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Global checklist of pseudoscorpions (Arachnida) found in birds' nests

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Global checklist of pseudoscorpions (Arachnida) found in birds' nests. - A compilation of the information on pseudoscorpions recorded from birds' nests is presented. Species and families of birds, and specimens, species and families of pseudoscorpions involved worldwide are given. 14 families (63 genera with 85 species) of Pseudoscorpiones were found in birds' nests, of which the Chernetidae is ranked first, with 22 genera and 35 species. Only 45 families of birds have been recorded as hosts worldwide, represented by a total of 98 species and a certain number of unidentified taxa. Geographical origin of these records reflects collecting efforts of individuals and gives no precise indication on the biological association between these two groups.

Keywords: Ecology - behaviour - phoresy - host association.

Four new earthworms of the *Amyntas aeruginosus* species group (Oligochaeta: Megascolecidae) from Nam Xam NBCA, Laos

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Four new earthworms of the *Amyntas aeruginosus* species group (Oligochaeta: Megascolecidae) from Nam Xam NBCA, Laos. - Earthworm specimens collected from the Nam Xam National Biodiversity Conservation Area, Laos belong to four new species of megascolecoid earthworms: *Amyntas banlaoensis* sp. nov., *Amyntas khamlai* sp. nov., *Amyntas phadeangensis* sp. nov., and *Amyntas naphopensis* sp. nov. All four new species key to the *aeruginosus* group in Sims & Easton (1972), defined by having spermathecal pores in 7/8/9 and simple intestinal caeca. *Amyntas banlaoensis* sp. nov. has male pores superficial near lateral margins of XVIII in the 12th setal lines, on short columnar 0.3-0.5 mm diameter porophore, and tubercular genital markings paired in VII or VIII. *Amyntas khamlai* sp. nov. has male pores on retractable, eversible round porophores near the lateral margins of the ventrum in XVIII, and circular genital markings in paired postsetal linear groups of two or three on trailing edges of VII and VIII. *Amyntas phadeangensis* sp. nov. has male pores on

alate porophore swellings composed of concentric rings, with paired genital papillae medial to the male porophores and embedded in the concentric rings. It has paired postsetal genital markings in 8th - 9th setal lines of VIII and IX. *Amyntas naphopensis* sp. nov. has male pores in small invaginations partly covered by raised U-shaped flap concave medially, and lacks other genital markings.

Keywords: Earthworms - Megascolecidae - Oligochaeta - Laos - Nam Xam NBCA - taxonomy.

A new genus of Sensitibillini from Brazilian caves (Psocodea: 'Psocoptera': Prionoglarididae)

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A new genus of Sensitibillini from Brazilian caves (Psocodea: 'Psocoptera': Prionoglarididae). - The genus *Neotroglia* Lienhard gen. n. is described for three new cave-dwelling species from Brazil: *Neotroglia brasiliensis* Lienhard sp. n. (from Minas Gerais State), *N. aurora* Lienhard sp. n. (from Tocantins State) and *N. truncata* Lienhard sp. n. (from Bahia State). These species are the first Neotropical representatives of the subfamily Speleketorinae and the first New World representatives of the tribe Sensitibillini, previously known only from southern Africa. This distributional pattern of Sensitibillini is tentatively interpreted as due to Western Gondwanan vicariance. In the females of *Neotroglia* a complex of accessory structures to the spermathecal duct is described and denoted by the new term «gynosome». A hypothesis of functional complementarity, during copulation, between the «penis-like» gynosome and the strongly reduced male phallosome of *Neotroglia* is presented.

Keywords: New species - Brazil - cave fauna - gynosome - phallosome - copulation - Western Gondwanan vicariance - living fossils.

Nominal taxa of *Spalerosophis diadema* (Schlegel, 1837) from Iraq to Pakistan – two centuries of confusion (Reptilia: Squamata: Colubrinae)

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Nominal taxa of *Spalerosophis diadema* (Schlegel, 1837) from Iraq to Pakistan – two centuries of confusion (Reptilia: Squamata: Colubrinae). - The original descriptions of nominal species-group taxa of *Spalerosophis diadema* (Schlegel, 1837) from Iraq to Pakistan are scrutinized, the status of extant and presumably lost type specimens and alleged original

series assessed, scale characters of populations from the Euphrates to the Indus Valley analyzed, and taxonomic implications discussed. The origin of the supposedly missing type material of *Coluber diadema* Schlegel (vicinity of Bushehr, Iran) remains inconclusive. Morphologically, its description best fits *S. d. cliffordii* (Schlegel, 1837) from North Africa to Iraq and Khuzestan (Iran). *S. d. schirasianus* (Jan, 1863) is a distinct subspecies from Turkmenistan and the Zagros Range to Baluchistan (Pakistan). Eastern Diadem snake populations, yet to be properly named, are referred to as *S. d. diadema* auct.

Keywords: *Spalerosophis diadema* - species-group - nominal taxa type series - taxonomy - morphology - systematics - type locality.

Redescription of *Vermaia pseudotropii*, a hyperapolytic freshwater tapeworm, and composition of *Vermaia* Nybelin, 1942 (Cestoda: Proteocephalidea)

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Redescription of *Vermaia pseudotropii*, a hyperapolytic freshwater tapeworm, and composition of *Vermaia* Nybelin, 1942 (Cestoda: Proteocephalidea). - The cestode *Vermaia pseudotropii* (Verma, 1928) (Proteocephalidea: Gangesiinae), a parasite of the catfish *Clupisoma garua* (Siluriformes: Schilbeidae) in India and the only known hyperapolytic proteocephalidean, is redescribed based on freshly collected material from the type-host from West Bengal, India. Surface structures, including giant coniform spinitriches on the rostellum-like organ, are described for the first time using scanning electron microscopy and new morphological data on the rostellum-like organ and its armature, terminal genitalia, uterine development, longitudinal internal musculature and egg morphology are provided. *Vermaia pseudotropii* is characterized by hyperapolysis and several morphological autapomorphies, such as the shape and arrangement of large hooks (62-69 μm long) on the rostellum-like organ; very short lateral bands of vitelline follicles, which are limited to the preovarian region posterior to the cirrus-sac level and the length of which represents only 14-18% of the proglottis length; “spined” cirrus (the distal part covered with long spinitriches); and an ampullaceous vaginal atrium. The validity of the genus *Vermaia* Nybelin, 1942 is also confirmed and its species are reviewed. *Gangesia sumani* Shinde & Wankhede, 1990 is synonymized with *V. pseudotropii*. The present study revealed conspecificity of *Gangesia* (*Vermaia*) *jammuensis* (Fotedar & Dhar, 1974) with *Gangesia agragensis* Verma, 1928. *Vermaia sorrakowahi* Zaidi & Khan, 1976 differs from *V. pseudotropii* in the distribution of vitelline follicles, the pre-equatorial position of the cirrus-sac, number and size of hooks on the rostellum-like organ, and number of testes.

Keywords: Morphology - Gangesiinae - scanning electron microscopy - *Clupisoma garua* - India.

First description of larval and juvenile stages of *Rhacophorus maximus* Günther, 1859 “1858” (Anura: Rhacophoridae) from Vietnam

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First description of larval and juvenile stages of *Rhacophorus maximus* Günther, 1859 “1858” (Anura: Rhacophoridae) from Vietnam. - We describe the tadpole morphology of the Nepal flying frog, *Rhacophorus maximus* Günther, 1859 “1858”, based on specimens originating from the lowland evergreen forest of the Tay Yen Tu Nature Reserve in the Bac Giang Province in northern Vietnam. The description is based on exotrophic larvae of ORTON’S type IV: lentic, benthic, nektonic in developmental stages 33-41, which were bred at the IEBR Amphibian Breeding Station in Hanoi and identified by DNA barcoding. DNA sequences of the mitochondrial 16S rRNA gene obtained from a tadpole voucher in developmental stage 35 used for the description had less than 0.18% sequence divergence to those of a sympatric adult frog, making the identification unambiguous. Tadpoles of *R. maximus* are of more generalized morphology with a labial tooth row formula of 5(2-5)/3(1). In addition, based on (hand-) reared froglets and by identifying wild-caught subadults through DNA barcoding, we provide first data on colour pattern change from metamorphosed to adult stages.

Keywords: Rhacophoridae - *Rhacophorus maximus* - DNA barcoding - tadpole - morphology - development - colour pattern change - Vietnam.

The Gelechiidae (Lepidoptera) of the Galapagos Islands, Ecuador, a taxonomic revision

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The Gelechiidae (Lepidoptera) of the Galapagos Islands, Ecuador, a taxonomic revision. - The Gelechiidae of the Galapagos Islands are revised. Twenty-two species are recognized to be established on the archipelago, including eight described as new: *Ephysteris sporobolella* Landry (bred from *Sporobolus virginicus* (L.) Kunth (Poaceae)), *E. scimitarella* Landry, *Scrobipalpula inornata* Landry, *S. equatoriella* Landry, *S. caustonae* Landry, *Stegasta francisci* Landry, *Symmetrischema escondidella* Landry, and *Untomia lunatella* Landry. *Agnippe omphalopa* (Meyrick, 1917), comb. n., *Anacamptis primigenia* Meyrick, 1918,

Aristotelia sarcodes Walsingham, 1910, *Compsolechia salebrosa* Meyrick, 1918, *Dichomeris acuminatus* (Staudinger, 1876), *Ephysteris subdiminutella* (Stainton, 1867), *Mesophleps adustipennis* (Walsingham, 1897) comb. n., *Phthorimaea perfidiosa* Meyrick, 1917, *Scrobipalpula densata* (Meyrick, 1917), and *Stegasta zygotoma* Meyrick, 1917 are reported from the archipelago for the first time. Four additional species had been reported from the archipelago before. A lectotype is designated for *Echinoglossa trinota* Clarke, 1965 from Masatierra, Juan Fernandez Islands. New host plant records are provided for *A. omphalopa*, *A. primigenia*, *C. salebrosa*, *M. adustipennis*, and *P. absoluta*.

Keywords: Microlepidoptera - Gelechioidea - Gelechiinae - Anomologini - Anacampsiini - Gelechiini - Gnorimoschemini - Litini - Dichomeridinae - Pexicopiinae - host plants - Neotropical Region.

The Psilidae (Diptera, Acalyptrata) of Switzerland, with description of two new species from Central Europe

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The Psilidae (Diptera, Acalyptrata) of Switzerland, with description of two new species from Central Europe. - The family Psilidae is reviewed for Switzerland and data are listed for all species currently known from this country. *Chamaepsila sardoa* (Rondani) and *Ch. unilineata* (Zetterstedt) are recorded for the first time from Switzerland. *Psila* (s. str.) *helvetica* sp. n. (Switzerland) and *Chamaepsila confusa* sp. n. (France, Switzerland) are described and illustrated. Keys for the European species of *Psila* s. str. Meigen and the *Chamaepsila pallida* group are provided. A summary of diagnostic characters of the genera of *Psila* s. lat. is given. An updated checklist of the 36 Swiss species is presented.

Keywords: Psilidae - Switzerland - new species - keys - checklist.

An annotated list of type material of Orthoptera (Insecta) described by Achille Griffini and deposited in the collections of the Muséum d'histoire naturelle in Geneva.

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An annotated list of type material of Orthoptera (Insecta) described by Achille Griffini and deposited in the collections of the Muséum d'histoire naturelle in Geneva. - Primary types of ten species have been located in the collections of the Muséum d'histoire naturelle in Geneva (MHNG). The status of specimens of two other species which are labelled as types is discussed. The names are listed alphabetically, and the sex, label data and condition of the specimens is given, along with their location within the collections, and the current nomenclatural combination.

Keywords: A. Griffini - Tettigoniidae - Stenopelmatoidea - Gryllacrididae - Anostomatidae - type catalogue.

An annotated list of primary types of Orthoptera (Insecta) described by Boris Uvarov and deposited in the collections of the Muséum d'histoire naturelle in Geneva

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An annotated list of primary types of Orthoptera (Insecta) described by Boris Uvarov and deposited in the collections of the Muséum d'histoire naturelle in Geneva. - Primary types of ten species have been located in the collections of the Muséum d'histoire naturelle in Geneva (MHNG). The names are listed alphabetically, and the sex, label data and condition of the specimens is given, along with their location within the collections, and the current nomenclatural combination.

Keywords: B. Uvarov - Acridoidea - Acrididae - Pyrgomorphidae - type catalogue.

Nutritional ecology of *Microtus arvalis* (Pallas, 1779) in sown wild flower fields and quasi-natural habitats

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Nutritional ecology of *Microtus arvalis* (Pallas, 1779) in sown wild flower fields and quasi-natural habitats. - Recently, sown wild flower fields (SWFF) were established as ecological compensation areas to enhance and preserve animal and plant biodiversity. Besides their positive effects, SWFF can also shelter potential pest species, like *Microtus arvalis*, which stay preferentially in those fields. To analyse the nutritional ecology of *M. arvalis* in SWFF and in quasi-natural habitats, 100 voles were trapped in each habitat type near Bern, from October 2006 to July 2007. Stomach content and faecal pellets were examined microscopically. Ingested plant fragments were identified using reference slides. The ingested quantity of each plant was assessed according to the covered surface on a microscopic slide. Rank preference indices of Johnson were calculated by comparing food-composition with food-offer in the vegetation. The food spectrum was rather wide, including numerous grasses and herbs. Monocots constituted the main part in both habitats, although they were not as frequent in SWFF as dicots. Neither for monocots nor for dicots a clear preference was found. SWFF seem not to be the main reason for the frequent occurrence of *M. arvalis* in these areas. Further studies are needed to determine why common voles are attracted by the naturally growing grasses.

Keywords: diet analyses - food preference - sown wild flower fields - quasi-natural habitats

Phenology of two syntopic *Eukoenenia* species in a northern Italian forest soil (Arachnida: Palpigradi)

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Phenology of two syntopic *Eukoenenia* species in a northern Italian forest soil (Arachnida: Palpigradi). - The present paper provides evidence for the co-occurrence of edaphic palpigrade species in Europe. *Eukoenenia mirabilis* and *E. gallii* coexist in the soil of a cork oak plantation on the Ligurian coast in northwestern Italy. Year-round sampling there produced, for the first time in a temperate zone, complete annual cycles of palpigrade populations. In the study area *E. mirabilis* and *E. gallii* are univoltine. Both species reproduce in summer and overwinter predominantly in the adult stage. The balanced sex-ratio of the resident *E. mirabilis* population is remarkable, because males of this widespread species are usually rare or absent.

Keywords: Palpigrades - edaphic - life cycle - sex ratio - Romania - Italy.