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BRIEF COMMUNICATION

Notes on family-group names for bees (Hymenoptera: Apoidea)

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Abstract. Corrected authorships and dates are provided for four family-group names for bees based on previously unrecognized earlier usages that made them nomenclatorially available. Sagemehl is newly recognized as the author of family-group names based on *Dasyopoda* Latreille (Melittidae: Dasyopodinae), *Macropis* Panzer (Melittidae: Macropidinae), and *Hylaeus* Fabricius (Colletidae: Hylaeinae), and Kawall as the author the family-group name based on *Melitta* Kirby, thereby taking precedence over the subsequent use of similar names by Börner, Robertson, Viereck, and Schenck, respectively. In addition, descriptions are provided for three new family-group taxa; **Dieunomiini** Engel, new tribe (Halictidae: Nomiinae), **Eremaphantina** Engel, new subtribe (Melittidae: Hesperapini), and **Tarsaliini** Engel, new tribe (Apidae: Apinae); and one new genus-group taxon, *Eremaphantella* Engel, new subgenus.

INTRODUCTION

Family-group names for bees have been reviewed by Michener (1986) and Engel (2005), and various emendations have appeared over the intervening years as has been necessary (e.g., Alexander *et al.*, 1998; Michener, 1999; Engel *et al.*, 2008; Engel & Bouchard, 2009). Recently, during a review of 19th Century literature on bees, four instances were noted of prior usage for particularly well-established names that predated traditionally held notions of their first establishment. In a brief paper on the bees occurring in Estonia, Livonia, and Courland (today western Latvia), then governorates of the Russian Empire, Sagemehl (1882) used as family-group names “Dasypodidae”

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(to include *Dasygoda* Latreille, *Panurgus* Panzer, and *Rophites* Spinola), “Macropidae” (to include *Macropis* Panzer), and “Hylaeidae” (to include *Hylaeus* Fabricius). Since 1931 all family-group names, like other taxa, require a description that differentiates the taxon from others (ICZN, 1999a: Art. 13.1). However, prior to 1931 such names could be made available by indication (ICZN, 1999: Art. 12.1, 12.2) and through formation from an available generic name (ICZN, 1999a: Art. 12.2.4). Given that *Dasygoda*, *Macropis*, and *Hylaeus* are all three available generic names (and were similarly so in 1882), Sagemehl’s account constitutes formal establishment of these suprageneric groups, thereby predating the usages based on these same genera by Börner (1919), Robertson (1904), and Viereck (1916), respectively. Interestingly, also in an early work cataloging the bees of the same region, Kawall (1857) similarly established a family “Melittidae”, predating the usage of Schenck (1860). Kawall’s familial name is clearly based on the available generic name *Melitta* Kirby, although he did not include the genus therein (Kawall, 1857). Fortunately, none of these changes in date alter the application of the names to the groups of bees as we conceive them today and these corrections merely further root the priority held by each over their respective synonyms and those junior names included within each clade.

The format for the revised entries furnished here is based on that used by Engel (2005), and therefore are not meant to represent complete synonymic summations. In the numerical list of family-group names provided by Engel (2005), #27 would become the Melittidae of Kawall (1857), then followed by all of those names through #32, and then by the Dasypodidae, Macropidae, and Hylaeidae of Sagemehl (1882) before proceeding onward through the list (with the obvious removal of the similar usages of these names by Schenck, Börner, Robertson, and Viereck at their appropriate locations). In addition to presenting these corrections as to authors and dates, the opportunity is taken to validate three further family-group names (one among the Melittidae, one in Halictidae, and the last within Apidae), and so that they are available for use in forthcoming faunal treatments. Descriptive terminology in those sections is based on Engel (2001) and Michener (2007).

SYSTEMATICS

Family Colletidae Lepeletier de Saint Fargeau Subfamily Hylaeinae Sagemehl

Hylaeidae Sagemehl, 1882: 463. Type genus: *Hylaeus* Fabricius, 1793. Combining stem: Hylae–.

COMMENT: As noted by Michener (1999) and Engel (2005), the name *Prosopiarie* Fallén, 1813 has priority over Hylaeidae, however, the family-group name based on *Hylaeus* has been conserved over that based on *Prosopis* Fabricius (ICZN, 1993).

Family Melittidae Kawall

Melittidae Kawall, 1857: 77. Type genus: *Melitta* Kirby, 1802. Combining stem: Melitt–.

Subfamily Macropidinae Sagemehl

Macropidae Sagemehl, 1882: 463, *nomen imperfectum* [recte Macropididae]. Type genus: *Macropis* Panzer, 1809. Combining stem: Macropid–.

Subfamily Dasypodainae Sagemehl

Dasypodidae Sagemehl, 1882: 462 [Dasypodidae, *nomen emendatum* (ICZN, 1999b)]. Type genus: *Dasypoda* Latreille, 1802. Combining stem: Dasypoda-, by ICZN (1999b).

COMMENT: As noted by Engel (2005), the stem of the family-group name based on *Dasypoda* was altered from Dasypod- to Dasypoda- by ICZN (1999b). This was done to remove a case of homonymy (Alexander *et al.*, 1998).

Tribe Hesperapini Ascher & Engel
Eremaphantina Engel, new subtribe

ZooBank: urn:lsid:zoobank.org:act:E983673C-524A-4EDC-AC8F-DD03451D80F9

TYPE GENUS: *Eremaphanta* Popov, 1940.

DIAGNOSIS: Small bees (4–7 mm in length), often with yellow maculation, at least on face and/or legs; maxillary stipes with distinct, large, apical concavity on ventral/posterior margin (stipital concavity); galeal comb present anterior to maxillary palpus, galeal fringe present; metabasitibial plate present; inner surface of female metatibia with mediolongitudinal keirotrichiate zone; forewing with basal vein arched; two submarginal cells (*i.e.*, 1rs-m absent, *sensu* Engel, 2001); pterostigma transparent, about as long as or slightly longer than costal margin of marginal cell; propodeal profile with basal area horizontal, basal area about as long as vertical surface; prepygidial fimbria of female absent; pygidial fimbria of female absent; pygidial plate of female present; pygidial plate of male absent; male gonostylus simple, not enlarged.

INCLUDED GENERA: The subtribe presently includes only the type genus, *Eremaphanta* Popov, with three subgenera: *Eremaphanta s.str.*, *Popovapis* Michener, and *Eremaphantella* n. subgen. (*vide* Appendix). It could be argued that these groups are best recognized as individual genera, but such a change is not advocated here.

COMMENTS: The recognition of the present group serves to emphasize the rather disparate morphological and biogeographic distinction between the included species and those of nominate subtribe, of the genera *Hesperapis* Cockerell and *Capicola* Friese. While features such as the genitalia, galeal comb, rather flattened metasoma, and metatibial keirotrichiate band are indicative of hesperapine monophyly (Engel, 2005; Michez & Patiny, 2006), the two subtribes exhibit apparently relic distributions across different zoogeographic regions (Palearctic/Oriental versus Nearctic/Afrotropical). The eremaphantines are the only Hesperapini occurring in xeric areas of Central Asia southwest to Iran and the eastern Arabian Peninsula and southeast to Pakistan (overlapping with the tribe Dasypodaini), while the remaining lineages of the tribe are restricted to North America, South Africa, and Namibia.

Family Halictidae Thomson
 Subfamily Nomiinae Robertson
Dieunomiini Engel, new tribe

ZooBank: urn:lsid:zoobank.org:act:36893EC0-3899-4245-9D30-3AB083C4DEB3

TYPE GENUS: *Dieunomia* Cockerell, 1899.

DIAGNOSIS: Robust bees of moderate to large size (7–23 mm in length); head capsule deep, gena and vertex broad, curving gradually to occipital surface; pronotum without transverse carina; metabasitibial plate of female with distinct marginal carinae,

rounded apically; metasomal tergum I with mediolongitudinal depression reaching angle of anterior- and dorsal-facing surfaces, summit of depression broadly V-shaped and slightly elevated above dorsal-facing surface; metasomal terga II–IV apically with marginal setal bands, marginal areas not opaquely colored in contrast to tergal discs; metasomal sterna II–V of female with dense scopa, scopal setae extend dorsolaterally onto lateral margins of corresponding metasomal terga.

INCLUDED GENERA: *Dieunomia* Cockerell and *Epinomia* Ashmead, both found exclusively in North America.

COMMENTS: The recognition of the current tribe serves to emphasize the putatively sister relationship of these bees to other Nomiinae, their status as the only exclusively North American lineage of the subfamily, and their distinctive morphological features (outlined above).

Family Apidae Latreille
Subfamily Apinae Latreille
Tarsaliini Engel, new tribe

ZooBank: urn:lsid:zoobank.org:act:7E511B3C-6119-4A89-823B-636F574CBA7B

TYPE GENUS: *Tarsalia* Morawitz, 1895.

DIAGNOSIS: Bees of moderate size (7–13 mm in length); clypeus often yellow, weakly to moderately protuberant in profile, strongly bent back at side of labrum; lower face often with yellow maculation; labiomaxillary complex with glossa and labial palpus longer than prementum; first two palpomeres of labial palpus long, sheathlike (in contrast to the shortened condition of Ancyloini); male antennal flagellum not crenulate. Forewing with pterostigma small, as long as wide, scarcely wider than prestigma; pterostigmal margin inside marginal cell weakly or not convex; marginal cell apex not truncate, bent away from anterior wing margin; three submarginal cells present; hind wing with second abscissa of M+Cu half as long as vein M or less [several *Ancyla* Lepelletier de Saint Fargeau have this vein slightly more than half as long as vein M, *contra* Michener's (2007) key to tribes of Apinae]. Metatibial and metabasitibial scopa large, dense, composed of long, plumose setae; basal area of propodeum with subhorizontal area [particularly well developed in *Tarsalia persica* (Warncke)], subhorizontal area punctate and setose (area poorly developed, impunctate, and asetose in Ancyloini). Metasomal tergum I with weak carina at angle of anterior-facing and dorsal-facing surfaces; female sterna II–V with scopa composed of dense setae; male tergum VII setose, medially produced and truncate to weakly bidentate, pygidial plate occupying most of dorsum of tergum, laterally defined by carina; male sternum VII and genitalia asymmetrical.

INCLUDED GENERA: Presently only the nominate genus is included.

COMMENTS: The genus *Tarsalia* has long been grouped with *Ancyla* in the tribe Ancyloini (e.g., Michener, 1944, 2007; Engel *et al.*, 2008). However, the monophyly of this grouping is suspect (Baker, 1998; Praz & Packer, 2014), and it seems apparent that *Tarsalia* is more closely related to Eucerini than to *Ancyla*.

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REFERENCES

- Alexander, B.A., C.D. Michener, & A.L. Gardner. 1998. Dasypodidae Börner, 1919 (Insecta, Hymenoptera): Proposed emendation of spelling to Dasypodaidae, so removing the homonymy with Dasypodidae Gray, 1821 (Mammalia, Xenarthra). *Bulletin of Zoological Nomenclature* 55(1): 24–28.
- Baker, D.B. 1998. Taxonomic and phylogenetic problems in Old World eucerine bees, with special reference to the genus *Tarsalia* Morawitz, 1895 (Hymenoptera: Apoidea: Anthophoridae). *Journal of Natural History* 32(6): 823–860.
- Börner, C. 1919. Stammesgeschichte der Hautflügler. *Biologisches Zentralblatt* 39(4): 145–186.
- Cockerell, T.D.A. 1899. Notes on the nomenclature of some Hymenoptera. *Entomologist* 32(428): 14.
- Dathe, H.H. 2009. Order Hymenoptera, superfamily Apoidea: Families Colletidae, Andrenidae, Halictidae, Melittidae, Megachilidae and Apidae. *Arthropod Fauna of the UAE* 2: 335–432.
- Engel, M.S. 2001. A monograph of the Baltic amber bees and evolution of the Apoidea (Hymenoptera). *Bulletin of the American Museum of Natural History* 259: 1–192.
- Engel, M.S. 2005. Family-group names for bees (Hymenoptera: Apoidea). *American Museum Novitates* 3476: 1–33.
- Engel, M.S., & P. Bouchard. 2009. Nomiidae Gozis, 1875 (Insecta, Coleoptera): Proposed emendation of spelling to Nomiusidae to remove homonymy with Nomiinae Robertson, 1904 (Insecta, Hymenoptera). *Bulletin of Zoological Nomenclature* 66(1): 30–33.
- Engel, M.S., J.S. Ascher, & D.A. Yanega. 2008. Ancylini Michener, 1944 (Insecta, Hymenoptera): Proposed emendation of spelling to Ancylaini, to remove homonymy with Ancylini Rafinesque, 1815 (Mollusca, Gastropoda). *Bulletin of Zoological Nomenclature* 65(3): 198–201.
- Fabricius, J.C. 1793. *Entomologia Systematica emendata et aucta: Secundum classes, ordines, genera, species adjectis synonymis, locis, observationibus, descriptionibus* [Volume 2]. Proft; Hafniae [Copenhagen], Denmark; viii+519 pp.
- Fallén, C.F. 1813. *Specimen Novam Hymenoptera disponendi methodum exhibens*. Berling; Lund, Sweden; 42 pp., +1 pl.
- ICZN [International Commission on Zoological Nomenclature]. 1993. Opinion 1713. Some bee family-group names (Insecta, Hymenoptera: Names based on *Colletes* Latreille, 1802, on *Paracolletes* Smith, 1853, on *Halictus* Latreille, 1804, on *Anthidium* Fabricius, 1804 and on *Anthophora* Latreille, 1803 given precedence over some senior names. *Bulletin of Zoological Nomenclature* 50(1): 85–89.
- ICZN [International Commission on Zoological Nomenclature]. 1999a. *International Code of Zoological Nomenclature* [4th Edition]. International Trust for Zoological Nomenclature; London, UK; xxix+306 pp.
- ICZN [International Commission on Zoological Nomenclature]. 1999b. Opinion 1926. Dasypodidae Börner, 1919 (Insecta, Hymenoptera): Spelling emended to Dasypodaidae, so removing the homonymy Dasypodidae Gray, 1821 (Mammalia, Xenarthra). *Bulletin of Zoological Nomenclature* 56(2): 156–157.
- Kawall, H. 1857. Bienen in Kurland, mit Berücksichtigung von Livland. *Correspondenzblatt des Naturforschenden Vereins zu Riga* 9(6): 73–80.
- Kirby, W. 1802. *Monographia Apum Angliæ; or, an attempt to divide into their natural genera and families, such species of the Linnean genus *Apis* as have been discovered in England: with descriptions and observations*. White; Ipswich, UK; xxii+258 pp. [Volume 1], pls. 1–14; [i]+388 pp., pls. 15–18 [Volume 2].
- Latreille, P.A. 1802. *Histoire naturelle des fourmis, et recueil de memoires et d'observations sur les abeilles, les araignées, les faucheurs, et autres insectes*. Crapelet; Paris, France; xvi+445 pp.
- Michener, C.D. 1944. Comparative external morphology, phylogeny, and a classification of the bees (Hymenoptera). *Bulletin of the American Museum of Natural History* 82(6): 151–326.
- Michener, C.D. 1986. Family-group names among bees. *Journal of the Kansas Entomological Society* 59(2): 219–234.

- Michener, C.D. 1999. Genus-group names of bees and supplemental family-group names. *Scientific Papers, Natural History Museum, University of Kansas* 1: 1–81.
- Michener, C.D. 2007. *The Bees of the World* [2nd Edition]. Johns Hopkins University Press; Baltimore, MD; xvi+[i]+953 pp., +20 pls.
- Michez, D., & S. Patiny. 2006. Review of the bee genus *Eremaphanta* Popov 1940 (Hymenoptera: Melittidae), with the description of a new species. *Zootaxa* 1148: 47–68.
- Morawitz, F.F. 1895. Beitrag zur Bienenfauna Turkmeniens. *Horae Societatis Entomologicae Rossicae* 29: 1–76.
- Panzer, G.W.F. 1809. *Fauna Insectorum Germanicae initia, oder Deutschlands Insecten* [Heft 107]. Felssecker; Nürnberg, Germany.
- Popov, V.V. 1940. A new genus of bees from Turkestan (Hymenoptera, Panurgidae). *Trudy Zoologicheskova Instituta, Akademii Nauk SSSR* 6: 53–60. [In Russian, with English sections]
- Praz, C.J., & L. Packer. 2014. Phylogenetic position of the bee genera *Ancyla* and *Tarsalia* (Hymenoptera: Apidae): A remarkable base compositional bias and an early Paleogene geodispersal from North America to the Old World. *Molecular Phylogenetics and Evolution* 81: 258–270.
- Robertson, C. 1904. Synopsis of Anthophila. *Canadian Entomologist* 36(2): 37–43.
- Sagemehl, M. 1882. Verzeichniss der in Est-, Liv- und Curland bisher gefunden Bienen. *Archiv für die Naturkunde Liv-, Ehst- und Kurlands, Zweite Serie, Biologische Naturkunde* 8(4): 451–468. [reprint paginated 3–20] [Publication date: 24 July 1882].
- Schenck, A. 1860. Verzeichniss der nassauischen Hymenoptera aculeate, mit Hinzufügung der übrigen dem Verfasser bekannt gewordenen deutschen Arten. *Entomologische Zeitung, Stettin* 21(4–6): 132–157, 417–419.
- Schwammberger, K.-H. 1971. Zwei neue Bienen-Arten aus Iran (Hymenoptera Apoidea). *Stuttgarter Beiträge zur Naturkunde* 225: 1–4.
- Viereck, H.L. 1916. The Hymenoptera, or wasp-like insects, of Connecticut. *Connecticut State Geological and Natural History Survey Bulletin* 22: 1–824, +10 pls.

ZooBank: urn:lsid:zoobank.org:pub:0626B747-69EF-4C66-A9C5-A2EEB29187C1

APPENDIX

Genus *Eremaphanta* Popov

Eremaphantella Engel, new subgenus

ZooBank: urn:lsid:zoobank.org:act:105E4072-28D6-4355-87AA-477C63CA22D1

TYPE SPECIES: *Eremaphanta iranica* Schwammberger, 1971.

DIAGNOSIS: Head broader than long; vertex gently to weakly convex, scarcely above level of summits of compound eyes; maxillary blade over three times width; mesosoma black, without yellow markings laterally or dorsally; pretarsal claws cleft; metasomal terga I–V with apical bands of dense white setae, less well developed in male (interrupted), terga I–III with similar pubescence basally.

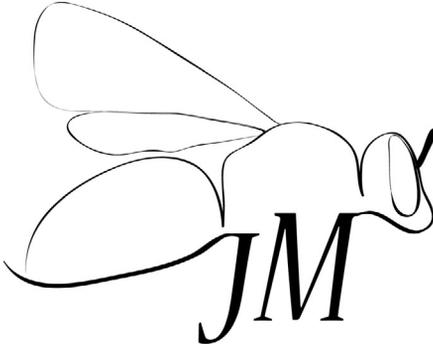
ETYMOLOGY: The new subgeneric name is a combination of the diminutive suffix *-ella* and the parent genus, *Eremaphanta* (itself a combination of the Greek words, *eremia*, meaning “desert”, and *aphantos*, meaning “unseen”). The gender of the name is feminine.

INCLUDED SPECIES: Presently the subgenus includes only the type species, which occurs in Iran, the United Arab Emirates, and Oman (Schwammberger, 1971; Michez & Patiny, 2006; Dathe, 2009).

COMMENT: Michez & Patiny (2006) mentioned the absence of tergal setal bands for *E. iranica* but these are present at least laterally in the male (Schwammberger, 1971) and are complete in the female (Dathe, 2009).

Key to Subgenera of *Eremaphanta*

1. Head broader than long or about as long as broad; vertex gently to weakly convex, scarcely above level of summits of compound eyes; terga with or without apical setal bands 2
- . Head distinctly longer than broad; vertex strongly elevated above level of summits of compound eyes; terga with apical bands of setae ... *Popovapis* Michener
- 2(1). Terga without apical setal bands; mesosoma dorsally and/or laterally with yellow markings *Eremaphanta* Popov
- . Terga with apical setal bands; mesosoma black, without yellow markings laterally or dorsally *Eremaphantella*, n. subgen.



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