

Terrestrial Invertebrates of the Pálava Biosphere Reserve of UNESCO, II
Edited by RUDOLF ROZKOŠNÝ & JAROMÍR VAŇHARA

Coleoptera: Caraboidea

KAREL HŮRKA & ZBYŠEK ŠUSTEK

*Department of Zoology, Faculty of Science, Charles University, Viničná 7, 128 44
Praha 2, Czech Republic*

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*Institute of Zoology, Slovak Academy of Sciences, Dúbravská cesta 9,
842 06 Bratislava, Slovak Republic*

This superfamily (identical with the suborder Adephaga) embraced only one family with the terrestrial mode of life, viz., Carabidae. In the Czech Republic 514 species and subspecies including disputed and extinct ones are announced (PULPÁN & HŮRKA (1993) (in Moravia 490 spp. and in the adjacent countries: Austria 637, Bohemia 440, Poland 511 and Slovakia 555). In the study area of extended Pálava Biosphere Reserve 273 species have been found, which represent 53% species in the Czech Republic. The systematic evaluation of this family is based on the first modern key to the identification of Carabids of the former Czechoslovakia, published by KULT (1947) and the latest key of species living in this area prepared by HŮRKA (1996). It includes the most significant present foreign literature. Carabids have inhabited almost all terrestrial habitats. Most of them live and develop as a part of epigeon and in surface layer of soil. Only a small part of species live (mainly adults) in herb, bush or tree stratum (in our country two species of calosoma beetle *Calosoma inquisitor* and *C. sycophanta*, *Odacantha melanura* and most species of Lebiinae subfamily, partly *Carabus intricatus*). Carabids are mostly unspecialized predators of small invertebrates, some species are omnivorous, several spp. of the subfamilies Harpalinae and Zabrinac are phytophagous, often more or less specialized on seeds of different kinds of herbs. Further, mainly zoophagous species use small amounts of plants as their food component. Many species are occasionally necrophagous, ectoparasitoidism was found with the Brachyninae and Lebiinae subfamilies. Several species, particularly ripicolous ones, and most of the formerly collected material were gained by individual collecting, sweeping, sifting or stepping.

History of investigation. In the extended Pálava B.R. many entomologists collected and their material is scattered in a great number of mainly private collections. The published data mostly concern either rare species or species found in the area of former Czechoslovakia or of Moravia for the first time. They are included in the publications of FLEISCHER (1927-1930), KULT (1944, 1954), PIČMAN (1977, 1982, 1986), PULPÁN & VYSOKÝ (1982), MORAVEC (1986), BENEDIKT & TĚTÁL (1989, 1991), HŮRKA (1992), RESL (1992), and VESELÝ (1992). The results of the first systematical research of the studied area were published by HŮRKA (1954). In terms of research concerning epigeic insects of the flood plain forest, carabids were studied by

OBRTTEL (1971). Carabid community in reed swamps of the Nesyt Pond were studied by the same author (OBRTTEL 1972). Carabid communities in forest ecosystems of Pavlovské vrchy Hills and Horní les nr. Lednice are documented by ŠUSTEK (1972, 1983, 1994). Further published and unpublished studies are mentioned in the part concerning Monitoring (see below). With regard to the findings of some species in nearby and ecologically similar localities (Dunajovické kopce Hills, Pouzdřany Steppe, Kobylí Steppe), in future the rise of species number in the Pálava B.R. can be expected.

Remarkable records. The most remarkable finding, *Pterostichus piceolus lato-ricaensis*, the central European race of south Russian species, was found in Lanžhot virgin floodplain forest, in the westernmost habitat known so far. The taxon was found in spring flood-drift from the rivers in the Potiská nížina Plain and lives in floodplain forests and on the swamp banks and in swamps. Among further species rare in the Czech, Moravian and Slovak territory and typical of floodplain forest, riparian ecosystems and swamps, can be mentioned: *Bembidion inoptatum*, *Patrobus australis*, *Pterostichus taksonyis*, *Agonum dolens*, *A. lugens*, *A. viridicupreum*, *Platynus krynickii*, *Platynus longiventris*, *Anthraxus longiventris*. In the riparian habitats on salt substrate significant findings of halobiont and halophilous species can be found: *Dyschirus gibbifrons*, *Paratachys fulvicollis*, *Bembidion fumigatum*, *B. neresheimeri* (in Moravia found for the first time near Prostřední rybník Pond /a part of LR/ in 1952), *Pogonus persicus peisonis*, *Pterostichus cursor*, *P. elongatus*, *Amara pseudostrenua*, *Acupalpus elegans*, *A. luteatus*, *A. maculatus*, *Harpalus pygmaeus* and *Oodes gracilis*. Rare inhabitants of flooded meadows are *Pterostichus cylindricus* and *Diachromus germanus*. On the other hand, several significant Submediterranean and Pontic species can be found in extremely xerotherm habitats in the whole territory of the Pavlovské vrchy Hills as well as in a few other forest steppes of southern Moravia. They are *Carabus hungaricus*, *C. scabriusculus*, *Dyschirus rufipes*, *Zabrus spinipes*, *Ophonus ardoxiacus*, *Licinus cassideus*, and *Cymindis variolosa*. Among xerothermic species, found in the Pálava B.R. and scarcely represented in other xerotherm localities (České Středohoří Hills), the following can be mentioned: *Ophonus tenebrosus centralis*, *Harpalus albanicus*, *H. modestus*, and *Masoreus wetterhalli*. The occurrence of *Microlestes plagiatus*, which was considered to be extinct in Moravia, was confirmed. The occurrence of *Carabus cancellatus excisus* on the forested slopes of the Pavlovské vrchy Hills and in the surroundings of Bulhary is interesting from the zoogeographical point of view. On the forest edges and in windbreaks the rather rare species *Platyderus rufus*, typical of thermophilous groves in southern and western Slovakia (Devínska Kobyla, Bratislava). A curiosity in this area is a western Asian *Pterostichus caspius*, introduced into Břeclav sawmill with wood, which accommodated very well and can also be found in the forest beyond the sawmill area (it was also found in Bohemia in the Kralupy sawmill).

Monitoring. Carabids are mostly sensitive to changes or variations of main abiotic and biotic factors (humidity, temperature, acidity, nitrification, soil structure, structure of phytocenoses) and thus can be used as bioindicators. A long tradition of using carabids for biological monitoring is known e.g. from the Netherlands (cf. TURIN et al. 1991), and also from other European countries. In the study area several monitoring projects were launched, aimed at the bioindication of environmental changes by means of ground beetles. KRÍSTEK (1991) published the results obtained in drying up

floodplain forest by repeating samplings of ground beetles in 1981 in the same locality (Kančí obora, L. BOČÁK leg.), previously studied (during annually floods) by OBRTEL (1971). He could state a significant decrease in the number of both individuals and species, probably connected with the changed water regime in the landscape. A comparison of ground beetle communities inhabiting five habitats in the Pavlovské vrchy Hills in 1971 and 1981 (ŠUSTEK, 1983) has shown that tolerant species expel more sensitive ones and that the differences between the communities under study decreased over the study period. Most probably, the major cause thereof was local soil nitrification caused by the faeces of game kept in the preserve, and by humidization of the climate of the Pavlovské vrchy Hills. A comparison of carabid communities living in the Horní les nr. Lednice in 1970-1971 and 1985-1988 (ŠUSTEK 1994a) has shown that 15 years after the ground water level had been lowered by the canalization of the Dyje River, 11 hygrophilous species were replaced by mesophilous ones which, by their numbers, also compensated for the decrease in carabid biomass. Further changes were observed in the representation of zoogeographic elements; on the other hand, the structure of life forms (however represented by other species) remained unchanged. A study of windbreaks as migration corridors in the agricultural landscape nr. Bulhary, Pavlov and Klentnice (ŠUSTEK 1994b) has shown that the dispersal of woodland and eurytopic carabids is governed by the microclimate prevailing in a biocorridor, depending on its minimum width (15 m), density and composition of woody plants growing in it. Numerical classification of 43 taxocoenoses of carabids in 26 localities in floodplain forests along the Morava, Dyje and Danube rivers (ŠUSTEK 1994c) has shown that under natural conditions, carabid communities can be divided into two major groups (internally subdivided) depending on the frequency and intensity of flooding of their particular habitats. Further biomonitoring projects in the area of the Pálava B.R. are represented by the pitfall-trappings implemented by the Faculty of Science, Masaryk University in Brno (1991-1992, localities HL and MD) and by Administration of the Pálava B.R. (1993 and 1994, localities DV, KJ, RA, SN). Outside the study area, Carabidae have been used in bioindication or biomonitoring of the anthropic stress upon the environment. As a small selection of papers, let us mention FEILER & HIEBSCH (1968), DUNGER (1972), FREITAG (1979), PUSZKAR (1979a, 1979b, 1979c, 1979d, 1979e, 1979f), STUBBE & TIETZE (1982), EMEC (1984), HOLLIDAY (1991), HOLMS et al. (1993), ŠUSTEK (1994d). HŮRKA, VESELÝ & FARKAČ (1995) elaborated a project of utilizing faunistic investigations in evaluating environmental quality, including methodical instructions.

Conservation. About 30% of our species show a close dependence on habitat, and over 50% other species show distinct preference of certain habitat types. Thus, the projection of over 80 % of our ground beetles inheres primarily in the conservation of their habitats and larger landscape units. The devastation and ruderalization of the Pavlovské vrchy Hills and the floodplain forests below them becomes apparent both in the limited occurrence of the most valuable species and in the percentage predominance of eurytopic species in the original, well-preserved habitats. This has been indicated in the paper by ŠUSTEK (1983) as well as by the analysis of long-term collections of the first of the present authors, made predominantly in floodplain forests and riparian habitats around fishponds, from which stenotopic species with narrow ecological tolerance disappear or at least decrease in numbers. Their vacated niches are then

occupied by species tolerant to the changed environmental conditions. According to the intimation of the Ministry of Environment (No. 395/1992), the critically endangered carabid species include *Carabus auratus*, *C. clathratus*, *C. hungaricus*, *C. menetriesi* and *C. nitens*. The list of heavily endangered species includes *Carabus scabriusculus* and *C. variolosus*, and additional five *Carabus* spp. and two *Calosoma* spp. are considered endangered. In the Red Book (KORBEL 1992), three species of the family Carabidae are classified as endangered and another two as vulnerable. Of all protected species, classified in various categories, the study area harbours *Calosoma inquisitor*, *C. sycophanta*, *Carabus ullrichi*, *C. clathratus*, *C. scabriusculus*, and *C. hungaricus*. We recommended that also *Calosoma auropunctatum* ought to be considered vulnerable, and *Licinus depressus* endangered. An extensive list of the threatened Austrian species was compiled by JÄCH (1994).

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COLLECTIONS EXAMINED

23. Coll. Faculty of Science, Masaryk University, Brno (HL, MD, 1991-1992, R. VANČURA & R. ROZKOŠNÝ leg., R. VANČURA det.)
24. Coll. Administration of the Pálava Biosphere Reserve, Mikulov (DV, KJ, RA, SN, 1993, MI, RA, 1994, J. CHYTIL leg., Z. ŠUSTEK det.)

25. Coll. K. HÚRKA (LE, LR, MI, PV, almost every year, irregularly, between 1952-1994; BR (1985), BU (1968), DO (1956), KA (1975), LA 1963, 1972), ME (1993, 1994), MS (1972), PA (floodplain forest 1977), PO (1971, 1993), SN 1961, 1966, 1970, 1972, 1978), occasionally; mostly K. HÚRKA leg.
26. Coll. Z. ŠUSTEK (quantitative collections in wind-shelter-belts and line formations (HV and PE 1983-1985, BU 1986-87, PA 1988-1991, KL 1992-1993) and floodplain forests (KJ 1985-1987) and individual collections over whole area of the Pá-lava Biosphere Reserve)

ABBREVIATIONS

General abbreviations: see comments on abbreviations (pp. 13-19) and a separate Appendix.

Special abbreviations: bu burrows of mammals, ha halobiont, pa pastures, sa sandy water's edges, sc subcorticolous, si silvicolous, sm sawmills (waste wood), xf xerophilous.

Example: *Calosoma auro-punctatum* (Herbst, 1784): SK¹ (25)², 2.1.1³, A1⁴, F2⁵, PAL⁶, VU⁷.

Explanation: ¹locality, ²number of source, ³ecosystem or habitat type, ⁴abundance, ⁵frequency, ⁶distribution, ⁷conservation category.

LIST OF SPECIES

(Regarding different opinions on the classification of Carabidae, a system of tribes is preferred rather than that of subfamilies)

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| CARABIDAE | (22, 26), DV, SK (25), HV, KL, PE |
| CICINDELINI | (26), 1.1.1, 1.2.5, 2.2.3-5, A2-A5, F4, CEU. |
| <i>Cicindela campestris campestris</i> Linnaeus, 1758: ME (24), BU, PA (26), 2.1, 2.2, A1-A2, F2, PAL. | <i>C. clathratus</i> Linnaeus, 1761: KJ (23), BV, PA (24), 1.1.2.1, 2.1.5, A3, F1, W PAL, CR. |
| <i>C. germanica</i> Linnaeus, 1758: BU, HV, PA (26), 2.1, 2.2., A1-A2, F2, EUA. | <i>C. convexus</i> Fabricius, 1775: DV (12), BU, HL, HV, KL, PA, PE (26), 1.1-2, A3, F4, EUS. |
| CARABINI | <i>C. coriaceus</i> Linnaeus, 1758: DV (12), 24), HL (21), ME (24), BU, HV, KJ, KL, PA, PE (26) 1.1.1, 1.1.2.2-5, 1.2.5, A2-A4, F5, EUR. |
| <i>Calosoma auro-punctatum</i> (Herbst, 1784): SK (25), BU, PA (26), 2.1-2, A1-A2, F3, PAL, VU. | <i>C. granulatus</i> Linnaeus, 1758: KA (7, 17), LR (8, 25), HL (21, 23), MD (23), RA, SN (24), KJ (24, 26), BU, DO, KL, PA (26) 1.1.2, 2.1.5, 2.2.1, 2.2.3, A1-A4, F4, hg, PAL. |
| <i>C. inquisitor</i> (Linnaeus, 1758): DV (12), KA (17), HL (21), ME, RA (23) ME, LA, PV, SK (25), BU, KL, PA (26), 1.1.1-2, A1-A4, F4, PAL, EN. | <i>C. hortensis</i> Linnaeus, 1758: DV (12), ME (24), BU, HV, KL, PA, PE (26), |
| <i>C. sycophanta</i> (Linnaeus, 1758): DV, LR, ME, SK (25), KL (26), 1.1.1-2, A1, F1, PAL, EN. | |
| <i>Carabus cancellatus excisus</i> Dejean, 1826: PV (5, 12), ME (25), BU, PA | |

- 1.1.1, 1.1.2, 1.2.1-6, A2-A4, F5, EUR.
- C. hungaricus* Fabricius, 1792: DV (3, 24, 25), PE (25) 2.1.3, A2, F2, PON, **CR**.
- C. nemoralis* Müller, 1764: KA (7, 17), DV (12, 25), MD (23), LA, SK (25), BU, HV, KL (26), 1.1-2, A2-A4, F5, EUR.
- C. scabriusculus* Olivier, 1795 BU, HV, PA, PE (26), 2.1.3, 2.2.3-5, A1, F2, **CR**.
- C. scheidleri* (Panzer, 1799): RA (24), 1.1.1-2, 1.2, 2.2, A2, F1, (it occurs only on the contact line with its two island centres of occurrence in Slovakia).
- C. violaceus germari* Sturm, 1815: KA (7, 17), DV (12), MD (23), RA, SN (24), LE (25), 1.1.1-2, 1.2, 2.2, A1, F3, CEU.
- C. ullrichi* Germar, 1824: KA (7, 17), DV (12), HL (21, 23), PA (22, 26), RA, SN (24), BR, LE, LR, PV (25), BU, HV, KJ, KL, PE (26) 1.1.1-2, 1.2.5, 2.2.3-7, A3-A4, F5, EUR, **EN**.
- NEBRIINI**
- Leistus ferrugineus* (Linnaeus, 1758): KA (7, 17), DV (12, 25), SN (24), LE, SN (25), BU, HV, KL, PA (26), 1.2.5, 2.2.4-8, A1-A3, F5, EUS.
- L. rufomarginatus* (Duftschmid, 1812): LR, PV (9), DV (12, 16, 24), BR (16), LE (16, 25), KA (17), HL (21, 23), MD (23), ME, RA (24) HV, KL, PA (26), 1.1.1-2, A3, F5, EUR.
- L. terminatus* (Helwig in Panzer, 1793) (= *rufescens* Fabr.): KA (7, 17), BR (16), HL (21, 23), 1.1.2, 2.1.5, A2, F3, EUS.
- Nebria brevicollis* (Fabricius, 1792): KA (17), MD (23), RA (24), 1.1.2, 1.2.6, 2.1.5, A3-A4, F2, W PAL, (numerous near brooks in Malé Karpaty Hills and partly in floodplain forests in Záhorská nížina Lowland, and reaches the study area on the contact line only).
- NOTIOPHILINI**
- Notiophilus aquaticus* (Linnaeus, 1758): KL (26) A1, F1, EUS.
- N. biguttatus* (Fabricius, 1779): KA (7, 17), HL (21, 23), MD (23), RA (24), LR (25), BU, HV, PA (26), si, eu, A2, F5, EUR.
- N. palustris* (Duftschmid, 1812): KA (7, 17), DV (12), HL (21), ME, RA (24), LE (25), HV, PA (26), eu, A2, F5, PAL.
- N. rufipes* Curtis, 1829: ME, RA (24), LE (25), HV, BU, PA, KL (26), 1.1.1-2, A2, F5, PAL.
- OMOPHRONINI**
- Omophron limbatum* (Fabricius, 1776): LR, NM (25), 2.1.5, sa, A1, F1, PAL.
- LORICERINI**
- Loricera pilicornis* (Fabricius, 1775): LR (3, 8, 25), KA (7, 17), DV (12, 25), MD (23), RA (24), LE, NM, SN (25), BU, DO, HV, KJ, KL, NM, PA (26), eu, A1-A2, F5, HOL.
- ELAPHRINI**
- Blethisa multipunctata* (Linnaeus, 1758): DV (12), BR (16), MD (23), 2.1.5, A1, F1, HOL.
- Elaphrus cupreus* Duftschmid, 1812: KJ (24), LA, LE, LR (25), DO (26), marginally 1.1.2.1-3, preferably 2.1.5, A2-A3, F3, EUS.
- E. riparius* (Linnaeus, 1758): LR (3, 25), LE, MI, NM, SN (25), DO (26), marginally 1.1.2.1-3, preferably 2.1.5, A3, F3, PAL.
- E. uliginosus* Fabricius, 1792: LR (3, 8, 25), KJ (26), 2.1.5, A3, F3, PAL.
- E. aureus* P. W. J. Müller, 1821: DO (26) 2.1.5, A2, F1, CEU.
- CLIVININI**
- Clivina collaris* (Herbst, 1784): KJ (24), NM, PA (26), A2, F3, EUA.
- C. fossor* (Linnaeus, 1758): LE (3, 25), KA (7, 17), LR (8), HL (21), MD

- (23), RA (24), DO, KJ, KL, PA (26), eu, A2-A3, F4, HOL.
- Dyschirius aeneus* Dejean, 1825: LR (3, 8, 25), LE (24), DO (26), 1.1.2, 2.1.5, A3, F4, PAL.
- D. gibbifrons* Apfelbeck, 1899: LR (3), 2.1.5-6, PON.
- D. globosus* (Herbst, 1784): KA (7, 17), LR (8), HL (21), KJ, RA, SN (24), LE (25), KJ, PA (26), 2.1.5, 2.2.1, eu, A2-A4, F4, PAL.
- D. luedersi* Wagner, 1915: LR (3), LE, NM, SN (25), DO (26), 2.1.5, PAL.
- D. nitidus nitidus* (Dejean, 1825): LE (25), 2.1.5, PAL.
- D. politus politus* (Dejean, 1825): LR (3), 2.1.5-6, EUS.
- D. rufipes* (Dejean, 1825): DV (12, 25), 2.1.2-3, A1, F1, PAL.
- BRACHININI**
- Brachinus crepitans* (Linnaeus, 1758): MI, SK, TH (25), BU, HV, KL, PA, PE (26), 2.1.3, 2.2.3, A2-A3, F4, PAL.
- B. explodens* Duftschmid, 1812: SN (24), LE, MI, PA (25), BU, HV, KL, PA, PE (26) 2.1.3, 2.2.3, A2-A5, F5, PAL.
- BROSCINI**
- Brosicus cephalotes* Panzer, 1813: LE, MI (25), HV (26), 2.1.4, 2.2.3, A1, F1, EUS.
- TRECHINII**
- Epaphius secalis* Paykull, 1790: KA (7, 17), DV (12), HL (21), MD (23), RA (24), LE (25), KJ (26), 1.1.2, 2.1.5, 2.2.1, A1-A4, F3, EUS.
- Lastotrechus discus* (Fabricius, 1792): HL (21), NM (25) A1-A2, F2, PAL.
- Thalassophilus longicornis* (Sturm, 1825): KA (17), A1, F1, CEU.
- Trechoblemus micros* (Herbst, 1784): KA (7, 17), A1-A2, F1, CEU.
- Trechus austriacus* Dejean, 1831: LR (9), LE (25), bu, CEU.
- T. quadristriatus* (Schränk, 1781): DV (12, 25), KA (17), LE (25) BU, HV, KL, PA, PE (26), eu, A2-A3, F5, PAL.
- BEMBIDIINI**
- Asaphidion flavipes* (Linnaeus, 1761): DV (12), LE (25), BU, HV, PA (26), 1.1.2, 1.1.1.3-6, 1.2.6, 2.2.1-2, 2.2.7, A2-A3, F4, PAL.
- Bembidion articulatum* (Panzer, 1796): LE, LR, MI, NM (25), DO (26), 1.1.2, 2.1.5, A2-A3, F3, PAL.
- B. assimile* Gyllenhal, 1810: LR (8, 25), LE, SN (25), DO (26), 1.1.2, 2.1.5, PAL.
- B. azurescens* (Panzer, 1786): NM (25), 2.1.5, PAL.
- B. biguttatum* (Fabricius, 1779): LE (3, 25), KA (7, 17), DV (12), HL (21, 23), MD (23), KJ (24, 26), LA, LR, SN (25), DO, PA (26), 1.1.2, 2.1.5, A2-A3, F3, PAL.
- B. dentellum* (Thunberg, 1787): LE (3, 25), MI, NM (25), DO, KJ (26), 1.1.2, 2.1.5, A2-A3, F3, PAL.
- B. doris* (Panzer, 1797): LA (25), 1.1.2, 2.1.5, PAL.
- B. femoratum* Sturm, 1825: LR, SN (25), NM, PA (26), eu, A2-A3, F3, EUS.
- B. fumigatum* (Duftschmid, 1812): LR (8), DO (26), 2.1.5-6, PAL.
- B. gilvipes* Sturm, 1825: LE (3), MD (23), KJ, RA, SN (24), LR (25), NM (26), 1.1.2, 2.1.5, A2-A3, F3, EUS.
- B. guttula* (Fabricius, 1792): KA (7, 17), LE, LR (25), 1.1.2, 2.1.5, PAL.
- B. inoptatum* Schaum, 1857: LE (3, 25), LR (8, 25), SN (25), 1.1.2, 2.1.5, PON-SBM.
- B. lampros* (Herbst, 1784): DV (12), ME, SN (24), BU, DO, HV, KJ, PA (26), eu, A2-A4, F5, PAL.
- B. mannerheimii* C. R. Sahlberg, 1827 (= *unicolor* Chaud.): KA (7, 17), HL (21), RA (24), KJ (26), 1.1.2, 2.1.5, 2.2.1, A2-A3, F3, EUS.
- B. minimum* (Fabricius, 1792): RA (24),

- LR, MI, NM, SN (25), DO, KJ (26), A2-A3, F2, 2.1.5-6, EUR.
- B. neresheimeri* J. Müller, 1930: LR (3, 4, 15, 25), 2.1.5-6, CEU.
- B. octomaculatum* (Goeze, 1777): LR (3), LE (3, 25), MI (25), DO, PA (26), 1.1.2, 2.1.5, A2, F3, PAL.
- B. properans* (Stephens, 1828): SN (24), LE, LR, NM, SN (25), BU (26), 1.1.2, 2.1.5, A2-A3, F4, PAL.
- B. punctulatum* Drapiez, 1820: LR (3), NM (25), 2.1.5, PAL.
- B. quadrimaculatum* (Linnaeus, 1761): LE, LR, MI (25), DO (26), eu, HOL.
- B. quadripustulatum* Audinet-Serville, 1821: LR (3), LE, MI (25), 2.1.5, PAL.
- B. semipunctatum* (Donovan, 1806): LE, LR, MI (25), DO (26), 2.1.5, PAL.
- B. tenellum* Erichson, 1837: LR (3, 25), LE, MI, SN (25), 2.1.5-6, EUR.
- B. tetracolum* Say, 1823: LE (25), NM (26), eu, EUS.
- B. varium* (Olivier, 1795): LE (3, 25), LE, MI, SN (25), 1.1.2, 2.1.5, PAL.
- Paratachys bistratus* (Duftschmid, 1812): SN (24), LE (25), DO (26), 2.1.5, A2-A3, A3, PAL.
- P. fulvicollis* (Dejean, 1831): LR (25), 2.1.5-6, SBM.
- P. micros* (Fisher von Waldheim, 1818): LE (25), 2.1.5, EUR.
- Porotachys bisulcatus* (Nicolai, 1822): PS (16), sm, EUR.
- Tachyta nana* (Gyllenhal, 1812): DO (26), 1.1, 1.2, sc, A2, F2, PAL.
- POGONINI
- Pogonus persicus peisonis* Ganglbauer, 1892: BR (16), 2.1.6, CEU.
- PATROBINI
- Patrobus atrorufus* (Stroem, 1768) (= *excavatus* Payk.): KA (7, 17), HL, MD (23), RA (24), LA, LE (25), 1.1.2, 2.1.5, A2-A3, F3, EUS.
- P. australis* J. Sahlberg, 1875: BR (16, 18), 2.1.5, SBB.
- PTEROSTICHINI
- Abax parallepidus* (Piller & Mitterpacher, 1783) (= *ater* Vill.): KA (7, 17), DV (12, 25), ME (24), HL (21, 23), BU, HV, PA, KL (26), 1.1.1, 1.2, A2-A5, F5, EUR.
- A. parallelus* (Duftschmid, 1812): DV (12, 25), RA (24), HV, KL, PA (26), 1.1.1, 1.2.1, A2-A4, F5, EUR.
- Agonum afrum* (Duftschmid, 1812): LE, LR, NM, SN (25), 1.1.2, 2.1.5, EUR.
- A. dolens* (C.R. Sahlberg, 1827): LR (9, 25), PA (25), 2.1.5, EUS.
- A. duftschmidti* Schmid, 1994 (= *moestum* Duft.): KA (7, 17), HL (21), MD (23), KJ (24, 26), RA, SN (24), LE, LR, SN (25), 1.1.2, 2.1.5, A1-A3, F3, EUR.
- A. gracilipes* Duftschmid, 1812: PE (26), A1, F1, EUS.
- A. lugens* (Duftschmid, 1812): LR (3, 8), DV, LE (25), 1.1.2, 2.1.5, SBM.
- A. marginatum* (Linnaeus, 1758): LR (3, 25), NM (25), DO, NM (26), 2.1.5, A1-A2, F2, PAL.
- A. muelleri* (Herbst, 1784): DV (12, 25), 2.1.5, 2.2.1, A1, F2, PAL.
- A. sexpunctatum* (Linnaeus, 1758): LR (25), DO, PA (26), 2.1.5, 2.2.1, A1-A2, F2, PAL.
- A. versutum* Sturm, 1824: LE, LR (25), 2.1.5, EUS.
- A. viridicupreum* (Goeze, 1777): BR (16), LR (25), 2.1.5, EUS.
- Anchomenus dorsalis* (Pontoppidan, 1763): HL (21), LE (25), MI (25, 26), BU, DO, HL, HV, KL, PA, PE (26), 1.2.5-7, 2.2.3-8, A1-A5, F5, PAL.
- Calathus ambiguus* (Paykull, 1790): MI (25), BU, HV, PA (26), 2.2, A2, F3, PAL.
- Calathus fuscipes* (Goeze, 1777): ME, SN (24), BU, HV, KL, PA, PE (26), A2-A3, F4, EUR.
- C. melanocephalus* (Linnaeus, 1758): LE,

- MI (25), BU, DO, HV, KL, NM, PA, PE (26), 1.2.5-7, 2.1.4-6, 2.2, A2, F4, PAL.
- Dolichus halensis* (Schaller, 1783): LE, MI (25), DO, BU, KL, PA (26), 2.1.4-5, 2.2, A2-A3, F3, PAL.
- Europhilus fuliginosus* (Panzer, 1809): KA (7, 17), LR (8, 25), MD (23), LE, SN (25), DO, KJ, NM (26), 2.1.5, A1-A3, F4, PAL.
- E. micans* (Nicolai, 1822): LR (8), HL (21), KJ (24, 26), DV, LA, LE (25), DO, HV, NM, PA (26), 1.1.2, 2.1.5, A2-A3, F4, EUS.
- E. piceus* (Linnaeus, 1758): DV (25, 26), LE, LR, NM, SN (25), 2.1.5, EUS.
- E. thoreyi* (Dejean, 1828): LR (8, 25), DO (26), 2.1.5, PAL.
- Laemosthenus terricola* (Herbst, 1784): HV, PA (26), 1.2.5, 2.2.4, 2.2.8, bu, A1, F2, CEU.
- Oxytselaphus obscurus* (Herbst, 1784): KA (7, 17), LR (8, 25), HL (21, 23), MD (23), KJ (24, 26), RA (24), LE (25), DO, KL, NM (26), 1.1.2, 2.1.5, A2-A3, F4, HOL.
- Paranchus albipes* (Fabricius, 1796): LR (3), NM (25), 1.1.2, 2.1.5, HOL.
- Platyderes rufus* (Duftschmid, 1812): DV (25), BU, PA (26) 1.1.1, 2.1.3, A2, F3, EUR.
- Platynus assimilis* (Paykuil, 1790): KA (7, 17), HL (21, 23), MD (23), RA (24), LE (25), DO, HV, KJ, MN, PA (26), 1.1.2, 1.2.6, A2-A4, F5, PAL.
- P. krynickii* (Sperk, 1835): KA (7, 17), LR (10), LE (15), BR (15, 16), A2, F3, 1.1.2, EUS.
- P. livens* (Gyllenhal, 1810): HL, MD (23), LE (25), KJ (26), 1.1.2, EUS.
- P. longiventris* Mannerheim, 1825: BR, LE (25), 1.1.2, PAL.
- Poecilus cupreus* (Linnaeus, 1758): KA (7, 17), DV (12, 25), HL (21, 23), MD (23), KJ (24, 26), RA, SN (24), LR, ME (25), BU, DO, HV, KL, PA (26), 1.2.5, 2.2, EU, A3-A5, F5, PAL.
- Poecilus punctulatus* (Schaller, 1783): PA (26), 2.1, 2.2.8, A2, F1, EUS.
- P. sericeus* Fischer von Waldheim, 1824: DV, LE (25), BU, HV (26), 2.1.3, 2.2.3, A3, F3, EUS.
- P. versicolor* (Sturm, 1824): LR (8), eu, PAL.
- P. virens* (O. F. Müller, 1776) (=lepidus Leske): PA (26), A1, F1, EUS.
- Pterostichus anthracinus* (Illiger, 1798): KA (7, 17), DV (12, 25), HL (21), MD (23), KJ (24, 26), RA, SN (24), LA, LE, LR, NM, SN (25), DO, KL (26), 1.1.2, 2.1.5, 2.2.1, A1-A3, F4, PAL.
- P. brunneus* (Sturm, 1824) (=minor Gyll.): HL (23), BR, LA, LR, SN (25), DO, KJ (26), 2.1.5, A2-A3, F3, PAL.
- P. caspius* (Ménétrières, 1832): BR (25), snt, si, W Asian (introd.).
- P. cursor* (Dejean, 1828): LR (3, 25), LE (25), 2.1.5-6, SBM.
- P. cylindricus* (Herbst, 1784): VA (15), LE (25), 2.2.1, PON.
- P. diligens* (Sturm, 1824): LR (8, 25), HL (21), KJ (24, 26), LE (25), NM (26), 1.1.2, 2.1.5, 2.2.1, A2-A3, F3, PAL.
- P. elongatus* (Duftschmid, 1812): LR (3), 2.1.5-6, SBM.
- P. guentheri* (Sturm, 1824): LR (8), MD (23), 2.1.5, PAL.
- P. leonisi* Apfelbeck, 1904: BR, NM (19), 2.1.5-6, PON.
- P. longicollis* (Duftschmid, 1812): LE (25), 2.1.3, 2.2.1, 2.2.3, EUR.
- P. macer* (Marsham, 1802): SN (24), LE (25), BU, KL, LA (26), 2.1.3, 2.2.1, 2.2.3, A1-A3, F3, EUS.
- P. melanarius* (Illiger, 1798): KA (7, 17), LR (8, 25), DV (12), HL (21, 23), BU (22), MD (23), KJ, RA, SN (24), LE (25), BU, DO, HV, KJ, KL, NM, PA (26), 1.1.1 in more humid habitats especially in highlands, 1.1.2, 2.1.5,

- 2.2, A1-A4, F5, PAL.
- P. melas* (Creutzer, 1799): DV (12, 25), HL (21), BU, HV, KL, PA (26), 1.1.1, A1-A3, F3, EUR.
- P. niger* (Schaller, 1783): KA (7, 17), LR (8, 25), DV (12), HL (21, 23), MD (23), KJ, RA, SN (24), HV, KJ, KL, PA, NM (26), 1.1.1-2, 1.2, 2.1.5, 2.2.1, A1-A3, F5, PAL.
- P. nigrita* (Paykull, 1790): LR (8, 24), DV (12, 25), KJ (24, 26), LA, LE, SN (25), BU, NM, PA (26), 1.1.2, 2.1.5, 2.2.1, A1-A3, F5, PAL.
- P. oblongopunctatus* (Fabricius, 1787): KA (7, 17), DV (12, 25), HL (21, 23), MD (23), RA (24), BU, HV, KJ, KL, PA (26), 1.1.1, 1.2, A2-A3, F5, PAL.
- P. ovoides* (Sturm, 1824): KA (7, 17), DV (12, 25), HL (21), RA (24), BR (25), HL, HV, KL, PA (26), 1.1.2, 2.1.5, 2.2.1, A2-A3, F5, PAL.
- P. piceolus latoricaensis* Pulpán, 1965: LA (20), 1.1.2, 2.1.5, A1, F1, CEU.
- P. strenuus* (Panzer, 1797): LE (3, 25), KA (7, 17), LR (8, 25), DV (12, 25), HL (21, 23), MD (23), KJ (24, 26), RA (24), LA, SN (25), BU, DO, KL, NM, PA (26), 1.1.2, 2.1.5, 2.2.1, A1-A3, F5, PAL.
- P. taksonyis* Csiki, 1930: LA (26), 1.1.2, 2.1.5, CEU.
- P. vernalis* (Panzer, 1796): MD (23), KJ (24, 26), LA, LE, LR, SN (25), DO (26), 1.1.2, 2.1.5, 2.2.1, A1-A3, F3, PAL.
- Stomis pumicatus pumicatus* (Panzer, 1796): KA (7, 17), DV (12), HL (21, 23), RA (24), LE, LR (25), BU, HV, KJ, PA (26), 1.1.2, 2.2.1, A2-3, F5, PAL.
- Symuchus vivalis* (Illiger, 1798) (= *nivalis* Panz.): DV (12), BU, KL, PA (26), 2.2.2-3, A2, F3, PAL.
- ZABRINI
- Amara aenea* (De Geer, 1774): DV (12, 25), HL (21), KJ (24, 26), RA, SN (24), LE, ME (25), BU, DO, HV, KL, NM, PA, PE, (26), 2.1.3, 2.2.3, 2.2.8, A3, F5, HOL.
- A. apricaria* (Paykull, 1790): ME (24), LR (25), BU, HV, KL, NM, PA (26), 2.2.3, 2.2.8, A2-A3, F3, HOL.
- A. aulica* (Panzer, 1797): TH (25), BU, HV, KL, NM, PA (26), 2.2.2-3, 2.2.8, A2, F3, PAL.
- A. bifrons* (Gyllenhal, 1810): LE, LR, PA (25), 2.2.3, 2.2.8, PAL.
- A. chaudiroides incognita* Fassati, 1946: LE (25), 2.2.1, 2.2.3, EUR.
- A. communis* (Panzer, 1797): HL (23), SN (25), 1.1.2, 2.2.1, PAL.
- A. consularis* (Duftschmidt, 1812): HV, KL (26), A1, F1, PAL.
- A. convexior* Stephens, 1828: KA (17), DV, LE (25), 1.2.1, 1.2.6, 2.2.2, PAL.
- A. convexiuscula* (Marsham, 1802): SN (24), A3, F1, EUS.
- A. cursitans* Zimmermann, 1831: DV (12), BU, KL, PA (26), A2, F3, 2.2, EUR.
- A. curta* Dejean, 1828: DV (12), si, pa, A1, F1, PAL.
- A. eurynota* (Panzer, 1797): MI (25), DO (26) 2.2.3, 2.2.8, A1, F2, PAL.
- A. equestris* (Duftschmid, 1812): DV (25), 2.1.3, PAL.
- A. familiaris* (Duftschmid, 1812): KA (7, 17), DV (12, 25), HL (21), RA (24), BR, LE, LR, SK (25), BU, HV, KJ, KL, NM, PA (26), 1.2.5, 1.2.6, 2.2., A3, F5, PAL.
- A. littorea* C. G. Thomson, 1857: LE (25), DV (26), 2.1.3, 2.2.3, EUS.
- A. lunicollis* Schiodte, 1837: DV (26), 2.1.3, 2.2.3, A1, F1, CEU.
- A. montivaga* Sturm, 1825: LE, LR (25), DV (25, 26), 2.2.2-3, PAL.
- A. ovata* (Fabricius, 1792): KA (7, 17), DV (12, 25), HL (21), KJ (24, 26), BR, LE (25), BU, HV, KL, PA (26),

- 1.2.6, 2.2.2-3, A2-A3, F3, PAL.
- A. plebeja* (Gyllenhal, 1810): BR, LE, LR (25), HV, PA (26), 2.1.5, 2.2.1, 2.2.3, A2, F3, EUR.
- A. pseudostrenua* Kult, 1946: SN (15), 2.1.6, PAL.
- A. sabulosa* (Audinet-Serville, 1821): BU (25), 2.1.3, 2.2.3, PON.
- A. similata* (Gyllenhal, 1810): KA (7, 17), DV (12), ME (25), BU, KL, PA (26), 2.2.2-3, 2.2.8, A2, F3, PAL.
- A. spreta* Dejean, 1831: LE (25), 2.1.4, PAL.
- A. tibialis* (Paykull, 1798): LE (25), 2.1.3, 2.2.4, PAL.
- Zabrus spinipes* (Fabricius, 1798): DV (16, 25), HV, PE (26), 2.1.3, 2.2.3, 2.2.5, A1, F1, PON.
- Z. tenebrioides* (Goeze, 1777): BU, HV, KL, PA (26), 2.2.3, 2.2.4, A2-A4, F3, EUA.
- HARPALINI**
- Acupalpus elegans* (Dejean, 1829): SN (15, 25), LR (25), 2.1.6, SBM.
- A. exiguus* Dejean, 1829: KJ (24), LR, SN (25), 2.1.5, A1-A2, F2, PAL.
- A. flavicollis* (Sturm, 1825): LR (10, 25), HL (26), 2.1.5, W PAL.
- A. intersitialis* Reitter, 1884: DO (26), 2.1.5, A2, F1, SBM.
- A. luteatus* (Duftschmid, 1812): LR (3), LE (3, 25), 2.1.5, SBM.
- A. maculatus* (Schaum, 1860): LR (3, 25), MI, SN (26): 2.1.5-6, W PAL.
- A. meridianus* (Linnaeus, 1761): HL (21), LR (25), BU, KJ, KL, PA (26), 2.1.5, 2.2.1, 2.2.3, 2.2.8, A1, F3, W PAL.
- A. parvulus* (Sturm, 1825): LR (3, 25), LE, MI (24), 2.1.5, PAL.
- Anisodactylus binotatus* (Fabricius, 1787): LR (3, 25), KJ, RA, SN (24), LE (25), DO, PA (26), 2.1.5, 2.2.1, 2.2.8, A2-A3, F3, PAL.
- A. nemorivagus* (Duftschmid, 1812): SE (15), LR (25), DO (26), 2.1.5, 2.2.1-2, A1, F2, PAL.
- A. signatus* (Panzer, 1797): LR (3, 25), KA (17), HL (21), KJ, RA (24), LE, MI (25), BU, DO, HV, PA (26) 2.1.4-5, 2.2.3, A2-A3, F4, PAL.
- Anthracus conspustus* (Duftschmid, 1812): BR, LE, LR, MI, NM (25), DO (26), 2.1.5, PAL.
- A. longicornis* (Schaum, 1857): LR (9), 2.1.5, SBM-PON.
- Bradycellus caucasicus* (Chaudoir, 1846): KL, PA (26), 2.1, 2.2., A1, F1, EUS.
- B. csikii* Laczó, 1912: LR (10), 2.2.1, 2.2.8, EUR.
- B. harpalinus* (Audinet-Serville, 1821): LR (8), 2.2.2, 2.2.8, si, W PAL.
- B. verbasci* (Duftschmid, 1812): LE (25), 2.1.3, si, EUR.
- Diachromus germanus* (Linnaeus, 1758): BR (16), KJ (24), 2.1.5, 2.2.1, A1, F2, PAL.
- Dicheirotichus rufithorax* (Sahlberg, 1827): LR (9), DO, NM (26), 2.1.5, 2.2.8, A1, F1, EUS.
- Harpalus affinis* (Schrank, 1781) (=aeneus Fabr.): KA (17), HL (23), SN (24), ME (25), BU, HV, PA (26), 2.2.2-3, 2.2.8, A2-A3, F4, PAL.
- H. albanicus* Reitter, 1900: BU (25), 2.1.3, 2.2.3, 2.2.5, SBM-PON.
- H. anxius* (Duftschmid, 1812): LE, MI (25), 2.1.3-4, PAL.
- H. atratus* Latreille, 1804: DV (12, 25), HL (21), LE (25), BU, HV, PA, KJ, KL (26), 1.1.1, 1.2, 2.2.7, A3, F4, W PAL.
- H. caspius roubali* Schaubberger, 1828: LE, TU (25), HV, KL (26), 2.1.3, 2.2.3, 2.2.5, A1, F2, CEU.
- H. distinguendus* (Duftschmid, 1812): DV (12, 25), SN (24), LE, ME, MI (25), BU, DO, HV, KL, NM, PA (26), 2.1.3, 2.2.3, 2.2.8, A3, F4, PAL.
- H. flavicornis* Dejean, 1829: RA (24), PA (26), 2.1.1-4, 2.2.3-8, A1, F2, PON.
- H. hirtipes* (Panzer, 1797): PA (26), 2.1.1-4, 2.2.3-8, A1, F1, EUS.

- H. latus* (Linnaeus, 1758): DV (12, 25), KA (17), HL (21), KJ (24, 26), LE (25), BU, DO, HV, KL, PA, (26), 1.1, 1.2, 2.2.1, A1-A2, F4, EUS.
- H. luteicornis* (Duftschmid, 1812): DV (12), KJ (24), HV (26) 1.1.2, 2.1.5, 2.2.1, A1, F3, EUR.
- H. modestus* Dejean, 1829: LE (25), 2.1.3, 2.2.3, EUS.
- H. politus* Dejean, 1829: MI (14), 2.1.3, EUS.
- H. progrediens* Schaubberger, 1922: HL (21), RA, SN (24), DO, KJ (26), 1.1.2, A1-A2, F3, CEU.
- H. punillus* Sturm, 1818: DV (12, 25, 26), LE, MI (25), HV, PA (26), 2.1.3, 2.2.3, A1-A2, F4, PAL.
- H. pygmaeus* Dejean, 1829: LE (1), HV (26), 2.1.3, 2.1.6, A1, F1, SBM.
- H. rubripes* (Duftschmid, 1812): DV, LE, PA, TH (25), 2.2.3-4, 2.2.8, PAL.
- H. rufipalpis* Sturm, 1818 (= *rufitarsis* Duft.): HL (21), 1.1.2, 2.1.4, 2.1.5, A1, F1, W PAL.
- H. serripes* (Quensel in Schönher, 1806): DV, LE, ME, MI (25), 2.1.3, 2.2.3, PAL.
- H. signaticornis* (Duftschmid, 1812): BU, DV (25), BU, HV, PA (26), 2.1.3, 2.2.3, 2.2.8, A2, F3, W PAL.
- H. smaragdinus* (Duftschmid, 1812): DV, LE (25), HV (26), 2.1.3, 2.2.3, A2, F2, PAL.
- H. subcylindricus* Dejean, 1829: DV, LR (25), 2.1.3, PAL.
- H. tardus* (Panzer, 1797): DV (12, 25), KA (17), LE, LR, PA (25), BU, DO, HV, PA, KL (26), 2.1.3, 2.2.3, A1-A3, F4, PAL.
- H. xanthopus winkleri* Schaubberger, 1923: DV (11), 1.1.1, EUR.
- Ophonus ardosiacus* (Lutshnik, 1922): DV (20, 25), 2.1.2-3, SBM.
- O. azureus* (Fabricius, 1775): DV (12, 24, 25), AV, LA, LE, LR, ME (25), BU, HV, KL, PA, PE (26), 2.1.3, 2.2.3, A2-A3, F4, EUR.
- O. melletii* (Heer, 1837): BR (13), AV (25), 2.1.3, 2.2.3, 2.2.5, EUR.
- O. nitidulus* Stephens, 1828: DV (12, 25), HL (23), LE, LR (25), BU, PA (26), 1.1.1, 1.2.1, 2.2.1, 2.2.4, A1-A3, F3, EUS.
- O. puncticeps* Stephens, 1828: LE (25), 2.1.3, 2.2.2, 2.2.8, EUR.
- O. puncticollis* (Paykull, 1798): AV, DV, LE, MI, SK, TH, TU (25), BU, HV, KL, ME, PA, PE (26), 2.1.3, 2.2.3, A2-A3, F3, EUS.
- O. rufibarbis* Fabricius, 1792: SN (24, 25), DV (25), BU, HV, PA, PE, KL (26), 2.1.3, 2.2.3, 2.2.5, 2.2.7-8, A2, F4, W PAL.
- O. rupicola* (Sturm, 1818): AV (25), HV, KL, PA (26), 2.1.2, 2.2.3, 2.2.8, A2, F3, EUR.
- O. schaubbergerianus* Puel, 1937: DV (12), AV, LE (25), 2.2.1, 2.2.3, 2.2.7-8, EUR.
- O. tenebrosus centralis* (Schaubberger, 1929): PA (25), 2.1.2, 2.1.3, CEU.
- Pseudoophonus calceatus* (Duftschmid, 1812): DV (25), PA (26), 2.1.3, 2.2.3, A1, F2, PAL.
- P. griseus* (Panzer, 1797): DV, MI (25), BU, DO, HV, KL, NM, PA (26), 2.2.2-3, 2.2.8, A2-A3, F3, PAL.
- P. rufipes* (De Geer, 1774) (= *pubescens* Müll.): LR (8), DV (12), KA (17), HL (21, 23), MD (23), KJ, ME, RA, SN (24), TU (25), BU, DO, HV, KJ, KL, NM, PA, PE, (26), 1.2.4-7, 2.2, A2-A5, F5, PAL.
- Stenolophus discophorus* Fischer von Waldheim, 1824: LR (25), sa, SBM.
- S. mixtus* (Herbst, 1784): LR (3, 8, 25), MD (23), KJ (24), BR, LE, NM, SN (25), DO, KL, NM (26), 2.1.5, A2-A3, F4, PAL.
- S. skrimshiramus* Stephens, 1828: LE, LR (25), DO (26), 2.1.5, A2, F2, W PAL.
- S. teutonius* (Schränk, 1781): LR (3), DV,

- NM, SN (25), DO, NM (26), 2.1.5, A2, F3, W PAL.
- Trichocellus placidus* (Gyllenhal, 1827): LE (2, 3, 25), SN (13, 25), 2.1.5, PAL.
- LICININI
- Badister anomalus* (Perris, 1866): LE (25), 2.1.5, EUS.
- B. bullatus* (Schrank, 1798) (= *bipustulatus* Fabr.): KA (7, 17), DV (12, 25), SN (24), LE (25), PA (26), 2.1.3, 2.1.5, 2.2.2, 2.2.4, A1, F3, HOL.
- B. dilatatus* (Chaudoir, 1837): LA, LE, LR, SN (25), 1.1.2, 2.1.5, PAL.
- B. dorsiger* (Duftschmid, 1812): BR, SN (13), LA, LE (25), 2.1.5, 2.2.1, CEU.
- B. lacertosus* Sturm, 1815: HL (23), SN (24), LE (25), BU, KJ, KL (26), 2.1.5, 2.2.1, A1-A2, F3, PAL.
- B. meridionalis* Puel, 1925: LE (4, 25), 2.1.5, PAL.
- B. peltatus* (Panzer, 1798): LR (8), BU, KJ (26), 1.1.2, 2.1.5, A1-A2, F3, PAL.
- B. sodalis* (Duftschmid, 1812): KA (7, 17), HL (21, 23), MD (23), KJ, KL (26), A1-A2, F3, EUA.
- B. unipustulatus* Bonelli, 1813: LE (3, 25), LR (8), PA (26), 1.1.2, 2.1.5, A1-A2, F3, W PAL.
- Licinus cassideus* (Fabricius, 1792): DV (12, 25), HV (26), 2.1.3, A1, F2, SBM, EN.
- L. depressus* (Paykull, 1790): DV (25), BU (26), 2.1.3, A2, F1, PAL.
- OODINI
- Oodes gracilis* A. & G.B. Villa, 1833: LR (3), LE (15), KA (17), 2.1.5-6, A2, F2, W PAL.
- O. helopioides* (Fabricius, 1792): LR (8), DV (12, 25), LE (15, 25), HL (21), MD (23), KJ (24, 26), LA, NM, SN (25), 1.1.2, 2.1.5, A2-A3, F4, PAL.
- CALLISTINI
- Chlaenius festivus* Panzer, 1796: DO (26), 2.1.5, A2, F1, W PAL.
- C. nigricornis* (Fabricius, 1787): HL (21), RA (24), LA, LE, LR (25), 2.1.5, A1-A2, F3, PAL.
- C. nitidulus* NM (26), 2.1.5, A1, F1, EUA.
- C. spoliatus* (Rossi, 1790): LR (3, 25), 2.1.5, A2, F2, SBM.
- C. tristis* (Schaller, 1783): LR (3, 8), DV (12), NM (25), 2.1.5, A1-A2, F3, PAL.
- C. vestitus* (Paykull, 1790): LR (3, 25), DO, NM, PA (26), 2.1.5, A2-A3, F3, PAL.
- PANAGAEINI
- Panagaeus bipustulatus* (Fabricius, 1775): LE, LR (25), BU, HV, KL, PA, PE (26), 2.1.3, 2.2.7, A1-A2, F4, W PAL.
- P. cruxmajor* (Linnaeus, 1758) RA (24), NM, PA (26), 1.1.2, A1, F3, PAL.
- ODACANTHINI
- Odacantha melanura* (Linnaeus, 1767): LR (8, 25), 2.1.5, A1-A2, F2, PAL.
- MASOREINI
- Masoreus wetterhallii* (Gyllenhal, 1813): DV (3, 25, 26), 2.1.2-3, A1, F1, PAL.
- LEBIINI
- Cymindis angularis* Gyllenhal, 1810: DV (12), HV (26), 2.1.3, 2.2.3, A1, F1, EUS.
- C. axillaris* (Fabricius, 1794): DV (24, 25), 2.1.3, A1, F1, W PAL.
- C. humeralis* (Fourcoy, 1785): DV, TH (25), 2.1.3, xt, EUR.
- C. variolosa* (Fabricius, 1794): DV (3, 25), 2.1.2, PAL.
- Demetrius atricapilus* (Linnaeus, 1758): KL (26), 2.1.5, 2.2.1-4, A1, F2, SBM.
- D. imperialis* (German, 1824): LR, SN (25), 2.1.5, PAL.
- D. monostigma* Samouelle, 1819: LE, LR, ME, SN (25), BU (26), 2.1.5, A2, F3, PAL.
- Dromius agilis* (Fabricius, 1787): BR (25), PA (26), si, A1, F2, EUS.
- D. angustus* Brullé, 1834: LR (6), si,

- EUR.
D. quadrimaculatus (Linnaeus, 1758): KA (7), KL (26), A1, F1, EUR.
Lebia cyanocephala (Linnaeus, 1758): KL, PA (26), 1.1-2, A1, F2, SBM.
Microlestes maurus (Sturm, 1827): LE, LR (5), BU, DO, HV, KL, PA (26) 2.1.3-5, 2.2.3-5, A1-A3, F4, W PAL.
M. minutulus (Goeze, 1777): ME (24), BU, KL, PA (26), 2.1.3-5, 2.2.3-5, A1-A3, F4, EUA.
M. plagiatus (Duftschmidt, 1812): BU (26) one specimen, a species considered to be extinct in Moravia, A1, F1, SBM.
Paradromius linearis (Olivier, 1795): DV, HV, KL, PA (26), A1, F3, EUA.
Philorhizus crucifer crucifer (Lucas, 1846): DV, SK (25), 2.1.3, W PAL.
P. notatus (Stephens, 1827) (= *nigriventris* Thoms.): ME (23), DV, LE (25), KL, PA (26), sk, A1, F3, W PAL.
P. sigma (Rossi, 1790): KA (7, 17), A1, F1, W PAL.
Syntomus foveatus (Fourcroy, 1785): LR, MI (25), xf, A2, F3, PAL.
S. obscuropunctatus (Duftschmidt, 1812): HL (23), BU, PA (26), A2, F3, EUR.
S. pallipes Dejean, 1825: LR (10), SK (25), PA (26), 2.1.2-3, xt, A2-A3, F4, EUR.
S. truncatellus (Linnaeus, 1761): DV, LE, SK (25), HV, PA (26), eu, A1-A2, F3, PAL.
ZUPHIINI
Polistichus connexus (Fourcroy, 1785): LE (1), 2.1.3, 2.2.1, A1, F1, PAL.
DRYPTINI
Drypta dentata (Rossi, 1790): LR (3, 25), KJ (24), LE (25), KL, PA (26), 2.1.5, 2.2.3, 2.2.8, A1-A2, F3, PAL.

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Terrestrial Invertebrates of the Pálava Biosphere Reserve of UNESCO, II
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Coleoptera: Caraboidea

KAREL HŮRKA & ZBYŠEK ŠUSTEK

*Department of Zoology, Faculty of Science, Charles University, Viničná 7, 128 44
Praha 2, Czech Republic*

&

*Institute of Zoology, Slovak Academy of Sciences, Dúbravská cesta 9,
842 06 Bratislava, Slovak Republic*

This superfamily (identical with the suborder Adephaga) embraced only one family with the terrestrial mode of life, viz., Carabidae. In the Czech Republic 514 species and subspecies including disputed and extinct ones are announced (PULPÁN & HŮRKA (1993) (in Moravia 490 spp. and in the adjacent countries: Austria 637, Bohemia 440, Poland 511 and Slovakia 555). In the study area of extended Pálava Biosphere Reserve 273 species have been found, which represent 53% species in the Czech Republic. The systematic evaluation of this family is based on the first modern key to the identification of Carabids of the former Czechoslovakia, published by KULT (1947) and the latest key of species living in this area prepared by HŮRKA (1996). It includes the most significant present foreign literature. Carabids have inhabited almost all terrestrial habitats. Most of them live and develop as a part of epigeon and in surface layer of soil. Only a small part of species live (mainly adults) in herb, bush or tree stratum (in our country two species of calosoma beetle *Calosoma inquisitor* and *C. sycophanta*, *Odacantha melanura* and most species of Lebiinae subfamily, partly *Carabus intricatus*). Carabids are mostly unspecialized predators of small invertebrates, some species are omnivorous, several spp. of the subfamilies Harpalinae and Zabrinae are phytophagous, often more or less specialized on seeds of different kinds of herbs. Further, mainly zoophagous species use small amounts of plants as their food component. Many species are occasionally necrophagous, ectoparasitoidism was found with the Brachyninae and Lebiinae subfamilies. Several species, particularly ripicolous ones, and most of the formerly collected material were gained by individual collecting, sweeping, sifting or stepping.

History of investigation. In the extended Pálava B.R. many entomologists collected and their material is scattered in a great number of mainly private collections. The published data mostly concern either rare species or species found in the area of former Czechoslovakia or of Moravia for the first time. They are included in the publications of FLEISCHER (1927-1930), KULT (1944, 1954), PIČMAN (1977, 1982, 1986), PULPÁN & VYSOKÝ (1982), MORAVEC (1986), BENEDIKT & TĚŤÁL (1989, 1991), HŮRKA (1992), RESL (1992), and VESELY (1992). The results of the first systematical research of the studied area were published by HŮRKA (1954). In terms of research concerning epigeic insects of the flood plain forest, carabids were studied by