Distribution and taxonomic status of *Triodontella dalmatica*, along with new records of *Hellaserica elongata* (Coleoptera: Scarabaeidae: Sericini)

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**Abstract**

New records of *Hellaserica elongata* (Reitter, 1887) and *Triodontella dalmatica* (Baraud, 1962) are given. Literature records and distribution of *T. dalmatica* are reviewed. *T. dalmatica* is for the first time recorded from European Turkey, Macedonia and Romania. A map of so far known distribution of above species is compiled. *Triodontella bulgarica* (Baraud, 1962), *T. bruneogena* (Silberg, 1906) and *T. dalmatica* are considered valid species rank taxa. *Triodontella bulgarica* Bumla, 2001 is found to be a junior synonym of *Triodontella dalmatica*.

**Taxonomy, new synonymy, distribution, Coleoptera, Scarabaeidae, Sericini, Hellaserica, Triodontella, Balkan peninsula, Palaearctic region**

**INTRODUCTION**

Scarabaeoidea of the Balkan peninsula have been extensively studied in the last four decades (e.g., Mikić 1950–1970, Petrovitz 1969, Král & Malej 1993). Although, if many entomologists collected a considerable material, specimens are dispersed over many private and public collections, hence comprehensive studies exist only for a few groups of Scarabaeoidea for often limited geographical areas. For Sericini, and phytophagous groups of Scarabaeidae in general, our distributional knowledge is rather fragmentary, why further completion of information seems to be necessary.

Among the sericini genera occurring in the Balkans, *Hellaserica* Baraud et Nicolas, 1966, is the only genus recognized endemic to the Balkans, although its phylogenetic relationship to the species of *Orontolima* Schoenherr, 1817 was not investigated yet. In contrast, the genus *Triodontella* Reitter, 1919 has a much wider range being the only one with a complete circummediterranean occurrence and an overall Afrotropical distribution. The nomenclature of the genus is rather complicated as several authors have pointed out (Krell 1991, Keith 2001, Branco & Ruiz 2003). Notwithstanding the clear statements in these contributions, the name *Triodontella* Mulssani, 1842 (non Bory de Saint Vincen, 1827) is still recently used by some authors intentionally or unconsciously referring to the popular monograph of Baraud (1992). Additionally, there are problems regarding the synonymy of *Triodontella* with the Afrotropical genus *Euryopsycha* Péréngey, 1904 which was established by Arrow (1917). Until nomenclature problems mentioned by Branco & Ruiz (2003) as well as the status of *Euryopsycha* are not resolved, we follow these authors suggesting the use of *Triodontella* Reitter, 1919 as valid name for the genus.

Interesting records of material sent to us for identification are presented in this paper. Available information for the species derived from literature is summarized.
MATERIAL AND METHODS

CA - Dark Athon collection, Eberswalde,
CAPE - Andreas Pius collection, Eberswalde,
CP - Petr Pachler collection, Brno,
CRS - T. Gehehr Rolfner collection, Schweinfurt,
CSEF - Uwe Hengel collection, Berlin,
DEIC- Deutsches Entomologisches Institut, Eberswalde-Finnow,
DKCP - Charles University, David Kral collection, Prague,
HNHM - Hungarian Natural History Museum, Budapest,
MNHN - Muséum national d' Histoire naturelle, Paris,
MZFP - Zoological Museum, University of Helvetia,
SMNS - Staatliches Museum fur Naturkunde, Stuttgart,
ZMAS - Zoological Museum, Russian Academy of Sciences, St. Petersburg,
ZMU - Zoological Museum, University of Amsterdam, Amsterdam

Exact label data are cited for the type material only (within the quotation), separate labels are indicated by slash "/". Authors' remarks and addenda are found in square brackets.

TAXONY AND DISTRIBUTION

Triodontella dalmatica (Baraud, 1962)
(Figs 4-6, 7)

Triodontella dalmatica Mlické 1970 34
Triodontella dalmatica auct. Oetter 1986 241
Triodontella dalmatica Reuter 1902 151, Dalla Torre 1913 61, Medvedev 1952 180
Novák 1952 261, 1964 97, Petrovsky 1962 862, 868
Triodontella dalmatica Wester 1929 1072
Triodontella dalmatica Brusnecovnai dalmatica Keth 2001 157
Triodontella dalmatica Bunalski, 2001a 82 (type locality: Bulgaria, Black Sea Coast, at Primorsko, "Arkutino" Res ),
2001b 170, syn. nov

TYPE LOCALITY

Pristvorje (= Pristvorec), Dalmatia.

TYPE MATERIAL EXAMINED

Croatia holotypus (male), labelled "Dalmatia - Pristvorec / Triodontella dalmatica 1 Baraud Holotype (male)", 
Yugoslavia allotypus (female) "Montenegro westchek/ / Brno / Triodontella dalmatica J Baraud Allotype (female)", paratypes (3 male, 1 female) "Petnica Medina 1-8-34/ Serbia 1600 m Thuiner / T dalmatica var
Brusnecovnai dalmatica (all MHN)

ADDITIONAL MATERIAL EXAMINED

**DISTRIBUTION** (Fig. 7). *Triodontella dalmatica* was described quite recently by Baraud (1962). He recognized several distinct species within the "*Triodontella aquila*" - complex, which was regarded by previous authors as a single, widely distributed species through Spain, France, Italy and the Balkan peninsula. Baraud (1962, 1992) noticed that *T. aquila* occurs only in France.

The description of *Triodontella dalmatica* is based only on material from the former Republic Yugoslavija [Pridvorac (Dalmatia) (holotype); W-Montenegro; Ivan (Bošnje); Petrinja Mochrana (1400 m) (Serbie) (paratypes)]. Old records of *T. aquila auct.* non Laporte de Castelnau, 1840 (= *Triodontella dalmatica* (Baraud, 1962)) from Greece were confirmed by Baraud (1992: "...Grèce (sans précision, in coll. Reitter)"), however without reference to other published records by Medvedev (1952), Milišić (1950–1970), Petrowitz (1969), and Reitter (1902).


Figs. 1–6. *Triodontella brunneipennis* (Sahlberg), lectotype (1–3); *T. dalmatica* (Baraud), holotype (4–6); aedeagus in dorsal apical aspect (1, 4); aedeagus in dorsal aspect (2, 5); aedeagus in lateral aspect (3, 6).
The species is not quoted for Hungary (Ádám 1994), but first time recorded from Romania. *T. dalmatica* was not noticed by Panin (1955) for this country. Additionally, Cosmin Manea (Romania, Timișoara, pers. comm. to the senior author in 2001) recorded *T. dalmatica* from Cernăuți (south of Romania) and from Ciupești, Noi (extreme south of Romania).

**Taxonomic status.** *Triodonella dalmatica* may easily be separated from *T. brunnepsinmis* by characters of the male genitalia: apical lobe a little longer and its apex in lateral view narrower and sharper (Figs 1–6).

*Triodonella brunnepsinmis, T. dalmatica* and *T. bucculenta* (Baraud, 1962) are very similar in external and male genital features. In contrast to Keith (2001), we feel that shape of pronotum and its punctuation is too variable to use it to distinguish between these taxa. Since no hybridization zone has been noticed between the taxa, it seems to us not reasonable to rank them as subspecies only.

The holotype of the *T. dalmatica* and the figure of aedeagus in original description of *T. bulgarica* (Baranski 2001: 82, figs 2, 3, 5, 6) are virtually identical in shape of parameres, consequently we consider them to be synonymous.
Triodontella brunneipennis (Sahlberg, 1908)
(Figs 1–3)

Triodontella brunneipennis [as *] Medvedev 1952: 179
Triodontella brunneipennis brunneipennis Keith 2001: 156

Type locality: Asia Minor, Baba Dagh [Turkey]

Type material examined: Turkey Lectotypus (designated by Keith in 2001) (male), labelled: "Asia Minor / Baba Dagh / U / Samb / Spec typ / Mus Zool H fers Spec typ No 932 Triodontella brunneipennis J Sb / Lectotype / Triodontella brunneipennis Sahlberg, 1908 / D Keith 2000" (MZHF), paratypus (male): "Asia Minor / Baba Dagh / U Samb / Paratypus 1907 Triodontella brunneipennis J Sahlberg / Triodontella brunneipennis Sahlb / Bataclani det" (HNHM)

Distribution: The species is so far known only from the type locality, the Baba Dagh mts in the western part of Turkey (Medvedev 1952, Carpaneto et al. 2000, Keith 2001)

Fig. 8: Map with known distribution of Hellsenica elongata (Reuter) [containing records of material examined herein and from literature]
**Hellasseric a elongata (Reitter, 1887)**

*(Fig 8)*


**Type locality** Taygetos,


**Distribution and Collecting Circumstances** (Fig 8) The apparently rare species seems to be restricted to the Peloponnese peninsula (Greece), where it was firstly known only from few localities, the type locality (Taygetos mts.), as well as from the Magali Spilian monastery and Levithion (Petrovitz 1971), and Karkalou (Baraud 1992). It is flying at dusk and had been collected from confers (Petrovitz 1971).

**Acknowledgements**

We wish to express our cordial thanks to all persons who provided us with material from museums or private collections for examination, especially to Lutz Selmer (DEIC), Uwe Hengst (Berlin), Torsten Järnefelt (ZMU), Otto Merki (ZMNH), Oliver Munteanu (MNHN), Peter Pachetloko (CP), Alexander Pütz (Benesse-Hamblin), Wolfgang Schäffer (SMNS), Hans Silberberg (MZIF), Mark Volkert (ZMAM) and Lothar Zerche (DEIC). Otto Merki and Vladimir Vohralik (Charles University in Prague) helped us greatly with obtaining of some literature and maps. The study was supported in part by grant from the Deutsche Forschungsgemeinschaft (DA GRK 503/2) and the Czech Ministry of Education (DK MSMT CR1:398/01/0064)

**Gazetteer**

**Albania**

Abbas Ali [monastery near Tornore], 40°41'N, 020°06'E

Albania [see Lezhë]

Bogota [see Lushnëi Bunës]

Fand [see Fand te Vogel]

Fani te Vogel [see Perreni i Krahëtis]

Lezhë 41°47'N, 019°38'E

Lushnëi [not identified] –

Lushnëi Bunës 41°52'N, 019°22'E

Mal i Dajti [see Mal i Dajti]

Mal i Dajti [mts.] 41°21'N, 019°56'E

Mal i Gropo [mts.] 41°23'N, 020°02'E

Mal i Krujes [mts.] 41°30'N, 019°48'E

Mal i Munëttes [mts.] 41°38'N, 020°06'E

Munëttes [see Mal i Krujes]

Oroshë [see Gjiri]

Oroshë 42°06'N, 020°02'E

Pelagon 40°26'N, 020°05'E

Perreni i Krahëtis 40°23'N, 019°51'E

Shkallë Prisht [not identified]

Zergj [see Zerqan]

Zergj 41°30'N, 020°21'E

**Bosnia and Herzegovina** [Federation of]

Bijela 42°32'N, 018°25'E

Blješna [valley] 43°15'N, 018°02'E

Grob 42°36'N, 018°25'E

Ivan [mts.] 43°46'N, 018°01'E

Podgorica 43°33'N, 017°57'E

Mostar 43°20'N, 017°48'E

Jablanica [see Jablanica na Nerević]

Jablonica na Nerević 43°38'N, 017°45'E

Kupre 43°44'N, 018°24'E

Bulgaria

Artanit 42°29'N, 023°44'E

Belica Brez [tourist resort] 41°36°N, 025°09'E

Bijela Brez [see Belica Brez] 41°52'N, 025°59'E

Gornija [see Gorna]

Cherna 41°51'N, 023°08'E

Cherna 41°51'N, 023°08'E

Dolen 41°25'N, 025°08'E

Kneževina 41°56'N, 025°54'E

Klošter Umg. Rila Geb [see Rilski monaster]

Kresnaški prolom [gorge] 41°48'N, 023°10'E

Krestačklač [see Kresoveni prolom]

Rilski monaster [monastery] 41°08'N, 023°20'E
<table>
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<th>Species</th>
<th>Latitude</th>
<th>Reference</th>
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<td>Scoloporus macedonicus</td>
<td>41°24'N, 027°14'E</td>
<td>Macedonin</td>
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<td>Vana</td>
<td>43°13'N, 026°55'E</td>
<td>Galatia</td>
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<td>Croatica</td>
<td>42°12'N, 026°39'E</td>
<td>Kruja Palanka</td>
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<td>Pridvorne [see Pridvorne]</td>
<td>41°05'N, 021°35'E</td>
<td>Pletvors</td>
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<td>European Turkey</td>
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<td>Demarki</td>
<td>41°49'N, 027°05'E</td>
<td>Romania</td>
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<td>Greece</td>
<td>43°17'N, 022°42'E</td>
<td>Cernhot</td>
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<tr>
<td>Armenia</td>
<td>37°06'N, 022°14'E</td>
<td>Cyprus</td>
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<tr>
<td>Armenia [see Armenia]</td>
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<td>Chechoslova [see Chechoslova]</td>
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<td>37°35'N, 021°23'E</td>
<td>Sicilia</td>
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<td>Karakou</td>
<td>37°33'N, 022°05'E</td>
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<td>37°19'N, 022°13'E</td>
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<td>Levadion</td>
<td>37°41'N, 021°18'E</td>
<td>Delibava palatka</td>
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<td>Levadion [see Levadion]</td>
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<td>Megalos Splavon [see Megalo Splavon]</td>
<td>38°06'N, 022°10'E</td>
<td>Koperkov</td>
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<td>Megalo Splavon (monastery)</td>
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<tr>
<td>Mesovlar [pass]</td>
<td>39°48'N, 021°11'E</td>
<td>Koperov</td>
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<td>Panagias (mit)</td>
<td>38°32'N, 021°37'E</td>
<td>Panorap Mclemer</td>
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<td>Peloponnes [see Peloponnes]</td>
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<td>Peloponnes (peninsulated)</td>
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<tr>
<td>Rionorno</td>
<td>36°55'N, 022°15'E</td>
<td>Ulyma</td>
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**REFERENCES**


Contribution on the synonymy of Palaearctic and Oriental species of Macrogaion (Coleoptera: Ripiphoridae). Part II

Jan BATELKA

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Abstract. Macrogaion obscuricolor Poc., 1912, M. obscuricolor var. semibacicans Poc., 1923 and M. discoidale Poc., 1950 are synonymized with M. novatum (Thunberg, 1784). Macrogaion donkowsi Poc., 1908, M. hesperiacum var. crenatum Poc., 1955 and M. hesperiacum var. echinatum Poc., 1955 are synonymized with M. hesperiacum (Marseul, 1876). Macrogaion subhastatus Poc., 1950 is synonymized with M. ferrugineum (Fabricius, 1775). Macrogaion bipartitum (Fairmaire, 1894) is synonymized with M. spincolle (Fairmaire, 1893). Lectotypes of M. discoidale, M. donkowsi, M. hesperiacum var. crenatum, M. subhastatus and M. spincolle are designated. Lectotype and paralectotype of M. hesperiacum and M. hesperiacum var. echinatum are designated. The distribution and variability of all species are briefly discussed.

Taxonomy, type designation, synonymy, distribution, Coleoptera, Ripiphoridae, Macrogaion, Palaearctic region, Oriental region.

INTRODUCTION

This paper is my second contribution on the synonymy of the Palaearctic and Oriental representatives of the genus Macrogaion Hentz, 1830. The type material of all synonymized taxa and some other material in collections listed below were studied. In my first contribution (Batelka 2003) five taxa were synonymized with Macrogaion bipartitum (Fairmaire, 1894). During my second visit to the MNHN I found the type of M. spincolle (Fairmaire, 1893) deposited in the Fleutiaux collection. The species is conspecific with M. bipartitum and M. bipartitum is therefore synonymized with M. spincolle.

ABBREVIATIONS AND METHODS

The lectotypes and paralectotypes are designated in order to preserve stability of the nomenclature of this group, according to Article 74.7.3 of the Zoological Code (ICZN 1999).

The following abbreviations identify the collections housing the material examined:

BRC - Czech Republic, Prague, Jan Batelka collection;
MNHN - France, Paris, Muséum national d’Histoire naturelle (Nicole Bern);
NMPC - Czech Republic, Prague, National Museum (Václav Palíček);
SMNS - Germany, Stuttgart, Staatsliches Museum für Naturkunde (Wolfgang Schwaller);
SMDT - Germany, Dresden, Staatliches Museum für Tierkunde (Olaf Jager);
ZMBB - Germany, Berlin, Museum für Naturkunde (Monfried Uhlig).

Exact label data are cited for all material. Lines are indicated by single slash (/). Separate labels are indicated by double slash (//). Authors' comments are found in square brackets [p] preceding data indicates it is printed, [hw] preceding data that it is handwritten.

Note: I did not designate the lectotypes and paralectotype for M. obscuricolor Poc., 1912 and M. obscuricolor var. semibacicans Poc., 1923, because the type specimen of M. obscuricolor Poc., 1912 in Poc's collection is labelled as collected in 1917 (i.e. 5 years after the description). M. obscuricolor and M. obscuricolor var. semibacicans are
Maclella nasuta Thunberg, 1784 (type locality Japan)

Macrodiagon obscuraculcus MacLeay, 1823 (type locality Sumatra, Indonesia)

Macrolepiota nasuta var. seminumata MacLeay, 1823 (type locality Sumatra, Indonesia)

**SYSTEMATIC PART**

**Macrodiagon nasutum** (Thunberg, 1784)

Maclella nasuta Thunberg, 1784: 46 (type locality Japan)

Macrodiagon obscuraculcus MacLeay, 1823: 66 (type locality Sumatra, Indonesia)

Macrodiagon obscuraculcus var. seminumata MacLeay, 1823: 15 (type locality Sumatra, Indonesia)

Macrodiagon obscuraculcus var. seminumata MacLeay, 1823: 14 (type locality Sumatra, Indonesia)

**Type Material Examined**


**Additional Material Examined**


**Macrodiagon nasutum** (Marsel, 1876)

Emenaclia bifasciata Marsel, 1876: 478 (type locality Japan)

Microdiagon Donellei MacLeay, 1908: 60 (type locality China, Yunnan, Tibet)

Macrodiagon bifasciata var. obscuraculcus MacLeay, 1908: 2 (type locality Coree, Korea)

**Type Material Examined**


**Macrodiagon nasutum** (Marsel, 1876)

Emenaclia bifasciata var. obscuraculcus MacLeay, 1908: 2 (type locality Japan)

Microdiagon Donellei MacLeay, 1908: 60 (type locality China, Yunnan, Tibet)

Macrodiagon bifasciata var. obscuraculcus MacLeay, 1908: 2 (type locality Coree, Korea)

**Type Material Examined**

Emenaclia bifasciata var. obscuraculcus MacLeay, 1908: 2 (type locality Japan)

Microdiagon Donellei MacLeay, 1908: 60 (type locality China, Yunnan, Tibet)

Macrodiagon bifasciata var. obscuraculcus MacLeay, 1908: 2 (type locality Coree, Korea)


Macrosgaion ferrugineum (Fabricius, 1775)

Mordeka ferruginea Fabricius, 1775 262 (type locality: India oriental)
Mordeka ferruginea Fabricius, 1781 501 (type locality: India)
Lopeseck Colon J I 1959 136 (as synonym of M. ferrugineum)
Mordeka ferruginea Fabricius, 1781 408 (type locality: Cambodia)
Lopeseck Colon J I 1959 136 (as synonym of M. ferrugineum)


ADDITIONAL MATERIAL EXAMINED: Several hundreds of specimens from Europe, Asia and Africa [Coll | JBCP, MNHN, NMPC, SANS, STMD]

Macrosgaion spinolle (Fairmaire, 1893)

Rhynchos spinolle Fairmaire, 1893 38 (type locality: Sangion)
Rhynchos spinosus Fairmaire, 1893 35 (type locality: Burma), syn. nov.
Macrosgaion Lovenius Pci | 1956 44 (type locality: Austrasia) Batela J 2003 60 (as synonym of M. ferrugineum)
VARIABILITY AND DISTRIBUTION

*Macrosiagon nasutum* (Thunberg, 1784)

A completely black species with no colour variability except that some (immature?) specimens are brown. The species is recorded from Korea (Anonymous 1994), China (Gressitt 1941), Borneo, Japan, Nicobar Is., Philippines, Sumatra and Taiwan (Schulte 1923) and Sulawesi (Indonesia) (new record).

*Macrosiagon bifasciatum* (Marseul, 1876)

This species is probably often confused with *Macrosiagon bipunctatum* (Fabricius, 1801), which has a very short, robust metatarsomere 2. Sexes differ in coloration: Pronotum is black in males, red in females. I have seen specimens from Japan, Korea and China. The species belongs to the group of taxa characterized as follows: elytra acute at the apex, yellowish with basal, median and apical black markings or spots, strongly dehiscing, median lobe of pronotum with short process. Other Palearctic and Oriental representatives of this group are: *Macrosiagon bipunctatum*, *M. mediterraneus* Pic, 1910, *M. nasutus* Pic, 1912, *M. medvedevi* Yablinsky-Khizhnyan, 1973, *M. bifasciatum* var. *reductum* Pic, 1909, *M. b. var. basinotum* Pic, 1949, *M. b. var. mibasale* Pic, 1949, *M. b. var. kashmiriense* Pic, 1949, *M. b. var. prescutellare* Pic, 1949, *M. b. var. reducienotum* Pic, 1949 and *M. b. var. semiobliteratum* Pic, 1952. Further research on this complex group is needed.

*Macrosiagon ferrugineum* (Fabricius, 1775)

Some authors traditionally divide this species into two subspecies: *M. f. ferrugineum* (Fabricius, 1775) from Asia and Arabia with black tarsomeres and *M. f. flavellatum* (Fabricius, 1781) from Africa and Europe with striped tarsomeres. A study of several hundred specimens from the whole range of the
species revealed no differences except in colour and size. From my view the colour of the tarsomerses is without any taxonomic value. The species is widely distributed in the Old World from Japan to the South Africa in the south and the Iberian Peninsula in the west.

Macrodiagon spinicollis (Fairmaire, 1893)

A mostly Oriental species recorded from Andaman Is., Cambodia, S-Celebes, India (Uttar Pradesh), Java, Laos, Sumatra, Taiwan, Thailand, Vietnam (Batelka 2003), S-China (E Kwangtung [= Guangdong]) (Gressitt 1941) and Myanmar, the Philippines (new records). There are no records north of latitude 31°N and west of longitude 75°E. More material is listed and variability discussed in Batelka (2003) under M. bipartitum.

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The authors are affiliated with the Department of Biology, University of Waterloo, Waterloo, Ontario, Canada. As emphasized in the preface, molecular biotechnology has made major advances since the second edition was published in 1998. The last 4 years has seen many molecular biotechnology products for medical, agricultural, and industrial become commercial. New devices and diagnostic procedures for DNA technology have been perfected. In this third edition, updated chapters reflect rapid advances of past five years in biotechnology and the social issues related to it, such as cloning, gene therapy, and patenting and releasing genetically engineered organisms.

The volume is organized into parts composed of 22 numbered chapters. Each chapter is divided into subchapters concluded with a detailed summary, references, and a list of review questions. Separated paragraphs, milestones, and "Boxes" summarize important research papers and laboratory procedures in textual parts of particular chapters.

Part I Fundamentals of Molecular Biotechnology (chapters 1 to 8) acts as a stepping stone for the remainder of the book introducing the basics of molecular biotechnology as a revolutionary scientific discipline. Outlined are the procedures of genetic engineering, which became known as recombinant DNA technology and enabled to isolate specific genes and incorporate them in host organisms. Next five chapters deal with the methodologies molecular biotechnology biological systems, prokaryotic and eukaryotic organisms, DNA, RNA, and protein synthesis, chemical synthesis, sequencing, and amplification of DNA, and manipulation of gene expression in prokaryotes. Concluding 2 chapters deal with heterologous protein production in eukaryotic cells, and with directed metabolism and protein engineering. Part II Molecular Biotechnology of Molecular Systems (9 to 16) centers attention upon essential molecular technologies while examining such topics as molecular diagnostics, therapeutic agents, vaccines, synthesis of commercial products by recombinant microorganisms, bioremediation and biomass utilization, plant growth promoting bacteria, microbial insecticides, and large-scale production of proteins from recombinant microorganisms. Part III Eukaryotic Systems (chapters 17 to 20) provides insights into the molecular biotechnology introducing 2 chapters that comprise the methodology and applications of genetic engineering of plants such as development of maize, pathogen- and herbicide-resistant plants, development of stress- and disease-resistant plants, genetic manipulation of flower pigmentation, modification of plant nutritional contents, taste and appearance, plants as biofactories, edible vaccines, and plant yield. In subsequent chapters examined are transgenic animals and human molecular genetics including modes of human inheritance, genetic linkage and gene mapping, human genome sequence, and determining gene function. Part IV Regulating and Patenting Molecular Biotechnology (chapters 21 and 22) ensues coverage of several socially important aspects of molecular biotechnology which can possibly affect many aspects of modern society, namely, agricultural production and medical treatment. Significant ethical, legal, economic, and social issues need to be considered. Reviewed are regulating the use of biotechnology and patenting biotechnology inventions. Regulations encompass the genetically engineered foods, the development of policy for the deliberate release of genetically engineered organisms into the environment, and the issues for sanctioning human gene therapy trials. Final chapter offers an overview of patenting in different countries, of DNA sequence, of multicellular organisms, and fundamental research.

In conclusion, there is a comprehensive glossary (pages 707 to 172) of terms relevant to biotechnology, genetics, and related biomedicale sciences. The volume is superbly illustrated by 480 informative figures, numbered by individual chapters. Featured are all key concepts in schematic representations, time drawings, mostly in colour, and diagrams of miscellaneous molecular, biochemical, cellular, and genetic phenomena biomedical pathways and structural formulae, various biosynthetic, genetic and mutation procedures, arrangements of genes, genotyping, cloning systems and vectors, sequencing systems, PCR cycles, protein engineering, construction of libraries, transformation, hybridisation and other procedures, immunisation screening, and many more. In addition, detailed tabular summaries give overviews of data examined in textual parts.

Over the past two decades, biologists have acquired a very powerful tool in the form of molecular biotechnology. These techniques have led the analysis of biological systems in detail unfurled of only a generation ago. The present book reflects recent developments in biotechnology and the several issues related to it.

Jindrich Jara
Parabuthus cimrmani sp. nov. from Somalia (Scorpiones: Buthidae)

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Abstract: Parabuthus cimrmani sp. nov. is described and compared with other species of the genus known from Somalia. The base color is uniformly yellow to yellowish brown, only the fourth and fifth metasomal segments and the telson are dark. This distinguishes the new species from P. boettgeri Pocock, 1897 and P. septentrionalis Kovarik, 2003, which have the fifth metasomal segment yellow. The pedipalps of both sexes are very narrow and the movable finger is more than twice as long as the manus, which distinguishes P. cimrmani sp. nov from P. boettgeri, P. graminarius Pocock, 1895 and P. leonum (Ehrenberg, 1828). Furthermore, the male of P. cimrmani sp. nov. has an unusually high number of pectinal teeth (61–62).

Taxonomy. new species Scorpiones, Buthidae, Parabuthus, afrotropical region

Parabuthus cimrmani sp. nov.
(Figs 1–5, Table 1.)

Type locality and type repository. Somalia, Maxaans env.; author’s collection (FKCP).

Type material. Somalia, Maxaans env., 1972, male holotype and female allotype preserved in 75% alcohol. Collector Jirás Cimrman during one of his trips to Somalia. No additional material studied.

Etymology. Named after Jirás Cimrman, a well known Czech renaissance man.

Diagnosis. Adults from 83 mm (male holotype) to 85.3 mm (female allotype) long. Base color uniformly yellow to yellowish brown, only fourth and fifth metasomal segments and telson dark. Pectinal teeth number 32–33 in female and 61–62 in male. Stridulatory area on dorsal surface of first and second segments, on third segment absent in female and small, on disc only, in male. Megasoma densely hirsute. Movable finger of pedipalp more than twice as long as manus, bears 14 rows of granules which include external and internal granules. Manus of pedipalp smooth and very narrow in both sexes. Tarsomere 1 of all legs with bristlescombs.

Description of holotype. The adult male holotype is 83 mm long. Measurements of the carapace, telson, segments of the metasoma and segments of the pedipalps, and numbers of pectinal teeth are given in Table 1.

Coloration. The base color is uniformly yellow to yellowish brown, only the fourth and fifth metasomal segments and the telson are dark.

Carapace. The carapace lacks carinae but bears sparse and scattered pointed granules. The anterior margin is straight except for a minor median convexity.

Megasoma. The first to sixth tergites are largely smooth, only posteriorly tuberculate, and bear median keels. The seventh tergite is granulated and bears four carinae. The seventh segment is ventrally without keels and granules, but has an uneven, bumpy surface. The pectinal tooth count is 61 and 62.

Metasoma and telson. The first to fourth metasomal segments bear a total of 10 carinae. The fifth segment has four or five carinae, its ventral surface is granulated, and the median carina may not be always noticeable among the granules. All the segments are variously granulated. Dorsolateral keels of
Table 1: Measurements (in millimetres) of types of *Parabuthus communus* sp. nov.

<table>
<thead>
<tr>
<th>Part</th>
<th>Measurement</th>
<th><em>Parabuthus communus</em> sp. nov</th>
<th><em>Parabuthus communus</em> sp. nov</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>male, HT</td>
<td>female, AT</td>
<td></td>
</tr>
<tr>
<td>total length</td>
<td>83.0</td>
<td>85.3</td>
<td></td>
</tr>
<tr>
<td>carapace</td>
<td>8.1</td>
<td>8.6</td>
<td></td>
</tr>
<tr>
<td>width</td>
<td>9.5</td>
<td>8.6</td>
<td></td>
</tr>
<tr>
<td>metasoma</td>
<td>48.0</td>
<td>48.2</td>
<td></td>
</tr>
<tr>
<td>length</td>
<td>61.1</td>
<td>60.0</td>
<td></td>
</tr>
<tr>
<td>segment I</td>
<td>5.8</td>
<td>6.0</td>
<td></td>
</tr>
<tr>
<td>length</td>
<td>6.6</td>
<td>6.6</td>
<td></td>
</tr>
<tr>
<td>width</td>
<td>5.8</td>
<td>6.4</td>
<td></td>
</tr>
<tr>
<td>segment II</td>
<td>6.7</td>
<td>6.5</td>
<td></td>
</tr>
<tr>
<td>length</td>
<td>5.9</td>
<td>6.5</td>
<td></td>
</tr>
<tr>
<td>width</td>
<td>7.8</td>
<td>7.8</td>
<td></td>
</tr>
<tr>
<td>segment IV</td>
<td>6.0</td>
<td>6.4</td>
<td></td>
</tr>
<tr>
<td>length</td>
<td>8.4</td>
<td>9.1</td>
<td></td>
</tr>
<tr>
<td>width</td>
<td>5.5</td>
<td>5.9</td>
<td></td>
</tr>
<tr>
<td>telson</td>
<td>9.2</td>
<td>8.9</td>
<td></td>
</tr>
<tr>
<td>pedipalp</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>femur length</td>
<td>7.1</td>
<td>7.7</td>
<td></td>
</tr>
<tr>
<td>width</td>
<td>1.9</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>patella</td>
<td>7.9</td>
<td>9.2</td>
<td></td>
</tr>
<tr>
<td>length</td>
<td>2.4</td>
<td>2.4</td>
<td></td>
</tr>
<tr>
<td>width</td>
<td>13.0</td>
<td>14.1</td>
<td></td>
</tr>
<tr>
<td>tibia</td>
<td>2.2</td>
<td>1.9</td>
<td></td>
</tr>
<tr>
<td>manus</td>
<td>9.2</td>
<td>11.0</td>
<td></td>
</tr>
<tr>
<td>finger row</td>
<td>62.64</td>
<td>33.38</td>
<td></td>
</tr>
<tr>
<td>pectinal teeth</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The third and fourth segments terminate in sharp teeth of which the last one is the largest, and those of the fifth segment bear four large teeth. The stridulatory area is located on the dorsal surface of the first and second segments. On the third segment the stridulatory area is small, developed only on the disc. The entire metasoma, but especially the third to fifth segments, and the telson are densely covered by long hairs. The ventral surface of the telson is granulated.

Pedipalp. The trochothorax of the femur are arranged in the basic alpha pattern (Süssom 1990: 70, fig. 3.3). The movable finger is more than twice as long as the manus and bears 14 rows of granules which always include external and internal granules. The manus is smooth and very narrow.

**Variation.** In the female the stridulatory area on the second metasomal segment reaches the posterior margin, whereas in the male it does not. On the third segment the stridulatory area is absent in the female, and in the male it is small, developed only on the disc (see Figs 2 and 3). In the male the telson is bulbous, whereas in the female it is elongate. Also, in the males the metasomal segments are narrower than in the females (see Table 1 and Figs 2 and 3).

**Discussion of variation.** The just noted variation surprisingly concerns characters that are fairly stable, which brings to mind the possibility of two species. Although one specimen is a male and the other a female, the said variation cannot be regarded as sexual dimorphism. Since in all other characters the two specimens are identical and come from the same locality, and since they are the only specimens known, I find it preferable to regard them as one species but note that additional material may prove me incorrect.
Figs 1–5. Parascalops cinerinus sp. nov. 1 – male holotype, dorsal aspect; 2 – male holotype, metasoma, stridulation area; 3 – female allotype, metasoma, stridulation area; 4 – female allotype, dorsal aspect; 5 – female allotype, ventral aspect.
Figs 6-9. 6 – *Parabuthus crucigerensis* Kovařík, male from Somalia, dorsal aspect; 7 – *Parabuthus leioceps* (Ehrenberg), live male (bottom) and female from Ethiopia; 8 – *Parabuthus granimmas* Pocock, male lectotype, dorsal aspect; 9 – *Parabuthus leioceps* Pocock, male paralectotype, dorsal aspect.
Affinities: The described features distinguish *Parabuthus cinereum* sp. nov. from all other species of the genus. They are recounted in the key below. *P. cinereum* sp. nov. seems to be closest to *P. heterurus* and *P. lesera*, from which it differs in proportions and longer chela, namely in the male. From *P. heterurus* it also differs in having the fifth metasomal segment black, in *P. heterurus* it is yellow. The new species has pedipalps similar to *P. erectus*, (see Kovárk 2003), but differs from that species in having the fifth metasomal segment long, pectinal teeth in the male much more numerous, movable finger with 14 rows of granules, and dorso-lateral keels of the fifth metasomal segment with four large teeth (*P. erectus* has only two teeth, which are relatively larger than those in *P. cinereum* sp. nov.).

**Key to species of Parabuthus from Somalia**

1. All metasomal segments yellow or yellowish brown
   - Fourth metasomal segment black (Figs. 1 and 7) 3. *Parabuthus pusillus* Pocock, 1895
   - Fifth metasomal segment yellow or yellowish brown (Fig. 6) 2.

2. Fifth metasomal segment black (Fig. 7) 4. *Parabuthus erectus*, Kovárk 2003
   - Movable finger more than twice as long as manus. Male manus very narrow (Fig. 5)

3. Movable finger only slightly longer than manus. Male manus broad (Fig. 8) 5. *Parabuthus heterurus* Pocock, 1897
   - Movable finger only slightly longer than manus. Male manus narrow (Fig. 1)

4. Movable finger more than twice as long as manus. Male manus very narrow (Fig. 5)
   - Movable finger only slightly longer than manus. Male manus broad (Fig. 7)

5. Male fingers with a tubercle on inner side of base
   - Male fingers with inner side of base plain. No trace of tubercle

**References**


BOOK REVIEW


First editor is professor at the Department of animal ecology, University of Bayreuth (Germany). Second editor, an acknowledged German entomologist, unfortunately deceased in 2003 – short time before occurrence of this book in print. The list of contributors comprises 23 renowned experts affiliated with University Institutes for zoology and related biological sciences mostly in Germany and also in Austria. As declared in the preface to the first and second edition, a few decades have witnessed an enormous growth of knowledge in the field of entomology since the publication of the classical Grundriss der Insektenkunde by Weber & Weise (1974). Association of entomology with medicine, veterinary medicine, agriculture and forestry brings beneficial effects. Introductory text (numbered by Roman numerals) includes a comprehensive list of textbooks dealing with general entomology, selected journals, periodicals and internet references. The volume is composed of 25 chapters divided into subchapters numbered according to the decennal system. In the initial chapter attention is given to the assignment. Chapter 2 illuminates insect body segments (tagmata). Chapter 3 encompasses an overview of biochemistry and metabolism. Chapter 4 is devoted to the insect nutrition and digestion. Chapter 5 focuses on water balance, osmoregulation and excretion. Chapter 6 deals with the respiratory (ventilation) system. Chapter 7 centres attention upon the haemolymph and the circulatory apparatus. Chapter 8 delineates the structure and development of the nervous system. In the framework of locomotion and sensorimotor integration chapter 9 muscle structure and action, mechanisms and control of contraction, terrestrial, aquatic and aerial ways of locomotion, and spatial orientation are analysed. Chapter 10 provides a look at learning and memory. Subsequent chapter on physiology of the sense organs includes the mechanoreception, thermo- and hygroreception, chemos- and photo reception including the morphology and function of different organs (sensilles). In the context of endocrinology chapter 12 outlines various hormones and their functions, neuroendocrine cells, the complex of corpora allata/corpora cardiaca, roasting glands, and metamorphosis. Chapter 13 moves into the area of reproduction and development following chapter 14 is concerned with social insects, in particular with basic principles of the social mode of life, social organization in colonies of termites and hymenopterans – wasps, bees and ants, caste formation and the psychophysiological caste determination, communication, and homeostasis and social regulation. Chapters 15 and 16 takes account of phytophagous and entomophagous insects. Chapter 17 examines the insects as food for vertebrates and invertebrates. In chapter 18 the phenomenon of insect bioluminescence is highlighted. Subsequent chapter 19 gives attention to mutual relationships between insects and microorganisms. Chapter 20 constitutes a highlight into medical entomology. Insects are explored here from the viewpoint of their harmful activities: effects of blood-sucking, immune reactions to arthropods and their products, effects of stings. Examined are venomous insects among hymenopterans as are bees, wasps and ants, lepidopteran caterpillars carrying urticating hairs (setae) and venomous beetles. Moreover, attention is paid to dermatophagous arthropods, to the lice, bedbugs, dipterans, and ticks. Transmission of infectious agents is discussed with special reference to the viruses, bacteria, rickettsias, spirochaetes, protozoans and helminths. Next coming chapter 21 provides insights into biological, chemical and biotechnical pest control. Chapter 22 is concerned with regulations of population density, in particular principle characteristics of population dynamics, concepts of population growth and environmental factors, natality and mortality, interactions and control systems, abundance dynamics, and the like. Chapter 23 is devoted to the biogeography of insects. In chapter 24 the principles of ecological entomology are reviewed, the systematic assemblages (taxa), methods of systematic, including the reconstruction of dendrograms, molecular systematics, cladistic analysis, cladistic and evolutionary classification, and entomological collections management. Concluding, most extensive chapter (334 pages) embraces an overview of 34 insect taxa (orders/classes).

In the second edition, many parts have been revised and updated, some chapters have been newly conceived. The volume is lavishly illustrated by precise schematic line drawings and black and white light and electron micrographs featuring miscellaneous internal and external organs and tissues of the insect body, various stages and developmental forms of the insect life cycle, diverse life activities and conditions, diagrams, schemes, geographical maps, and formulae of chemical substances. This textbook, publication offers an authoritative, most exhaustive and attractive textbook of general entomology – invaluable as a companion volume for readers interested in arthropod-borne infections, pest management and many other branches of science relevant to insects.

Jindřich Jirsa
Middle Miocene birds of Devinská Nová Ves, Slovakia

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Abstract: Miocene avian record from Slovakia is limited to the locality of Devinská Nová Ves. Overall, 33 bones of 7 species from at least four families were identified. The locality yielded the earliest record of the genus Tyto Böhlberg, 1928.

Aves, Miocene, Devínská Nová Ves, Slovakia

INTRODUCTION

Miocene birds are known from numerous sites in Europe (Mlíkovský 1996a, 2002), but their record in Slovakia is limited to a single locality (Mlíkovský 1992, 1996b, 2002). Devínská Nová Ves near Bratislava in southwestern Slovakia. The locality—known also as Neudorf or Neundorf an der March—was discovered already in 1848, but it was intensively excavated for fossils only since the 1940s (Śvagrovský 1978). For its description see Zapfe (1949), Thenius (1952) and Śvagrovský (1978).

The locality consists of two sites, known as “Sandberg” (= sand hill) and “Spalte” (= fissure). The two sites are contemporaneous, but their vertebrate fauna differs ecologically (Zapfe 1949, Thenius 1952, Śvagrovský 1978). It is unknown from which of the sites bird remains originated and all records are thus merged. The site is middle Miocene, MN 6, in age (Mein 1990, Steininger et al. 1999).

Supraspecific classification of birds follows Mlíkovský (2002). Full synonymies of fossil taxa are listed in Mlíkovský (2002).

SYSTEMATIC LIST

Order Aechimorphes Wagler, 1831
Family Phalacrocoracidae Reichenbach, 1850
Genus Phalacrocorax Brisson, 1760

Phalacrocorax intermediae (Milne-Edwards, 1867)

Grallina intermedia Milne-Edwards, 1867 p. 266 (Early Miocene, MN 4, of Orléans, France)
Phalacrocorax intermedii Lydekker 1891 53 (new combination)

Material: Fragmentary shaft of right coracoid.

Remarks. This immeasurable fragment falls in the size class of Phalacrocorax intermediae, the only cormorant species known from the Middle Miocene of Europe (Mlíkovský 2002: 70–73). This species was formerly known from the early Miocene (MN 3) of Bratislava in Czechia, early Miocene (MN 4) of Orléans in France, and middle Miocene (MN 7–8) of Dechenstein in Germany (see Mlíkovský 2002). The present record is thus the easternmost for the species.
Tab 1 Middle Miocene birds of Devonská Nová Ves. MNI = minimum numbers of individuals

<table>
<thead>
<tr>
<th>Species</th>
<th>bones</th>
<th>MNI</th>
<th>% MNI</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Phasianus intermedia</em></td>
<td>1</td>
<td>1</td>
<td>111</td>
</tr>
<tr>
<td><em>Miogallius albus</em></td>
<td>22</td>
<td>3</td>
<td>33.3</td>
</tr>
<tr>
<td><em>Teto sanctialbani</em></td>
<td>1</td>
<td>1</td>
<td>111</td>
</tr>
<tr>
<td>Passeriformes – large species</td>
<td>1</td>
<td>1</td>
<td>111</td>
</tr>
<tr>
<td>Passeriformes – small species</td>
<td>10</td>
<td>3</td>
<td>33.3</td>
</tr>
<tr>
<td><strong>Σ</strong></td>
<td>35</td>
<td>9</td>
<td>100.9</td>
</tr>
</tbody>
</table>

Order Galliformes Temminck, 1820
Family Phasianidae Vigors, 1825
Genus *Miogallius* Lambrecht, 1933

*Miogallius albus* (Milne-Edwards, 1869)

*Miogallius albus* Milne-Edwards, 1869: 239 (Middle Miocene, MN 6, of Saran, France)
*Miogallius albus* Mlikovsky 2002: 156 (new combination)

**Material (Wien).** Proximal end of two right coracoids, distal end of right coracoid, symphalangial fragment of femur, left humerus, proximal end of right humerus, proximal end of left ulna, distal ends of two left ulna, proximal ends of three left femora, right femur, distal end of left tibiotarsus, distal end of right tibiotarsus, proximal end of left tarsometatarsus, proximal ends of three right tarsometatarsus, distal end of right tarsometatarsus, MNI = 3.

**Material (Brno).** Distal end of left humerus, proximal end of right femur, MNI = 1.

**Measurements (Wien).** Coracoid: distal width = 17.4 mm; left humerus: maximal length = 94.3 mm, width of shaft in center = 9.1 mm; distal width = 19.6 mm, distal depth = 10.0 mm; ulna: proximal width × depth = 16.0 × 12.4, distal width = 12.6 and 12.5 mm; femur: maximal length = ca. 90.5 mm, proximal width = 18.6 and 17.9 mm, distal width × depth = 12.5 × 12.7 mm; tarsometatarsus: proximal width = 13.1 and 14.5 mm.

**Remarks.** This species was widespread in the Middle Miocene of Europe, with confirmed records ranging from MN 4 to MN 8 and involving sites in Spain, France, Germany, Poland and Slovakia (see Mlikovsky 2002: 156–157; see also Gohlich 2002 for a new locality). Extralimital records from the early Miocene (MN 3) of Can Mas in Spain (Villalta 1963) and from the late Miocene (MN 9) of Rudabanya in Hungary (Janssens 1993) are uncertain (Mlikovsky 2002).

Order Columbiformes Latham, 1790
Family Columbidae Vigors, 1825
Genus *Tyto* Billberg, 1828

*Tyto sanctialbani* (Lydekker, 1893)

*Strix sanctialbani* Lydekkern, 1893: 548 (Middle Miocene, MN 7–8, of Grive-Saint-Alban, France).
*Tyto sanctialbani* Bollmann 1969: 191 (new combination)

**Material.** Ungual phalanx.

**Remarks.** This ungual phalanx agrees in size and morphology with the same element of modern *Tyto alba* (Scopoli, 1769), and is thus attributable to *Tyto sanctialbani*, which is the only middle Miocene *Tyto* species known from Europe (see Mlikovsky 1998, 2002). The latter species is known from the middle Miocene (MN 8) of Grive-Saint-Alban in France, late Miocene (MN 10) of Kôffelisch in
Austria, and late Miocene (MN 13) of Polgáról in Hungary (see Milkoňovsky 1998, 2002). The record from Devínska Nová Ves in Slovakia (MN 6) is thus the earliest for the species and also for the genus Tyto (see Milkoňovsky 1998, 2002).

Order Passeriformes Linnaeus, 1758
Family indet.

Large species

Material: Distal end of left humerus, right tarsometatarsus, MNI = 1

Measurements: Humerus: distal end = 11.1 mm; tarsometatarsus: maximal length = 44.7 mm, proximal width = 7.3 mm, distal width = 5.6 mm.
Remarks: These bones may, though need not, belong to a single species.

Small species

Material: Two ulna, proximal end of ulna, distal end of ulna, three carpometacarpus, distal end of tibiotarsus, tarsometatarsus, distal end of tarsometatarsus, MNI = 3

Measurements: Ulna = 18.0 and 21.8 mm, carpometacarpus = 8.2, 10.6 and 12.9 mm, tarsometatarsus = 19.5 mm.
Remarks: Each of the three ulnae and each of the three carpometacarpi belong to different species.

DISCUSSION

All avian bones identified from Devínska Nová Ves belong to species previously known from the Middle Miocene of Europe (see Milkoňovsky 2002). The record of Tyto sanctithomasi is the oldest for both the species and the genus.

The cormorant (Phalacrocorax) indicates presence of open water in the vicinity of Devínska Nová Ves during the deposition of the remains. Similarly, remains of Muscicapa alba are usually found in lacustrine deposits (Milkoňovsky 1996, 2002). The remaining species are not diagnostic for the reconstruction of the environment.

Bones of birds from Devínska Nová Ves are too few in number to allow for an analysis of their taphonomic origin. None of the bones showed signs of pathological modifications.

Acknowledgments

I received most of the material for study through the kindness of Helmut Zapfe (Wien), Erich Thron (Wien) and Oldrich Fejfar (Prague). This material (all from Zapfe’s collection) is stored in the collection of the Institute of Paleontology of the University in Wien, Austria. In addition, I was allowed by Luděk Sperl (Brno) to examine two avian bones from Devínska Nová Ves that are deposited in the collection of the Anthropos Institute of the Moravian Museum in Brno, Czechia. The latter two bones were formerly described by Švec (1985).

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Oxygen consumption of the developmental stages of *Timarcha rugulosa lomnickii* (Coleoptera: Chrysomelidae)

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Abstract. The respiratory metabolism of eggs, three larval stages, prepupa, pupa and imagos of *Timarcha rugulosa lomnickii* Miller, 1867 was measured in volumetric Dietrich respirometers at a temperature of 18°C or 25°C. The first instar larvae had the highest oxygen consumption (880.0 mmol/g/hr), more than twice that of mature eggs, while the lowest oxygen consumption was recorded in prepupa, pupa and young, hibernating imagos of both sexes. In comparison to young adults, sexually active imagos had significantly increased metabolism (154% in males, 264% in females) and body mass (32% in males, 51% in females). Females consumed more oxygen than males due to their energy-demanding reproductive behaviour. After finding an appropriate spot under a rock or between plants they laid eggs daily or every other day for an average of 26 days and covered them with faecal secretion and earth. They readily fed on *Galium mollugo* (L).

Development cycle, oxygen consumption, Coleoptera, Chrysomelidae, *Timarcha rugulosa lomnickii*, *Galium mollugo*

INTRODUCTION

This paper reports the respiratory metabolism of the eggs, larval stages, prepupa, pupae and adult forms of the leaf beetle, *Timarcha rugulosa lomnickii* Miller, 1867. The distribution of this beetle in Europe is limited to Poland, Volyn, Podole, Hungary and Slovakia. (Burakowski et al. 1990, Wacławska 1994). It’s rare in Poland, confined to south-eastern districts, and listed for conservation. The information on this species is mainly the morphology of the adult (Miller 1867, Wactabic 1993) and little is known about its habitat preferences and host plants.

Work on the respiratory metabolism of various species of insect indicate that this parameter can be used to determine the influence of environmental factors on the development cycle of an insect (Edwards & Butten 1973, Madhavan 1975, Petitpren & Knight 1970). Several features in the life cycle of *T. lomnickii*, individual development, sexual differentiation or imaginal stages and energy requirements of the various developmental forms, are reflected in the respiratory metabolism. Therefore, measurements of the respiratory metabolism of *T. lomnickii* could lead to a better understanding of the requirements of this species and help us protect it more effectively.

MATERIAL AND METHODS

Collection and laboratory conditions

The experimental material consisted of eggs, larvae, prepupa, pupae and adult insects of both sexes. Adult insects were collected near Kazimierz Dolny (90 km west of Lublin, south-eastern Poland) and the other stages were obtained by laboratory breeding. To simulate natural conditions and reduce stress, the temperature regimes used were those preferred by the different stages. Oxygen consumption was determined at 18°C for prepupa and young imagos and at 25°C for the other developmental stages. As *Timarcha rugulosa lomnickii* is a thermophilous insect, which
occupies sunny places, the oxygen consumption of most developmental stages was measured at 25 °C. However, at 25 °C the prepupal, which develop in the soil, have a high mortality (over 40%) than at 18 °C (30%). In natural conditions the young imagos goes into hibernation when the temperature decreases, and at 25 °C they become unnaturally hyperactive. Therefore, the oxygen consumption of prepupa and young imagos was measured at 18 °C

Sample size
Oxygen consumption of 81 young eggs (8-15 days old) and 64 older eggs (19 days old) was measured. The eggs were sterilized and were surrounded by congealed fecal secretions, which was manually removed prior to weighing. The postembryonic stages consisted of 1st instar larvae (32 specimens approx. 20 days old), 2nd instar larvae (32 specimens approx. 26 days old), 3rd instar larvae (12 specimens approx. 36 days old), prepupa (9 males, 10 females, approx. 36 days). Respiratory of these age groups of adults of both sexes was measured: young specimens in hibernation (36 days old), specimens in the maturing period of 6 males, 12 females, approx. 261 days), specimens in the postmating period (12 males, 12 females, approx. 294 days). The insects were fed fresh Galiaceae melagno

Metabolic rate
Measurements were conducted using modified volumetric Dreschke respirometers (Klejnowski 1973). A 5% KOH solution (0.5 ml) was used to absorb CO2. The insects were placed in transparent or darkened containers to maintain more natural light conditions. For prepupa and young adults dark-walled containers were used since these forms live in the soil. Insects and the apparatus were adapted to the experimental conditions for 20-30 min. Oxygen consumption was measured for 2-1 hr and expressed in mmO2/g fresh body mass/hour. The insects were weighed immediately after the experiments. Differences in respiratory metabolism of the various stages and sexes were assessed using the computer program ANOVA. The value P<0.05 was taken as statistically significant.

RESULTS
Respiratory rates of the various developmental stages of Timarcha rugulosa lomnickii are presented in Table 1. Old (19 days old) eggs with well-developed embryos consumed 154 % (P<0.001) more oxygen than young (approx. 12 day old) eggs. A sudden increase in respiratory rate (to 880 mm3/g/h) was noted in 1st instar larvae, which is twice that recorded for mature eggs and higher than at any other stage in the life cycle. Succeeding larval stages increased in body mass by 229% in the 2nd stage and 86% in the 3rd stage and consumed 8% and 15% less oxygen, respectively. After several days of intense feeding, 3rd stage larvae increased their body mass by 26% and entered the prepupal stage when oxygen consumption decreased by 73%. Hibernating young insects of both sexes had an average oxygen consumption of 158 mm3/g/hr and a body mass of 0.1312 g. On emergence over-wintering adults had an oxygen consumption of 45% (males) and 280% (females) and a body mass of 32% (males) and 52% (females) of that of young insects. At this stage of development the oxygen requirements of females were 43% greater than in males (P<0.05). After mating, oxygen consumption decreases by 51% (in both sexes). Young adults had no sex-related difference in oxygen consumption.

DISCUSSION
Premaginal stages
The increase in oxygen consumption observed during the development of Timarcha rugulosa lomnickii in embryos is similar to that reported for other invertebrates: Diplopoda (Gromycz-Kalkowska 1976), Heteroptera (Gromycz-Kalkowska & Lechowski 1992), Diptera (Guerra & Cochran 1970), aquatic Hemiptera (Madhavan 1975), Lepidoptera (Melvin 1928). That the metabolism of mature eggs is almost 50% lower than in young larvae, results from various factors. The eggs of this species are covered by a hard and tough chorion, which may inhibit gas exchange. The thick chorion may reduce the mass specific metabolic values of the embryos. Indeed, a similar phenomenon has been reported for the eggs and larvae of the ant, T. r. lomnickii (Takahashi Del Bianco et al. 1998). Timarcha r. lomnickii eggs
Tab 1: Oxygen consumption of the developmental stages of *Tymactia rugulosa* (*Tomickii* Miller)

<table>
<thead>
<tr>
<th>stage of development</th>
<th>mean body weight (g)</th>
<th>mean oxygen consumption (mm³/hr)</th>
<th>P</th>
<th>no of experiments</th>
<th>time development (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>eggs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>young</td>
<td>0.0295</td>
<td>175.1 +/− 30.5</td>
<td>&lt;0.05</td>
<td>10</td>
<td>8–15</td>
</tr>
<tr>
<td>old</td>
<td>0.0344</td>
<td>445.6 +/− 109.2</td>
<td>&lt;0.05</td>
<td>8</td>
<td>19</td>
</tr>
<tr>
<td>larvae</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L₁</td>
<td>0.0415</td>
<td>806.7 +/− 228.5</td>
<td>&lt;0.05</td>
<td>12</td>
<td>1–4</td>
</tr>
<tr>
<td>L₂</td>
<td>0.0415</td>
<td>813.4 +/− 108.4</td>
<td>NS</td>
<td>6</td>
<td>6–8</td>
</tr>
<tr>
<td>L₃</td>
<td>0.0271</td>
<td>687.0 +/− 167.0</td>
<td>&lt;0.05</td>
<td>12</td>
<td>10–12</td>
</tr>
<tr>
<td>prepupa (a)</td>
<td>0.1000</td>
<td>184.2 +/− 45.6</td>
<td>&lt;0.05</td>
<td>12</td>
<td>25–27</td>
</tr>
<tr>
<td>pupa (b)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>males</td>
<td>0.1139</td>
<td>163.5 +/− 23.2</td>
<td>a/b NS</td>
<td>9</td>
<td>35–38</td>
</tr>
<tr>
<td>females</td>
<td>0.1586</td>
<td>134.3 +/− 22.9</td>
<td>a/b NS</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>young adults</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>males (c)</td>
<td>0.1100</td>
<td>163.9 +/− 33.7</td>
<td>b/c NS</td>
<td>10</td>
<td>130–140</td>
</tr>
<tr>
<td>females (c)</td>
<td>0.1528</td>
<td>151.7 +/− 35.8</td>
<td>b/c NS</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>adults during</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nuptial period</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>males (d)</td>
<td>0.1456</td>
<td>401.2 +/− 39.5</td>
<td>c/d &lt;0.05</td>
<td>6</td>
<td>340–365</td>
</tr>
<tr>
<td>females (c)</td>
<td>0.2310</td>
<td>573.8 +/− 48.2</td>
<td>c/d &lt;0.05</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>old adults post</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nuptial period</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>males (e)</td>
<td>0.1311</td>
<td>213.2 +/− 49.3</td>
<td>d/e &lt;0.05</td>
<td>12</td>
<td>375–398</td>
</tr>
<tr>
<td>females (c)</td>
<td>0.2011</td>
<td>254.4 +/− 109.0</td>
<td>d/e &lt;0.05</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

were covered with fecal secretion, which was removed without damaging the chorion. This possibly facilitated gas exchange and consequently the respiratory metabolism.

Mass-specific respiratory metabolism decreased with age in the larvae. This also occurs in insect species such as *T. r. longicollis* (Petipren & Knight 1979) and *Dineutes indicus* (Tomapi & Mohan Rao 1973). It seems that the decline in respiratory metabolism in larvae is mainly associated with body mass, which correlates with increased storage of metabolic lipids (Trager 1935). *Tymactia r. longicon* larvae begin feeding at dusk. During the day when exposed to strong light they exhibit negative phototaxis and hide under the leaves of their food plants, rocks and fichen. In weak light they remain motionless. These larvae remained inactive while measurements were taken, i.e., they did not move about the measurement containers as other insects do (Grunas-Kelekwa & Stojalowska 1973), and their metabolic rates may be considered to be basal.

**Imaginal stages**

Adult forms of *Tymactia r. longicorn* were divided into three groups based on behaviour and age. This species spends winters as a young 2nd generation adult. The metabolism of young hibernation imagos, and prepupa did not differ significantly. Pupae consume stored substances, and as a result young adult on emergence from pupae, weigh significantly less than pupae. However, after feeding for several days they gained weight and their masses become similar to that of pupae.

Adults during the reproductive period showed a three-fold increase in respiratory metabolism compared to young individuals. This phenomenon has also been observed in other insects such as *Musca*
autumnalis (Guerra & Cochran 1970), Epilachna vigintioctopunctata (Sakurai 1969) and Lipara pullatans (Gromysz-Kalkowska & Grochowska 1996). All these stages are very active, feed intensively, seek partners, copulate and lay eggs. Metabolic differences between the sexes were observed only during this period. Females were 1.5 times more metabolically active than males, presumably due to the production and maturation of eggs. This has also been observed in Phormia regina (Calabrese & Stoffolano 1974), Trichogramma coelestinum (Gromysz-Kalkowska & Lechowski 1992) and Aceta domestica (Hak 1997). Sex-based metabolic differences seem to be independent of body mass but dependent on behaviour, since the males of Timarcha rugarolia lamnicki, were smaller and consumed 30% less oxygen than pregnant females. Females seek appropriate oviposition sites (adequately moist and dark) and lay eggs daily or every other day for an average of 26 days. Then cover the eggs with faecal secretion and soil. Females, therefore, have greater food requirements. Males reach reproductive maturity much earlier than females (Guerra & Cochran 1970), which combined with intensive pre-copulation activity, may account for their high respiratory rate, even with a time shift in relation to that of the female respiratory cycle (not previously noted for this very reason).

Three or four days after the end of the mating the metabolism of older insects decreases by one-half, although maintained at a higher level than in very young adults and a further decrease occurs with decreased feeding activity, decreased physical condition and the cessation of reproduction.

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Eumolpinae z podrzędu Chrysomelinae plemię Temarchini oraz częśc plemienia Chrysomelini podplemienia 
Darysthorina i Chrysolomini) (Chrysomelidae, Insecta Coleoptera) Part III (Subfamilies Lamprosomatinae, 
Eumolpinae, from subfamilies Chrysomelinae tribe Temarchini and part of tribe Chrysomelini subtribes 
pp (in Polish)
BOOK REVIEW


The first of the authors is professor at the department of zoology, cell biology and parasitology at the Heinrich Heine-Universität, Düsseldorf, Germany. The second author was the late German parasitologist of world reputation (deceased in 1982). A favourable acceptance of this publication and the flood of new information have led to preparation of new editions since the first edition in 1981 (for review see Folia Parasitologica (Prague) 27: 270-280 (1982) - with two new editions this publication has become extended from 264 to 516 pages. This publication demonstrates the remarkable creative capability of professor Mehlhorn. He acted as author, co-author or editor of numerous monographs and textbooks of parasitology, zoology and protozoology.

Two introductory chapters provide insights into the phenomena of parasitism and into basic terms, including biological characteristics of parasites, evasion mechanisms, pathogenicity, antibody tests and molecular diagnosis. Further on, presented are overviews of systematic classification of protozoa, helminths and arthropods in humans and domestic animals.

The volume is organized into 3 parts. Part A is concerned with Protozoa/Protozoa. Attention is given to the intervention of genetics and molecular biology in the taxonomy of protozoa, while analysing the classification schemes of Cavanagh-Smith, Costach, Hausmann & Hultell, and others. Nevertheless, introduced here is the traditional classification scheme (Laverine et al. 1980) embracing the Sarcodina/Sarcomastigophora and six other phyla. Sarcodina/Sarcomastigophora, Opalinidae, Sarcodina/Sarcomastigophora, Microspora and Ciliophora. A special attention is given to the trichomonads, karycithes, amoebae, apicomplexans, helminths, leishmanias, metazoa, and other protozoa/parasites of medical and veterinary importance.

Part B moves into the area of helminths. The situation in taxonomic classification of helminths involves choice between a traditional system and recent phylogenetic approaches, while presenting non-traditional assemblages (taxa) in the Neodermata and Cercariaeformiae. In this part characterized in detail are morphological aspects and life cycles of flukes, tapeworms, acanthocephalans, nematodes, trematodes, and annelids with special reference to medical and veterinary interests.

Part C provides insights into the arthropods as protozoan agents and biological vectors in a traditional classification scheme outlined at the subclass Arachnae including the ticks and mites. In the frame of morphological data there is a key for differentiation of hard ticks Ixodidea from soft ticks Argasidea. Further on, analysed are arthropod activities as vectors of viral, rickettsial, tick-borne, and protozoan infections. The class of parasitic mites is induced by important species overviewed in a summary-type tables comprising their size, host and the name of related disease or affection. The class of parasitic insects is represented by lice, bugs, fleas, and the diagram: mosquitoes, blackflies, sandflies, horseflies, horse-flies, horse-flies, horse-flies, and others.

The taxa of parasitic organisms are examined with reference to the morphology and biology, immunoeology, pathogenic effects upon the host organism, clinic picture, laboratory diagnosis and chemotherapy. 194 illustrations contain in line drawings and in light and electron microscopic appearance of protozoa, helminths and arthropod parasites. General microscopics demonstrate most useful interactive three-dimensional scanning electron microscopy aspects. Original pictorial presentations of parasite life cycles are of impressive teaching value. In addition, there are 19 summary-type tables giving overview of important species of trichomonads, trypanosomids, leishmanias, sarcoyctes, digenian trematodes, eucestodes, thorny headed worms, nematodes, ticks and mites, and dermatophytames. The volume is supplemented with a list of references, both monographs and journal articles, arranged by assemblages of protozoa, helminths and arthropods. In an appendix, a set of Multi-choice control tests enables the reader to check his knowledge.

In summary, this practical publication presents a most informative companion to the traditional textbooks of human and veterinary parasitology and covers recent advances in the field. In today's world of the increased international tourism and the increased contacts with tropical and subtropical regions, parasitic disease control becomes a public health concern. This handbook should help provide a scientific and medical advise to advanced students and professionals.

Judith Jirka
Revision of Palaearctic and Oriental Oiceoptoma (Coleoptera: Silphidae)

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Abstract Palaeartic and Oriental species of the genus Oiceoptoma Leach, 1815 are revised. The following new combination is proposed Oiceoptoma nakabayashii (Mwia, 1937) (from Silphinae, Lamiae, 1758) Thaonopsis thoracica var. dasi (Portevin 1903) is treated as a junior subjective synonym of O. subrubrum (Leach, 1815). Lectotype and paratelotypes for Silphinae squalata Leach, 1815 and S. subrubrum Leach, 1815 are designated. The genus Iasidipha Portevin, 1920 is confirmed as a junior subjective synonym of Oiceoptoma Leach, 1815. Species diagnoses for all 28 so far known species of Oiceoptoma are provided, all species are keyed, male genitalia and habitus are illustrated, and distribution of all species is summarized and material from Eastern Palaearctic region is mapped. New distributional records are reported for O. hypocris (Portevin, 1903) (India, Uttarakhand and Himachal Pradesh states, China Yixing autonomous region and Shaanxi province, and Myanmar), O. hypocris (Portevin, 1903) (China, Yunnan province) and O. subrubrum (Leach, 1815) (China, Shaanxi and Zhejiang provinces, Nei Mongol autonomous region and Beijing municipality).

Taxonomy, synonymy, lectotype designation, Coleoptera, Silphidae, Oiceoptoma, Iasidipha, Palaearctic region, Oriental region.

INTRODUCTION

The genus Oiceoptoma is Holarctic in distribution. Three species are Nearctic (Hatch 1928, Anderson & Peck 1985, Peck & Kaulbars 1987), the rest Palaearctic and partially also Oriental. Only one species (O. thoracicum (Lamiae, 1758)) is Transpalaearctic and a further three to four species are found in the eastern Palaearctic region and the northern Oriental region (Portevin 1926, 1943, Hatch 1928, Mwia 1937). Until recently, the Asian monospecific genus Iasidipha (I. hypocris) was treated as valid. Just recently, Peck (2001) listed it, without any detailed discussion, as a junior subjective synonym of Oiceoptoma (based probably on an unpublished catalogue and the opinion of A. F. Newton, Jr.).

In the present paper, the Palaearctic species of the genus are revised and six species are recognized. The main aim of this paper is to provide diagnoses of the species (including male genital characters), figured for most of the species for the first time, present a serviceable key for their determination and summarize the distribution of indigenous species in the eastern Palaearctic region and the northern Oriental region (based on records of more than 1200 specimens studied or provided by other specialists).

MATERIAL AND METHODS

Material for this study came from the following museums and private collections (acronyms according to Arnett et al. 1993) BMNH - Natural History Museum, London (M. J. O. Brendell), DEIC - Deutsche Entomologisches Institut, Merseburg (L. Zeche), HNHB - Magyar Termeszetentudomanyi Muzeum, Budapest (O. Merld), ISNB - Institut royal...
Oiceoptoma Leach, 1815

Oiceoptoma Leach, 1815: 89 (type species Sipha thoracica Linsens., 1758, by monotypy)
Oiceoptoma Agassiz 1847: 256, 257 (unjustified emendation of Oiceoptoma)

Isopilha Portevin, 1920: 395 (type species Eosyphus hypocrita Portevin, 1903, by original designation: synonymy
by Peck 2001: 270)

Diagnosis: Small to medium-sized species (body length 12.1–16.2 mm) with distinct labrum (Figs 10–15), dorsoventrally flattened and rounded body; orange and black in colour. Head with short row of long erect setae behind eyes, elytral shoulders with tooth (Anderson & Peck 1985, Peck 2001).

Taxonomic Notes. (1) The name Oiceoptoma, introduced by Agassiz (1847), is treated by Madge (1980) as an unjustified emendation of Oiceoptoma Leach, 1815. (2) The genus Isopilha Portevin, 1920 was described for the single species, I. hypocrita (Portevin, 1903), from China and Sikkim (Portevin 1920). The characters provided in the generic diagnosis are not consistently different from those of Oiceoptoma Leach, 1815.

Portevin (1926: 117) further commented on the differences between these genera – namely, mentioned the larger tooth on elytral shoulders, pronotum without setation and three-segmented antennal club in I. hypocrita (vs. pronotum with setation and four- to five-segmented antennal club in Oiceoptoma). In fact, other species of Oiceoptoma have a distinct tooth on elytral shoulders and the pronotum of I. hypocrita is covered with short, black setation. Also the antennal club in this species is four-segmented, as in other Oiceoptoma species (Figs 20, 21).

Peck (2001) recently treated the genus name Isopilha Portevin, 1920 as a junior subjective synonym of Oiceoptoma Leach, 1815, which opinion is followed here.

Bionomics. Both larvae and adults of Oiceoptoma are generally associated with decaying animal and plant remains and rotten fungi, excrement and slime fluxes, oozing from tree trunks (Portevin 1926,
Oiceoptoma thoracicum is repeatedly observed in central Europe in association with fruiting bodies of Phallus (Basidiomycetes: Phallaceae) (Sustek 1981; 1. Ruzicka unpubl.).

**Key to Palaeartic species of Oiceoptoma**

1. Body uniformly black. Elytra almost round, without clytral epipleura, internal costa, and subcosta (Figs. 10, 16). Penultimate abdominal segment (Figs. 3, 2) (northern India, southern China, Nepal to Myanmar). ........................................... O. hypopnia (Portevin)

   - Body uniformly purplish or black with orange pattern (Figs. 11-15). Elytra subparallel, with narrow elytral epipleura, internal costa, and subcosta distinctly developed (Figs. 11-15). Penultimate abdominal segment (Figs. 3, 9). ........................................... 2

2. Pronotum covered by long, orange acumen, surface of elytral with patchy velvety pattern, surface-opposed fields (Figs. 15, 19). Androconia with robust paramere and penis with elongate, robust apex (Fig. 9) (Europe to Japan) ........................................... O. thoracicum (Linnæus)

   - Pronotum covered by short, orange and/or black setae, surface of elytron simple (Figs. 11, 14). Androconia with slender paramere and penis with variable, short and slender apex (Figs. 3, 8). ........................................... 3

3. Pronotum black with orange lateral margins (Fig. 12) (Japan). ........................................... O. manchurica (Mwasa)

   - Pronotum black to orange (Figs. 11, 13, 14). ........................................... 4

4. Pronotum and elytra uniformly black to orange (brownish in holotype specimen); pronotum with a compact median spot (Fig. 15). Penis regularly tapering to truncate, sharp apex (Fig. 5) (China: Sichuan and Yunnan provinces) ........................................... O. pacifica (Darmana)

   - Pronotum orange, elytra darker, brown to black (Figs. 11, 14). ........................................... 5

5. Pronotum with four black, glossy punctures, arranged in triangular pattern (Fig. 11). Elytra black, with simple surface (Fig. 16). Penis gradually tapering to slender, sharp apex (Fig. 4) (Japan). ........................................... O. nepalica (Laws)

   - Pronotum with diffuse median spot (Fig. 15) usually composed of several scattered darker spots or almost indistinct (Fig. 14). Elytra brown to black, rarely light brown, subapical surface with rugosities (as on Fig. 17). Penis subapically slightly sinuous, tapering to a widely rounded apex (Figs. 7, 8) (China: central and northeastern China, Far East of Russia, Korea to Japan) ........................................... O. novomagali (Laws)

**Oiceoptoma hypocrita (Portevin, 1903)**

(Figs. 1, 2, 10, 16, 20)

Eusilpha hypocrita Portevin, 1903 332 (type locality: "Mou Pin")

*Eusilpha hypocrita* Portevin 1920: 398

Oiceoptoma hypocrita Peck 2001: 270


**Diagnosis.** Body uniformly black (Fig. 10). Pronotum distinctly transverse and deeply sinuate postero-laterally, surface covered with short, black setae. Elytra flat, together almost round (Fig. 10), with wide elytral epipleura, surface smooth, without rugosities, internal costa almost invisible (Figs. 10, 16). Male. Paramere slender, penis regularly tapering to a wide apex with subapical lateral lobes (Figs. 1, 2). Female. Apex of elytron distinctly prolonged to a slender tip.

**Measurements:** Total body length 12.1-15.9 (mean 14.5) mm; Pronotum 1.86-2.00 (mean 1.93) times as wide as long; Elytra 1.05-1.33 (mean 1.20) times as wide as long.

**Taxonomic Note.** Peck (2001) treated the monotypic genus *Isosilpha* Portevin, 1920 as a junior subjective synonym of *Oiceoptoma* Leach, 1815. The type species of *Isosilpha*, *I. hypocrita* (Portevin, 1903), is consequently transferred to *Oiceoptoma*.

**Distribution.** (Fig. 22). India: Uttarakhand state (first record), Himachal Pradesh state (first record), Sikkim (Portevin 1920); China: Xizang autonomous region (first record); Sichuan province (Portevin 2001).
Oiceoptoma nakabayashii (Miwa, 1937) comb. nov.
(Figs 3, 12, 17)

Siphia (Oiceoptoma) nakabayashii Miwa, 1937 244 (type locality “Tempo on Mt. Nisaka in Tachi district”)

**Type material.** Not examined.

**Diagnosis.** Body black, with lateral portions of pronotum orange (Fig. 12). Pronotum moderately transverse and weakly sinuate postero-laterally; surface covered with short setation (black on disc and orange laterally). Elytra subparallel, with narrow elytral epipleura; surface simple, subapically with rugosities (Figs 12, 17), costaue fully developed. Male. Paramere slender, penis subapically constricted, tapering suddenly to slender apex (Fig. 3). Female. Apex of elytron weakly prolonged, elytra rounded (Fig. 12).

**Measurements** (n = 2 specimens). Total body length 13.3 and 13.4 mm. Pronotum 1.77 and 1.81 times as wide as long. Elytra 0.92 and 1.03 times as wide as long.

**Taxonomic note.** In the original description of this species, *Oiceoptoma* was treated only as a subgenus of *Siphia* Linnaeus, 1758. Because *Oiceoptoma* is treated as a separate genus in this paper, a new combination is proposed for *O. nakabayashii* (Miwa, 1937).

**Distribution** (Fig. 23). Known only from Taiwan (Miwa 1937). The records of *O. thoracicum* from “Formosa” [=Taiwan], given by Portevin (1914, 1926), Hatch (1928) and Miwa (1931) probably refer to *O. nakabayashii*.

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Oiceoptoma nigropunctatum (Lewis, 1888)
(Figs 4, 11, 18)

*Siphia nigropunctata* Lewis, 1888 9 (type locality “Nikko, Miyamoshina, and Samegah”)

*Oiceoptoma nigropunctatum* Portevin 1914 222

**Type material.** Lectotype male (BMNH, here designated), labelled “SYN. / TYPE p, round label with light blue margin / Japan / G. Lewis / 1910-320 [p] / Miyamoshina [p] / nigropunctata Lewis [lw, Lewis’s manuscript]”;
paralectotype female (BMNH), labelled data, except “Siphia / nigropunctata / Lewis [lw, Lewis’s manuscript]”;

**Diagnosis.** Body black with orange pronotum (Fig. 11). Pronotum moderately to distinctly transverse, weakly sinuate postero-laterally; surface covered with short orange setation. Pronotal disc mediially with four black, glossy punctures, arranged in symmetrical, trapezoidal pattern (Fig. 11). Elytra subparallel, with narrow elytral epipleura; surface simple (Fig. 18), costaue fully developed. Male. Paramere slender, penis gradually tapering to slender, sharp apex (Fig. 4). Female. Apex of elytron weakly prolonged, elytra rounded (Fig. 11).

**Measurements** (n = 10 specimens). Total body length 12.3–14.9 mm (mean 13.5) mm. Pronotum 1.78–1.97 (mean 1.88) times as wide as long. Elytra 0.99–1.18 (mean 1.08) times as wide as long.

**Distribution** (Fig. 23). Endemic species of Japan, known from Honshu, Shikoku and Kyushu (Lewis 1888, Portevin 1914, Kamimura et al. 1964, Karuosa 1985, Satô & Saito 1989).
Figs 1–9. Apex of penis and right paramere, dorsal view. 1– Oiceoptoma hypostoma (Portevin) (China: Sichuan province, 20 km N Shibo, JRUC), 2– O. hypostoma (Portevin) (Holotype, MNHN), 3– O. nakahyahi (Mita) (Taiwan: Kaohsiung huan, Penantushian trail, JRUC), 4– O. micropteron (Lewis) (lectotype, BMNH), 5– O. pexcelsum (Tarnower) (China: Sichuan province, 20 km N Shibo, JRUC), 6– O. pexcelsum (Tarnower) (holotype, penis damaged, MNHN), 7– O. subulatum (Lewis) (lectotype, BMNH), 8– O. subulatum (Lewis) (holotype of Thamnophilus thoracicus var. darvich Portevin, MNHN), 9– O. thoracicus (Linnæus) (Czech Republic: Alber, JRUC) Scale 2 mm.
Oiceoptoma picescens (Fairmaire, 1894)
(Figs 5, 6, 13)

Oiceoptoma picescens Fairmaire, 1894: 217 (type locality: "Se-Pin-Lou-Chan, Tibet").

Oiceoptoma picescens Portevin 1926: 149


Diagnosis. Pronotum and elytra picescens to orange (brown in old collection specimens), ventral surface of body and appendages black (Fig. 13). Pronotum weakly transverse, weakly sinuate posterolaterally; surface with darker, compact median spot; pronotum covered with longer, orange setation. Elytra subparallel, with narrow elytral epipleura; surface simple, subapically with rugosities, costae fully developed. Male. Paramere slender, penis regularly tapering to triangular, sharp apex (Figs 5, 6). Female. Apex of elytron prolonged to sharp angle.

Measurements (n = 25 specimens). Total body length 13.9–16.2 mm (mean 15.3 mm). Pronotum 1.68–1.85 (mean 1.75) times as wide as long. Elytra 0.91–1.17 (mean 1.04) times as wide as long.

Taxonomic note. Portevin (1926: 92) mentioned in a note, that he was not able to find any differences between the original description of Oiceoptoma picescens and Oiceoptoma subrubrum (Lewis, 1888). In the catalogue part of his paper (Portevin 1926: 149), he treated O. picescens as a possible junior subjective synonym of O. subrubrum. This was accepted later by Hach (1928: 91). However, in a short note under O. davids, Portevin (1943: 48) referred to O. picescens as a valid species.

Distribution. China: Sichuan province (Fairmaire 1894; this region at the end of 19th century belonged to Tibet) and Yunnan province (first record).

Oiceoptoma subrubrum (Lewis, 1888)
(Figs 7, 8, 14)

Sulphus subrubrum Lewis, 1888: 9 (type locality: "Chuau, Aka, and Sapporo").

Oiceoptoma subrubrum Portevin 1914: 222

Thananophila thoracica var. Davids Portevin, 1903: 331 (type locality: "Jeool, nord de Pekin"). Syn. nov.

Oiceoptoma Davids Portevin 1943: 48


Diagnosis. Pronotum orange, elytra brown to black (rarely light brown), ventral surface of body and appendages black (Fig. 14). Pronotum weakly to moderately transverse, weakly sinuate posterolaterally, surface with diffuse median spot (usually composed of several scattered darker spots or almost indistinct, Fig. 14); pronotum covered with longer, orange setation. Elytra subparallel, with narrow elytral epipleura; surface simple, subapically with rugosities (as on Fig. 17), costae fully developed. Male.
Paramere slender, penis subapically laterally sinuous, tapering to a widely rounded apex (Figs 7, 8). Female. Apex of elytron weakly prolonged, elytra rounded.

**Measurements** (n = 25 specimens). Total body length 12.1–14.7 (mean 13.4) mm. Pronotum 1.68–1.92 (mean 1.76) times as wide as long. Elytra 1.01–1.28 (mean 1.13) times as wide as long.

**Taxonomic note.** Portevin (1926: 149) treated *Thaumatophilus thoracicus var. davidi* Portevin, 1903 as a junior subjective synonym of *Oiceoptoma subrubrum* (Lewis, 1888). However, in a short note, Portevin (1943: 48) removed this species from synonymy with *O. subrubrum*. The study of the types of both taxa confirms its conspecificity, including similar shape of aedeagus (Figs 7, 8). *Thaumatophilus thoracicus var. davidi* Portevin, 1903 is consequently treated here again as a junior subjective synonym of *Oiceoptoma subrubrum* (Lewis, 1888).

**Distribution** (Fig. 22). China: Shaanxi province (first record), Nei Mongol autonomous region (first record), Hebei province (Portevin 1903), Beijing municipality (first record), Zhejiang province (first record), Far East of Russia (Fmetz 1977, Lafer 1989); North Korea, South Korea (Cho & Lee 1992, 1995); and Japan: Hokkaido and Honshu (Lewis 1888, Kaminuma et al. 1964, Kurosawa 1985, Martin 1989, Satô & Sato 1989). *Oiceoptoma subrubrum* is listed also from “Tibet” (Wu 1937), which is probably based on a misidentification of *O. piceum*.

**Oiceoptoma thoracicum** (Linnaeus, 1758)
(Figs 9, 15, 19)

*Subha thoracica* Linnaeus, 1758: 560 (type locality “Europe”)

*Oiceoptoma thoracicum* Leach, 1815: 89

*Oiceoptoma collarum* Motschulsky, 1859: 491 (nomen nudum)

*Oiceoptoma Golovanchikov Lindemann, 1865: 148 (type locality “Gouvernement Orel” and “Reval (Katharinenhali)”)

(synonymy by Portevin 1926: 149)

**Type material.** Not examined.

**Diagnosis.** Body black with orange pronotum (Fig. 15). Pronotum weakly to moderately transverse, weakly sinuate postero-laterally; surface with darker, diffuse to indistinct median spot; pronotum cov-
ered with very long, orange setation (arranged in a patchy pattern with fields of differently sized setae). Elytra subparallel, with narrow elytral epipleura; surface with patchy pattern of velvety, surface-ripened fields (Fig. 19); elytra subapically with rugosities, internal two pairs of costa weakly indented (Fig. 15). Male. Paramere robust, penis subapically constricted, with elongated, robust, sub-rectangular apex (Fig. 9). Female. Apex of elytron prolonged to distinct tip.

**Measurements** (n = 25 specimens). Total body length 13.4–15.6 (mean 14.5) mm. Pronotum 1.6–1.89 (mean 1.73) times as wide as long. Elytra 0.94–1.11 (mean 1.01) times as wide as long.

**Taxonomic Note.** Following Ružička (2002), the name *Oiceoptoma collaris*, introduced by Motschulsky (1859), is treated as nomen nudum.

**Distribution** (Fig. 24). Widely distributed from Europe to Japan (Poncetin 1926). In eastern part of Palaearctic region, known from Russia (Emetz 1977, Lafer 1989), Mongolia (Mroczykowski 1966, Emetz 1975a, b), China: Heilongjiang province (first record) and Jilin province (first record), North Korea, South Korea (incl. Cheju Island) (Mroczykowski 1976a, Cho & Lee 1992, 1993) and Japan: Hokkaido and Honshu (Lewis 1888, Kamimura et al. 1964, Kurosaawa 1985, Satō & Saitō 1989).

**Discussion**

Distribution of the six *Oiceoptoma* species in the eastern Palaearctic region is quite distinct (Figs 22–24): only one species (*O. hypocrates*) occurs in the Himalayan-Tibetan orographic system (central China (Sichuan and Yunnan provinces) widely overlapping with the endemic *O. piceosoma*), and the eastern border is sympatric (but not syntopic) with westernmost records of *O. subrubrum* (Qinling Shan mts, Shaanxi province). Endemic *O. nakabayashii* is restricted to Taiwan. Transpalaearctic *O. thoracicum* overlaps in easternmost continental Asia (north-eastern China, Far East of Russia) with *O. subrubrum*.

More complex is the situation in Japan, where both *O. thoracicum* and *O. subrubrum* occur partially in sympathy with the endemic Japanese *O. nigro punctatum*. Both *O. thoracicum* and *O. subrubrum* occur on Hokkaido and part of Honshu (east of Biwa-ko lake) (Figs 22, 24); *O. nigro punctatum*

![Fig. 23. Distribution of *Oiceoptoma piceosoma* (Farmaerre), *O. nakabayashii* (Musa) and *O. nigro punctatum* (Lewis).](image-url)
absent on Hokkaido but widely distributed throughout Honshu, Shikoku and Kyushu (Fig. 23). No record of *Oecopelta* is known for the Ryukyu Islands.

In the Neotropical region, a further three species are distributed as follows (Anderson & Peck 1987; Peck & Kaulbars 1987). *O. novaeboracensis* (Forster, 1771) occurs from the Rocky Mountains east to the Atlantic coast and north-eastern United States, where it partially overlaps with *O. inequalis* (Falderius, 1781), distributed from southern parts of Canada and Quebec south to Florida, and west to Texas, North and South Dakota. In southern United States, it overlaps with a third species, *O. rugulosum* Portevin, 1903, restricted to south-eastern United States (from coastal North Carolina through Florida to central Texas).

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**Ociceoptoma hypocrita** (Portevin, 1903)

**MATERIAL EXAMINED**
(34 localities, 243 specimens)

**India**
Oiceoptoma naktavasiishi (Miwa, 1937)


Oiceoptoma nigropunctatum (Leise, 1888)

Oviceopta picevensis (Fairmaire, 1894)


Oviceopta subsinuata (Lewis, 1888)


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BOOK REVIEW


The author was formerly affiliated with the Zoological Institute of Parasitology, St. Albans, and London School of Hygiene and Tropical Medicine. Second edition of this advanced textbook of medical helminthology has been thoroughly updated and revised since it was first published in 1975. It includes the chapter on immunology of helmints and other contributions by Prof. D. Wakelin, University of Nottingham. As declared in the introduction, since the publication of the first edition the importance to humans of some new nematode species has emerged, such as Necator americanus and Parascaris equorum, but principally the changes have been necessitated by the great strides that have been made in knowledge of diagnosis, treatment, immunology and molecular biology of parasites and diseases caused by them. With increase in the air travel, more hospitals and medical practitioners in developed countries are meeting cases of parasitic infections that may have been very rare occurrences in the past. Also, if global warming increases, it is likely that the endemicity of some helminthic infections will extend to higher latitudes. The volume is composed of 9 parts arranged in non-numbered chapters according to the taxonomical classification. Each helminthic infection is characterized by morphology and biology of the causative organism, by geographical distribution, and by pathogenesis and clinical manifestations of the related disease. Further on, included are the diagnosis, treatment, epidemiology, prevention and control, and zoonotic aspects. Part 1 is dedicated to the trematodes. Introducing chapters deal with the morphology and life cycles of flukes in intermediate and final hosts. Subsequent chapters comprise the classification at the family level based principally on that of La Rue (1957). Part 2 concentrates on cestodes. Within the order Pseudophyllidea the broad fish tapeworm and spargana are looked at. Within the order Cyclophyllidea taenid tapeworms, the dwarf tapeworm, the cat tapeworm and the double-pored dog tapeworm are described. Part 3 and 4 are concerned with nematocephalans and nematomorphs. Part 5 provides insights into the nematodes. Discussion is on intestinal nematodes, such as causative agents of strongyloidiasis and trichuriasis. *Strongyloides stercoralis* and *Trichuris trichiura*. Part 5 centres attention upon immunology of helminthic infections, namely on various forms of immune response, antibody production, cells mediating activity against parasitic worms, parastatic arginases, and more. Part 6 offers an introduction to epidemiological aspects of helminthic infections, normally to the study of the factors influencing the occurrence and distribution of helminthic infections. Part 7 gives an account of helminthological techniques, while detecting basic laboratory methods in medical helminthology concerned with the diagnosis of infections. Miscellaneous procedures for recovery and identification of eggs and larvae in soil specimens, staining of microfilariae, preservation and examination of adult helminths and recognition of helminths in sections. Moreover, there are 3 appendices. Appendix 1 presents "Summary of Some Landmarks in Medical Helminthology" starting with 1500 BC with the Ebers papysus where descriptions of some helminthic diseases may be recognized, and concluding with the discovery of intestinal capillaria in Costa Rica in 1971. Appendix 2 "Glossary of Helminthological Terms" is regarded as explanations applied to helminths found in humans. Appendix 3 "Location of Helminths in the Human Body" offers a pictorial summary of helminths occurrence in internal organs of human organisms and possible patholgy that may result. The volume is extensively illuminated by 32 colour plates and 132 figures, schematic line drawings and photographs featuring life cycles, intermediate hosts, light and electron microphotographs, pathological and histological abnormalities, clinical conditions, skin lesions and endoscopic findings, radiographs, charts of global distribution of helminthic infections, pictorial presentations of laboratory procedures and techniques for the diagnosis, and others. In addition, there are 10 summary-type tables: trematodes and nematodes of medical importance, mode of trematode infection, estimation of prevalence percentages of hydatid cysts, differentiation between *Echinococcus* species, filariform larvae, *Necator* and *Ankylostoma*, etc. The book is aimed at advanced students of zoology and parasitology, tropical public health and medicine in the tropics. It will also appeal to clinical microbiologists, epidemiologists and specialists in infectious diseases.

Jindrich Jirá

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Colour traps a method for distributional and ecological investigations of Buprestidae (Coleoptera)

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Abstract Using traps coloured black, blue, green, yellow, orange, red and white the authors studied the attraction of each colour for the family Buprestidae (Coleoptera). A total of 1536 specimens of 45 species were caught by the traps over a period of 3 years. The most attractive for buprestids were the white and yellow coloured traps. This method can be used to study species richness and abundance of mainly anthrophagic species. To illustrate the methods' possibilities data on the seasonal dynamics of the activity of some species and dominance structure of a buprestid community in one region located in Southwest Bulgaria are presented.

Distribution, ecology, coloured traps, Coleoptera, Buprestidae, Bulgaria, Palaearctic region

INTRODUCTION

Investigations of the family Buprestidae have not only theoretical but also great practical importance. Among the buprestids there are many dangerous pests of fruit, forest trees, shrubs and herbaceous plants. Most of the species have xylaphagous larve, which cause great damage to wood. The imaginal forms can also cause damage as some of them eat the blossoms of herbaceous plants and others the leaves and buds of trees and bushes. Thus, it is important to find a good method for qualitative and quantitative field monitoring of these species. Lack of such a method makes the evaluation of species number and abundance very difficult. The establishment of the relative importance of each species in different regions and seasons is also problematic. The use of coloured traps is proposed as method for faunistic and quantitative ecological research on jewel beetles.

The information on the attraction of yellow and white coloured flowers for anthrophagic Buprestidae species can be found in the papers of many authors. This data is based on empirical observations in nature. Sakalian (1993) and Sakalian et al. (1993) report the results of using coloured traps to collect buprestids and some other beetles. This article presents detailed information on this problem.

The main goals of the paper are as follows: to introduce the use colour traps as a method for collecting various buprestid species; to estimate the attractiveness of each colour for different buprestid species and the effectiveness of this method for studying buprestid populations and communities.

MATERIAL AND METHODS

The study area is located in the Kressna gorge (South-Western Bulgaria), a kilometre south of "Peno Javor" railway station. The dominant vegetation in the area is Quercus ilex forest, Carpinus orientalis, Juniperus excelsa, Poan vennbrunnis, Fagus sylvatica, Populus nigra plantations and xerothermic grass formations. Each coloured trap consists of a plastic tray 65 mm diameter at the base and 85 mm at the opening and 115 mm deep. The original colour of the traps was white. The other traps were painted with a suitable paint. The spectral characteristics of the coloured traps are given in table 1. The black (BK), blue (BL), green (GR), yellow (YE), orange (OR), red (RE) and white (WH) coloured.
Tab 1 Spectral characteristics of coloured traps.

<table>
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<th>colours</th>
<th>wavelength (nm)</th>
<th>colour reflection (%)</th>
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<td>black</td>
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<tr>
<td>blue</td>
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</tr>
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<td>green</td>
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<td>yellow</td>
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</tr>
<tr>
<td>white</td>
<td>mixed</td>
<td>90</td>
</tr>
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</table>

Traps were used from May to October over a 3 years period (1992-1994). Four traps of each colour were used in 1992 and six traps in 1993 and 1994.

Twenty eight traps in 1992 and forty two traps in 1993 were placed on bare soil in 7 rows, with 200 mm spacing between each of the traps. Thirty six traps in 1992 and 1994 were placed in 200-1500 mm above soil level. They were fixed to wire, which was stretched between trees. These suspended traps did not include a red coloured row, because of technical reasons. Each trap was filled (up to half of the volume) with 50% water solution of ethylene glycol. The samples were collected every 15 days in 1992 and every 30 days in the next two years. The material was kept in 70% alcohol. The material caught by the same coloured traps over the period of the investigation was pooled for analysis.

The Hedgesman's (Wengmann, 1973) classification was used to evaluate the dominance structure. This classification has 5 degrees of dominance: endemantic species - those making up more than 30% of all the specimens caught, dominant - 10-30%, subdominant - 5-10%, rare - 1-5% and subrare - less than 1%. To evaluate the attractiveness of the different coloured traps a q² test was used. The program BIODIV (Baez & Pened, 1995) was used to calculate the Czekanowski-Dice-Sorenson similarity index and for constructing the dendrogram.

**RESULTS**

A total of 1536 specimens of 45 Buprestidae species and subspecies, belonging to 13 genera, were caught in the coloured traps (Table 2).

As is evident from Table 2 and Fig. 1 the highest number of specimens (34) were caught by the white traps, followed by the yellow traps (23), green - 17, blue - 14, orange - 12 and black - 9 species and subspecies. Only 3 species were caught by the red traps but this is input because this colour of traps was not represented in the suspended traps and therefore the results for these traps is not commented on the text.

The distribution of member of individuals in the traps (Table 2 and Fig. 1) suggests that the highest number was caught by yellow coloured traps (712), followed by white traps (693), green, 43, orange, 34, blue, 33 and black, 16. There is a great difference in the numbers caught by yellow and white coloured traps, and the rest. This difference is statistically significant (Table 3). There are no statistical significant differences in the catch of the black, blue, green and orange coloured traps.

Another peculiarity is observed when the dendrogram of the similarity of the species composition and abundance in different coloured traps is analysed (Fig. 2). The greatest similarity was between buprestis caught in the white and yellow traps, and between those caught in the black and blue coloured traps. It is interesting to compare this result with the data on colour reflection (Table 1). The highest level of similarity is for traps with colours of the highest colour reflection level (white and yellow) and least (black and blue) colour reflection. This result poses the question about the role of colour reflection in buprestis orientation. The dendrogram also shows the great difference between species composition and abundance in the white and yellow traps and the other coloured traps (level of similarity is less than 0.1).

The results also indicate differences in the attractiveness of colours for species. Comparison of the colour preferences of the 3 endemantic and dominant species and subspecies (Fig. 3) indicate that white colour was the most attractive for Acmaeodera brevipes. It was also attractive for another 2 species.
<table>
<thead>
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<th>Taxon</th>
<th>Distr</th>
<th>Trap position</th>
<th>Trap colour</th>
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</thead>
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<td><em>Anacanthura brevipes</em> Kienerwetter, 1834</td>
<td>DO</td>
<td>71 141 2 0 1 0 0 0 0 0 209</td>
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<td><em>Acanthoceras cincta</em> (Rotteler, 1890)</td>
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<tr>
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<td><em>Capnodis tenellus</em> Linnéus, 1758</td>
<td>SR</td>
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<td><em>Sphenogaster subtenuis</em> Krynicki, 1934</td>
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<td><em>Dicera borealoma</em> (Herbst, 1779)</td>
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<td><em>Scintillaria nitifica</em> (Malms, 1855)</td>
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<tr>
<td><em>Palmeria festiva</em> Linnéus, 1758</td>
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<td><em>Anthusus scelorus</em> (Fischer, 1823)</td>
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<tr>
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<td><em>Anthaxia milleti</em> Fabrèges, 1801</td>
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<tr>
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<td><em>Anthaxia striata</em> Rosenbauer, 1847</td>
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<tr>
<td><em>Anthaxia thessalia</em> Brandli, 1914</td>
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<td>7 1 0 0 0 6 0 0 0 0 0 2</td>
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<tr>
<td><em>Anthaxia goetzii</em> Geyr et Laporte, 1839</td>
<td>SR</td>
<td>4 2 0 1 0 5 0 0 0 0 0 0</td>
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<tr>
<td><em>Anthaxia signiferina</em> Krynicki, 1932</td>
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<td>3 5 0 0 0 3 0 0 0 0 0 5</td>
<td>SR</td>
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<td><em>Anthaxia diminuta</em> Geyr et Laporte, 1839</td>
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<tr>
<td><em>Anthaxia brusae</em> Geyr et Laporte, 1839</td>
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<td><em>Anthaxia sulcata</em> Fabrèges, 1776</td>
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<td><em>Anthaxia bicolor</em> Felderman, 1935</td>
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<tr>
<td><em>Anthaxia helgana</em> (Schrank, 1799)</td>
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<td><em>Anthaxia aterlaqophila</em> pseudokrusei Nielsen, 1990</td>
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<tr>
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<td><em>Nyländana fulgurata</em> (Lucas, 1849)</td>
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<tr>
<td><em>Agrius convexipennis</em> Redtenbacher, 1849</td>
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<td><em>Agrius defraudefraus</em> Lecointe, 1835</td>
<td>SR</td>
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<td><em>Agrius disflorae</em> Rutzepp, 1859</td>
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<td><em>Agrius grammata</em> Laporte &amp; Geyr, 1837</td>
<td>SR</td>
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<td><em>Agrius obscurulenta</em> Kreyssewetter, 1857</td>
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<tr>
<td><em>Agrius verticinata</em> rubra Schawerda, 1937</td>
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<td><em>Anphicius pygmaeus</em> Lucas, 1849</td>
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</table>

but to a less degree. Yellow colour was the most attractive for *Anthaxia milleti* and *A. thalassophila pseudokrusei* but not *Acanthoceras brevipes*. Similar conclusions statistically based can be made for some of the other taxa in table 2 (white is attractive for *Acanthocerella crinita*, *A. chrysanthemum*; yellow for *Acanthocerella monodon*, *Anthaxia scorzoneriae*, *A. passerina* and both colours for *A.*
Fig. 1. Percentage of species number and abundance caught by each type of coloured traps.

Fig. 2. Similarity of the coloured traps based on the hymenals they caught (excluding subnare taxa).
Tab 3. The χ² test values for the difference in the attractiveness of the coloured traps for buprestids (df=44).

<table>
<thead>
<tr>
<th>Coloured traps</th>
<th>BK</th>
<th>BL</th>
<th>GR</th>
<th>YE</th>
<th>OR</th>
<th>RE</th>
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<tr>
<td>BL</td>
<td>20.84</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>OR</td>
<td>25.14</td>
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<td></td>
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<tr>
<td>YE</td>
<td><em>660.17</em></td>
<td><em>680.32</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td>19.70</td>
<td>59.08</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RE</td>
<td>5.00</td>
<td>5.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WH</td>
<td><em>664.27</em></td>
<td><em>651.72</em></td>
<td><em>642.31</em></td>
<td><em>684.72</em></td>
<td><em>653.23</em></td>
<td><em>688.29</em></td>
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</table>

The values which are statistically significant are marked by an asterisk (P<0.00000).

bicolor). There are no statistical grounds for other colours being attractive to buprestids. The catches in the traps of species belonging to a group of species that live in the crowns of the trees and bushes, *Agrimia, Cupnodis, Perotis* etc., is more or less accidental and do not represent the real population density of these species.

Lack of good quantitative methods for collecting buprestids makes modern ecological investigations on the population and community structure of these beetles difficult. Coloured trap catches give an evaluation of the abundance of anthophagous species. As an illustration of the method's possibilities we give data on population density and dominance structure (Table 2) of a buprestid community and the seasonal activity of the 3 dominant species (Fig. 4). The results show that *Acmocodera brevipes* had the longest period of activity (6 months), *Acmocodera brevipes* and *Anthaxia millefoli* were most active during July and *A. thalassophila pseudohervillei* during June.

![Bar chart showing the dominant taxa caught by the various coloured traps](image)

**Fig. 3**. The dominant taxa caught by the various coloured traps.
Fig 4. Seasonal dynamics of the dominant taxa

DISCUSSION

On the basis of these results it is possible to make some general conclusions.

This method is suitable for studying species richness and species abundance of anthophageous buprestids. For a more complex study of buprestid fauna other "classic" methods of collecting are needed.

Because the jewel beetles showed preference for white and yellow traps we recommend the use of these colours for traps for studying Buprestidae in the future.

From an ecological point of view the method can be used to establish the number of species in each region. It is also possible to use the method to evaluate the population density, seasonal dynamics of species and sexual structure of population etc. and for long-term monitoring of anthophageous buprestids.

On the basis of this study it is not possible to comment the colour vision of jewel beetles. Obviously colour reflection is important, but it is difficult to understand how some species, such *Acmacodora brevipes*, orientate, as they are collected only in white coloured traps. This problem needs further detailed investigation.

Acknowledgements

We would like to thank Dr S. Genassiev (Sofia, Bulgaria) for his help with the $\chi^2$ test.
REFERENCES


SARALEAN V., DIONA V. & DAMBOVA G. 1993 Utilization of colour traps for faunistic investigation on beetles (Insecta Coleoptera) in Second National Scientific Conference of Entomology, 25-27 October, Sofia, 47-52

BOOK REVIEW

ALBERTS B., KENNEDY P., WHITTaker J., MAIR K., DAVIS J. & WALTERS P.
answers 56 pages, glossary 20 pages, index 24 pages CD-ROM inside Format: 210x275 mm Binding: softcover
Luprotec Lfg 53 00 ISBN 0-8153-3481-8

First author is president of the National Academy of Sciences and Professor of Biochemistry and Biophysics at the
University of California, San Francisco. Other authors are affiliated with University of Cambridge, Massachusetts,
University of California, San Francisco, University of Oxford and London. As stated in the preface, original
purpose in writing this book was to provide a straightforward explanation of the workings of a living cell. In the second edition,
the authors have brought the book completely up to date. New imaging and computer technologies have increased
access to cell architecture and functions as never before. The volume is arranged into 21 chapters divided into
subchapters and specialized paragraphs. Each chapter is concluded with a treatise entitled “Essential Concepts.”
The key terms introduced in each chapter are highlighted when they first appear, and provided with a frame. Important
feature of the book present the many questions that are located in the page margins and at the end of each chapter.
The initial chapter is intended to give a general introduction while examining the unity and diversity of cells, cells
under the microscope, special features of prokaryotic and eukaryotic cells, and model organisms. Subsequent chapter
2 delineates chemical components and molecules of cells. Next coming chapter 3 focuses on energy, synthesis and the use of energy by cells, activated carrier molecules that store and transfer energy needed for cells, and biomolecules. Chapter 4 embraces the shape and structure of proteins, how proteins work and are controlled. In following chapters 5 through 7 the DNA as carrier of genetic information is analysed according to the following topics: the structure and function of DNA and the structure of eukaryotic chromosomes, DNA replication, repair and recombination, and the reading genome by cells. Chapter 8 gives knowledge about the gene expression. Chapter 9 explains how genes and genomes evolve, normally the generating genetic variants, reorganizing life's family tree and examining the human genome. Key topics occurring are: alternative splicing, divergence, genetic drift, mutation, phylogenetic tree, and the like. Chapter 10 explores the manipulating of genes and cells, in particular creating cells and growing them in culture, how DNA molecules are analysed, nuclear acids hybridization, DNA cloning and engineering. Following chapters 11 and 12 deal with principles of membrane transport, carrier proteins and their functions, ion channels, membrane potential and signaling in nerve cells. Chapter 13 concentrates how cells obtain energy from food, in particular the breakdown of sugars and fats and storing and utilizing food molecules. Functions of chloroplast and mitochondria in plant cells, biosynthetic pathways, organization and regulation of metabolism. Chapter 14 centres attention upon energy generation in mitochondria and chloroplast. Chapter 15 delineates intracellular compartments and transport, in particular membrane-enclosed organelles, protein sorting, vesicular transport, secretory and endocrine pathways. Chapter 16 outlines the cell communication, notably general principles of cell signaling, C-protein
and enzyme-linked receptors. Characteristic key terms there are: calcium, cytoskeleton, calcium receptor, local mediator, neurotransmitter, signal transduction, etc. Chapter 17 gives an overview of the cytoskeleton while discussing intermediate and actin filaments, microtubules and muscle contraction. Chapter 18 concentrates on the cell-cycle control system. Chapter 19 deals with the cell division while encompassing an overview of M phase, mitosis and cytokinesis. Chapter 20 ensures coverage of genetics, nervous, and molecular basis of heredity, namely the sexual reproduction, chromosome pairing and recombination, the laws of inheritance, and experimental aspects of genetics. Concluding chapter 21
on tissues and cancer places emphasis on extracellular matrix and connective tissues, cell junctions, tissue maintenance and renewal, and on diverse properties of cancer cells. Finally, there are separate textual parts answers to all the questions introduced in the text and a glossary to terms relevant to the cell biology, biochemistry and genetics—supplied with proper pagination and illustrations—and a comprehensive index. The volume is extensively illustrated by numerous figures, numbered by individual chapters. Featured are line drawings, mostly in colour, and diagrams presenting of miscellaneous molecular, cellular and genetic structures and analyses. Arrangements of chromosomes and genes, space-filling models, biochemical cycles, laboratory experiments and procedures, and many more. Besides, there are numerous light and electron micrographs. CD-ROM comprises all the images from the book. The CD also contains “concept building.” This edition compiled by a team of experienced experts on an attractive, user-friendly and up-to-date manual designed to provide fundamentals of cell biology that are required to any one to understand the biomedical, as well as the broader biological issues.

Jindřich Jiráš
Contribution to the knowledge of Old World Oedemeridae (Coleoptera)

Vladimír Švihla

Department of Entomology, National Museum, Golčova 1, CZ-148 00 Praha 4 – Karlín, Czech Republic

Received August 14, 2003, accepted November 20, 2003
Published March 31, 2004

Abstract The following new taxa of the family Oedemeridae are described and illustrated: Nacerdes (Xanthodorus) castigatus sp. nov. (Laos), Ischnomerus vecei sp. nov. (Turkey), I. bagynerii sp. nov. (Uzbekistan), I. kopenz sp. nov. (Nepal), Indolavera leonina sp. nov. (Laos), Dextroplaga vespertina sp. nov. (Zimbabwe), Euplocephalus gomerasa sp. nov. (Indonesia), Lamponus gem nov. I balb sp. nov. (Thailand), I. malaya sp. nov. (Malaysia), and Oedemeria kamnaris sp. nov. ( Syria). The male of Indolavera leonina (Pic, 1927) is described and illustrated for the first time and that of Maerzoviana marchali (Blair, 1926), Oedemeria koenri Pic, 1924 is redescribed and illustrated. Anoecodes difformis (Marseul, 1857) is removed from synonymy of A. geminatus (W. Schmidt, 1846). Specific status returned to Ischnomerus levitans (Abelle de Perrius, 1886) sp. nov. and status of Coloboderus (s. str.) tibiarius Pic, 1919 sp. nov. elevated from C. griseovestitus var. tibiarius. New junior synonyms are established: Anoecodes vestitus (Scopoli, 1763) = Nectopodes hybrida Rossi, 1794, syn. nov. = Derelus melanogenus F. Von Wd. Grass, 1824, syn. nov. = Coloboderus (s. str.) laberiatus (Sédillot, 1890) = C. griseovestitus var. rotundicolore Pic, 1929; syn. nov. = Denostoma Švihla, 1984 = Hypocreolens Švihla, 1986, syn. nov. = Schistoclerus sparsus Fairmaire, 1886 = Xanthodorus hoffnianus Pic, 1929, syn. nov. = Y. tibialis Pic, 1923, syn. nov. The following new combinations are proposed: Denostoma yuhoardi Švihla, 1987 comb. nov. transferred from Permatrach Amat, 1951, B. neopunctatus (Švihla, 1986) comb. nov. (from Hypocreolens Švihla, 1986). Euplocephalus quadricollaris (Pic, 1938) comb. nov. = E. multidentatus (Pic, 1938) comb. nov. and E. multidentatus (Pic, 1938) comb. nov. (all transferred from Xanthodorus W. Schmidt in O. Schmidt, 1846). Additional data on the distribution of Indolavera samueli Švihla, 2002 are given.

Taxonomy, new genus, new species, new synonyms, new combinations, status changes, redescriptions, distribution, Coleoptera, Oedemeridae, Palaeartic region, Oriental region, Afrotropical region

MATERIAL AND METHODS

Material studied is deposited in the following collections:
FKCC – collection of František Kammer, České Budějovice;
MNHN – Museum National d’Histoire Naturelle, Paris;
NMNH – Naturhistorisches Museum, Basel;
ZMOC – National Museum, Prague;
ZMHB – Zoologisches Museum der Humboldt-Universität, Berlin;
ZSPC – collection of Zdeněk Švihla, Prague.

The shades of colors used in the descriptions are classified according to Pacht (1938), unique material is named according to Harr (1979). Locality labels of the type material are cited in the original version, only dates are written in the English style. The names of localities of additional material are transliterated. The genera are ordered according to the classification of Švihla (1986) in both parts of this work. Species within particular genera are arranged alphabetically.
DESCRIPTION

_Nacerdes (Xanthochroa) curvipes_ sp. nov.
(Figs 1–5)

**Type material.** Holotype, male, "Lao – NE, Hau Phan prov., Ban Saloe, Phu Phan Mt., 20 JUN 1999, 29 v, 6:00–11 v 2001, J. Breukink leg.", (NMPC), paratypes (NMPC, FKCC) same data. Hemmale, same locality data, D. Baeck leg., 2 females.

**Description.** Coloration. Head honey yellow, only tips of mandibles sepia, antenna sepia except for honey yellow first or first two antennomeres. Prothorax and mesosternum honey yellow, metasternum glaucous bluish green, abdomen honey yellow. Femora and knees honey yellow, tibiae and tarsi sooty to black. Scutellum honey yellow, elytra glaucous bluish green to dark greenish blue.

Male. Eyes large and strongly protruding, head across eyes distinctly wider than pronotum, head behind eyes strongly arcuate narrowing posteriorly. Frons between eyes moderately narrower than between antennal pits. Antennomeres 9–12 missing in examined specimens, tip of antennomere 8 slightly exceeding elytral midlength. Surface of head finely and sparsely punctate with yellow pubescence, lustrous. Pronotum as long as wide, slightly cordiform, pronotal depressions only very slightly indicated. Surface of pronotum very finely and very sparsely punctate, with very sparse yellow pubescence, lustrous. Posterior tibia curved and moderately flattened in its basal portion as in Fig. 1, inner side of curve very finely imbricate, matt, rest of tibia semilustrous. Elytra very slightly narrowing posteriorly, elytral nervation well developed. Surface of elytra finely rugulose-lanuginose with yellow pubescence, semilustrous. Pygidium rather exceeding last sternite, both triangularly, roundly emarginate apically, emargination of pygidium is somewhat narrower. Projections of urite VIII and aedeagus as in Figs 3–5, segment rather longer than half of aedeagal length, its apex widely rounded.

Sexual dimorphism. Eyes in female less protruding than in male, head across eyes as wide as pronotum, head behind eyes only moderately and straightly narrowing posteriorly, frons between eyes as wide as between antennal pits. Antenna reaching two-thirds of elytral length, elytra very slightly dilated posteriorly. Last abdominal segment as in Fig. 2.

Length male–female: 10.6–13.4 mm.

**Distribution.** Laos.

**Etymology.** Derived from Latin curvatus – curved and pes – leg, named according to the shape of posterior tibia.

**Differential diagnosis.** _Nacerdes (X.) curvipes_ sp. nov. belongs to the _N. (X.) tanwana_ (Köno, 1932) species group (Švihlí 1998). It is most closely related to _N. (X.) guizhouensis_ Švihlí, 2001, but differs in the curved posterior tibia and thickened apex of aedeagus (cf. Švihlí 2001).

**Ischnomera sveczi** sp. nov.
(Fig. 6)

**Type material.** Holotype (NMPC), male, "Tur, M., Alasek, 2 v 1998, Z. Švec leg., paratypes (NMPC, FKCC, ZSPC) same data, 6 males, 3 females, "S Turkey, Alasek, Irmanan gudoc, 2 v 1998, Z. Švec leg., 1 male, 2 females, "Turkey, Alasek, Irmanan Gudoc, 27 v 2001, B. Sjöstedt, 1 male, 1 female, "Tr Yarpuz, 1700 m, 21 v 1998, Leg. W. Kronblad, 1 male, "Turkey, Antalya, Yarpuz, 1700 m, 21 v 1998, Leg. W. Kronblad, 1 male, "Orthys, Karaburun, 0–50 m, 8–12 v 1991, A. Coxe leg., 1 female.

**Description.** Coloration. Head sooty, terminal portions of labrum and mandibles, first two antennomeres of maxillary palpus entirely or only ventrally and terminal portion of last palpmere rusty, antennal segments, first three antennomeres more or less rusty, especially on the ventral side. Pronotum orange to terra-
cotta, scutellum and elytra sooty to iron grey, legs, ventral part of thorax and abdomen sooty, apical half of the last abdominal segment including urite VIII saffron yellow.

Male. Eyes moderately protruding, head across eyes slightly narrower than pronotum, head behind eyes narrowing posteriorly. Antenna very slightly exceeding elytral midlength, last antennomere slightly
constricted behind its midlength. Surface of head finely imbricate-punctate, very sparsely and finely brown pubescent, matt. Pronotum as long as wide, cordiform, pronotal depressions distinctly developed, wide but shallow, medial longitudinal keel slight to absent. Surface of pronotum densely punctate, with fine and sparse yellow pubescence, semilustrous. Basal tooth of claws well developed. Elytra slightly enlarged posteriorly, apex of elytron rounded pointed as in Fig. 6. Elytral nervation strongly developed, surface of elytra finely rugulose-lacunose, with fine yellow pubescence, matt. Tegmen and aedeagus very similar to those of *Ischnomera sanguinicolis* (Fabricius, 1787) (cf. Švihla 1988) only aedeagal teeth are situated slightly more terminally, however transitional forms occur.

Sexual dimorphism. Eyes slightly less protruding and elytra more enlarged terminally in male.

Length male—female: 6.8–10.0 mm.

**Distribution.** SW Turkey.

**Etymology.** Dedicated to one of its collectors, Zdeněk Švec (Praha).

**Differential diagnosis.** *Ischnomera sveci* sp. nov. is related to *I. sanguinicolis* (Fabricius, 1787), but differs in the dark coloration of its elytra, saffron yellow terminal half of the last abdominal segment including unite VIII and especially in the more or less pointed apex of elytron (cf. Švihla 1988).

**Ischnomera hajusiensis** sp. nov.

(Figs 7–8)

**Type material.** Holotype (NMPC), male, "Uzbekistan, Bajsaun, vii 90, Detmar."

**Description.** Coloration. Head black, mouthparts excluding darker tips of mandibles and antennae saffron yellow, prothorax, scutellum and legs saffron yellow, elytra bluish greenish black with slight metallic linge, meso- and metathorax and abdomen iron grey, terminal half of last abdominal segment and ante VIII saffron yellow.

Male. Eyes moderately protruding, head across eyes distinctly narrower than pronotum, behind eyes slightly narrowing posteriorly. Antenna moderately exceeding elytral midlength, last antennomere slightly constricted behind its midlength. Surface of head finely punctate, with fine and sparse yellow pubescence, semilustrous. Pronotum very slightly longer than wide, distinctly cordiform, pronotal depressions very shallow but distinct, medial longitudinal keel slightly developed. Surface of pronotum punctate and pubescent like that of head, semilustrous. Basal tooth of tarsal claw very slightly developed. Elytral nervation slight but distinct, elytra moderately enlarged posteriorly, apex of elytron rounded. Surface of elytra finely rugulose-lacunose, with very fine, sparse yellow pubescence, matt. Tegmen like in *Ischnomera hauersi* (Heyden, 1887) (see Švihla 1986a), aedeagal apex as in Figs 7–8. Female unknown.

Length male: 7.1 mm.

**Distribution.** Uzbekistan.

**Etymology.** Named according to its type locality.

**Differential diagnosis.** *Ischnomera hajusiensis* sp. nov. is similar and closely related to *I. hauersi*, but differs in having less protruding eyes, more strongly cordiform pronotum, surface of which is more strongly punctate and semilustrous, finer elytral nervation, elytra with slight bluish greenish linge and in the form of aedeagal apex, teeth of which protrude more slightly laterally in dorsal view, as in Figs 8–9 (cf. also Švihla 1986a).

**Ischnomera kopetzii** sp. nov.

(Figs 10–11)

**Type material.** Holotype (NMPC), male, "Nepal, Prov. Karnali, Drir Humla, 18 km WNW Simikot Chansal Khola (Bridge), 10°02'30"N 90°06'9"E, 2580 m, river valley, 20–22 vi 2001, leg. A. Kopetz."

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DESCRIPTION. Coloration. Head dark greenish blue, mouthparts and antennae black. Prothorax orange, femora dark greenish blue, tibiae black with slight bluish tinge, tarsi black, scutellum and elytra dark greenish blue. Meso- and metasternum and ventral portion of abdomen dark greenish blue, apical half of last abdominal segment including urite VIII saffron yellow.

Male. Eyes moderately protruding, head across eyes slightly narrower than pronotum, head behind eyes moderately narrowing posteriorly. Antennomeres 8–11 missing in examined specimen. Surface of head finely imbricate-punctate, with fine yellow pubescence, semilustrous. Pronotum distinctly wider than long, cordiform, pronotal depressions very shallow, almost invisible, mediodorsal keel not developed. Surface of pronotum sculptured and with pubescence like that on head, semilustrous. Basal teeth of claws not developed, only base of claw is thickened. Elytra parallel-sided, apex of elytron rounded. Elytral nervation slightly developed but visible, surface of elytra finely rugulose-lanose, with fine yellow pubescence, matt. Tegmen very similar to that of *Ischnomera nigricans* (Fairmaire, 1897) (see Švihla 1986a), aedagus as in Figs 10–11. Female unknown.

Length male: 7.0 mm.

DISTRIBUTION. Nepal.

ETYMOLOGY. Dedicated to its collector, Andreas Köpitz (Germany: Kerspleben).

DIFFERENTIAL DIAGNOSIS. *Ischnomera koeptzi* sp. nov. is similar and related to *I. nigricans* (Fairmaire, 1897), but differs in the different form of the apex of aedagus, black tibiae, slightly elytral nervation and coloration of the last abdominal segments (cf. Švihla 1986).

**Indasclera binotata** (Pic, 1927)
(Figs 12–14)

*Indasclera binotata* Pic, 1927: 13

*Indasclera binotata* Švihla, 1997: 448

MALHAL: I. UAMNO. CTRE, YANTAN, LJJANG, 20-04-1996, E. KUERLE (g.), 1 male, 1 female (NMPC)

REDESCRIPTION. Coloration. Head yellow, between and behind eyes greenish olivaceous, maxillary palpi yellowish, tips of mandibles scopa. Antenna sooty except for yellow base of antennomere 1. Prothorax yellow with pair of small, longitudinally oval, subbasal greenish olivaceous spots. Anterior legs sooty, middle and posterior ones sooty with olivaceous tinge, only their knees are sooty. All coxae yellow. Meso- and metasternum and ventral part of abdomen greenish olivaceous, last abdominal segment honey yellow.

Male. Eyes protruding, head across eyes slightly wider than pronotum. Antenna slightly exceeding elytral midlength, last antennomere slightly constructed behind its midlength. Surface of head finely but deeply intercostate-punctate, with fine yellow pubescence, semilustrous. Pronotum as long as wide, slightly cordiform, anterior pair of pronotal depressions shallow but visible, prebasal one absent, mediodorsal keel not developed. Surface of pronotum sculptured and pubescent as on head, semilustrous. Elytra nearly parallel-sided, apex of each elytron acutely rounded. Elytral nervation, except for slightly visible subumbonal nerve not developed. Surface of elytra finely rugulose-lanose, with dense and short yellow pubescence, matt. Last sternite widely, triangularly emarginate apically, last tergite twice as long as last sternite, its apex widely and shallowly emarginate. Tegmen and aedagus as in Figs 12–14.

Sexual dimorphism. Eyes in female less protruding than in male, head across eyes slightly narrower than pronotum. Pronotum very slightly wider than long, more cordiform than in male, elytra very slightly dilated posteriorly. Both tergite and last sternite rounded apically.

Length male-female: 8.0–10.0 mm.
Indesclera laosensis sp. nov.
(Figs 15–17)

**Type Material:** Holotype male: Laos NE, Hua Phan prov, Ban Sahorn Phu Pham Mt 1400–2000 m, 20 Mar 1993, leg. D. Haack (NMPC) paratypes the same data 1 female (FKCC)

**Description:** Coloration. Body predominantly yellow, tips of mandibles, maxillary palp, antennae excluding bases of first antennomeres and sooty terminal half of last, terminal thirds of femora, tibiae and tarsi black.

Male: Eyes relatively small, protracting, head across eyes moderately wider than pronotum. Antennae reaching almost two thirds of elytral length, last antennomere constricted from its midlength. Surface of head densely and rather deeply imbricate-punctate, with very fine and sparse yellow pubescence, matt. Pronotum very slightly longer than wide, slightly cordiform, anterior pronotal depressions very shallow but visible, prebasal one flat, median longitudinal keel absent. Surface of pronotum sculptured and pubescent as on head, matt. Elytra parallel-sided, apex of each elytron acutely rounded. Only nerves 2 and 3 very slightly indicated. Surface of elytra finely rugulose-lacunose, finely and shortly, sparsely pubescent, matt. Last sternite very widely rounded apically, last tergite twice as long as last sternite, triangular, acutely rounded terminally. Tegmen and aedeagus as in Figs 15–17.

Sexual dimorphism. Antennomeres 9–11 missing in examined specimen, however, antenna seems to be shorter than in male. Eyes less protruding, head across eyes as wide as pronotum, which is as long as wide and slightly more cordiform. Elytra very slightly dilated posteriorly.

Length: male-female 7.2–8.5 mm

**Distribution:** Laos

**Etymology:** Named according to the country of origin of the new species.

**Differential Diagnosis:** Indesclera laosensis sp. nov. belongs to the *I. haemorrhoidalis* species group (Svihla 1997) but its coloration is similar to *I. tabetana* (Pic., 1915) from Java in having predominantly black legs, parameres with subapical inner tooth and in arcuate aedeagus (cf. Svihla 1997)

*Diplomorphula vazquezi* sp. nov.
(Figs 18–22)

**Type Material:** Holotype male: Zimbabwe, nr. Petto, Ntshwane 60 km S of Bulawayo 5.xii.1996, leg. P. Kotze (NMPC), paratypes (NMPC, FKCC) same data 2 males 3 females

**Description:** Coloration. Body yellow, tips of mandibles, maxillary palp, antennae, apices of femora, tibiae and tarsi sooty black.

Male: Eyes large, moderately protruding, head across eyes as wide as pronotum, head behind eyes moderately narrowing posteriorly. Antennae reaching three fourth of elytral length, last antennomere abruptly narrowed on one side from its midlength. Surface of head finely punctate with yellow pubescence, semilustrous. Pronotum moderately longer than wide, cordiform, pair of anterior pronotal depressions shallow, prebasal one only very slightly indicated. Surface of pronotum punctate and pubescent like that of head, semilustrous. Elytra very slightly dilated posteriorly, nervation slight but visible. Surface of elytra very finely punctate-reticulate, with fine yellow pubescence, semilustrous. Last abdominal segment, tegmen and aedeagus as in Figs 18, 19, 21, 22.
Sexual dimorphism. Antenna shorter than in male, reaching two thirds of elytral length, elytra more dilated posteriorly, last abdominal segment as in Fig. 20.

Length male-female: 7.3–9.8 mm.

**DISTRIBUTION.** Zimbabwe.

**ETYMOLOGY.** Dedicated to Xavier A. Vázquez (Barcelona), whose excellent revision helped me describe this new species.

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Fig. 15–26. 15–17 *Indacantha lancasteri* sp. nov. 15 – tegmen, ventral view; 16 – paramere, lateral view; 17 – aedeagus, lateral view. 18–22 *Diplomorphida vaqquezii* sp. nov. 18 – tegmen, ventral view; 19 – paramere, lateral view; 20 – last abdominal segment of female; 21 – aedeagus, lateral view; 22 – last abdominal segment of male. 23–26 *Microscelis marshalli* (Blanq). 23 – tegmen, ventral view; 24 – paramere, lateral view; 25 – aedeagus, lateral view; 26 – last abdominal segment of male.
Differential diagnosis. *Dytlyomorphula vazquezii* sp. nov. is related to *D. crinita* Vázquez, 1996 and *D. megalopilica* Vázquez, 1996, from both of which it differs in the dark apices of its femora and very long and slender aedeagus (cf. Vázquez 1996).

**Microsessinia marshalli** (Blair, 1926)
(Figs 23–26)

*Microsessinia (Deipheresia) marshalli* Blair, 1926: 373

*Microsessinia marshalli* Vázquez, 1996: 138


Comments. Female was redescribed by Vázquez (1996). The male differs from the female as follows: eyes strongly protruding, head across eyes distinctly wider than pronotum, antenna slenderer and longer, reaching three fourths of elytral length, pronotum moderately longer than wide, pronotal depressions deeper, pronotum black or lemon yellow, elytra very slightly narrowing apically, last abdominal segment, tegmen and aedeagus as in Figs 23–26. Length male: 7.6 mm.

It is possible, that males with differently coloured pronotum represent two subspecies, however it is also possible that it is normal variation. More males from different localities need to be examined to solve this problem.

**Eopselaphus goaensis** sp. nov.
(Figs 27–30)

_Type material._ Holotype, male. "India W Goa, 25 km E Ponda, Molem, 15 22 N 74 16 E, 2–4 v 2003, leg. D. Hanek" (NMPC).

_Description._ Coloration. Body entirely honey yellow only tips of mandibles sepia.

Male. Eyes large, protruding, head across eyes distinctly wider than pronotum, head behind eyes moderately narrowing posteriorly. Frons between eyes as wide as between antennal pits. Antennomeres 8–11 missing in examined specimen, tip of antennomere 8 reaching one fourth of elytral length. Surface of head very finely and sparsely punctuate with yellow pubescence, lustrous. Pronotum long, by one fourth longer than wide, moderately cordiform, pronotal depressions shallow. Surface of pronotum punctate with fine pubescence. Surface of elytra minutely rugulose-lanuginose, with fine yellow pubescence, semilustrous. Last abdominal segment, tegmen and aedeagus as in Figs 27–30. Female unknown.

Length male: 6.9 mm.

_Distribution._ India: Goa.

_Etymology._ Named according to the Indian state of the origin of new species.

_Differential diagnosis._ *Eopselaphus goaensis* sp. nov. differs from *E. sexmaculatus* Švihla, 1986 in having a lustrous head and pronotum, an unemarginated last sternite, an aedeagus with only an apical tooth and the apices of parameres dilated and turned ventrad (cf. Švihla 1986b).

_Janhorakius_ gen. nov.

_Etymology._ *Janhorakius* gen. nov., gender masculine, dedicated to one of the collectors of type species, Jan Horák (Praha).

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**Type species.** *Janhorakius bilyi* sp. nov.

**Description.** Body slender, moderately vaulted, coloration predominantly yellow. Both mandibles bifid at apices and both with small subapical teeth as in Fig. 35, 3–4 on left mandible, 2–3 on right one. Basal tooth is sometimes very small and hardly visible. Last palpmere of maxillary palpus long and secundiform. Eyes relatively large, reniform. Antennae filiform, last antennomere constricted behind its midlength. Pronotum slender, distinctly longer than wide, moderately cordiform, pronotal depressions slight.
Legs and tarsi long, slender, tarsal claws with tooth reaching at least midlength of claw in male and one third of length in female. Elytra nearly parallel-sided, elytral nervation slightly developed but visible. Pygidium about twice as long as last sternite, apex of urite VIII slender, visible. Urite IX without median process, tegmatinate very long, reaching or slightly exceeding apex of pygidium. Both tegmen and aedeagus very long and slender, supporting sclerites of aedeagus developed, basal portion of aedeagus slightly concave to strongly concave and dilated laterally, without crest. Apex of aedeagus with one or two pairs of lateral teeth, parameres gibbous.

**Differential diagnosis.** The genus *Janhorakius* gen. nov. belongs to the tribe *Ascalerini* according to the form of the male terminalia and anterior coxal cavities. It seems to be related to the genus *Eupotelophus* Svitíček, 1986, from which it differs in having of subapical teeth of mandibles, a character not known to be observed in any other genus of this family.

**Janhorakius bilih sp. nov.**

(Figs 31–36)


**Description.** Coloration. Head and pronotum black, vertex behind eyes more or less paler to yellow, an- terolobes, labrum and maxillary palpi yellow to rusty, mandibles with black tips, antennomeres 2–4 mostly more or less darker. Thorax, elytra and abdomen yellow, femora yellow, tibiae and tarsi black.

Male. Eyes large and moderately protruding, head across eyes moderately wider than pronotum, behind eyes distinctly narrowing posteriorly, frons between eyes slightly wider than between antennal bases. Antenna with three subapical teeth as in Fig. 35, basal tooth sometimes slightly developed and hardly visible, left mandible with two subapical teeth. Antenna slightly exceeding two thirds of elytral length, last antennomere moderately constructed behind its midlength. Surface of head very finely imbricate-punctate, finely yellow pubescent, semi-lustrous. Pronotum distinctly longer than wide, moderately convex, anterior pair of pronotal depressions shallower, prebasal area very shallow, almost invisible. Surface of pronotum very finely punctate and yellow pubescent, lustrous. Basal teeth of anterior and middle claws almost reaching apices, those of posterior claws reaching their midlength. Elytra only very slightly dilated posteriorly, elytral nervation very slight but visible. Surface of elytra very finely imbricate-punctate, with very fine and more dense yellow pubescence than that on pronotum and pronotum, lustrous. Last abdominal segment, tegmen and aedeagus as in Figs 31–34.

Sexual dimorphism. Antenna slightly shorter than in male, reaching two thirds of elytral length. Basal teeth of claws shorter, not reaching midlength of claws in anterior and middle legs and reaching one third of length in posterior claws. Last abdominal segment as in Fig. 36.

Length male-female 7.5–10.5 mm.

**Distribution.** Thailand.

**Etymology.** Dedicated to one of its collectors, Svatopluk Biliý (Praha).

**Janhorakius malayanus sp. nov.**

(Figs 37–40)

**Type material.** Holotype, male, "Malaysia - Pahang, Bunguran Baru, Lata Jalan, 6–8 m 1997, lgt. Oliver Dulke" (NMPC), para-type, male, "Malaysia, Jiaom, rd. Tekek - Juara, 2 45N 104 11E, 14–16 v 1998, D. Hauk lgt." (FKCC)
DESCRIPTION: Coloration. Head honey yellow, between eyes and antennal pits sepia to black, tps of mandibles sepia. Antennomeres 7–11 missing in examined specimens, antennomeres 1 and 5–6 honey yellow, 2–4 more or less induscate excluding their tips. Rest of body honey yellow, tps of elytra sepal induscate.

Male. Eyes large, moderately protruding, head across eyes very slightly wider than pronotum, head behind eyes moderately narrowing posteriorly. From between eyes slightly narrower than between antennal pits. Left mandible with 4 subapical teeth, right one with 3 teeth. Antennomeres 7–11 missing in examined specimens, tip of antennomere 6 moderately exceeding humeral portion of elytra. Surface of head finely punctate with yellow pubescence, semimutinous. Pronotum one sixth longer than wide, moderately cordiform, pronotal depressions only slightly indicated, especially anteriors ones. Surface of pronotum finely and very sparsely punctate with yellow pubescence, lustrous. Basal teeth of claws almost reaching their tips. Elytra slightly dilated posteriorly, elytral nervation slight but distinct. Surface of elytra very finely rugulose-lanucleose, with sparse and fine yellow pubescence, semimutinous. Last abdominal segment, tegmen and aedeagus as in Figs 37–40. Female unknown.

Length male: 8.2–8.7 mm.

DISTRIBUTION. Malaysia: Pahang, Terman I.

ETYMOLOGY. Named according to its distribution.

DIFFERENTIAL DIAGNOSIS. *Janhoractius malayanus* sp. nov. differs from *J. bily* sp. nov. in having one more subapical tooth of mandibles, a different shaped last abdominal segment as well as tegmen and aedeagus of a quite different form

**Oedemera (Oedemera) kantneri** sp. nov.

*(Figs 41–45)*

**TYPE-MATERIAL.** Holotype, male, “Syria inc., Nahal Arad, 50 km NE of Hama, 30 IV 2000, leg E. I. Kantner” (NMPC).

DESCRIPTION: Coloration. Head and pronotum glaucous grey, mouthparts olivaceous to sepia, first antennomere glaucous grey, following ones sienna, darkening to sepia terminally. Anterior legs olivaceous, tarsi olivaceous grey, coxae and bases of femora sepia. Elytra, ventral side of abdomen and middle and posterior legs glaucous bluish green, tarsi sozy with slight metallic tinge.

Male. Eyes protruding, head across eyes moderately wider than pronotum, head behind eyes as long as wide (Fig. 45). Antenna moderately exceeding elytral midlength, terminal antennomeres tend to become shorter and slightly oval, last antennomere slightly abruptly narrowed on one side behind its midlength. Surface of head sebacular-punctate, with very fine and very sparse brown pubescence, semimutinous. Pronotum as long as wide, very slightly cordiform, pronotal depressions and mediolongitudinal keel well developed. Surface of pronotum punctate and pubescent like that of head, semimutinous. Posterior femora thickened, supracoxal process of metastemum very slightly exceeding coxa in lateral view. Both suturel and lateral margin of elytron very slightly arcuately emarginate (Fig. 44), nervation well developed. Surface of elytra rugulose-lanucleose, with fine yellow pubescence, matt, apex of elytron punctate, semimutinous. Tegmen and aedeagus as in Figs 41–45. Female unknown.

Length male: 5.7 mm.

DISTRIBUTION. Syria

ETYMOLOGY. This species is dedicated to František Kantner (České Budějovice), who not only collected it, but also noticed it differed.

DIFFERENTIAL DIAGNOSIS. *Oedemera (Oedemera) kantneri* sp. nov. belongs to the *O. flavipes* group of species (Švihla 1999a). By its general coloration and body form it is similar and also related to *O. flavipes* (Fabricius, 1792), from which it differs in having a shorter head before eyes as in Figs 45–46, shorter and less emarginated elytron as in Figs 44, 47 and more slender tegmen and aedeagus (cf Švihla 1999a).
**Oedemera (Oedemera) kocheri** Pic, 1934

(Figs 48–50)

*Oedemera kocheri* (Pic) 1934: 21

*Oedemera (Oedemera) kocheri* Švihla, 1999a: 74, last instarae sedis.

**Material examined.** Morocco, Alhuce, 1000 m, 6 v 1998, M. Kaia lgt., 4 males, 1 female (NMPC).

**Redescription.** Coloration. Body slate blue to dark slate blue, first two abdominal segments in male and whole abdomen excluding last segment in female lemon yellow.

Male. Eyes moderately protruding, head across eyes as wide as pronotum, head before eyes almost twice as long as wide. Antennae reaching two thirds of elytral length, last antennomere very slightly abruptly narrowed on one side behind its midlength. Surface of head very finely scabrous-punctate, finely and sparsely brown pubescent, matt. Pronotum moderately longer than wide, moderately cordiform, pronotal depressions deep, mediolongitudinal keel well developed. Surface of pronotum scabrous, with fine and sparse brown pubescence, matt, edge of mediolongitudinal keel lustrous. Posterior femora thickened, supracoxal process of metasternum slightly exceeding coxa in lateral view. Lateral margin of elytron slightly arcuate emarginate, sutural one nearly straight, elytral nervation well developed, scutellar nerve moderately arcuate, mostly connected with suture. Surface of elytron finely rugulose-lacunose, with fine and sparse brown pubescence, matt, apex of elytron densely punctate, matt to semilustrous. Tegmen and aedeagus as in Figs 48–50.

Sexual dimorphism. Last abdominal segment very similar to that of *Oedemera (Oedemera) remisi* Heyden, 1887 (see Švihla 1999a).

Length male-female: 6.6–7.5 mm.

**Comments.** Material examined agrees very well with the original description. *Oedemera (Oedemera) kocheri* belongs to the *O. flavipes* (Fabricius, 1792) group of species (Švihla 1999a). It is the most similar to and also related to *O. remisi* Heyden, 1887, from which it differs in the partly yellow abdomen in both sexes and strongly arcuate aedeagus (cf. Švihla 1999a).

**Comments on nomenclature, taxonomy and distribution**

**Unavailable names**

Following names are for different reasons unavailable according the Code (ICZN 1999). The references to the particular articles are in brackets.

- *Anotaca* Miyatake, 1965: 401 (ICZN Art. 13.3)
- *Mecops* Megerle in Dejean, 1821: 72 (ICZN Art. 11.6)
- *Chrysantho vitralis* f. *epica* Roubal, 1936: 259 (ICZN Art. 45.6.4)
- *Oedemera calcicosta* Dufour, 1841: 8 (ICZN Art. 11.6)
- *Oedemera lindata* var. *plagia* Rey, 1892: 138 (ICZN Art. 45.6.4)
- *Oedemera nobilis* var. *nanae* Rey, 1892: 138 (ICZN Art. 45.6.4)

**Nicerdes (Xanthochrous) hiromichii** nom. nov.

*Xanthochrous apicalis* Kôno, 1952: 141, secondary homonym of *Oedemera apicalis* Say, 1835: 188, now synonym of *Nicerdes (Nicerdes) nicozense* (Linnaeus, 1758).

**Etymology.** Named in the memory of Hiromichi Kôno.

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**Anagodes geniculatus** (W. Schmidt, 1846)

(Fig 51)

**Material examined**
Turkey: Marmaris, 10 km S, 1966; collector unreadable, 1 female. 6-10 km W Feathyr, 1997; J. Probst lg. 1 female, Gizekamb env., 70 km S, 1966; M. Johannis lg. 1 female

**Comments**
Male of this, probably rare species hitherto unknown. Three females available belong to three colour forms, two of them agree very well with the original description by Schmidt (1846)

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1. (Marmaris) head black, pronotum terra-cotta, legs terra-cotta, knees, apices of tibiae and tarsi black, elytra dark slate blue, narrow base of elytra and very narrow lateral and sutural margins of each elytron, which moderately exceed elytral midlength, terra-cotta, abdomen terra-cotta, apical margins of sternites narrowly black (var. \textit{buxalis} Schmidt, 1846).

2. (6–10 km W Feithyey) like the preceding but pronotum, legs and abdomen excluding honey yellow last segment black. Probably a case of androchoresm, which is known in some Anogodes species.

3. (Citizelcami) like 1. but elytra predominantly honey yellow with narrow dark slate blue lateral and apical margins from one third of elytral length (formula typical according to Schmidt 1846).

The distribution of this species seems to be restricted to southwestern Turkey.

\textit{Anogodes differans} (Marseul, 1857) sp. rediv.

(Fig. 52)

**Comments.** This species was synonymised (Svihla 1999b) with \textit{Anogodes geniculatus} (Schmidt, 1846) on the basis of the original description of the latter species. In the meantime three specimens of \textit{A. geniculatus} (see above), were found to differ from \textit{A. differans}. All the synonyms cited by Svihla (1999b) as new, were described after \textit{A. differans} and are synonyms of this species. The females of \textit{A. geniculatus} and \textit{A. differans} can be distinguished as follows:

\textbf{Anogodes differans}

- head black, palpi completely black
- elytra distinctly bicolorous
- pronotum more coniform as in Fig. 51

\textbf{Anogodes geniculatus}

- head bluish greenish, at least basal two palpomeres honey yellow
- elytra are anicolorous (green or yellow), at most very narrow posteroscapal dark border in yellow forms
- pronotum less coniform as in Fig. 52

\textbf{Distribution.} SW Turkey

\textit{Anogodes ustulatus} (Scopoli, 1763)

- \textit{Cemtheis ustulata} Scopoli, 1763 43
- \textit{Neogodes} \textit{inbrada} Reaui, 1794 56, \textit{syn. nov.}
- \textit{Dytinus melanomachius} Fischer von Waldheim, 1829 370, \textit{syn. nov.}

**Type material examined.** Synotypes, 2 females, "\textit{Kat female hybrid} Ross" (ZMHB)

**Comments.** The name \textit{Neogodes hybridus} was not included in the world catalogue by Schenkling (1915) as well as the following publications. Type material of \textit{Dytinus melanomachius} was not examined, but the original description agrees very well with \textit{Anogodes ustulatus}, a common species in Caucasus.

Scopoli (1763) described \textit{Cemtheis ustulata} as follows: "Diagn. Nigra; thorace rufo; linea dorsali nigra; elytris ignotibus, interna margine ferrugineo. In florum \textit{Daura}. Priore [\textit{Anogodes rufiventris} (Scopoli, 1763)] major, & omnino diversa. Variat thorace nigro, & minore status. El. Long. Lin. 3 2/3 lat. 3/4." According to this original description it is one of the colour forms of female of species known at present as \textit{Anogodes ferrugineus} (Schrack, 1776) because of its pronotum with longitudinal stripe and the coloration of its elytra. It is possible that the cited variety is a male of \textit{Anogodes melanurus} (Fabricius, 1787), however such a form (case of androchoism) is also relatively usual in the former species. Schenkling (1915) listed \textit{Cemtheis ustulata} in the synonymy of \textit{Nacerta adusta} (Panzer, 1795), what is, of course, a nonsense. Vázquez (2002) used \textit{Anogodes ustulatus} (Scopoli, 1763) in the sense of \textit{Anog-
**Anoglossus melamurus** (Fabricius, 1787) “thus avoiding nomenclatural chaos for such a well-known species”. Unfortunately, such a conception is not tenable on the basis of the original description.

**Anoglossus ustulatus** (Fabricius, 1787) is thus a secondary homonym of *A. ustulatus* (Scopoli, 1763) and must be replaced by its oldest synonym, i.e. *A. melamurus* (Fabricius, 1787).

**Anoglossus seleronius austriacus** (Ganglbauer, 1881)

Comments. Schmidt (1846) described *Anoglossus alpina* from Styria, Tyrol and Hungary and *Anoglossus azurea* from Tyrol and Carniola. Later, Ganglbauer (1881) described *Nacerdes* (*Anoglossus*) *austriacus* from Austria and Hungary. *A. seleronius austriacus* is a subspecies known to me from the environment of Wien, southernmost Slovakia (Bratislava env.), Hungary and Romania and so it seems to be a Pannonian element, differing from *A. seleronius alpinus* apart from characters on male urite VIII by red pronotum and abdomen in female sex, character not mentioned by Schmidt (1846) neither in *A. alpina* nor in *A. azurea*. It is very probable, that specimen(s) from Hungary, included in *A. alpina*, are the male(s) of *A. seleronius austriacus*. Vázquez (2002) followed the opinion of Seidlitz (1899), that *A. seleronius austriacus* is a younger synonym of *A. seleronius azurea*, which does not agree both with original description (consisting also from the description of female) and with the countries of the origin. There is the question, whether there exist two subspecies according to the concept of Vázquez (2002). *A. seleronius alpinus* (Schmidt, 1846) cited from “southern slopes of Alps” and *A. seleronius azurea* (Schmidt, 1846) cited from “north-east slopes of Alps”, however on map situated to eastern parts of Croatia and Bosnia Hercegovina and to northern part of Serbia, because I had no possibility to examine any material from this territory.

**Colobostomus (Colobostomus) handtiisch (Seidlitz, 1899)**

*Anoglossus handtiisch* Seidlitz, 1899 832

*Colobostomus* (Colobostomus) *handtiisch* Švihla, 1995 16

*Colobostomus griseoevsticus* var. *obscuricolor* Pic, 1925, 228, syn. nov.

**TYPE MATERIAL EXAMINED** *C griseoevsticus* var *obscuricolor*, holotype, male, “Koln, Mann” / Coll. Alfen, Egypt

(NHMB - coll Frey)

**Colobostomus (Colobostomus) nitidus** Pic, 1919 stat. nov.

*Colobostomus griseoevsticus* var. *nitidus* Pic, 1919 14

**TYPE MATERIAL EXAMINED** holotype, female, “Koln, Mann” / Coll. Alfen, Egypt (NHMB - coll Frey)

**COMMENTS.** *Colobostomus nitidus* seems to be related to *C. griseoevsticus* Fairmaire, 1885 and to *C. arachus* Švihla, 1984, from which it differs in pubescence and the form of the last palpomere of maxillary palpus. Unfortunately, females of latter two species are unknown, so that an exact comparison cannot be made.

**Dentostomus Švihla, 1984**

**Dentostomus** Švihla, 1984 261

**TYPE SPECIES.** *Anoglossus angustifrons* Pic, 1920 by original designation.

**Hypercolorodes Švihla, 1986** 197, syn. nov.

**TYPE SPECIES.** *Hypercolorodes socotrensis* Švihla, 1986 by original designation.
COMMENTS. When I described the genus *Hypascleroides*, I had only a damaged specimen of *Dentostomus ancyeli*, which resulted in this synonymy.

*Dentostomus guichardi* (Švihla, 1987) comb. nov.

_Parastomus guichardi_ Švihla, 1987: 25

Material examined: Yemen, Abd al Kur 1, 6 II 2000, Wranik lgt., 4 ex. (NMPC)

Comments. When I was describing this species according to one specimen only, the subapical tooth of right mandible, distinct in above mentioned new material, was overlooked.

*Dentostomus socioresis* (Švihla, 1986) comb. nov.


*Alloxantha* (Anacroniomorpha) *carinata* (Karsch, 1881)


Comments. _Colobostomus sinuosus_ was synonymised with _Alloxantha carinata_ by me (Švihla 1995) based on the original description. The examination of the holotype supported this synonymy.

_Ischnomera tenetiensis_ (Abeille de Perrin, 1896) sp. rediv.

_Asciera tenetiensis_ Abeille de Perrin, 1896: 283.

_Ischnomera xanthoderae tenetiensis_ Švihla, 1988: 212.

Comments. The re-examination of the material of _Ischnomera xanthoderae_ (Mulsant, 1858) and of _I. tenetiensis_ shows, that the differences between these two taxa (see Švihla 1988) are at the specific level.

*Indasclera similis* Švihla, 2002


Comments. Originally described from India: Meghalaya (Švihla 2002), new species for the fauna of China and Laos. Such a large distribution is very unusual for species of this genus.

_Eopselaphus quadrinotatus_ (Pic, 1938) comb. nov.

_Xanhocicrea quadrinotatus_ Pic, 1938: 21

Type material examined: Holotype, female, "Celebes, Sudaoma" (MNHN)

_Eopselaphus witmeri_ (Pic, 1938) comb. nov.

_Xanhocicrea witmeri_ Pic, 1938: 21

Type material examined: Holotype, female, "Celebes, Sudaoma" (MNHN).
The assignment of this species to the genus Eopselaphus Świhla, 1986 is provisional, because the male is unknown.

_Eopselaphus ruficeps_ (Pic, 1938) comb. nov., stat. nov.

_Cebeba minutus_ var. _ruficeps_ Pic, 1938: 21

**Type material examined** Holotype, female, "Celebes, Sidona" (MNHN)

**Comments** The assignment of this species to the genus _Eopselaphus_ Świhla, 1986 is provisional, because the male is unknown. The preceding and this species do not differ only by the coloration of the head, but also in the form and structure of pronotum and the different form of the last sternite.

_Schistoselaphus apicatus_ Fairmaire, 1896

_Cebeba minutus_ bicoloratus Pic, 1923: 23, syn. nov.

_Cebeba minutus_ var. bicoloratus Pic, 1923: 23, syn. nov.

**Type material examined** X. bicoloratus, holotype, female "Kabala," (MNHN), X. minutus, holotype, female, "Java occident, Sukabumi, 2000," 1893, H. Fruthistor" (MNHN)

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