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Contributions to the braconine fauna of Cyprus
(Hymenoptera, Braconidae: Braconinae)

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Abstract

55 braconine species are reported from the Republic of Cyprus of which 51 are new to her fauna. Collecting data are presented for every species, taxonomic and distributional remarks are added wherever necessary with one new synonym and one new combination. The material is housed in the Museums Budapest, London and Ottawa.

Zusammenfassung

55 Braconine Arten werden aus der Republik Zypern festgestellt, wovon 51 neu sind für die Fauna. Sammeldaten werden präsentiert für jede Art, taxonomische Bemerkungen und Verbreitungsangabe werden vorgelegt, wo es nötig zu sein scheint mit einer Synonymisierung und einer neuen Kombination. Das Material der bearbeiteten Braconinen wird aufbewahrt in den Museen von Budapest, London und Ottawa.

Introduction

The braconid fauna of the Republic of Cyprus is poorly known. Hitherto only scattered faunistical data were published in a few papers. The present contribution is the first which presents a braconid species list completed with collecting, faunistic and eventually with taxonomic data covering exclusively the Cyprus Island.

In the subsequent list the braconid species are enumerated which have been published so far from Cyprus and the bibliographic citations (in which the respective species was reported) are indicated in an abbreviated form (i.e. author's name, year of publication, page number) after the species names. Up to now 32 braconid species were recorded from Cyprus, and the species represent eleven braconid subfamilies. It seems reasonable to remark that the number of the braconid species living in Cyprus is at least above one thousand calculated provisionally.

Doryctinae
Rhaconotus ollivieri (GIRAUD, 1869): SHENEFELT 1976: 1339.
Spathius rubidus (ROSSI, 1794): SHENEFELT 1976: 1415.

Rogadinae
Aleiodes (Neorhogas) aestuosus (REINHARD, 1863): SHENEFELT 1975: 1216.

Braconinae
Bracon pectoralis WESMAEL, 1838: PAPP 1990: 277.
Bracon urinator (FABRICIUS, 1798): PAPP 1990: 278.
Habrobracon gelechiae (ASHMEAD, 1889): SHENEFELT 1978: 1594.
Iphiaulax impostor ab. *rufosignata* KOKOUJEV, 1898: PAPP 1990: 279.
Iphiaulax insubricus (FAHRINGER, 1926) (Iphiaulacidea) (new name for *insularis* SZÉPLIGETI, 1906 nec SZÉPLIGETI, 1901): SZÉPLIGETI 1906: 583.

Calyptinae
Triaspis thoracicus (CURTIS, 1860): SHENEFELT 1970: 299.

Meteorinae
Meteorus cespitator (THUNBERG, 1822): SHENEFELT 1969: 56.

Blacinae
Blacus (Blacus) humilis (NEES, 1812): HAESELBARTH 1973: 128. VAN ACHTERBERG 1988: 66.
Blacus (Hysterobolus) nixoni HAESELBARTH, 1973: HAESELBARTH 1973:115.
Blacus (Ganychorus) ruficornis (NEES, 1812): VAN ACHTERBERG 1988: 114.

Homolobinae
Homolobus (Phylacter) meridionalis VAN ACHTERBERG, 1979: VAN ACHTERBERG 1979: 326.
Homolobus (Apatia) truncatoides VAN ACHTERBERG,1979: VAN ACHTERBERG 1979: 300.
Homolobus (Apatia) truncator (SAY, 1828): VAN ACHTERBERG 1979: 28.

Orgilinae
Orgilus mediterraneus TAEGER, 1989: TAEGER 1989: 118.

Agathidinae
anglica MARSHALL, 1885: NIXON 1986: 200.
umbellatarum NEES, 1814: NIXON 1986: 197.

Cheloninae
Ascogaster quadridentata WESMAEL, 1835: SHENEFELT 1973: 828.
Chelonus cyprianus FAHRINGER, 1937: FAHRINGER 1937: 515.
Phanerotoma ocularis KOHL, 1906: VAN ACHTERBERG 1990: 50.
Phanerotoma parva KOKOUJEV, 1903: VAN ACHTERBERG 1990: 52.
Phanerotoma tritoma (MARSHALL, 1898): VAN ACHTERBERG 1990: 61.

Microgastrinae
Choeras suffolciensis (MORLEY, 1902): NIXON 1973: 195.
Cotesia glomerata (LINNAEUS, 1758): SHENEFELT 1972: 519.
Dolichogenidea appellator (TELENGA, 1949): NIXON 1972: 710 (as *Apanteles litae* var. *operculellae* NIXON, 1972)
Iconella myeloenta (WILKINSON, 1937): WILKINSON 1937: 643. NIXON 1976: 691.
Microgaster australis THOMSON, 1895: NIXON 1986: 51.
Microplitis vidua (RUTHE, 1860): NIXON 1970: 23.

New faunistic contributions

55 braconine species are reported which divide in five genera, they are as follows:

Bracon FABRICIUS, 1804	42 species
Cyanopterus HALIDAY, 1836	1 species
Habrobracon ASHMEAD, 1895	6 species
Pseudovipio SZEPLIGETI, 1896	4 species
Vipio LATREILLE, 1804	2 species
Total	55 species

Except three species (*Bracon pectoralis, B. urinator, Pseudovipio umbraculator*) the species listed here are new to the fauna of Cyprus. The genera as well as the species are enumerated in alphabetical order to facilitate their retrieval. Subsequent to the list of the localities the time of the collectings are given with the indication of the months by Roman numbers, e.g. V-VII, IX. The overwhelming majority of the braconine specimens had been collected by G. A. MAVROMOUSTAKIS (Nicosia) in the 1930ies and 1960ies (Hymenoptera, The Systematic List of MAVROMOUSTAKIS' Collection: Preface and Georgios A. MAVROMOUSTAKIS, 1898-1968; Ministry of Agriculture, Nicosia 1989, p. 1-2). His material was purchased by The Natural History Museum, London and Centre for Land and Biological Resources Research, Ottawa. Much less material came from the Hungarian Natural History Museum, Budapest. The depository of the specimens of the respective species are indicated in brackets, e.g. 2 ♀♀ in Budapest Museum (= in Bp), 1 ♂ in London Museum (= in Ld) and 4 ♀♀ 1 ♂ in Ottawa Museum (= in Ott).

The braconine species were collected (first of all by G.A. MAVROMOUSTAKIS) in a fairly great number of (i.e. 40) localities, they are as follows:

Akrofiri forest	Episcopi	Mandria	Polemedia Hills
Akroteri Bay	Famagusta	Mesayitonia	Pyrgos
Akrounda	Ilia Olympia	Mesugitenia	Saettas
Akrutiri	Kaholorio	Moni River	Salamis
Akzotizi Bay	Kalopanayiotis	Mouttaviaka	Tornaides
Amathus	Kiliani, Krios River	Nata	Troodos Mts
Amiandos	Kolossi	Nicosia	Yerasa
Ayios Athanasios	Lania	Paramytha	Yermasoyia River
Ayios Gheqsios	Larnaca	Pera Pedri	Zakaki
Chekes	Limassol	Platus	Zoopygi

Acknowledgement

The present elaboration was essentially supported by Dr. T. HUDDLESTON (The Natural History Museum, London) and Dr. M. SHARKEY (Centre for Land and Biological Resources Research, Ottawa) who, on my repeated requests, searched out the *Bracon* material from the braconid collection under their curatorship and placed it at my disposal for a long-termed loan. My sincere gratitude should go to both of them. Herewith I express my sincere thank to Mrs C. VILLEMANT (Paris Museum) who kindly arranged my study of BRULLÉ's braconine species.

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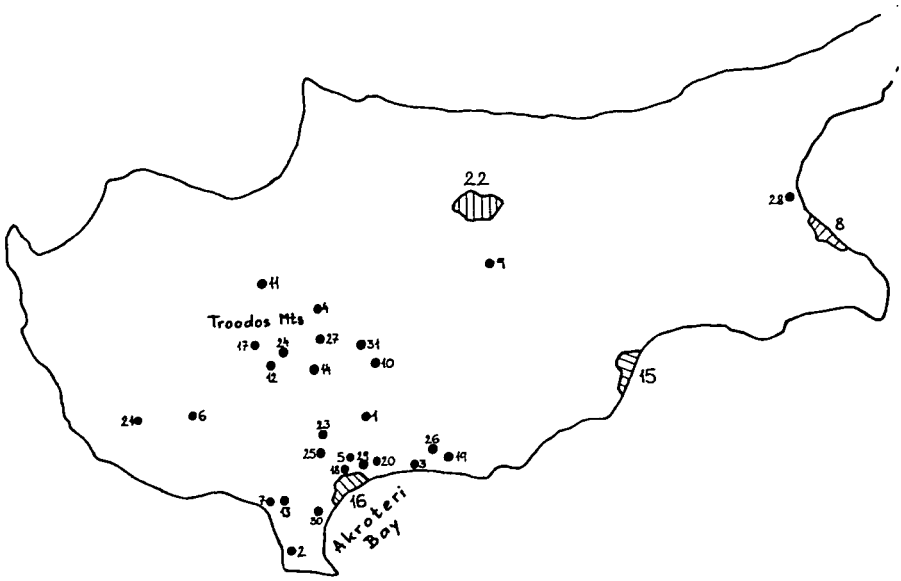

Caption of the map

Map 1 (after Hallwag Euro Guide "Cyprus"; the location of five localities could not be found hence here signed with a question-mark: ?; the localities Akroteri Bay or Akzotizi Bay and Troodos Mts are not numbered). - ?Akrofiri Forest; 1 = Akrounda; 2 = Akrutiri; 3 = Amathus; 4 = Amiandos; 5 = Ayios Athanasios; 6 = Ayios Gheqsios; ?Cherkes; 7 = Episcopi; 8 = Famagusta; 9 = Ilia, Olympia; 10 = Kaholorio; 11 = Kalopanayiotis; 12 = Kiliani, Krios River; 13 = Kolossi; 14 = Lania; 15 = Larnaca; 16 = Limassol; 17 = Mandria; 18 = Mesayitonia = Mesugitenia; 19 = Moni River; 20 = Mouttaviaka; 21 = Nata; 22 = Nicosia; 23 = Paramytha; 24 = Pera Pedri; ?Platus; 25 = Polemedia Hills; 26 = Pyrgos; 27 = Saettas; 28 = Salamis; ?Tornaides; ?Yerasa; 29 = Yermasoyia River; 30 = Zakaki; 31 = Zoopygi.

Subfamily Braconinae

Bracon (Glabrobracon) abbreviator NEES, 1834: 1 ♀ (in Bp), Episcopi, 28 IV 1937. Since its description known from eleven countries of Europe, nearest to Cyprus from Croatia.

Bracon (Bracon) alutaceus SZÉPLIGETI, 1901: 2 ♀♀ (1 ♀ in Ld, 1 ♀ in Bp), Pera Pedri, 17 VII 1937. 1 ♀ (in Ott), Yermasoyia River, 13 X 1967. TOBIAS (1986: 129) placed the name *B. alutaceus* in jun. synonymy with *B. longicollis* WESMAEL. I consider the name *B. alutaceus* as representing a valid species, the two species are distinguished by the following features:

B. alutaceus: 1. First tergite strongly broadening posteriorly, i.e. twice as broad behind as basally; 2. Propodeum at least nearly entirely rugulose to rugose. 3. Ground colour of body reddish yellow with dark brown to black(ish) pattern. 4. Pterostigma yellow (or partly yellow).

B. longicollis: 1. First tergite less broadening posteriorly, i.e. less than twice as broad as basally. 2. Propodeum usually along the medio-longitudinal carina rugulose (rugose). 3. Ground colour of body blackish to black with reddish to reddish yellow pattern. 4. Pterostigma dark coloured.

Bracon (Glabrobracon) anthracinus NEES, 1834: 1 ♀ (in Ott), Amathus. 1 ♀ (in Ott), Limassol. IV.

Bracon (Glabrobracon) arcuatus THOMSON, 1892: 1 ♂ (in Ott), Amathus, 20 IV 1966. 1 ♀ (in Ott), Yermasoyia River, 8 V 1967. Described from Sweden, reported from England, Germany, Austria and Hungary.

Bracon (Cyanopterobracon) armeniacus TELENGA, 1936: 1 ♀ (in Ott), Yermasoyia River, 1 VI 1967. Up to now known only from the Turkish Armenia (TOBIAS 1986: 122).

Bracon (Glabrobracon) atrator NEES, 1834: 2 ♀♀ (1 ♀ in Bp, 1 ♀ in Ott), Amathus. 1 ♀ (in Ott), Limassol. IV.

Bracon (Lucobracon) brunnescens FAHRINGER & SCHMIEDEKNECHT, 1928: 1 ♀ (in Bp), Pera Pedri, 2500 feet, 28 VI 1962. Described from Thüringen (Germany), the locality in Cyprus is its second occurrence reported.

Bracon (Glabrobracon) dichromus WESMAEL, 1838: 1 ♀ (in Bp), Amathus. 3 ♀♀ 1 ♂ (2 ♀♀ 1 ♂ in Ld, 1 ♀ in Bp), Episcopi. 9 ♀♀ 7 ♂♂ (2 ♀♀ 6 ♂♂ in Ld, 6 ♀♀ in Ott,1 ♀ 1 ♂ in Bp), Limassol. 4 ♂♂ (3 ♂♂ in Ott, 1 ♂ in Bp), Mesayitonia. 1 ♂ (in Ott), Moni River. 1 ♀ 1 ♂ (1 ♀ in Ott, 1 ♂ in Bp), Pyrgos. 2 ♀♀ 7 ♂♂ (1 ♀ 6 ♂♂ in Ott, 1 ♀ 1 ♂ in Bp), Yermasoyia River. Taken in IV-VI, frequently in April.

Bracon (Lucobracon) erraticus WESMAEL, 1838: 1 ♀ (in Ld), Episcopi. 2 ♂♂ (in Ld), Limassol. 1 ♂ (in Ott), Mesayitonia. 1 ♀ 12 ♂♂ (1 ♀ 11 ♂♂ in Ott, 1 ♂ in Bp), Yermasoyia River. V-VI and X-XI, frequent on wing in May.

Bracon (Lucobracon) erraticus ab. *confinis* (SZÉPLIGETI, 1901): 9 ♀♀ 2 ♂♂ (7 ♀♀ 2 ♂♂ in Ott, 2 ♀♀ in Bp), Yermasoyia River. VI, VIII and X-XI.

Bracon (Lucobracon) erraticus ab. *superciliosus* (WESMAEL, 1838): 1 ♂ (in Ott), Limassol. 1 ♂ (in Ott), Mesayitonia. IV-V.

Bracon (Orthobracon) exhilarator NEES, 1834: 1 ♀ (in Ott), Yermasoyia River. XI.

Bracon (Cyanopterobracon) fallax SZÉPLIGETI, 1901: 3 ♀♀ (2 ♀♀ in Ott, 1 ♀ in Bp), Limassol, 2 IV 1963 (1 ♀) and 17 IV 1966 (1 ♀). Described from Hungary, reported from Ukraine and Kazakhstan (TOBIAS 1986: 121).

Bracon (Lucobracon) femoralis (BRULLÉ, 1832):

Vipio femoralis BRULLÉ, 1832: Exped. scient. Morée 2: 384 n. 851 ♀ (syntype series: one female), type locality: Morée (Greece: Peloponnesos), lectotype ♀ in Museum National d'Histoire Naturelle, Paris; present designation and examined. – SHENEFELT 1978: 1848 (literature up to 1936).

Bracon carinatulus TELENGA, 1936: Faune de l'URSS Insectes Hyménoptères V/2 fam. Brac. pars 1 (in Russian): 144 (key) and 183 (description); (in German): 345 (key) and 383 (description) ♀; type locality: "Turkestan, Bezirk Kashka-Darja: Kammaschi". Lectotype in Zoological Institute, Sankt Petersburg. Synonymized by TOBIAS 1959: 895.

Bracon hedwigae SCHMIEDEKNECHT, 1897: Illte Z. Ent. 1: 589 ♀ (key, syntype series: one female), type locality: „Fort Santa Cruz bei Oran" (Algeria). Lectotype ♀ in Zoologisches Museum, Berlin; present designation and examined, **syn. nov.** – SHENEFELT 1978: 1620 (literature up to 1966).

Material: 1 ♀ (in Ld): Nicosia, 20-23 IV 1934. 1 ♂ (in Leiden, Natuurhist. Mus.), Nata, 2 IV 1978, leg. TEUNISSEN.

Since MARSHALL (1888: 163) the name *Vipio*, and with it *femoralis* BRULLÉ, has been placed among the doubtful species and the name *B. hedwigae* was applied. Examination of the lectotypes of the two taxa revealed that the two names refer to the same

species and BRULLÉ's *femoralis* is older (sen. syn.) over SCHMIEDEKNECHT's *hedwigae* (jun. syn.). MARSHALL (l.c.) recognized first that *Vipio femoralis* should be assigned to the genus *Bracon*.

Bracon (Lucobracon) fortipes WESMAEL, 1838: 4 ♂♂ (3 ♂♂ in Ott, 1 ♂ in Bp), Limassol, 3 IV 1963 (2 ♂♂), 21 I 1966 (1 ♂), 14 X 1967 (1 ♂). I, IV, X. Widely distributed in the southern half of Europe, reported from Tunisia (PAPP 1990b: 91).

Bracon (Lucobracon) fumarius SZÉPLIGETI, 1901: 1 ♂ (in Ott), Limassol. 1 ♂ (in Ott), Pera Pedi, 2500 feet. 4 ♀♀ 6 ♂♂ (2 ♀♀ 4 ♂♂ in Ott, 2 ♀♀ 2 ♂♂ in Bp), Yermasoyia River. V-VII and X. The specimens from Cyprus deviate from the nominate form by the following features: 1. Second tergite more or less longitudinally strio-rugose. 2. Antenna with 25-30 antennomeres. Described from Hungary, reported from Croatia and Romania (Transylvania).

Bracon (Glabrobracon) helleni TELENGA, 1936: 1 ♀ 4 ♂♂ (1 ♀ 1 ♂ in Bp, 3 ♂♂ in Ott), Limassol, 9 V 1963 (1 ♀) and 12 V 1964 (4 ♂♂). 3 ♂♂ (2 ♂♂ in Ott, 1 ♂ in Bp), Yermasoyia River. V. Known from SE Russia and NW Kazakhstan (Uralsk).

Bracon (Glabrobracon) hemiflavus SZÉPLIGETI, 1901: 2 ♀♀ 7 ♂♂ (2 ♀♀ 6 ♂♂ in Ld, 1 ♂ in Bp), Cherkes. 2 ♀♀ 2 ♂♂ (1 ♀ in Bp, 2 ♂♂ in Ld, 1 ♀ in Ott), Limassol. 1 ♀ (in Bp), Mesayitonia. 4 ♀♀ 5 ♂♂ (in Ott), Yermasoyia River. V-VI, VIII and X. Distributed in former USSR (Ukraine, Azerbaidjan, Kazakhstan,Turkmenia), Hungary is its most western distribution.

Bracon (Glabrobracon) hemiflavus ab. *meridionalis* TELENGA, 1936: 1 ♀ (in Ld) Limassol, 1 IV 1934.

Bracon (Bracon) illyricus MARSHALL, 1888: 1 ♀ (in Ld), Nicosia, IV 1948, leg. Th. SHIAKIDES. Frequent in the Balkan Peninsula, in the former USSR distributed eastwards as far as the Altai Mts (TOBIAS 1986: 121).

Bracon (Glabrobracon) immutator NEES, 1834 ab. *nitens* ab. nov.: 1 ♀ (in Ott), 26 V 1964. Tergites of the nominate form are more or less sculptured, the form ab. *nitens* is (almost) smooth.

Bracon (Cyanopterobracon) infernalis TELENGA, 1936: 1 ♂ (in Bp), Limassol, 28 V 1967. Known from the European part of SE Russia (Daghestan), Armenia and Kazakhstan (TOBIAS 1986: 142).

Bracon (Bracon) intercessor NEES, 1834: 1 ♀ (in Ott), Limassol. 1 ♀ (in Ott), Pera Pedi, 2000 feet. 1 ♂ (in Ott), Yerasa. II, IV and XI.

Bracon (Bracon) intercessor ab. *subtilis* (SZÉPLIGETI, 1901): 1 ♀ (in Ld), Limassol. 23 ♀♀ 3 ♂♂ (2 ♀♀ 1 ♂ in Bp, 21 ♀♀ 2 ♂♂ in Ott), Yermasoyia River.

Bracon (Bracon) laetus WESMAEL, 1838: 1 ♂ (in Ld), Pera Pedi, Krios River, 17 IX 1937. 1 ♂ (in Bp), Pera Pedi, 18 IX 1937.

Bracon (Bracon) leptus MARSHALL, 1897: 2 ♀♀ 1 ♂ (in Ott), Aiyos Athanasios. 1 ♂ (in Ott), Limassol. 7 ♀♀ 1 ♂ (2 ♀♀ in Bp, 5 ♀♀ 1 ♂ in Ott), Yermasoyia River. III and V. Widely distrubured in the former USSR, reported from Hungary, Austria, Spain and Tunisia.

Bracon (Bracon) leptus ab. *rufipedator* (SZÉPLIGETI, 1901): 2 ♀♀ 1 ♂ (in Ld), Cherkes. 1 ♂ (in Bp), Kolossi. 1 ♀ (in Ott), Lania, 1800 feet. 7 ♀♀ (1 ♀ in Bp, 3 ♀♀ in Ld, 3 ♀♀ in Ott), Limassol. 1 ♀ (in Ott), Kaholorio, 2500 feet. 1 ♂ (in Ld), Mandria. 3 ♀♀ (1 ♀ in Bp, 2 ♀♀ in Ld), Pera Pedi. 9 ♀♀ (1 ♀ in Bp, 8 ♀♀ in Ott), Yermasoyia River. IV-VII and IX.

Bracon (Bracon) longicollis WESMAEL, 1838: 1 ♀ (in Ld), Limassol, 25 IV 1955.

Bracon (Glabrobracon) longulus THOMSON, 1892: 1 ♀ (in Bp), Limassol, 3 IV 1963. Distributed sporadic in Europe (Sweden, Finland, Austria, Hungary, Croatia, Italy).

Bracon (Bracon) luteator SPINOLA, 1808: 1 ♀ (in Ld), Pera Pedi. 2 ♀♀ (1 ♀ in Bp, 1 ♀ in Ld), Limassol. 1 ♀ (in Ott), Yermasoyia River. III-IV, VI and VIII. Frequent in South Europe, known from Hungary.

Bracon (Bracon) luteator ab. *filicauda* (A. COSTA, 1888): 5 ♀♀ 1 ♂ (1 ♀ in Bp, 4 ♀♀ 1 ♂ in Ld), Limassol. V-VI.

Bracon (Bracon) luteator ab. *nigripedator* (NEES, 1834): 10 ♂♂ (in Ld), Cherekes. 1 ♂ (in Ld), Episcopi. 2 ♀♀ 5 ♂♂ (1 ♀ 1 ♂ in Bp, 1 ♀ 1 ♂ in Ld, 3 ♂♂ in Ott), Limassol. 1 ♂ (in Ld), Mandria. 1 ♂ (in Ott), Mesayitonia. 1 ♀ (in Ld), Pera Pedi. 4 ♀♀ 15 ♂♂ (1 ♂ in Bp, 4 ♀♀ 14 ♂♂ in Ott), Yermasoyia River. IV-VII, taken frequently in May and June.

Bracon (Glabrobracon) minutator (FABRICIUS, 1798): 1 ♀ (in Ott), Limassol. 1 ♂ (in Ott), Pyrgos. 1 ♀ (in Ott), Yermasoyia River. IV-V. Widely distributed in the Palaearctic Region, reported nearest to Cyprus from Greece (PAPP 1990a: 277) and Tunisia (PAPP 1990b: 92).

Bracon (Glabrobracon) nigricollis WESMAEL, 1838: 1 ♀ (in Bp), Limassol, II 1934. A misinterpreted species; my specimen was authenticated with WESMAEL's original description. Described from Belgium, the faunistic contribution of further countries (SHENEFELT 1978: 1622) should be confirmed.

Bracon (Lucobracon) nigriventris WESMAEL, 1838 ab. *indubius* (SZÉPLIGETI, 1838): 1 ♀ (in Bp), Yermasoyia River, 16 VI 1967. Both the nominate and ab. forms are rather frequent in Europe.

Bracon (Glabrobracon) obscurator NEES, 1812: 2 ♂♂ (in Ld), Episcopi. 1 ♂ (in Ott), Limassol. 1 ♀ (in Ott), Yermasoyia River. V.

Bracon (Glabrobracon) osculator (NEES, 1812): 1 ♀ (in Ott), Limassol. IV.

Bracon (Bracon) pectoralis WESMAEL, 1838: 1 ♀ (in Ld), Arofiri Forest. 1 ♀ (in Ott), Akrounda, 800 feet. 5 ♀♀ 1 ♂ (1 ♀ in Bp, 2 ♀♀ in Ld, 2 ♀♀ 1 ♂ in Ott), Akroteri Bay. 7 ♀♀ 2 ♂♂ (in Ott), Amathus. 23 ♀♀ 43 ♂♂ (1 ♀ in Bp, 22 ♀♀ 43 ♂♂ in Ld), Cherkes. 1 ♀ (in Ld), Episcopi. 6 ♀♀ (in Ott), Kaholorio, 2500 feet. 7 ♀♀ 4 ♂♂ (in Ott), Kalopanayiotis, 2500-3000 feet. 1 ♀ (in Ld), Kiliani, Krios River. 36 ♀♀ 7 ♂♂ (in Ott), Kolossi. 3 ♀♀ (in Ott), Lania, 1800 feet. 67 ♀♀ 10 ♂♂ (39 ♀♀ 5 ♂♂ in Ld, 28 ♀♀ 5 ♂♂ in Ott), Limassol. 1 ♂ (in Ld), Mandria. 4 ♀♀ (in Ott), Moni River. 1 ♀ (in Ott), Pera Pedi. 2 ♀♀ (in Ott), Saettas, 2500 feet. 1 ♀ (in Ott), Tornaides, 3000 feet. 7 ♀♀ (1 ♀ in Bp, 5 ♀♀ in Ld, 1 ♀ in Ott), Troodos Mt., Kannoures Spring, 5500 feet. 98 ♀♀ 21 ♂♂ (in Ott), Yermasoyia River. 1 ♀ (in Bp), Zakaki. III-XI, most frequent on wing in May and July.

Bracon (Bracon) pectoralis ab. *fumigatus* (SZÉPLIGETI, 1901): 2 ♀♀ 2 ♂♂ (in Ott), Amathus. 1 ♂ (in Ott), Ayios Gheqsios. 1 ♂ (in Ld), Cherekes. 1 ♀ (in Ott), Kaholorio, 2500 feet. 15 ♀♀ 16 ♂♂ (3 ♀♀ 3 ♂♂ in Bp, 12 ♀♀ 13 ♂♂ in Ott), Limassol. 2 ♀♀ (in Ott), Paramytha. 1 ♀ (in Ott), Pyrgos. 2 ♂♂ (1 ♂ in Bp, 1 ♂ in Ott), Saettas, 2000 feet. 18 ♀♀ 16 ♂♂ (3 ♀♀ 3 ♂♂ in Bp, 15 ♀♀ 13 ♂♂ in Ott), Yermasoyia River. III-V and X.

Bracon (Pigeria) piger WESMAEL, 1838: 1 ♀ (in Ott), Kolossi. 1 ♀ 1 ♂ (in Ott), Limassol. 1 ♀ (in Ott), Troodos Mt. V-VI and IX.

Bracon (Glabrobracon popovi TELENGA, 1936: 1 ♀ (in Bp), Yermasoyia River, 29 VII 1967. Described from Kazakhstan, listed from Uzbeghistan, Azerbaidjan, Armenia, Ukraine.

Bracon (Glabrobracon) praecox WESMAEL, 1838: 1 ♂ (in Ott), Cherkes. 1 ♀ 4 ♂♂ (1 ♂ in Bp, 1 ♀ 3 ♂♂ in Ld), Episcopi. 2 ♀♀ 2 ♂♂ (in Ott), Limassol. 2 ♀♀ (1 ♀ in Bp, 1 ♀ in Ld), Platus. 1 ♀ (in Ott), Yermasoyia River. IV-VI. Very near to *B. variator*, TOBIAS (1986: 134) placed in synonymy with it. Distributed in Europe but nowhere frequent. Listed nearest to Cyprus from Greece (PAPP 1990a: 277).

Bracon (Cyanopterobracon) sabulosus SZÉPLIGETI, 1896: 2 ♀♀ (in Ld), Amiandos, 5000 feet. 2 ♀♀ 2 ♂♂ (in Ld), Cherkes. 1 ♀ (in Ld), Troodos Mt. VII-VIII and X. In Europe a fairly rare species, known from Hungary, Romania, Serbia, Croatia, eastwards in the Palaearctic Region as far as Mongolia and Iran. Reported nearest to Cyprus from Greece (PAPP 1990a: 278).

Bracon (Bracon) schmidti KOKOUJEV, 1912: 1 ♀ (in Ott), Kolossi, 19 IX 1966. Reported are its sporadic localities from Azerbaidjan, Uzbeghistan and Iran.

Bracon (Glabrobracon) terebella WESMAEL, 1838: 1 ♀ (in Ott), Yermasoyia River, 18 I 1966. Frequent in the western Palaearctic Region.

Bracon (Glabrobracon) tschitscherini KOKOUJEV, 1904: 1 ♀ (in Ott), Ayios Athanasios. 2 ♂♂ (in Ld), Cherkes. 10 ♀♀ 9 ♂♂ (2 ♀♀ 2 ♂♂ in Bp, 2 ♀♀ 5 ♂♂ in Ld, 6 ♀♀ 2 ♂♂ in Ott), Limassol. 1 ♀ (in Bp), Mandria. 1 ♀ (in Ott), Moni River. 5 ♀♀ 18 ♂♂ (1 ♀ 4 ♂♂ in Bp, 4 ♀♀ 14 ♂♂ in Ott), Yermasoyia River. V-VII, most frequent on wing in May. Distributed in the steppe and forest-steppe zone of the Palaearctic Region westwards as far as Hungary and Romania. Cyprus falls in its southwesternmost distribution.

Bracon (Cyanopterobracon) urinator (FABRICIUS, 1798): 2 ♂♂ (in Ott), Ayios Athanasios. 1 ♂ (in Ld), Cherkes. 3 ♂♂ (in Ld), Episcopi. 2 ♀♀ (in Ott), Famagusta. 1 ♂ (in Ott), Lania, 1800 feet. 1 ♀ (in Berlin Museum), Larnaca. 33 ♀♀ 82 ♂♂ (4 ♀♀ 4 ♂♂ in Bp, 14 ♀♀ 48 ♂♂ in Ld, 15 ♀♀ 30 ♂♂ in Ott), Limassol. 1 ♀ (in Ld), Moni River. 1 ♀ 3 ♂♂ (in Ld), Pera Pedri. 1 ♀ (in Ld), Troodos Mt. 11 ♀♀ 18 ♂♂ (1 ♀ 1 ♂ in Bp, 10 ♀♀ 17 ♂♂ in Ott), Yermasoyia River. IV-VIII, most frequent in May.

Bracon (Glabrobracon) variator NEES, 1812: 1 ♂ (in Ld), Cherkes. 1 ♂ (in Ld), Episcopi. 1 ♀ 4 ♂♂ (3 ♂♂ in Ld, 1 ♀ 1 ♂ in Ott), Limassol. 1 ♂ (in Ott), Pyrgos. 1 ♀ (in Ott), Saettas, 2000 feet. 1 ♀ 3 ♂♂ (in Ott), Yermasoyia River. II-VII.

Bracon (Glabrobracon) variator ab. *bipartitus* (WESMAEL, 1838): 1 ♀ (in Bp), Yermasoyia River, 20 VII 1967.

Bracon (Glabrobracon) variator ab. *maculiger* (WESMAEL, 1838): 1 ♀ (in Bp) 3 ♂♂ (in Ld), Episcopi. 2 ♀♀ 3 ♂♂ (1 ♂ in Bp, 2 ♀♀ 2 ♂♂ in Ld), Limassol.

Bracon (Bracon) variegator SPINOLA, 1808: 1 ♀ (in Ld), Cherkes. 1 ♂ (in Ld), Episcopi. 12 ♀♀ (2 ♀♀ in Bp, 10 ♀♀ in Ott), Kaholorio. 2 ♀♀ 2 ♂♂ (in Ld), Limassol. 1 ♀ (in Ott), Mouttaviaka. 1 ♀ (in Ott), Saettas, 2300 feet. 6 ♀♀ 1 ♂ (in Ott), Yermasoyia River. 13 ♀♀ 1 ♂ (1 ♀ in Bp, 12 ♀♀ 1 ♂ in Ott), Zoopygi, 2700 feet. III-VI and IX-X, most frequent in May.

Cyanopterus (Cyanopterus) flavator (FABRICIUS, 1793): 2 ♀♀ (in Ld), Limassol, 12 V 1934 (1 ♀) and 20 IX 1953 (1 ♀). V and IX. A Palaearctic and fairly frequent species, nearest to Cyprus found in Syria and Rhodes.

Habrobracon flavosignatus TOBIAS, 1957: 1 ♀ (in Ld), Limassol, 2 V 1934. Hitherto known only from Turkmenia.

Habrobracon hebetor (SAY, 1836): 2 ♀♀ 1 ♂ (in Ld), Episcopi. 7 ♀♀ 73 ♂♂ (in Ld), Limassol. 1 ♂ (in Ld), Mandria. 1 ♀ (in Ld), Pera Pedri. 10 ♀♀ (2 ♀♀ in Bp, 8 ♀♀ in Ld), Troodos Mt. IV-V, VII-VIII and X, very frequent in October.

Habrobracon nigricans SZÉPLIGETI, 1901: 1 ♂ (in Ld), Episcopi. 2 ♀♀ (in Ld), Kiliani, Krios River. IV and IX-X. Distributed in the steppe and forest-steppe zone of the Palaearctic Region as far westernmost as Hungary.

Habrobracon simonovi KOKOUJEV, 1914: 3 ♂♂ (1 ♂ in Bp, 2 ♂♂ in Ld), Limassol. Known from Russia, Turmenia and China (SHENEFELT 1978: 1611).

Habrobracon stabilis (WESMAEL, 1838): 4 ♀♀ 1 ♂ (1 ♀ in Bp, 3 ♀♀ 1 ♂ in Ld), Limassol. II and V.

Habrobracon telengai MULJARSKAYA, 1955: 1 ♀ (in Ott), Saettas, 2500 feet, 6 VII 1964. 1 ♂ (in Bp), Pera Pedi, Krios River, 9 IX 1937. 1 ♀ (in Ld), Pera Pedi, Moniatis, 22 IX

1937. Known from Tadjikistan, Kazakhstan, Georgia, Azerbaidjan, Armenia and the European part of SE Russia.

Habrobracon viktorovi TOBIAS, 1961: 1 ♂ (in Ld), Platus, 18 VIII 1937.

Pseudovipio castrator (FABRICIUS, 1798): 1 ♀ (in Ld), Akroteri Bay. 3 ♀♀ 2 ♂♂ (in Ld), Cherkes. 1 ♂ (in Ott), Kolossi. 1 ♀ (in Bp), Larnaka. 8 ♀♀ 3 ♂♂ (2 ♀♀ in Bp, 6 ♀♀ 3 ♂♂ in Ld), Limassol. 1 ♀ (in Ld), Mesugitenia. 5 ♀♀ 2 ♂♂ (in Ld), Moni. 2 ♀♀ 2 ♂♂ (in Bp), Pera Pedri. 2 ♀♀ (in Ld), Polemedia Hills. 1 ♀ (in Ld), Salamis. 1 ♀ 1 ♂ (in Ott), Yermasoyia River. 1 ♀ (in Ld), Zakai. IV-VIII and X, frequent in June-July.

Pseudovipio inscriptor (NEES, 1834): 1 ♂ (in Ld), Cherkes. 1 ♀ (in Bp), Pera Pedri. 1 ♀ (in Ld), Yermasoyia River. IV, VI and X.

Pseudovipio insubricus (FAHRINGER, 1926) **comb. nov.**:

Iphiaulax insularis SZÉPLIGETI, 1906: Annls Mus. Natn. Hung. 4: 583 ♀ (syntype series: one female), type locality: "Cypern", holotype ♀ in Természettudományi Múzeum, Budapest, present designation and examined.

Iphiaulax (Iphiaulacidea) insubricus FAHRINGER, 1926: Opusc. brac. (Pal. Reg.) 1: 206 new name for *Iphiaulax insularis* SZÉPLIGETI, 1906 nec SZÉPLIGETI, 1901.

Designation of the holotype ♀ of *Iphiaulax insularis* SZÉPLIGETI, 1906: "Cyprus Larnaka [leg.] Glaszner" (upper on label) "1900. V. 10." (reverse on label) (first label) – second label is my holotype card, third label is with inventory number: Hym. Typ. No. 1173.

Taxonomic remark: First the species was transferred into the genus *Pseudovipio* SZÉPLIGETI, 1896 by me in 1969 (in litt.) which was confirmed by D.L.J. QUICKE in 1989 (in litt.). – FAHRINGER (l.c.) presented a fairly detailed redescription of the species and with the help of his key for the Iphiaulacidea FAHRINGER, 1926 (subgenus of *Iphiaulax*) (p. 189-197) species *P. insubricus* may be recognized correctly. Besides the holotype no further specimen is known so far.

Pseudovipio turcomanicus (KOKOUJEV, 1904): 1 ♀ (in Ld), Kiliani, Krios River, 12 IX 1937. Known from Turkmenia and Kazakhstan.

Pseudovipio umbraculator (NEES, 1834): 28 ♀♀ 39 ♂♂ (4 ♀♀ 4 ♂♂ in Bp, 24 ♀♀ 35 ♂♂ in Ld), Limassol. 7 ♂♂ (2 ♂♂ in Bp, 5 ♂♂ in Ott), Yermasoyia River. V.

Vipio longicauda (BOHEMAN, 1853) (= *Ichneumon nominator* FABRICIUS, 1793 nec 1787): 1 ♀ (in Bp), Arofiri Forest. 1 ♂ (in Bp), Cherkes. 1 ♀ 4 ♂♂ (in Ld), Limassol. 1 ♂ (in Ld), Pera Pedri. IV-VII. Frequent to fairly common in the Palaearctic Region. Reported nearest to Cyprus from Syria (SHENEFELT 1978: 1855) and Greece (PAPP 1990a: 280).

Vipio mlokossewiczi KOKOUJEV, 1898: 19 ♀♀ 7 ♂♂ (3 ♀♀ 2 ♂♂ in Bp, 16 ♀♀ 5 ♂♂ in Ld), Nicosia. 1 ♀ 1 ♂ (in Ld), Pera Pedri. IV. Inhabitant of the steppe and forest-steppe zone of the Palaearctic Region. Nearest to Cyprus reported from Israel (PAPP 1970: 72).

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Literaturbesprechung

LIESKE, E. & MYERS, R.F. 1994: Korallenfische der Welt. - Jahr Verlag, Hamburg, 398 S.

In den Korallenriffen der Welt leben über 4.000 Fischarten, was eine komplette Darstellung in einem einzigen Werk nahezu unmöglich macht. Dieser Führer versucht, diejenigen Fischarten vorzustellen, die von tauchern und Schnorchlern mit großer Wahrscheinlichkeit im Indopazifik und in der Karibik beobachtet werden können. Somit sind in diesem Standardwerk auf 175 Farbtafeln über 2.300 Abbildungen von 2.044 Arten tropischer Riffische zeichnerisch abgebildet. Dabei behandeln die Farbtafeln 1-139 die Fische des Indopazifiks, die Tafeln 140-175 die Arten der Karibik. Auf den meisten Tafeln sind die häufig vorkommenden Arten oben abgebildet. Die Beschreibungen sind knapp, aber ausreichend: Sie informieren über Name (Deutsch, Latein), Größe, wichtige Merkmale, Ökologie und Verbreitung.

Ein ebenso kompaktes wie robustes Bestimmungsbuch für die Reise, das in keiner "Unterwasser-Bibliothek" fehlen darf. Roland GERSTMEIER

DEBELIUS, H. 1997: Schneckenführer Indopazifik. - Jahr Verlag, Hamburg, 321 S.

Neben Fischen und Korallen erfreuen sich Schnecken bei Tauchern und Schnorchlern allergrößter Beliebtheit. Egal, ob man die Tiere "nur" beobachtet oder auch fotografisch dokumentiert, man würde schon gerne wissen, um welche Art es sich denn handelt. Die bis vor kurzem vorliegende Bestimmungsliteratur war aber rar und weit verstreut, so daß man selten zum Ziel kam. Dieser Schneckenführer stößt nun erfolgreich in dies Lücke vor: Auf über 1.000 Farbfotos werden annähernd ebensoviele marine Gehäuse- und Nacktschnecken des Indopazifiks in fantastischen Bildern vorgestellt und kurz beschrieben. Die Reihenfolge richtet sich nach dem neuesten taxonomischen Stand; die entsprechenden Ordnungen und Unterordnungen sind mit Kennfarben versehen, die mit dem "farbigen" Inhaltsverzeichnis übereinstimmen. Lobenswert ist die Erwähnung des Fundortes der jeweiligen Aufnahme; im Literaturverzeichnis werden neben Büchern auch wichtige Zeitschriftenartikel zitiert.

Ein längst überfälliges Bestimmungswerk mit dem Prädikat "Hervorragend".

Roland GERSTMEIER

LI, W.-H. 1997: Molecular Evolution. - Sinauer Associates, Sunderland, Massachusetts, 487 S.

This book represents the author's effort to provide a synthesis of the exciting development in molecular evolution in the past two decades. It describes the dynamics of evolutionary change at the molecular level, the driving forces behind the evolutionary process, novel evolutionary phenomena revealed by molecular data, the effects of various molecular mechanisms on the structure of genes and genomes, and the methodology involved in the statistical analysis of molecular data from an evolutionary perspective.

The Introduction gives a brief history of molecular evolution in the pre-DNA era. Chapter 1 provides basic knowledge of molecular biology such as the genomic structure of prokaryotic and eukaryotic genes and genetic codes, and describes some biochemical properties of amino acids and proteins. Chapter 2 is a summary of the basic theory of population genetics that is required for understanding the effects of natural selection, mutation, and random drift, and the process of gene substitution. Chapter 3 describes models of evolutionary nucleotide change in DNA sequences. Estimation of evolutionary distances is obviously a basic subject in the study of molecular evolution and is described in some detail in Chapter 4. Because of its importance, the methodology of tree reconstruction is described in detail in Chapter 5, including statistical tests of phylogenies as well as various reconstruction methods. To illustrate the power of molecular approaches to phylogenetic studies, Chapter 6 provides a number of examples where molecular studies have resolved some longstanding issues in systematics, or pointed to a new direction for research. Chapter 7 describes nonrandom codon usage and the rate and pattern of nucleotide substitution and discusses the mechanisms of molecular evolution. Chapter 8 deals with the controversial issue of the molecular clock hypothesis. Chapter 9 provides methods for analyzing DNA polymorphism data and discusses issues concerning the mechanisms underlying the maintenance of DNA polymorphism in natural populations. Chapter 10 describes the evolutionary significance of gene duplication, which includes partial and complete gene duplication, and genome duplication. Chapter 11 deals with the concerted evolution of multigene families by gene conversion, unequal crossing-over, and other mechanisms. Chapter 12 deals with transposition and retrotransposition, and horizontal gene transfer. Chapter 13 attempts to describe the molecular evolutionary process at the genomic level, including the issues of genome size and genome composition. Chapter 14 summarizes conclusions on the relative roles of mutation and selection in molecular evolution.

An extensive, outstanding and recommendable contribution of this topic as a unified whole.

Roland GERSTMEIER

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