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STUDIES ON MORPHOLOGY OF IMMATURE STAGES OF THE TRIBE AGATHIDIINI (COLEOPTERA: LEIODIDAE). PART IV. *AGATHIDIUM ANGULARE* MANNERHEIM, 1852

ALEKSANDRA KILIAN

Zoological Institute, University of Wrocław, Przybyszewskiego 63/77, 51-148 Wrocław, Poland; e-mail: a.kilian@biol.uni.wroc.pl

Abstract.— Three larval instars of Nearctic *Agathidium angulare* Mannerheim, 1852, are described in detail and the first and third stage larvae are figured for the first time; morphology of the stages was analyzed and compared, with special emphasis on measurements, chaetotaxy and porotaxy of head, mouthparts, thorax, abdomen, leg and urogomphi. Preliminary discussion on larval characters of the genus *Agathidium* is provided.

Key words.— Morphology, larva, Coleoptera, Leiodidae, Agathidiini, *Agathidium angulare*, Nearctic region.

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REDESCRIPTION OF *LOCHMAEA LIMBATA* PIC, 1898 WITH A NEW SYNONYM (COLEOPTERA: CHRYSOMELIDAE: GALERUCINAE)

ALI GÖK*, EBRU GÜL ASLAN, ISMAIL ŞEN and YUSUF AYVAZ

*Süleyman Demirel University, Faculty of Arts and Sciences, Biology Department, 32260 Isparta, Turkey; *Corresponding author; e-mail: aligok@fef.sdu.edu.tr*

Abstract.— The rare and unsufficiently known taxa *Lochmaea limbata* Pic, 1898 (known only from males) and *Lochmaea setulosa* (Sahlberg, 1913) (known only from females) are proposed as synonyms after detailed studies on a large population from Isparta (Turkey). *L. limbata* is redescribed and illustrated; the female shows clear dimorphism with the male. Additionally, *Crataegus monogyna* Jacq. (Rosaceae) is determined as host plant of *L. limbata*.

Key words.— Galerucinae, *Lochmaea limbata*, *Lochmaea setulosa,* taxonomy, redescription, synonym, Turkey.

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NEW FOSSIL WEEVILS (COLEOPTERA: CURCULIONOIDEA: NEMONYCHIDAE) FROM THE JEHOL BIOTA OF WESTERN LIAONING, CHINA

MING LIU, DONG REN* and JINGJING TAN

College of Life Science, Capital Normal University, 105 Xisanhuanbeilu, Haidian District; Beijing 100037, PR CHINA
**Corresponding author: e-mail: rendong@mail.cnu.edu.cn*

Abstract.— Three new species *Brenthorrhinoides latipecteris* **sp**. **nov**., *B. angustipecteris* **sp**. **nov**., *B. magnoculi* **sp**. **nov**. within the family Nemonychidae (Coleoptera: Curculionoidea) are described and illustrated. All the fossils were recovered from the Yixian Formation (Late Jurassic or Early Cretaceous) of western Liaoning Province, China. A brief review of fossil nemonychids and a key to species within the genus *Brenthorrhinoides* are provided. Furthermore, possible host plants to these ancient nemonychids are discussed.

Key words.— Weevils, Nemonychidae, *Brenthorrhinoides*, *B. latipecteris, B. angustipecteris, B. magnoculi*, Late Jurassic, Early Cretaceous, new taxa, Jehol Biota, Liaoning.

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NOTES ON THE TAXONOMY OF TENEBRIONID BEETLES (COLEOPTERA: TENEBRIONIDAE)

GLEB S. MEDVEDEV[1] and DARIUSZ IWAN[2*]

[1]*Zoological Institute, Russian Academy of Sciences, Universitetskaya nab. 1, St. Petersburg 199034, Russia; e-mail: blaps@zin.ru*
[2]*Department of Systematics and Zoogeography, Museum and Institute of Zoology, Polish Academy of Sciences, Wilcza 64, 00-679 Warsaw, Poland; e-mail: darek@miiz.waw.pl*
**Corresponding author*

Abstract.— The study results of the type specimens of tenebrionid beetles described as *Apsheronellus arenarius* Bogačev, 1967, *Microleichenum choresmensis* G. Medvedev, 1973, Lobodera (*Discotus*) *kaszabi* Skopin, 1960, *Penthicus* (*Allomyladion*) *kaszabi* Bogačev, 1972, *Prosodes* (*Laraliporosodes*) *lar* Bogačev, 1947 and *Achaemenus villosus* Bogačev, 1949 are presented in this paper. The following nomenclatural decisions are proposed: *Microleichenium* G. Medvedev, 1973 is considered a junior synonym of the name *Apsheronellus* Bogačev, 1967; *Penticus* (*Allomyladion*) *kaszabi* Bogačev, 1972 is considered a secondary junior homonym of *Lobodera* (*D.*) *kaszabi* Skopin, 1960 and as result, the first name is changed on *Penthicus* (*Allomyladion*) *zoltani* Medvedev et Iwan, **nom. nov.**; *Prosodes* (*Laraliprosodes*) *lar* Bogačev, 1947 is transferred to the subgenus *Dineria* Motschulsky of the genus *Blaps* F. and as result, *Dineria* Motschulsky, 1860 (type species: *Blaps confuse* Ménétriés, 1832) is considered a senior synonym of *Laraliprosodes* Bogačev, 1942 (type species: *Prosodes lar* Bogačev, 1942); the name *Achaemenus* Bogačev, 1949 is considered a junior homonym of *Achaemenus* Stål, 1856 (Cicadinea, Homoptera) and is replaced by *Bogatshevia* G. Medvedev et Iwan, **nom. nov.** (type species: *Achaemenus villosus* Bogačev, 1949).

Key words.— Homoptera, Coleoptera, Tenebrionidae, Lechenini, Opatrini, Blaptini, Pimeliini, new synonym, new combination, new homonym, new name.

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REVIEW OF THE GENUS *BANTODEMUS* KOCH, 1955 (COLEOPTERA: TENEBRIONIDAE: PLATYNOTINA)

DARIUSZ IWAN and MAŁGORZATA BANASZKIEWICZ

Department of Systematics and Zoogeography, Museum and Institute of Zoology, Polish Academy of Sciences, Wilcza 64, 00-679 Warsaw, Poland; e-mails: darek@miiz.waw.pl, banaszkiewicz@miiz.waw.pl

Abstract.— The female genital structure of the genus *Bantodemus* Koch, 1955 is studied. The variability in the shape of sclerites in the bursa copulatrix is illustrated based on the species *B. montanus*. Two new species are described: *B. durbaniensis* **sp. nov.** and *B. harmonius* **sp. nov.** Separate keys for species determination are compiled for males and females. New localities data for *B. caffer*, *B. furcatus*, *B. montanus*, *B. rudebecki*, *B. tristis* are provided.

Key words.— Coleoptera, Tenebrionidae, Platynotina, *Bantodemus*, South Africa, entomology, taxonomy, new species, female genitalia, sperm competition, sexual selection.

ANNALES ZOOLOGICI (Warszawa), 2006, 56(4): 643-655

REVIEW OF THE SPECIES OF *POECILOSOMELLA* DUDA (DIPTERA: SPHAEROCERIDAE) FROM CONTINENTAL CHINA

HUI DONG[1], DING YANG[1,*] and TOSHIHIKO HAYASHI

[1]*Department of Entomology, China Agricultural University, Beijing 100094, China; Key Lab of Insect Evolution and Environmental Changes, Capital Normal University, Beijing 100037, China; e-mail: dyangcau@yahoo.com.cn*
[2]*Department of Medical Entomology, National Institute of Infectious Diseases, Toyama 1-23-1, Shinjuku-ku, Tokyo, 162-8640 Japan*
[*]*To whom the correspondence and reprint request should be addressed*

Abstract.— The species of the genus *Poecilosomella* Duda, 1925 from continental China are reviewed. Six species are now known to occur in continental China. Two species, *Poecilosomella biseta* **sp. nov.** and *Poecilosomella guangdongensis* **sp. nov.**, are described as new to science. A key is presented to separate these species.

Key words.— Diptera, Sphaeroceridae, *Poecilosomella*, new species, China.

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THREE NEW SPECIES OF THE GENUS *SUILLIA* ROBINEAU-DESVOIDY, 1830 FROM THE NEOTROPICAL REGION (DIPTERA: HELEOMYZIDAE)

ANDRZEJ J. WOŹNICA

Department of Zoology & Ecology, Wrocław University of Environmental and Life Sciences, ul. Kożuchowska 5b, Pl-51-631, Wrocław, Poland; e-mail: woznica@ozi.ar.wroc.pl

Abstract.— Three new species of the genus *Suillia* Robineau-Desvoidy, *S. danielssoni* **sp. nov.** (Ecuador), *S. huggerti* **sp. nov.** (Ecuador), and *S. steyskali* **sp. nov.** (Colombia) are described from the Neotropical Region. *S. iniens* (Giglio-Tos, 1893) is newly recorded from Honduras. A key to the known species of *Suillia* occurring in the Neotropical Region is provided.

Key words.— Heleomyzidae, *Suillia*, taxonomy, new species, Neotropical Region, Colombia, Ecuador, Honduras.

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DO PERMANENTLY MIXED COLONIES OF WOOD ANTS (HYMENOPTERA: FORMICIDAE) REALLY EXIST?

WOJCIECH CZECHOWSKI and ALEXANDER RADCHENKO

Laboratory of Social and Myrmecophilous Insects, Museum and Institute of Zoology, Polish Academy of Sciences, Wilcza 64, 00-679 Warsaw, Poland; e-mails: wcz@miiz.waw.pl, agradchenko@hotmail.com

Abstract.— We describe the composition of two colonies of wood ants (FM-1 and FM-2) from southern Finland, identified on the basis of morphological investigations of workers (for FM-1, also of alate gynes and males) as mixed colonies comprising individuals with phenotypes typical of *Formica aquilonia* Yarr., *F. polyctena* Först. and *F. rufa* L. The prevailing species (phenotypes) were *F. polyctena* in FM-1, and *F. rufa* in FM-2. Colony FM-1 was observed every year in the period 1996–2006, almost from the moment it was formed. A first tentative investigation in 1999 revealed that it was already a mixed one and was probably also polygynous. Systematic follow-up investigations from 2002 to 2006 demonstrated relative stability of the proportions of individual species (phenotypes). A possible origin of this permanently mixed colony is postulated and discussed.

Key words.— Ants, Formicidae, *Formica rufa*-group, *Formica polyctena*, *Formica aquilonia*, *Formica rufa*, mixed colonies, polygyny, morphology, phenotypes.

ANNALES ZOOLOGICI (Warszawa), 2006, 56(4): 675-752

REVIEW OF THE GENERA FROM THE SUBFAMILY DORYCTINAE (HYMENOPTERA: BRACONIDAE) NEW FOR JAPAN

SERGEY A. BELOKOBYLSKIJ[1] and KAORU MAETO[2]

[1]*Museum and Institute of Zoology, Polish Academy of Sciences, Wilcza 64, Warszawa 00-679, Poland; Zoological Institute, Russian Academy of Sciences, St. Petersburg, 199034, Russia; e-mail: sb@zin.ru*
[2]*Laboratory of Insect Science, Faculty of Agriculture, Kobe University, Rokkodai 1-1, Nada-ku, Kobe 657-8501, Japan; e-mail: maeto@kobe-u.ac.jp*

Abstract.— Ten genera of the subfamily Doryctinae are recorded from Japan for the first time: *Caenophanes* Foerster, 1862, *Guaygata* Marsh, 1993, *Leluthia* Cameron, 1887, *Mimipodoryctes* Belokobylskij, 2001, *Neurocrassus* Šnoflak, 1945, *Parallorhogas* Marsh, 1993, *Platyspathius* Viereck, 1911, *Polystenus* Foerster, 1862, *Rhacontsira* Belokobylskij, 1998, and *Spathiomorpha* Tobias, 1976. Twenty five new species and one new subspecies are described from the Japanese islands: *Caenophanes confusus* **sp. nov.**, *C. infuscatus* **sp. nov.**, *C. kyushuensis* **sp. nov.**, *C. pumilio* **sp. nov.**, *C. rasilis* **sp. nov.**, *C. yakuensis* **sp. nov.**, *Guaygata mayaensis* **sp. nov.**, *Leluthia* (*Leluthia*) *honshuensis* **sp. nov.**, *L.* (*L.*) *nagoyae* **sp. nov.**, *L.* (*Euhecabolodes*) *postfurcalis* **sp. nov.**, *Mimipodoryctes rokkoensis* **sp. nov.**, *Neurocrassus hinoematus* **sp. nov.**, *N. hypodoryctoides* **sp. nov.** *N. ibarakius* **sp. nov.**, *N. miyanourus* **sp. nov.**, *N. sanageensis* **sp. nov.**, *Parallorhogas ambiguus* **sp. nov.**, *P. boninus* **sp. nov.**, *P. icarus* **sp. nov.**, *P. maeseensis* **sp. nov.**, *P. pacificus* **sp. nov.**, *P. pacificus micronesianus* **subsp. nov.**, *Rhacontsira insulicola* **sp. nov.**, *R. toyota* **sp. nov.**, *R. yamagishii* **sp. nov.**, *Spathiomorpha japonica* **sp. nov.** Six species are recorded for the first time for Japan: *Guaygata mariae* (Belokobylskij, 1993), *Neurocrassus rarus* (Belokobylskij, 1982), *N. tentorialis* Belokobylskij, 1993, *Platyspathius ornatulus* (Enderlein, 1912), *Polystenus rugosus* Foerster, 1862, *Rhacontsira heterospiloides* (Belokobylskij, 1988). Two new synonyms are suggested: *Rhyssalus rubriceps* Cameron, 1909 = *Mimipodoryctes robustus* Belokobylskij, 2001 (**syn. nov.**); *Spathiohormius ornatulus* Enderlein, 1912 = *Spathius dinoderi* Gahan, 1925 (**syn. nov.**). The following new combinations are given: *Guaygata mariae* (Belokobylskij, 1993), **comb. nov.**, *Polystenus remus* (Nixon, 1943), **comb. nov.**, *Spathiostenus tenuis* (Nixon, 1943), **comb. nov.** Lectotypes of *Spathiohormius ornatulus* Enderlein and *Rhyssalus rubriceps* Cameron are designated for stability of nomenclature. Keys to species of the genera *Caenophanes* Foerster, *Guaygata* Marsh, *Leluthia* Cameron, *Mimipodoryctes* Belokobylskij, *Neurocrassus* Šnoflak, *Parallorhogas* Marsh, *Rhacontsira* Belokobylskij, and *Spathiomorpha* Tobias are provided.

Key words.— Hymenoptera, Braconidae, Doryctinae, new taxa, new records, new synonyms, keys, Japan.

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SINOPACHYMERIDIUM POPOVI GEN. AND SP. NOV. – A NEW FOSSIL TRUE BUG (HETEROPTERA: PACHYMERIDIIDAE) FROM THE MIDDLE JURASSIC OF INNER MONGOLIA, CHINA

YUNZHI YAO[1], WANZHI CAI[1,*] and DONG REN[2]

[1]*Department of Entomology, China Agricultural University, Yuanmingyuan West Road, Beijing 100094, China; e-mail: caiwz@cau.edu.cn;*
**corresponding author*
[2]*Key Lab of Insect Evolution and Environmental Changes, Capital Normal University, Beijing 100037, China; e-mail: rendong@mail.cnu.edu.cn*

Abstract.— *Sinopachymeridium popovi*, a new genus and species of fossil true bugs is described. The new species is reported from the Jiulongshan Formation (Middle Jurassic), in Daohugou Village, Shantou Town, Ningcheng County, Inner Mongolia, China. It clearly belongs to Pachymeridiidae by Sc, R and M diverging at a single point and presence costal fracture. The new genus is most similar to *Pachycoridium* Popov, 1986, but can be distinguished from the latter by the larger body, rostrum extending to second abdominal sternite, first vein of membrane situated remote from anterior margin of fore wing and fourth and fifth veins forming a merged vein.

Key words.— *Sinopachymeridium popovi*, new genus, new species, Pachymeridiidae, fossil, Middle Jurassic, Jiulongshan Formation.

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A NEW GENUS AND SPECIES OF PALAEONTINIDAE (INSECTA: HEMIPTERA) FROM THE MIDDLE JURASSIC OF DAOHUGOU, CHINA

BO WANG[1*], HAICHUN ZHANG[1], YAN FANG[1] and ZHILI ZHANG[2]

[1]*State Key Laboratory of Palaeobiology and Stratigraphy (Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences), 39 East Beijing Rd., Nanjing 210008, China*
[2]*College of Resources and Information Technology, China University of Petroleum, 18 Fuxuelu, Beijing 102249, China*
**Corresponding author; e-mail: bowang@nigpas.ac.cn*

Abstract.— *Eoiocossus validus* **gen**. and **sp. nov.**, a new genus and species belonging to Palaeontinidae (Insecta, Hemiptera), is described from the Middle Jurassic of Daohugou, Inner Mongolia, China. It differs from other genera as follows: large forewing with small clavus, Sc terminating in costal margin beyond the nodus, nodal line along m_4-cua partly, CuA_2 with two branches and A_2 developed. The ripple-like posterior margin and fresh colour pattern of Eoiocossus may be sex characteristics. The marginal membrane and ambient vein have not distinct evolutionary implications for the Palaeontinidae.

Key words.— *Eoiocossus validus*, Hemiptera, Palaeontinidae, Middle Jurassic, Daohugou, China, new genus, new species.

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PROTODIKRANEURINI TRIB. NOV. FROM THE EOCENE BALTIC AMBER (HEMIPTERA: CICADELLIDAE: TYPHLOCYBINAE)

CEZARY GĘBICKI[1] and JACEK SZWEDO[2*]

[1]*Department of Ecology and Environment Protection, Jan Długosz University of Częstochowa, Al. Armii Krajowej 13/15, PL 42-201 Częstochowa; e-mail: cgeb@ajd.czest.pl*
[2]*Department of Systematics and Zoogeography, Museum and Institute of Zoology, Polish Academy of Sciences, Wilcza 64, PL 00-679 Warszawa, Poland; e-mail: szwedo@miiz.waw.pl*
[*]*Corresponding author*

Abstract.— The new genera and species of the new fossil tribe Protodikraneurini **trib. nov.** of leafhoppers (Cicadellidae: Typhlocybinae) are described. The new genera and species are: *Protodikraneura* **gen. nov.** with *Protodikraneura cephalica* **sp. nov.** and *Protodikraneura nasti* **sp. nov.**, *Stareono mirabilis* **gen. nov.** and **sp. nov.** The keys to recently recognized tribes of Typhlocybinae is given. Taxonomic position of Protodikraneurini as well as extant tribes of Typhlocybinae is discussed. Some other fossils formerly believed to be representatives of Typhlocybinae and their placement is also discussed. "*Typhlocyba*" *bremi* Heer, 1855 is excluded from Typhlocybinae.

Key words.— Hemiptera, Cicadellidae, Typhlocybinae, Protodikraneurini, *Protodikraneura*, *Stareono*, *Protodikraneura nasti*, *Protodikraneura cephalica*, *Stareono mirabilis*; new tribe, new genera, new species, Eocene, Baltic amber, inclusions, fossil insects, taxonomy.

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THE FIRST FOSSIL REPRESENTATIVE OF THE GENUS *ANALETRIS* EDMUNDS, 1972 (INSECTA: EPHEMEROPTERA: ACANTHAMETROPODIDAE) FROM THE EOCENE BALTIC AMBER

ROMAN J. GODUNKO[1*] and MAŁGORZATA KŁONOWSKA-OLEJNIK[2]

[1*]*State Museum of Natural History, National Academy of Sciences of Ukraine, Teatralna str. 18, 79008 Lviv, Ukraine; e-mail: godunko@museum.lviv.net, godunko@seznam.cz*
[2]*Department of Hydrobiology, Institute of Environmental Sciences, Jagiellonian University, Gronostajowa str. 7, 30-387 Kraków, Poland; e-mail: uxklonow@cyf-kr.edu.pl*

Abstract.— The male subimago of *Analetris secundus* **sp. nov.** is described and illustrated from the Eocene Baltic amber. A new species presents the first fossil representative of the previously monotypic genus *Analetris* Edmunds, 1972. The extant species *Analetris eximia* Edmunds, 1972 is known from the Northwestern of the North America. Critical characters distinguishing these both species are discussed.

Key words.— Ephemeroptera, Acanthametropodidae, *Analetris*, new species, fossil, Eocene, Baltic amber.

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FOUR NEW SPECIES OF PTYCTIMOUS MITES (ACARI: ORIBATIDA) FROM MESOAMERICA

WOJCIECH NIEDBAŁA

Department of Animal Taxonomy and Ecology, Adam Mickiewicz University, Umultowska 89, 61-614 Poznań; e-mail: niedbala@amu.edu.pl

Abstract.— Morphological descriptions of four new ptyctimous species: *Mesoplophora* (*Mesoplophora*) *parabacilla* **sp. nov.**, *Arphthicarus paraallocotos* **sp. nov.**, *Protophthiracarus varablancus* **sp. nov.**, *Notophthiracarus conspersus* **sp. nov.** are given. For each species a comparative analysis has been made.

Key words.— Acari, Ptyctima, new species, Mesoamerica.

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NOTHRUS OLSZANOWSKII AND *NOTHRUS PALLIDUS* (ACARI: ORIBATIDA: NOTHRIDAE) NEW CROTONIOID MITES FROM ECUADOR

MAŁGORZATA KUTY

Department of Animal Taxonomy and Ecology, A. Mickiewicz University, Umultowska 89, 61-614 Poznań, Poland; e-mail: cardamina@interia.pl

Abstract.— The morphology of new Neotropical oribatid mites *Nothrus olszanowskii* **sp. nov.** and *N. pallidus* **sp. nov.** from Ecuador is described and illustrated. The comparison with the most similar species: *Nothrus jaliscoensis* Palacios-Vargas et Iglesias, 1997, *N. gracilis* Hammer, 1961 and *N. discifer* Hammer, 1961 is included.

Key words.— *Nothrus olszanowskii*, *N. pallidus*, Acari, Oribatida, Nothridae, morphology, Ecuador, Neotropical region, new species.

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DESCRIPTION OF THE LARVA OF *ENEMOTHROMBIUM BIFOLIOSUM* (CANESTRINI, 1884) (ACARI: PARASITENGONA: MICROTROMBIDIIDAE), REDESCRIPTION OF ADULT AND DEUTONYMPH WITH COMMENTS ON THE PHYLOGENY OF MICROTROMBIDIIDAE

ANDREAS WOHLTMANN[1, *] and GRZEGORZ GABRYŚ[2, 3]

[1]*Findorffstr. 11, D-27721 Ritterhude, Germany; e-mail: wohltman@uni-bremen.de*
[2]*Department of Biology, Institute of Biotechnology and Environmental Sciences, University of Zielona Góra, Monte Cassino 21B, 65-561 Zielona Góra, Poland; e-mail: g.gabrys@ibos.uz.zgora.pl*
[3]*Department of Zoology & Ecology, Wrocław University of Environmental and Life Sciences, ul. Kożuchowska 5b, Pl-51-631, Wrocław, Poland*
[*]*to whom all correspondence should be sent*

Abstract.— The larva of *Enemothrombium bifoliosum* (Canestrini, 1884) is described for the first time. Postlarval instars are redescribed and the neotype is designated. Diagnoses of adults, deutonymphs and larvae for *Enemothrombium* Berlese, 1910 and *Valgothrombium* Willmann, 1940 are provided. *Parafeiderium culicoidium* Vercammen-Grandjean et Cochrane, 1974 is transferred to *Enemothrombium*. *Parafeiderium stuarti* Baker, 1999 is transferred to *Valgothrombium*. *Parafeiderium* Vercammen-Grandjean et Cochrane, 1974 is considered a junior synonym of *Enemothrombium* Berlese, 1910. *Lacinitrombium* Southcott, 1994 and *Furcotrombium* Southcott, 1994 are synonymized with *Valgothrombium*. As a result, four new combinations arose: *Enemothrombium culicoidium* (Vercammen-Grandjean et Cochrane, 1974), **comb**. **nov**., *Valgothrombium fluminis* (Michener, 1946), **comb**. **nov**., *Valgothrombium spasiscutum* (Robaux, 1974), **comb**. **nov**. and *Valgothrombium stuarti* (Baker, 1999), **comb**. **nov**. Data about phenology, life cycle, development and parasitism of *E. bifoliosum* are reported. The phylogenetic position of *Enemothrombium* within Microtrombidiidae is discussed.

Key words.— Acarology, taxonomy, biology, life cycle, neotype, new synonym, new combination.

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CROSS-SPECIES AMPLIFICATION OF MICROSATELLITE LOCI IN EUROPEAN WOODPECKERS (PICIDAE)

ROBERT RUTKOWSKI*, TOMASZ D. MAZGAJSKI and ŁUKASZ REJT

Museum and Institute of Zoology, Polish Academy of Sciences, Wilcza 64, 00-679 Warsaw, Poland
**Corresponding author: e-mail: robertrut@miiz.waw.pl*

Abstract.— Microsatellites are currently a popular genetic marker in population and conservation genetics. Initial identification of the marker is expensive and labour-consuming, therefore cross-species microsatellite amplification is often use in species with a poorly recognized genome. The aim of our study was to assess the possibility of using microsatellite markers described for white-backed woodpecker *Dendrocopos leucotos* in genetic studies of other species of European Picidae. The set of six microsatellites was tested on nine woodpecker species. For each of them we describe number of loci successfully amplified and their level of polymorphism. We briefly discuss the possibility of utilizing tested markers in population and ecological studies of Picidae.

Key words.— Woodpeckers, Picidae, microsatellites, cross-species amplification, *Dendrocopos*, *Picus*, *Picoides*, *Dryocopus*, *Jynx*.

Annales Zoologici

Contents of volume 56

M. V. Angel, K. Blachowiak-Samolyk. *Obtusoecia* (Halocyprida: Myodocopa: Ostracoda) a bipolar planktonic oceanic genus. Taxonomy, bathymetry and zoogeographical distribution 197
M. Banaszkiewicz. Comparative study of female genitalia in Pedinini (sensu Iwan 2004) (Coleoptera: Tenebrionidae: Pedinini), with the notes of the classification 59
L. Bartolozzi, A. Sforzi. Remarks on the Brentid collection of the Warsaw Museum and Institute of Zoology (Coleoptera: Brentidae) 29
S. A. Belokobylskij, K. Maeto. Review of the genera from the subfamily Doryctinae (Hymenoptera: Braconidae) new for Japan 675
J. Bezděk. Three new species and a new record of *Apophylia* Thomson, 1858 from Eastern India (Coleoptera: Chysomelidae: Galerucinae) 259
S. Bouamer, S. Morand. Nematodes parasites of Testudinidae (Chelonia): list of species and biogeographical distribution 225
M. R. Chani-Posse. Larval morphology and chaetotaxy of *Philonthus* Stephens (Coleoptera: Staphylinidae: Staphylininae) based on descriptions of eight species from Argentina 7
X. Chen, X. Li, A. Liang, L. Yang. Review of the bamboo delphacid genus *Malaxa* Melichar (Hemiptera: Fulgoroidea: Delphacidae) from China 159
J. Constant. Revision of the Eurybrachidae (VI). The Australian genus *Nirus* Jacobi, 1928 (Hemiptera: Fulgoromorpha: Eurybrachidae) 305
W. Czechowski, B. Markó. Uncomfortable protection: *Formica polyctena* Först. shelters *Formica fusca* L. from *Formica sanguinea* Latr. (Hymenoptera: Formicidae) 539
W. Czechowski, A. Radchenko. Do permanently mixed colonies of wood ants (Hymenoptera: Formicidae) really exist? 667
G. Dlussky, A. Radchenko. *Fallomyrma* gen. nov., a new myrmicine ant genus (Hymenoptera: Formicidae) from the Late Eocene European amber 153
H. Dong, D. Yang, T. Hayashi. Review of the species of *Poecilosomella* Duda (Diptera: Sphaeroceridae) from continental China 643
G. E. Flores, R. Carrara. Two new species of *Nyctelia* Latreille from western Argentina, with zoogeographical and ecological remarks on the high mountain habitat (Coleoptera: Tenebrionidae) ... 487
J. Gardzinska. A revision of the spider genus *Ohilimia* Strand, 1911 (Araneae: Salticidae) 375
J. Gardzińska, M. Żabka. A revision of the spider genus *Diolenius* Thorell, 1870 (Araneae: Salticidae) .. 387
C. Gębicki, J. Szwedo. Protodikraneurini trib. nov. from the Eocene Baltic amber (Hemiptera: Cicadellidae: Typhlocybinae) 763
R. J. Godunko, M. Kłonowska-Olejnik. The first fossil representative of the genus *Analetris* Edmunds, 1972 (Insecta: Ephemeroptera: Acanthametropodidae) from the Eocene Baltic amber 785
R. J. Godunko, Ch. Neuman. Fossil mayfly collections of the Museum für Naturkunde, Humboldt University Berlin. I. *Electroletus soldani* gen. and sp. nov. (Ephemeroptera: Ameletidae) from the Eocene Baltic amber 175
A. Gök, E. Gül, I. Şen, Y. Ayvaz. Redescription of *Lochmaea limbata* Pic, 1898 with a new synonym (Coleoptera: Chrysomelidae: Galerucinae) 601
C. R. Haddad, W. Wesołowska. Notes on taxonomy and biology of two *Stenaelurillus* species from southern Africa (Araneae: Salticidae) 575
M. Hołyńska. On species of the genus *Thermocyclops* (Copepoda: Cyclopodidae) occurring in northern Queensland, Australia 335
D. Iwan. Revision of African *Ectateus* group (Coleoptera: Tenebrionidae: Platynotina). Part IV. *Quadrideres luigii*, new species from Kenya 79
D. Iwan, M. Banaszkiewicz. Review of the genus *Bantodemus* Koch, 1955 (Coleoptera: Tenebrionidae: Platynotina) 623
D. Iwan, G. Robiche. *Pseudoselinus zambiaiensis*, a new species from Africa (Coleoptera: Tenebrionidae: Platynotina) 481

A. Kilian. Studies on morphology of immature stage of the tribe Agathidiini (Coleoptera: Leiodidae). Part IV. *Agathidium angulare* Mannerheim, 1852 587
N. J. Kluge, R. J. Godunko, W. Krzemiński. A new mayfly family (Insecta: Ephemeroptera) from Eocene Baltic amber 181
M. Kuty. *Nothrus olszanowskii* and *Nothrus pallidus* (Acari: Oribatida: Nothridae) new crotonoid mites from Ecuador 799
Y. Liu, D. Ren, N. D. Sinitshenkova, C. Shih. A new Middle Jurassic stonefly from Daohugou, Inner Mongolia, China (Insecta: Plecoptera) 549
M. Liu, D. Ren, J. Tan. New fossil weevils (Coleoptera: Curculionoidea: Nemonychidae) from the Jehol Biota of western Liaoning, China 601
X. Liu, D. Yang. Revision of the species of *Neochauliodes* Weele, 1909 from Yunnan (Megaloptera: Corydalidae: Chauliodinae) 187
A. Lozan, V. Thomas. Species of the genus *Microchelonus* Szépligeti, 1908 with very small apical metasomal aperture in males (Hymenoptera: Braconidae: Cheloninae) 327
W. M. Mathis, T. Zatwarnicki. A review of the New World species of the shore-fly genus *Leptopsilopa* Cresson (Diptera: Ephydridae) 85
G. S. Medvedev, D. Iwan. Notes on the taxonomy of tenebrionid beetles 613
I. Mirabdullayev. Redescription of *Thermocyclops kawamurai* Kikuchi, 1940 (Copepoda: Cyclopoida) 369
W. Niedbała. Four new species of ptyctimous mites (Acari: Oribatida) from Mesoamerica 791
A. Radchenko, G. W. Elmes, A. Alicata. Taxonomic revision of the *schencki*-group of the ant genus *Myrmica* Latreille (Hymenoptera: Formicidae) from the Palaearctic Region 499
J. M. Radwański, C. Fiera, W. M. Weiner. A new species of *Protaphorura* Absolon, 1901 (Collembola: Onychiuridae: Onychiurinae) from Romania and a redescription of *Protaphorura glebata* (Gisin, 1952) 449
D. Ren, J. Tan. A new cupedid genus (Coleoptera: Archostemata: Cupedidae) from Jehol Biota of western Liaoning, China 457
R. Rutkowski, T. D. Mazgajski, Ł. Rejt. Cross-species amplification of microsatellite loci in European woodpeckers Picidae 819
W. Schawaller. The species of the African genus *Stomylus* Fåhraeus (Coleoptera: Tenebrionidae: Diaperinae) 471
A. Ślipiński, D. Burckhardt. Revision of the Australian Coccinellidae (Coleoptera). Part 5. Tribe Serangiini 37
A. Ślipiński, J. A. Giorgi. Revision of the Australian Coccinelidae (Coleoptera). Part 6. Tribe Chilocorini 265
A. Smolis, L. Deharveng. A new species of *Pronura* Delamare Deboutteville, 1953 from North Vietnam (Collembola: Neanuridae: Neanurinae) 443
M. Sterzyńska, I. Kaprus, R. Ehrnsberger. A new species of the genus *Anurida* Laboulbéne, 1865 from river floodplains of Poland (Collembola: Neanuridae) 255
E. Stworzewicz, B. M. Pokryszko. Eocene terrestrial snails (Gastropoda) from Baltic amber 215
A. Susulovsky, G. Winiszewska. Two new species of the genus *Prionchulus* Cobb, 1916 (Nematoda: Mononchina) 241
R. Szadziewski, P. Dominiak. New synonyms of European Ceratopogonidae (Diptera) 139
J. Szwedo. A new genus *Waghilde* gen. nov. representing a new tribe of the planthopper family Achilidae from the Eocene Baltic amber (Hemiptera: Fulgoromorpha) 167
J. Szwedo, T. Wappler. New planthoppers (Insecta: Hemiptera: Fulgoromorpha) from the Middle Eocene Messel maar 555
J. Tan, D. Ren, Ch. Shih. New cupedids from the Middle Jurassic of Inner Mongolia, China (Coleoptera: Archostemata) 1
K. W. Tomaszewska. *Stroheckeria quadrimaculata*, new genus and new species of Lycoperdininae from Vietnam (Coleoptera: Endomychidae) 465
B. Wang, H. Zhang, Y. Fang, Z. Zhang. A new genus and species of Palaeontinidae (Insecta: Hemiptera) from the Middle Jurassic of Daohugou, China 757
M. Wang, D. Yang, P. Grootaert. New species of *Teuchophorus* from China (Diptera: Dolichopodidae) ... 315
A. Warchałowski. *Sphaeroderma ancora*, a new Asian species of the subfamily Alticinae (Insecta: Coleoptera: Chrysomelidae) 441
A. Warchałowski. *Stylosomus arnoldi*, a new North-African species of the subfamily Cryptocephalinae (Insecta: Coleoptera: Chrysomelidae) 497

W. Wesołowska. A new genus of ant-mimicking salticid spider from Africa (Araneae: Salticidae: Leptorchestinae) 435
A. Wohltmann, G. Gabryś. Description of the larva of *Enemothrombium bifoliosum* (Canestrini, 1884) (Acari: Parasitengona: Microtrombidiidae), with redescription of adult and deutonymph and comments on the phylogeny of Microtrombidiidae 805
A. J. Woźnica. *Protoorbellia hoffeinsorum* gen. and sp. nov., a new Heleomyzoid genus and species of the tribe Orbelliini Gorodkov from Baltic amber (Diptera: Heleomyzidae) 147
A. J. Woźnica. Three new species of the genus *Suillia* Robineau-Desvoidy, 1830 from the Neotropical Region (Diptera: Heleomyzidae) 657
D. Yang, P. Grootaert. A new species of *Chillocottomyia* from Guizhou, with a key to species from China (Diptera: Empidoidea: Hybotinae) 311
Y. Yao, W. Cai, D. Ren. *Sinopachymeridium popovi* gen. and sp. nov. – a new fossil true bug (Heteroptera: Pachymeridiidae) from the Middle Jurassic of Inner Mongolia, China 753
W. Zhang, J. Li, S. Fu, J. Qiu. Four new earthworm species belonging to the genus *Amynthas* Kinberg and *Metaphire* Sims et Easton (Megascolecidae: Oligochaeta) from Guangdong, China 249
Y. Zhu, D. Yang, P. Grootaert. A new species of *Paramedetera*, with a key to species from China (Diptera: Dolichopodidae) 323
M. Żabka. Salticidae (Arachnida: Araneae) from Oriental, Australian and Pacific Regions. XIX. Genus *Pellenes* Simon, 1876 in Australia 567

Supplement 1

W. Niedbała. Pyctimous mites (Acari: Oribatida) of South Africa 1
W. Niedbała. Supplement to the knowledge of pyctimous mites (Acari: Oribatida) from Australian Region 99

New taxa described in volume 56

Amalaberga gen. nov. (Hemiptera: Eurybrachidae) . . . . . Szwedo, Wappler p. 561
Amalaberga ostrogothiorum sp. nov. (Hemiptera: Eurybrachidae) . . . . . Szwedo, Wappler p. 561
Amynthas dinghumontis sp. nov. (Oligochaeta: Megascolecidae) . . . . . Zhang, Li, Fu, Qiu p. 250
Amynthas liaoi sp. nov. (Oligochaeta: Megascolecidae) . . . . . Zhang, Li, Fu, Qiu p. 251
Analetris secundus sp. nov. (Ephemeroptera: Acantometropodidae) . . . . . Godunko, Kłonowska-Olejnik p. 786
Anurida riverina sp. nov. (Collembola: Neanuridae) . . . . . Sterzyńska, Ehrnsberger p. 255
Apophylia dembickyi sp. nov. (Coleoptera: Chrysomelidae) . . . . . Bezděk p. 260
Apophylia halberstadti sp. nov. (Coleoptera: Chrysomelidae) . . . . . Bezděk p. 260
Apophylia pesai sp. nov. (Coleoptera: Chrysomelidae) . . . . . Bezděk p. 262
Aristoleuctra gen. nov. (Plecoptera: Baleyopterygidae) . . . . . Liu, Ren, Sinitshenkova p. 550
Aristoleuctra yehae sp. nov. (Plecoptera: Baleyopterygidae) . . . . . Liu, Ren, Sinitshenkova p. 550
Arphthicarus paraallocotos sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 793
Babidae fam. nov. (Insecta: Ephemeroptera) . . . . . Kluge, Godunko, Krzemiński p. 181
Baba gen. nov. (Ephemeroptera: Babidae) . . . . . Kluge, Godunko, Krzemiński p. 182
Baba lapidea sp. nov. (Ephemeroptera: Babidae) . . . . . Kluge, Godunko, Krzemiński p. 182
Baninus gen. nov. (Hemiptera: Lophopidae) . . . . . Szwedo, Wappler p. 558
Baninus thuringiorum sp. nov. (Hemiptera: Lophopidae) . . . . . Szwedo, Wappler p. 558
Bantodemus durbaniensis sp. nov. (Coleoptera: Tenebrionidae) . . . . . Iwan, Banaszkiewicz p. 627
Bantodemus harmonius sp. nov. (Coleoptera: Tenebrionidae) . . . . . Iwan, Banaszkiewicz p. 627
Brenthorrhinoides latipecteris sp. nov. (Coleoptera: Nemonychidae) . . . . . Liu, Ren, Tan p. 608
Brenthorrhinoides angustipecteris sp. nov. (Coleoptera: Nemonychidae) . . . . . Liu, Ren, Tan p. 608
Brenthorrhinoides magnoculi sp. nov. (Coleoptera: Nemonychidae) . . . . . Liu, Ren, Tan p. 608
Brumoides piae sp. nov. (Coleoptera: Coccinellidae) . . . . . Ślipiński, Giorgi p. 268
Caenophanes confusus sp. nov. (Hymenoptera: Braconidae) . . . . . Belokobylskij, Maeto p. 676
Caenophanes infuscatus sp. nov. (Hymenoptera: Braconidae) . . . . . Belokobylskij, Maeto p. 679
Caenophanes kyushuensis sp. nov. (Hymenoptera: Braconidae) . . . . . Belokobylskij, Maeto p. 681
Caenophanes pumilio sp. nov. (Hymenoptera: Braconidae) . . . . . Belokobylskij, Maeto p. 683
Caenophanes rasilis sp. nov. (Hymenoptera: Braconidae) . . . . . Belokobylskij, Maeto p. 685
Caenophanes yakuensis sp. nov. (Hymenoptera: Braconidae) . . . . . Belokobylskij, Maeto p. 688
Chilocorus maculatus sp. nov. (Coleoptera: Coccinellidae) . . . . . Ślipiński, Giorgi p. 270
Chilocorus micrus sp. nov. (Coleoptera: Coccinellidae) . . . . . Ślipiński, Giorgi p. 272
Chilocottomyia zhuae sp. nov. (Diptera: Empididae) . . . . . Yang, Grootaert p. 311
Diolenius angustipes sp. nov. (Araneae: Salticidae) . . . . . Gardzińska, Żabka p. 392
Diolenius decorus sp. nov. (Araneae: Salticidae) . . . . . Gardzińska, Żabka p. 393
Diolenius insignitus sp. nov. (Araneae: Salticidae . . . . . Gardzińska, Żabka p. 391
Diolenius infulatus sp. nov. (Araneae: Salticidae) . . . . . Gardzińska, Żabka p. 394
Diolenius lineatus sp. nov. (Araneae: Salticidae) . . . . . Gardzińska, Żabka p. 394
Diolenius paradoxus sp. nov. (Araneae: Salticidae) . . . . . Gardzińska, Żabka p. 396
Diolenius redimiculatus sp. nov. (Araneae: Salticidae) . . . . . Gardzińska, Żabka p. 393
Diolenius varicus sp. nov. (Araneae: Salticidae) . . . . . Gardzińska, Żabka p. 396
Diolenius virgatus sp. nov. (Araneae: Salticidae) . . . . . Gardzińska, Żabka p. 395
Electroletus gen. nov. (Ephemeroptera: Ameletidae) . . . . . Godunko, Neumann p. 178
Electroletus soldani sp. nov. (Ephemeroptera: Ameletidae) . . . . . Godunko, Neumann p. 178
Eoiocossus gen. nov. (Hemiptera: Palaeontinidae) . . . . . Wang, Zhang p. 758
Eoiocossus validus sp. nov. (Hemiptera: Palaeontinidae) . . . . . Wang, Zhang p. 758
Fallomyrma gen. nov. (Hymenoptera: Formicidae) . . . . . Dlussky, Radchenko p. 154
Fallomyrma transversa sp. nov. (Hymenoptera: Formicidae) . . . . . Dlussky, Radchenko p. 156
Gracilicupes gen. nov. (Coleoptera: Cupedidae) . . . . . Tan, Ren, Shih p. 2
Gracilicupes crassicruralis sp. nov. (Coleoptera: Cupedidae) . . . . . Tan, Ren, Shih p. 2
Gracilicupes tenuicruralis sp. nov. (Coleoptera: Cupedidae) . . . . . Tan, Ren, Shih p. 5
Guaygata mayaensis sp. nov. (Hymenoptera: Braconidae) . . . . . Belokobylskij, Maeto p. 692
Halmus hilli sp. nov. (Coleoptera: Coccinellidae) . . . . . Ślipiński, Giorgi p. 278
Halmus viridis sp. nov. (Coleoptera: Coccinellidae) . . . . . Ślipiński, Giorgi p. 279
Latocupes gen. nov. (Coleoptera: Cupedidae) . . . . . Ren, Tan p. 458
Latocupes bellus sp. nov. (Coleoptera: Cupedidae) . . . . . Ren, Tan p. 461

Latocupes fortis sp. nov. (Coleoptera: Cupedidae) . . . . . Ren, Tan p. 458
Leluthia (*Euhecabolodes*) *postfucalis* sp. nov. (Hymenoptera: Braconidae) . . . . . Belokobylskij, Maeto p. 700
Leluthia (*Leluthia*) *honshuensis* sp. nov. (Hymenoptera: Braconidae) . . . . . Belokobylskij, Maeto p. 695
Leluthia (*Leluthia*) *nagoyae* sp. nov. (Hymenoptera: Braconidae) . . . . . Belokobylskij, Maeto p. 698
Leptopsilopa andiana sp. nov. (Diptera: Ephydridae) . . . . . Mathis, Zatwarnicki p. 105
Leptopsilopa flavicoxa sp. nov. (Diptera: Ephydridae) . . . . . Mathis, Zatwarnicki p. 111
Leptopsilopa martharum sp. nov. (Diptera: Ephydridae) . . . . . Mathis, Zatwarnicki p. 118
Leptopsilopa placentia sp. nov. (Diptera: Ephydridae) . . . . . Mathis, Zatwarnicki p. 124
Malaxa hunanensis sp. nov. (Hemiptera: Delphacidae) . . . . . Chen p. 163
Mesoplophora (*Mesoplophora*) *parabacilla* sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 791
Metaphire dadingmontis sp. nov. (Oligochaeta: Megascolecidae) . . . . . Zhang, Li, Fu, Qiu p. 253
Metaphire nanlingmontis sp. nov. (Oligochaeta: Megascolecidae) . . . . . Zhang, Li, Fu, Qiu p. 252
Microchelonus gracitis sp. nov. (Hymenoptera: Braconidae) . . . . . Lozan, Tobias p. 333
Microchelonus vickae sp. nov. (Hymenoptera: Braconidae) . . . . . Lozan, Tobias p. 331
Mimipodoryctes rokkoensis sp. nov. (Hymenoptera: Braconidae) . . . . . Belokobylskij, Maeto p. 704
Myrmica inucta sp. nov. (Hymenoptera: Formicidae) . . . . . Radchenko, Elmes p. 511
Myrmica onoyamai sp. nov. (Hymenoptera: Formicidae) . . . . . Radchenko, Elmes p. 507
Myrmica siciliana sp. nov. (Hymenoptera: Formicidae) . . . . . Radchenko, Elmes, Alicata p. 502
Neochauliodes bicuspidatus sp. nov. (Megaloptera: Corydalidae) . . . . . Liu, Yang p. 188
Neochauliodes parcus sp. nov. (Megaloptera: Corydalidae) . . . . . Liu, Yang p. 192
Neochauliodes punctatolosus sp. nov. (Megaloptera: Corydalidae) . . . . . Liu, Yang p. 193
Neurocrassus hinoematus sp. nov. (Hymenoptera: Braconidae) . . . . . Belokobylskij, Maeto p. 707
Neurocrassus hypodoryctoides sp. nov. (Hymenoptera: Braconidae) . . . . . Belokobylskij, Maeto p. 709
Neurocrassus ibarakius sp. nov. (Hymenoptera: Braconidae) . . . . . Belokobylskij, Maeto p. 712
Neurocrassus miyanourus sp. nov. (Hymenoptera: Braconidae) . . . . . Belokobylskij, Maeto p. 714
Neurocrassus sanageensis sp. nov. (Hymenoptera: Braconidae) . . . . . Belokobylskij, Maeto p. 716
Nothrus olszanowskii sp. nov. (Acari: Nothridae) . . . . . Kuty p. 800
Nothrus pallidus sp. nov. (Acari: Nothridae) . . . . . Kuty p. 800
Notophthiracarus conspersus sp. nov. (Acari: Oribatidae) . . . . . Niedbała p. 793
Nyctelia nevadonensis sp. nov. (Coleoptera: Tenebrionidae) . . . . . Flores, Carrara p. 488
Nyctelia setipennis sp. nov. (Coleoptera: Tenebrionidae) . . . . . Flores, Carrara p. 489
Parallorhogas ambiguus sp. nov. (Hymenoptera: Braconidae) . . . . . Belokobylskij, Maeto p. 720
Parallorhogas boninus sp. nov. (Hymenoptera: Braconidae) . . . . . Belokobylskij, Maeto p. 723
Parallorhogas icarus sp. nov. (Hymenoptera: Braconidae) . . . . . Belokobylskij, Maeto p. 725
Parallorhogas maeseensis sp. nov. (Hymenoptera: Braconidae) . . . . . Belokobylskij, Maeto p. 728
Parallorhogas pacificus micronesianus subsp. nov. (Hymenoptera: Braconidae) . . . Belokobylskij, Maeto p. 733
Parallorhogas pacificus sp. nov. (Hymenoptera: Braconidae) . . . . . Belokobylskij, Maeto p. 720
Paramedetera elongata sp. nov. (Diptera: Dolichopodidae) . . . . . Zhu, Yang, Grootaert p. 324
Poecilosomella biseta sp. nov. (Diptera: Sphaeroceridae) . . . . . Dong, Yang, Hayashi p. 650
Poecilosomella guangdongensis sp. nov. (Diptera: Sphaeroceridae) . . . . . Dong, Yang, Hayashi p. 652
Prionchulus bogdanowiczi sp. nov. (Nematoda: Mononchidae) . . . . . Susulowsky, Winiszewska p. 244
Prionchulus hygrophilus sp. nov. (Nematoda: Mononchidae) . . . . . Susulowsky, Winiszewska p. 241
Pronura pomorskii sp. nov. (Collembola: Neanuridae) . . . . . Smolis, Deharveng p. 444
Propupa gen. nov. (Gastropoda: Vertiginidae) . . . . . Stworzewicz, Pokryszko p. 216
Propupa hoffainsorum sp. nov. (Gastropoda: Vertiginidae) . . . . . Stworzewicz, Pokryszko p. 217
Protaphorura ionescui sp. nov. (Collembola: Onychiuridae) . . . . . Radwański, Fiera, Weiner p. 449
Protodikraneurini trib. nov. (Hemiptera: Cicadellidae) . . . . . Gębicki, Szwedo p. 764
Protodikraneura gen. nov. (Hemiptera: Cicadellidae) . . . . . Gębicki, Szwedo p. 765
Protodikraneura cephalica sp. nov. (Hemiptera: Cicadellida) . . . . . Gębicki, Szwedo p. 765
Protodikraneura nasti sp. nov. (Hemiptera: Cicadellidae) . . . . . Gębicki, Szwedo p. 766
Protoorbelia gen. nov. (Diptera: Heleomyzidae) . . . . . Woźnica p. 148
Protoorbelia hoffeinsorum sp. nov. (Diptera: Heleomyzidae) . . . . . Woźnica p. 148
Protophthiracarus varablancus sp. nov. (Acari: Oribatidae) . . . . . Niedbała p. 793
Pseudoselinus zambiaiensis sp. nov. (Coleoptera: Tenebrionidae) . . . . . Iwan, Robiche p. 481
Quadrideres luigii sp. nov. (Coleoptera: Tenebrionidae) . . . . . Iwan p. 79
Rhacontsira insulicola sp. nov. (Hymenoptera: Braconidae) . . . . . Belokobylskij, Maeto p. 739
Rhacontsira toyota sp. nov. (Hymenoptera: Braconidae) . . . . . Belokobylskij, Maeto p. 741

Rhacontsira yamagishii sp. nov. (Hymenoptera: Braconidae) . . . . . Belokobylskij, Maeto p. 743
Serangium bellum sp. nov. (Coleoptera: Coccinellidae) . . . . . Ślipiński, Burckhardt p. 40
Serangium glourius sp. nov. (Coleoptera: Coccinellidae) . . . . . Ślipiński, Burckhardt p. 41
Serangium glourius sp. nov. (Coleoptera: Coccinellidae) . . . . . Ślipiński, Burckhardt p. 41
Serangium magnum sp. nov. (Coleoptera: Coccinellidae) . . . . . Ślipiński, Burckhardt p. 43
Serangium monteithi sp. nov. (Coleoptera: Coccinellidae) . . . . . Ślipiński, Burckhardt p. 44
Serangium nitidum sp. nov. (Coleoptera: Coccinellidae) . . . . . Ślipiński, Burckhardt p. 46
Serangium sculptum sp. nov. (Coleoptera: Coccinellidae) . . . . . Ślipiński, Burckhardt p. 46
Serangium yam sp. nov. (Coleoptera: Coccinellidae) . . . . . Ślipiński, Burckhardt p. 47
Sinopachymeridium gen. nov. (Heteroptera: Pachymeridiidae) . . . . . Yao, Cai, Ren, p. 754
Sinopachymeridium popovi sp. nov. (Heteroptera: Pachymeridiidae) . . . . . Yao, Cai, Ren, p. 754
Sphaeroderma ancora sp. nov. (Coleoptera: Chrysomelidae) . . . . . Warchałowski p. 441
Spathiomorpha japonica sp. nov. (Hymenoptera: Braconidae) . . . . . Belokobylskij, Maeto p. 747
Stareono gen. nov. (Hemiptera: Cicadellidae) . . . . . Gębicki, Szwedo p. 766
Stareono mirabilis sp. nov. (Hemiptera: Cicadellidae) . . . . . Gębicki, Szwedo p. 766
Stenaelurillus natalensis sp. nov. (Araneae: Salticidae) . . . . . Haddad, Wesołowska p. 580
Stroheckeria gen. nov. (Coleoptera: Endomychidae) . . . . . Tomaszewska p. 466
Stroheckeria quadrimaculata sp. nov. (Coleoptera: Endomychidae) . . . . . Tomaszewska p. 469
Stylosomus arnoldi sp. nov. (Coleoptera: Chrysomelidae) . . . . . Warchałowski p. 497
Suillia danielssoni sp. nov. (Diptera: Heleomyzidae) . . . . . Woźnica p. 658
Suillia huggerti sp. nov. (Diptera: Heleomyzidae) . . . . . Woźnica p. 661
Suillia steyskali sp. nov. (Diptera: Heleomyzidae) . . . . . Woźnica p. 662
Termocyclops crucis sp. nov. (Copepoda: Cyclopidae) . . . . . Hołyńska p. 336
Termocyclops pseudoperculifer sp. nov. (Copepoda: Cyclopidae) . . . . . Hołyńska p. 340
Teuchophorus guangdonensis sp. nov. (Diptera: Dolichopodidae) . . . . . Wang, Yang, Grootaert p. 316
Teuchophorus yingdensis sp. nov. (Diptera: Dolichopodidae) . . . . . Wang, Yang, Grootaert p. 318
Teuchophorus zhuae sp. nov. (Diptera: Dolichopodidae) . . . . . Wang, Yang, Grootaert p. 319
Ugandinella gen. nov. (Araneae: Salticidae) . . . . . Wesołowska p. 435
Ugandinella formicula sp. nov. (Araneae: Salticidae) . . . . . Wesołowska p. 436
Waghilde gen. nov. (Hemiptera: Achilidae) . . . . . Szwedo p. 168
Waghilde baltica sp. nov. (Hemiptera: Achilidae) . . . . . Szwedo p. 168
Wedelphus gen. nov. (Hemiptera: Dictyopharidae) . . . . . Szwedo, Wappler p. 556
Wedelphus dichopteroides sp. nov. (Hemiptera: Dictyopharidae) . . . . . Szwedo, Wappler p. 556

New taxa described in volume 56 supplement 1

Acrotritia munita sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 22
Arphthicarus bulbosus sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 34
Arphthicarus scuticus sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 109
Atropacarus (*H.*) *brevisetosus* sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 51
Atropacarus (*H.*) *buffaloensis* sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 114
Austrophthiracarus glenniensis sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 107
Austrophthiracarus parafusticulus sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 107
Austrophthiracarus parapilosus sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 107
Austrophthiracarus parapulchellus sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 108
Austrophthiracarus warburtonensis sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 108
Austrophthiracarus weldboroughensis sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 109
Austophthiracarus cordylus sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 33
Austrotritia engelbrechti sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 18
Euphthiracarus rectsi sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 18
Euphthiracarus scuticus sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 19
Hoplophthiracarus mallacoolaensis sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 106
Indotritia cypha sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 14
Indotritia didyma sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 14
Indotritia eksteeni sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 15
Indotritia fusa sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 15

Indotritia partita sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 16
Indotritia phymatha sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 16
Mesoplophora (*P.*) *elsi* sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 8
Mesoplophora (*P.*) *iuvenalis* sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 9
Mesoplophora (*P.*) *pertenuis* sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 9
Mesoplophora (*P.*) *setulosa* sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 9
Microtritia paratropica sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 106
Notophthiracarus agulhasensis sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 35
Notophthiracarus bonangensis sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 110
Notophthiracarus brachys sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 110
Notophthiracarus buffaloensis sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 110
Notophthiracarus capevidalensis sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 36
Notophthiracarus coetzeeae sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 36
Notophthiracarus cristatus sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 37
Notophthiracarus dandenongemsis sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 111
Notophthiracarus deminutus sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 38
Notophthiracarus diaphorillus sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 39
Notophthiracarus frondeus sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 40
Notophthiracarus glennieensis sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 111
Notophthiracarus gongylos sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 41
Notophthiracarus grosus sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 41
Notophthiracarus knysnaensis sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 42
Notophthiracarus korannabergensis sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 42
Notophthiracarus mekistos sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 43
Notophthiracarus natalensis sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 44
Notophthiracarus parabonangensis sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 111
Notophthiracarus paracapillatus sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 112
Notophthiracarus paraendroedyyoungai sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 45
Notophthiracarus pararavidus sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 112
Notophthiracarus phyllodes sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 46
Notophthiracarus procerus sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 47
Notophthiracarus pumilus sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 47
Notophthiracarus queenslandensis sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 112
Notophthiracarus ravidus sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 113
Notophthiracarus rhachis sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 48
Notophthiracarus rotoitiensis sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 113
Notophthiracarus serratus sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 49
Notophthiracarus spinus sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 49
Notophthiracarus tsitsikamaensis sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 50
Notophthiracarus vernonensis sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 50
Notophthiracarus zululandensis sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 51
Oribotritia afromontanensis sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 10
Oribotritia deminuta sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 11
Oribotritia gladiola sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 11
Oribiotritia paraincognita sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 105
Oribotritia pecki sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 11
Phthiracarus anakolos sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 26
Phthiracarus blythedalensis sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 27
Phthiracarus densus sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 28
Phthiracarus hillcrestensis sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 29
Phthiracarus humilis sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 29
Phthiracarus kokae sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 30
Phthiracarus leliehoekensis sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 30
Phthiracarus pertenuis sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 31
Plonaphacarus toolangiensis sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 106
Protophthiracarus crinatus sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 34
Protophthiracarus engelbrechti sp. nov. (Acari: Oribatida) . . . . . Niedbała p. 35

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