Australasia -- Meliphagidae: Adopt the new genus name, *Pinarostola*, for *Pycnopygius cinereus* and *Pycnopygius ixoides*, #48.

Drafted by Thane K. Pratt

AusRAG committee input from Andrew Black, Guy Dutson, Anna Kearns, and Leo Joseph

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This proposal is derived from these papers:

Andersen, M,J., J. M. McCullough, N. R. Friedman, A. T. Peterson, R. G. Moyle, L. Joseph, et al. 2019. Ultraconserved elements resolve genus-level relationships in a major Australasian bird radiation (Aves: Meliphagidae). Emu.119:218–32.

Hay, E. M., M. D. McGee, and S. L. Chown. 2022. Geographic range size and speciation in honeyeaters. BMC Ecology and Evolution **22**, 86, 14 pp.

Marki, P. Z., K. A. Jonsson, M Irestedt, J. M. T. Nguyen, C. Rahbek, and J. Fjeldsa. 2017. Supermatrix phylogeny and biogeography of the Australasian Meliphagides radiation (Aves: Passeriformes). Molecular Phylogenetics and Evolution 107: 516-529.

McCullough, J.M., L. Joseph, R. G. Moyle, and M. J. Andersen. 2019. Ultraconserved elements put the final nail in the coffin of traditional use of the genus *Meliphaga* (Aves: Meliphagidae). Zool. Scr.119:1–8.

Sangster, G., P. Z., Marki, J. Gaudin, M. Irestedt, and K. A. Jonsson. 2023. A new genus for *Pycnopygius cinereus*/*P. ixoides* (Aves: Meliphagidae). Zootaxa 5330 (1): 147–150. 4 pp. https://doi.org/10.11646/zootaxa.5330.1.10

Main points:

(1) *Pycnopygius cinereus* and *P. ixoides* have the following taxonomic history, resulting in their current placement in the genus *Pycnopygius*, which holds just 3 species:

> "*Pycnopygius cinereus* (Sclater, 1873) and *P. ixoides* (Salvadori, 1878) were originally described in the genus *Ptilotis* Swainson, 1837 (Sclater 1873; Salvadori 1878). In the first two decades of the 20th century, these species were grouped with several other honeyeaters in the genus *Ptilotis*, whereas *P. stictocephalus* Salvadori, 1876 was placed in the monotypic genus *Pycnopygius* Salvadori, 1880 (Dubois 1902, Ogilvie-Grant 1915). Subsequently, *Pycnopygius cinereus* and *P. ixoides* were included in *Pycnopygius* (Stresemann 1923; Mayr & Rand 1937; Mayr 1941). This is now universally followed (e.g. Salomonsen 1967; Wolters 1979; Sibley & Monroe 1990; Beehler & Pratt 2016; Clements et al. 2023; Gill et al. 2023)." (Sangster et al 2023:147)

(2) Phylogenetic studies have shown *Pycnopygius* to be polyphyletic, with sister species *cinereus* and *ixoides* placed in a clade quite separate from *stictocephalus*, the type species for the genus *Pycnopygius*:

"Recent phylogenetic studies have revealed the genus *Pycnopygius* (sensu Salomonsen 1967; Gill et al. 2023) to be a polyphyletic assemblage (Marki et al. 2017; Hay et al. 2022). The phylogeny of Marki et al. (2017) placed *P. cinereus* and *P. ixoides* sister to a clade formed by *Prosthemadera novaeseelandiae* J.F. Gmelin, 1788 and two species of *Anthornis* G.R. Gray, 1840 [i.e., *A. melanura* (Sparrman, 1786) and *A. melanocephala* (G.R. Gray, 1843)], with poor support. However, these four species, together with *Certhionyx variegatus* Lesson, 1830, formed a well-supported clade (PP 0.99). The divergence of the two species of *Pycnopygius* from *Prosthemadera* and *Anthornis* was dated at 14 million years before present (Marki et al. 2017). *P. stictocephalus* was placed very distantly from *P. cinereus* and *P. ixoides* and was resolved as the sister taxon of *Grantiella picta* (Gould, 1838) with full support (PP 1.0). The phylogeny of Hay et al. (2022) also showed *Pycnopygius* to be polyphyletic. In that study, *Pycnopygius cinereus* and *P. ixoides* were sister to *Certhionyx variegatus*, whereas *P. stictocephalus* again was sister to *G. picta*." (Ibid)

(3) The species c*inereus* and *ixoides* should be placed in a genus different from *Pycnopygius stictocephalus*:

"The polyphyly of *Pycnopygius* means that *P. cinereus* and *P. ixoides* should be placed in a different genus than *P. stictocephalus*. The type species of *Pycnopygius* is *P. stictocephalus*, so that species remains in *Pycnopygius*. *P. cinereus* and *P. ixoides* are not readily included in an existing genus. Due to differences in topology found by Marki et al. (2017) and Hay et al. (2022), the sister taxon of *P. cinereus* and *P. ixoides* remains uncertain. This, in combination with the deep divergence, uncertain support in Hay et al. (2022), and considerable morphological differences between *P. cinereus*/ *P. ixoides* and *C. variegatus* (Fig. 1), means that placement of *P. cinereus* and *P. ixoides* in the genus *Certhionyx* is contra-indicated. Similarly, placement of *P. cinereus* and *P. ixoides* with the morphologically and genetically distinctive *Prosthemadera* and *Anthornis* in a single genus is neither well-supported nor helpful (Fig. 1). We conclude that *P. cinereus* and *P. ixoides* are best placed in their own genus. Examination of the relevant literature did not identify any available genus-group name for *Pycnopygius cinereus* and *P. ixoides* (Dubois 1902; Sharpe 1909; Salomonsen 1967; Wolters 1979)." (Ibid: 147-148)

(4) That proposed new genus is *Pinarostola* Sangster et al., 2023.

"Type species: *Ptilotis cinerea* Sclater, 1873 (currently *Pycnopygius cinereus*).
Diagnosis: Medium-sized honeyeaters (18–22 cm). Both species differ from *Prosthemadera novaeseelandiae* in (i) smaller size (*P. novaeseelandiae* is 27–32 cm); (ii) crown dark olive-grey or blackish-brown, with grey or blackish brown streaking or scaling (crown appearing dark blue or green-violet in *P. novaeseelandiae*); (iii) ear-coverts, chin, throat and underparts grey or dusky brownish-grey (appearing dark blue or green-violet in *P. novaeseelandiae*); (iv) side of throat without a pair of white ball-like tufts (present in *P. novaeseelandiae*); (v) head, neck, wings, tail and underparts without iridescence (present in *P. novaeseelandiae*); (vi) neck feathers concolorous with upperparts (neck with white lacy collar extending to upper mantle and side of neck in *P. novaeseelandiae*); (vi) lower belly, thighs and vent grey or dusky brownish-grey (black-brown in *P. novaeseelandiae*); and (vii) lesser and median wing-coverts olive-brown or dark brown (white in *P. novaeseelandiae*)." (Ibid: 148)

(5) The Australasian RAG has reviewed the proposal with a quorum of 5 members supporting it and none opposing.

Leo Joseph expressed the following concerns, seconded by Anna Kearns: "If there is any critique that might be made, it is that almost all of the data that Sangster *et al*.

referred to in naming *Pinarostola* was multilocus data and phylogenetic analyses of it. Moreover, only one of the two papers they cited, Marki et al. 2017, sampled all three *Pycnopygius* species and presented original mtDNA data and an array of slow evolving often signal-poor nuclear intron loci from them. The other paper cited by Sangster et al. was Hay et al. 2022 who presented a synthesis and reanalysis Marki et al and the UCE data of Andersen et al. 2019 and McCullough et al. 2019. Of the latter two, only Andersen et al had UCE data from just one species of *Pycnopygius*, *P. cinereus*. Placement of *cinereus* in Andersen et al. 2019 close to *Certhionyx*, *Prosthemadera* and *Anthornis* was entirely consistent with Marki et al. 2017 and citing that paper they too stated that *Pycnopygius* would likely have to be split.

So, there are perhaps two concerns here: (1) as in any case like this that mtDNA may swamp the signal of the intron loci in multilocus data and that one is essentially therefore looking at an mtDNA tree with all its strengths and weaknesses, and (2) only Marki et al. 2017 presented original data on all three *Pycnopygius* species.

With all that said, I am prepared to say that there are no other red flags in the tree of Marki et al. to say that we have all been misled by mtDNA. I agree that all roads lead to polyphyly of *Pycnopygius* and that *Pinarostola* is solid. So I support the case."

Recommendation:

(a) *Pyncnopygius cinerea* and *P. ixoides* are now *Pinarostola cinerea* (Sclater, 1873) and *Pinarostola ixoides* (Salvadori, 1878), respectively. Their position in the AviList sequence remains the same.

(b) The genus *Pyncnopygius* now contains only the one species, *P. stictocephalus*, and it should be moved in the AviList sequence to be placed following its closest relative, *Grantiella picta*.

Five AusRAG committee members reviewed this proposal and support this recommendation.