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Revised concept of the genus *Euryporus* Erichson (Coleoptera, Staphylinidae, Staphylininae) and phylogenetic significance of Staphylinini from New Guinea

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**Abstract**

The Staphylinini rove beetle genus *Euryporus* Erichson from the subtribe Quediina is restricted to include only three species from the Western Palearctic region: *E. picipes* (Paykull, 1800), *E. aeneiventris* (Lucas, 1846), and *E. princeps* Wollaston, 1864. *Euryporus argenatus* Fauvel, 1881, *E. warisensis* Last, 1987 and *E. multicavus* Last, 1980, which do not even belong to the subtribe Quediina, are excluded from the genus. Of these, two were transferred to different genera: *Tympanophorus argenatus* (Fauvel, 1881), *comb. nov.*, from Sumatra; and *Hesperus warisensis* (Last, 1987), *comb. nov.*, from New Guinea. “*Euryporus* multica - vus” could not be placed to any of the described genera of Staphylinini and is left as incertae sedis pending a broader study of the relevant fauna of this tribe in New Guinea and adjacent regions. The taxonomic history of *Euryporus* is reviewed, and an updated diagnosis of this genus is provided.

**Keywords**

*Euryporus, Tympanophorus, Hesperus*, Quediina, Anisolinina, Philonthina, Staphylinini, New Guinea

**Introduction**

An abundance of large and polyphyletic, poorly defined genera is a drawback of the current classification of the hyper-diverse rove beetle tribe Staphylinini (e.g., “*Quedius*-complex” discussed in Solodovnikov 2006). By including numerous unrelated species...
together, such “genera” inhibit species discovery and taxonomic revisions, and they introduce “noise” in any evolutionary study of rove beetles. However, a number of monobasic or species-poor genera of Staphylinini suffer from the flawed definition too.

One such small genus that nevertheless turned out to be a taxonomic “waste basket” is *Euryporus* Erichson, 1839 from the subtribe Quediina. Prior to this paper *Euryporus* comprised three well-known species from the Western Palearctic region (*E. picipes* (Paykull, 1800) (Fig. 1), *E. aeneiventris* (Lucas, 1846), and *E. princeps* Wollaston, 1864), and three poorly known “exotic” species: *Euryporus argentatus* Fauvel, 1881 from Sumatra (Fig. 2), as well as *E. warisensis* Last, 1987 (Figs 3–7) and *E. multicavus* Last, 1980 (Figs 8–11) from New Guinea. Poor descriptions of these “exotic” species coupled with the unusual disjunct distribution of the genus cast strong doubts on the monophyly of *Euryporus* and triggered this study.

Examination of the relevant types made the misplacement of all three “exotic” species in *Euryporus* immediately obvious. But while the correct identity of *E. argentatus* and *E. warisensis* as members of the genera *Tympanophorus* Nordmann, 1837 and *Hesperus* Fauvel, 1874, respectively, also became clear, proper classification of *E. multicavus* faced a problem of poor generic limits in the subtribes Philonthina and Anisololina, and even a problem of blurred limit between these subtribes (Schillhammer 2004). In such circumstances, a broader phylogenetic analysis embracing relevant lineages from these and related subtribes of Staphylinini would be required. For the poorly known fauna of New Guinea and adjacent regions such analysis was impossible without prior extensive taxonomic study of many species, which was far beyond the scope and goals of this paper. Therefore, *E. multicavus* is explicitly removed from *Euryporus* but left as *incertae sedis* within Staphylinini pending further study.

**Material and methods**

The paper is based on the material from the following institutions:

- **BPBM** Bernice P. Bishop Museum, Honolulu (S. Myers)
- **HNHM** Hungarian Natural History Museum, Budapest (G. Makranczy)
- **MMUE** Manchester Museum, the University of Manchester (D. Logunov)
- **NCBN** Netherlands Centre for Biodiversity Naturalis, the Netherlands (M.E. Gassó Miracle and A. van Assen)

Labels of the examined types are quoted verbatim; data from each label are separated by a slash [/].

Photos in Figs 3 and 8 were taken by the author with an MP-E 65 mm lens for Canon EOS 40D; those in Figs 2, 4–7, and 9–11 were taken by Ken Puliafico (Copenhagen) with a Leica DFC 420 camera attached to a Leica MZ16A microscope with the aid of Leica Application Suite (Leica Microsystems, 2003-2007) and Automontage.
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Correspondence of the locality names from old collection labels to modern toponyms was checked with the on-line resource (http://isodp.hof-university.de/fuzzyg/query/).

Genus *Euryporus* Erichson, 1839
http://species-id.net/wiki/Euryporus

**Type species.** *Oxyporus picipes* Paykull, 1800 (fig. 1).

**Taxonomic history.** The rove beetle genus *Euryporus* Erichson, 1839 was described by Nordmann (1837) as *Pelecyphorus* to include one European species *E. picipes* (Paykull, 1800) (Fig. 1). Since *Pelecyphorus* Nordmann, 1837 (nec *Pelecyphorus* Dejean, 1834) was a preoccupied name, Erichson (1839) replaced it with *Euryporus* and described the second species in the genus, *E. puncticollis* from North America (Erichson 1840). Soon, *E. aeneiventris* Lucas, 1846 and *E. princeps* Wollaston, 1864, both from the West Palearctic region were added (Lucas 1846; Wollaston 1864). Later Fauvel (1881, 1884) described *E. argentatus* Fauvel, 1881 and *E. flavipes* Fauvel, 1884, both from Sumatra. On the contrary, two species were removed from the genus: Sharp (1884) transferred Erichson’s *E. puncticollis* to the genus *Tympanophorus* Nordmann, 1837, while Fauvel (1895) erected a new genus *Pammegus* (now with twelve species, in the subtribe Anisolinina) for his own species *E. flavipes*. Finally, Last (1980, 1987) described two more species in *Euryporus*: *E. multicavus* Last, 1980 and *E. warisensis* Last, 1987, both from Papua New Guinea.

As a result, the genus *Euryporus* included six species before this study (e.g., Herman 2001). Of them the type species *E. picipes* and two other West Palearctic species, *E. aeneiventris*, and *E. princeps*, are very similar to each other and rather well-known (e.g., Coiffait 1978, Assing and Schülke 2012). Examination of the type material for the “exotic” *E. argentatus*, *E. multicavus* and *E. warisensis* led to their exclusion from *Euryporus* as explained below.

**Updated diagnosis, composition and phylogenetic relationships.** Without the excluded taxa (see below), *Euryporus* comprises three species very similar to each other: *E. picipes* (Paykull, 1800) widely distributed in Europe (Fig. 1); the West Mediterranean *E. aeneiventris* Lucas, 1846; and *E. princeps* Wollaston, 1864, endemic to the Canary Islands. Male genitalia of all species were illustrated in Coiffait (1978).

Among other genera of the subtribe Quediina, *Euryporus* can be distinguished by the following combination of characters: fully developed infraorbital ridges; mandibles elongate with broad basal part but narrow and sharp apical portion; last segment of maxillary palps fusiform, slightly setose; last segment of labial palps enlarged, apically obliquely truncated, densely setose; first antennal segment elongate, as long as second and third antennal segments together; anterior tarsi narrow, not enlarged in both sexes; apical margin of abdominal sternite VIII in both sexes concave, in male without median incision. Other recent descriptions and synopses of the genus can be found in Coiffait (1978) and Assing and Schülke (2012).
Figure 1. *Euryporus picipes*, habitus.

For phylogenetic purposes adult (Solodovnikov 2006; Solodovnikov and Schomann 2009) and larval (Pietrykowska-Tudruj et al. 2011) morphology of *E. picipes* was scored in those character matrixes. The adult-based analysis (Solodovnikov and Schomann 2009) placed *Euryporus* in the subtribe Quediina (in the restricted sense of Chatzimanolis et al. 2010). Within Quediina, it may be related to the lineage formed by the genera *Anaque- dius* Casey, 1915, *Hemiquedius* Casey, 1915, *Anchocerus* Fauvel, 1905, *Australotarsius* Solodovnikov et Newton, 2009, and *Acylophorus* Nordmann, 1837 (Solodovnikov and Schomann 2009; but see additional remarks about alternative hypotheses in Solodovnikov and Newton 2009). Although *Euryporus* was not included in the molecular study of
Chatzimanolis et al. (2010) because of unavailable DNA-quality material, the above mentioned lineage was recovered as monophyletic in the Bayesian analysis of that study. The larvae-based analysis (Pietrykowska-Tudruj et al. 2012) was inconclusive as far as sister relationships of Euryporus is concerned.

Species excluded from Euryporus

_Tympanophorus argentatus_ (Fauvel, 1881), comb. n.

http://species-id.net/wiki/Tympanophorus_argentatus

Figure 2


_Comments._ In the original description of _Euryporus argentatus_, Fauvel (1881) clearly mentioned a single type specimen from “Moeara Laboe” [= Moeeralaboeh, now Propinsi Jambi, Indonesia, 1°29’0”S, 101°3’0”E]. Based on the habitus (Fig. 2) and other diagnostic characters, the holotype and other specimens of _Euryporus argentatus_ from the collection of NCBN are conspecific and can be clearly identified as a species of the genus _Tympanophorus_ Nordmann, 1837. With the possible exception of _T. schenklingi_ Bernhauer, 1912 from the Afrotropical region, _Tympanophorus_ (e.g., illustrated redescription in Naomi 1983) is monophyletic (Schillhammer 2004).

It is noteworthy that long after the description of _E. argentatus_, Fauvel (1902) did recognize the correct affiliation of that species. In a short note on page 42 he mentioned “_Tympanophorusargentatus_ Fvl. (rugosus Waterh.),” apparently meaning a synonymy of his species with _T. rugosus_ (C. Waterhouse, 1884). This so vaguely annotated transfer of _E. argentatus_ to _Tympanophorus_ was overlooked by later authors. For example Herman (2001) lists both _Euryporus argentatus_ Fauvel, 1881 as a valid species and “_Tympanophorus argentatus_ Fauvel”, erroneously, as *nomen nudum*. Synonymy of _Tympanophorus argentatus_ (Fauvel, 1881) and _T. rugosus_ (C. Waterhouse, 1884) remains to be verified.

_Hesperus warisensis_ (Last, 1987), comb. n.

http://species-id.net/wiki/Hesperus_warisensis

Figures 3–7

_Type material examined._ **Papua New Guinea:** Holotype, female, “Holotype [red circular label]/ New Guinea Neth. Waris, S. of Hollandia, 450–500 m, VIII-16-23-1959/ T.C. Maa collector Bishop/ _Euryporus warisensis_ sp. n. H.R. Last det., Holotype [H.R. Last’s label]/ _Hesperus warisensis_ (Last) A. Solodovnikov det. 2012” (BPBM).
Although *E. warisensis* is strikingly different from the Palearctic *Euryporus* (cf. Figs 1 and 3), Last (1987) did not provide any justification for his generic placement. Based on the structure of head sutures (rudimentary infraorbital ridges, Fig. 5; present dorsal basal ridge on the neck), prothorax (laterally visible hypomera; superior marginal line turning downwards before anterior angles of pronotum, Fig. 6); anterior angles of pronotum not strongly protruding over anterior margin of prothorax), legs (lacking empodial setae) and other characters, *E. warisensis* is clearly not congeneric with *Euryporus* and in fact belongs to the subtribe Philonthina.

Because of its rather elongate mandibles and maxillary palps (Fig. 5), as well as habitus resemblance, *E. warisensis* could be associated with some species of *Hesperus* from New Guinea like *H. raynori* Last, 1987 and others. As pointed out in Schil-
Figures 3–7. *Hesperus warisensis*, holotype: 3 habitus 4 body in ventral view 5 head in ventral view 6 right side of pronotum in lateral view 7 left side of pronotum in lateral view. Blue arrow shows “fake” superior line of pronotum.
lhammer (2002) about *Hesperus* [“…this genus is a dumping ground for species matching a particular set of characters which can hardly suffice to justify a monogenic treatment”], and demonstrated in the phylogenetic analysis (Li and Zhou 2011), this genus is not a monophyletic group and needs a revision. In such circumstances placement of *E. warisensis* in *Hesperus* is a practical solution pending further study. As far as I am aware (and personal communication of H. Schillhammer), the enlarged apical labial palpomeres of *E. warisensis* easily distinguish this species from any other known species of *Hesperus*.

It is noteworthy that on the left side of the pronotum (Fig. 7) the holotype of *Hesperus warisensis* displays a “fake” superior line extended towards anterior angles of pronotum, while the right side has no such structure (Fig. 6). Presumably, the left side of the pronotum in the holotype displays a slight teratology.

**Euryporus multicavus** Last, 1980, non *Euryporus*, Staphylinini incertae sedis

http://species-id.net/wiki/Euryporus_multicavus

Figures 8–11


**Comments.** As in the above described case, *Euryporus multicavus* is strikingly different from the Palearctic *Euryporus* in habitus (cf. Figs 1 and 8), but Last (1980) did not explain why his species was assigned to that genus. Based on the structure of head (rudimentary infraorbital ridges (Fig. 11); present dorsal basal ridge on the neck), prothorax (superior marginal line inflected inwards under anterior angles of pronotum; pronotal hypomera visible from lateral view; anterior angles of pronotum not strongly protruding over anterior margin of prothorax), legs (lacking empodial setae) and other characters, it is clear that *E. multicavus* is not congeneric with *Euryporus* and even does not belong to the subtribe Quediina. On the other hand, the combination of characters of that species does not allow its unambiguous placement in any of the currently recognized subtribes of Staphylinini.

Because of the short and stout labial palps with dilated last segment, shape of the mandibles (Fig. 11), strongly foveate surface of the apical abdominal segments, and the overall habitus (Fig. 8) remotely resembling *Tympanophorus*, I assume that “*Euryporus*” *multicavus* is phylogenetically close to the *Tympanophorus*-lineage of the subtribe Anisolinina (as defined in Schillhammer 2004). But the absence of the elevated ridge on the mesosternum, absence of empodial setae, sexually dimorphic sternite VII (with slight medio-apical incision in male) and strongly reduced para-
Figures 8–11. "Euryporus" multicavus, paratype: 8 habitus 9 body in ventral view 10 aedeagus in paraperal view 11 head in ventral view.
mere of the aedeagus (Fig. 10), cast doubts on such affinity. At least the absence of empodial setae and extremely reduced paramere of the aedeagus are shared by “Eu-
ryporus” multicavus with several species from New Guinea described in the genera Philonthus and Hesperus. But, except Hesperus warisensis moved to that genus here, none of those species have robust and dilated labial palpi, and all of them differ from “Euryporus” multicavus in other details. It is possible that “Euryporus” multicavus represents a new genus whose description must be postponed until a more inclusive phylogenetic study of relevant lineages is performed. Such study should be based not only on an extensive taxonomic revision of the hitherto poorly described relevant species but also include additional material from the collections of Staphylinini from New Guinea and adjacent regions, which I am aware of and which have remained largely untouched by modern workers.

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I am greatly obliged to the above mentioned institutional curators who provided the material under their care for this study. Productive discussions with Adam Brunke (Copenhagen) about characters and systematics of the problematic “Euryporus” and other Staphylinini helped to refine some thoughts for this paper. Special thanks are due to Harald Schillhammer (Vienna) for providing the excellent photo of Euryporus bicapes, and, especially, for his helpful comments on an earlier version of the paper that sharpened the discussion about the affinities of Euryporus warisensis (Last) and E. multicavus Last. Finally, I am very thankful to Ken Puliafico (Copenhagen) for taking digital photos for the most of the illustrations.

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