The main differences between Tabar and New Britain birds are the length of the two-note phrase and its pitch. On average, the individual two-note phrases of *splendida* lasted c.1 second longer than *gazellae* (c.3.9 vs. c.2.9 seconds) with a deeper, slower, more guttural start (Fig. 2A). Two-note phrases of *gazellae* were quicker, more ‘breathy’ and slightly higher pitched (Fig. 2B). The two-note phrases of *splendida* lasted 3.2–4.2 seconds while those of *gazellae* occupied 2.5–3.4 seconds, i.e. with an overlap around the 3.2–3.4-seconds interval). On average, notes of *splendida* peaked at 1.8 kHz vs. 1.9 kHz for *gazellae*. Comparisons were made from both ‘natural’ recordings and those in response to playback. The length of inter-phrase intervals varied, and our sample of *gazellae* is too small to provide any meaningful comparisons.

Based on our analysis, we conclude that there are consistent differences between the two-note phrases of *splendida* and *gazellae*. As a next step, we suggest that controlled experiments using playback are conducted to understand the significance of these differences. We also recommend that *novaehibernicae* is included in the analysis.

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