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SYNOPTIC CLASSIFICATION OF THE WORLD TENEBRIONIDAE (INSECTA: COLEOPTERA) WITH A REVIEW OF FAMILY-GROUP NAMES

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Abstract.— A synoptic classification of the Tenebrionidae is presented. The family is divided into 10 subfamilies, 96 tribes and 61 subtribes. A catalogue containing 319 family-group names based on 266 genera is also included. Each family-group name entry includes data on original spelling and type genus. All references associated with family-group and genus-group names were examined (except where indicated otherwise) and listed in the bibliography. Current usage of family-group and genus-group names were preserved, when possible, to promote stability of the classification. A summary of the required changes of family-group names in Tenebrionidae is presented in a tabular format.

The following family-group names were based on preoccupied type genera and are therefore invalid: Anisocerini Reitter, Apolitina Seidlitz, Calcariens Mulsant, Cisteleniae Latreille, Cnemodini Horn, Dysantinae Gebien, Eutélides Lacordaire, Hétéroscélites Solier, Omocratates Mulsant and Rey, Pachycerina Skopin, Pandarites Mulsant and Rey, Phanerotomina Koch and Phylacides Lacordaire. The following family-group names were proposed in a vernacular form and not subsequently Latinized and are therefore unavailable: Alégoriides Lacordaire, Autocérides Lacordaire, Camarides Chenu and Desmarest, Cardiosites Deyrolle, Cnemeplatiites Jacquelin DuVal, Cylindrothorides Lacordaire, Dilamites Jacquelin DuVal, Dissonomites Jacquelin DuVal, Embaphionides Lacordaire, Eutomides Lacordaire, Gnathocérites Jacquelin DuVal, Héliopathaires Mulsant, Héliopathates Mulsant and Rey, Hypéropides Lacordaire, Isocérates Mulsant and Rey, Macropodites Solier, Micrositates Mulsant and Rey, Phobéliides Lacordaire, Onychosites Deyrolle, Pachyptérites Jacquelin DuVal, Sitophagiens Mulsant, Trachynotides Brullé and Trigonopaires Mulsant and Rey. The following names were proposed after 1930 without a description or definition and are therefore unavailable: Anaedini Skopin, Ectromopsini Antoine, Eupsophulites Kwieton, Hoplocephalini Kwieton, Praogenini Ferreira, Stenotrichinae Blaisdell, Thesileini Kaszab and Xanthomini Antoine. The following changes were implemented based on the Principle of Priority (with the junior synonym in parentheses): Adelostomini (= Eurychorini), Amphidorini (= Eleodini), Centriopterini (= Cryptoglossini), Cnodalonini (= Coelometopini), Edrotini (= Eurymetopini), Eurynotini (= Oncotini), Melambiini (= Litoborini), Sepidiini (= Molurini), Stenochiinae (= Coelometopinae), Stenochiini (= Strongyliini), Xystropodina (= Lystronychina). Supporting references are given for the preservation of the tribe name Pycnocerini **nom. protectum**, which is given precedence over Chiroscelini **nom. oblitum**. Dysantina Gebien, 1922 [type genus: *Dysantes* Pascoe, 1871; not Foerster, 1868: Hymenoptera] is replaced by Eudysantina **nom. nov.** [type genus: *Eudysantes* **nom. nov.** for *Dysantes* Pascoe]. The subfamily Palorinae Matthews, 2003 is downgraded to a tribe (Palorini **stat. nov.**) and placed in the subfamily Tenebrioninae. Neopsectropinae Kaszab, 1941 **syn. nov.** = Ulomini Blanchard, 1845. Rhipidandri LeConte, 1862 **syn. nov.** and Eutomides Lacordaire, 1866 **syn. nov.** = Bolitophagini Kirby, 1837.

Dejean (1834) is recognized as the author of the following genera for the first time: *Epiphysa*, *Leichenum*, *Leptodes*, *Microzoum* and *Sclerum*. *Scleron* Hope, 1840 **syn. nov.** = *Sclerum* Dejean, 1834. *Sepedonastes* Gistel, 1856 **syn. nov.** = *Phaleria* Latreille, 1802. *Sepedonastes bimaculatus* Herbst, 1799 is designated as the type species of *Sepedonastes*. *Isocerus* Dejean, 1821 is a junior homonym of *Isocerus* Illiger, 1802: Cerambycidae. *Neoisocerus* **nom. nov.** is proposed as the replacement name for *Isocerus* Dejean, 1821. Supporting references are included for the preservation of the genus name *Strongylium* Kirby, 1819 **nom. protectum**, which is given precedence over *Strongylium* Ditmar, 1809: Protozoa **nom. oblitum** under Article 23.9.

Key words.— Tenebrionidae, darkling beetles, nomenclature, classification, family-group names.

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NEW TAXA, NEW SYNONYMY AND NEW GENERIC RECORDS FOR AUSTRALIAN TENEBRIONIDAE (COLEOPTERA)

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Abstract.— New taxa proposed are the subtribe Asphalina (Heleini), the genera *Doyenia* (Belopini), *Wattiana* (Cnemeplatiini), *Palembomimus* (Diaperini-Adelinina) and *Triplehornia* (Diaperinae tribe unknown), and the species *Doyenia crematogastri, Wattiana greensladei, Triplehornia metallica*, *Tagalinus australis* (Penetini) and *Tyrtaeus bicoloratus* (Gnathidiini). New synonymy is *Micropedinus* Lewis, 1894 = *Notoprataeus* Carter, 1924 (Lupropini). New generic records for Australia are *Tagalinus* Kaszab, 1977 (Penetini), *Adelina* Dejean, 1835 (Diaperini), *Sciophagus* Sharp, 1885 (Diaperini) and *Ulomina* Baudi di Selve, 1876 (Palorini). The above taxa are discussed and some keys for their determination are presented.

Key words.— Entomology, taxonomy, new taxa, Coleoptera, Tenebrionidae, Australia.

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BLAISDELL'S FORMAE AND HOMONYMS IN THE GENUS *ELEODES* ESCHSCHOLTZ (COLEOPTERA: TENEBRIONIDAE: EMBAPHIONINI)

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Abstract.— The taxonomy of the speciose genus *Eleodes* Eschscholtz is complicated by a plethora of infrasubspecific names proposed by Blaisdell which were subsequently, if dubiously, elevated to subspecies. These cases are discussed and where deemed necessary, resolved. The following new names are proposed to replace occupied names: *Eleodes formosus* for *E. oblongus* Blaisdell, *Eleodes tribulus* for *E. caudatus* (Horn), *Eleodes extricatus convexinotus* for *E. e. convexicollis* Blaisdell, and *Eleodes transvolcanensis* for *E. alticolus* Pierre. *Eleodes transvolcanensis rufipes* Pierre is a new trinomial combination resulting from the new name for *E. alticolus*. *Eleodes lecontei* Horn is conserved by precedence over *E. lecontei* Gemminger et Harold.

Key words.— Darkling beetles, subspecies, nomenclature, morphotypes, synonymy, new names.

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NEW SPECIES OF TENEBRIONID BEETLES (COLEOPTERA: TENEBRIONIDAE) FROM BOTSWANA AND AFGHANISTAN

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Abstract.— Two new species of tenebrionids, *Philhammus* (s. str.) *triplehorni* **sp. nov.** from Botswana and *Heterotarsus triplehorni* **sp. nov.** from Afghanistan, are described.

Keywords.— Coleoptera, Tenebrionidae, *Philhammus*, *Heterotarsus*, Botswana, Afghanistan, new species.

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THREE NEW TENEBRIONIDS (COLEOPTERA: TENEBRIONIDAE) FROM SUMATRA – NEW SPECIES OR NEW GENERA?

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Abstract.— *Taiwanocryphaeus erberi* **sp. nov.** (Tenebrionidae: Toxicini), *Tonkinius triplehorni* **sp. nov.** (Tenebrionidae: Coelometopini) and *Derosphaerus matthewsi* **sp. nov.** (Tenebrionidae: Coelometopini), all from Sumatra, are described. It is discussed, why these taxa are not described as new genera, in spite of quite outstanding characters within the corresponding genera.

Key words.— Coleoptera, Tenebrionidae, Coelometopini, Toxicini, *Tonkinius*, *Derosphaerus*, *Taiwanocryphaeus*, new species, Sumatra.

ANNALES ZOOLOGICI (Warszawa), 2005, 55(4): 571-574

TWO NEW SPECIES OF THREE-HORNED *HYPOGENA* FROM PERU (COLEOPTERA: TENEBRIONIDAE)

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Abstract.— Two new distinctive species of the darkling beetle genus *Hypogena* Dejean (Coleoptera: Tenebrionidae) are described from unique males, *H. triceratops* **sp. nov.**, and *H. cat* **sp. nov.** Both are named in honor of tenebrionid specialist Charles A. Triplehorn. Images of the holotypes are provided, with comparisons to other known three-horned species of the genus. Both specimens were collected at the Rio Tambopata Reserve, Madre de Dios, Peru.

Key words. — Coleoptera, Tenebrionidae, *Hypogena*, new species, Peru.

ANNALES ZOOLOGICI (Warszawa), 2005, 55(4): 575-581

PATAGONOPRAOCIS, A NEW GENUS OF PRAOCINI FROM PATAGONIA (COLEOPTERA: TENEBRIONIDAE)

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Abstract.— The genus *Patagonopraocis* **gen. nov.** (Pimeliinae: Praocini), distributed in the Patagonian steppes and xerophilous woodlands in the Andes foothills, is revised. *Patagonopraocis* consists of three new species: *P. magellanicum* **sp. nov.**, *P. puncticollis* **sp. nov.** and *P. minor* **sp. nov.** Descriptions of the genus and its three species are provided. Main diagnostic characters for *Patagonopraocis* are in external morphology, sexual dimorphism and male genitalia. A key to species, habitus photographs, illustrations of external morphology, genitalic features and distribution map are included.

Key words.— Coleoptera, Tenebrionidae, Praocini, *Patagonopraocis*, Patagonia, new genus, new species, distribution.

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ACANTHAPTINUS TRIPLEHORNI, A NEW GENUS AND SPECIES OF SPIDER BEETLE (COLEOPTERA: PTINIDAE) FROM MADAGASCAR

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Abstract.— A new genus and species of flightless spider beetle from southwestern Madagascar, is described. The most notable morphological features are lateral spines on the pronotum and elytral epiplura and a diverse array of setal vestiture. Characteristics differentiating this new genus and species from all others are discussed and illustrated and the probable biology hypothesized.

Key words.— Spider beetle, Ptinidae, Ptininae, Madagascar, new genus, new species.

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A REVISION OF THE TENEBRIONID BEETLES OF THE GENUS *ASBOLODES* (COLEOPTERA: TENEBRIONIDAE: COELOMETOPINI)

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Abstract.— The tenebrionid beetles of the genus *Asbolodes* Fairmaire occurring in a restricted area of tropical Asia around the equator is revised with a key and detailed illustrations of all the known species. The systematic position of the genus is discussed. *Asbolodes triplehorni* **sp. nov.** and *A. rubrocinctus* **sp. nov.** are described from Sabah, Borneo, and Peninsular Malaysia, respectively.

Key words.— Coleoptera, Tenebrionidae, Coelometopini, *Asbolodes*, new species, Sabah, Borneo, Peninsular Malaysia.

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REVISION OF AFRICAN *ECTATEUS* GROUP (COLEOPTERA: TENEBRIONIDAE: PLATYNOTINA). PART II. GENUS *PSEUDOSELINUS* IWAN, 2002

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Abstract.— The species of the African genus *Pseudoselinus* Iwan, 2002 (type species: *Eurynotus punctatostriatus* Gerstaecker, 1854) are revised and illustrated. *Pseudoselinus* is the first time recorded as a member of *Ectateus* group. The following new synonym is proposed: *Opatrinus elevatus* Gerstaecker, 1871 (=*Selinus lundbladi* Koch, 1956). Key to the species of *Pseudoselinus* and distribution are provided.

Key words.— Entomology, taxonomy, revision, Coleoptera, Tenebrionidae, Platynotina, *Pseudoselinus*, Africa.

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REVISION OF AFRICAN *ECTATEUS* GROUP (COLEOPTERA: TENEBRIONIDAE: PLATYNOTINA). PART III. GENUS *PLATYKOCHIUS* IWAN, 2002

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Abstract.— The genus *Platykochius* Iwan, 2002 (type species: *Selinus platessa* Fairmaire, 1887) of *Ectateus* group is revised and illustrated. Two new species are described: *Platykochius loebli* and *P. triplehorni*. Lectotype and paralectotypes are designated for *Selinus platessa* Fairmaire, 1887. Key for species determination is provided.

Key words.— Entomology, taxonomy, revision, new species, Coleoptera, Tenebrionidae, Platynotina, *Platykochius*, Africa.

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DISTRIBUTION, TAXONOMY AND LECTOTYPE DESIGNATIONS OF *ASIDA* LATREILLE, 1802 (INSECTA: COLEOPTERA: TENEBRIONIDAE) FROM ALGERIA AND TUNISIA

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Abstract.— Six species of the genus *Asida* Latreille, 1802, from Algeria and Tunisia, are revised of which five very rare or only known by types. *Asida punica* Kwieton, 1986 and *A. radulicollis* Kwieton, 1986 are redescribed, illustrations of habitus and aedeagus of *A. gambeyi* Allard, 1869, *A. punica* Kwieton, 1986, *A. radulicollis* Kwieton, 1986 and *A. sacculipennis* Kwieton, 1986 are first time presented and distribution maps are given for four little-known *Asida* species from Tunisia. New taxonomic status: *Asida abrupta* ssp. *punica* Kwieton, 1986 is upgraded to *A. punica* Kwieton, 1986, stat. nov. Taxonomical changes: *Asida hispidula* Pic, 1903 and *A. sacculipennis* Kwieton, 1986 are transferred from subgenus *Globasida* Escalera, 1905 to subgenus *Asida* s. str.; *Asida gambeyi* Allard, 1869 is transferred from subgenus *Asida* s. str. to subgenus *Globasida* Escalera, 1905. Lectotype designations: *Asida gambeyi* Allard, 1869; *A. hispidula* Pic, 1903; *A. ruficornis* Solier, 1836.

Key words.— Insecta, Coleoptera, Tenebrionidae, *Asida*, Algeria, Tunisia, systematics, taxonomy, geographical distribution.

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NEW SPECIES OF DARKLING BEETLES FROM CENTRAL AMERICA WITH SYSTEMATIC NOTES (COLEOPTERA: TENEBRIONIDAE)

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Abstract.— A collection of Coleoptera Tenebrionidae from Central America has been studied and new species described and figured. The interest of this material principally consist in the method of sampling in the canopy and in the fact that for the first time the plant in which each specimen has been found was noted. Some systematic changes in the current classification of some genera, after Doyen and Tschinkel (1982) and Doyen et al. (1989) are introduced as results of morphological comparative study. *Rhypasma* Pascoe, 1871 is transferred to the tribe Stenosini from the Belopini. A total of 16 new species and one new genus from Panama are described and figured. *Phymatestes agnei* **sp. nov.**, *Rhypasma livae* **sp. nov.**, *Lenkous ibisca* **sp. nov.**, *Iccius monoceros* **sp. nov.**, *Othryoneus triplehorni* **sp. nov.**, *Paniasis kulzeri* **sp. nov.**, *Gonospa similis* **sp. nov.**, *Apsida simulatrix* **sp. nov.**, *Brosimapsida gonospoides* **gen.** and **sp. nov.**, *Epicalla elongata* **sp. nov.**, *E. pygmaea* **sp. nov.**, *E. aeneipes* **sp. nov.**, *Strongylium vikenae* **sp. nov.**, *Otocerus delicatus* **sp. nov.** and *O. angelicae* **sp. nov.** The genus *Paniasis* Champion, 1886 is found to be identical to *Pseudapsida* Kulzer, 1961, created by monotypy for a species from Brazil: *Paniasis brasiliensis* (Kulzer, 1961) comb. nov. The systematic position of the genera *Paratenetus* Spinola, 1844, *Rhypasma* Pascoe, 1871, *Calydonella* Doyen, 1995, *Othryoneus* Champion, 1886, and *Otocerus* Mäklin, 1884 is commented.

Key words.— Coleoptera, Tenebrionidae, Central America, Panama, canopy.

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DASYTOMIMA, A NEW GENUS OF AUSTRALIAN OEDEMERIDAE AND ITS RELATIONSHIP TO *POLYPRIA* CHEVROLAT (COLEOPTERA: TENEBRIONOIDEA)

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Abstract.— The monotypic genus *Dasytomima* (type species: *D. rachelae* **sp. nov.**) from southeastern Australia is described and illustrated, and its relationship to the Neotropical genus *Polypria* Chevrolat, 1874 is discussed. A cladistic analysis of these two taxa, nine exemplar genera of Oedemeridae, one genus each of Synchroidae and Stenotrachelidae, with 37 adult characters using Winclada/Nona produced two shortest trees, in which *Calopus*+*Sparedrus*, *Dasytomimus*+*Polypria* and the remaining oedemerid taxa form three monophyletic groups. Based on this analysis, *Dasytomima* and *Polypria* are placed in Polypriinae, **subfam. nov.**, Calopodinae is recognized at the subfamily level, and all other oedemerid genera are placed in Oedemerinae; the monophyly of Nacerini+Ditylini is not supported.

Key words.— Coleoptera, Tenebrionoidea, Oedemeridae, Polypriinae, *Dasytomima*, *Polypria*, Australian Region, Neotropical Region, entomology, taxonomy, cladistic analysis.

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THE PIMELIINE TRIBE CRYPTOGLOSSINI: CLASSIFICATION, BIOLOGY AND INFERRED PHYLOGENY (COLEOPTERA: TENEBRIONIDAE)

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Abstract.— The Cryptoglossini (Coleoptera: Tenebrionidae: Pimeliinae) is revised. The species are relatively large beetles, which are irregularly distributed throughout much of the highly arid areas of Southwestern United States and Mexico. The tribe is composed of three monophyletic genera: *Asbolus* LeConte, *Cryptoglossa* Solier, and *Schizillus* Horn. Adult external and internal reproductive structures of the tribe are described and illustrated. Immature stages are described for *Cryptoglossa muricata* (LeConte), *Cryptoglossa infausta* (LeConte), *Cryptoglossa asperata* (Horn), *Cryptoglossa spiculifera* LeConte, *Cryptoglossa variolosa* (Horn), *Asbolus verrucosus* LeConte, *Asbolus laevis* LeConte, *Asbolus mexicanus* (Champion), *Schizillus laticeps* Horn, and *Schizillus nunenmacheri* Blaisdell. Keys are provided for the adult genera and species and for the known immature stages. A new subspecies, *Cryptoglossa seriata cerralvoensis*, is described from Mexico. *Centrioptera* Mannerheim is placed as a synonym of *Cryptoglossa* Solier. *Asbolus* LeConte is reinstated to replace *Cryptoglossa* (in part). *Eschatoporis* Blaisdell is removed to the Laenini (Lagriinae). A phylogeny, based on 50 adult and immature characters is proposed established on cladistic methodology. Phylogenetic relationships and systematic position of the subfamily, tribe, genera and species are examined.

The biology of the species is discussed including ecological, morphological, and physiological adaptations to aridity. Ecological adaptations include strategies to acclimate to extreme environmental conditions: surface/subsurface daily and seasonal activity patterns, cavity utilization, substrate preference/restrictions (*C. muricata, A. verrucosus, S. laticeps*), euryphagous feeding habits, avoidance of interspecific competition. Adult and immature morphological adaptations include locomotory modifications relative to substrate utilization (i.e. larval madibular expansion in all Cryptoglossini) and heat avoidance modifications (i.e. subelytral/subpronotal cavities in *A. verrucosus, A. laevis* and *A. papillosus*. Physiological adaptations include high heat and wide humidity range tolerance (*C. muricata* and *A. verrucosus*), epicuticular lipids with high rations of straight-chain hydrocarbons (*C. variolosa and A. verrucosus*), long larval and adult life spans (seven years recorded for *A. verrucosus*). Specialized environmental adaptations include psammophily (*A. verrucosus, A. papillosus* and *A. laevis*, being respectively more adapted to psammophily, the last two restricted to sand dunes) and troglophily (*S. nunenmacheri* and *A. mexicanus*). Ecological importance (biomass) and economic importance of species is discussed. Predators and parasites of the Cryptoglossini are addressed. *Catagoniopsis specularis* (Aldrich and Weber), (Tachinidae) is recorded reared from both *A. verrucosus* and *A. laevis*. Defensive behavioral strategies include escape to shelters (*Cryptoglossa*), death feigning (all *Cryptoglossa* observed except *C. asperata*; most developed in *Asbolus*) and head standing (most immediate defense in all *Cryptoglossa* observed, absent in *Asbolus* and *Schizillus* except *A. laevis*).

Key words.— Cryptoglossini, *Cryptoglossa, Asbolus, Centrioptera, Schizillus*, phylogenetics, cladistics, ontogeny, behavior, adaptation to aridity, ecology, morphology, physiology, substrate preference, locomotion, troglophily, caves, psammophily, Sand Dunes, life history, predators, parasites, competition, defenses, economic importance, larvae, pupae, eggs, immatures, *Megelenophorus, Psammetichus, Nyctoporis, Amblycyphrus, Threnus, Eschatoporis*, Southwest United States, Mexico, Baja California.