

A contribution to knowledge of the Carabidae of the Danube river delta (Coleoptera: Carabidae)

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BAŠTA J. 2001: A contribution to knowledge of the Carabidae of the Danube River delta. *Acta Musei Moraviae, Scientiae biologicae* (Brno) **87**: 1–27. – In the period of the years 1979–1994, a systematic exploration of the Danube delta in Rumania was carried out by members of the Zoological Department of the Moravian Museum, Brno. A characterisation of the area and of individual localities is given. As a result, a list of 190 species of the family Carabidae, supplemented with comments on the sampling methods used for the research, is presented here.

Key words. Coleoptera, Carabidae, faunology, Rumania, Danube delta

Introduction

In the period of the years 1979–1994, the Zoological Department of the Moravian Museum, Brno organized 15 scientific expeditions to the Danube delta in Rumania. The expeditions especially involved photography and research into vertebrates and insects. The field trips took place mostly in springtime, in order to cover the vernal nesting of birds, but also in autumn, at the time of migratory passage of birds. In sampling insects, I directed my interest especially towards the family Carabidae. Because time was exceedingly short, the sampling methods covered below were not used consistently in all of the localities explored. Since a comparatively large sample of material, including many interesting species, was gathered, I decided to address it and publish the results in the faunological work presented here. The list is supplemented by comments on the sampling methods used for the research. As no recent catalogue of Rumanian Carabidae exists, the present list may contribute to a better knowledge of the little-known fauna of Rumania. The list of the Carabinae of Rumania in the catalogues of Coleoptera in MONTANDON (1906, 1908) is out of date. Partial lists of the Carabidae of Rumania involving the fauna of the Danube delta may be found in the following authors: IENISTEA (1968, 1974), NEGRU (1968), NITU (1992), and POPOVICI (1992). Lists of the genera *Cicindela* LINNAEUS, 1758 are mentioned in PANIN (1952), *Cychrus* FABRICIUS, 1794 and *Carabus* LINNAEUS, 1758 in PANIN (1955). The distribution of Carabidae in Rumania is also mentioned in HIEKE & WRASE (1988) and in GUÉORGUIEV & GUÉORGUIEV (1995).

Sampling methods

The sampling was pursued by hand and with the use of an exhauster, under stones and wood, from silt, sweeping and beating of vegetation, treading out, expulsion by beating banks, netting, attraction to light-traps (kerosene lamp), collection under street

lamps and attraction into pitfalls with bait. The pitfalls consisted of plastic pots baited with a small amount of beer, wine or meat paste.

The survey and character of localities: sampling methods employed

The Danube delta is an area covering 4,152 square kilometres, 70 km in length, 50 km in width, and includes also the lake complex of Lacul Razim-Sinoie, which extends southwards at an approximate length of 70 km. Thus, the total area occupies around 5800 square kilometres. The environment consists of a number of lakes and channels of various sizes, with associated reed growth and silt islands. Two of the islands, Caraorman and Letea, are partly covered with the oak-ash mixed forests. The climate of the delta is continental. The average annual temperature is 11.2°C, with an average of 1.5°C in January and 22°C in June. The annual average rainfall is <400 mm.

The sampling of adult Caraboidea was carried out in 13 localities (Fig. 1) that lay either in the heart of the delta, or on the coast of the Black Sea, but also in the hilly Dobrogea area which fringes the delta to the south-west. The localities explored, described below, represent a majority of the basic biotopes of the Danube delta.

- **Babadag (Ba)**: lies approximately 10 km S of the town of Babadag, near a road, in the hilly Dobrogea area. In moderately undulating terrain, oak woodlands alternate with small pastures fringed with *Crataegus*, *Rosa* and *Prunus* bushes. The locality was visited three times, for periods of one or two days. The insects were sampled by hand and in pitfalls.
- **Beştepe (Be)**: lies approximately 2 km N of the town of Beştepe on comparatively steep stony slopes with steppe vegetation and sparse *Robinia* woodlands. The locality was visited only once, for a half-day trip. The insects were sampled by hand under stones.
- **Caraorman (Ca)**: The island of Grindul Caraorman, with the village of the same name, is the second largest island in the delta. Large pastures, seasonally partly waterlogged, surround the village. Beds of reeds (*Phragmites*) and reedmace (*Typha*) fringe the lakes and canals. A strip of partially waterlogged deciduous wood extends for 3 km on the south of the island. The northern area of the island is covered with neat sand dunes up to 10 m high. The locality was visited twice, for 2 and 4 days. Sampling was carried out in the all the biotopes, using all the sampling methods mentioned. In 1994, a light-trap based on a kerosene lamp proved remarkably successful for insects.
- **Ciotica (Cio)**: A fishing centre on the shore of the Black Sea. A narrow sand spit, approximately 100 m wide, overgrown with sparse halophytic vegetation, separates the sea from swampy silts covered with *Phragmites* and reedmace growth. The locality was visited only once, for half a day. Adults were sampled by hand from silt, and from under decaying vegetation, and were also trodden out of mud.

- **Histria (Hi):** The island of Grindul Saele with the archaeological site of Cetatea Histria. The banks of lakes Lacul Istria and Lacul Nuntași are covered with stands of reeds, reedmace, rushes (*Juncus*) and *Salicornia*. The pastures are sparsely overgrown with species of *Juncus*, *Euphorbia* and *Antermisia*. The banks of the lake Lacul Sinoie near the site of the archaeological excavation are stony. The higher points (tumuli) in fields in the vicinity of Istria village are of a steppe character. The locality was visited six times, for periods of 3–11 days. Sampling was carried out in the biotopes mentioned, using all the sampling methods outlined above.
- **Jurilovca (Ju):** The village lies on the southern margin of the delta, in agricultural country on the bank of the lake Lacul Golovița. The Capul Doloșman peninsula lies 5 km E of the village. It has a steppe character and ends in a sheer wall that towers 57 m above lake Lacul Razim. There are archaeological excavation sites here. The banks of the lakes are overgrown with *Phragmites*. The locality was visited 4 times for periods of 1–4 days. Sampling was carried out in the biotopes mentioned, using all the sampling methods outlined above. Attempts to attract the beetles to light (an oil lamp) were unsuccessful. However, in the year 1990, I successfully sampled the beetles under electric light in the fishing port.
- **Chilia Veche (Ki):** A village on a branch of the Bratul Chilia, which forms the northern border of the delta. The village is surrounded with cultivated fields and pastures, with a number of canals in between. The banks of the canals are overgrown with *Phragmites*, solitary willows and aspens (*Populus*). The locality was visited twice, for periods of 1–2 days. Sampling of insects was carried out by hand.
- **Letea (Le):** Grindul Letea is the largest island in the delta, containing the villages of Letea, C.A. Rosetti and Sfiștofca with large pastures. There is a forest reserve in the northern part of the island. Elevations (12.5 m at the highest) and depressions alternate and extend southwards the whole length of the island, their width reaching about 500 m. The depressions are waterlogged, covered in deciduous wood with rich bushy undergrowth. Bunches of liana (*Periploca greca*) twine upward towards the crowns of the trees. The elevations are overgrown with steppe vegetation with scattered shrubs, and drifts of sand occur sporadically. *Stippa* species are common. The locality was visited twice, for periods of 6 and 4 days. Insects were sampled in the biotopes mentioned between the villages of C.A. Rosetti and Sfiștofca using all the methods outlined above. Attempts to attract the beetles to light in a pasture at the margin of a forest were unsuccessful.
- **Mila 23 (M23):** The village is situated in the centre of the delta on the Dunarea Veche branch. The locality investigated lies in a complex of reed growth with scattered solitary willows. The insects were sampled by treading out of mud.
- **Murighiol (Mu):** The locality investigated lies approximately 1 km from the town of Murighiol on the muddy bank of the lake Lacul Sărăturii, which is

drying out, with sparse halophytic vegetation. The locality was visited for only half a day. The insects were sampled by hand and by treading out of mud.

- Gura Portiței (Po): A fishing centre on the shore of the Black Sea. The locality lies on a narrow sandy spit, which is 100–200 m wide with its surface covered in *Euphorbia* and *Carduus* growth. The spit separates the Black Sea from the brackish lake Lacul Golovița. The locality was visited 4 times for periods of 2–4 days. The insects were sampled by hand, from silt and by treading out of mud.
- Lacul Roșu (Ro): Lake in a complex of reed growth. Remarkable for its floating reed islands, known as *plauras*. The locality is situated on the southern bank of the lake with a number of plants and shrub-like willows. The locality was visited once for 2 days. The adults were trodden out of mud.
- Sfintu Gheorghe (SG): Village situated at the estuary of the Bratul Sfintu Gheorghe branch, surrounded by pastures on sand. Waterlogged sections are covered with rushes. The sea shore is clay-sandy. North of the village is a secondary forest, with impenetrable thickets of willows, poplars, and other trees here and there (*Hippophae*, *Eleagnus* and other species). The forest is interwoven with drainage-ditches which are covered with aquatic vegetation. Two narrow, sandy, spit-like islands, Sacalinu Mic and Sacalinu Mare, extend southwards of the branch into the sea. The total length of the spit is about 15 km. The locality was visited 10 times, for periods of 3–13 days. Sampling was carried out in the biotopes mentioned, using all the sampling methods outlined above.

Table of abbreviations and co-ordinates of the localities

Babadag	Ba	44°54' N 28°45' E
Beștepe	Be	45°50' N 29°10' E
Caraorman	Ca	45°40' N 29°22' E
Ciotica	Cio	44°50' N 29°32' E
Histria	Hi	44°32' N 28°45' E
Jurilovca	Ju	44°46' N 28°51' E
Chilia Veche	Ki	45°25' N 29°17' E
Letea	Le	45°19' N 29°32' E
Mila 23	M23	45°14' N 29°15' E
Murighiol	Mu	45°30' N 29°00' E
Gura Portiței	Po	44°41' N 29°00' E
Lacul Roșu	Ro	45°40' N 29°33' E
Sfintu Gheorghe	SG	44°54' N 29°37' E

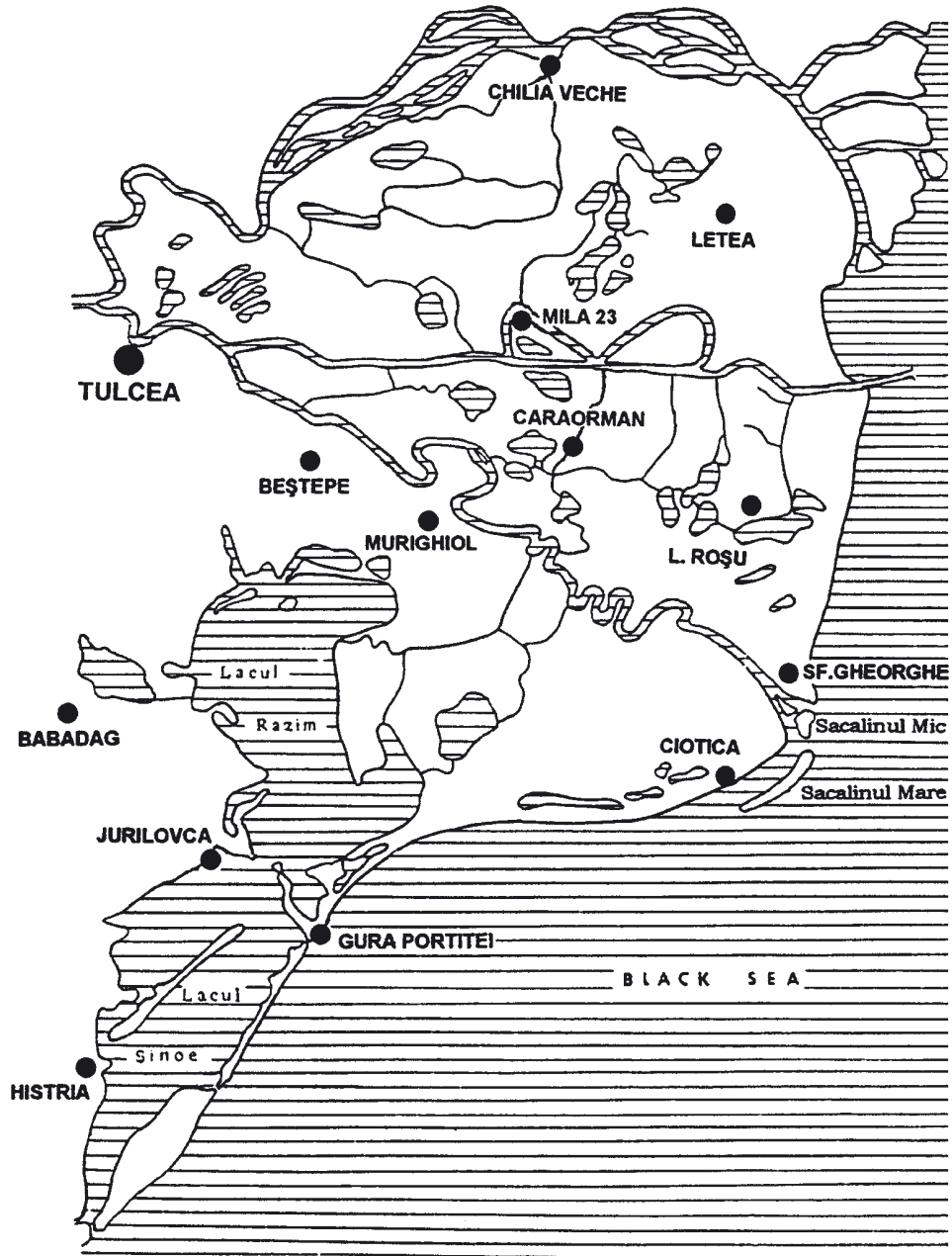


Fig. 1. A map of the Danube delta with the localities investigated.

Results

The following items follow the name of each taxon*): abbreviation of locality, sampling date, and number of adults captured. If not otherwise mentioned in the text, the specimen was identified by the author himself and is deposited in the author's collection. In some cases, a note on the sampling method or detailed description of the place accompanies the sampling data.

Family CARABIDAE

Subfamily Cicindelinae

Tribe Cicindelini

Genus *Cicindela* LINNAEUS, 1758

C. (Eumecus) germanica germanica LINNAEUS, 1758

Mu, 29.v.1994, 1 ex. [J. Moravec det. as *Cylindera* (s.str.) *germanica germanica* (LINNAEUS, 1758)].

C. (Cephalota) chiloleuca FISCHER VON WALDHEIM, 1820

Mu, 29.v.1994, 8 ex.; Hi, 6.–9.vi.1994, 20 ex. [J. Moravec det. as *Cylindera* (s.str.) *germanica germanica* (LINNAEUS, 1758)].

C. (Cicindina) trisignata trisignata DEJEAN, 1822

SG, 24.v.1983, 1 ex.; SG, 15.–25.x.1984, 4 ex.; SG, 28.viii.1985, 1 ex.; SG, 5.vi.1990, 9 ex.; SG, 31.v.1994, 2 ex. [J. Moravec det. as *Cylindera* (*Cicindina*) *trisignata* (DEJEAN, 1822)].

C. (Lophyridia) littoralis nemoralis OLIVIER, 1790

Ro, 17.v.1981, 1 ex.; Ca, 20.v.1981, 1 ex.; Hi, 30.v.1981, 1 ex.; Hi, 12.ix.1984, 1 ex.; SG, 26.v.1987, 4 ex.; Hi, 20.v.1989, 2 ex.; SG, 5.vi.1990, 3 ex.; Ju, 7.vi.1990, 2 ex.; Mu, 29.v.1994, 2 ex.; Ca, 4.vi.1994, 1 ex.; Po, 9–12.vi.1994, 1 ex. [J. Moravec det. as *Lophyridia littoralis nemoralis* (OLIVIER, 1790)].

Subfamily Omophroninae

Tribe Omophronini

Genus *Omophron* LATREILLE, 1802

O. limbatum (FABRICIUS, 1776)

SG, 8.–17.ix.1986, 1 ex.; SG, 26.v.1987, 1 ex.; SG, 5.vi.1990, 6 ex.; SG, 31.v.1994, 1 ex.; Ca, 4.vi.1994, 1 ex.

*) The taxonomy and nomenclature of Carabidae used here was adopted from KRYZHANOVSKY (1995). The names of local places are in the original Rumanian wording taken from the tourist map "Delta Dunării" (Intreprinderea poligrafică, Braşov).

Subfamily Carabinae

Tribe Notiophilini

Genus *Notiophilus* DUMERIL, 1806

***N. (s.str.) aestuans* MOTSCHULSKY, 1864**

Po, 9.–12.vi.1994, 1 ex.

***N. (s.str.) palustris* (DUFTSCHMID, 1812)**

Le, 30.v.1990, 3 ex.

***N. (Latviaphilus) substriatus* WATERHOUSE, 1833**

Hi, 20.v.1989, 1 ex. (P. Bulirsch det.).

Tribe Carabini

Genus *Calosoma* F. WEBER, 1801

***C. (s.str.) sycophanta* (LINNAEUS, 1758)**

SG, 26.v.1978, 11 ex. (beating of shrubs eaten away by caterpillars).

***C. (Acalosoma) inquisitor* (LINNAEUS, 1758)**

Ba, 21.v.1982, 3 ex.

***C. (Campalita) auropunctatum* (HERBST, 1784)**

Ba, 21.v.1982, 2 ex.; Ju, 7.vi.1990, 1 ex. (under electric light in fishing port).

***C. (Caminara) denticolle* GEBLER, 1833**

SG, 26.v.1982, 1 ex. (under street lamp) (J. Macek det.).

Genus *Carabus* LINNAEUS, 1758

***C. (Autocarabus) cancellatus graniger* PALLIARDI, 1825**

Le, 18.–22.v.1983, 5 ex.; Le, 30.v.1990, 4 ex. (in pitfalls) (J. Macek det.).

***C. (Archicarabus) montivagus* PALLIARDI, 1825**

Ba, 21.v.1982, 10 ex.; Ba, 25.v.1989, 1 ex. (attracted into pitfalls using meat bait).

***C. (Limnocarabus) clathratus clathratus* LINNAEUS, 1761**

SG, 26.v.1982, 1 ex.; Le, 18.–22.v.1983, 5 ex. (attracted into pitfalls using meat paste as bait); SG, 8.–17.9.1886, 3 ex. (in pitfalls using wine as bait).

***C. (Pachystus) graecus morio* MANNERHEIM, 1830**

Be, 3.vi.1990, 4 ex.

***C. (Procrustes) coriaceus cerisyi vicinus* WATTL, 1838**

Ba, 21.v.1982, 3 ex. (into pitfalls) (J. Macek det.).

Tribe Elaphrini

Genus *Elaphrus* FABRICIUS, 1775

***E. (s.str.) riparius* (LINNAEUS, 1758)**

Le, 30.v.1990, 1 ex.; Mu, 29.v.1994, 3 ex.; Ca, 4.vi.1994, 1 ex.

Tribe Scaritini

Genus *Scarites* FABRICIUS, 1775

***S. (s.str.) terricola* BONELLI, 1813**

Hi, 30.v.1981, 1 ex.; SG, 8.–17.ix.1986, 5 ex.; SG, 25.v.1987, 2 ex.; SG, 1.–12.iv.1988, 5 ex.; Hi, 20.v. 1989, 14 ex.; Ju, 7.vi.1990, 1 ex.; Mu, 29.v.1994, 4 ex.; Cio, 1.vi.1994, 2 ex.; Po, 9.–12.vi.1994, 1 ex.

Tribe Clivinini

Genus *Clivina* LATREILLE, 1802

***C. ypsilon* DEJEAN, 1829**

Hi, 10.–20.v.1982, 1 ex. (J. Hladil det.); Mu, 29.v.1994, 2 ex.; Po, 9.–12.vi.1994, 1 ex.

Tribe Dyschiriini

Genus *Dyschirius* BONELLI, 1810

***D. caspius* PUTZEYS, 1866**

SG, 25.v.1987, 14 ex.; SG, 5.vi.1990, 33 ex.; Po, 9.–12.vi.1994, 1 ex. (All P. Bulirsch det.)

***D. humeratus* CHAUDOIR, 1850**

Hi, 20.v.1989, 1 ex.; Ju, 7.vi.1990, 1 ex. (P. Bulirsch coll.); Hi, 6.–9.vi.1994, 12 ex. (All P. Bulirsch det.)

Genus *Dyschiriodes* JEANNEL, 1941

***D. globosus* HERBST, 1783**

Hi, 20.v.1989, 11 ex.; Le, 30.v.1990, 32 ex.; M23, 5.vi.1994, 1 ex. (All P. Bulirsch det.)

***D. nitidus nitidus* DEJEAN, 1825**

SG, 5.vi.1990, 1 ex. (P. Bulirsch det.).

***D. impunctipennis* (DAWSON, 1854)**

SG, 18.viii.1985, 1 ex.; SG, 25.v.1987, 2 ex.; SG, 5.vi.1990, 3 ex. (All P. Bulirsch det.)

***D. agnatus* (MOTSCHULSKY, 1844)**

SG, 31.v.1994, 1 ex. (P. Bulirsch det.).

***D. chalceus* (ERICHSON, 1837)**

Hi, v.1981, 1 ex.; Hi, 10.–20.v.1982, 1 ex.; SG, 24.v.–2.vi.1983, 1 ex.; SG, 10.ix.1986, 1 ex.; Hi, 20.v. 1989, 14 ex.; Ju, 7.vi.1990, 1 ex.; Mu, 29.v.1994, 20 ex.; SG, 31.v.1994, 1 ex.; Ca, 4.vi.1994, 14 ex.; Hi, 6.–9.vi.1994, 2 ex.; Po, 9.–12.vi.1994, 5 ex.; Ba, 13.vi.1994, 1 ex. (All P. Bulirsch det.)

***D. aeneus aeneus* DEJEAN, 1825**

SG, 25.v.1987, 1 ex.; Ju, 7.vi.1990, 2 ex.; Ca, 4.vi.1994, 1 ex. (All P. Bulirsch det.)

***D. apicalis* (PUTZEYS, 1846)**

SG, 25.v.1987, 5 ex.; Hi, 20.v.1989, 8 ex.; SG, 5.vi.1990, 2 ex.; Mu, 29.v.1994, 1 ex.; SG, 31.v.1994, 17 ex. (All P. Bulirsch det.)

***D. cylindricus hauseri* (FLEISCHER, 1905)**

SG, 8.–17.ix.1986, 2 ex.; SG, 25.v.1987, 1 ex.; Hi, 20.v.1989, 1 ex.; SG, 5.vi.1990, 4 ex.; SG, 31.v.1994, 1 ex.; Hi, 6.–9.vi.1994, 2 ex.; Po, 9.–12.vi.1994, 3 ex. (All P. Bulirsch det.)

***D. pusilus* DEJEAN, 1825**

Hi, 20.v.1989, 1 ex.; Mu, 29.v.1994, 1 ex. (All P. Bulirsch det.)

***D. luticola luticola* (CHAUDOIR, 1850)**

SG, 25.v.1987, 4 ex.; Hi, 20.v.1989, 2 ex.; SG, 5.vi.1990, 1 ex.; Ju, 7.vi.1990, 7 ex.; SG, 31.v.1994, 19 ex.; Cio, 1.vi.1994, 3 ex.; Po, 9.–12.vi.1994, 3 ex. (All P. Bulirsch det.)

***D. macroderus macroderus* (CHAUDOIR, 1850)**

SG, 10.ix.1986, 1 ex. (P. Bulirsch det. and coll.).

***D. chalybeus gibbifrons* (APFELBECK, 1899)**

SG, 31.v.1994, 2 ex.; M23, 5.vi.1994, 1 ex. (All P. Bulirsch det.)

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***D. salinus striatopunctatus* (PUTZEYS, 1846)**

SG, 10.ix.1986, 6 ex.; SG, 26.v.1987, 32 ex.; Hi, 20.v.1989, 20 ex.; SG, 5.vi.1990, 4 ex.; Ju, 7.vi.1990, 6 ex.; Mu, 29.v.1994, 29 ex.; SG, 31.v.1994, 23 ex.; Po, 9.–12.vi.1994, 5 ex. (All P. Bulirsch det.)

***D. strumosus* (ERICHSON, 1837)**

SG, 25.v.1987, 1 ex.; Hi, 20.v.1989, 2 ex. (All P. Bulirsch det.)

Tribe Broscini

Genus *Broscus* PANZER, 1813

***B. semistriatus* (DEJEAN, 1828)**

SG, 28.viii.1985, 17 ex.; SG, 10.x.1988, 2 ex.; Mu, 29.v.1994, 5 ex.; SG, 31.v.1994, 7 ex. (attracted into pitfalls); Cio, 1.vi.1994, 5 ex.

Tribe Trechini

Genus *Trechus* CLAIRVILLE, 1806

***T. quadristriatus* (SCHRANK, 1781)**

SG, 5.vi.1990, 3 ex.; Po, 9.–12.vi.1994, 4 ex.

Tribe Tachyini

Genus *Tachys* STEPHENS, 1829

***T. (s.str.) scutellaris* (STEPHENS, 1829)**

SG, 25.v.1987, 2 ex. (P. Bulirsch det.); Hi, 20.v.1989, 55 ex.; Ju, 7.vi.1990, 4 ex.; Mu, 29.v.1994, 62 ex.; SG, 31.v.1994, 5 ex.; Hi, 6.–9.vi.1994, 130 ex.; Po, 9.–12.vi.1994, 3 ex.

***T. (s.str.) centralis* J.SAHLBERG 1900**

Hi, 6.–9.vi.1994, 2 ex. (T. Kopecký det. and 1 ex. coll., D. W. Wrase 1 ex. coll.).

***T. (Paratachys) bistriatus* (DUFTSCHMID, 1812)**

SG, 1.–12.x.1988, 1 ex.; Le, 30.v.1990, 3 ex.; Mu, 29.v.1994, 2 ex.; SG, 31.v.1994, 3 ex.; M23, 5.vi.1994, 2 ex.

***T. (Paratachys) centriustatus* REITTER, 1874**

Mu, 29.v.1994, 1 ex. (T. Kopecký det.).

***Tachys* sp.**

Mu, 29.v.1994, 2 ex. (T. Kopecký det., D. W. Wrase 1 ex. coll., J. Bašta 1 ex. coll.).

Tribe Bembidiini

Genus *Asaphidion* DES GOZIS, 1886

***A. flavipes* (LINNAEUS, 1761)**

Le, 30.v.1990, 19 ex. (in forest under foliage).

Genus *Bembidion* LATREILLE, 1802

***B. (Metallina) properans* (STEPHENS, 1829)**

Hi, 20.–25.v.1989, 21 ex.; Ju, 7.vi.1990, 1 ex.

***B. (Notaphus) varium* (OLIVIER, 1795)**

SG, 1.–12.x.1988, 1 ex.; Hi, 20.–25.v.1989, 7 ex.; Le, 30.v.1990, 1 ex.; SG, 5.vi.1990, 1 ex.; Ju, 7.vi.1990, 46 ex.; Mu, 29.v.1994, 2 ex.; SG, 31.v.1994, 6 ex.; Po, 9.–12.vi.1994, 50 ex.

***B. (Notaphemphanes) ehippium* (MARSHAM, 1802)**

SG, 25.v.1987, 1 ex.; Hi, 20.v.1989, 1 ex.; Hi, 6.–9.vi.1994, 29 ex.

***B. (Emphanes) normannum apfelbecki* MÜLLER-MOTZFELD, 1986**

Hi, 20.v.1989, 49 ex.; Mu, 29.v.1994, 5 ex.; SG, 31.v.1994, 7 ex. (K. Rébl det.); Hi, 6.–9.vi.1994, 2 ex.; Po, 9.–12.vi.1994, 8 ex.

***B. (Emphanes) minimum* (FABRICIUS, 1792)**

Ju, 7.vi.1990, 2 ex.; Ca, 4.vi.1994, 1 ex.

***B. (Emphanes) rivulare euxinum* APFELBECK, 1904**

Hi, 20.v.1989, 3 ex.; Ju, 7.vi.1990, 1 ex. (M. Fassati det.).

***B. (Emphanes) tenellum tenellum* ERICHSON, 1837**

Hi, 20.–25.v.1989, 6 ex.; Le, 30.v.1990, 40 ex.; SG, 5.vi.1990, 9 ex.; Ju, 7.vi.1990, 9 ex.; Mu, 29.v.1994, 7 ex.; SG, 31.v.1994, 80 ex.; M23, 5.vi.1994, 5 ex.; Po, 9.–12.vi.1994, 8 ex.

***B. (Talanes) aspericolle* (GERMAR, 1812)**

SG, 10.ix.1986, 2 ex.; SG, 25.v.1987, 1 ex.; SG, 31.v.1994, 13 ex. (treading the banks of small channels filled with brackish water). (All M. Fassati det.)

***B. (Talanes) subfasciatum* CHAUDOIR, 1850**

Ju, 7.vi.1990, 3 ex.; SG, 31.v.1994, 12 ex. (treading the banks of small channels filled with brackish water); Cio, 1.vi.1994, 1 ex.; Po, 9.–12.vi.1994, 1 ex. (All M. Fassati det.)

***B. (Leja) articulatum articulatum* (PANZER, 1796)**

SG, 1.–12.x.1988, 1 ex.; Le, 30.v.1990, 7 ex.; Ju, 7.vi.1990, 1 ex.; SG, 31.v.1994, 1 ex.; Ca, 4.vi.1994, 7 ex.

***B. (Diplocampa) assimile* GYLLENHAL, 1810**

Le, 30.v.1990, 3 ex.; SG, 5.vi.1990, 2 ex.; Ca, 4.vi.1994, 7 ex.; M23, 5.vi.1994, 3 ex.; Hi, 6.–9.vi.1994, 1 ex.; Po, 9.–12.vi.1994, 1 ex.

***B. (Diplocampa) fumigatum* (DUFTSCHMID, 1812)**

Le, 30.v.1990, 1 ex.; SG, 5.vi.1990, 5 ex.; Ca, 4.vi.1994, 1 ex.

***B. (s.str.) quadripustulatum* (SERVILLE, 1821)**

Hi, 20.v.1989 1 ex.

***B. (s.str.) quadrimaculatum* (LINNAEUS, 1761)**

Po, 9.–12.vi.1994, 1 ex.

***B. (Peryphus) femoratum femoratum* STURM, 1825**

Hi, 20.–25.v.1989, 1 ex. (K. Rébl det.).

Tribe Pogonini

Genus *Pogonus* DEJEAN, 1822

***P. (Pogonoidius) punctulatus* DEJEAN, 1828**

Mu, 29.v.1994, 1 ex.

***P. (s.str.) iridipennis* NICOLAI, 1822**

Hi, 30.v.1981, 1 ex.; SG, 25.v.1987, 2 ex.; Hi, 20.v.1989, 23 ex.; Ju, 7.vi.1990, 7 ex.; Mu, 29.v.1994, 25 ex.; SG, 31.v.1994, 2 ex.; Ca, 4.vi.1994, 1 ex.; Hi, 6.–9.vi.1994, 10 ex.; Po, 9.–12.vi.1994, 2 ex. (All P. Bulirsch det.)

***P. (s.str.) litoralis* (DUFTSCHMID, 1812)**

Hi, 30.v.1981, 2 ex.; SG, 8.–17.ix.1986, 1 ex.; SG, 26.v.1987, 2 ex.; Hi, 20.–25.v.1989, 1 ex.; SG, 5.vi.1990, 5 ex.; Ju, 7.vi.1990, 15 ex.; Mu, 29.v.1994, 2 ex.; SG, 31.v.1994, 9 ex.; Ca, 4.vi.1994, 3 ex.; Hi, 6.–9.vi.1994, 24 ex.; Po, 9.–12.vi.1994, 86 ex. (All P. Bulirsch det.)

***P. (s.str.) luridipennis* (GERMAR, 1822)**

SG, 26.v.1987, 1 ex.; Ju, 7.vi.1990, 1 ex.; Mu, 29.v.1994, 1 ex. (All P. Bulirsch det.)

***P. (s.str.) orientalis* DEJEAN, 1828**

Hi, 20.v.1982, 1 ex.; Ju, 7.vi.1990, 39 ex.

***P. (s.str.) persicus* CHAUDOIR, 1842**

Hi, 20.v.1982, 2 ex.; SG, 8.–17.ix.1986, 3 ex.; SG, 25.v.1987, 3 ex.; SG, 1.–12.x.1988, 6 ex.; Hi, 20.–25.v.1989, 43 ex. (P. Bulirsch det.); Ju, 7.vi.1990, 8 ex.; Mu, 29.v.1994, 79 ex.; SG, 31.v.1994, 13 ex.; Ju, 2.vi.1994, 1 ex.

Genus *Pogonistes* CHAUDOIR, 1870

***P. (s.str.) convexicollis* CHAUDOIR, 1871**

Ju, 7.vi.1990, 1 ex. (P. Bulirsch det.)

***P. (s.str.) rufoaeus* (DEJEAN, 1828)**

Hi, 20.v.1989, 2 ex.; SG, 5.vi.1990, 1 ex.; Ju, 7.vi.1990, 2 ex.; Mu, 29.v.1994, 2 ex.; Hi, 6.–9.vi.1994, 1 ex. (All P. Bulirsch det.)

Tribe Pterostichini

Genus *Poecilus* BONELLI, 1810

***P. (s.str.) cupreus* (LINNAEUS, 1758)**

Hi, 20.v.1982, 1 ex.; SG, 5.vi.1990, 1 ex.; Ju, 7.vi.1990, 1 ex.; M23, 5.vi.1994, 6 ex.; Hi, 6.–9.vi.1994, 1 ex.; Po, 9.–12.vi.1994, 48 ex.; Ju, 12.vi.1994, 1 ex.

***P. (s.str.) punctulatus* (SCHALLER, 1783)**

Hi, 20.–25.v.1989, 8 ex.; Be, 3.vi.1990, 1 ex.; Po, 9.–12.vi.1994, 2 ex.

Genus *Pterostichus* BONELLI, 1810

***P. (Platysma) niger distinguendus* HEER, 1838**

Ca, 20.v.1981, 1 ex.; SG, 25.v.1987, 3 ex.; Le, 30.v.1990, 1 ex. (All M. Dvořák det.)

***P. (Argutor) cursor* (DEJEAN, 1828)**

Ro, 17.v.1981, 1 ex.; Ca, 20.v.1981, 1 ex.; SG, 8.–17.ix.1986, 1 ex.; SG, 1.–12.x.1988, 1 ex.; Hi, 20.–25.v.1989, 13 ex.; Ju, 7.vi.1990, 1 ex.; Cio, 1.vi.1994, 1 ex.; Ca, 4.vi.1994, 4 ex.; Po, 9.–12.vi.1994, 1 ex.

***P. (Argutor) leonisi* APFELBECK, 1904**

Po, 9.–12.vi.1994, 6 ex.

***P. (Argutor) vernalis* (PANZER, 1796)**

Hi, 20.–25.v.1989, 10 ex.; Cio, 1.vi.1994, 1 ex.; M23, 5.vi.1994, 1 ex.

***P. (Pediis) longicollis* (DUFTSCHMID, 1812)**

Hi, 20.–25.v.1989, 1 ex.

***P. (Melanius) minor* (GYLLENHAL, 1827)**

Be, 3.vi.1990, 1 ex.; SG, 5.vi.1990, 6 ex.; SG, 31.v.1994, 1 ex.; Ca, 4.vi.1994, 4 ex.; Ju, 12.vi.1994, 1 ex.

***P. (Phonias) diligens* (STURM, 1824)**

Cio, 1.vi.1994, 1 ex.

***P. (Omaseus) aterrimus* (HERBST, 1784)**

SG, 1.–12.x.1988, 17 ex.; SG, 5.vi.1990, 2 ex.; SG, 31.v.1994, 1 ex. (under silted fragments of wood on the shore of the island of Sacalinu Mare).

***P. (Omaseus) elongatus* (DUFTSCHMID, 1812)**

Le, x.1979, 1 ex.; SG, 26.v.1982, 1 ex.; Le, 18.–22.v.1983, 1 ex.; SG, 8.–17.ix.1986, 2 ex.; SG, 1.–12.x. 1988, 1 ex.; SG, 5.vi.1990, 1 ex.; Ca, 4.vi.1994, 5 ex.; Ju, 9.–12.vi.1994, 2 ex.; Ju, 12.vi.1994, 5 ex.

***P. (Morphnosoma) melanarius* (ILLIGER, 1798)**

Be, 3.vi.1990, 1 ex.

Tribe Sphodrini

Genus *Calathus* BONELLI, 1810

***C. (s.str.) fuscipes* (GOEZE, 1777)**

Hi, 20.–25.v.1989, 1 ex.; Be, 3.vi.1990, 21 ex.; Hi, 6.–9.vi.1994, 3 ex.; Po, 9.–12.vi.1994, 1 ex.

***C. (Neocalathus) ambiguus* (PAYKULL, 1790)**

Le, x.1979, 2 ex.; Hi, 20.–25.v.1989, 10 ex.; Mu, 29.v.1994, 3 ex.; SG, 31.v.1994, 1 ex.; Cio, 1.vi.1994, 1 ex.; Hi, 6.–9.vi.1994, 18 ex.; Ju, 12.vi.1994, 7 ex.; Ba, 13.vi.1994, 1 ex.

***C. (Neocalathus) erratus erratus* (C. R. SAHLBERG, 1827)**

SG, 15.–25.ix.1984, 1 ex.; SG, 1.–12.x.1988, 9 ex.; Le, 30.v.1990, 17 ex.; Be, 3.vi.1990, 1 ex.; SG, 5.vi. 1990, 1 ex.; Ju, 7.vi.1990, 6 ex.; Hi, 6.–9.vi.1994, 7 ex.; Po, 9.–12.vi.1994, 1 ex.

***C. (Neocalathus) melanocephalus melanocephalus* (LINNAEUS, 1758)**

Po, 9.–12.vi.1994, 1 ex.

***C. (Neocalathus) cinctus* (MOTSCHULSKY, 1850)**

SG, 1.–12.x.1988, 1 ex.; Hi, 20.–25.v.1989, 3 ex.; Be, 3.vi.1990, 2 ex.; Hi, 6.–9.vi.1994, 8 ex. (D. W. Wrase det.); Ju, 12.vi.1994, 2 ex.

***C. (Dolichus) halensis* (SCHALLER, 1783)**

Ju, 7.vi.1990, 1 ex.; Mu, 29.v.1994, 3 ex.; Ju, 12.vi.1994, 1 ex.

Genus *Taphoxenus* MOTSCHULSKY, 1864

***T. (s.str.) gigas* (FISCHER VON WELDHEIM, 1823)**

Ju, x.1979, 1 ex. (M. Dvořák det. and coll.) (in pitfalls with beer bait, on the archaeological site on the Capul Doloşman peninsula).

Genus *Laemostenus* BONELLI, 1810

***L. (Pristonychus) tichyi* KULT, 1946**

Hi, 12.ix.1984, 1 ex. (M. Dvořák det. and coll.) (on the stony beach of lake Sinoe near the Histria archaeological site).

Tribe Platynini

Genus *Agonum* BONELLI, 1810

***A. (s.str.) lugens* (DUFTSCHMID, 1812)**

SG, 1.–12.x.1988, 20 ex.; Le, 30.v.1990, 2 ex.; SG, 5.vi.1990, 35 ex.; Ju, 7.vi.1990, 4 ex.; SG, 31.v.1994, 1 ex.; Ca, 4.vi.1994, 4 ex.; M23, 5.vi.1994, 1 ex.; Ju, 12.vi.1994, 1 ex.; Ba, 13.vi.1994, 2 ex.

***A. (s.str.) marginatum* (LINNAEUS, 1758)**

Hi, 20.–25.v.1989, 1 ex.

***A. (s.str.) afrum* (DUFTSCHMID, 1812)**

M23, 5.vi.1994, 4 ex.

***A. (Europhilus) thoreyi thoreyi* (DEJEAN, 1828)**

Ro, 17.v.1981, 1 ex.; Ca, 20.v.1981, 2 ex.; Ba, 21.v.1982, 1 ex.; SG, 26.v.1982, 6 ex.; SG, 26.v.1987, 1 ex.; Hi, 20.–25.v.1989, 38 ex.; SG, 5.vi.1990, 11 ex.; Ju, 7.vi.1990, 12 ex.

Genus *Oxypselaphus* CHAUDOIR, 1843

***O. obscurus* (HERBST, 1784)**

Le, 30.v.1990, 1 ex.

Genus *Platyderus* STEPHENS, 1828

***P. rufus* (DUFTSCHMID, 1812)**

Be, 3.vi.1990, 1 ex.

Tribe Amarini

Genus *Amara* BONELLI, 1810

***A. (Zezea) chadoiri chadoiri* PUTZEYS, 1858**

Po, 9.–12.vi.1994, 1 ex.

***A. (Zezea) tricuspidata tricuspidata* DEJEAN, 1831**

Ro, 17.v.1981, 1 ex.; Hi, 20.–25.v.1989, 1 ex.; Le, 30.v.1990, 44 ex. (sweeping grass near a forest). (All F. Hieke det.)

***A. (s.str.) aenea* (DE GEER, 1774)**

SG, 1.–12.x.1988, 5 ex.; Hi, 20.–25.v.1989, 9 ex.; Le, 30.v.1990, 30 ex.; Be, 3.vi.1990, 2 ex.; SG, 5.vi.1990, 1 ex.; Ju, 7.vi.1990, 1 ex.

***A. (s.str.) similata* (GYLLENHAL, 1810)**

SG, 1.–12.x.1988, 1 ex.

***A. (Celia) cursitans* ZIMMERMANN, 1832**

SG, 1.–12.x.1988, 7 ex.; Mu, 29.v.1994, 1 ex.

***A. (Celia) ingenua* (DUFTSCHMID, 1812)**

SG, 1.–12.x.1988, 6 ex.; Po, 9.–12.vi.1994, 1 ex.

***A. (Celia) municipalis municipalis* (DUFTSCHMID, 1812)**

Po, 9.–12.vi.1994, 1 ex.

***A. (Bradytus) apricaria* (PAYKULL, 1790)**

SG, 8.–17.ix.1986, 2 ex.; Hi, 20.–25.v.1989, 1 ex.; Be, 3.vi.1990, 1 ex.; SG, 5.vi.1990, 4 ex.; Ju, 7.vi.1990, 17 ex.; Po, 9.–12.vi.1994, 3 ex.

***A. (Bradytus) fulva* (O. MÜLLER, 1776)**

SG, 8.–17.ix.1986, 6 ex. (under a dried cowpat); SG, 1.–12.x.1988, 1 ex.; SG, 31.v.1994, 1 ex.

***A. (Bradytus) majuscula* (CHAUDOIR, 1850)**

Ba, 13.vi.1994, 1 ex. (P. Bulirsch det.).

Genus *Curtonotus* STEPHENS, 1828

***C. (s.str.) convexiusculus* (MARSHAM, 1802)**

Cio, 1.vi.1994, 1 ex.

***C. (s.str.) propinquus* (MÉNÉTRIÉS, 1832)**

Hi, 30.v.1981, 5 ex.; Ki, 23.v.1982, 1 ex.; Hi, 20.–25.v.1989, 31 ex.; SG, 5.vi.1990, 7 ex.; Ju, 7.vi.1990, 13 ex.; Mu, 29.v.1994, 4 ex.; SG, 31.v.1994, 2 ex.; Cio, 1.vi.1994, 2 ex.; Ca, 4.vi.1994, 2 ex.; Hi, 6.–9.vi.1994, 5 ex.; Po, 9.–12.vi.1994, 5 ex. (F. Hieke det.).

Genus *Zabrus* CLAIRVILLE, 1806

***Z. (s.str.) tenebrioides tenebrioides* (GOEZE, 1777)**

Be, 3.vi.1990, 1 ex.; Ju, 7.vi.1990, 8 ex.; Mu, 29.v.1994, 1 ex.; Ju, 12.vi.1994, 1 ex.

***Z. (Pelor) spinipes* (FABRICIUS, 1798)**

Ba, 21.v.1982, 1 ex.; Hi, 20.–25.v.1989, 4 ex.; Be, 3.vi.1990, 1 ex.; Ju, 7.vi.1990, 4 ex.; Hi, 6.–9.vi.1994, 6 ex.; Ju, 12.vi.1994, 4 ex.; Ba, 13.vi.1994, 1 ex.

Tribe Harpalini

Genus *Anisodactylus* DEJEAN, 1829

***A. (s.str.) binotatus* (FABRICIUS, 1787)**

Hi, 20.–25.v.1989, 2 ex.; Le, 30.v.1990, 1 ex.; M23, 5.vi.1994, 4 ex.

***A. (Hexatrichus) poeciloides pseudoaeneus* DEJEAN, 1829**

Hi, 20.v.1982, 11 ex.; SG, 1.–12.x.1988, 1 ex.; Hi, 20.–25.v.1989, 3 ex.; SG, 5.vi.1990, 1 ex.; Ju, 7.vi.1990, 20 ex.; Ca, 4.vi.1994, 1 ex.; Po, 9.–12.vi.1994, 1 ex.

Genus *Dicheirotichus* JACQUELIN DU VAL, 1857

***D. (s.str.) lacustris* L. REDTENBACHER, 1858**

SG, 8.–17.ix.1986, 3 ex.; SG, 26.v.1987, 1 ex.; SG, 1.–12.x.1988, 50 ex. (under clumps of *Juncus*); Mu, 29.v.1994, 1 ex.; Po, 9.–12.vi.1994, 1 ex.

***D. (s.str.) ustulatus* (DEJEAN, 1829)**

SG, 8.–17.ix.1986, 8 ex.; SG, 1.–12.x.1988, 2 ex. (P. Bulirsch det.).

***D. (Trichocellus) discicollis* (DEJEAN, 1829)**

SG, 8.–17.ix.1986, 1 ex.; Hi, 20.–25.v.1989, 3 ex. (P. Bulirsch det.).

Genus *Stenolophus* STEPHENS, 1828

***S. (s.str.) teutonius* (SCHRANK, 1781)**

Hi, 20.v.1982, 1 ex.; Hi, 20.–25.v.1989, 4 ex.; Po, 9.–12.vi.1994, 38 ex.

***S. (s.str.) discophorus* (FISCHER VON WALDHEIM, 1823)**

Ju, 7.vi.1990, 4 ex.; Mu, 29.v.1994, 1 ex.; Po, 9.–12.vi.1994, 1 ex.

***S. (s.str.) skrimshiranus* STEPHENS, 1828**

SG, 10.x.1988, 2 ex.; M23, 5.vi.1994, 1 ex.

***S. (s.str.) mixtus* (HERBST, 1784)**

SG, 8.–17.ix.1986, 2 ex.; SG, 25.v.1987, 3 ex.; SG, 1.–12.x.1988, 8 ex.; Hi, 20.–25.v.1989, 2 ex.; Le, 30.v.1990, 2 ex.; SG, 5.vi.1990, 85 ex.; Ju, 7.vi.1990, 3 ex.; Mu, 29.v.1994, 5 ex.; SG, 31.v.1994, 6 ex.; Cio, 1.vi.1994, 5 ex.; Ca, 4.vi.1994, 61 ex.; M23, 5.vi.1994, 27 ex.; Ju, 12.vi.1994, 1 ex.; Ba, 13.vi.1994, 1 ex.

***S. (s.str.) proximus* DEJEAN, 1829**

SG, 5.vi.1990, 6 ex.; SG, 31.v.1994, 2 ex.; Ca, 4.vi.1994, 1 ex.

Genus *Acupalpus* LATREILLE, 1829

***A. (s.str.) meridianus* (LINNAEUS, 1767)**

Po, 9.–12.vi.1994, 1 ex.

***A. (s.str.) elegans* (DEJEAN, 1829)**

Hi, 10.–20.v.1982, 1 ex.; SG, 25.v.1987, 6 ex.; SG, 10.x.1988, 1 ex.; Hi, 20.–25.v.1989, 52 ex.; SG, 5.vi.1990, 4 ex.; Ju, 7.vi.1990, 4 ex.; SG, 31.v.1994, 114 ex.; Cio, 1.vi.1994, 12 ex.; Ca, 4.vi.1994, 10 ex.; Po, 9.–12.vi.1994, 12 ex.

***A. (s.str.) parvulus* (STURM, 1825)**

SG, 25.v.1987, 1 ex.; Hi, 20.–25.v.1989, 1 ex.; SG, 5.vi.1990, 2 ex.; SG, 31.v.1994, 5 ex.; Ca, 4.vi.1994, 1 ex.; Po, 9.–12.vi.1994, 17 ex.

***A. (s.str.) maculatus* SCHAUM, 1860**

SG, 25.v.1987, 1 ex.; Hi, 20.–25.v.1989, 10 ex.; Le, 30.v.1990, 2 ex.; SG, 5.vi.1990, 40 ex.; SG, 31.v.1994, 11 ex.; Cio, 1.vi.1994, 22 ex.; Ca, 4.vi.1994, 36 ex.; Po, 9.–12.vi.1994, 8 ex.

***A. (s.str.) luteatus* (DUFTSCHMID, 1812)**

SG, 25.v.1987, 1 ex.; Hi, 20.–25.v.1989, 1 ex.; Ju, 7.vi.1990, 1 ex.; SG, 31.v.1994, 2 ex.; Cio, 1.vi.1994, 14 ex.; Ca, 4.vi.1994, 1 ex.; M23, 5.vi.1994, 2 ex.; Po, 9.–12.vi.1994, 11 ex.

***A. (s.str.) exiguus* (DEJEAN, 1829)**

SG, 25.v.1987, 1 ex.

Genus *Anthracus* MOTSCHULSKY, 1850

***A. consputus* (DUFTSCHMID, 1812)**

SG, 25.v.1987, 3 ex.; Le, 30.v.1990, 1 ex.

***A. longicornis* (SCHAUM, 1857)**

SG, 25.v.1987, 3 ex.; Le, 30.v.1990, 2 ex.

Genus *Daptus* FISCHER VON WALDHEIM, 1824

***D. vittatus* FISCHER VON WALDHEIM, 1824**

Hi, 10.–20.v.1982, 2 ex.; SG, 8.–17.ix.1986, 1 ex.; Ju, 7.vi.1990, 56 ex. (under electric light in a fishing port); Ca, 4.vi.1994, 9 ex. (attracted to light-trap, a kerosene lamp, on banks of channels).

Genus *Parophonus* GANGLBAUER, 1892

***P. (s.str.) complanatus* (DEJEAN, 1829)**

Le, 30.v.1990, 6 ex. (D. W. Wrase det.).

***P. (Ophonomimus) hirsutulus* (DEJEAN, 1829)**

Mu, x.1979, 3 ex. (J. Hladil det.); Hi, 6.–9.vi.1994, 1 ex.; Ju, 12.vi.1994, 1 ex.

Genus *Harpalus* LATREILLE, 1802

***H. (Pseudoophonus) rufipes* (DE GEER, 1774)**

Hi, 20.–25.v.1989, 6 ex.; Be, 3.vi.1990, 7 ex.; Ju, 7.vi.1990, 1 ex.; Cio, 1.vi.1994, 2 ex.; Po, 9.–12.vi.1994, 1 ex.

***H. (Cryptophonus) tenebrosus* DEJEAN, 1829**

Le, 30.v.1990, 1 ex. Be, 3.vi.1990, 1 ex.

***H. (Cryptophonus) melancholicus* DEJEAN, 1829**

Hi, 20.v.1982, 1 ex.; Hi, 12.ix.1984, 1 ex.; Hi, 20.–25.v.1989, 1 ex.; Ca, 4.vi.1994, 1 ex.

***H. (Amblystus) rubripes* (DUFTSCHMID, 1812)**

Ju, 7.vi.1990, 1 ex.; Mu, 29.v.1994, 1 ex.; Hi, 6.–9.vi.1994, 1 ex.; Po, 9.–12.vi.1994, 1 ex.

***H. (Amblystus) serripes serripes* QUENSEL, 1806**

Hi, 20.v.1982, 2 ex.; Hi, 20.–25.v.1989, 35 ex. (at roots of *Verbascum*); Le, 30.v.1990, 2 ex.; Be, 3.vi.1990, 4 ex.; Ju, 7.vi.1990, 4 ex.; Mu, 29.v.1994, 1 ex.; Hi, 6.–9.vi.1994, 20 ex.; Po, 9.–12.vi.1994, 8 ex.; Ju, 12.vi.1994, 18 ex.

***H. (Actephilus) picipennis* DUFTSCHMID, 1812**

Hi, 20.v.1982, 1 ex.; Le, 18.–22.v.1983, 1 ex.; SG, 26.v.1987, 1 ex.; Hi, 20.–25.v.1989, 15 ex. (at roots of *Verbascum*); Le, 30.v.1990, 4 ex.; Ju, 7.vi.1990, 2 ex.; Hi, 6.–9.vi.1994, 3 ex.; Ju, 12.vi.1994, 1 ex.

***H. (Ooistus) anxius* (DUFTSCHMID, 1812)**

Hi, 20.v.1982, 2 ex.; Hi, 20.–25.v.1989, 24 ex. (at roots of *Verbascum*); Ju, 7.vi.1994, 2 ex.

***H. (Ooistus) servus* (DUFTSCHMID, 1812)**

SG, 1.–12.x.1988, 2 ex.; Hi, 20.–25.v.1989, 16 ex. (at roots of *Verbascum*); Le, 30.v.1990, 4 ex.

***H. (Ooistus) subcylindricus* DEJEAN, 1829**

Po, 9.–12.vi.1994, 1 ex.

***H. (Acardystus) tardus* (PANZER, 1797)**

Be, 3.vi.1990, 3 ex.

***H. (Acardystus) albanicus* REITTER, 1900**

Hi, 20.–25.v.1989, 3 ex. (at roots of *Verbascum*).

***H. (Harpalobius) smaragdinus* (DUFTSCHMID, 1812)**

Be, 3.vi.1990, 6 ex.

***H. (Lasioharpalus) caspius* (STEVEN, 1806)**

Be, 3.vi.1990, 1 ex.

***H. (Artabas) pygmaeus* DEJEAN, 1829**

Ju, 7.vi.1990, 1 ex.

***H. (Epiharpalus) affinis* (SCHRANK, 1781)**

Hi, 30.v.1981, 2 ex.; Hi, 20.–25.v.1989, 1 ex.; SG, 5.vi.1990, 1 ex.; Ju, 7.vi.1990, 2 ex.; Po, 9.–12.vi.1994, 1 ex.

***H. (Epiharpalus) distinguendus* (DUFTSCHMID, 1812)**

SG, 1.–12.x.1988, 12 ex.; Hi, 20.–25.v.1989, 26 ex.; Be, 3.vi.1990, 4 ex.; SG, 5.vi.1990, 1 ex.; Mu, 29.v.1994, 1 ex.; Po, 9.–12.vi.1994, 2 ex.

***H. (Epiharpalus) saxicola* DEJEAN, 1829**

Be, 3.vi.1990, 1 ex.; Ju, 7.vi.1990, 2 ex. (P. Bulirsch det.).

Genus *Pangus* DEJEAN, 1821

***P. scaritides* (STURM, 1818)**

Ju, 12.vi.1994, 1 ex.

Genus *Acinopus* DEJEAN, 1821

***A. (s.str.) laevigatus* MÉNÉTRIÉS, 1832**

Hi, 20.v.1981, 1 ex. (D. W. Wrase det. and coll.).

***A. (s.str.) picipes* (OLIVIER, 1795)**

Hi, 20.v.1989, 11 ex.; Ju, 7.vi.1990, 6 ex.; Hi, 6.–9.vi.1994, 3 ex.; Ju, 12.vi.1994, 4 ex.

Genus *Ophonus* DEJEAN, 1821

***O. (Metophonus) rupicola* (STURM, 1818)**

Be, 3.vi.1990, 1 ex.

***O. (Metophonus) puncticeps* (STEPHENS, 1828)**

Le, 30.v.1990, 12 ex.

***O. (Hesperophonus) azureus* (FABRICIUS, 1775)**

Hi, 20.–25.v.1989, 1 ex.

***O. (Hesperophonus) cribricollis* DEJEAN, 1829**

Hi, 20.v.1982, 2 ex.; Hi, 20.–25.v.1989, 12 ex.; Be, 3.vi.1990, 2 ex.; Ju, 7.vi.1990, 12 ex.; Hi, 6.–9.vi.1994, 8 ex.; Ju, 12.vi.1994, 2 ex.

***O. (s.str.) diffinis* (DEJEAN, 1829)**

Le, 30.v.1990, 1 ex.

Genus *Dixus* BILLBERG, 1820

***D. clypeatus* (ROSSI, 1790)**

Hi, 20.–25.v.1989, 1 ex.

***D. obscurus* (DEJEAN, 1825)**

Be, 3.vi.1990, 2 ex.

Tribe Callistini

Genus *Epomis* (BONELLI, 1810)

***E. dejeani* DEJEAN ET BOISDUVAL, 1830**

Hi, 15.v.1982, 5 ex. (M. Dvořák det.) (under stones near reed growth).

Genus *Dinodes* (BONELLI, 1810)

***D. decipiens* (DUFOUR, 1820)**

Hi, 20.v.1989, 1 ex. (in pasture under a concrete column).

Genus *Chlaenius* BONELLI, 1810

***Ch. (Chlaenites) spoliatus spoliatus* (ROSSI, 1790)**

SG, 26.v.1987, 2 ex. (fishermen's light, fluorescent strip, on a bank of the Danube); Hi, 20.–25.v.1989, 12 ex.; Ju, 7.vi.1990, 1 ex.; Ju, 12.vi.1994, 3 ex.

***Ch. (s.str.) festivus* (PANZER, 1796)**

Ca, 20.v.1981, 1 ex. (pitfalls); Le, 20.v.1983, 1 ex.

***Ch. (Chlaeniellus) tristis tristis* (SCHALLER, 1783)**

SG, 26.v.1982, 4 ex. (fishermen's light, fluorescent strip, on a bank of the Danube); SG, 8.–17.ix.1986, 1 ex.; SG, 26.v.1987, 1 ex.; SG, 1.–12.x.1988, 1 ex.; Ju, 7.vi.1990, 2 ex. (under electric light, bulb in a fishing port).

***Ch. (Agostenus) alutaceus* GEBLER, 1829**

SG, 8.–17.ix.1986, 3 ex.; SG, 26.v.1987, 1 ex. (fishermen's light, fluorescent strip, on a bank of the Danube); Hi, 20.–25.v.1989, 1 ex.; SG, 5.vi.1990, 14 ex.; Ju, 7.vi.1990, 1 ex. (under electric lamp, bulb, in a fishing port); Ca, 4.vi.1994, 2 ex. (attracted to light-trap, kerosene lamp, on banks of channels) (P. Bulirsch det.).

***Ch. (Agostenus) sulcicollis* (PAYKULL, 1798)**

SG, 26.v.1987, 2 ex.; SG, 5.vi.1990, 1 ex. (M. Dvořák det.).

Tribe Oodini

Genus *Oodes* BONELLI, 1810

***O. (s.str.) helopioides* (FABRICIUS, 1792)**

Ca, 4.vi.1994, 6 ex.; M23, 5.vi.1994, 1 ex.

***O. (s.str.) gracilis* A. VILLA et G. B. VILLA, 1833**

SG, 26.v.1982, 1 ex.; SG, 10.x.1988, 21 ex.; Hi, 20.–25.v.1989, 10 ex.; SG, 5.vi.1990, 9 ex.; Ju, 7.vi.1990, 16 ex. (under electric light, bulb, in a fishing port); Po, 9.–12.vi.1994, 1 ex.

***O. (Lachnocrepis) prolixus* H. BATES, 1873**

SG, 5.vi.1990, 2 ex.; Ju, 7.vi.1990, 1 ex. (under electric light, bulb, in a fishing port) (I. I. Kabak det., 1 ex. D. W. Wrase coll., 1 ex. P. Bulirsch coll., 1 ex. J. Bašta coll.).

Tribe Licinini

Genus *Licinus* LATREILLE, 1802

***L. (s.str.) silphoides* (ROSSI, 1790)**

Hi, 6.–9.vi.1994, 8 ex.

Genus *Badister* CLAIRVILLE, 1806

***B. (s.str.) unipustulatus* BONELLI, 1813**

Ju, 7.vi.1990, 1 ex.

***B. (Trimorphus) sodalis* (DUFTSCHMID, 1812)**

Le, 30.v.1990, 1 ex.

***B. (Baudia) collaris* MOTSCHULSKY, 1844**

SG, 10.ix.1986, 2 ex.; SG, 25.v.1987, 1 ex.; Ca, 4.vi.1994, 6 ex.; M23, 5.vi.1994, 2 ex.

***B. (Baudia) peltatus* (PANZER, 1796)**

SG, 5.vi.1990, 10 ex.; Po, 9.–12.vi.1994, 1 ex.

Tribe Odacanthini

Genus *Odacantha* PAYKULL, 1798

***O. melanura* (LINNAEUS, 1767)**

Hi, 20.–25.v.1989, 10 ex.; Po, 9.–12.vi.1994, 2 ex.

Tribe Lebiini

Genus *Demetrias* BONELLI, 1810

***D. (s.str.) monostigma* SAMOUELLE, 1819**

SG, 1.–12.x.1988, 2 ex. (in a forest).

***D. (Aetophorus) imperialis* (GERMAR, 1824)**

Ro, 17.v.1981, 2 ex.; Ca, 20.v.1981, 2 ex.; SG, 8.–17.ix.1986, 1 ex.; SG, 5.vi.1990, 1 ex.

Genus *Paradromius* FOWLER, 1886

***P. (Manodromius) linearis* (OLIVIER, 1795)**

SG, 1.–12.x.1988, 2 ex. (in a forest, under foliage).

Genus *Philorhizus* HOPE, 1838

***P. (s.str.) notatus* (STEPHENS, 1827)**

Hi, 20.–25.v.1989, 1 ex.

Genus *Syntomus* HOPE, 1838

***S. pallipes* (DEJEAN, 1825)**

SG, 25.v.1987, 4 ex.; SG, 1.–12.x.1988, 40 ex.; Hi, 20.–25.v.1989, 5 ex.; Le, 30.v.1990, 2 ex.; Be, 3.vi.1990, 2 ex.; SG, 5.vi.1990, 1 ex.

***S. truncatellus* (LINNAEUS, 1761)**

Le, 30.v.1990, 1 ex.

Genus *Microlestes* SCHMIDT-GÖBEL, 1846

***M. fissuralis* REITTER, 1900**

Hi, 20.–25.v.1989, 2 ex.

***M. maurus* (STURM, 1827)**

Hi, 20.–25.v.1989, 1 ex.

***M. minutulus* (GOEZE, 1777)**

SG, 25.v.1987, 1 ex.; SG, 1.–12.x.1988, 1 ex.; Hi, 20.–25.v.1989, 10 ex.; Po, 9.–12.vi.1994, 8 ex.

***M. plagiatus* (DUFTSCHMID, 1812)**

Ju, 7.vi.1990, 1 ex.

***M. schroederi* HOLDHAUS, 1912**

Hi, 20.–25.v.1989, 2 ex.; Be, 3.vi.1990, 3 ex.; SG, 5.vi.1990, 1 ex.

Genus *Lionychus* WISSMANN, 1846

***L. quadrillum* (DUFTSCHMID, 1812)**

Po, 9.–12.vi.1994, 31 ex. (in a heap of silted shells on a beach).

Genus *Cymindis* LATREILLE, 1806

***C. (s.str.) axillaris* (FABRICIUS, 1794)**

Hi, 20.–25.v.1989, 2 ex.; Be, 3.vi.1990, 2 ex.; Ju, 7.vi.1990, 10 ex.; Ju, 12.vi.1994, 2 ex.

***C. (s.str.) lineata* (QUENSEL, 1806)**

Ju, x.1979, 3 ex.; Hi, 20.–25.v.1989, 30 ex.; Be, 3.vi.1990, 21 ex.; Ju, 7.vi.1990, 18 ex.; Mu, 29.v.1994, 2 ex.; Hi, 6.–9.vi.1994, 10 ex.; Ju, 12.vi.1994, 11 ex.

***C. (Menas) variolosa* (FABRICIUS, 1794)**

Hi, 20.–25.v.1989, 3 ex. (M. Dvořák det.); Hi, 6.–9.vi.1994, 2 ex.

Tribe Brachinini

Genus *Brachinus* F. WEBER, 1801

***B. explodens* DUFTSCHMID, 1812**

Ba, 20.iv.1986, 1 ex.; SG, 1.–12.x.1988, 1 ex.; Hi, 6.–9.vi.1994, 20 ex.; Po, 9.–12.vi.1994, 2 ex.; Ju, 12.vi.1994, 1 ex.

***B. psophia* SERVILLE, 1821**

Po, 9.–12.vi.1994, 4 ex.

***B. elegans* CHAUDOIR, 1842**

Ju, 7.vi.1990, 1 ex.; Po, 9.–12.vi.1994, 2 ex.

Genus *Mastax* FISCHER VON WALDHEIM, 1827

***M. thermarum thermarum* (STEVEN, 1806)**

Ca, 20.v.1981, 1 ex. (in pitfalls) (P. Bulirsch det.); SG, 28.viii.1985, 20 ex. (in beer-baited pitfalls, together with ants); SG, 1.–12.x.1988, 50 ex. (under a log near forest, together with ants); Cio, 1.vi.1994, 6 ex.; Ca, 4.vi.1994, 2 ex.

Discussion

The sampling I carried out in the years 1979–1994 resulted in a total of 4313 specimens of 190 species of Carabidae captured in the territory of the Danube delta and adjoining Dobrogea. As well as common species, several less common or rare taxa were obtained. These are mentioned at the end of the discussion.

According to previously published lists of the Carabidae that are known to me to date, (IENISTEA 1968, 1974; NEGRU 1968, NITU 1992, POPOVICI 1992), listed 131 species of Carabidae known from the Danube delta. The lists covered 40 species that were not sampled by me during the research. They are *Cicindela contorta* FISCHER VON WALDHEIM, 1828, *C. arenaria* FUESSLY, 1775, *Calosoma investigator* (ILLIGER, 1798), *Carabus granulatus* LINNAEUS, 1758, *C. scabriusculus* OLIVIER, 1795, *Clivina fossor* (LINNAEUS, 1758), *C. laevifrons* CHAUDOIR, 1842, *Dyschiriodes politus* DEJEAN, 1825, *D. tristis* STEPHENS, 1827, *D. ruficornis* (PUTZEYS, 1866), *Tachys micros* (FISCHER VON WALDHEIM, 1828), *T. diabrachys* (KOLENATI, 1845), *Bembidion latiplaga* CHAUDOIR, 1850, *B. semipunctatum* (DONOVAN, 1806), *Pogonus submarginatus* REITTER, 1908, *P. chalceus* MARSHAM, 1802, *Pterostichus anthracinus* (ILLIGER, 1798), *P. gracilis* (DEJEAN, 1828), *Agonum hypocrita* APFELBECK, 1904, *Platynus assimile* (PAYKULL, 1790), *Amara bifrons* (GYLLENHAL, 1810), *Anisodactylus nemorivagus* (DUFTSCHMID, 1812), *A. signatus* (PANZER, 1797), *Acupalpus notatus* MULSANT et REY, 1861, *A. suturalis* DEJEAN, 1829, *Harpalus honestus* (DUFTSCHMID, 1812), *H. neglectus* SERVILLE, 1821, *H. politus* Dejean, 1829, *H. hospes* STURM, 1818, *H. calceatus* (DUFTSCHMID, 1812), *H. froelichi* STURM,

1818, *Ophonus sabulicola* (PANZER, 1796), *O. rufibarbis* (FABRICIUS, 1792), *O. puncticolis* (PAYKULL, 1798), *Panagaeus cruxmajor* (LINNAEUS, 1758), *Chlaenius nigricornis* (FABRICIUS, 1787), *Badister bullatus* (SCHRANK, 1798), *Paradromius longiceps* (DEJEAN, 1826), *Polystichus connexus* (FOURCROY, 1785), *Brachinus plagiatus* REICHE, 1868. Altogether, there are 230 species, and this is certainly by no means the final number.

As the biotopes of the Danube delta are predominantly moist to swampy, mostly hygrophilous to lime-inhabiting species occur in the territory. A group of halophilous species is also plentiful here (selected according to HIEKE & WRASE 1988): *Scarites terricola*, *Clivina ypsilon*, *Dyschirius caspius*, *Dyschiriodes chaldeus*, *D. chalybeus*, *D. salinus*, *D. strumosus*, *D. pusillus*, *D. cylindricus*, *D. apicalis*, *D. luticola*, *Tachys scutellaris*, *T. centriustatus*, *Bembidion ephippium*, *B. minimum*, *B. tenellum*, *B. normannum*, *B. latiplaga*, *B. aspericolle*, *B. subfasciatum*, *B. fumigatum*, *Pogonus luridipennis*, *P. iridipennis*, *P. persicus*, *Pogonistes convexicollis*, *P. rufoaeneus*, *Pterostichus cursor*, *Anisodactylus poeciloides*, *Dicheirotichus lacustris*, *Stenolophus proximus*, *Acupalpus elegans*, *A. maculatus*, *Daptus vittatus*. These 33 species represent 15% of the total number of species found by me and by the Rumanian investigators.

The most interesting species are those of known occurrence in central Asia and the lowlands beyond the Caspian Sea. They radiate to the Danube delta through the lowlands and along the shore of the Caspian Sea and Black Sea. They are: *Dyschirius humeratus*, *Tachys centriustatus*, *T. centralis*, *Trichocellus discicollis*, *Acinopus laevigatus*, *Chlaenius alutaceus*, *Oodes prolixus*. These Oriental species are probably here recorded for the first time from Rumania, where they meet with more common species of Mediterranean and Ponto-Mediterranean origin in just the Danube delta. *Dyschiriodes impunctipennis* extends to the delta from the north. The latter species is known from lowlands in north-western Europe, Scandinavia, Byelorussia and the Ukraine.

One of the most important results of the research is the finding of *Laemostenus tichyi*. The population of this species probably survives within the remnants of the walls of the ancient Roman town of Histria. This the second report of the species from Europe, already published by DVOŘÁK (1995). The first report from Europe is from Tarnopol (today's Ternopil) in the Ukraine (13 specimens captured in 1937).

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References

- DVOŘÁK M. 1995: Einige neue *Stenotherma Laemosthenus* Arten. *Entomofauna* **16**: 413–420.
- GUÉORGUIEV V. B. & GUÉORGUIEV B. V. 1995: Catalogue of the ground-beetles of Bulgaria (Coleoptera: Carabidae). Pensoft, Sofia-Moscow, 300 pp.
- HIEKE F. & WRASE D. W. 1988: Faunistik der Laufkäfer Bulgariens (Coleoptera, Carabidae). *Deutsche Entomologische Zeitschrift* (N. F.) **35**: 1–171.
- IENISTEA M.-A. 1968: Ord. Coleoptera (pars). In: L'Entomofaune de l'île de Letea (Delta du Danube). *Travaux de Muséum d'Histoire Naturelle Grigore Antipa* (Bucarest) **9**: 97–114.
- IENISTEA M.-A. 1974: Contributions a la connaissance des coléoptères du delta du Danube (Le grind Caraorman). *Travaux de Muséum d'Histoire Naturelle Grigore Antipa* (Bucarest) **14**: 239–249.
- KRYZHANOVSKIJ O. L. & col. 1995: A checklist of the ground-beetles of Russia and adjacent lands (Insecta, Coleoptera, Carabidae). Pensoft, Sofia-Moscow, 271 pp.
- MONTANDON A. L. 1906: Notes sur le Faune Entomologique de la Roumanie (Coleoptera). *Bulletin de la Société des Sciences Naturelles du Bucaresti* **15**: 30–80.
- MONTANDON A. L. 1908: Notes sur le Faune Entomologique de la Roumanie (Coleoptera). *Bulletin de la Société des Sciences Naturelles du Bucaresti* **17**: 67–119.
- NEGRU S. 1968: Ord. Coleoptera (pars). In: L'Entomofaune de l'île de Letea (Delta du Danube). *Travaux de Muséum d'Histoire Naturelle Grigore Antipa* (Bucarest) **9**: 81–96.
- NITU E. 1992: Specii de carabidae noi pentru Dobrogei si a deltei Dunarii. New species of carabid beetles for the Dobrudja and the Danube Delta fauna. *Analele Stiintifice ale Institutului – Delta Dunarii* (Tulcea) **1992**: 119–120 (in Rumanian).
- PANIN S. 1952: Fauna Republicii Populare Române, Coleoptera - Cicindelidae. Ed. Academiei R.P.R., Bucuresti, 55 pp. (in Rumanian).
- PANIN S. 1955: Fauna Republicii Populare Române, Coleoptera - Carabidae (genus *Cychrus* F. si genus *Carabus* L.). Academiei R.P.R., Bucuresti, 148 pp. (in Rumanian).
- POPOVICI L. R. 1992: Varietatea specifica a carabidelor din delta Dunarii – rezervatia biosferei. The typical variety of Carabidae from the Danube Delta – Biosphere Reserve. *Analele Stiintifice ale Institutului – Delta Dunarii* (Tulcea) **1992**: 111–118 (in Rumanian).
- TURIN H. 1981: Provisional checklist of the European ground-beetles (Coleoptera: Cicindelidae & Carabidae). *Monografieën van de Nederlandse Entomologische Vereniging* (Amsterdam) **9**: 1–249.