

**A survey of the European species of *Apanteles* Först.
(Hymenoptera, Braconidae: Microgastrinae)
XII. Supplement to the key of the *glomeratus*-group.
Parasitoid / host list 2.**

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J. PAPP: A survey of the European species of *Apanteles* Först. (Hymenoptera, Braconidae: Microgastrinae), XII. Supplement to the key of the *glomeratus*-group. Parasitoid / host list 2. – *Annls hist.-nat. Mus. natn. hung.* 1989, 81: 159–203.

Abstract – Nine species of the *glomeratus*-group (= *Cotesia* CAMERON) are inserted into the key constructed by me previously; the species were described recently by V. I. TOBIAS. Seven species names (described as new species also by TOBIAS) proved to be synonymous with older names. Second part of parasitoid / host list is compiled in a similar arrangement as in the first part. In the present elaboration the host list is afforded for the following ten genera (enumerated in systematic order): *Apanteles* FÖRST. s.str., *Illidops* MASON, *Iconella* MASON, *Choeras* MASON, *Sathon* MASON, *Distatrix* MASON, *Glyptapanteles* ASHM., *Protapanteles* ASHM, and *Cotesia* CAM. With 44 figures.

1. SUPPLEMENT TO THE KEY OF THE *GLOMERATUS*-GROUP OR
THE GENUS *COTESIA* CAMERON, 1892

As I have indicated in the previous part of my survey (PAPP 1988) the *glomeratus* species-group sensu NIXON (1965, 1974) and PAPP (1976, 1986, 1987, 1988) is identical with the generic conception of *Cotesia* CAMERON and furthermore, MASON (1981) revalidated this genus also in the corresponding comprehension.

In 1986 there was published a book of Braconidae in two parts by V. I. TOBIAS within the series „Key to the Insects of the European part of the USSR” (in Russian). In this book V. I. TOBIAS and his coauthor, A. G. KOTENKO, has described a great set of new species which could not be included in my surveys prepared and compiled in the years 1985 and 1986 (PAPP 1986, 1987), i.e. before the appearance of the book in question. In my subsequent supplement I revise the new *Apanteles* s.l. species ranged by TOBIAS in the *glomeratus*-group. The following nine species are dealt with:

Cotesia clepta (TOBIAS)
corylicola (TOBIAS)
disparis (TOBIAS)
mendicae (TOBIAS)
microsomus (TOBIAS)
neustriae (TOBIAS)
nigritibialis (TOBIAS)
satunini (TOBIAS)
viridanae (TOBIAS)

The following seven names proved to be junior synonyms which were described as new species also by TOBIAS in his book (see also PAPP 1988):

- Apanteles beshtauai* TOBIAS, 1986, jun. syn. = *Cotesia praepotens* (HALIDAY, 1834)
Apanteles dzhaniibeki TOBIAS, 1986, jun. syn. = *Cotesia judaica* (PAPP, 1970)
Apanteles jaicus TOBIAS, 1986, jun. syn. = *Cotesia flagitata* (PAPP, 1971)
Apanteles khibinicus TOBIAS, 1986, jun. syn. = *Cotesia setebis* (NIXON, 1974)
Apanteles piliflagellari TOBIAS, 1986, jun. syn. = *Cotesia pilicornis* (THOMSON, 1895)
Apanteles tenuivalvis TOBIAS, 1986, jun. syn. = *Cotesia inducta* (PAPP, 1973)
Apanteles ukrainicus TOBIAS, 1986, jun. syn. = *Cotesia melitaeorum* (WILKINSON, 1937)

The nine valid species of the genus *Cotesia* CAMERON (= *glomeratus* species-group) are arranged and included into my keys in the following way: (1) The species are arranged according to the alphabetic order of their name. (2) For every species a full bibliographic citation is given. (3) If necessary, taxonomic/systematic remarks are disclosed pertaining the species in question. (4) The key-couplet to which the species runs is numbered similarly to that of the original couplet, further couplets are inserted and lettered as A (B), B (A) etc.

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Acknowledgement - It is my pleasant duty to express my sincere gratitude to Dr. V. I. TOBIAS (Zoological Institute, Leningrad) who was kind enough to give me the permission for a long-termed loan of the type-series of the *Apanteles* species described by him and deposited in his institute. Without his obliging assistance my taxonomic work could not have been realized in its present form.

Cotesia clepta (TOBIAS) (Figs 1-4)

Apanteles clepta TOBIAS, 1986: Key Ins. eur. USSR III Hym. 4: 398 (in key and in Russian) ♀, type loc.: Chumaj (USSR: Moldavia), holotype in the Zoological Institute, Leningrad.

The species is readily recognizable by its small and gracile body as well as conspicuously short antenna, thus I could easily identify my specimens with the help of TOBIAS's key (1986). In my own key to the species of the *brevicornis*-subgroup (*glomera tus*-group) *C. clepta* runs to *C. specularis* (SZÉPLIGETI) (PAPP 1986), the two species are distinguished by the following clear-cut features:

- 15 (12) Malar space short as usually, shorter than or at most as long as basal width of mandible, eye in lateral view usual in size, about 2-2.2 times as high as wide, head in frontal view less transverse.
- 16 (17) At least antennal joints 13-17 or 14-17 cubic to subcubic, i.e. hardly longer than broad. Mesonotum weakly and rather densely punctate, shiny to subshiny. First tergite about as long as or slightly longer than wide at hind end (Fig. 82 in PAPP 1986: 246; Fig. 3). Pair of spurs of hind tibia variable in length.
- A (B) Antennal joints 13-17 or 14-17 cubic to subcubic, antecedent flagellar joints distinctly longer than broad. Pair of spurs of hind tibia equal in length, somewhat shorter than to as long as half basitarsus. Third tergite entirely polished. First tergite relatively somewhat broadening posteriorly and rounded at its hind end (Fig. 82 1.c.). Pterostigma, *r1* + *cuq1* (cf. Fig. 78 1.c.) as

well as hypopygium (Fig. 5) similar to that of *C. tenebrosa* (WESMAEL). Black to blackish, light pattern of legs brown to brownish yellow. Wings subhyaline. ♀ ♂: 2.5-2.8(-3) mm. – German Democratic Republic, Hungary, Romania, Bulgaria, Turkey, Jordan, Iran (= *balcanicus* BALEVSKI, 1980)

C. specularis (SZÉPLIGETI, 1896) (!!)¹

- B (A) Antennal joints 9-17 or 10-17 cubic, antecedent flagellar joints indistinctly to somewhat longer than broad (Fig. 1). Pair of spurs of hind tibia unequal in length, inner spur distinctly longer than and outer spur about as long as half basitarsus. Third tergite at its base aciculate to finely aciculate, otherwise polished. First tergite relatively more broadening posteriorly and not rounded at its hind end (Fig. 3). Pterostigma and *r1 + cuq1* similar to that of *C. kurdjumovi* (TELENGA) (Fig. 84 in PAPP 1987: 252). Hypopygium in lateral view rounded (Fig. 4). Black, light pattern of legs yellow. Wings hyaline. ♀: 1.6-2 mm. – Hungary, Sweden, USSR (Moldavia)

C. clepta (TOBIAS, 1986)

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Considering its short antenna, aciculated base of third tergite and long spurs of hind tibia *C. clepta* is closely related to *C. kurdjumovi* (TELENGA, 1955) (= *C. laverna* NIXON, 1974) as it was indicated by TOBIAS (1986) ranging the two species in a couplet subsequent to each other in his key. In my key (PAPP 1986) it runs to couplet 19 (18), their separation is based on minute distinctive features:

- 19 (18) First tergite as long as wide at hind (minute deviation feasible), distinctly broadening posteriorly; second tergite transverse, 2.5-3 times as wide behind as long medially (Fig. 87 in PAPP 1986: 246). Metasoma less cylindrical, at most slightly longer than mesosoma. Clypeus narrower, about five times as wide below as high (Fig. 88 l.c.). Hypopygium less heavily, i.e. usually sclerotized, in lateral view apically bluntly pointed (Fig. 89 l.c. and Fig. 4). Tegula black. Hind femur black or brownish black. Wings hyaline.

- A (B) Every flagellar joint longer than broad, at most penultimate joint subcubic to cubic (Fig. 83 in PAPP 1987: 252 and Fig. 6). Temple in dorsal view rounded (Fig. 7.). First tergite somewhat distinctly rounded at its hind end (Fig. 87 in PAPP 1986: 246). Hypopygium in lateral view relatively less rounded (Fig. 89 l.c.). ♀ ♂: 2-2.2 mm. – England, Denmark, Hungary, Yugoslavia, Bulgaria, Turkey, USSR (Ukraine). (= *laverna* NIXON, 1974; ? = *placidus* HALIDAY, 1834)

C. kurdjumovi (TELENGA, 1955) (!!)

- B (A) Flagellar joints 7-15 or 8-15 cubic, antecedent joints indistinctly to somewhat longer than broad (Fig. 1). Temple in dorsal view slightly broadening-rounded (Fig. 2). First tergite not rounded at its hind end (Fig. 3). Hypopygium in lateral view relatively more rounded (Fig. 4). ♀: 1.6-2 mm. – Hungary, Sweden, USSR (Moldavia)

C. clepta (TOBIAS, 1986)

1 (!) = I have studied authenticated specimen(s), i.e. specimens identified by Marshall, Reinhard, Telenga, Tobias, Wilkinson (Palearctic Region) and Marsh, Mason, Muesebeck, Watanabe (Nearctic and East Palearctic Region).
 (!!) = I have studied either the holotype or paratype(s).

Cotesia corylicola (TOBIAS)
(Figs 9-11)

Apanteles corylicolus TOBIAS, 1986: Key Ins. eur. USSR III Hym. 4: 393 (in key and in Russian) ♀, Type loc.: Azerbaidzhan SSR, Zakataly, village Dzhezimoshkh (USSR), holotype (+ 3 ♀ paratypes) in the Zoological Institute, Leningrad. – 1 ♀ paratype examined.

A species allied to *C. abjecta* and *C. gades* by its smooth to polished tergites 1-2. In my key (PAPP 1987) it runs to couplet 26 (25) after 17 (32):

26 (25) Mesonotum and scutellum not flattened, slightly convex as usually (Fig. 24 in PAPP 1987: 249). Penultimate 3-4 joints of antenna not short, at least 1.5-1.7 times as long as broad, penultimate joint never subcubic. In comparison to *A. isolde* first tergite less narrowing basally (Figs 26, 30 l.c.).

A (B) Fifth joint of fore tarsus with a rather small though distinct spinule (cf. Fig. 67 in PAPP 1987: 251). In comparison to the next two species, *C. abjecta* and *C. gades*, first tergite somewhat smaller, second tergite transverse (Fig. 10). Pterostigma rather wide, twice as long as wide and issuing radial vein from its middle (Fig. 11). First joint of flagellum 2.5 times as long as broad, further joints gradually shortening and slightly attenuating so that penultimate joint almost twice as long as broad. Mesonotum dull with fine and nearly confluent punctation. Scutellum shiny with a few punctures. Hypopygium small and truncate (Fig. 9). Hind femur black, middle and fore femora also black, apically reddish yellow. \bar{y} : 2.5 mm. – USSR (Azerbaidzhan)

C. corylicola (TOBIAS, 1986) (!!)

B (A) Fifth joint of fore tarsus without spinule. In comparison to the previous species first tergite somewhat larger (Figs 26 and 30 in PAPP 1987: 250). Pterostigma usually less wide, more than twice as long as wide and issuing radial vein distally from its middle (Fig. 28 l.c.). Penultimate joint 1.5-1.8 times as long as broad. Hypopygium of medium size, less truncate (Fig. 27 l.c.; Fig. 12). Hind femur as well as middle and fore femora reddish yellow.

C. abjecta (MARSHALL, 1885) (!)

C. gades (NIXON, 1974) (!!)

Cotesia disparis (TOBIAS)
(Figs 13-18)

Apanteles disparis TOBIAS, 1986: Key Ins. eur. USSR III Hym. 4: 406 (in key and in Russian) ♀, type loc.: Jalama (USSR: Azerbaidzhan), holotype (and 2 ♀ paratypes) in the Zoological Institute, Leningrad. – Holotype examined.

Cotesia disparis is very similar to *C. gastropachae* (BOUCHÉ, 1834), their distinction proved so much the more difficult as the describer, V. I. TOBIAS, placed his new species in among the forms with short hind tibial spurs (i.e. inner spur of hind tibia shorter than half basitarsus). Examining the female holotype of *C. disparis* it was relatively easy to recognize the antithetic feature of hind tibial spurs: inner spur somewhat though clearly longer than half basitarsus. Considering this feature *C.*

disparis runs to the dark-legged form of *C. gastropachae* with the help of my key (PAPP 1987):

79 (106) Species with dark-coloured legs: hind femur entirely, middle femur basally to almost entirely black or blackish, at most hind femur with more or less reddish suffusion; light colour of legs rather soft.

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105 (104) Fifth joint of fore tarsus without spinule. Basal field not coextensive with whole of the second tergite, tergite laterally delimited rather oblique or arched (Fig. 95 in PAPP 1987: 252; Fig. 13). Tegula black to brown.

A (B) Mesonotum with discrete punctation, interspaces shiny to subshiny. First tergite at most hardly longer than wide at hind, relatively strongly broadening posteriorly, i.e. 1.7-1.8 times as wide behind as basally; second tergite more transverse, 2.3-2.6 times as wide behind as long medially (Fig. 95 l.c.). Tergites 1-2 rugose and with small polished fields. Pterostigma slightly less wide, 2.5 times as long as wide (Fig. 96 l.c.). ♀♂: 2.3-3 mm, usually 2.6-2.8 mm. – Palearctic Region

C. gastropachae (BOUCHÉ, 1834) (!!)

B (A) Mesonotum with almost confluent to confluent punctation, interspaces dull. First tergite 1.3 (-1.4) times as long as wide at hind, relatively weakly broadening posteriorly, i.e. 1.4-1.5 times as wide behind as basally; second tergite less transverse, 2.1-2.2 times as wide behind as long medially (Fig. 13). Tergites 1-2 evenly rugose (i.e. without small polished fields). Pterostigma slightly wider, 2.1-2.2 times as long as wide (Fig. 14). ♀: 2-2.2 mm. – USSR (Azerbaidzhan)

C. disparis (TOBIAS, 1986) (!!)

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Considering the length of first tergite *C. dispar* runs to *C. limbata* (MARSHALL, 1885) from which it is easy to separate with the following concise key:

115 (78) First tergite long, 1.2-1.7 times, usually 1.3-1.5 times as long as wide at hind or before its hind end (i.e. at its widest part), usually somewhat less distinctly broadening posteriorly (Figs 103-104, 106, 109, 116, 122, 124 in PAPP 1987: 252-253). Mesonotum usually with discrete, dense and rather strong punctation, notaulix indicated by crowded to confluent punctation.

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130 (131) First tergite relatively less long or somewhat more broadening (Fig. 122 in PAPP 1987: 253). Penultimate joint of antenna at most twice as long as broad. Facial ridge close before antennal insertion black. Flagellum black(ish) to brown, rarely yellowish.

A (B) Pterostigma conspicuously long, 3-3.2 times as long as wide, *cuqul* usually somewhat longer than *rl* (Fig. 120 l.c.). Fifth joint of fore tarsus with a spinule, opposite to spinule joint not emarginate (spinule easily to be broken) (cf. Fig. 82 l.c.). Penultimate joint of antenna 1.8-2 times as long as broad. Nervellus of hind wing somewhat less incurved, thus submediallan cell relatively wide (Fig. 123 l.c.). Hind and middle femora usually reddish yellow, exceptionally dark. ♀ ♂: 2.5-3 mm. – Europe, USSR (European part), ? Japan. (? = *kawadai* WATANABE, 1934)

C. limbata (MARSHALL, 1885) (!!)

B (A) Pterostigma less long, 2.1-2.2 times as long as wide, *rl* somewhat longer than *cuqul* (Fig. 14). Fifth joint of fore tarsus without spinule. Penultimate joint of antenna 1.5-1.7 times as long as broad (Fig. 16). Nervellus of hind wing somewhat more incurved, thus submediallan cell relatively less wide (Fig. 15). Hind and middle femora blackish with reddish suffusion (on its inner side). 2-2.3 mm. – USSR (Azerbaijan)

C. disparis (TOBIAS, 1986) (!!)

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In a few respects *C. disparis* is reminding of *C. euryale* (NIXON, 1974), their distinction is summarized in a tabular form:

<i>C. disparis</i> (TOBIAS)	<i>C. euryale</i> (NIXON)
1. Body less strong, 2-2.3 mm	1. Body strong, 2.5-2.8 mm.
2. <i>rl</i> perpendicular to fore margin of pterostigma, i. e. directed to hind margin of fore wing. Pterostigma relatively wide, 2.1-2.2 times as long along its fore margin as wide (Fig. 14).	2. <i>rl</i> oblique to fore margin of pterostigma, i.e. directed to distal end of fore wing. Pterostigma relatively less wide, 2.4-2.5 times as long along its fore margin as wide (Fig. 93 in PAPP 1987: 252).
3. Ocelli small, distance between fore and a hind ocelli slightly greater than diameter of an ocellus; POL = OOL. Head in dorsal view slightly less transverse, 1.8 times as broad as long (Fig. 17).	3. Ocelli relatively large, distance between fore and a hind ocelli equal to or just shorter than diameter of an ocellus; POL some-what grater than OOL. Head transverse, twice as broad as long (Fig. 20).
4. Penultimate three joints of antenna equal in length, 17th joint 1.6-1.7 times as long as broad (Fig. 16).	4. Penultimate three joints of antenna shortening distally, 17th joint usually 1.3-1.5 times as long as broad (Fig. 19).
5. Scutellum with less distinct punctation.	5. Scutellum with somewhat more distinct punctation.
6. Hairs of median and submedian cells of fore wing dense (Fig. 18).	6. Hairs of median and submedian cells of fore wing less dense (Fig. 21).

Cotesia mendicae (TOBIAS) (Figs 22-24)

Apanteles mendicae TOBIAS, 1986: Key Ins. eur. USSR III Hym. 4: 399, 405 and 406 (in key and in Russian) ♀, type loc.: Voronezhskij zapovednik (USSR: European part of Russia), holotype (+ 4 ♀ paratypes) in the Zoological Institute, Leningrad. – 1 ♀ paratype examined.

With the help of my key (PAPP 1987) *C. mendicae* runs to *C. kurdjumovi* (TELENGA, 1955) as well as to *C. vanessae* (REINHARD, 1880); again a species difficult to recognize its distinguishing features:

95 (96) Mesonotum shiny with weak punctation, its median and lateral weak punctation contrasting to roughened sculpture of notaulic courses. Scutellum smooth, shiny to polished, at least with very fine and disperse punctures. Penultimate 2-3 joints 1.4-1.6(-1.7) times as long as broad. Body small, corporal length at most 2.2 mm, usually 1.7-2 mm.

A (B) Head in dorsal view somewhat more transverse, i.e. twice as broad as long, temple slightly more rounded (Fig. 7). *r1* at least half, usually more than half, as long as width of pterostigma, *cuqu1* at most only slightly longer than *r1* (Fig. 84 in PAPP 1987: 252). Antenna shorter than body, first 3-4 flagellar joints 2.2-2(-1.8) times as long as broad (Fig. 8). Wings usually hyaline, less frequently subhyaline. Hind tibia usually darkening yellow, distally infusate. Inner spur of hind tibia distinctly longer than half basitarsus, exceptionally just half as long as to minutely shorter. ♀ ♂: 2-2.2 mm. – England, Germany, Hungary, Bulgaria, Turkey, USSR (Ukraine). (= *laverna* NIXON, 1974, !!; ? = *placidus* HALIDAY, 1834)

C. *kurdjumovi* TELENGA, 1955 (!!)

B (A) Head in dorsal view somewhat less transverse, i.e. (1.7-)1.8 times as broad as long, temple slightly less rounded (Fig. 22). *r1* less than half as long as width of pterostigma, *cuqu1* distinctly longer than *r1* (Fig. 23). Antenna as long as body, first 3-4 flagellar joints 3-2.8 times as long as broad (Fig. 24). Otherwise similar to *C. kurdjumovi*. Inner spur of hind tibia usually as long as half basitarsus, less frequently more or less longer and rather exceptionally somewhat shorter than half basitarsus. ♀: 1.7-2 mm. – USSR (European part of Russia, Kazakhstan)

C. *mendicae* (TOBIAS, 1986) (!!)

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188 (191) *r1* of fore wing short, more or less shorter than *cuqu1* and usually about half as long as width of pterostigma (Figs 81 and 134 in PAPP 1987: 251 and 254; Fig. 23).

A (B) Mesonotum shiny with weak punctation, its median and lateral weak punctation contrasting to roughened sculpture of notaulic courses. Body small, corporal length at most 2.2 mm, usually 1.7-2 mm. For further details see couplets 95 (96) – A (B) – B (A)

C. *kurdjumovi* (TELENGA, 1955) (!!)

C. *mendicae* (TOBIAS, 1986) (!!)

B (A) Mesonotum dull and punctate to densely punctate, notaulix distinct by rugosity, rough rugosity. Body medium sized, corporal length over 2 mm, usually 2.3-2.5 mm. For further details see couplets 140 (141) and 189 (190)

C. *vanessae* (REINHARD, 1880) (!!)

Cotesia microsomus (TOBIAS)
(Figs 25-26)

Apanteles microsomus TOBIAS, 1986: Key Ins. eur. USSR III Hym. 4: 401-402 (in key and in Russian) ♀, type loc.: Minsk (USSR: Bielorrussia), holotype in the Zoological Institute, Leningrad. – Holotype examined.

Deceptively similar to the dark-legged form of *C. nothus* (MARSHALL, 1885), their separation from each other is difficult and restricted to a few specific characters:

173 (162) Hind and middle femora black, blackish to blackish brown or brownish, i.e. legs dark coloured, hind coxa always black to brown.

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176 (177) Metacarp relatively short, about three times as long as distance between its distal end and tip of radial cell; pterostigma issuing radial vein about from its middle (Fig. 180 in PAPP 1987: 256). Head in dorsal view 1.7-1.9 times as broad as long. Mesonotum more or less pruinose, finely and densely punctate, notaulix hardly distinct by somewhat crowded punctation. Nervellus almost straight (Fig. 181 l.c.). In lateral view hypopygium truncate, ovipositor sheath straight and about as long as second joint of hind tarsus (Figs 25 and 27). Wings hyaline, pterostigma brown or opaque brown. Tegula brown to yellowish. Body small, 1.7-2.1 mm long.

A (B) Penultimate two joints of antenna short, cubic to just longer than broad. Head in dorsal view clearly, i.e. 1.2 times as broad as mesonotum between tegulae. First tergite parallel-sided, 1.8-1.9 times as long as wide at hind (Fig. 26). Coxae brown, femora brownish, femora 1-2 apically and all tibiae + tarsi yellow(ish). ♀: 1.8 mm. – USSR: Bielorrussia

C. microsomus (TOBIAS, 1986) (!!)

B (A) Penultimate two joints of antenna 1.7-1.8 times as long as broad. Head in dorsal view indistinctly broader than mesonotum between tegulae. First tergite slightly though distinctly broadening posteriorly, 1.6 times as long as wide at hind (Fig. 179 l.c.). Legs variable in colour, reddish yellow to black(ish), coxae always dark. ♀ ♂: (1.7-)1.8-2(-2.1) mm. – England, Germany, Hungary, USSR (Leningrad region)

C. nothus (MARSHALL, 1885) (!)

Cotesia neustriae (TOBIAS)
(Figs 28-33)

Apanteles neustriae TOBIAS, 1986: Key Ins. eur. USSR III Hym. 4: 398, 403 and 405-406 (in key and in Russian) ♀ ♂, type loc.: Kishinev (USSR: Moldavia), holotype (♀) (+ 119 paratypes: 33 ♀ + 19 ♂ + „67 ♀ ♂”) in the Zoological Institute, Leningrad. – 3 ♀ + 1 ♂ paratypes examined.

The recognition of the specific features of *C. neustriae* is encountered with some kind of taxonomix difficulties. The species in question is very similar to several others and their distinctions are restricted but a few traits. In my key for the species of *glomeratus*-subgroup (*glomeratus*-group) (PAPP 1987) or genus *Cotesia* CAMERON

(PAPP 1988) the species *C. neustriae* (TOBIAS) runs to *C. pieridis* (BOUCHÉ, 1834), *C. juniperatae* (MARSHALL, 1885), *C. lineola* (CURTIS, 1830), *C. calodetta* (NIXON, 1974) and *C. chares* (NIXON, 1965). Subsequently the differentiation of *C. neustriae* from these species is afforded, the couplet numbers are matching with the numbers of my key referred (PAPP 1987):

18 (21) Tergites 1-2 weakly sculptured to almost smooth, however, inner spur of hind tibia clearly shorter or at most half as long as hind basitarsus. First tergite subparallel-sided, i.e. hardly broadening posteriorly (Figs 66-67 in PAPP 1986): 245 and Fig. 18 in PAPP 1987: 249). Hypopygium in lateral view large, surpassing end of last tergite (Fig. 68 and Fig. 16 l.c.).

19 (20) Mesonotum densely and finely punctate, dull or at most subshiny. Metacarp as long as pterostigma. Body less strongly built.

A (B) Hypopygium in lateral view large, surpassing end of last tergite, apically blunt (Fig. 16 in PAPP 1987: 249). Metacarp 2.5-2.8 times as long as distance between its distal end and tip of radial cell (Fig. 15 l.c.). First tergite somewhat longer than that of *C. neustriae*, 1.3-1.35 (-1.4) times as long as its greatest width at hind, its posterior end not rounded (Fig. 18 l.c.). Setae of wings pigmented. – Palaearctic Region

C. pieridis (BOUCHÉ, 1834) (!)

B (A) Hypopygium in lateral view usual in size, behind truncate (Fig. 28). Metacarp about twice as long as distance between its distal end and tip of radial cell (Fig. 29). First tergite somewhat shorter than that of *C. pieridis*, 1.25-1.28 (-1.3) times as long as its greatest width before its hind end, its posterior end rounded (Fig. 30). Setae of wings colourless. – USSR: 2.5-2.7 mm European part

C. neustriae (TOBIAS, 1986) (!!)

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83 (84) Pterostigma conspicuously wide, 2-2.1 times as long as wide and issuing radial vein from its middle (*C. calodetta*) or somewhat distally from its middle (*C. neustriae*). Tergites 1-2 weakly sculptured, shiny. Wings glass clear, setae colourless.

A (B) Inner spur of hind tibia distinctly longer than half basitarsus. *r1* usually shorter (Fig. 38 in Papp 1987: 250) and at most as long as *cuq1*, issuing from middle of pterostigma. Penultimate joint of antenna subcubic to 1.3 times as long as broad. Ocelli medium-sized, distance between fore and a hind ocelli shorter than or, less frequently, as long as diameter of an ocellus; POL about equal with OOL (Fig. 40 l.c.). Hind femur black. ♀ ♂: 2.2-2.4 mm – Sweden, USSR: Altajskij district (SW Siberia)

C. calodetta (NIXON, 1974) (!)

B (A) Inner spur of hind tibia usually shorter and rather exceptionally as long as or minutely to indistinctly longer than half basitarsus. *r1* longer than *cuq1*, issuing somewhat distally from middle of pterostigma (Fig. 29). Penultimate joint of antenna 1.5 times as long as broad. Ocelli small, distance between fore and a hind ocelli longer than diameter of an ocellus; POL one-fourth

longer than OOL (Fig. 31). Hind femur blackish brown with little reddish suffusion (basally). ♀ ♂: 2.5-2.7 mm. – USSR: European part

C. neustriae (TOBIAS, 1986) (!!)

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100 (101) Metacarp short, usually somewhat shorter than and at most as long as pterostigma, or metacarp about twice as long as distance between its distal end and tip of radial cell (Fig. 102 in PAPP 1987: 252; Fig. 29). First tergite rounded at its hind end (Figs 103-104 l.c.; Fig. 30).

A (B) Fifth joint of fore tarsus laterally with a curved spinule (Fig. 105 l.c.). Second tergite about twice as wide behind as long medially; first tergite 1.3-1.4(-1.5) times as long as its greatest width before its hind end (Fig. 104 l.c.), less usually indistinctly longer (Fig. 103 l.c.). Pterostigma relatively less wide, 2.6 times as long as wide (Fig. 102 l.c.). Hind femur black(ish). Setae more or less pigmented. ♀ ♂: 2.5-2.8 mm. – England, Hungary

C. chares (NIXON, 1965) (!)

B (A) Fifth joint of fore tarsus laterally without spinule. Second tergite 2.2-2.5 times as wide behind as long medially; first tergite 1.25-1.28(-1.3) times as long as its greatest width before its hind end (Fig. 30). Pterostigma relatively wide, 2-2.1 times as long as wide (Fig. 29). Hind femur blackish brown with little reddish suffusion (basally). ♀ ♂: 2.5-2.7 mm. – USSR: European part

C. neustriae (TOBIAS, 1986) (!!)

* * *

154 (153) *r1* distinctly longer than half width of pterostigma; pterostigma wide, only 2-2.2 times as long as wide, issuing radial vein less distally from its middle (Figs 160, 163, 185 in PAPP 1987: 255-256).

155 (156) Along median vein of fore wing median and submedian cells more or less bare, i.e. without setae (Fig. 186 l.c.; Fig. 33). Hind tibia straw yellow, apically darkening.

A (B) Metacarp three to four times as long as distance between its distal end and tip of radial cell (Figs 184-185 l.c.); bare surface of fore wing along its median vein relatively greater than that of *C. neustriae* (Fig. 186 l.c.). Tergites 1-2 rugose, shiny. Mesonotum subshiny to dull. Fifth joint of fore tarsus with a spinule frequently hardly visible (and frequently broken) (Fig. 187 l.c.). Setae of wings pigmented. ♀ ♂: (2.8-)3-3.2 mm. – Ireland, Great Britain, France, Switzerland, Germany, Denmark, Czechoslovakia, Hungary, Finland, USSR (Armenia, Moldavia). (= *nigrinervis* THOMSON, 1895)

C. jucunda (MARSHALL, 1885) (!)

B (A) Metacarp about twice as long as distance between its distal end and tip of radial cell (Fig. 29); bare surface of fore wing along its median vein relatively smaller than that of *C. jucunda* (Fig. 33). Tergites 1-2 rugulose to uneven with smooth fields, shiny. Mesonotum dull. Fifth joint of fore tarsus without spinule. Setae of wings colourless. ♀ ♂: 2.5-2.7 mm. – USSR: European part

C. neustriae (TOBIAS, 1986) (!!)

- 159 (160) Antenna shorter than body, its penultimate 2-3 joints 1.3-1.5(-1.6) times as long as broad. Pterostigma wide and issuing radial vein near to very near to its middle (Fig. 163 in PAPP 1987: 255; Fig. 29). First tergite behind rounded (Fig. 164 l.c.; Fig. 30).
- A (B) First tergite subparallel-sided, i.e. hardly broadening posteriorly; second tergite laterally with oblique furrow, 2.8-3 times as wide behind as long medially (Fig. 164 l.c.). Mesonotum shiny and finely punctate. Hind half of first tergite with variable sculpture, rugose with pits laterally, frequently rugulose and medially becoming smooth, shiny; second tergite rugo-rugulose. Nervellus incurved, thus submediallan cell relatively less wide (Fig. 165 l.c.). Ground colour of metasoma brownish black. Setae of wings pigmented. ♀ ♂: (2-)2.5-2.8 mm. – Europe, Turkey. (= *gabrielis* GAUTIER et RIEL, 1919)
- C. *lineola* (CURTIS, 1830) (!)
- B (A) First tergite broadening posteriorly; second tergite laterally with less oblique furrow, 2.2-2.5 times as wide behind as long medially (Fig. 30). Mesonotum dull and densely to confluent punctate. Tergites 1-2 rugulose to uneven with smooth fields, shiny. Nervellus almost straight, thus submediallan cell relatively wide (Fig. 32) Ground colour of metasoma black. Setae of wings colourless. ♀ ♂: 2.5-2.7 mm. – USSR: European part
- C. *neustriae* (TOBIAS, 1986) (!!)

Cotesia nigritibialis (TOBIAS)
(Figs 34-36)

Apanteles nigritibialis TOBIAS, 1986: Key Ins. eur. USSR III Hym. 4: 398 (in key and in Russian) ♀, type loc.: Sotchi, Lazarevskoje (USSR: European part of Russia), holotype in the Zoological Institute, Leningrad. – Holotype examined.

Like in TOBIAS's key (1986) the species *C. nigritibialis* runs to *C. rubripes* (HALIDAY, 1834) so does it in my key, too:

- 114 (113) Posterior polished band of scutellum not interrupted at middle (on downcurved apex of scutellum) by rugosity, at most and rarely subrugulose to uneven. First tergite relatively less broadening (Fig. 100 in PAPP 1987: 252; Fig. 36). *r1* rather perpendicular to fore margin of pterostigma, i.e. not (cf. Fig. 80-81 l.c.) or indistinctly (Fig. 35) directed to distal end (or outwards) of fore wing. Body less strongly built, 2.3-3 mm long.
- A (B) Penultimate joint of antenna (1.8-)2-2.2 times as long as broad. First tergite evenly broadening posteriorly, not rounded at its hind (Fig. 100 l.c.). Setae of membrane of fore wing along *n. med.* (on basal and subbasal cells) more or less disperse (Fig. 101 l.c.). Head in dorsal view twice as broad as long (cf. Fig. 57 l.c.). *r1* usually as long as and less usually slightly longer than *cuqul* (cf. Figs 80-81 l.c.). Hypopygium small and rather less oblique truncate (Fig. 37). Legs yellow(ish) hind tarsus less or not infumate. ♀ ♂: 2.5-3 mm, usually 2.8-3 mm. – Europe. (= *coryphe* NIXON, 1974, !!)

C. rubripes (HALIDAY, 1834) (!)

- B (A) Penultimate joint of antenna 1.4(-1.5) times as long as broad. First tergite less evenly broadening posteriorly, somewhat rounded at its hind end (Fig. 36). Setae of membrane of fore wing along *n. med.* (on basal and subbasal cells) evenly dense as elsewhere on wings (cf. Fig. 99). *r1* somewhat shorter than *cuqu1* (Fig. 35). Hypopygium less small and rather oblique truncate (Fig. 34). Legs reddish yellow; hind femur on its distal third blackish infumate; hind tarsus blackish (holotype), or feebly infusate (female from Hungary). ♀: 2.3-2.5 mm. – USSR (Sotchi), Hungary

C. nigritibialis (TOBIAS, 1986) (!!)**Cotesia satunini** (TOBIAS)

(Figs 38-39)

Apanteles satunini TOBIAS, 1986: Key Ins. eur. USSR III Hym. 4: 402 (in key and in Russian) ♀, type loc.: Kumbashi, sev. Lenkoran (USSR: Azerbaidzhan), holotype in the Zoological Institute, Leningrad. – Holotype examined.

Cotesia satunini (TOBIAS) is closely related to the forms with light-coloured legs of *C. nothus* (MARSHALL):

- 146 (145) Antenna at least as long as body, first 2-3 flagellar joints (2.5-)2.8-3 times, penultimate joint 1.4-1.8 times as long as broad. First tergite less broadening posteriorly (Fig. 179 in PAPP 1987: 256; Fig. 38). Mesonotum with fine and dense punctation, usually pruinose, notaulix indistinct. Metacarp slightly longer than pterostigma. (Fig. 180 l.c.; Fig. 39). Tergites black or blackish.

- A (B) Second tergite less transverse, 2.4-2.5 times wider at hind than long medially (Fig. 179 l.c.). Pterostigma about twice as long as wide, issuing radial vein about from its middle (Fig. 180 l.c.). Tegula black(ish) to brown. Legs usually dark-coloured, hind and middle femora frequently with reddish yellow suffusion of variable extent. For further details see couplets 172 (171) and 176 (177) in PAPP 1987: 234.

C. nothus (MARSHALL, 1885) (!)

- B (A) Second tergite transverse, thrice as wide behind as long medially (Fig. 38). Pterostigma about 2.5 times as long as wide, issuing radial vein rather distally from its middle (Fig. 39). Tegula yellow. Legs including coxae 1-2 reddish yellow, coxa 3 blackish. Very similar to *A. nothus*, its specific value should be confirmed. ♀: 2 mm. – USSR (Azerbaidzhan)

C. satunini (TOBIAS, 1986) (!!)**Cotesia viridanae** (TOBIAS)

(Figs 40-41)

Apanteles viridanae TOBIAS, 1986: Key Ins. eur. USSR III Hym. 4: 401 (in key and in Russian) ♀, type loc.: Voronezhskij zapovednik (USSR: European part of Russia), holotype in the Zoological Institute, Leningrad. – Holotype examined.

The species *C. viridanae* (TOBIAS) is very similar to *C. salebrosa* (MARSHALL, 1885), and related to *C. scabriculus* (REINHARD, 1880) as well as to *C. ocneriae* (IVANOV, 1989). As in the case of *C. neustriiae* (TOBIAS) the recognition of the specific differences between *C. viridanae* and *C. salebrosa* is not an easy task:

71 (70) Fifth joint of fore tarsus without spinule as usually. First tergite less broad, somewhat less wide behind than long medially and at most as wide behind as long; second tergite somewhat more transverse, 2-2.5, usually 2.1-2.3, times as wide behind as long medially (Fig. 69 in PAPP 1987: 251). Penultimate joint of antenna 1.4-1.6(-1.8) times as long as broad. Hind and middle femora reddish yellow.

72 (73) Temple is dorsal view strongly rounded (Fig. 71). Hypopygium in lateral view strongly produced and pointed, usually surpassing tip of last tergite; ovipositor sheath about as long as hind basitarsus and with stiff, upstanding hairs (Fig. 70). Penultimate joint of antenna 1.4-1.6 times as long as broad. Mesonotum shiny to subshiny, with weak punctation, punctation frequently rather confluent giving an impression of uneven-subrugulose surface. Hind and middle femora reddish yellow or yellow, at most rarely with dark suffusion. Wings hyaline, exceptionally subhyaline; pterostigma brown or dark brown. ♀ ♂: 2.8-3.2 mm, usually about 3 mm. – Western Palaearctic Region

***C. scabriculus* (REINHARD, 1880) (!)**

73 (72) Temple as in dorsal view less strongly rounded as usually (cf. Fig. 68 l.c.). Hypopygium in lateral view not produced, rather truncate and ending before tip of last tergite; ovipositor sheath shorter than hind basitarsus and with rather short and adpressed hairs (Fig. 74 l.c.). Penultimate joint of antenna 1.3-1.4(-1.5) times as long broad.

74 (75) Anterior half to two-thirds of third tergite distinctly rugose-subrugose. Metacarp distinctly longer than pterostigma, its own length four times as great as the distance between its distal end and tip of radial cell (Fig. 75 in PAPP 1987: 251, see arrows); *r*₁ perpendicular to fore margin of pterostigma. Wings hyaline.

A (B) First tergite less broadening posteriorly, distinctly more than half as wide basally as apically; second tergite transverse, 2.5 times as wide behind as long medially, third tergite 1.4 times as long as the second tergite (Fig. 41). Mesonotum relatively with weaker sculpture, subshiny to subpruinose. Legs reddish yellow, coxae black. Tegula reddish yellow. ♀: 2.8 mm. – USSR (Voronezh nature reservation)

***C. viridanae* (TOBIAS, 1986) (!)**

B (A) First tergite more broadening posteriorly, about half as wide basally as apically; second tergite less transverse, 2-2.2 times as wide behind as long medially, third tergite 1.2(-1.3) times as long as second tergite (Fig. 42). Mesonotum relatively with stronger sculpture, dull. Legs rather black, femora 1-2 partly and femur 3 entirely black, tibiae and tarsi reddish yellow, tibiae 2-3 apically and tarsi 2-3 (almost) entirely fumous to blackish. ♀ ♂: 2.7-3 mm. – England, Sweden, Switzerland, North Italy, Hungary, Bulgaria, USSR (Leningrad region). (= *callunae* NIXON, 1974, !)

***C. salebrosa* (MARSHALL, 1885) (!)**

- 66 (65) Mesonotum with fine to very fine punctation without sooty dullness. Maxillar palp six-jointed as usually (Fig. 59 in Papp 1987: 251). Discoidal cell indistinctly wider than high, *r1* somewhat longer than *cuq1* (Fig. 58 l.c.). Not so dark coloured as previous species. Wings hyaline, pterostigma brownish to brown. Femora yellow or reddish yellow, tegula brownish yellow.
- A (B) Mesonotum with dense and distinct punctation, dull. Scutellum punctate. Tergites 2-3 either equal in length or third tergite somewhat longer than second tergite (Fig. 44). Four penultimate joints of antenna long, joints 14-17 1.8-1.5 times as long as broad (Fig. 43). First seven to nine antennal joints yellow to dark brownish yellow, further joints black. Body less strong, ♀ ♂: 2-2.5 mm. – Hungary, Yugoslavia, USSR (Moldavia, Ukraine), Japan
- C. *ocneriae* (IVANOV, 1899) (!)
- B (A) Mesonotum with disperse and less distinct or weak punctation, subshiny to subpruinose. Third tergite 1.4 times as long as second tergite (Fig. 41). Four penultimate joints of antenna less long, joints 14-17 1.5-1.2 times as long as broad (Fig. 40). Antenna black, first 9-10 flagellar joints below faintly brownish. Body strong, ♀: 2.8 mm. – USSR (Voronezh nature reservation)
- C. *viridanae* (TOBIAS, 1986) (!!)

2. HOST LIST OF THE EUROPEAN SPECIES OF *APANTELES* S.L.
(continuation of the list in PAPP 1988)

This is the second part of the parasitoid / host list for the genus *Apanteles* s.l. splitted up by MASON (1981) in several genera. The parasitoid as well as the host names are compiled in a similar arrangement as in the first part (PAPP 1988). In the present elaboration the host list is afforded for the following ten genera (enumerated in systematic order): *Apanteles* FÖRSTER s.str., *Illidops* MASON, *Glyptapanteles* ASHMEAD, *Protapanteles* ASHMEAD and *Cotesia* CAMERON. The homologization of these genera with the species-groups of *Apanteles* s.l. see in my previous paper (PAPP 1988).

APANTELES FÖRSTER

***Apanteles aragatzi* TOBIAS**

Host unknown.

***Apanteles articas* NIXON**

Lepidoptera

Tortricidae: *Argyroploce wahlbergiana* Z.

***Apanteles ater* (RATZEBURG)**

Lepidoptera

Hyponomeutidae: *Hyponomeuta malinellus* Z., *H. padellus* L.

Tortricidae: *Adoxophyes orana* Fr., *Aleimma loefflingiana* L., *Archips crataegana* HBN., *A. podana* SCOP., *A. rosana* L., *A. xylosteana* L., *Choristoneura murinana* Hbn., *Grapholitha funebrana* Tr., *G. janthinana* DUP., *Hedya nubiferana* HAW., *Laspeyresia pomonella* L., *Lozotaenia forsterana* F., *Notocelia uddmanniana* L., *Pandemis heparana* DEN. et SCHIFF., *Parasyndemis histrionana* Froel., *Pseudohermenias clausathaliana* Saxl., *Spilonota ocellana* F.

Geometridae: *Operophtera brumata* L.

Neuroptera

??Chrysopidae: *Chrysops* sp.

Apanteles atreus NIXON

Lepidoptera

Cosmopterygidae: *Mompha locupletella* DEN. et SCHIFF., *M. nodicella* FUCHS, *M. propinquella* STT.

Apanteles audens KOTENKO

Host unknown.

Apanteles bajariae PAPP

Host unknown.

Apanteles brevisvalvatus BALEVSKI et TOBIAS

Host unknown.

Apanteles brunnistigma ABDINBEKOVA

Lepidoptera

Oecophoridae: *Agonopteryx ulicetella* STT., *Depressaria ultimella* STT.

Tortricidae: *Aphelia vibumana* DEN. et SCHIFF., *Archips rosana* L., *Eucosma catoptrana* REBEL, *E. heringiana* JACKH.

Cochylidae: *Phalonidia griseana* HAW.

Apanteles carpatus (SAY)

Lepidoptera

Tineidae: *Acrolophus maculata* WALS., *Monopis crocicapitella* Cl. *Niditinea fuscipunctella* HAW., *Praeaccede thecophora* WALS., *Theroeca userella* WALS., *Tinea allutella* Rebel, *T. columbariella* Wocke, *T. despecta* Meyr., *T. pellionella* L., *Tineola bisselliella* HUMMEL, *Trichophaga trapetzella* L.

Gelechiidae: *Gnorimoschema operculella* Z., *Oecia maculata* Wals., *Oe. oecophila* Stdgr., *Platyedra gossypiella* Saund.

Tortricidae: *Grapholitha molesta* Busck., *Pandemis inopinata* Heinr., *Sparganothis pilleriana* Den. et Schiff.

Phycitidae: *Acrobasis caryivorella* Rag.

Crambidae: *Crambus zeelus* Fern.

Pyralidae: *Pyralis farinalis* L., *Tegulifera audeoudi* deJoann.

Noctuidae: *Celaena leucostigma* Hbn.

Apanteles chrysis NIXON

Lepidoptera

Gracillariidae: *Aspilapteryx tringipennella* Z.

Apanteles contaminatus (HALIDAY)

Lepidoptera

Nepticulidae: *Fomoria weaveri* HS.

Lithocolletidae: *Phyllonorycter iunoniella* Z.,

Pterophoridae: *Pselnophorus brachydactylus* Tr.
Nolidae: *Nola cuculatella* L.

Apanteles corvinus REINHARD

Lepidoptera

Lyoniidae: *Lyonieta clerkella* L.
Bucculatricidae: *Bucculatrix bechsteinella* SCHARFUNBG
Lithocolletidae: *Phyllonorycter pomonella* Z.
Coleophoridae: *Coleophora coracipennella* HBN., *C. fuscadinella* Z., *C. serratella* L.
Hyponomeutidae: *Paraswammerdamia caesiella* Hbn., *P. lutarea* HAW.
Tortricidae: *Hedya nubiferana* HAW.
Arctiidae: *Spilosoma urticae* Esp.

Apanteles evanidus PAPP

Hyponomeutidae: *Scythropia crataegella* L.

Apanteles firmus TELENGA

Host unknown.

Apanteles floralis TOBIAS

Host unknown.

Apanteles galleriae WILKINSON

Lepidoptera

Galleriidae: *Achroia grisella* F., *Galleria mellonella* L.

Apanteles hemara NIXON

Lepidoptera

Pyralidae: *Pachyzancla stultalis* WALK.
Pyraustidae: *Zinckenia fascialis* GR.

Apanteles horaeus KOTENKO

Host unknown.

Apanteles ingenuoides PAPP

Host unknown.

Apanteles ingenuus TOBIAS

Host unknown.

Apanteles kubensis ABDINBEKOVA

Host unknown.

Apanteles lectus TOBIAS

Host unknown.

Apanteles lena NIXON

Lepidoptera

Tortricidae: *Argyroploce arbutella* L.

Phycitidae: *Pollichia semirubella* SC.

Apanteles metacarpalis THOMSON

Lepidoptera

Gracillariidae: *Caloptilia semifasciata* HAW.

Gelechiidae: *Scrobipalpa instabilellum* DGL., *S. nitenellum* FUCHS, *S. samadensis* PFAFF.

Apanteles metaclypealis TOBIAS et KOTENKO

Host unknown.

Apanteles miramis NIXON

Host unknown.

Apanteles myron NIXON

Host unknown.

Apanteles obscurus (NEES)

Lepidoptera

Gracillariidae: *Xanthospilapteryx anastomosis* Haw.

Epermeniidae: *Epermenia chaerophylella* Goeze

Tortricidae: *Clepsis strigana* HBN., *Croesia forskaleana* L., *Pammene germana* Hbn.

Pyraustidae: *Ebulea crocealis* HBN., *Mutuuraia terrealis* TR., *Udea martialis* GN., *Wilexia murana* CURTIS

Zygaenidae: *Zygaena filipendulae* L.

Geometridae: *Chlorissa viridata* L.

Diptera

Tephritidae: *Tephritis arnicae* L.

Anthomyiidae: *Pegomyia nigratarsis* Zett.

Apanteles oculus TOBIAS

Host unknown.

Apanteles olivierellae WILKINSON

Lepidoptera

Gelechiidae: *Amblypalpis olivierella* RAG.

Apanteles peisonis FISCHER

Host unknown.

Apanteles pelopea NIXON

Host unknown.

Apanteles peridoneus PAPP

Host unknown.

Apanteles pilosus TELENGA

Host unknown.

Apanteles prinoptus PAPP

Host unknown.

Apanteles quadrifacies PAPP

Host unknown.

Apanteles samedovi ABDINBEKOVA

Host unknown.

Apanteles szelenyii PAPP

Host unknown.

Apanteles verae TOBIAS

Host unknown.

Apanteles xanthostigma (HALIDAY)

Lepidoptera

Nepticulidae: *Stigmella weaveri* Stt.Tineidae: *Tinea* sp.Psychidae: *Psyche* sp.Lithocolletidae: *Phyllonorycter mespiella* HBN., *Ph. pomonella* Z., *Ph. spinolella* Dup.Gracillariidae: *Callisto denticulella* THUNB., *Caloptilia betulicola* Her., *C. elongella* L., *C. semifascia* Haw., *C. stigmatella* F., *Parornix betulae* STT., *Xanthospilapteryx anastomosis* Haw.Coleophoridae: *Coleophora fuscedinella* Z.Hyponomeutidae: *Paraswammerdamia caesiella* HBN., *P. lutarea* HAW., *Swammerdamia compunctella* HS., *S. pyrella* Vill.Glyptipterygidae: *Simaethis nemorana* Hbn.Oecophoridae: *Diurnea fagella* F.Gelechiidae: *Anarsia lineatella* Z., *Gnorimoschema atriplicellum* Fr., *Recurvaria leucatella* Cl.Tortricidae: *Adoxophyes orana* FR., *Ancylis achatana* DEN. et SCHIF Archips crataegana Hbn., *A. rosana* L., *A. xylostean* L., *Grapholita funebrana* Tr., *Gypsonoma minutana* HBN., *Hedya nubiferana* HAW., *H. pruniana* HBN., *Pandemis dumetana* Tr., *P. ribeana* Hbn., *Parasyndemis histrionana* Froel., *Pardia cynostabella* L., *Rhopobota naevana* Hbn., *Spilonota ocellana* F., *Tortrix viridana* L.Geometridae: *Eupithecia exigua* Hb., *Hydrionoma coerulea* F., *Operophtera brumata* L.Pyraustidae: *Palpita unionalis* Hbn.

Coleoptera

??Curculionidae: *Anthonomus pomorum* L.**Apanteles znoikoi** TOBIAS

Host unknown.

ILLIDOPS MASON

Illidops barcinonensis (MARSHALL)

Host unknown.

Illidops biroicus (PAPP)

Host unknown.

Illidops butalidis (MARSHALL)

Lepidoptera

Hyponomeutidae: *Roeslerstammia erxlebeniella* F.

Scythrididae: *Scythris canescens* Stn., *S. fuscoaenea* HAW., *S. piceaepennis* DEN. et SCHIFF.

***Illidops buteonis* (KOTENKO)**

Host unknown.

***Illidops cloella* (NIXON)**

Host unknown.

***Illidops electilis* (TOBIAS)**

Host unknown.

***Illidops kostylevi* (KOTENKO)**

Host unknown.

***Illidops mutabilis* (TELENGA)**

Lepidoptera

Phycitidae: *Etiella zinckenella* TR.

***Illidops naso* (MARSHALL)**

Host unknown.

***Illidops nigritegula* TOBIAS et KOTENKO**

Host unknown.

***Illidops planiscapus* (TOBIAS)**

Host unknown.

***Illidops rostratus* (TOBIAS)**

Host unknown.

***Illidops scutellaris* (MUESEBECK)**

Lepidoptera

Gelechiidae: *Phthorimea operculella* Z.

***Illidops sophrosine* (NIXON)**

Host unknown.

***Illidops splendidus* (PAPP)**

Host unknown.

***Illidops suevus* (REINHARD)**

Lepidoptera

Psychidae: *Epichnopterix* sp., *Rebelia* sp.

Geometridae: *Thera juniperata* L.

***Illidops suffectus* (TOBIAS et KOTENKO)**

Host unknown.

Illidops szabol (PAPP)

Host unknown.

Illidops tigris (KOTENKO)

Host unknown.

Illidops urgo (NIXON)

Host unknown.

Illidops vipio (REINHARD)

Lepidoptera

Scythrididae: *Scythris knochella* F.

ICONELLA (MASON)

Iconella aeolus (NIXON)

Lepidoptera

Phycitidae: ?*Metriostola betulae* Goeze**Iconella albinervis** (TOBIAS)

Host unknown.

Iconella fedtschenkoi (KOTENKO)

Host unknown.

Iconella isus (NIXON)

Lepidoptera

Phycitidae: *Etiella zinckenella* Tr.Noctuidae: *Nycteola asiatica* KRUL.**Iconella lacteoides** (NIXON)

Lepidoptera

Tineidae: *Triaxomera parasitella* Hbn.Lyonetidae: *Lyonetia prunifoliella* Hbn.Gracillariidae: *Caloptilia semifasciata* Haw., *Parornix anguliferella* Z.Coleophoridae: *Coleophora limosipennella* Dup., *C. viminetella* Z.Hyponomeutidae: *Swammerdamia pyrella* Vill.Gelechiidae: *Ptocheuusa inopella* Z.Cochylidae: *Falsenuncaria ruficiliana* Haw.Phycitidae: *Acrobasis sodelella* Z., *Diorctria abietella* Den. et Schiff., *Etiella zinckenella* Tr., *Homoeosoma nebulellum* DEN. et SCHIFF., *H. nimbellum* Z.

Coleoptera

Curculionidae: *Anthonomus pomorum* L.**Iconella laspeyresiella** (PAPP)

Lepidoptera

Tortricidae: *Grapholita funebrana* Tr.

Iconella masallensis (ABDINBEKOVA)

Host unknown.

Iconella meratus (KOTENKO)

Host unknown.

Iconella merula (REINHARD)

Host unknown.

Iconella meruloides (NIXON)

Lepidoptera

Tortricidae: *Lobesia botrana* DEN. et SCHIFF.**Iconella myeloenta** (WILKINSON)

Lepidoptera

Tortricidae: *Rhyacionia buoliana* DEN. et SCHIFF.Phycitidae: *Spectrobates ceratoniae* Z.**Iconella nagyi** (PAPP)

Host unknown.

Iconella nephus (PAPP)

Host unknown.

Iconella rudolphae (KOTENKO)

Host unknown.

Iconella subcamilla (TOBIAS)

Host unknown.

Iconella turanica (TELENGA)

Host unknown.

Iconella vindicia (NIXON)

Host unknown.

CHOREAS MASON

Choeras arene (NIXON)

Lepidoptera

Pterophoridae: *Adaina microdactyla* Hbn.**Choeras ciscaucasicus** (TOBIAS)

Host unknown

Choeras dorsalis (SPINOLA)

Lepidoptera

Oecophoridae: *Schiffermuelleria schaefferella* L.

Gelechiidae: *Nothris verbascella* Hbn.
 Tortricidae: *Epinotia tedella* Cl., *Pseudohermenias clauthaliana* Saxl.
 Pyraustidae: *Pyrausta purpuralis* L.
 Pyralidae: *Rhodaria aurata* Den. et Schiff.
 Phycitidae: *Nephopteryx abductella* Fi.
 Geometridae: *Eupithecia subfulvata* Haw.
 Noctuidae: *Conistra vaccinii* L., *Orthosia miniosa* Den. et Schiff.

Choeras gnarus (TOBIAS et KOTENKO)

Host unknown.

Choeras parasitellae (BOUCHÉ)

Lepidoptera

Tineidae: *Morophaga boleti* F., *Nemapogon cloacellus* HAW., *N. granellus* L., *Triaxomera parasiella* (HBN.)
 Hyponomeutidae: *Hyponomeuta padellus* L.
 Gelechiidae: *Scrobipalpa samadensis* PFAFF.
 Tortricidae: *Epinotia tedella* Cl., *Gypsonoma sociana* Haw., *Pseudohermenias clauthaliana* Saxl.
 Pterophoridae: *Emmelina monodactyla* L., *Hellinsonia osteodactyla* Z.
 Noctuidae: *Pharetra rumicis* L.
 Lymantriidae: *Euproctis chrysoorrhoea* L.

Coleoptera

Anobiidae: *Trypopytis carpini* Hbst.
 Serropalpidae: *Orchesia micans* Panz.

Choeras ruficornis (NEES)

Lepidoptera

Plutellidae: *Plutella maculipennis* Curtis

Choeras tedellae (NIXON)

Lepidoptera

Tortricidae: *Epinotia tedella* Cl.

Choeras tiro (REINHARD)

Lepidoptera

Tortricidae: *Cnephasia chrysantheana* Dup., *C. interjectana* Haw., *C. pascuana* Hbn.

Choeras validus (THOMSON)

Host unknown.

SATHON MASON

Sathon falcatus (NEES)

Lepidoptera

Hepialidae: *Hepialus humuli* L.
 Sesiidae: *Synanthedon tipuliformis* Cl.
 Tortricidae: *Rhyacionia buoliana* Den. et Schiff.
 Pterophoridae: *Adaina microdactyla* Hbn.
 Geometridae: *Eupithecia succenturiata* L.
 Noctuidae: *Apamea lateritia* Hufn., *A. monoglypha* HUFN.

DISTATRIX MASON

Distatrix formosa (WESMAEL)

Lepidoptera

Coleophoridae: *Coleophora fuscadinella* Z.Geometridae: *Abraxas grossulariata* L., *Agriopis marginaria* Bkh., *Calospilos sylvata* SCOP., *Lycia hirtaria* Cl.,*Ourapteryx sambucaria* L.Noctuidae: *Orthosia stabilis* Den. et Schiff.Lymantriidae: *Orgyia antiqua* L.**Distatrix iraklii** (KOTENKO)

Host unknown.

Distatrix pompelon (NIXON)

Lepidoptera

Lymantriidae: *Porthesia similis* FUESSLY**Distatrix sancus** (NIXON)

Lepidoptera

Lycaenidae: *Lycaena* sp.

GLYPTAPANTELES ASHMEAD

Glyptapanteles acasta (NIXON)

Lepidoptera

Noctuidae: *Allophyes oxyacanthae* L., *Amphipyra pyramidea* L., *Diarsia mendica* F.**Glyptapanteles aletta** (NIXON)

Host unknown.

Glyptapanteles aliphera (NIXON)

Host unknown.

Glyptapanteles antinoe (NIXON)

Host unknown.

Glyptapanteles callidus (HALIDAY)

Lepidoptera

Geometridae: *Abraxas grossulariata* L.Noctuidae: *Noctua oroana* HUFN.Arctiidae: *Parasemia plantaginis* L.**Glyptapanteles compressiventris** (HUESEBECK)

Lepidoptera

Arctiidae: *Arctia villica* L., *Diaphora mendica* Cl., *Ocnogyna loewi* Z., *O. pierreti* RAMB., *Phragmatobia fuliginosa* L., *Spilarctia lubricipeda* L.

Hyperparasitoids – Hymenoptera

Eulophidae: *Tetrastichus galactopus* (Ratz.)

Glyptapanteles eugeni (PAPP)

Lepidoptera

Glyphipterygidae: *Simaethis fabriciana* L.**Glyptapanteles fausta** (NIXON)

Lepidoptera

Glyphipterygidae: *Simaethis fabriciana* L.**Glyptapanteles fraternus** (REINHARD)

Lepidoptera

Hepialidae: *Hepialus humuli* L.Bucculatricidae: *Bucculatrix cristatella* Z.Lithocolletidae: *Phyllonorycter roboris* Z.Gracillariidae: *Coriscium cuculipennellum* Hbn.Elachistidae: *Elachista bifasciella* Tr., *E. subnigrella* Dgl.Geometridae: *Aspitates gilvaria* Den. et Schiff., *Boarmia* sp., *Gnophos* sp., *Ourapteryx sambucaria* L., *Perconia strigillaria* HBN., *Scotopteryx bipunctaria* Den. et Schiff., *Selidosema plumaria* Den. et Schiff., *Semiaspilates ochrearius* ROSSI, *Sterrha ochrata* Scop.Noctuidae: *Acronicta aceris* L., *Callistage mi* Cl.**Glyptapanteles fulvipes** (HALIDAY)

Lepidoptera

Lithocolletidae: *Phyllonorycter oxyacanthae* FreyElachistidae: *Elachista cerusella* Hbn., *E. paludum* FreyGlyphipterygidae: *Simaethis pariana* Cl.Gelechiidae: *Sitotroga cerealella* Oliv.Tortricidae: *Aphelia palena* Hbn., *Laspeyresia pactolana* Z.Pyraustidae: *Haritala ruralis* Sc.Geometridae: *Chesias legatella* Den. et Schiff., *Cidaria fulvata* Foerst., *Colostygia pectinataria* Knoch, *Colotois pennaria* L., *Epione paralellaria* Den. et Schiff., *Epirrhoe alternata* O. F. MÜLLER, *E. galiata* Den. et Schiff., *Erannis defoliaria* Cl., *Larentia miata* L., *Operophtera brumata* L., *Selenia bilunaria* Esp., *Xanthorrhoe montanata* Den. et Schiff.Noctuidae: *Allophyes oxyacanthae* L., *Amathes xanthographa* DEN. et SCHIFF., *Amphipyra pyramidea* L., *Apatele psi* L., *A. tridens* Den. et Schiff., *Brachionycha sphinx* Hufn., *Catocala nupta* L., *Cerapteryx graminis* L., *Cucullia asteris* Den. et Schiff., *C. gnaphalii* Hbn., *C. verbasci* L., *Lithophane ornitopus* Hufn., *Lycophotia porphyrea* Den. et Schiff., *Lygephila cracca* Den. et Schiff., *Meristis trigammica* Hufn., *Mythimna impura* HBN., *Noctua fimbriata* Schreb., *N. orbona* Hufn., *N. pronuba* L., *Phaetra rumicis* L., *Spaelotis ravidata* DEN. et SCHIFF., *Syngrapha interrogationis* L., *Xestia xanthographa* DEN. et SCHIFF., *Xylocampa areola* Esp.Lymantriidae: *Euproctis chrysorrhoea* L., *Lymantria dispar* L., *L. monacha* L.,*Porthesia similis* Fuessl.Arctiidae: *Hyphantria cunea* Drury, *Ocnogyna parasita* Hbn., *Phragmatobia fuliginosa* L.Notodontidae: *Clostera anastomosis* L., *C. pigra* L.Dilobidae: *Diloba caeruleocephala* L.Lasiocampidae: *Dendrolimus pini* L., *Philudoria potatoria* L.Pieridae: *Aporia crataegi* L., *Pieris brassicae* L., *P. rapae* L., *Pontia daplidice* L.Nymphalidae: *Cynthia cardui* L., *Vanessa atalanta* L.**Glyptapanteles inclusus** (RATZEBURG)

Lepidoptera

Lymantriidae: *Nygmia phaeorrhoea* L., *Porthesia similis* Fuessly

Glyptapanteles intermedius (BALEVSKI)

Host unknown.

Glyptapanteles lateralis (HALIDAY)

Lepidoptera

Gracillariidae: *Xanthospilapteryx anastomosis* Haw.Elachistidae: *Elachista gangabella* Z.Hyponomeutidae: *Hyponomeuta padellus* L.Glyphipterygidae: *Simaethis fabriciana* L.Galleriidae: *Galleria mellonella* L.Geometridae: *Eupithecia assimilata* Dbld.Lymantriidae: *Euproctis chrysorrhoea* L., *Porthesia similis* Fuessl.

Coleoptera

?Anobiidae: *Prypopityx carpini* Hbst.**Glyptapanteles liparidis** (BOUCHÉ)

Lepidoptera

Pyraustidae: *Ostrinia nubilalis* Hbn.Lymantriidae: *Dasychira abietis* Den. et. SHIFF., *D. pudibunda* L., *Euproctis chrysorrhoea* L., *Ivela auripes* Butler, *Lymantria dispar* L., *L. monacha* L., *Orgyia ericae* Germ., *O. postica* Walk., *Porthesia similis* Fuessl.Arctiidae: *Arctia villica* L.Notodontidae: *Clostera anastomosis* L.Sphingidae: *Hyloicus pinastri* L.,Lasiocampidae: *Dendrolimus pini* L., *D. spectabilis* BUTLER, *Eriogaster lanestris* L., *Malacosoma neustria* L., *Philudoria potatoria* L.

Hyperparasites – Hymenoptera

Ichneumonidae: *Gelis areator* Grav., *Lysbia nana* Grav., *Mesochorus anomalus* Hlmgr., *M. gracilentus* BrischkePteromalidae: *Psychophagus omnivorus* Walk.**Glyptapanteles luciana** (NIXON)

Host unknown.

Glyptapanteles menander (NIXON)

Host unknown.

Glyptapanteles mygdonia (NIXON)

Lepidoptera

Glyphipterygidae: *Choreutis pariana* Cl.Geometridae: *Alcis jubata* Thunbg., *Melanthia procellata* Den. et Schiff., *Phygalia pilosaria* Den. et Schiff., *Puengeleria capreolaria* Den. et. Schiff.**Glyptapanteles nigerrimus** (ROMAN)

Host unknown.

Glyptapanteles nivalis (PAPP)

Host unknown.

Glyptapanteles octonarius (RATZEBURG)

Lepidoptera

Arctiidae: *Lithosia depressa* Esp., *L. quadra* F.

Glyptapanteles palabundus (TOBIAS)

Host unknown.

Glyptapanteles pallipes (REINHARD)

Lepidoptera

Pyraustidae: *Haritala ruralis* Sc., *Sitochroa verticalis* L. Geometridae: *Cidaria rubidata* F., *Euphyia cuculata* F.

Noctuidae: *Apatele tridens* Den. et Schiff., *Autographa gamma* L., *A. jota* L., *A. pulchrina* Haw., *Chrysaspidia festucae* L., *Cucullia argentea* Hufn., *Mamestra brassicae* L., *M. oleracea* L., *Mythimna ferrago* F., *Noctua fimbriata* Schreb., *Phlogophora meticulosa* L., *Plusia chrysiis* L.

Lymantriidae: *Porthesia similis* Fuessl.

Pieridae: *Pieris napi* L.

Nymphalidae: *Aglais urticae* L., *Araschnia levana* L.

Glyptapanteles penelopus (TOBIAS)

Host unknown.

Glyptapanteles pinkola (LYLE)

Lepidoptera

Geometridae: *Thera firmata* Hbn., *Th. obeliscata* Hbn., *Th. variata* Den. et Schiff.

Noctuidae: *Amphipyra pyramidea* L.

Arctiidae: *Phragmatobia fuliginosa* L., *Spilosoma menthastri* Esp.

Glyptapanteles popovi (TELENGA)

Host unknown.

Glyptapanteles porthetriae (MUESEBECK)

Lepidoptera

Geometridae: *Peribatodes rhomboidaria* Den. et Schiff.

Noctuidae: *Amphipyra pyramidea* L.

Lymantriidae: *Lymantria dispar* L.

Arctiidae: *Phragmatobia fuliginosa* L.

Dilobidae: *Diloba caeruleocephala* L.

Glyptapanteles querceus (TOBIAS)

Lepidoptera

Lycaenidae: *Thecla quercus* L.

Glyptapanteles ripus (PAPP)

Lepidoptera

Noctuidae: *Cucullia xeranthemi* Boids.

Glyptapanteles rubens (REINHARD)

Lepidoptera

Noctuidae: *Phaetra runcis* L.

Pieridae: *Pieris brassicae* L.

Glyptapanteles salepus (PAPP)

Host unknown.

Glyptapanteles stackelbergi (TELENGA)

Host unknown.

Glyptapanteles thompsoni (LYLE)

Lepidoptera

Pyraustidae: *Ostrinia nubilalis* HBN.

Glyptapanteles urolus (PAPP)

Host unknown.

Glyptapanteles vitripennis (CURTIS)

Lepidoptera

Plutellidae: *Plutella xylostella* L.,

Hyponomeutidae: *Hyponomeuta cognatellus* HBN., *H. malinellus* Z., *H. padellus* L.

Tortricidae: *Archips rosana* L., *A. xylosteana* L.,

Geometridae: *Alcis repandata* L., *Anticlea badiata* DEN. et SCHIFF., *Biston betularius* L., *Cabera pusaria* L., *Chesias legatella* Den. et Schiff., *Ch. rufata* F., *Cleorodes lichenaria* Hufn., *Crocallis elinguaris* L., *Cyclophora annulata* Schulze, *C. punctaria* L., *Eupithecia dodoneata* Gn., *E. irriguata* Hbn., *E. lariciata* Frey, *Lycia strataria* HUFN., *Operophtera brumata* L., *Peribatodes rhomboidaria* Den. et Schiff., *P. secundaria* Esp., *Thera juniperata* L., *Th. variata* Den. et Schiff.

Noctuidae: *Amphipyra pyramidea* L., *Apatele psi* L., *Catocala nupta* L., *Cucullia verbasci* L., *Eupsilia transversa* Hufn., *Meganephria oxyacanthae* L.

Lymantriidae: *Euproctis chrysorrhoea* L., *Leucoma salicis* L., *Lymantria dispar* L., *L. monacha* L., *Nygmia phaeorrhoea* L.

Arctiidae: *Amata phegea* L., *Phragmatobia fuliginosa* L.

Dilobidae: *Diloba caeruleocephala* L.

Lasiocampidae: *Dendrolimus pini* L.

PROTAPANTELES ASHMEAD

Protapanteles anchisiades (NIXON)

Lepidoptera

Geometridae: *Alcis repandata* L., *Oporinia autumnata* Bkh., *O. dilatata* DEN. et SCHIFF.

Protapanteles andromica (NIXON)

Host unknown.

Protapanteles armeniacus (TOBIAS)

Host unknown.

Protapanteles delitutus (PAPP)

Host unknown.

Protapanteles endemus (NIXON)

Lepidoptera

Geometridae: *Abraxas grossulariata* L.

Protapanteles enephes (NIXON)

Lepidoptera

Geometridae: *Erannis defoliaria* CL., *Plagodis dolabraria* L.**Protapanteles hirtariae** (KOTENKO et TOBIAS)

Lepidoptera

Geometridae: *Lycia hirtaria* Cl.**Protapanteles iapetus** (NIXON)

Host unknown.

Protapanteles immuns (HALIDAY)

Lepidoptera

Plutellidae: *Harpiteryx falcella* Hbn.Coleophoridae: *Coleophora albitarsella* Z.Tortricidae: *Tortrix viridana* L.Geometridae: *Agriopsis leucophaearia* Den. et Schiff., *A. marginaria* Bkh., *Bupalus piniarius* L., *Cabera pusaria* L., *Cyclophora albipunctata* Hufn., *C. punctaria* L., *Dysstroma truncata* Hufn., *Electrophaes corylata* THUNBG., *Erannis defoliaria* CL., *Eupithecia tantillaria* Bsd., *Metrocampa margaritata* L., *Operophtera brumata* L., *Oporinia dilutata* DEN. et SCHIFF., *Pseudoterpna pruinata* Hufn.Noctuidae: *Hypena proboscidalis* L.Lymantriidae: *Orgyia antiqua* L.Saturniidae: *Eudia pavonia* L.Lycaenidae: *Thecla quercus* L.**Protapanteles incertus** (RUTHE)

Lepidoptera

Gelechiidae: *Exoteleia dodecella* L.Geometridae: *Agriopsis marginaria* Bkh., *Anticlea derivata* Den. et Schiff., *Biston betularius* L., *Bupalus piniarius* L., *Cabera exanthemata* Scop., *C. pusaria* L., *Electrophaes corylata* Thunbg., *Ennomos fuscantaria* HAW., *Erannis aurantiaria* ESP., *Iodis lactearia* L., *Lomaspilis marginata* L., *Metrocampa margaritata* L., *Oporinia dilutata* Den. et Schiff., *Selenia bilunaria* Esp., *Semiothisa liturata* Cl.Noctuidae: *Cucullia argentea* Hufn., *Pseudoips bicolorana* Fuessl.**Protapanteles mandanis** (NIXON)

Lepidoptera

Geometridae: *Eustroma reticulata* F.**Protapanteles parallelus** (LYLE)

Lepidoptera

Geometridae: *Hemithea strigata* Müll.**Protapanteles popularis** (HALIDAY)

Lepidoptera

Arctiidae: *Tyria jacobaeae* L.**Protapanteles triangulator** (WESMAEL)

Lepidoptera

Tineidae: *Teichobia verhuellella* Stt.Lithocolletidae: *Bedellia somnulentella* Z., *Phyllonorycter strigulatella* Z.

- Coleophoridae: *Coleophora ballotella* Fr., *C. gryphipennella* Bché.
 Tortricidae: *Tortrix viridana* L.
 Geometridae: *Ellopija prosapiaria* L., *Peribatodes rhomboidaria* Den. et Schiff., *Pseudoterpna pruinata* (HUFN.)
 Noctuidae: *Amphipyra pyramidea* L.
 Lymantriidae: *Dasychira pudibunda* L.
 Notodontidae: *Stauropus fagi* L.
 Lycaenidae: *Strymon w-album* Knoch

COTESIA CAMERON

Cotesia abjecta (MARSHALL)

Lepidoptera

- Geometridae: *Ennomos autumnaria* WERNB.
 Notodontidae: *Cerura vinula* L., *Drymonia ruficornis* HUFN., *Eligmodonta ziczac* L., *Notodonta dromedarius* L., *Phalera bucephala* L., *Pheosia dictaeoides* ESP., *Ph. tremula* Cl.
 Sphingidae: *Smerinthus ocellatus* L.

Cotesia acuminata (REINHARD)

Lepidoptera

- Geometridae: *Operophtera brumata* L.
 Pieridae: *Aporia crataegi* L.
 Nymphalidae: *Euphydryas aurinia* Rott., *E. matura* L., *Melitaea leucippe* SCHN., *M. phoebe* DEN. et SCHIFF., *Mellicta athalia* ROTT.

Cotesia acutula (TOBIAS)

Lepidoptera

- Arctiidae: *Arctia caja* L.

Cotesia affinis (NEES)

Lepidoptera

- Eriocranidae: *Eriocrania sparrmannella* Bosc.
 Tortricidae: *Archips crataegana* Hbn., *A. rosana* L., *Tortrix viridana* L.
 Pyraustidae: *Loxostege sticticalis* L.
 Noctuidae: *Acronicta leporina* L., *Cucullia argentea* Hufn., *C. artemisiae* Hufn., *Mamestra oleracea* L.
 Lymantriidae: *Leucoma salicis* L.
 Notodontidae: *Cerura vinula* L., *Eligmodonta ziczac* L., *Harpyia hermelina* Goeze, *H. lanigera* BUTLER
 Sphingidae: *Celerio euphorbiae* L., *Laothoe populi* L., *Smerinthus planus* WALKER
 Thyatiridae: *Polyphoca flavicornis* L., *P. ridens* F., *Tethea duplaris* L.

Hymenoptera

- ?Cynipidae: *Diplolepis rosae* L.

Hyperparasitoids – Hymenoptera

- Pteromalidae: *Habrocytus microgasteris* Bché., *Psychophagus omnivorus* Walk.
 Eulophidae: *Tetrastichus galactopus* Ratz.
 Ichneumonidae: *Lysibia nana* Grav., *Mesochorus gracilentus* Brischke

Cotesia amesis (NIXON)

Host unknown.

Cotesia analls (NEES)

Lepidoptera

Hyponomeutidae: *Hyponomeuta evonymellus* L.Sesiidae: *Bembecia hylaeiformis* Lasp.Geometridae: *Abraxas grossulariata* L.Noctuidae: *Chrysoaspida festucae* L., *Heliothis armigera* Hbn., *Leucania obsoleta* HBN., *Mythimna pallens* L.,
M. straminea Tr.Nymphalidae: *Euphydryas maturna* L., *Melitaea phoebe* Rott., *M. trivialis* Den. et Schiff.**Cotesia ancilla** (NIXON)

Lepidoptera

Pieridae: *Colias chrysotheme* ESP., *C. croceus* FOURCR., *C. erate* ssp. *polygraphus* MOTSCH., *C. hyale* L., *C. palaeno* ssp. *europome* ESP.**Cotesia arctica** (THOMSON)

Lepidoptera

Phycitidae: *Etiella zinckenella* Tr.Noctuidae: *Heliothis armigera* Hbn.Hesperiidae: *Carcharodus alceae* ESP.Lycaenidae: *Aricia agestis* DEN. et SCHIFF., *Cupido minimus* FUESSLY, *Lysandra coridon* PODA**Cotesia articas** (NIXON)

Lepidoptera

Tortricidae: *Argyroplote wahlbergiana* Z.**Cotesia aurura** (TELENGA)

Host unknown.

Cotesia berberis (NIXON)

Host unknown.

Cotesia bignellii (MARSHALL)

Lepidoptera

Nymphalidae: *Euphydryas aurinia* ROTT.**Cotesia brevicornis** (WESMAEL)

Lepidoptera

Tortricidae: *Syndemis musculana* Hbn.Geometridae: *Hydriomena furcata* Thunbg., *Oporinia autumnata* Bkh., *Rheumaptera hastata* L., *Rh. undulata* L.Noctuidae: *Brachylophia viminalis* F., *Ipimorpha retusa* L., *I. subnusa* DEN. et SCHIFF., *Orthosia miniosa* Den. et Schiff., *Xanthia citrigo* L.Lymantriidae: *Euproctis chrysorrhoea* L., *Lymantria dispar* L., *Porthesia similis* FUESSLYHesperiidae: *Pyrgus malvae* L.**Cotesia cajae** (BOUCHÉ)

Lepidoptera

Plutellidae: *Argyresthia conjugella* Z.Phyllocnistidae: *Phyllocnistis suffusella* Z.Gracillariidae: *Xanthospilapteryx anastomosis* Haw.Gelechiidae: *Anacamptis populella* Cl.

- Tortricidae: *Pandemis heparana* Den. et Schiff.
 Pterophoridae: *Eucnemidophorus rhododactyla* Den. et Schiff.
 Galleriidae: *Aphomia sociella* Hbn.
 Pyraustidae: *Loxostege sticticalis* L., *Pyrausta cingulata* L.
 Zygaenidae: *Zygaena ephialtes* L., *Z. filipendulae* L., *Zygaena laeta* Hbn., *Z. loniceriae* Schev., *Z. meliloti* Esp.
 Geometridae: *Agriopsis bajaria* Den. et Schiff., *A. marginaria* Bkh., *Angerona prunaria* L., *Biston betularia* L.,
B. strataria Hufn., *Calocalpe cervicalis* Scop., *Chesias rufata* F., *Colotois pennaria* L., *Crocallis elinguarina*
 L., *Epirrhoe galiata* Den. et Schiff., *Erannis defoliaria* Cl., *Eupithecia abbreviata* Steph., *E. centaureata* F.,
E., *pimpinellata* Hbn., *E. sobrinata* L., *E. tripunctaria* Hs., *E. valerianata* L., *Gonodontis bidentata* Cl.,
Operophtera brumata L., *Phigalia pilosaria* Den. et Schiff., *Scopula virgulata* Den. et Schiff., *Selenia*
bilunaria Esp.
 Noctuidae: *Acronicta aceris* L., *Allophyes oxyacanthae* L., *Amathes xanthographa* F., *Apatele psi* L., *Cal-*
listege mi Cl., *Chloridea armigera* Hbn., *Cirrhia citrigo* L., *Cucullia argentea* Hufn., *C. lucifuga* L., *Eurois*
occulta L., *Mamestra brassicae* L., *Ochropleura praecox* L., *Pharetra euphorbiae* F., *Plusia chrysitis* L.,
Polia hepatica Cl., *P. nebulosa* Hufn., *Xylocampa areola* Exp.
 Lymantriidae: *Euproctis chrysorrhoea* L., *Leucoma salicis* L., *Lymantria dispar* L., *L. monacha* L., *Nygmia*
phaeorrhoea L.
 Arctiidae: *Ammobita festiva* Hufn., *Arctia caja* L., *A. villica* L., *Chelis maculosa* Germ., *Phragmatobia*
fuliginosa L., *Spilarctia lubricipeda* L., *Spilosoma menthastri* Esp., *Tyria jacobaeae* L.
 Notodontidae: *Clostera anastomosis* L., *Eligmodonta ziczac* L., *Lophopteryx camelina* L., *Peridea anceps*
 GZE., *Phaesia tremula* Cl.
 Dilobidae: *Diloba caeruleocephala* L.
 Sphingidae: *Amorpha populi* L.
 Lasiocampidae: *Epicnaptera ilicifolia* Esp., *Lasiocampa quercus* L., *Macrothylacia rubi* L., *Malacosoma*
neustria L., *Poecilocampa populi* L.
 Endromidae: *Endromis versicolora* L.
 Hesperidae: *Carcharodus floccifera* Z.
 Pieridae: *Aporia crataegi* L., *Pieris brassicae* L., *P. napi* L., *P. rapae* L.
 Lycaenidae: *Glaucopygma alexis* Poda, *Jolana iolas* O.
 Satyridae: *Pararge aegeria* L.

Cotesia callimone (NIXON)

Lepidoptera

Nymphalidae: *Argynnis* sp.**Cotesia calodetta** (NIXON)

Lepidoptera

Lasiocampidae: *Eriogaster lanestris* L.**Cotesia capucinae** (FISCHER)

Lepidoptera

Noctuidae: *Calpe thalictri* BORH.**Cotesia chares** (NIXON)

Lepidoptera

Geometridae: *Colotois pennaria* L.Noctuidae: *Apatele euphorbiae* DEN. et SCHIFF.Lasiocampidae: *Malacosoma neustria* L.**Cotesia cleora** (NIXON)

Lepidoptera

Geometridae: *Apeira syringaria* L.

Cotesia clepta (TOBIAS)

Host unknown.

Cotesia corylicola (TOBIAS)

Host unknown.

Cotesia cultellata (TOBIAS)

Host unknown.

Cotesia cupreus (LYLE)

Lepidoptera

Lycaenidae: *Lampides boeticus* L., *Lycaena helle* DEN. et SCHIFF., *L. phlaeas* L., *Plebejus argus* L., *Polyommatus icarus* Rott., *Vaccinina optilete* Knoch
 Nymphalidae: *Vanessa atalanta* L.

Cotesia cynthiae (NIXON)

Lepidoptera

Nymphalidae: *Euphydryas cynthia* DEN. et SCHIFF.**Cotesia depressithorax** (TOBIAS)

Host unknown.

Cotesia disparis (TOBIAS)

Lepidoptera

Lymantriidae: *Lymantria dispar* L.**Cotesia errator** (NIXON)

Lepidoptera

Geometridae: *Eupithecia assimilata* DBLD., *E. valerianata* HBN., *E. virgaureata* DOUBLEDAY**Cotesia eulipis** (NIXON)

Lepidoptera

Geometridae: *Eupithecia pimpinellata* Hbn., *Operophtera brumata* L., *Rheumaptera hastata hastata* L., *Rh. hastata nigrescens* PROUT, *Rh. undulata* L.

Cotesia euryale (NIXON)

Lepidoptera

Geometridae: *Anatais efformata* GUENNÉE, *A. plagiata* L., *Biston betularius* L., *Boarmia* sp.
 Noctuidae: *Catocala fraxini* L.

Cotesia evagatus (PAPP)

Lepidoptera

Lycaenidae: *Lampides boeticus* L.**Cotesia ferruginea** (MARSHALL)

Lepidoptera

Crambidae: *Chilo phragmitellus* HBN.
 Noctuidae: *Archanara geminipuncta* Haw., *Mythimna* sp.

Cotesia flagitata (PAPP)

Host unknown.

Cotesia fluvialis (BALEVSKI)

Host unknown.

Cotesia gades (NIXON)

Lepidoptera

Notodontidae: *Stauropus fagi* L.**Cotesia gastropachae** (BOUCHÉ)

Lepidoptera

Tortricidae: *Eucosma immundus* Fisch.Pyraustidae: *Loxostege sticticalis* L.Noctuidae: *Apamea sordens* Hufn., *Heliothis scutosa* Den. et Schiff., *Phaenocarpa rumicis* L.Notodontidae: *Notodonta dromedarius* L.Lymantridae: *Lymantria dispar* L.Lasiocampidae: *Dendrolimus pini* L., *Gastropacha quercifolia* L., *Macrothylacia rubi* L., *Malacosoma neustria* L.Nymphalidae: *Cynthia cardui* L., *Euphydryas aurinia* Rott.**Cotesia geryonis** (MARSHALL)

Lepidoptera

Pterophoridae: *Eucnemidophorus rhododactylus* F.Zygaenidae: *Adscita globulariae* HBN., *Procris geryon* HBN., *P. statice* L., *Rhagades pruni* DEN. et SCHIFF., *Zygaena laeta* HBN.**Cotesia glabrata** (TELENGA)

Lepidoptera

Geometridae: *Biston betularius* L.Hesperiidae: *Carcharodus alceae* ESP.**Cotesia glomerata** (LINNAEUS)

Lepidoptera

Thyrididae: *Thyris fenestrella* Scop.Plutellidae: *Plutella maculipennis* Curt.Gracillariidae: *Xanthospilapteryx anastomosis* Haw.Hyponomeutidae: *Hyponomeuta padellus* L.Aegeriidae: *Bembecia hylaeiformis* Lasp.Glyphipterygidae: *Simaethis pariana* Cl.Tortricidae: *Archips xylosteana* L., *Lozotaenia forsterana* F.Cochylidae: *Cochylis posterana* Z.Pterophoridae: *Eucnemidophorus rhododactylus* F.Pyraustidae: *Perinephela rubiginalis* Hbn.Zygaenidae: *Zygaena ephialtes* L.Limaecodidae: *Cochlidion limacodes* Hufn.Geometridae: *Abraxas grossulariata* L., *Cabera pusaria* L., *Colostygia pectinataria* Knoch, *Colotois fausta* Oliv., *C. pennaria* L., *Epirrhoe galiata* Den. et Schiff., *Geometra papilionaria* L., *Iodis lactearia* L., *Operophtera brumata* L., *Phigalia pilosaria* Den. et Schiff., *Selenia bilunaria* Esp.Noctuidae: *Amathes triangulum* Hbn., *A. xanthographa* F., *Amphipyra pyramidea* L., *Apatele psi* L., *A. tridens* Den. et Schiff., *Autographa gamma* L., *Brachionycha sphinx* Hufn., *Catocala nupta* L., *Lithophane*

- ornithopus Hufn., *Mamestra brassicae* L., *Meganephria oxyacanthae* L., *Noctua fimbriata* Schreb., *Trichoplusia ni* Hbn., *Xylocampa areola* Esp.
- Lymantriidae: *Euproctis chrysothoea* L., *Hypogymna morio* L., *Lymantria monacha* L., *Orgyia antiqua* L., *Porthesia similis* Fuessly
- Arctiidae: *Arctia caja* L., *Phragmatobia fuliginosa* L.
- Notodontidae: *Cerura vinula* L., *Clostera anachoreta* F., *C. pigra* L., *Eligmodonta ziczac* L., *Notodonta dromedarius* L.
- Sphingidae: *Amorpha populi* L., *Haemorrhagia fuciformis* L., *Macroglossa stellatarum* L.
- Bombycidae: *Bombyx mori* L.
- Lasiocampidae: *Dendrolimus pini* L., *Eriogaster* sp., *Malacosoma neustria* L.
- Pieridae: *Aporia crataegi* L., *Gonepteryx rhamni* L., *Leptidea sinapis* L., *Pieris brassicae* L., *P. napi* L., *P. rapae* L., *Pontia daplidice* L.
- Papilionidae: *Zerynthia polyxena* Den. et Schiff.
- Lycaenidae: *Callophrys rubi* L., *Lampides boeticus* L., *Lysandra coridon* Poda
- Nymphalidae: *Aglais urticae* L., *Cynthia cardui* L., *Euphydryas aurinia* Rott., *Ladoga camilla* L., *Nymphalis antiopa* L., *N. polychloros* L., *Vanessa atalanta* L.
- Heteroptera
- ?Pentatomidae: *Pentatoma* sp.
- Coleoptera
- ?Nitidulidae: *Meligethes aeneus* F.
- Hyperparasitoids – Hymenoptera
- Ichneumonidae: *Dichrogaster aestivalis* Grav., *Gelis areator* Panz., *G. avidus* Foerst., *G. corruptor* Foerst., *G. instabilis* Foerst., *G. transfuga* Foerst., *Hemiteles simillimus* Tasch., *H. submarginatus* Bridgm., *Leptocryptus brevis* Thoms., *Lysibia nana* Grav., *Mesochorus angustatus* Thoms., *M. gracilentus* Brischke, *M. pectoralis* (Ratz).
- Torymidae: *Monodontomerus aereus* Swed.
- Pteromalidae: *Catolaccus ater* (Ratz.), *Dibrachys cavus* WALK., *Habrocytus chrysos* (Walk.), *H. microgasteris* BOUCHÉ, *H. semotus* (Walk.), *Psychophagus omnivorus* (Walk.)
- Eulophidae: *Tetrastichus galactopus* Ratz.

***Cotesia gonepterygis* (MARSHALL)**

- Lepidoptera
- Noctuidae: *Pharetra rumicis* L.
- Pieridae: *Colias erate* ESP., *Gonepteryx rhamni* L.
- Nymphalidae: *Ladoga camilla* L.

***Cotesia hyphantriae* (RILEY)**

- Lepidoptera
- Noctuidae: *Cosmia trapezina* L., *Mamestra dissimilis* KNOCH., *M. suasa* DEN. et SCHIFF., *Orthosia carnipennis* BUTL., *O. miniosa* DEN. et SCHIFF., *O. stabilis* DEN. et SCHIFF., *Panolis flammea* DEN. et SCHIFF.
- Lymantriidae: *Celaena leucostigma* HBN.
- Arctiidae: *Hyphantria cunea* DRURY

***Cotesia inducta* (PAPP)**

Host unknown.

***Cotesia intermixta* (BALEVSKI)**

Host unknown.

Cotesia isolde (NIXON)

Lepidoptera

Thyatiridae: *Achlya flavicornis* L., *Cymatophorima diluta* DEN. et. SCHIFF., *Polyploca ridens* F., *Tethea* or F.**Cotesia jucunda** (MARSHALL)

Lepidoptera

Tortricidae: *Epinotia nigricana* HS.Limacodidae: *Apoda limacodes* (HUFN.)Geometridae: *Abraxas grossulariata* L., *Anticlea badiata* Den. et Schiff., *Cyclophora punctaria* L., *C. ruficiliaria* HS., *Erannis defoliaria* CL., *E. golda* DJAK., *Eupithecia dodoneata* GUEN., *E. pimpinellata* Hbn., *E. valerianata* HBN., *Metrocampa margaritata* L., *Operophtera brumata* L.Pieridae: *Aporia crataegi* L., *Pieris brassicae* L.Nymphalidae: *Vanessa atalanta* L.**Cotesia judalca** (PAPP)

Lepidoptera

Lymantriidae: *Orgyia dubia judaica* STRG.**Cotesia juniperatae** (BOUCHÉ)

Lepidoptera

Plutellidae: *Acrolepia pygmaeana* Haw.Zygaenidae: *Zygaena ephialtes* L., *Z. filipendulae* L.Geometridae: *Agriopis marginaria* Bkh., *Alsophyla aescularia* Den. et Schiff., *Angerona prunaria* L., *Biston betularius* L., *B. strataria* Hufn., *Colotois pennaria* L., *Crocallis elinguaris* L., *Cyclophora annulata* Schulz, *C. orbicularis* Hbn., *C. punctaria* L., *Erannis defoliaria* CL., *Eupithecia abbreviata* Steph., *E. castigata* Hbn., *E. egenaria* HS., *E. exigua* Hbn., *E. helveticaria* BSD., *E. intricata arceuthata* FREYER., *E. lariciata* Freyer, *E. nanata* Hbn., *E. pimpinellata* Hbn., *E. sobrinata* Hbn., *Gonodontis bidentata* CL., *Hydriomena fulvata* Foerst., *Metrocampa margaritata* L., *Operophtera brumata* L., *Perizoma alchemillata* L., *Phigalia pilosaria* Den. et Schiff., *Thera juniperata* L.Noctuidae: *Brachionycha sphinx* Hufn., *Catocala promissa* Esp., *Hadena bicruris* Hufn., *H. rivularis* F., *Meganephria oxyacanthae* L.Lymantriidae: *Arctornis l-nigrum* L.Dilobidae: *Diloba caeruleocephala* L.Lasiocampidae: *Macrothylacia rubi* L., *Malacosoma neustria* L., *Poecilocampa populi* L.Lycaenidae: *Lampides boeticus* L.

Hyperparasitoids – Hymenoptera

Ichneumonidae: *Lysibia nana* GRAV.Torymidae: *Monodontomerus aereus* WALK.Eulophidae: *Cirrospilus* sp.**Cotesia kazak** (TELENGA)

Lepidoptera

Noctuidae: *Chloridea peltigera* DEN. et SCHIFF., *Ch. viriplaca* HUFN., *Heliothis armigera* HBN.**Cotesia kurdjumovi** (TELENGA)

Lepidoptera

Phycitidae: *Pempelia obductella* Z.Pyraustidae: *Pyrausta aurata* SCOP.**Cotesia limbata** (MARSHALL)

Lepidoptera

Plutellidae: *Plutella maculipennis* Curt.
 Geometridae: *Abraxas grossulariata* L., *Calospilos sylvata* SCOP.
 Noctuidae: *Acronicta leporina* L.
 Arctiidae: *Arctia caja* L., *Hyphantria cunea* DRURY
 Notodontidae: *Drymonia ruficornis* Hufn.

Cotesia lineola (CURTIS)

Lepidoptera

Tortricidae: *Laspeyresia leplastriana* Curt.
 Pterophoridae: *Hellinsonia osteodactylus* Z.
 Pyraustidae: *Evergestis eximalis* SCOP., *E. forficalis* L., *E. pallidata* HUFN., *Ostrinia nubilalis* Hbn.
 Lasiocampidae: *Macrothylacia rubi* L.
 Nymphalidae: *Aglais urticae* L.

Diptera

Syrphidae: *Eumerus strigatus* Fall., *Scaeva pyrastris* L.

Cotesia lycophron (NIXON)

Lepidoptera

Nymphalidae: *Melitaea didyma* Esp., *Melicta athalia* RTBG.

Cotesia melanoscelus (RATZEBURG)

Lepidoptera

Hepialidae: *Triodia sylvina* L.
 Gracillariidae: *Xanthospilapteryx anastomosis* Haw.
 Sesiidae: *Paranthrene tabaniformis* Rott.
 Tortricidae: *Apotomis capreana* Hbn., *Laspeyresia exquisitana* Rbl., *Lathronympha hypericana* Hbn., *Tortrix viridana* L.
 Pyraustidae: *Ebulea crocealis* Hbn.
 Arctiidae: *Spilarctia lubricipeda* L.
 Geometridae: *Abraxas grossulariata* L., *Cyclophora linearia* Hbn., *C. punctaria* L., *Erannis defoliaria* Cl., *Eupithecia succenturiata* L.
 Noctuidae: *Apatele psi* L., *Celaena leucostigma* HBN., *Earias chlorana* L., *Noctua fimbriata* Schreb., *Nycteola asiatica* Krul., *Orthosia miniosa* Den. et Schiff., *O. stabilis* Den. et Schiff., *Xylena exsoleta* L., *X. vetusta* Hbn.
 Lymantriidae: *Euproctis chrysorrhoea* L., *Ivela auripes* Butler, *Leucoma salicis* L., *Lymantria dispar* L., *L. monacha* L., *Orgyia antiqua* L., *Porthesia similis* Fuessly
 Lasiocampidae: *Dendrolimus pini* L., *Malacosoma neustria* L.

Hymenoptera

?Tenthredinidae: *Nematus ribesii* Schop.

Diptera

?Cecidomyiidae: *Rhabdophaga rosaria* Lw.

Hyperparasitoids – Hymenoptera

Ichneumonidae: *Dichrogaster aestivalis* Grav., *Gelis cinctus* L., *G. instabilis* Foerst., *Lysibia nana* Grav.

Cotesia melitaeorum (WILKINSON)

Lepidoptera

Noctuidae: *Scotia segetum* Den. et Schiff.
 Lymantridae: *Lymantria dispar* L.
 Nymphalidae: *Euphydryas aurinia* ROTT., *E. desfontaini* ssp. *baetica* RAMBUR, *E. matura* L., *Melitaea cirxia* L., *M. leucippe* SCHNEIDER

Cotesia memnon (NIXON)

Lepidoptera

Hyponomeutidae: *Hyponomeuta cognatellus* HBN.Lycaenidae: *Jolana iolas* OCHS.**Cotesia mendicae** (TOBIAS)

Lepidoptera

Arctiidae: *Diaphora mendica* CL.**Cotesia microsomus** (TOBIAS)

Lepidoptera

Geometridae: *Chlorocystis rectangularata* L.**Cotesia neustriae** (TOBIAS)

Lepidoptera

Lymantriidae: *Lymantria dispar* L.,Thaumetopoeidae: *Thaumetopoea processionaea* L.Lasiocampidae: *Malacosoma castrense* L., *M. neustria* L.**Cotesia nigrifibialis** (TOBIAS)

Host unknown.

Cotesia nothus (MARSHALL)

Lepidoptera

Lithocolletidae: *Phyllonorycter lantanella* Schrk.Coleophoridae: *Coleophora milvipennis* Z., *C. serratella* Z.Pterophoridae: *Adkinia zophodactyla* Dup.Zygaenidae: *Procris geryon* Hbn.Geometridae: *Abraxas grossulariata* L., *Anticlea badiata* HBN., *Biston betularius* L., *Catarrhoe rubidata* Den. et Schiff., *Epirrhoe galiata* Den. et Schiff., *Euphyia cucullata* Hufn., *Horisme vitalbata* DEN. et SCHIFF.Hydriomena furcata Thunbg., *Lygris pyraliata* Den. et Schiff., *Phigalia pilosaria* Den. et Schiff.Noctuidae: *Cosmia pyralina* Den. et Schiff., *Ipimorpha retusa* L., *Lithophane semibrunnea* Haw., *Mormo maura* L.Arctiidae: *Parasemia plantaginis* L., *Spilarctia lubricipeda* L., *Spilosoma menthastri* Esp.Lycaenidae: *Cupido minimus* FUESSLY, *Lycaena phlaeas* ssp. *eleus* F.Satyridae: *Maniola jurtina* L., *Melanargia galathea* L.

Hyperparasitoids – Hymenoptera

Ichneumonidae: *Mesochorus fuscicornis* Brischke**Cotesia numen** (NIXON)

Lepidoptera

Geometridae: *Eupithecia centaureata* DEN. et SCHIFF., *E. intricata arceuthata* FREYER, *E. nanata* HBN., *E. pimpinellata* HBN.**Cotesia ocneriae** (IVANOV)

Lepidoptera

Lymantriidae: *Lymantria dispar* L.**Cotesia ofella** (NIXON)

Lepidoptera

Noctuidae: *Acronicta aceris* L., *Amathes triangulum* HBN., *Apatele runcicis* L., *Mamestra oleracea* L., *M. persicariae* L., *Xestia baja* DEN. et SCHIFF.

Arctiidae: *Phragmatobia fuliginosa* L., *Spilarctia lubricipeda* L.

Cotesia onaspis (NIXON)

Lepidoptera

Pterophoridae: *Eucnemidophorus rhododactylus* F.

Cotesia ordinaria (RATZEBURG)

Lepidoptera

Noctuidae: *Calpe thalictri* Bkh., *Mamestra oleracea* L.

Lasiocampidae: *Dendrolimus pini* L., *D. sibiricus* TSCHEV., *D. superans* BUTLER, *Macrothylacia rubi* L.

Hymenoptera

?Tenthredinidae: *Blennocampa pusilla* Klug

Cotesia orestes (NIXON)

Lepidoptera

Lasiocampidae: *Philudoria potatoria* L.

Cotesia peltoneni (PAPP)

Lepidoptera

Noctuidae: *Acronicta leporina* L.

Cotesia pieridis (BOUCHÉ)

Lepidoptera

Lasiocampidae: *Malacosoma castrensis* L.

Pieridae: *Aporia crataegi* L.

Lymantriidae: *Euproctis chrysorrhoea* L.

Cotesia pilicornis (THOMSON)

Lepidoptera

Tortricidae: *Epinotia nigricana* HS.

Pterophoridae: *Amblypilia acanthodactyla* HBN., *A. punctidactyla* HAW.

Geometridae: *Eupithecia pulchellata* STEPH., *Perizoma alchemillata* L.

Cotesia plutellae (KURDJUMOV)

Lepidoptera

Plutellidae: *Plutella xylostella* L.,

Tortricidae: *Sparganothis pilleriana* DEN. et SCHIFF.

Pterophoridae: *Agdistis bennetii* CURT.

Pyraustidae: *Loxostege sticticalis* L., *Perinephela verbascalis* Den. et Schiff., *Sitochroga verticalis* L.

Noctuidae: *Autographa gamma* L., *Cucullia chamomillae* Den. et Schiff., *C. verbasci* L., *Heliothis armigera* HBN.

Arctiidae: *Hyphantria cunea* DRURY, *Ocnogyna baeticum meridionalis* SEITZ, *O. loewii* Z., *Spilosoma urticae* ESP.

Thaumetopoeidae: *Thaumetopoea herculeana* RAMBUR

Lasiocampidae: *Malacosoma castrensis* L., *M. neustria* L.

Pieridae: *Anthocharis cardamines* L., *Pieris rapae* L.

Nymphalidae: *Aglais urticae* L., *Cynthia cardui* L.

Satyridae: *Maniola jurtina* L.

Cotesia praepotens (HALIDAY)

Lepidoptera

Tortricidae: *Archips crataegana* Hbn., *A. rosana* L., *Tortrix viridana* L.Geometridae: *Cidaria alchemillata* L., *Erannis aurantiaria* ESP., *E. defoliaria* CL., *Eupithecia expallidata* Gn., *E. gueneata* MILL., *E. millifoliata* Rössl., *E. nanata* Hbn., *E. pulchellata* Steph. *E. succenturiata* L., *E. trisignaria* HS., *Operophthera brumata* L., *O. fagata* Scharfenb.Noctuidae: *Eupsilia satellitia* L., *Orthosia cruda* DEN. et SCHIFF., *O. miniosa* Den. et Schiff.Lymantriidae: *Euproctis chrysothoea* L., *Lymantria dispar* L., *Porthesia similis* Fuessly**Cotesia risilis** (NIXON)

Lepidoptera

Pieridae: *Gonepteryx rhamni* L.**Cotesia rubecula** (MARSHALL)

Lepidoptera

Plutellidae: *Plutella maculipennis* Curt.Sphingidae: *Amorpha populi* L., *Celerio euphorbiae* L., *Haemorrhagia fuciformis* L.Lasiocampidae: *Macrothylacia rubi* L.Pieridae: *Pieris brassicae* L., *P. napi* L., *P. rapae* L.**Cotesia rubripes** (HALIDAY)

Lepidoptera

Hepialidae: *Triodia sylvina* L.Sesiidae: *Bembecia hylaeiformis* Lasp.Zygaenidae: *Rhagades pruni* Den. et Schiff., *Zygaena angelicae* O.Geometridae: *Abraxas grossulariata* L., *Cabera pusaria* L., *Eupithecia egenaria* HS., *Geometra papilionaria* L., *Iodis lactearia* L.Noctuidae: *Autographa gamma* L.Lymantriidae: *Lymantria dispar* L., *Orgyia dubia judaea*Arctiidae: *Arctia caja* L., *Phragmatobia fuliginosa* L.Notodontidae: *Cerura vinula* L., *Eligmodonta ziczac* L. *Lophopteryx camelina* L.,Sphingidae: *Haemorrhagia fuciformis* L.Thyatiridae: *Tethea* or F.Lasiocampidae: *Dendrolimus pini* L., *Malacosoma castrensis* L., *M. neustria* L.Pieridae: *Aporia crataegi* L., *Pieris brassicae* L., *P. rapae* L.Nymphalidae: *Aglais urticae* L., *Euphydryas maturna* L., *Issoria lathonia* L.

Diptera

?Anthomyiidae: *Pegomyia nigritarsis* Zett.**Cotesia ruficrus** (HALIDAY)

Lepidoptera

Plutellidae: *Plutella maculipennis* Curt.Tortricidae: *Sparganothis pilleriana* Hbn.Geometridae: *Anticollix sparsata* Tr.Noctuidae: *Acantholeucania loreyi* Dup., *Apatele rumicis* L., *Autographa gamma* L., *A. jota* L., *Chloridea armigera* Hbn., *Chrysodeixis chalyces* Esp., *Ctenoplusia agnata* STAUD., *Cucullia chamomillae* Den. et Schiff., *C. verbasci* L., *Eugraphe subrosea* STEPHENS, *Leucania obsoleta* Hbn., *Mamestra oleracea* L., *Mythimna impura* Hbn., *M. pallens* L., *M. unipuncta* HAW., *Ochroleuca praecox* L., *Orthosia gracilis* Den. et Schiff., *Plusia chrysius* L., *P. chryson* Esp., *Scotia ipsilon* Hufn.Ctenuchidae: *Amata mestralli palestinae* HMPS.Arctiidae: *Ocnogyna loewii* Z., *Spilarctia lubricipeda* L., *Spilosoma menthastri* Esp.Dilobidae: *Diloba caeruleocephala* L.

Lasiocampidae: *Macrothylacia rubi* L.
Pieridae: *Gonepteryx rhamni* L., *Pieris brassicae* L., *P. rapae* L.
Nymphalidae: *Melitaea cinxia* ssp. *delia* Den. et Schiff.

***Cotesia rufiventris* (ABDINBEKOVA)**

Host unknown.

***Cotesia salebrosa* (MARSHALL)**

Lepidoptera

Noctuidae: *Anarta myrtilli* L.

***Cotesia saltator* (THUNBERG)**

Lepidoptera

Sphingidae: *Daphnis nerii* L., *Therecta alecto cretia* BSD.

Pieridae: *Anthocharis cardamines* L.

***Cotesia saltatoria* (BALEVSKI)**

Host unknown.

***Cotesia satunini* (TOBIAS)**

Host unknown.

***Cotesia scabriculus* (REINHARD)**

Lepidoptera

Noctuidae: *Earias chlorana* L.

Lymantriidae: *Euproctis chrysorrhoea* L., *Leucoma salicis* L., *Lymantria dispar* L.

Lasiocampidae: *Malacosoma neustria* L.

***Cotesia setebis* (NIXON)**

Host unknown.

***Cotesia shemachaensis* (TOBIAS)**

Host unknown.

***Cotesia sibyllarum* (WILKINSON)**

Lepidoptera

Nymphalidae: *Ladoga camilla* L.

***Cotesia specularis* (SZÉPLIGETI)**

Lepidoptera

Noctuidae: *Mythimna unipuncta* Haw.

Pieridae: *Aporia crataegi* L.

Lycaenidae: *Jolana iolas* OCHS., *Lampides boeticus* L.

***Cotesia spurtus* (WESMAEL)**

Lepidoptera

Hepialidae: *Triodia sylvina* L.

Elachistidae: *Elachista megerlella* Stt.

Gelechiidae: *Anacampsis populella* C.

- Tortricidae: *Hedya pruniana* Hbn., *Pandemis ribeana* Hbn.
 Pyraustidae: *Evergestis forficularis* L., *Loxostege sticticalis* L.
 Zygaenidae: *Zygaena ephialtes* L., *Z. filipendulae* L., *Z. scabiosae* Scheven.
 Geometridae: *Apocheima hispidaria* DEN. et SCHIFF., *Biston betularius* L., *Boarmia punctinalis* Scop., *B. roboraria* Den. et Schiff., *Colotois pennaria* L., *Cyclophora orbicularia* Hbn., *C. punctaria* L., *Dysstroma truncata* Hufn., *Ennomos alniaria* L., *E. quercinaria* HUFN., *Epirrhoe galiata* Den. et Schiff., *Eupithecia denotata* Hbn., *E. intricata* Z., *E. pimpinellata* Hbn., *E. sobrinata* L., *Gonodontis bidentata* Cl., *Hydrionema coeruleata* F., *Iodis lactearia* L., *Lycia histaria* CLERCK, *L. strataria* HUFN., *Metrocampa margaritata* L., *Odontoptera bidentata* Clerck, *Operophtera brumata* L., *Perizoma alchemillata* L., *P. bifasciata* Haw., *Phigalia pilosaria* DEN. et SCHIFF., *Pseudoterpna pruinata* Hufn., *Selenia bilunaria* Esp., *S. dentaria* F., *Thamnonoma wauaria* L., *Thera juniperata* L.
 Noctuidae: *Allophyes oxyacanthae* L., *Brachionycha sphinx* HUFN., *Caradrina morpheus* Hufn., *Catocala promissa* ESP., *Cucullia asteris* Den. et Schiff., *Diarsia brunnea* Den. et Schiff., *Ipimorpha subtusa* Den. et Schiff., *Lycophotia porphyrea* Den. et Schiff., *Mamestra brassicae* L., *M. oleracea* L., *M. suasa* Den. et Schiff., *Mythimna littoralis* Curt., *Ochropleura praecox* L., *Parexarnix fugax* Tr., *Phaethra auricoma* Den. et Schiff., *Ph. rumicis* L., *Scotia segetum* Den. et Schiff., *Spodoptera exigua* Hbn.,
 Arctiidae: *Arctia caja* L., *Tyria jacobaeae* L.
 Lymantriidae: *Lymantria dispar* L.
 Notodontidae: *Cerura vinula* L., *Harpyia hermelina* Goeze, *Lophopteryx camelina* L.
 Dilobidae: *Diloba caeruleocephala* L.
 Lasiocampidae: *Lasiocampa trifolii* Esp., *Macrothylacia rubi* L., *Malacosoma castrensis* L., *M. neustria* L., *Poecilocampa populi* L., *Trichiura crataegi* L.
 Pieridae: *Aporia crataegi* L., *Colias hyale* L., *Pieris brassicae* L., *P. napi* L., *P. rapae* L.
 Lycaenidae: *Loweia tityrus* Poda, *Lycaena coridon* Poda, *L. dorylas* Den. et Schiff.
 Nymphalidae: *Aglais urticae* L., *Cynthia cardui* L., *Euphydryas aurinia* Rott., *E. maturna* L., *Issoria lathonia* L., *Vanessa atalanta* L.
 Satyridae: *Aphantopus hyperanthus* L.
 Hyperparasitoids – Hymenoptera
 Ichneumonidae: *Lysibia nana* Grav.
 Pteromalidae: *Catolaccus ater* (Ratz.)

***Cotesia subancilla* (BALEVSKI)**

Host unknown.

***Cotesia subordinata* (TOBIAS)**

Host unknown.

***Cotesia telengai* (TOBIAS)**

Lepidoptera

- Noctuidae: *Amathes c-nigrum* L., *Catocala elocata* ESP., *Chloridea viriplaca* HUFN., *Cornutiplusia circumflexa* L., *Euxoa temera* HBN., *Heliothis armigera* HBN., *Noctua pronuba* L., *Scotia segetum* DEN. et SCHIFF.
 Nymphalidae: *Cynthia cardui* L.

***Cotesia tenebrosa* (WESMAEL)**

Lepidoptera

- Plutellidae: *Acrolepia pygmaeana* Haw.
 Hyponomeutidae: *Hyponomeuta malinellus* Z., *H. padellus* L.
 Glyphipterygidae: *Simaethis pariana* Cl.
 Cochyliidae: *Aethes dipoltella* Hbn.
 Pterophoridae: *Stenoptilia pterodactyla* Z.
 Geometridae: *Biston betularius* L., *Opisthograptis luteolata* L.
 Lymantriidae: *Lymantria dispar* L., *Porthesia similis* Fuessly
 Lycaenidae: *Jolana iolas* O., *Lampides boeticus* L., *Scolitantides orion* ssp. *battus* DEN. et SCHIFF.
 Nymphalidae: *Euphydryas aurinia* Rott.

Cotesia vanessae (REINHARD)

Lepidoptera

Lithocolletidae: *Phyllonorycter salicella* Z.Zygaenidae: *Zygaena filipendulae* L.Geometridae: *Erannis defoliaria* Cl., *Eupithecia exigua* Hbn.Arctiidae: *Arctia caja* L., *Parasemia plantaginis* L., *Spilosoma menthastri* Esp.Satyridae: *Lasiommata megera* L., *Maniola jurtina* L.**Cotesia tibialis** (CURTIS)

Lepidoptera

Cossidae: *Dyspessa ulula* BKH.Plutellidae: *Plutella maculipennis* Curt.Hyponomeutidae: *Hyponomeuta malinellus* Z.Gelechiidae: *Pexicopia malvella* Hbn.Tortricidae: *Archips rosana* L., *Pandemis dumetana* Tr., *Tortrix viridana* L.Pyraustidae: *Loxostege sticticalis* L., *Pyrausta cingulata* L.Zygaenidae: *Zygaena filipendulae* L.Geometridae: *Abraxas grossulariata* L., *Cyclophora pupillaria* Hbn., *Eupithecia abbreviata* Steph., *E. innotata* Hufn., *E. tripunctaria* HS., *Phigalia pilosaria* Den. et Schiff.Noctuidae: *Acronycta aceris* L., *A. leporina* L., *Amathes c-nigrum* L., *A. triangulum* HBN., *A. xanthographa* DEN. et SCHIFF., *Anarta myrtili* L., *Apatele psi* L., *Autographa gamma* L., *Callistege mi* Cl., *Catocala nupta* L., *Chersotis rectangula* DEN. et SCHIFF., *Cucullia argentea* Hufn., *C. artemisiae* Hufn., *C. asteris* Den. et Schiff., *C. lucifuga* L., *Discestra trifolii* Hufn., *Eurois occulta* L., *Euxoa temera* HBN., *E. tritici* L., *Mamestra brassicae* L., *M. oleracea* L., *Mythimna pallens* L., *M. straminea* Tr., *Noctua fimbriata* L., *N. pronuba* L., *Orthosia gothica* L., *O. gracilis* Den. et Schiff., *O. incerta* Hufn., *Phaertra auricomma* Den. et Schiff., *Ph. euphorbiae* Den. et Schiff., *Ph. rumicis* L., *Plusia chrysis* L., *Polia hepatica* Cl., *Scotia clavis* Hufn., *S. segetum* Dem. et Schiff., *Xestia baja* DEN. et SCHIFF., *X. triangulum* HUFN., *Xylena exsoleta* L., *X. vetusta* Hbn.Lymantriidae: *Euproctis chrysorrhoea* L., *Lymantria dispar* L.Arctiidae: *Cynia mendica* Cl., *Hyphantria cunea* Drury, *Phragmatobia fuliginosa* L., *Spilartia lubricipeda* L., *Spilosoma menthastri* Esp.Notodontidae: *Clostera anastomosis* L.Bombycidae: *Bombyx mori* L.Lasiocampidae: *Dendrolimus pini* L., *Eriogaster lanestris* L.Pieridae: *Aporia crataegi* L., *Pieris brassicae* L.Nymphalidae: *Aglais urticae* L., *Vanessa atalanta* L.Satyridae: *Pararge aegeria* L., *Maniola jurtina* L., *Pyronia tithonus* L.

Diptera

Tephritidae: *Chaetostomella cylindrica* Rob. de Desv.Anthomyiidae: *Pegomyia hysociami* Panz.

Hyperparasitoids – Hymenoptera

Ichneumonidae: *Hemiteles capreolus* Thoms., *H. similis* Gmel., *H. submarginatus* Bridgm., *Lysibia nana* Grav., *Mesochorus angustatus* Thoms., *M. anomalus* Holmg., *M. discitergus* Say, *M. dispar* Brischke, *M. fuscicornis* Brischke**Cotesia vanessae** (REINHARD)

Lepidoptera

Pyraustidae: *Loxostege sticticalis* L.Geometridae: *Biston betularius* L.Noctuidae: *Acontia lucida* HUFN., *Apamea sordens* HUFN., *Autographa gamma* L., *Calophasia casta* BKH., *Comutiplusia circumflexa* L., *Discestra trifolii* HUFN., *Heliothis armigera* HBN., *Mamestra brassicae* L., *M. oleracea* L., *Mythimna litoralis* CURT., *Ochropleura praecox* L., *Spodoptera exigua* HBN.Notodontidae: *Cerura vinula* L., *Eligmodonta ziczac* L.

Lasiocampidae: *Macrothylacia rubi* L.

Nymphalidae: *Aglais urticae* L., *Cynthia cardui* L., *Ladoga camilla* L., *Mesoacidalis aglaja* L., *Neptis hylas* ssp. *aceris* F., *Nymphalis polychloros* L., *Vanessa atalanta* L.

***Cotesia villana* (REINHARD)**

Lepidoptera

Noctuidae: *Noctua fimbriata* Schreb.

Arctiidae: *Arctia caja* L., *A. fasciata* ESP., *A. testudinaria* FOURCR., *A. villica* L., *Coscinia cribraria* L., *Hyphoraia aulica* ESP., *Spilosoma menthastri* ESP., *Spiris striata* L.

Nymphalidae: *Melitaea didyma* ESP., *Mellicta athalia* ROTT.

***Cotesia viridanae* (TOBIAS)**

Lepidoptera

Tortricidae: *Tortrix viridana* L.

***Cotesia zyaenarum* (MARSHALL)**

Lepidoptera

Zygaenidae: *Zygaena achilleae* Esp., *Z. corsica sardiniensis* HOLIK, *Z. filipendulae* L., *Z. laeta* HBN., *Z. ionicerae* Scheven., *Z. trifolii* Esp.

Geometridae: *Anticlea badiata* Hbn., *Phigalia pilosaria* Den. et Schiff.

Sphingidae: *Celerio lineata livornica* Esp.

Lycaenidae: *Polyommatus icarus* Rott.

Nymphalidae: *Euphydryas aurinia* Rott.

Hyperparasitoids – Hymenoptera

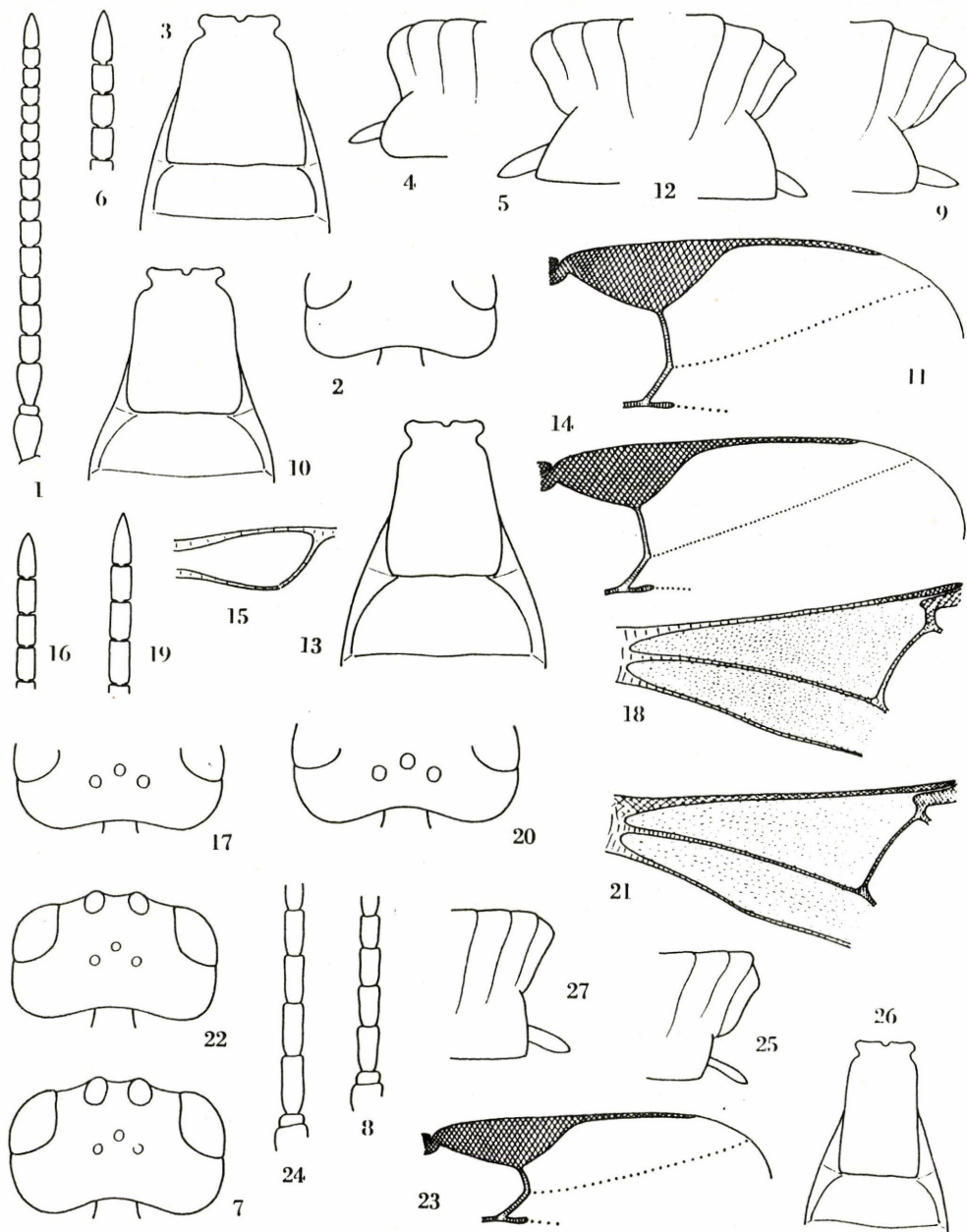
Pteromalidae: *Habrocytus semotus* (Walk.)

References

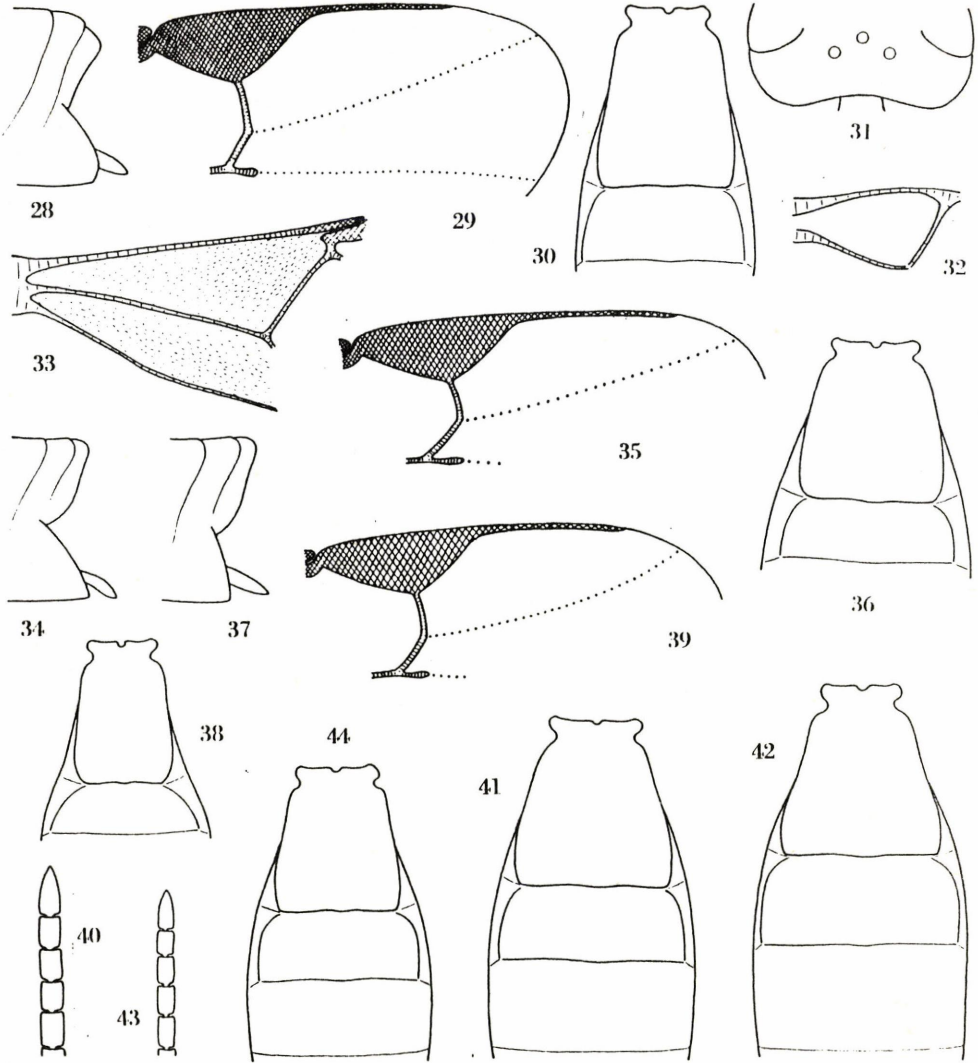
- MASON, W. R. M. (1981): The polyphyletic nature of *Apanteles* Foerster (Hymenoptera: Braconidae): A phylogeny and reclassification of Microgastrinae. – *Mem. ent. Soc. Can.* **115**: 1–147.
- NIXON, G. E. J. (1965): A reclassification of the tribe Microgastrinae (Hymenoptera, Braconidae). – *Bull. Br. Mus. nat. Hist., Entom.*, Suppl. **2**: 1–284.
- NIXON, G. E. J. (1974): A revision of the north-western European species of the glomeratus-group of *Apanteles* Förster (Hymenoptera, Braconidae). – *Bull. ent. Res.* **64**: 453–524.
- PAPP, J. (1976): A survey of the European species of *Apanteles* Först. (Hymenoptera, Braconidae: Microgasterinae), I. The species-groups. – *Annl. hist.-nat. Mus. natn. hung.* **68**: 251–274.
- PAPP, J. (1986): A survey of the European species of *Apanteles* Först. (Hymenoptera, Braconidae: Microgastrinae), IX. The glomeratus-group, 1. – *Annl. hist.-nat. Mus. natn. hung.* **78**: 225–247.
- PAPP, J. (1987): A survey of the European species of *Apanteles* Först. (Hymenoptera, Braconidae: Microgastrinae), X. The glomeratus-group 2 and the cultellatus-group. – *Annl. hist.-nat. Mus. natn. hung.* **79**: 207–258.
- PAPP, J. (1988): A survey of the European species of *Apanteles* Först. (Hymenoptera, Braconidae: Microgastrinae), XI. The homologization of the species-groups of *Apanteles* s.l. with Mason's generic taxa. Checklist of genera. Parasitoid / host list 1. – *Annl. hist.-nat. Mus. natn. hung.* **80**: 145–175.
- TOBIAS, V. I. (1986): 27. order Hymenoptera, Fam. Braconidae (first part). – *Handbooks for the Identification of the Insects of the European Part of the USSR*, vol. III: Hymenoptera, fourth part, pp. 501. (in Russian)

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Figs 1–27. — Figs 1–4. *Cotesia clepta* (TOBIAS): 1 = antenna, 2 = temple in dorsal view, 3 = tergites 1–2, 4 = posterior end of metasoma in lateral view. — Fig. 5. *C. specularis* (SZÉPLIGETI): posterior end of metasoma in lateral view. — Figs 6–8. *C. kurdjumovi* (TELENGA): 6 = antennal joints 15–18, 7 = head in dorsal view, 8 = antennal joints 1–7. — Figs 9–11. *C. corylicola* (TOBIAS): 9 = posterior end of metasoma, 10 = tergites 1–2, 11 = distal part of right fore wing. — Fig. 12. *C. gades* (NIXON): posterior end of metasoma. — Figs 13–18. *C. disparis* (TOBIAS): 13 = tergites 1–2, 14 = distal part of right fore wing, 15 = submedial cell with nervellus, 16 = antennal joints 15–18, 17 = temple in dorsal view, 18 = proximal part of right fore wing. — Figs 19–21. *C. euryale* (NIXON): 19 = antennal joints 15–18, 20 = temple in dorsal view, 21 = proximal part of right fore wing. — Figs 22–24. *C. mendicae* (TOBIAS): 22 = head in dorsal view, 23 = distal part of right fore wing, 24 = antennal joints 1–7. — Figs 25–26. *C. microsoma* (TOBIAS): 25 = posterior end of metasoma, 26 = tergites 1–2. — Fig. 27. *C. nothus* (MARSHALL): posterior end of metasoma.



Figs 28-44. — Figs 28-33. *Cotesia neustriacae* (TOBIAS): 28 = posterior end of metasoma in lateral view, 29 = distal part of right fore wing, 30 = tergites 1-2, 31 = temple and ocelli in dorsal view, 32 = submedial cell with nervellus, 33 = proximal part of right fore wing. — Figs 34-36. *C. nigritibialis* (TOBIAS): 34 = posterior end of metasoma in lateral view, 35 = distal part of right fore wing, 36 = tergites 1-2. — Fig. 37. *C. rubripes* (HALIDAY): posterior end of metasoma. — Figs 38-39. *C. satunini* (TOBIAS): 38 = tergites 1-2, 39 = distal part of right fore wing. — Figs 40-41. *C. viridanae* (TOBIAS): 40 = antennal joints 14-18, 41 = tergites 1-3. — Fig. 42. *C. salebrosa* (MARSHALL): tergites 1-3. — Figs 43-44. *C. ocneriae* (IVANOV): 43 = antennal joints 14-18, 44 = tergites 1-3.

