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THE EXTINCT ORDER CALONEURODEA (INSECTA: PTERYGOTA: PANORTHOPTERA): WING VENATION, SYSTEMATICS AND PHYLOGENETIC RELATIONSHIPS

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Abstract.— A new interpretation of the wing venation of the fossil insect order Caloneurodea is proposed. Complex fusions of veins are demonstrated, supporting the assignment of the Caloneurodea to the Panorthoptera, *i.e.* the order is closely related to the Orthoptera. A new diagnosis of the order is proposed. The following taxa are re-described after new interpretation, material or preparation, or are newly described: *Caloneura dawsoni* Brongniart, 1885 (= *Boltonaloneura subtilis* (Bolton, 1925) **syn. nov**.), *Gigagramma carpenteri* **gen.** and **sp. nov**.; *Sthenarocera pachytyloides* Brongniart, 1885, *Pruvostiella lecomtei* (Pruvost, 1919), *Apsidoneura flexa* Carpenter, 1943, *Homaloptila similis* (Meunier, 1911), *Pleisiogramma medialis* Carpenter, 1943 (=*Pleisiogramma reducta* Carpenter, 1943 **syn. nov**.), *Paleuthygramma acuta* Carpenter, 1943, *Paleuthygramma sharovi* **sp. nov**., *Euthygramma parallelum* Martynov, 1928 (= *Euthygramma curvatum* Martynov, 1931 **syn. nov.**; = *Paleuthygrammella aberrans* (Martynov, 1938) **syn. nov**.), *Anomalogramma parva* Carpenter, 1943, *Nanogramma gandi* **gen**. and **sp. nov**., and *Ligogramma sinuosa* **gen.** and **sp. nov**. The family Gelasopteridae Carpenter, 1976 is revised and its ordinal relationships are discussed. After the proposed phylogenetic frame, mutation(s) occurring in homeotic genes are expected to be responsible of the unusual wing morphology of the Caloneurodea, mixing fore- and hind-wing 'panorthopterid' features.

Key words.— Palaeozoic, Polyneoptera, Panorthoptera, Caloneurodea, Orthoptera, review, phylogeny, homeotic genes.

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THE SPECIES OF THE GENUS *RHACONOTUS* RUTHE, 1854 (HYMENOPTERA: BRACONIDAE: DORYCTINAE) FROM CHINA WITH A KEY TO SPECIES

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Abstract.— The fourteen new species of *Rhaconotus* Ruthe, 1854 from South Asia are described and illustrated: *Rh. affinis* **sp. nov.**, *Rh. chinensis* **sp. nov.**, *Rh. fujianus* **sp. nov.**, *Rh. hei* **sp. nov.**, *Rh. heterotrichus* **sp. nov.**, *Rh. intermedius* **sp. nov.**, *Rh. ipodoryctoides* **sp. nov.**, *Rh. iterabilis* **sp. nov.**, *Rh. luteosetosus* **sp. nov.**, *Rh. magnus* **sp. nov.**, *Rh. oriens* **sp. nov.**, *Rh. tergalis* **sp. nov.**, *Rh. tianmushanus* **sp. nov.**, and *Rh. yaoae* **sp. nov**. The following species are recorded first time for the fauna of China: *Rh. aciculatus* Ruthe, *Rh. menippus* Nixon, *Rh. nadezhdae* (Tobias et Belokobylskij), and *Rh. zarudnyi* Belokobylskij. The key for determination of Chinese species of *Rhaconotus* is provided.

Key words.— Hymenoptera, Braconidae, Doryctinae, *Rhaconotus*, new species, new records, South Asia, China, Vietnam.

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ON THE TAXONOMY OF THE WEST PALAEARCTIC AENICTINAE ANTS (HYMENOPTERA: FORMICIDAE)

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Abstract.— The types of several *Aenictus* species are studied, and differences between *A. rhodiensis* Menozzi and related species, *A. dlusskyi* Arnoldi and *A. vaucheri* Emery shown. *A. maroccanus* Santschi is excluded from the genus *Aenictus* Shuchard, 1840. A first record of *Aenictus rhodiensis* from Turkey is reported.

Key words.— Ants, taxonomy, faunistic, Aenictinae, Ecitoninae, Palaearctic Region.

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LASIUS PSAMMOPHILUS SEIFERT AND *FORMICA CINEREA* MAYR (HYMENOPTERA: FORMICIDAE) ON SAND DUNES: CONFLICTS AND COEXISTENCE

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Abstract. — *Lasius psammophilus* Seifert and *Formica cinerea* Mayr can both be found on sand dunes in high densities. Sometimes they even nest in each other's immediate neighbourhood, which implies the possibility of conflicts, and the existence of mechanisms for avoiding contest competition. In such case an appropriate method is the analysis of the distribution and behaviour of foraging individuals around their colonies in the absence and in the presence of baits. The results show that the higher foraging activity of *L. psammophilus* with lower temperature and higher humidity as compared to *F. cinerea*, as well as the lack of spatial interference assures a relatively peaceful coexistence even in the case of neighbouring colonies. While *L. psammophilus* is characterized by fortuitousness regarding the chances of discovering food sources, *F. cinerea* foragers search more thoroughly around their colonies. Conflicts can arise over large food sources, which conflicts are usually won by *F. cinerea*. However, the more efficient recruitment system of *L. psammophilus* (earlier start and higher intensity), allows this species dominate at clumped food patches when the climatic conditions are favourable. The possible ways of coexistence are discussed, as well as the species' positions in the competition hierarchy.

Key words. — ants, *Lasius psammophilus*, *Formica cinerea*, dynamics, competition, interactions, foraging strategies, interspecific hierarchy.

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REVISION OF THE GENUS *NEPALOMYIA* HOLLIS, 1964 FROM TAIWAN (DIPTERA: DOLICHOPODIDAE)

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Abstract.— The genus *Nepalomyia* Hollis, 1964 is reported from Taiwan for the first time. The following 3 species are described as new to science: *Nepalomyia taiwanensis*, *N. siveci*, and *N. horvati*. A key is given to separate the species.

Key words.— Dolichopodidae, *Nepalomyia*, Taiwan, Oriental Region, new species.

ANNALES ZOOLOGICI (Warszawa), 2004, 54(2): 389-402

REVISION OF THE AUSTRALIAN COCCINELLIDAE (COLEOPTERA). PART 2. TRIBE STICHOLOTIDINI

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Abstract.— The Australian members of the coccinellid tribe Sticholotidini are revised. The tribe in Australia consists of the genus *Sticholotis* Crotch and a new monotypic genus *Chaetolotis* **gen. nov.** (type species: *Ch. amy* **sp. nov.**) and is restricted in its distribution to the tropical and subtropical parts of Queensland and coastal New South Wales. *Nesolotis* Miyatake, 1966 and *Paranesolotis* Hoang, 1982 are synonymised with *Sticholotis* Crotch, 1874 (**new synonyms**). Among five currently recognized species of *Sticholotis* in Australia, three are described as new (*S. culleni, S. cooloola, S. tozer*). *Gymnoscymnus explanatus* Blackburn, 1895 is synonymised with *G. quadrimaculatus* Blackburn, 1892 (=*Sticholotis quadrimaculata*). The lectotypes are designated for: *Gymnoscymnus explanatus* Blackburn and *Sticholotis redimita* Weise. Nomenclatural history, diagnoses and distribution are provided for each species. Keys to the genera and species are also presented.

Key words.— Entomology, taxonomy, review, Cucujoidea, Coccinellidae, Sticholotidinae, Sticholotidini, Australia.

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Key words.— Entomology, taxonomy, review, Cucujoidea, Coccinellidae, Sticholotidinae, Sticholotidini, Australia.

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A REVIEW OF MALAGASY GENUS *STYPHACUS* FAIRMAIRE, 1901 (COLEOPTERA: TENEBRIONIDAE: PLATYNOTINI)

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Abstract.— The genus *Styphacus* Fairmaire, 1901 (type species: *Styphacus decorsei* Fairmaire, 1901) is revised and illustrated. Three new species are described: *Styphacus drugmandi* **sp. nov.**, *S. girardi* **sp. nov.** and *S. pauliani* **sp. nov.** Key for species determination is provided. The genus belongs to melanocratoid group of the tribe Platynotini, and represents of the Southern Malagasy endemic fauna.

Key words.— Coleoptera, Tenebrionidae, Platynotini, *Styphacus*, Madagascar, entomology, taxonomy, revision, new species.

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DESCRIPTION OF LAST INSTAR LARVA OF *AETHIOPOCASSIS RHODESIANA* (SPAETH, 1924) (COLEOPTERA: CHRYSOMELIDAE: CASSIDINAE)

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Abstract.— Last instar larva of *Aethiopocassis rhodesiana* (Spaeth, 1924) is described in detail. It is the only detailed description of a larva of an African member of the tribe Cassidini.

Key words.— Coleoptera, Chrysomelidae, Cassidinae, Cassidini, *Aethiopocassis rhodesiana*, larva.

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COMPARATIVE DESCRIPTION OF FIRST INSTAR LARVAE OF *CASSIDA STIGMATICA* SUFFRIAN, 1844 AND *CASSIDA RUBIGINOSA* MÜLLER, 1776 (COLEOPTERA: CHRYSOMELIDAE: CASSIDINAE)

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Abstract.— First instar larvae of *Cassida rubiginosa* and *Cassida stigmatica* from Palaearctic Region are described and illustrated.

Key words.— Coleoptera, Chrysomelidae, Cassidinae, Cassidinii, *Cassida stigmatica*, *Cassida rubiginosa*, first instar larva.

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THE STRUCTURE OF SPERMATHECA IN THE GENUS *CHELYMORPHA* CHEVROLAT, 1837 (COLEOPTERA: CHRYSOMELIDAE: CASSIDINAE) AND ITS TAXONOMIC SIGNIFICANCE

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Abstract.— Spermathecae of 42 nominal and three unidentified species of the genus *Chelymorpha* Chevrolat, 1837 have been studied and figured. The genus, contrary to the most of Cassidinae genera, is characterized by a very diverse structure of spermatheca. Ten morphological groups have been distinguished. The groups are partly correlated with the groups distinguished on the basis of external morphological characters. Based on the structure of spermatheca the following taxonomical changes have been proposed: *Chelymorpha alternans* Boheman, 1854 is a good species not a synonym of *Ch. cribraria* (Fabricius, 1775), *Ch. reimoseri* Spaeth, 1928 is a good species not a synonym of *Ch. infecta* Boheman, 1854, *Ch. andicola* Spaeth, 1928 is a distinct species not a subspecies of *Ch. constellata* (Klug, 1829). *Ch. indigesta* Boheman, 1854 and *Ch. subpunctata* Boheman, 1854, *Chelymorpha texta* Boheman, 1862 and *Ch. cribraria* (F.), and *Ch. bullata* Boheman, 1854 and *Ch. alternans* Boh. represent probably three pairs of polymorphic forms of three species but this problem needs verification by genetic studies.

Key words.— Coleoptera, Chrysomelidae, Cassidinae, *Chelymorpha*, morphology, spermatheca.

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CEUTORHYNCHUS VARIUS REY, 1895, STATUS REVISED (COLEOPTERA: CURCULIONIDAE), ITS DIAGNOSTIC CHARACTERS AND DISTRIBUTION IN EUROPE

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Abstract. — *Ceutorhynchus varius* Rey, 1895, formerly considered to be a variety of *C. hirtulus* Germar, 1824, is revealed to be a valid species and redescribed. It lives on *Arabidopsis thaliana* (L.) Heynh. (Brassicaceae) and is recorded from France, Poland, Czech Republic, Slovakia, Austria and Bulgaria. Lectotypes are designated for *C. varius* Rey and *C. hirtulus* Germar.

Key words. — Coleoptera, Curculionidae, Ceutorhynchinae, *Ceutorhynchus*, taxonomy, Europe.

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GENERIC STATUS OF *BONETOGASTRURA CAVICOLA* (BÖRNER, 1901) (COLLEMBOLA: HYPOGASTRURIDAE) IN THE LIGHT OF LABORATORY HYBRIDIZATION STUDIES

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Abstract.— Laboratory hybridization studies were performed on the springtail species *Bonetogastrura cavicola* (Börner, 1901) and *Ceratophysella impedita* (Skarżyński, 2002). The studies revealed that the species under consideration can not produce viable offspring, but they can produce numerous eggs and some hybrid embryo. Consequently both species were recognized as closely related and members of the genus *Ceratophysella* Börner, 1932.

Key words.— Taxonomy, hybridization, Collembola, Hypogastruridae, *Bonetogastrura*, *Ceratophysella*.

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ISOHYPSIBIUS ARCHANGAJENSIS, A NEW SPECIES OF EUTARDIGRADA (HYPSIBIIDAE) FROM MONGOLIA

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Abstract.— A new eutardigrade, *Isohypsibius archangajensis* **sp. nov.** is described from a moss sample collected in Mongolia. The new species is similar to *I. barbarae* Pilato et Binda, 2002 and *I. undulatus* Thulin, 1928 but it differs from them by the presence of shallow depressions forming the reticular design on the dorsal and lateral cuticle, lower number of dorsal undulations, larger body size, stylet supports inserted on the buccal tube in more caudal position, wider buccal tube and longer placoids.

Key words.— Tardigrada, Eutardigrada, Hypsibiidae, *Isohypsibius archangajensis* sp. nov., Mongolia.

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WILSONEMA LONGICAUDATUM SP. NOV. (NEMATODA: PLECTIDAE) FROM POLAND

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Abstract.— *Wilsonema longicaudatum* **sp. nov.** is described from Biebrzański Park Narodowy, Poland. The new species is characterized particularly in its rather long tail (54.5–62.0 μm, c = 5.5–6.2, c' = 7.0–8.0) and more anterior vulva position (V = 44.2–45.9%), thus differing from all other species of the genus (ranges for other species: tail is 14–44 μm, c = 7.0–18.5, c' = 2.0–4.5, V = 47.0–56.7%). Moreover, it differs from *W. schuurmansstekhoveni* in having a shorter rectum (10–11 μm *vs* 18–28 μm) and higher number of setae in pharyngeal region (six *vs* four) and tail (five *vs* four); from *W. bangaloreiensis* in having a longer body (337–350 μm *vs* 197–249), lesser number of setae in pharyngeal region (six *vs* ten) and higher number of setae in the tail (five *vs* four).

Key words.— Biebrza, description, morphology, new species, Plectidae, Poland, *Wilsonema*.

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FAVOGNATHUS AFYONENSIS SP. NOV. WITH NOTES ON *RAPHIGNATHUS COLLEGIATUS* ATYEO, BAKER ET CROSSLEY, 1961 (ACARI: RAPHIGNATHOIDEA) FROM TURKEY

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Abstract.— A new species of cryptognathid mite *Favognathus afyonensis* **sp. nov.** is described and illustrated from Turkey. Intraspecific variations of *Raphignathus collegiatus* Atyeo, Baker et Crossley, 1961, a new record for Turkey, are also reported.

Key words.— Raphignathoidea, *Favognathus*, *Raphignathus*, Acari, Actinedida, taxonomy, new species, intraspecific variations, Turkey.

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REDESCRIPTION OF *PLATYNOTHRUS BICARINATUS* JACOT, 1938 (ACARI: ORIBATIDA: CAMISIIDAE) WITH REMARKS ON THE MORPHOLOGY OF JUVENILE STAGES

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Abstract.— Nearctic species *Platynothrus bicarinatus* Jacot, 1938, known up to date from adult instar only, is redescribed and illustrated (including all immature stages). A comparison with other, related Palaearctic species is included.

Key words.— Acari, Oribatida, Camisiidae, Nearctic region, oribatid mites, taxonomy, juvenile stages.