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A new subfamily taxon for *Sasia* and *Verreauxia* (Picidae)

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Summary.—A review of eight molecular phylogenetic studies supports the distinctiveness of the genera *Sasia*/*Verreauxia* from *Picumnus* and casts doubt on the monophyly of Picumninae. We propose to restrict Picumninae to *Picumnus* and to place *Sasia* and *Verreauxia* in a new subfamily, Sasiinae.

The piculets have long been classified as four genera: *Sasia* Hodgson, 1837; *Verreauxia* Hartlaub, 1857; *Picumnus* Temminck, 1825 (including *Vivia* Hodgson, 1837); and *Nesoctites* Hargitt, 1890. They have typically been grouped in the subfamily Picumninae (e.g. Peters 1948, Winkler *et al*. 1995, Dickinson 2003), although most authors have removed *Nesoctites* from this subfamily and placed it either in Picinae (Dickinson & Remsen 2013) or in its own subfamily, Nesoctitinae (Wolters 1976, Benz *et al*. 2006, Gaudin 2022). In contrast, *Sasia*, *Verreauxia* and *Picumnus* have always been placed in Picumninae (e.g. Peters 1948, Wolters 1976, Winkler *et al*. 1995, Dickinson 2003, Dickinson & Remsen 2013).

In the first multilocus molecular phylogenetic study by Fuchs *et al*. (2006) *Sasia* and *Verreauxia* formed a separate clade from *Picumnus* and these two groups represented an unresolved trichotomy with Picinae. *Nesoctites* was not included in this analysis. Benz *et al*. (2006) found *Sasia* and *Verreauxia* sister to *Picumnus*, albeit with no support, but the two groups were separated by a deep divergence exceeding that found between Nesoctitinae and Picinae. In another multilocus phylogeny (Fuchs *et al*. 2007), *Sasia* and *Verreauxia* were not sister to *Picumnus*; instead, *Picumnus* was more closely related to Picinae than to *Sasia* and *Verreauxia*. In another study (Fuchs *et al*. 2013), phylogenies based on mitochondrial DNA, nine autosomal and three Z-linked loci did not place *Sasia* and *Picumnus* as sister taxa; rather, analyses of mitochondrial DNA and the Z-linked loci placed *Sasia* closer to Picinae than to *Picumnus*, whereas the autosomal loci placed *Picumnus* closer to Picinae than to *Sasia*. A further study based on mitochondrial DNA sequences placed *Sasia* closer to Picinae than to *Picumnus* (Winkler *et al*. 2014). A sixth multilocus study placed *Sasia* and *Verreauxia* sister to *Picumnus*, but again separated by a deep divergence (Dufort 2016). More recently, a multilocus study by Shakya *et al*. (2017) placed *Sasia* and *Verreauxia* closer to Picinae than to *Picumnus*. Analyses of the two mitochondrial rRNA and 13 protein-coding genes again recovered a deep split between *Sasia*/*Verreauxia* and *Picumnus* but failed to unambiguously resolve the relationships between these taxa and *Nesoctites*/Picinae (JF *et al*. unpubl. data). All phylogenetic studies that included *Nesoctites* placed it as the sister of (other) Picinae, consistent with its removal from Picumninae.

The phylogenetic evidence clearly supports the distinctiveness of *Sasia*/*Verreauxia* from *Picumnus*. Importantly, it is unclear if Picumninae (excluding *Nesoctites*) is a monophyletic group. This suggests that the piculets (excluding *Nesoctites*) may be best treated as two separate taxonomic groups: Picumninae is restricted to *Picumnus* (and *Vivia*, if that genus is recognised for *P. innominatus*, e.g. Gaudin 2022); and another taxon is recognised for *Sasia* and *Verreauxia*. 'Sasiinae' was recently used as a group name for the latter two taxa but this represents a *nomen nudum*, as was indicated by the author by his use of square brackets (Gaudin 2022). A Google search (24 September 2022) showed that the name 'Sasiidae' is

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sometimes used in online publications for a group of moths but this is clearly a misspelling of the name Sesiidae Boisduval, 1828 (Lepidoptera). As it appears that no family-group name is available for *Sasia* and *Verreauxia* (Bock 1994), and that the names 'Sasiidae' and 'Sasiinae' have not been made available for any other taxonomic group in zoological nomenclature, we propose:

Sasiinae, new subfamily

Type genus.—*Sasia* Hodgson, 1837

Diagnosis.—Very small woodpeckers (body size 8–10 cm). All three species differ from *Picumnus* and *Nesoctites* by the distinctly shorter tail, red legs, presence of a bare area around the eye, and lack of stripes, bars or spots on the crown and underparts. In addition, the three species differ from *Picumnus* by the absence of white tail stripes.

Included taxa.—*Sasia abnormis* (Temminck, 1825), *Sasia ochracea* Hodgson, 1837, and *Verreauxia africana* (Verreaux & Verreaux, 1855).

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