

THE SCOLIOIDEA AND SPHECOIDEA FAUNA OF
THE KISKUNSÁG NATIONAL PARK
(HYMENOPTERA)

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23 Scolioidea and 158 Sphecoidea species were collected in the Kiskunság National Park. From among them 4 species proved to be new to the fauna of Hungary. The Sphecoidea fauna of the Kiskunság National Park is characterized by peculiar components. Deviating from other regions of Hungary the National Park excels with its faunal component of southern origin, i.e. the number of the thermo- and xerophilous species are high and that of the hylo- and hygrophilous species are low.

The exploration of the Aculeata fauna of the Kiskunság National Park has begun in the last decades of the 19th century. Up to the first decades of this century the collectors had only occasionally visited several interesting localities for gathering insects. Regular faunistical investigation was started by E. Bajári and L. and M. Móczár in the 1950s. A vast number of the wasps was gathered mainly in the environs of Ágasegyháza, Bugac, Csévharaszt, Kecskemét, Kiskunhalas, Kunfehértó and Ócsa. The faunistical and ecological data of the two Aculeata groups in question were treated in three fascicles of the series *Fauna Hungariae* (Bajári 1956a, 1957, Móczár, L. 1959). A part of the localities was published in a few catalogues (Bajári 1953, 1956, Bajári and Móczár, L. 1954, Móczár, L. 1958). The unpublished data were scrutinized by me out of the collection of the Hymenoptera Section of the Hungarian Natural History Museum, Budapest. For the evaluation of the fauna of the National Park only a part of the collecting sites may be considered, namely Ágasegyháza; Bugac: Nagyerdő; Csévharaszt; Dömsöd: Apajpuszta; Ócsa: Nagyerdő, Öreg-turján.

In the second half of the 1970s the experts of the Hungarian Natural History Museum, Budapest and the Zoological Institute of the József Attila University, Szeged have carried out a large-scale faunistical collecting work in the National Park. One of the most important results of this work is the fact that we acquired a sufficient amount of faunistical knowledge from all parts of the National Park. The bulk of the wasps was collected by J. Papp and L. Zombori.

By the intensive exploration work we also possess a clear faunistical picture of the nature conservancy areas at Ócsa, Orgovány and Bócsa-Bugac concerning their Sphecoidea wasps. The other territories of the National Park require more thorough explorations: a task of the future.

SCOLIOIDEA

Sapyga clavicornis (Linnaeus, 1758)—5. Tabdi.—Rare in the National Park as well as in other parts of our country.

Sapyga quinquepunctata (Fabricius, 1781)—IV. Fülöpháza: Kondor-tó; VI. Bugac: Nagybugac, Nagybugaci-erdő.—3. Csévharaszt. VI–VIII.—More frequent than the previous species. Collected mainly in sand-dunes.

Discolia hirta hirta (Schränk, 1781)—II. Dömsöd: Apajpuszta; VI. Bugac: Kisbugac, Nagybugaci-erdő, Ósborókás.—1. Ócsa: Öreg-turján; 2. Ágasegyháza; 3. Csévharaszt. VI–IX.—Rather frequent in sandy biotopes of the National Park, elsewhere rare.

Discolia sexmaculata quadripunctata (Fabricius, 1775)—II. Dömsöd: Apajpuszta; VI. Bócsa: Bócsai-erdő; Bugac: Nagybugaci-erdő.—1. Ócsa: Öreg-turján; 2. Ágasegyháza; 3. Csévharaszt. VI–VII.—Its ecological requirements are similar to those of the previous species.

Discolia insubrica (Scopoli, 1786)—II. Dömsöd: Apajpuszta. VII.—Rare in the National Park. Hitherto collected only in natron-sodaic steppes.

Trielis interrupta (Fabricius, 1781) (= *sexmaculata* Fabricius, 1781; Bajári 1956)—I. Lakitelek: Tösedő; II. Dömsöd: Apajpuszta; VI. Bugac: Felsőpuszta.—1. Ócsa: Nagyerdő, Öreg-turján. VI–VII.—Distributed in the sandy biotopes of the National Park. Most frequent in sandy dunes.

Heterelis quinquecincta abdominalis (Spinola, 1806)—II. Dömsöd: Apajpuszta.—10. Petőfiszállás: Péteri-tó. VII–VIII.—Its ecological tolerance is similar to that of the previous species. Its occurrence in further localities of the National Park is anticipated.

Tiphia femorata femorata Fabricius, 1775—1. Lakitelek: Töserdő, Holt-Tisza; II. Dömsöd: Apajpuszta; IV. Fülöpháza: Strázsa-hegy; Kerekegyháza: Kondor-tó; V. Izsák: Kolon-tó; VI. Bugac: Feketeszék, Kisbugac, Ósborókás; Orgovány: Kargalla.—1. Ócsa: Nagyerdő; 2. Ágasegyháza; 3. Csévharaszt; 5. Tabdi; 8. Jánoshalma.—VI–IX.

Tiphia femorata f. *distincta* Tournier, 1889—IV. Fülöpháza: Strázsa-hegy; VI. Bugac: Ósborókás.—2. Ágasegyháza; 3. Csévharaszt; 8. Jánoshalma. VI–VIII.

Tiphia femorata f. *rugosa* Tournier, 1889—IV. Fülöpháza: Strázsa-hegy; VI. Bócsa: Pipagyújtató-hegy; Bugac: Ósborókás.—3. Csévharaszt. VI–VIII.

Tiphia femorata f. *villosa* Fabricius, 1804—IV. Kerekegyháza: Kondor-tó.—3. Csévharaszt. VIII.—The nominate as well as the other forms are living everywhere in the National Park, in several sites they are sitting on umbeliferous flowers in high numbers.

Tiphia laeviceps Tournier, 1889—IV. Fülöpháza: Strázsa-hegy; Kerekegyháza: Kondor-tó; VI. Bugac: Fekete-szék. Ósborókás; Orgovány: Kargalla.—3. Csévharaszt; 5. Tabdi. VII–IX.—Its ecological requirements as well as its distribution are similar to those of the previous species. A few authors consider it only as a variety of *T. femorata*.

Tiphia minuta Van der Linden, 1827—IV. Fülöpháza: Strázsa-hegy; Kerekegyháza: Kondor-tó; V. Izsák: Kolon-tó; VI. Bócsa: Pipagyújtató-hegy; Bugac: Fekete-szék; Orgovány: Kargalla.—1. Ócsa: Nagy-erdő; 2. Ágasegyháza; 3. Csévharaszt. VI–VIII.—Rather frequent in the National Park, though somewhat rarer than the previous species. Collected in high numbers but only in a few localities.

Tiphia morio Fabricius, 1787—IV. Fülöpháza: Strázsa-hegy; VI. Bócsa: Bócsai-erdő.—2. Ágasegyháza. V–VI.—A rare species, taken in a low number of exemplars.

Tiphia polita Costa, 1858—II. Dömsöd: Apajpuszta; VI. Bugac: Nagybugaci-erdő.—1. Ócsa: Öreg-turján; 2. Ágasegyháza. VI–VIII.—Singed sporadically in the National Park.

Meria tripunctata (Rossi 1790)—IV. Fülöpháza: Strázsa-hegy; Bugac: Kisbugac, Nagybugac.—2. Ágasegyháza; 8. Jánoshalma. VI–VIII.—A characteristic and rather rare species of sand-dunes. Taken in Hungary mainly in the sandy districts of the Great Hungarian Plain.

Methoca ichneumonides Latreille, 1809—VI. Bugac: Nagybugac, Nagybugaci-erdő.—2. Ágasegyháza. V–VII.—Captured in sand-dunes, extremely xero- and thermophilous.

Myrmosa melanocephala (Fabricius, 1793)—IV. Fülöpháza: Hattyússzék; Kerekegyháza: Kondor-tó; VI. Bugac: Ósborókás.—1. Ócsa: Nagy-erdő; 5. Tabdi; 10. Petőfiszállás: Péteri-tó. VI–IX.—A thermophilous species with a wide ecological spectrum. Occurring also on the foodplants of marshy meadows and the ecotone of the woods.

Myrmilla cephalica (Sichel et Radoszkowski, 1869)—I. Lakitelek: Töserdő. VII.—An extremely rare species in the National Park, a total of only eight localities are known in Hungary (Bajári and Móczár 1954).

Ronisia barbara var. *brutia* (Petagna, 1787)—IV. Fülöpháza: Strázsa-hegy; VI. Bugac: Kisbugac, Nagybugaci-erdő.—2. Ágasegyháza. VII–IX.—Taken in several parts of the sand-dune districts, though not frequent. A decidedly thermo- and xerophilous species.

Smicromyrme catanensis (Rossi, 1792)—3. Csévharaszt. V.—A very rare species, known but a single specimen from the National Park, and hitherto listed only from two localities in Hungary (Bajári and Móczár 1954).

Smicromyrme montana (Panzer, 1806)—IV. Fülöpháza: Strázsa-hegy; Kerekegyháza: Kondor-tó; V. Izsák: Kolon-tó; VI. Bócsa: Pipagyújtó-hegy; Bugac: Kisbugac.—2. Ágasegyháza. IV–IX.—A rather xerophilous species though occurring also in marshes and ecotone of the woods. Supposedly a frequent species in the National Park.

Smicromyrme rufipes (Fabricius, 1787)—VI. Bugac: Fekete-szék, Kisbugac, Nagybugaci-erdő.—1. Ócsa: Öreg-turján; 2. Ágasegyháza; 3. Csévharaszt. V–IX.—Its ecological spectrum and frequency are similar to those of the previous species.

Smicromyrme viduata (Pallas, 1773)—IV. Fülöpháza: Strázsa-hegy; VI. Bugac: Ósborókás.—2. Ágasegyháza. VII–VIII.—More sporadic than the two previous species, captured only among sand-dunes.

Dasylabris italica (Fabricius, 1793)—IV. Fülöpháza: Strázsa-hegy; VI. Bócsa: Pipagyújtó-hegy; Bugac: Kisbugac.—2. Ágasegyháza; 3. Csévharaszt. V–VII.—Characteristic to sand-dunes, a xero- and thermophilous species.

Dasylabris maura (Linné, 1758)—IV. Fülöpháza: Strázsa-hegy; VI. Bugac: Nagybugaci-erdő. 2. Ágasegyháza; 3. Csévharaszt. V–VIII.—Its distribution and ecological spectrum is similar to that of the previous species.

SPHECOIDEA

I followed the nomenclature and the systems given by Bohart and Menke (1976). When deviating taxonomical names are figured in the respective volumes of *Fauna Hungariae* (Bajári 1956a, 1957, Móczár 1959) these are indicated between parentheses.

Dolicharus corniculatus (Spinola, 1798)—8. Jánoshalma. XI.—A rare Mediterranean species. Hitherto known only from the Kőszeg Mts. (Bajári 1957). Supposedly a thermo- and xerophilous species.

Sceliphron destillatorium (Illiger, 1807)—II. Dömsöd: Apajpuszta.—1. Ócsa: Nagy-erdő. VII.—In comparison to its distribution in Hungary a rather rare species in the National Park. Its localities are supposedly restricted to biotopes with heavy soil.

Sphex atropilosus Kohl, 1885 (= *atrohirtus* Kohl, 1890; Bajári 1957)—II. Dömsöd: Apajpuszta. VII.—A rare Ponto-Mediterranean species. Besides Apajpuszta it is known only from Tiszacsege in our country (Bajári 1957).

Sphex maxillosus Fabricius, 1793—II. Dömsöd: Apajpuszta; IV. Fülöpháza: Strázsa-hegy; VI. Bugac: Nagybugaci-erdő.—1. Ócsa: Öreg-turján; 2. Ágasegyháza; 10. Petőfiszállás: Péteri-tó. VII–VIII.—Characteristic to the thermo- and xerophilous biotopes. Frequent but not common in the National Park.

Prionyx kirbyi (Van der Linden, 1827) (= *albisectus* Lepeletier et Serville, 1828; Bajári 1957)—II. Dömsöd: Apajpuszta; IV. Fülöpháza: Strázsa-hegy; VI. Bugac: Kisbugac.—1. Ócsa: Öreg-turján; 10. Petőfiszállás: Péteri-tó. VII–VIII.—Its ecological spectrum and distribution are similar to those of the previous species. Usually captured in sand-dunes.

Prionyx subfuscatus (Dahlbom, 1845)—II. Dömsöd: Apajpuszta. VII.—A very rare Mediterranean species. Altogether known from five localities in Hungary, mainly from the Kiskunság National Park and its adjacent environment (Bajári 1957).

Palmodes occitanicus (Lepeletier et Serville, 1828)—VI. Bugac: Nagybugaci-erdő.—2. Ágasegyháza. VII.—A rare species, known mainly in the Great Hungarian Plain; a few localities were listed in the Transdanubia (Bajári 1957). Thermo- and xerophilous, characteristic to the sand-dunes.

Podalonia affinis (Kirby, 1798)—VI. Bócsa: Pipagyújtó-hegy.—2. Ágasegyháza. VI–VII.—Adherent to thermo- and xerophil biotopes, a rather sporadic species. Captured in several localities of the Great Hungarian Plain, consequently its further localities are expected in the National Park.

Podalonia hirsuta (Scopoli, 1763)—II. Dömsöd: Apajpuszta; VI. Bugac: Nagybugac.—1. Ócsa: Nagy-erdő; 3. Csévharaszt. VI–VII.—On the basis of its home distribution supposedly distributed in warm biotopes of the National Park.

Podalonia luffi (Saunders, 1903)—IV. Fülöpháza: Strázsa-hegy; VI. Bugac: Kisbugac, Nagybugaci-erdő.—2. Ágasegyháza. VI–VIII.—Much rarer than the previous species. The majority of its localities is known from the Great Hungarian Plain. Expected to be taken from further sandy-districts.

Podalonia tydei (Le Guillou, 1841)—VI. Bugac: Nagybugac. VII.—The rarest home species of the genus. Known only from a few localities in Hungary (Bajári 1957, Móczár 1953, Benedek 1969).

Ammophila heydeni Dahlbom, 1845—II. Dömsöd: Apajpuszta; VI. Bugac: Kisbugac.—2. Ágasegyháza; 3. Csévharaszt. VII.—A rather frequent species in Hungary, occurring mainly in the xero- and thermous biotopes. Supposedly much more frequent in the National Park.

Ammophila sabulosa (Linné, 1758)—I. Lakitelek: Töserdő; V. Izsák: Kolon-tó; VI. Bugac: Kisbugac.—I. Ócsa: Nagy-erdő; 2. Ágasegyháza; 3. Csévharaszt; 8. Jánoshalma. VII–IX.—A common species with a wide ecological spectrum. Certainly much more frequent in the National Park than the data allow to suggest.

Ammophila terminata ssp. **mocsaryi** Frivaldszky, 1876 (= *apicalis* Brullé, 1839: Bajári 1957)—I. Lakitelek: Töserdő; II. Dömsöd: Apajpuszta; IV. Fülöpháza: Strázsa-hegy; V. Izsák: Kolon-tó; VI. Bugac: Kisbugac.—2. Ágasegyháza; 3. Csévharaszt; 8. Jánoshalma. VII–VIII.—In comparison to the previous species its ecological spectrum is more restricted. Taken in several parts of the National Park, though not a common species.

Mimesa caucasica Maidl, 1914—IV. Kerekegyháza; Kondor-tó.—2. Ágasegyháza; 3. Csévharaszt. VIII.—Sporadic in our country (Bajári 1957, Benedek 1969). Supposedly a thermophilous species. Captured in high number at Ágasegyháza, elsewhere only sporadically.

Mimesa brevis Maidl, 1914—IV. Fülöpszállás: Kelemen-szék; Szabadszállás: Kis-rét. VI.—Distributed in hilly and mountainous districts, occurring also at the biotopes by stagnant and slow-flowing waters (Bajári 1957, Benedek 1979). In the National Park also captured in cool biotopes. A rare species.

Mimusesa atratina (Morawitz, 1891)—I. Lakitelek: Töserdő. VII.—Sporadic throughout Hungary (Bajári 1957, Benedek 1979). Expected to turn up in further cool biotopes.

Mimusesa dahlbomi (Wesmael, 1852)—VI. Bugac: Fekete-szék. IX.—Several localities are listed in the Bakony Mts. (Benedek 1979). This is its third locality in the Eupannonicum (Bajári 1957, Józán 1981). Further localities are expected in cool and humid biotopes.

Mimusesa littoralis (Bondroit, 1934) (= *fulvitaris* Bajári, 1957)—I. Ócsa: Öreg-turján; 2. Ágasegyháza; 3. Csévharaszt. VI–VIII.—There are eight published localities in Hungary (Bajári 1957, Benedek 1969, 1970, 1979). Sporadic in the National Park.

Mimusesa unicolor (Van der Linden, 1829)—II. Dömsöd: Apajpuszta; IV. Szabadszállás: Kis-rét; VI. Orgovány: Kargalla.—I. Ócsa: Öreg-turján; 2. Ágasegyháza; 10. Petőfiszállás: Péteri-tó. VI–IX.—The most frequent species of the genus. Captured in several localities in the National Park. Preferring cool and humid biotopes though not a strict hylophilous species.

Psenulus concolor (Dahlbom, 1843)—I. Lakitelek: Töserdő.—I. Ócsa: Nagyerdő. V.—A rather rare, hylo- and hygrophilous species. Hitherto reported from seven localities (Bajári 1957, Benedek 1979, Józán 1981).

Psenulus pallipes (Panzer, 1798) (= *atratus* Fabricius, 1804: Bajári 1957)—IV. Fülöpháza: Strázsa-hegy; Kerekegyháza: Kondor-tó; V. Izsák: Kolon-tó; VI. Bugac: Nagybugaci-erdő, Ósborókás.—I. Ócsa: Öreg-turján; 2. Ágasegyháza; 3. Csévharaszt. VI–VIII.—A fairly frequent species in the National Park. Hylo- and hygrophilous species with an inclination to be intermediary.

Diodontus luperus Shuckard, 1837—II. Kunszentmiklós: Koplaló; III. Szabadszállás: Kis-rét; VI. Orgovány: Kargalla.—I. Ócsa: Öreg-turján.—Captured sporadically though not rare, rather preferring biotopes with intermediary climate.

Diodontus minutus (Fabricius, 1793)—II. Dömsöd: Apajpuszta; III. Szabadszállás: Kis-rét; IV. Fülöpháza: Strázsa-hegy; Kerekegyháza: Kondor-tó; VI. Bugac: Alsópuszta, Fekete-szék, Kisbugac, Nagybugac.—I. Ócsa: Öreg-turján; 2. Ágasegyháza; 3. Csévharaszt; 8. Jánoshalma; 10. Petőfiszállás: Péteri-tó. VI–IX.—Thermophilous with an intermediary inclination; a frequent species.

Diodontus major Kohl, 1901.—I. Ócsa: Nagy-erdő, Öreg-turján; 2. Ágasegyháza. V–VIII.—In comparison with the previous species it is much rarer, occurring only sporadically in the National Park.

Diodontus tristis (Van der Linden, 1829)—I. Lakitelek: Töserdő, IV. Kerekegyháza: Kondor-tó; VI. Bugac: Nagy-erdő. VI–VIII.—A rare species in the National Park. Captured in biotopes with intermediary climate.

Diodontus insidiosus Spooner, 1938—IV. Fülöpháza: Strázsa-hegy.—2. Ágasegyháza; 8. Jánoshalma. VI–XI.—New to the fauna of Hungary as well as the Carpathian Basin. Reported from England and

Switzerland (Bohart and Menke 1976) as well as from Belgium (Leclercq 1979). Eight specimens were captured in the National Park. Besides the above localities also collected at Kunfehértó.

Pemphredon austriacus (Kohl, 1888)—IV. Fülöpháza: Strázsa-hegy. VIII.—A rare Central European species. Hitherto known from three localities in our country (Bajári 1957).

Pemphredon brevipetiolatus Wagner, 1918—I. Ócsa: Nagy-erdő. VIII.—A rare species, up to now listed from four localities (Bajári 1957, Benedek 1979).

Pemphredon inornatus Say, 1824 (= *shuckardi* A. Morawitz, 1864; Bajári 1957)—III. Szabadszállás: Kis-rét; IV. Fülöpháza: Strázsa-hegy; V. Izsák: Kolon-tó.—I. Ócsa: Nagy-erdő, Öreg-turján; Inárcs: Rókás-mocsár; 5. Tabdi. V–VIII.—Frequent in the National Park.

Pemphredon lethifer (Shuckard, 1837)—I. Lakitelek: Töserdő; II. Dömsöd: Apajpuszta; III. Szabadszállás: Kis-rét; IV. Kerekegyháza: Kondor-tó; V. Izsák: Kolon-tó; VI. Bugac: Nagybugaci-erdő, Ósborókás; Orgovány: Kargalla.—I. Ócsa: Nagy-erdő, Öreg-turján; 2. Ágasegyháza; 3. Csévharaszt; 5. Tabdi. V–VIII.—Frequent in the National Park. Together with the previous species it was taken in various biotopes, having rather a wide ecological spectrum. Preferring hylous-humid biotopes.

Pemphredon lugubris (Fabricius, 1793)—5. Tabdi. V.—Besides its single locality in the National Park further ones are expected.

Ammoplanus handlirschi Gussakovskij, 1931—I. Ócsa: Nagy-erdő. VII.—A rare and thermophilous species. Taken sporadically also in other regions of our country (Bajári 1957, Benedek 1970, 1979).

Passaloecus clypealis Faester, 1947—2. Ágasegyháza; 3. Csévharaszt. VII.—Listed in the last two decades in Hungary. The majority of its localities is in the hilly and mountainous regions (Benedek 1966, 1969, 1970). In the Great Hungarian Plain occurring at Bátorliget and Veresegyháza. Benedek (1970) considers it as a stenoecic hylophilous species. On the basis of its recent localities supposedly its ecological spectrum is somewhat wider. Lacking old collecting data we suppose only the extension of its area in our time. This is strengthened by the fact that it was described hardly forty years ago.

Passaloecus corniger Shuckard, 1837—I. Lakitelek: Töserdő; VI. Bugac: Nagybugaci-erdő.—5. Tabdi. V–VI.—As in the National Park in other regions of our country it was taken rather sporadically. Found in biotopes with intermediary climate.

Passaloecus gracilis (Curtis, 1834) (= *turionum* Dahlbom, 1844; Bajári 1957)—I. Lakitelek: Töserdő.—3. Csévharaszt. V–VIII.—Its distribution and ecological spectrum are similar to those of the previous species.

Passaloecus singularis Dahlbom, 1844 (= *gracilis* auct.: Bajári 1957)—I. Lakitelek: Töserdő; VI. Orgovány: Kargalla. X.—I. Ócsa: Nagy-erdő; Inárcs: Rókás-mocsár; 3. Csévharaszt; 5. Tabdi. V–VIII.—The most frequent *Passaloecus* species in the National Park. Along with other species of the genus, it is characteristic to the hylous-humid biotopes.

Astata apostata Mercet, 1910—I. Ócsa: Öreg-turján. VII–VIII.—A rare thermophilous species. The majority of its localities is known from the Great Hungarian Plain.

Astata brevitarsis Pulawski, 1958—II. Dömsöd: Apajpuszta. VIII.—A very rare endemic species described from Hungary. A single specimen was taken in the National Park.

Astata boops (Schränk, 1781)—I. Ócsa: Nagy-erdő, Öreg-turján. VI–VIII.—A rather frequent species in Hungary, captured only in a few localities in the National Park. Its further localities are to be expected.

Astata costae Costa, 1867—II. Dömsöd: Apajpuszta; VI. Bugac: Nagybugac.—I. Ócsa: Nagy-erdő. VI–VIII.—A rare species, known altogether from six localities in our country (Bajári 1957).—A thermo- and xerophilous species.

Astata gallica Beaumont, 1942—I. Ócsa: Öreg-turján. VII.—Its distribution, frequency and ecological spectrum are similar to those of the previous species.

Astata minor Kohl, 1885—II. Dömsöd: Apajpuszta.—I. Ócsa: Öreg-turján. VII–VIII.—Not frequent in the National Park though captured in many localities in our country.

Astata stecki Beaumont, 1942—I. Ócsa: Öreg-turján. VIII.—Collected in several localities though not a frequent species in our country. Rare in the National Park. A stenoecic thermo- and xerophilous species.

Dryudella lineata Mocsáry, 1879—IV. Kerekegyháza: Kondor-tó; VI. Bugac: Fekete-szék, Kisbugac, Nagybugaci-erdő; Orgovány: Kargalla.—I. Ócsa: Öreg-turján; 2. Ágasegyháza. VII–VIII.—Rather frequent in and characteristic for the National Park. Its distribution is rather restricted to the Kiskunság; a psammophilous species.

Dryudella tricolor (Van der Linden, 1829)—VI. Bugac: Nagybugac. VII.—Much rarer than the previous species, its ecological requirements are similar to those.

Dinetus pictus (Fabricius, 1793)—I. Ócsa: Öreg-turján. VI–VIII.—Rather frequent in the Great Hungarian Plain, though distributed in other regions of our country. Its further localities are expected in the National Park.

Larra anathema (Rossi, 1790)—VI. Orgovány: Kargalla.—I. Ócsa: Öreg-turján; 2. Ágasegyháza. VII–VIII.—Collected its some dozen specimens in a few localities of the National Park, however, not a frequent species. Further localities are listed also in the Great Hungarian Plain (Bajári 1957). Preferring thermo-xerous and sandy biotopes.

Liris nigra (Fabricius, 1775)—3. Csévharaszt. VII.—A rare species in the National Park. Also infrequent elsewhere, though listed from several localities (Bajári 1957).

Tachytes etruscus (Rossi, 1790)—2. Ágasegyháza. VII.—Obtained in several localities in the Kiskunság, its distribution within the National Park is poorly known. In the warm regions of our country collected in several localities, inhabiting mainly sandy biotopes.

Tachytes europaeus Kohl, 1884—II. Dömsöd: Apajpuszta; Kunszentmiklós: Koplaló; IV. Kerekegyháza: Kondor-tó; VI. Bugac: Nagybugaci-erdő.—I. Ócsa: Öreg-turján; 2. Ágasegyháza.—Distributed in xero- and thermous biotopes of the National Park, rather frequent.

Tachytes obsoletus (Rossi, 1792)—II. Dömsöd: Apajpuszta.—2. Ágasegyháza. VI–VII.—A rare species, known from six localities in our country (Bajári 1957, Benedek 1979).

Tachysphex fulvitaris (Costa, 1867)—VI. Bugac: Kisbugac.—I. Ócsa: Öreg-turján. VII–VIII.—The majority of its home localities is known from the Kiskunság, frequent in Bugac. Also found elsewhere in sand-dunes.

Tachysphex helveticus Kohl, 1885—I. Lakitelek: Töserdő; VI. Bugac: Nagybugaci-erdő; Orgovány: Kargalla.—I. Ócsa: Öreg-turján; 2. Ágasegyháza. VI–VII.—

Tachysphex incertus (Radoszkowski, 1877) (= *pygidialis* Kohl, 1883; Bajári 1957)—II. Dömsöd: Apajpuszta.—I. Ócsa: Öreg-turján; 3. Csévharaszt. VII–VIII.—Observed sporadically in the thermo-xerous biotopes of the National Park. Also infrequent in the other parts of Hungary.

Tachysphex mocsaryi Kohl, 1884—VI. Bugac: Nagybugaci-erdő.—2. Ágasegyháza; 3. Csévharaszt. VI–VII. A stenoecic thermo- and xerophilous species. The majority of its locality is known in the Kiskunság in our country. A characteristic species of the fauna of the sandy soils of the National Park.

Tachysphex nitidus (Spinola, 1815)—I. Lakitelek: Töserdő; II. Dömsöd: Apajpuszta; Kunszentmiklós: Koplaló; IV. Fülöpháza: Szappan-szék; Kerekegyháza: Kondor-tó; VI. Bugac: Kisbugac, Nagybugac; Orgovány: Kargalla.—2. Ágasegyháza; 3. Csévharaszt. VI–VIII.—The most frequent *Tachysphex* species of the National Park. Its ecological requirements are rather wide or euryoecic, i.e. it is not restricted to the extremely xerous biotopes.

Tachysphex obscuripennis (Schenck, 1857) (= *livalvis* Thomson, 1870; Bajári 1957)—VI. Bugac: Kisbugac, Nagybugaci-erdő. VI–VIII.—A rather rare stenoecic species. Restricted to thermo-xerous biotopes.

Tachysphex panzeri (Van der Linden, 1829)—II. Dömsöd: Apajpuszta; IV. Kerekegyháza: Kondor-tó; VI. Bugac: Kisbugac, Nagybugaci-erdő.—I. Ócsa: Öreg-turján; 2. Ágasegyháza; 3. Csévharaszt. VI–VIII.—Though taken in several localities of the National Park it is not frequent. A characteristic species of the Kiskunság, the majority of its localities are reported from here (Bajári 1957).

Tachysphex pompiliformis (Panzer, 1804) (= *nigripennis* Spinola, 1808; Bajári 1957)—I. Lakitelek: Töserdő; II. Kunszentmiklós: Koplaló; VI. Bugac: Kisbugac.—I. Ócsa: Nagy-erdő, Öreg-turján; 3. Csévharaszt. VI–VIII.

Tachysphex psammobius (Kohl, 1880)—IV. Fülöpháza: Strázsa-hegy; VI. Bugac: Nagybugaci-erdő.—2. Ágasegyháza. V–VII.—Three localities are listed in the National Park, neither frequent in the Kiskunság.

Palarus variegatus (Fabricius, 1781)—I. Lakitelek: Töserdő; VI. Bugac: Kisbugac, Nagybugac.—2. Ágasegyháza; 3. Csévharaszt. VI–VIII.—Within the National Park it was observed rather sporadically, though in the Kiskunság known from many localities. Supposedly much more distributed in the sandy biotopes of the National Park.

Miscophus bicolor Jurine, 1807—VI. Bugac: Kisbugac. VII.—Rare in the National Park, neither frequent elsewhere (Bajári 1957, Benedek 1970, 1979).

Miscophus concolor Dahlbom, 1844—Bugac: Nagybugac. VI.—A very rare Central-European species. New to the fauna of Hungary! Already observed in adjacent countries.

Miscophus spurius (Dahlbom, 1832)—VI. Bugac: Kisbugac.—8. Jánoshalma. IX–XI.—A rather rare species, besides Kiskunság only one other locality is known. All the three *Miscophus* species are thermophilous, living mainly in sandy biotopes.

Trypoxylon attenuatum Smith, 1851—II. Dömsöd: Apajpuszta; VI. Bugac: Nagybugac.—I. Ócsa: Nagy-erdő, Öreg-turján; Inárcs: Rókás-mocsár; 2. Ágasegyháza; 3. Csévharaszt; 5. Tabdi; 10. Petőfiszállás: Péteri-tó. V–VIII.—Rather frequent in the National Park, an inhabitant of biotopes with intermediary mesoclimate.

Trypoxylon clavicerum Lepeletier et Serville, 1828—VI. Bugac.—I. Ócsa: Nagy-erdő. VI–VII.—Two localities in the National Park. Elsewhere in our country much more distributed (Bajári 1957, Benedek 1979).

Trypoxylon figulus (Linné, 1758)—I. Lakitelek: Töserdő.—5. Tabdi; 10. Petőfiszállás: Péteri-tó. V–IX.—Very frequent to common in Hungary, more localities are expected in the National Park, mainly in cool localities.

Trypoxylon scutatum Chevrier, 1867—VI. Bugac: Nagybugaci-erdő. VI.—A rare thermophilous species, hitherto reported from 8 localities (Bajári 1957, Benedek 1970, 1979).

Oxybelus argentatus ssp. *gerstaeckeri* Verhoeff, 1948—VI. Orgovány: Kargalla. VII.—Very rare, up to now listed only from Órszentmiklós and Pilis (Móczár 1958). A characteristic species of the National Park.

Oxybelus argentatus ssp. *treforti* Sajó, 1884—IV. Kerekegyháza: Kondor-tó; V. Izsák: Kolon-tó. VIII.—Similarly to the previous species it is also rare, hitherto reported from Órszentmiklós and Pestszentimre (Móczár 1958).

Oxybelus aurantiacus Mocsáry, 1883—VI. Bugac: Nagybugac. VII.—A rather rare, thermo- and xerophilous species, characteristic for the National Park. In Hungary known from 8 localities (Benedek 1969, Móczár 1958).

Oxybelus bipunctatus Olivier, 1811—VI. Bugac: Kisbugac, Nagybugac; Orgovány: Kargalla.—I. Ócsa: Öreg-turján; 2. Ágasegyháza; 3. Csévharaszt; 10. Petőfiszállás: Péteri-tó. VI–VII.—In the sandy biotopes of the National Park it seems to be frequent, elsewhere rarer. A characteristic psammophilous species.

Oxybelus dissectus ssp. *elegans* Mocsáry, 1879—VI. Bugac: Ósborókás.—2. Ágasegyháza. VII.—A rather rare and a thermo-xerophilous species. The majority of its localities in Hungary are restricted to the Kiskunság and adjacent districts (Móczár 1958).

Oxybelus latidens Gerstaecker, 1867—II. Dömsöd: Apajpuszta; Kunszentmiklós: Koplaló.—I. Ócsa: Öreg-turján. VII–VIII.—Rather rare in the National Park, elsewhere more common (Móczár 1958).

Oxybelus latro Olivier, 1811—II. Dömsöd: Apajpuszta.—I. Ócsa: Öreg-turján; 2. Ágasegyháza. VII–VIII.—Similar to the previous species in its distribution and frequency. The majority of its localities are in the Great Hungarian Plain.

Oxybelus lineatus (Fabricius, 1787)—VI. Bugac: Nagybugaci-erdő. VII.—Rare in the National Park, a thermophilous species. Its distribution in Hungary is agreeing with that of the previous species.

Oxybelus maculipes Smith, 1856—I. Ócsa: Öreg-turján. VII.—A very rare species, hitherto collected only in the Great Hungarian Plain (Móczár 1958). A thermophilous species.

Oxybelus mandibularis Dahlbom, 1845—VI. Bugac: Alsópuszta.—I. Ócsa: Öreg-turján; 2. Ágasegyháza. VI–VIII.—Taken sporadically in the National Park. The majority of its localities are in the Great Hungarian Plain, though collected in our hilly districts, too.

Oxybelus quattordecimnotatus Jurine, 1807—I. Lakitelek: Töserdő; II. Dömsöd: Apajpuszta; IV. Fülöpháza: Strázsa-hegy; Kerekegyháza: Kondor-tó; VI. Bugac: Fekete-szék, Kisbugac, Nagybugac; Orgovány: Kargalla.—I. Ócsa: Öreg-turján; 2. Ágasegyháza; 10. Petőfiszállás: Péteri-tó. VII–VIII.—The most frequent species of the genus, also frequent in the National Park; its ecological valency is wide.

Oxybelus subspinosus Klug, 1835—I. Öreg-turján. VII.—Very rare, besides this locality collected only at Kislőd (Benedek 1979). A characteristic species of the National Park.

Oxybelus uniglumis (Linné, 1758)—I. Lakitelek: Töserdő; IV. Kerekegyháza: Kondor-tó; VI. Bugac: Nagybugaci-erdő.—I. Ócsa: Öreg-turján. VII–VIII.—Only a few localities are known in the National Park, though rather frequent in the Great Hungarian Plain. Wide in its ecological spectrum.

Oxybelus victor Lepeletier, 1845—II. Dömsöd: Apajpuszta; VI. Bugac: Fekete-szék, Kisbugac, Ósborókás; Orgovány: Kargalla.—I. Ócsa: Öreg-turján; 2. Ágasegyháza. VII–IX.—Taken in several localities though not frequent.

Oxybelus variegatus Wesmahl, 1852—I. Lakitelek: Töserdő; VI. Bugac: Kisbugac.—I. Ócsa: Öreg-turján; 2. Ágasegyháza. VII–VIII. Sporadic in the National Park. Its ecological spectrum is rather wide. Taken in several localities in hilly and mountainous districts, though not frequent.

Entomognathus brevis (Van der Linden, 1829)—I. Ócsa: Nagy-erdő, Öreg-turján; 2. Ágasegyháza; 5. Tabdi. VI–IX.—Frequent to common, expected to occur throughout the National Park.

Entomognathus dentifer (Noskiewicz, 1929)—I. Ócsa: Öreg-turján; 5. Tabdi. VII–IX.—Sporadic both in the National Park and Hungary.

Lindenius albilabris (Fabricius, 1793)—I. Lakitelek: Töserdő; III. Szabadszállás: Kis-rét; IV. Fülöpháza: Kelemen-szék; Kerekegyháza: Kondor-tó; V. Izsák: Kolon-tó; VI. Bugac: Alsópuszta, Fekete-szék, Kisbugac.—I. Ócsa: Öreg-turján; Inárcs: Rókás-mocsár; 2. Ágasegyháza; 5. Tabdi. V–VIII.

Lindenius panzeri (Van der Linden, 1829)—IV. Kerekegyháza: Kondor-tó; VI. Bugac: Kisbugac.—I. Ócsa: Öreg-turján; 3. Csévharaszt. VII.—A rather sporadic species.

Lindenius parkanensis (Zavadil, 1948) (= *ponticus* Beaumont, 1956; L. Móczár 1959)—III. Szabadszállás: Kelemen-szék. VI.—According to Bohart (1976) *L. ponticus* is not a valid species, Móczár (1958, 1959) on the contrary, considers it as valid. Balthasar (1972) applied the name *ponticus*, namely the authors did not give a description of *parkanensis* but they included only into their key (Zavadil and Šnoflák 1948). I accepted Bohart's standpoint. A rare species, up to now known from three localities in Hungary (Benedek 1979, Móczár 1958).

Lindenius pygmaeus ssp. *armatus* (Van der Linden, 1829)—I. Ócsa: Nagy-erdő, Öreg-turján; 3. Csévharaszt. VII–VIII.—Rare in the National Park, also sporadic in other districts of Hungary.

Rhopalum clavipes (Linné, 1758)—9. Kunfehértó: Városerdő. VII.—A rare hylo- and hygrophilous species. Up to now collected only in the mountainous regions of Transdanubia (Benedek 1970, Móczár 1958).

Rhopalum gracile Wesmál, 1852 (= *nigrinum* Kiesenwetter, 1849; L. Móczár 1959)—2. Ágasegyháza. VII.—Rare, preferring hygro-marshy biotopes. This is its second locality in the Great Hungarian Plain.

Crossocerus capitosus (Shuckard, 1837)—5. Tabdi. V.—A rare hylo-hygrophilous species. Hitherto known from 3 localities in the Great Hungarian Plain (Józan 1981, Móczár 1958).

Crossocerus cetratus (Shuckard, 1837)—I. Ócsa: Öreg-turján. VI.—Hylo- and hygrophilous, distributed rather in mountainous regions, collected sporadically in the Great Hungarian Plain (Józan 1981, Móczár 1958).

Crossocerus elongatulus (Van der Linden, 1829)—I. Ócsa: Öreg-turján. VII.—Rare in the National Park.

Crossocerus megacephalus (Rossi, 1790) (= *leucostomoides* Richards, 1935; L. Móczár 1959)—I. Ócsa: Nagy-erdő. VIII.—Rare in the National Park, sporadic in Hungary.

Crossocerus ovalis Lepeletier et Brullé, 1834—I. Lakitelek: Töserdő; IV. Fülöpháza: Szappan-szék. V.—A rare hylophilous species. Up to now taken in Hungary at Kis-Balaton and in the Bakony Mts. (Benedek 1979, Móczár 1958).

Crossocerus palmipes (Linné, 1767)—I. Ócsa: Nagy-erdő; 3. Csévharaszt. VIII.—Also a hylophilous species. The majority of its localities are in the Great Hungarian Plain; not frequent (Móczár 1958).

Crossocerus podagricus (Van der Linden, 1829)—VI. Bugac: Fekete-szék; Orgovány: Kargala.—I. Ócsa: Öreg-turján. VII–IX.—A thermophilous species. Rather rare in the National Park.

Crossocerus vagabundus (Panzer, 1798)—I. Öreg-turján. VII.—Hylo- and hygrophilous, rare in the National Park. Distributed in the mountainous regions of Hungary.

Crossocerus wesmaeli (Van der Linden, 1829)—IV. Fülöpháza: Strázsa-hegy; VI. Bugac: Kisbugac, Nagybugaci-erdő.—2. Ágasegyháza; 3. Csévharaszt. V–VII.—Thermo- and xerophilous, sporadic in the National Park in the sandy dunes. Rather frequent in the Great Hungarian Plain.

Crabro peltarius (Schreber, 1784)—IV. Fülöpháza: Strázsa-hegy; VI. Bugac: Nagybugaci-erdő.—8. Jánoshalma. V–VII.—A stenoecc thermo- and xerophilous species. Restricted to the sandy dunes in the National Park. The majority of its localities are known from the Kiskunság and adjacent districts (Móczár 1958).

Crabro scutellatus (Scheven, 1781)—I. Lakitelek: Töserdő; IV. Kerekegyháza: Kondor-tó; VI. Bugac: Kisbugac; Orgovány: Kargala.—I. Ócsa: Nagy-erdő; 5. Tabdi. VII–VIII.—Rather frequent in the National Park, its ecological spectrum is wide. Distributed in the sandy dunes as well as in the marshy and woody biotopes.

Ectemnius cavifrons (Thomson, 1870)—VI. Bugac: Kisbugac.—I. Ócsa: Nagy-erdő. VII–VIII.—Rare in the National Park, hylo- and hygrophilous. Collected mainly in our mountains (Benedek 1979, Móczár 1958).

Ectemnius confinis (Walker, 1871) (= *laevigatus* De Stefani, 1884; L. Móczár 1959)—IV. Kerekegyháza: Kondor-tó; V. Izsák: Kolon-tó; VI. Bugac: Fekete-szék, Nagybugac; Orgovány: Kargala.—I. Ócsa: Nagy-erdő; 2. Ágasegyháza; 6. Kiskőrös: Szücsi-erdő; 10. Pétdöfiszállás: Péteri-tó. VI–IX.—Occurring in several parts of the National Park, though not common. Living rather in cool biotopes.

Ectemnius continuus (Fabricius, 1804)—I. Lakitelek: Töserdő; IV. Fülöpháza: Strázsa-hegy; V. Izsák: Kolon-tó; VI. Bugac: Kisbugac; Orgovány: Kargala.—I. Ócsa: Nagy-erdő, Öreg-turján; 10. Petőfiszállás: Péteri-tó. VII–IX.—A frequent species with a wide ecological spectrum.

Ectemnius dives (Lepelletier et Brullé, 1834)—VI. Bugac: Kisbugac.—I. Ócsa: Öreg-turján; 3. Csévharaszt. V–VII.—Not frequent in the National Park; elsewhere, in the hilly and mountainous regions, taken in many localities.

Ectemnius lapidarius (Panzer, 1804)—I. Ócsa: Nagy-erdő. VII.—Similar to the previous species in its distribution and ecological requirements.

Ectemnius lituratus (Panzer, 1804)—I. Ócsa: Nagy-erdő. VII.—In our country frequent in the mountains, elsewhere much rarer. In the marshy and forest biotopes of the National Park further localities are to be expected.

Ectemnius rubicola (Dufour et Perris, 1840)—IV. Kerekegyháza: Kondor-tó; VI. Bugac: Fekete-szék, Kisbugac.—I. Ócsa: Nagy-erdő. VII–IX.—Sporadic in the National Park. In warmer biotopes further localities are expected.

Ectemnius rugifer (Dahlbom, 1845)—VI. Bugac: Fekete-szék, Kisbugac; Orgovány: Kargalla. VII–IX.—Rather rare, a hylo- and hygrophilous species.

Ectemnius sexcinctus (Fabricius, 1775) (= *quadricinctus*, 1787: L. Móczár 1959)—I. Ócsa: Nagy-erdő, Öreg-turján. VII–VIII.—Its ecological tolerance agreeing with that of the previous species. In the Great Hungarian Plain sporadic, in the hilly and mountainous regions it is more frequent.

Lestica alata (Panzer, 1797)—III. Fülöpszállás: Zab—halom; IV. Kerekegyháza: Kondor-tó; VI. Bugac: Kisbugac.—2. Ágasegyháza. VII–VIII.—Its further occurrence is expected in dry and warmer biotopes.

Lestica clypeata (Schreber, 1759)—I. Lakitelek: Töserdő; V. Izsák: Kolon-tó; VI. Bugac: Kisbugac, Nagybugaci-erdő.—I. Ócsa: Nagy-erdő, Öreg-turján; 2. Ágasegyháza. VII–VIII.—A common species with a wide ecological spectrum.

Mellinus arvensis (Linné, 1758)—I. Lakitelek: Töserdő; IV. Kerekegyháza: Kondor-tó; VI. Bugac: Fekete-szék, Kisbugac.—9. Kunfőrtő: Városerdő. VII–IX.

Alysson spinosus (Panzer, 1801) (= *fuscatus* Fabricius, 1798: Bajári 1957)—I. Lakitelek: Töserdő; IV. Kerekegyháza: Kondor-tó; V. Izsák: Kolon-tó.—I. Ócsa: Öreg-turján; 2. Ágasegyháza; 3. Csévharaszt; 5. Tabdi. VIII–IX.—Preferring open sandy dunes. Its ecological spectrum is wide.

Didineis crassicornis Handlirsch, 1888—III. Szabadszállás: Kelernen-szék. VI.—A very rare Mediterranean species. New to the fauna of Hungary! Collected in the southern parts of Slovakia and near the river Dráva in Yugoslavia (Balthasar 1972, Bajári 1957). Taken at Bugyi in the Kiskunság.

Nysson dimidiatus Jurine, 1807—I. Lakitelek: Töserdő; IV. Kerekegyháza: Kondor-tó. V–VII.—A rather rare species in the National Park, though collected mainly in the Great Hungarian Plain. Its further occurrence in the sandy dunes is expected.

Nysson maculosus (Gmelin, 1790) (= *maculatus* Fabricius, 1787: Bajári 1957)—VI. Orgovány: Kargalla.—I. Ócsa: Öreg-turján. VI–VII.—Preferring dry and warm biotopes.

Nysson tridens Gerstaecker, 1867—2. Ágasegyháza. VII.—A rare species, in Hungary known only from 6 localities (Bajári 1957, Benedek 1969).

Argogorytes mystaceus (Linné, 1761)—3. Csévharaszt. V.—Hylo- and hygrophilous species, rare in the National Park.

Dienoplus elegans (Lepelletier, 1832)—I. Ócsa: Öreg-turján; 2. Ágasegyháza. VI–VII.—A thermophilous species. Known mainly from the Great Hungarian Plain.

Dienoplus laevis (Latreille, 1792)—II. Dömsöd: Apajpuszta; VI. Bugac: Kisbugac. VII–VIII.—Many specimens were taken in Bugac; elsewhere less numerous. Preferring warm biotopes.

Dienoplus moravicus (Šnoflák, 1946)—VI. Bugac: Kisbugac.—2. Ágasegyháza. VII.—Reported from several localities in the Kiskunság (Bajári 1958). Its further occurrences are expected in the National Park. A strictly thermo- and xerophilous species.

Gorytes albidulus (Lepelletier, 1832)—VI. Bócsa: Pipagyujtó-hegy.—I. Ócsa: Öreg-turján. VI–VII.—Besides the National Park collected also in other localities.

Gorytes nigrifacies (Mocsáry, 1879)—III. Szabadszállás: Kis-rét. VI.—A rare and hylo-hygrophilous species. Taken only in our mountainous and hilly regions (Bajári 1957, Benedek 1970).

Gorytes pleuripunctatus (Costa, 1859)—2. Ágasegyháza. VII.—A thermophilous species. Besides the National Park other localities are also known.

Gorytes procrustes Handlirsch, 1895—9. Kunfőrtő: Városerdő. V.—Again a thermophilous species.

Gorytes quadrifasciatus (Fabricius, 1804)—IV. Fülöpháza: Strázsa-hegy; VI. Orgovány: Kargala.—1. Ócsa: Nagy-erdő; 2. Ágasegyháza; 10. Petőfiszállás: Péteri-tó. VII–IX.—A hyllo- and hygrophilous species. Up to now reported only from our hilly and mountainous regions (Bajári 1957, Benedek 1970, 1979).

Gorytes quinquecinctus (Fabricius, 1793)—VI. Bugac: Kisbugac.—1. Ócsa: Nagy-erdő; 2. Ágasegyháza. VI–VII.—The commonest species of the genus. Collected sporadically in the National Park, but frequent in the Nature Reserve of Ócsa.

Gorytes quinquefasciatus (Panzer, 1798)—9. Kunfehértó: Városerdő. V.—Besides the National Park collected also in other localities.

Gorytes sulcifrons (Costa, 1869)—VI. Bugac: Nagybugac.—1. Ócsa: Öreg-turján. VII–VIII.—A rare thermo-xerophilous species.

Hoplisoides latifrons (Spinola, 1808)—VI. Bugac: Nagybugac. VII.—Similar to the previous species.

Stizus perrisii Dufour, 1838—2. Ágasegyháza; 3. Csévharaszt; 8. Jánoshalma. VI–VII.—A very rare Mediterranean species. Besides the National Park known only from a few localities. A characteristic species of the sandy districts of the Great Hungarian Plain.

Stizoides tridentatus (Fabricius, 1778)—II. Dömsöd: Apajpuszta. VII.—Its ecological requirements and distribution are similar to those of the previous species.

Bembecinus hungaricus (Frivaldszky, 1876)—I. Lakitelek: Töserdő; IV. Fülöpháza: Strázsa-hegy; VI. Bugac: Nagybugaci-erdő.—1. Ócsa: Öreg-turján; 2. Ágasegyháza; 3. Csévharaszt; 10. Petőfiszállás: Péteri-tó. VI–VIII.

Bembecinus tridens (Fabricius, 1781)—I. Lakitelek: Töserdő; IV. Fülöpháza: Strázsa-hegy; Kerekegyháza: Kondor-tó; VI. Bugac: Fekete-szék, Kisbugac, Nagybugaci-erdő, Ósborókás; Orgovány: Kargala.—1. Ócsa: Öreg-turján; 2. Ágasegyháza; 3. Csévharaszt; 10. Petőfiszállás: Péteri-tó. VI–IX.—A frequent to common species. Preferring the sandy fields devoid of vegetation.

Bembix megerlei Dahlbom, 1845—VI. Bugac: Nagybugaci-erdő, Ósborókás.—2. Ágasegyháza; 3. Csévharaszt; 10. Petőfiszállás: Péteri-tó. VI–VII.—A thermo- and xerophilous species. Further localities are expected in the sandy dunes.

Bembix oculata var. *pannonica* Mocsáry, 1883—VI. Bugac: Kisbugac, Nagybugaci-erdő.—2. Ágasegyháza; 3. Csévharaszt; 10. Petőfiszállás: Péteri-tó. VI–VII.—Its ecological requirements and distribution agree with those of the previous species.

Bembix olivacea Fabricius, 1787—VI. Bugac: Nagybugac, Nagybugaci-erdő.—2. Ágasegyháza; 10. Petőfiszállás: Péteri-tó. VI–VII.—Most of its specimens were captured in the sandy dunes of Bugac. Besides the sandy districts of the Great Hungarian Plain mt. Gellért-hegy in Budapest is its only other locality.

Bembix rostrata (Linné, 1758)—II. Dömsöd: Apajpuszta; VI. Bugac: Kisbugac, Nagybugaci-erdő.—1. Ócsa: Öreg-turján; 2. Ágasegyháza; 3. Csévharaszt. VI–VII.—Wider in its ecological tolerance than the previous species.

Bembix tarsata Latreille, 1809 (= *integra* Panzer, 1805: Bajári 1957)—II. Dömsöd: Apajpuszta; VI. Bugac: Nagybugaci-erdő.—1. Ócsa: Öreg-turján. VI–VII.—Similar to the previous species in its ecological tolerance, though somewhat rarer in the National Park.

Philanthus coronatus (Thunberg, 1784)—II. Dömsöd: Apajpuszta.—1. Ócsa: Öreg-turján. VII–VIII.—Reported from several localities of the Great Hungarian Plain (Bajári 1957). Rare in the National Park.

Philanthus triangulum (Fabricius, 1775)—II. Dömsöd: Apajpuszta; Kunszentmiklós: Kopláló; VI. Bugac: Kisbutac, Nagybugaci-erdő.—1. Ócsa: Nagy-erdő, Öreg-turján; 10. Petőfiszállás: Péteri-tó. VI–VII.—A frequent to common species, thermo- and xerophilous. Supposedly much more common in the National Park.

Philanthus venustus (Rossi, 1790)—IV. Fülöpháza: Strázsa-hegy; VI. Bugac: Nagybugaci-erdő.—1. Ócsa: Öreg-turján; 2. Ágasegyháza; 10. Petőfiszállás: Péteri-tó. VI–VII.—Captured sporadically in the National Park. The majority of its home localities are known from the Great Hungarian Plain (Bajári 1957).

Cerceris albofasciata (Rossi, 1790)—I. Lakitelek: Töserdő; VI. Orgovány: Kargala.—2. Ágasegyháza. VII.—Collected sporadically in the National Park. Frequent in the Great Hungarian Plain, rather rare in the hilly and mountainous districts (Bajári 1956b). A stenoeic thermo- and xerophilous species.

Cerceris arenaria (Linné, 1758)—I. Lakitelek: Töserdő; II. Dömsöd: Apajpuszta; VI. Bugac: Fekete-szék, Kisbugac, Nagybugaci-erdő; Orgovány: Kargala.—1. Ócsa: Nagy-erdő, Öreg-turján; 2. Ágasegyháza; 3. Csévharaszt; 4. Dabas: turjános. VII–IX.—Wide in its ecological tolerance, a frequent species.

Cerceris circularis ssp. *dacica* Schletterer, 1887—VI. Bugac: Nagybugaci-erdő.—2. Ágasegyháza; 3. Csévharaszt. VII–VIII.—Rare in the National Park, though in the Great Hungarian Plain rather frequent, elsewhere sporadic (Bajári 1956b).

Cerceris flavilabris (Fabricius, 1793) (= *ferreri* Van der Linden, 1829; Bajári 1957)—II. Dömsöd: Apajpuszta. VII.—On the basis of its distribution in Hungary more localities are expected in the National Park.

Cerceris interrupta (Panzer, 1799)—VI. Bugac: Kisbugac. VII.—Captured in a single specimen in the National Park. Collected sporadically in the Kiskunság and adjacent districts. More frequent in our hilly and mountainous regions (Bajári 1956b, Benedek 1979).

Cerceris lunata ssp. *funerea* Costa, 1869—V. Izsák: Kolon-tó; VI. Bugac: Nagybugaci-erdő.—2. Ágasegyháza; 3. Csévharaszt. VII–VIII.—Not frequent in the National Park, nor in the Kiskunság, rare in other parts of Hungary (Bajári 1956b).

Cerceris quadricincta (Panzer, 1799)—1. Ócsa: Öreg-turján; 2. Ágasegyháza. VII.—Rather rare in Hungary.

Cerceris quadrifasciata (Panzer, 1799)—2. Ágasegyháza. V.—Known from localities in the Kiskunság (Bajári 1956b).

Cerceris quinquefasciata (Rossi, 1792)—I. Lakitelek: Töserdő; IV. Fülöpháza: Szappan-szék; VI. Bugac: Nagybugaci-erdő; Bócsa: Pipagyújtó-hegy.—1. Ócsa: Nagy-erdő, Öreg-turján; 2. Ágasegyháza; 3. Csévharaszt. VI–VIII.—A rather frequent to common species. Further localities are expected in the National Park.

Cerceris rubida (Jurine, 1807)—II. Dömsöd: Apajpuszta; IV. Fülöpháza: Strázsa-hegy.—2. Ágasegyháza. VII–VIII.—It is conspicuous that in the National Park it was captured in a few localities only, though in the Great Hungarian Plain it is rather frequent and in the Kiskunság was collected in many localities (Bajári 1956b).

Cerceris ruficornis (Fabricius, 1793) (= *cunicularia* Schrank, 1802; Bajári 1957)—II. Dömsöd: Apajpuszta; VI. Bugac: Kisbugac, Nagybugaci-erdő.—1. Ócsa: Nagy-erdő, Öreg-turján; 2. Ágasegyháza; 9. Kunfehértó; Városerdő. VI–VIII.—A rather frequent species.

Cerceris sabulosa (Panzer, 1799)—I. Lakitelek: Töserdő; II. Dömsöd: Apajpuszta; Kunszentmiklós: Koplaló; VI. Bugac: Kisbugac, Nagybugaci-erdő.—1. Ócsa: Nagy-erdő, Öreg-turján; 2. Ágasegyháza; 3. Csévharaszt; 9. Kunfehértó; Városerdő. VI–VIII.—A frequent species in the National Park as well as in the warmer districts of our country.

Cerceris tuberculata (Villers, 1789) (= *rufipes*: Bajári, 1957)—II. Dömsöd: Apajpuszta. VII.—Rare in the National Park. Captured mainly in the Great Hungarian Plain, though nowhere frequent (Bajári 1956b).

FAUNISTICAL AND ZOOGEOGRAPHICAL OBSERVATIONS

In the Kiskunság National Park 23 species of Scolioidea and 158 species of Sphecoidea were captured. In both groups these species-numbers cover some 60% of the total number of species found in Hungary.

The following species of Sphecoidea proved to be new to the fauna of Hungary: *Astata brevitarsis* Pulawski, *Diodontus insidiosus* Spooner, *Miscophus concolor* Dahlbom and *Didineis crassicornis* Handlirsch.

It seems reasonable to indicate those species which were not found hitherto in the National Park though collected in the Kiskunság territory outside the National Park; their occurrence are to be expected here, too. They are as follows: *Lindenius mesopleuralis* (Morawitz), *Psammaecius punctulatus* (Van der Linden) and *Mimesa bicolor* (Jurine), at the same time they are also new to our fauna. The first two species were gathered at Kiskunhalas, the third species at Kiskunfélegyháza each in a single specimen. The following species were collected in a few localities: *Myrmilla capitata* (Lucas) (Scolioidea); *Bembix bidentata* Van der Linden, *Cerceris bicincta* Klug, *Cerceris eryngii* Marquet, *Cerceris tenuivittata* Dufour, *Cerceris somotorensis* Balthasar, *Solierella compedita* (Piccioli), *Miscophus helveticus* ssp. *rubriventris* Fertón, *Psenulus laevigatus* (Schenck) (Sphecoidea).

Table 1. Species composition of the Sphecoidea fauna of the Kiskunság National Park and the Bakony Mts. on the basis of the more peculiar genera

Genera	No. of species		No. of common species	Collected No. of species only in	
	KNP	Bakony		KNP	Bakony Mts.
<i>Sphex</i> s. l.	5	1	1	4	—
<i>Podalonia</i> Spin.	4	2	2	2	—
<i>Ammophila</i> K.	3	4	3	—	1
<i>Mimesa</i> Shuck.	2	3	1	1	2
<i>Mimumesa</i> Mall.	4	4	4	—	—
<i>Psenulus</i> Kohl	2	5	2	—	3
<i>Pemphredon</i> Latr.	5	6	4	1	2
<i>Astata</i> s. l.	9	5	4	5	1
<i>Tachytes</i> Pz.	3	2	2	1	—
<i>Tachysphex</i> Kohl	9	4	4	5	—
<i>Miscophus</i> Jur.	3	1	1	2	—
<i>Nitela</i> Latr.	—	2	—	—	2
<i>Trypoxylon</i> Latr.	4	6	4	—	2
<i>Oxybelus</i> Latr.	14	10	8	6	2
<i>Crossocerus</i> Lep. et Br.	9	14	9	—	5
<i>Ectemnius</i> Dhlb.	9	13	9	—	4
<i>Dienoplus</i> Fox	3	5	2	1	3
<i>Gorytes</i> Latr.	8	8	6	2	2
<i>Stizus</i> Latr.	1	—	—	1	—
<i>Stizoides</i> Guer.	1	—	—	1	—
<i>Bembix</i> Fabr.	5	1	1	4	—
<i>Cerceris</i> Latr.	13	13	10	3	3
Total	116	109	77	39	32

The Sphecoid fauna of the National Park is highly characteristic as regards species-composition. Some genera are rich in species, others are poor. This composition is more conspicuous if we compare it with the Sphecoid fauna of the Bakony Mts. (Benedek 1979). Obviously the genera *Sphex* s. l., *Astata* s. l., *Tachysphex*, *Oxybelus* and *Bembix* are represented with many species in the National Park; on the contrary, the genera *Crossocerus* and *Ectemnius* as well as the subfamily Pemphredoninae are represented by a small number of species. The latter are characteristic to the fauna of Bakony Mts. The extremely rare *Stizus* and *Stizoides* species are distributed only in the National Park (Table 1).

The Sphecoid fauna of the two regions indicated may be compared on the basis of the distributional features of the species (Table 2). For the sake of comparability I followed Benedek's (1979) view in the establishment of the distributional characters of each species. Only a few species deviate in the establishment of their distribution from that of other authors (Balthasar 1972, Bohart and Menke 1976). Comparing some units of the National Park characteristic differences can be demonstrated. The species with a large area are represented in the greatest number at Ócsa and Csévharaszt nature reserves, and in the lowest number at Apajpuszta. A similar division is shown in the case of the European species. The participation of the Mediterranean species is most significant at Apajpuszta. The same species have also a high percentage in the

Table 2. Percentual distribution of the Sphecoidea fauna of the Kiskunság National Park and other regions of Hungary on the basis of the distribution of the species

Nature of distribution	Ágas- egyháza	Bugac	Ócsa	Csév- haraszt	Apaj- puszta	KNP total	Bátor- liget	Veres- egyház	Bakony
Holarctic	3.1	6.5	11.0	13.5	2.9	7.6	5.6	5.3	5.6
Palaeartic	37.4	32.4	35.4	35.1	28.3	31.2	33.8	29.6	29.4
West Palaeartic	1.6	2.6	2.4	—	2.9	2.5	2.8	5.3	4.4
European	9.4	9.1	11.0	13.5	2.9	9.6	15.5	22.6	20.0
Central European	1.6	1.3	1.2	—	—	3.2	—	—	1.9
North European	—	—	—	—	—	—	1.4	1.2	0.6
Holo-Mediterranean	18.8	19.5	17.2	16.2	20.0	17.8	18.3	18.7	13.1
Ponto-Mediterranean	15.6	14.3	10.9	8.2	28.7	13.5	17.0	10.6	16.3
North Mediterranean	12.5	14.3	10.9	13.5	11.4	14.0	5.6	6.7	8.7
Endemic	—	—	—	—	2.9	0.6	—	—	—
Total Mediterranean	46.9	48.1	39.0	37.9	60.1	45.3	40.9	36.0	38.1
Total number of species	64	77	82	37	35	158	73	76	160

fauna of Ágasegyháza and Bugac. High is the number of Ponto-Mediterranean species on the sodaic soil of Apajpuszta. The species intruding from south-eastern direction have found the optimum of their living conditions here. The species coming from south and having a wide Mediterranean area had inhabited besides the sodaic steppes the sandy dunes of the National Park. In the marshy and forest biotopes with cool and hygrous climate their participation is much lower.

The fauna of the National Park deviates from every region compared. There is not an essential difference in the participation of the species having a wide area. The significance of the species distributed in Europe is much less than that in the environment of Veresegyháza and the Bakony Mts. The proportion of the Mediterranean species is the greatest in the National Park. All of them are thermo- and xerophilous species, their presence are supported by climatic factors.

All in all the fauna of the National Park is highly similar to that of Bátorliget. Both territories are part of the faunal district Eupannonicum, their fauna-genesis has been influenced by almost identical effects. In the formation of the Sphecoidea fauna of the Kiskunság National Park the most important role was played by the Mediterranean fauna.

In the Kiskunság National Park more than 45% of the detected Sphecoidea species has Mediterranean area-center (Holo-, Ponto- or North Mediterranean). The majority of the colouring elements of the recent fauna came from among them. In Central Europe the border-line of their area runs on the northern part of the faunal district Pannonicum; their northernmost localities are confined to South Slovakia (Balthasar 1972). The following species are rare in Central Europe and are living in dry- and warm biotopes: *Astata apostata* Mercet, *Astata gallica* Beaumont, *Didineis crassicornis* Handlirsch, *Dryudella tricolor* (Van der Linden), *Gorytes nigrifacies*

(Mocsáry), *Gorytes procrustes* Handlirsch, *Hoplisoides latifrons* (Spinola), *Liris nigra* (Fabricius), *Lindenius parkanensis* Zavadil, *Oxybelus aurantiacus* Mocsáry, *O. argentatus* ssp. *gerstaeckeri* Verhoeff, *Palmodes occitanicus* (Lepeletier et Brullé), *Podalonia tydei* (Guillou), *Prionyx subfuscatus* (Dahlbom), *Tachysphex mocsaryi* Kohl, *Tachytes etruscus* (Rossi), *T. obsoletus* (Rossi), *Sphex atropilosus* Kohl and *Stizoides tridentatus* (Fabricius).

From among the Mediterranean colouring elements some were found in the regions with warmer climatic conditions of the northern parts of Central Europe and in the lower expositional areas of western Europe: *Dienoplus moravicus* (Šnoflák) *Miscophus spurius* (Dahlbom), *Oxybelus lineatus* (Fabricius), *O. subspinosus* Klug, *Stizus perrisii* Dufour and *Trypoxylon scutatatum* Chevriér.

Few colouring elements are among the species with European, Central- or Northern-European distribution: *Dolichurus corniculus* (Spinola), *Ectemnius rugifer* Dahlbom, *Entomognathus dentifer* Noskiewicz, *Miscophus bicolor* Jurine, *M. concolor* (Dahlbom), *Oxybelus argentatus* ssp. *treforti* Sajó, *Pemphredon austriacus* (Kohl), *P. brevipetioliatus* Wagner and *Diodontus insidiosus* Spooner.

Colouring elements come from among the species with wide distribution (Holarctic, Palaearctic or western Palaearctic): *Ammoplanus handlirschi* Gussakovskij, *Astata stécki* Beaumont, *Crossocerus capitosus* (Shuckard), *Crossocerus ovalis* Lepeletier et Brullé, *C. palmipes* (Linné), *Mimumesa dahlbomi* (Wesmael), *Passaloecus clypealis* Faester, *Rhopalum clavipes* (Linné) and *Rh. gracile* Wesmael.

The rarest colouring species in *Astata brevitarsis* Pulawski, an endemic species of the National Park. Only a single specimen was captured which is the holotype. It is worthy to note the subendemic species *Oxybelus dissectus* ssp. *elegans* Mocsáry.

From among the species representing the basic fauna of the Kiskunság National Park being rather frequent here, however, in other parts of Hungary they are instead colouring elements: *Alysson spinosus* (Panzer), *A. costae* Costa, *Bembix megerlei* Dahlbom, *B. oculata* var. *pannonica* Mocsáry, *B. olivacea* Fabricius, *Cerceris circularis* ssp. *dacica* Schletterer, *C. lunata* ssp. *funerea* Costa, *C. rubida* (Jurine), *C. tuberculata* (Willers), *Dryudella lineata* Mocsáry, *Gorytes albidulus* Lepeletier, *Mimesa caucasica* Maidl, *Oxybelus latidens* Gerstaecker, *O. latro* Olivier, *Podalonia luffi* (Saunders), *Philanthus venustus* (Rossi), *Tachysphex panzeri* Van der Linden and *Larra anatema* (Rossi).

Rather rare species of Scolioidea are *Myrmilla cephalica* (Sichel et Radoszkowski) *Ronisia barbara* var. *brutia* (Petagna) and *Smicromyrme catanensis* (Rossi).

ECOLOGICAL NOTES

The Kiskunság National Park has a warm climate with preponderant continental effects. The larger part of the territory is characteristic with an insufficient amount of precipitation, and with hot or moderately hot and dry summer. During the breeding season its northern part also has insufficient precipitation, and with hot or moderately hot and dry summer. During the breeding season its northern part also has insufficient precipitation, and with moderately dry and hot summer (Radó et al. 1967). From among the climatic factors the following ones have influenced the formation of the

Table 3. Climatic data of the Kiskunság National Park and some other regions in Hungary

	KNP	Bátorliget	Verese gyház	Bakony
Mean temperature in January (°C)	-1.5	-3.0	-2.0	-1.5
	-2.5	-3.5	-2.5	-3.0
Mean temperature in July (°C)	21-22	20-21	19-20	18-21
Mean temperature in breeding season (°C)	17-18	16-17	16-17	15-17
Highest average temperature in a year (°C)	35-35.5	34-35	34-35	32-35
Lowest average temperature in a year (°C)	-18	-20	-18	-16
Number of average winter days in a year	25-35	35	30-35	25-60
Number of average summer days in a year	70-85	65-70	65-70	40-70
Total precipitation in July (mm)	60	60-70	60	70-90
Average of annual precipitation (mm)	500-600	550-600	550-600	600-850
Total of sunshine (h)	2000-2100	1900-2000	1900-2000	1900-2000
Amount of moisture for 14 hours in July (%)	44-46	50	48-50	50-54
Annual evaporation (mm)	660-700	660	660	660-700

recent fauna: the rather strong and average annual fluctuation of temperature, the high average temperature of the breeding season, the relatively low number of winter days and the high number of summer days, the low quantity of precipitation in July, the high number of hours of sunshine, the high annual evapotranspiration exceeding the average annual precipitation (Table 3).

These indices are quite near to those of Verese gyháza and Bátorliget, and rather deviate from those of the Bakony Mts.

Besides the characteristics of the mesoclimate, an effective role is played by the microclimatic conditions on the distribution of the Aculeate species. The majority of the species is thermo- and xerophilous. The National Park is abundant in biotopes with such an environmental condition. The predominant part of the Kiskunság is under a sandy cover. The quickly warming sandy soil with open and closed herbaceous associations and sunshined ecotones yield the optimal life conditions for the eremophilous species. In several spots of the National Park the cool and moist biotopes are only found around ponds, marshy and fen-meadows, these assure vital conditions for hylophilous species.

These localities are rich in Sphecoids where the thermo-xerous and hylo-hygrous biotopes are near to each other forming thereby mosaic-complexes. Such biotopes are found in the environment of Ócsa, Fülöpháza, Ágase gyháza and Bócsa-Bugac. In these areas there were observed the eremophilous species visiting hylo-hygrous biotopes for nourishment or predation (Benedek 1970). My own observations support this phenomenon.

The three-quarters of the Sphecoid species of the National Park are eremophilous, i. e. much higher than that of the Bakony Mts. and Verese gyháza, even exceeding that of Bátorliget, too. From among the units of the National Park this proportion is the highest at Apajpuszta, somewhat lower at Ágase gyháza and Bugac; much lower in the Nature Reserves of Ócsa and Csévharaszt. These latter two regions are quite similar to that of Bátorliget and Verese gyháza, but exceed that of the Bakony Mts. The faunistical character of the National Park is most conspicuous if we consider the stenoecic-eremophilous species separately. Its proportion in the National Park exceeds

Astata s. l., *Tachytes*, *Tachysphex*, *Miscophus*, *Oxybelus*, *Bembix*, *Stizus* and *Stizoides* species persist in xerothermic biotopes, mostly they are psammophilous. They represent the peculiar character of the Sphecoid fauna of the National Park.

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