

## Dutch Ophionini (Hymenoptera, Ichneumonidae, Ophioninae)

by

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**ABSTRACT.** — The 15 species of the genera *Eremotylus*, *Platophion* and *Ophion* occurring in the Netherlands are discussed, and a key is provided. Of four species the host is known to be a caterpillar, another species, viz. *O. minutus* was reared from a sawfly. *Ophion baueri* Habermehl, 1930, is sunk in synonymy with *O. forticornis* Morley, 1914.

### Introduction:

The subfamily Ophioninae is represented in the Netherlands by two tribes and five genera: the tribe Ophionini with the genera *Eremotylus*, *Platophion*, and *Ophion* and the tribe Enicospilini with *Stauropogon* and *Enicospilus* (all five genera are mentioned in the key).

The species of the subfamily oviposit into exposed lepidopterous larvae. Townes (1971) recorded that one species is known which parasitizes scarabaeid beetles. Among Dutch material one specimen of *Ophion minutus* was found, reared from *Nematus salicis* (Linnaeus), a Tenthredinid.

The terms "Ophions", and "Ophionids" are frequently applied to the nocturnal Ichneumonidae with large ocelli, long antennae and a yellow or brownish yellow colouration. This ophionid facies, however, is found not only within the subfamily Ophioninae, but in several other Ichneumonid and Braconid taxa also. Gauld & Huddleston (1976) present a key to the British genera of these nocturnal insects. Ophioninae are characterized by the long spurious vein in the second brachial cell (fig. 1).

The British species of Ophionini are discussed by Gauld (1973, 1976). In his provisional key to species the members of the *Ophion mocsaryi* and *luteus* species-complexes are not treated individually. In the present survey the key to the species of these two complexes is based among others on a manuscript key prepared by Gauld (pers. comm., 1977).

As far as I know Dutch Ophionini are listed by Snellen van Vollenhoven (1873) and Smits van Burgst (1908, 1918) only. The former author mentioned two species: *Ophion obscurus* [= *obscuratus*] and *O. luteus*. To these Smits van Burgst added *O. ventricosus* [= *impressus*], *O. minutus*, *O. mocsaryi* and *O. wuestneii*. [Specimens labelled *wüstneii* in the Smits van Burgst collection, Wageningen, were identified by me as *parvulus*, no other *wuestneii* specimens are known for the Netherlands]. These earlier data concerning Dutch Ophionini are not reliable. Illustrative is that eight of the twelve *Ophion* species discussed here, include specimens previously identified as *Ophion luteus*. These misinterpretations are brought about because practically all original and additional descriptions of *Ophion* species omit in fact all reference to what are considered at the moment the important characters.

The terminology used here mainly follows Townes (1969). This study is based upon the material of the Instituut voor Taxonomische Zoölogie (Zoölogisch Museum), Amsterdam (A), the Rijksmuseum van Natuurlijke Historie, Leiden (L), the Afdeling Entomologie, Landbouwhogeschool Wageningen (W), specimens kindly presented to the Instituut voor Taxonomische Zoölogie by Mr. H. G. M. Teunissen and the collections of Mr. C. Zwakhals, Arkel (Zk) and Mr. K. W. R. Zwart, Wageningen (Zt), together about 1300 specimens.

One of the pleasant aspects of this study was the stimulating co-operation with Mr. I. D. Gauld of the British Museum (Natural History), London. Mr. Gauld, together with Mr. C. van Achterberg (Rijksmuseum van Natuurlijke Historie, Leiden) and Mr. K. W. R. Zwart (Agric. Universiteit, Wageningen) also went through the manuscript and I would like to express my thanks for their valuable remarks.

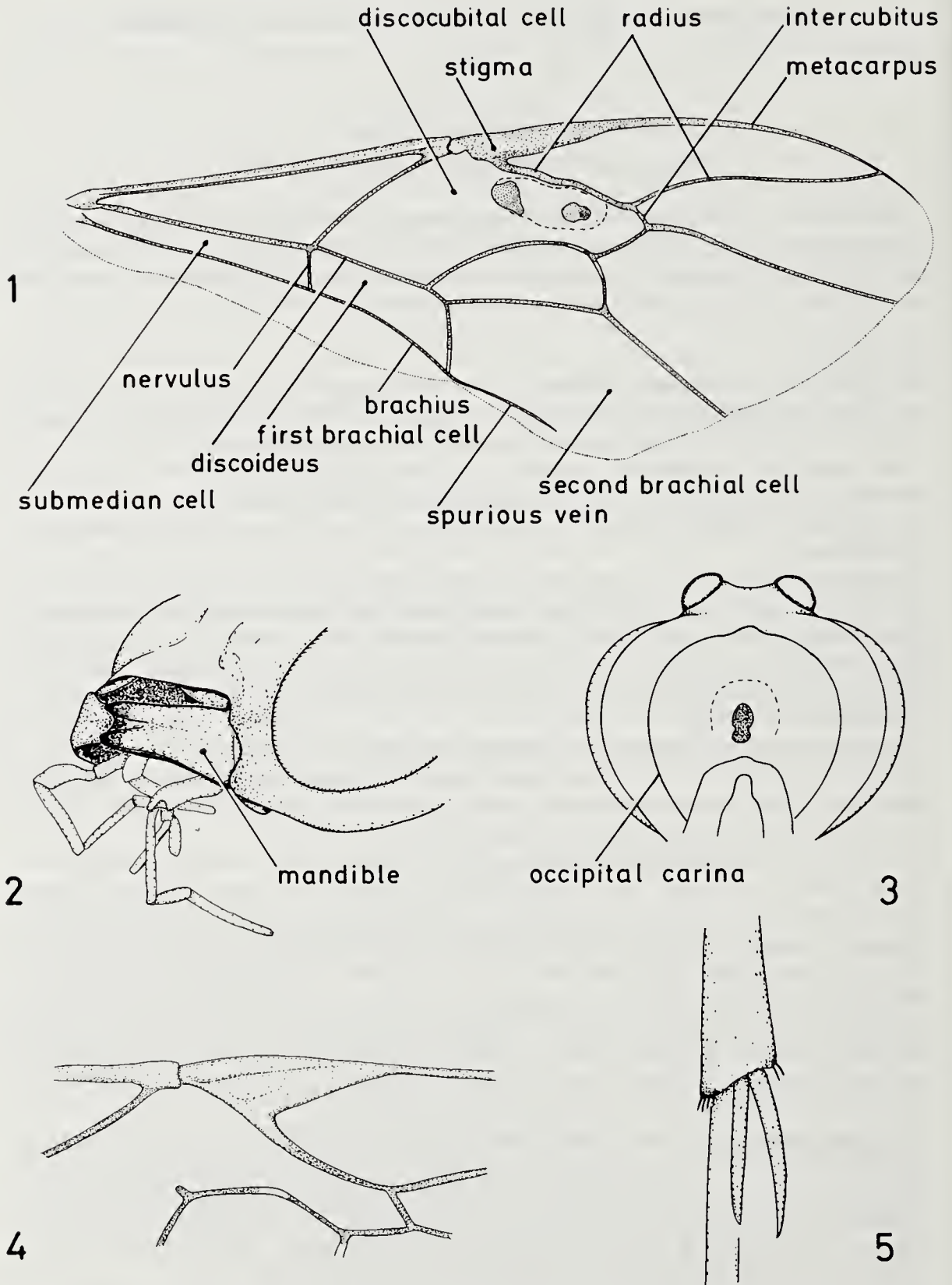


Fig. 1: *Enicospilus ramidulus*, wing; 2: *O. luteus*, detail of head; 3: *O. obscuratus*, head in rear view; 4: *O. minutus*, detail of wing; 5: *O. scutellaris*, mid-tibial spurs.

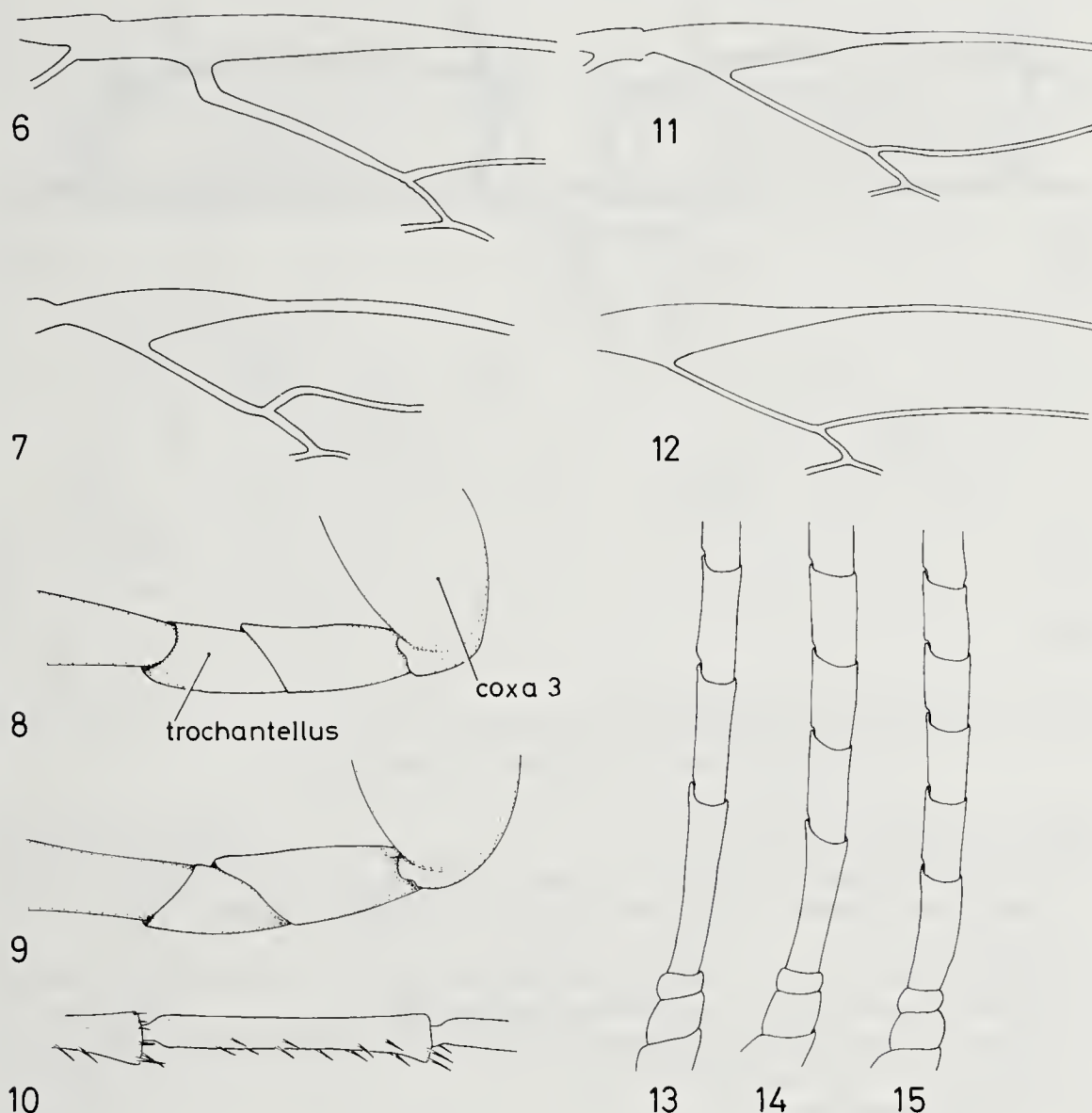


Fig. 6: *Eremotylus marginatus*, detail of wing; 7: *Platophion areolaris*, detail of wing; 8: *O. obscuratus*, detail of hind leg; 9: *O. pteridis*, detail of hind leg; 10: *O. obscuratus*, third segment of hind tarsus; 11: *O. pteridis*, detail of wing; fig. 12: *O. parvulus*, detail of wing; 13 & 14: *O. parvulus*, basal flagellar segments; 15: *O. mocsaryi*, basal flagellar segments.

Key to the Dutch genera and species

Identification of species of Ophionini is not difficult, except for those mentioned in the key beyond couplet 14. Identification of the species *mocsaryi*, *costatus*, *parvulus* and *brevicornis*, sometimes is less reliable due to both their minor differences and their infra-specific variation.

- 1. Mandibles twisted so that the apical teeth are aligned to the vertical axis of the head or mandibles distinctly tapered, basically two times as broad as at apex (Enicospilini) . . . . . 2
- Mandibles not twisted or tapered (fig. 2) (Ophionini) . . . . . 3
- 2. Mandibles twisted. Occipital carina absent. Large, yellow and black insects. . . . . *Stauropogon*
- Mandibles tapered. Occipital carina present. Wings with the radius sinuate and/or the discocubital cell with a glabrous area, often with detached sclerites (fig. 1). . . . . *Enicospilus*
- 3. Radius strongly elbowed just below stigma (fig. 6). Lateral carinae of mesoscutum continued on dorsolateral part of scutellum (as in fig. 22). Wings infumate. Body colour



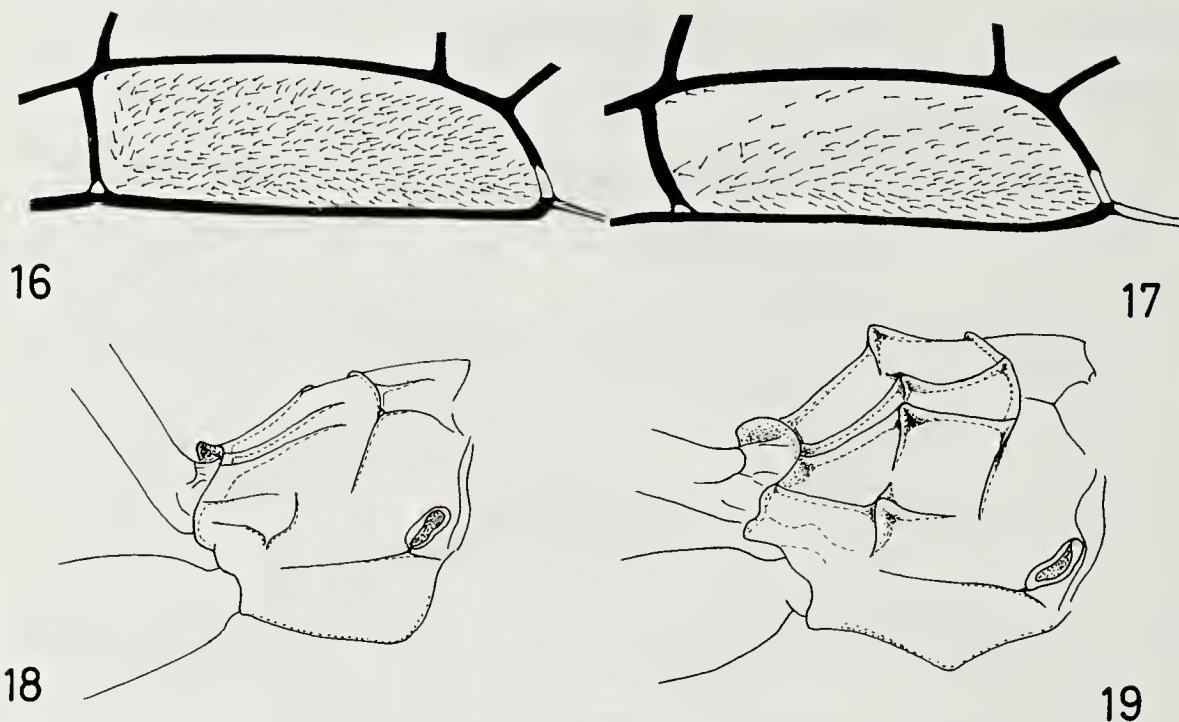


Fig. 16: *O. obscuratus*, first brachial cell; 17: *O. parvulus*, first brachial cell; 18: *O. obscuratus*, propodeum; 19: *O. forticornis*, propodeum.

- brown with distinct black markings. . . . . *Eremotylus marginatus*
- Radius basally straight or weakly curved (figs. 4, 7, 11, 12). Carination of scutellum various. Wings usually hyaline. Body colour usually without black markings (except for *O. impressus*). . . . . 4
4. Occipital carina absent or vestigial; prepectal carina not complete. Radius just beyond intercubitus usually distinctly bent towards metacarpus (fig. 7). . . . . *Platophion*<sup>1)</sup> 5
- Occipital and prepectal carina complete (figs. 3, 28—30). Radius beyond intercubitus not distinctly bent towards metacarpus (figs. 4, 11, 12). . . . . *Ophion* 6
5. Inter-ocellar area testaceous. . . . . *P. areolaris*
- Inter-ocellar area black. . . . . *P. ocellaris*
6. Part of head surrounded by occipital carina black. Thorax with distinct black markings. . . . . *O. impressus*
- Part of head surrounded by occipital carina testaceous. Thorax without black markings. . . . . 7
7. Propodeum without carinae or carinae present as vestiges only. Basal part of radius thickened and subtending an angle of 45° or more to the stigma (fig. 4). Antennae usually with less than 50 segments. Ocelli small, separated from eye margin. Small (wing length 9—14 mm), often pale marked species. . . . . *O. minutus*
- Propodeum with carinae (figs. 18, 19, 25). Basal part of radius at most slightly thickened and subtending an angle of 40° or less to the stigma (figs. 11, 12). Antennae and ocelli various, larger species (wing length rarely less than 14 mm) . . . . . 8
8. Outer mid-tibial spur 0.8-0.9 × length of inner spur (fig. 5). Antennae usually with about 70 segments, rarely less than 64. Hind-trochantellus somewhat elongate (inbetween figs. 8 and

<sup>1)</sup> The name *Platophion* has been synonymized with *Ophion* by Townes, Momoi & Townes (1965). According to Cushman (1947) *Platophion* might be related to the Enicospilini genera *Stauropoctonus* and *Aulophion*. Gauld (1973) retains *Platophion* as a distinct genus, belonging to the Ophionini. The present author considers this correct. An additional character to separate this genus from *Ophion* is the incompleteness of the prepectal carina in *Platophion*.

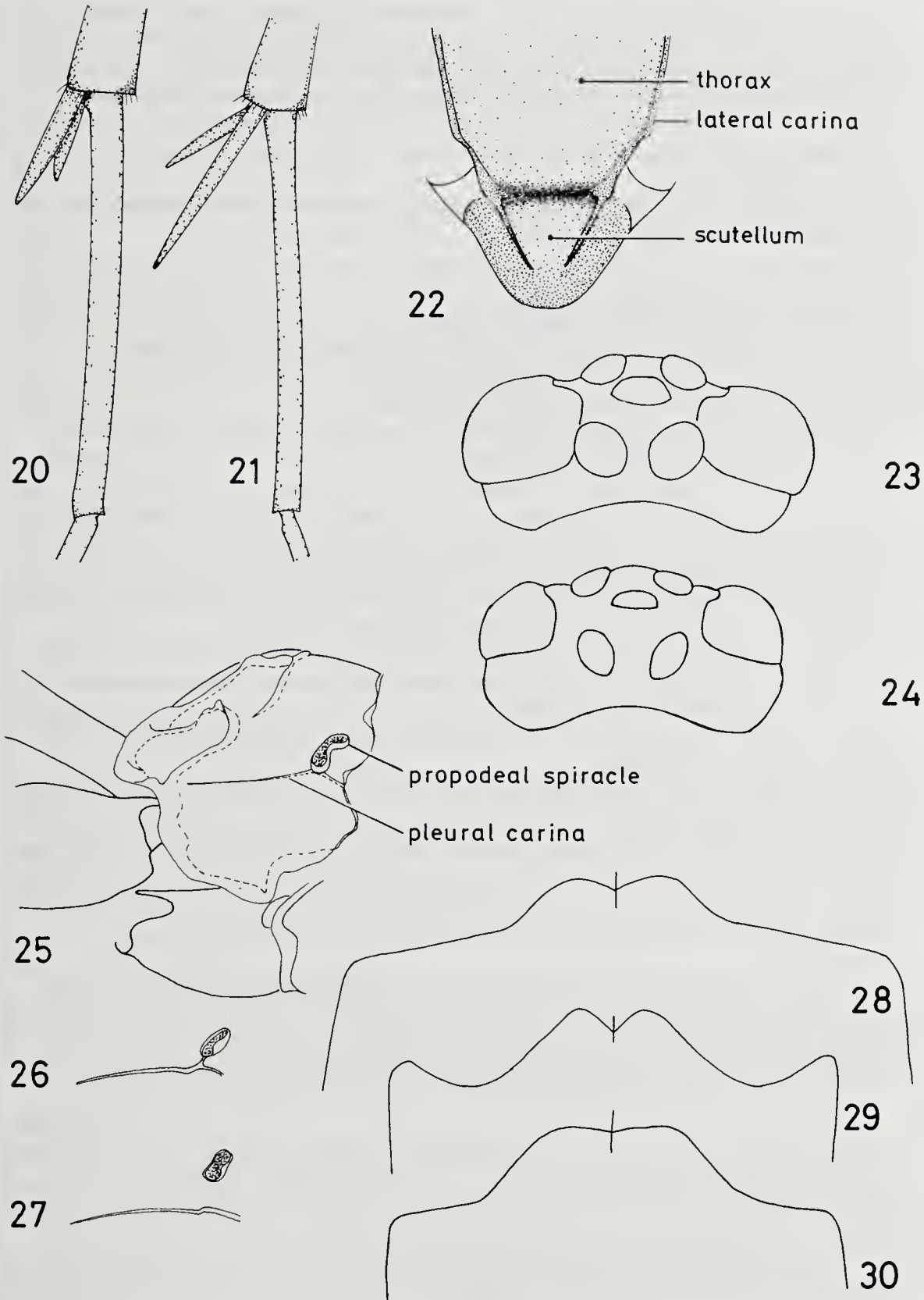


Fig. 20: *O. parvulus*, hind-tibial spurs; 21: *O. pteridis*, hind-tibial spurs; 22: *O. pteridis*, thorax, dorsal view; 23: *O. pteridis*, head, dorsal view; 24: *O. longigena*, head, dorsal view; 25: *O. costatus*, propodeum; 26: *O. mocsaryi*, detail of propodeum; 27: *O. scutellaris*, detail of propodeum; 28: *O. costatus*: prepectal carina, ventral view; 29: *O. mocsaryi*, prepectal carina, ventral view; 30: *O. parvulus*, prepectal carina, ventral view.

- 9). Lateral carinae of mesoscutum usually continued on dorsolateral parts of scutellum (fig. 22). Propodeal spiracle not connected with pleural carina by a raised keel (fig. 27). Mesoscutum and stigma (especially along lower margin) usually darkened. . . . *O. scutellaris*
- Outer mid-tibial spur at most  $0.7 \times$  length of inner spur. Antennae rarely with more than 64 segments. . . . . 9
9. Hind-trochantellus elongate (fig. 8). Third segment of hind-tarsus with distinct bristle-like hairs ventrally (fig. 10). . . . . 10
- Hind-trochantellus short (fig. 9). Third segment of hind-tarsus with bristle-like hairs less distinctly developed or absent . . . . . 12
10. First brachial cell sparsely hirsute near discoideus and densely hirsute along brachius (fig. 17). Thorax and stigma not pale marked . . . . . *O. luteus*
- First brachial cell more or less uniformly hirsute (fig. 16). Thorax usually pale marked with three brown stripes on mesoscutum. Proximal and distal angles of stigma pale marked . . . . . 11
11. Antennae with 55-67 segments, usually about 60. Parallel-sided, longitudinal carinae on central part of propodeum not raised medially (fig. 18). . . . . *O. obscuratus*
- Antennae with 46—53 segments. Parallel-sided, longitudinal carinae on central part of propodeum distinctly raised medially (fig. 19). . . . . *O. forticornis*
12. Lateral carinae of mesoscutum continued on dorsolateral parts of scutellum along more than 0.1 of the length of scutellum (fig. 22). Radius sinuate between intercubitus and metacarpus (just beyond intercubitus convex towards hind margin of wing) (fig. 11). Propodeal spiracle very close to pleural carina (fig. 25). Inner hind-tibial spur very slender, more than  $0.4 \times$  length of first segment of hind-tarsus (fig. 21). First brachial cell usually unevenly hirsute (fig. 17). Basal flagellar segments elongate (fig. 13). . . . . 13
- Lateral carina of mesoscutum not continued beyond anterior 0.1 of scutellum. Radius more or less evenly bent between intercubitus and metacarpus (convex towards metacarpus) (fig. 12). Inner hind-tibial spur slightly thickened (slender in *O. mocsaryi*), at most  $0.4 \times$  length of first segment of hind-tarsus (fig. 20). Basal flagellar segments usually shorter (fig. 15; in *O. parvulus* elongate, figs. 13 & 14). . . . . 14
13. Ocelli large and distance between ocelli and eyes very short, temples behind eyes narrow (fig. 23). . . . . *O. pteridis*
- Ocelli relatively small and distinctly separated from eyes, temples behind eyes very buccate (fig. 24). . . . . *O. longigena*
14. First brachial cell uniformly hirsute (fig. 16). Prepectal carina as in fig. 28 or 29. Antennae usually with more than 56 segments. (These characters are not always reliable, so try alternative also). . . . . 15
- First brachial cell less hirsute along discoideus and densley hirsute along brachius (fig. 17). Prepectal carina more or less as in fig. 30. Antennae usually with less than 56 segments. . . . . 16
15. Prepectal carina as in fig. 28, with obtusely angled lateral corners. Propodeal spiracle ventrally usually in line with pleural carina (fig. 25). Basal flagellar segments as figured for *O. mocsaryi* (fig. 15), or even thicker. Large species, length of forewing 15 mm or more. . . . . *O. costatus*
- Prepectal carina as in fig. 29 with protruding, sharp-angled lateral corners (directing caudad). Pleural carina usually upcurved to contact propodeal spiracle (fig. 26). Basal flagellar segments short (fig. 15). Smaller species, length of forewing usually less than 15 mm. . . . . *O. mocsaryi*
16. Ocelli large and distance between ocelli and eyes very short, temples behind eyes narrow (as figured for *O. pteridis*, fig. 24). Basal flagellar segments elongate (fig. 13, rarely as short as in fig. 14). . . . . *O. parvulus*
- Ocelli relatively small and distinctly separated from eyes, temples behind eyes buccate (compare figure 25, *O. longigena*). Basal flagellar segments very short (as figured for *O. mocsaryi*, fig. 15, or even shorter). . . . . *O. brevicornis*



## List of species:

*Eremotylus marginatus* (Jurine, 1807).

This rare species is known in the Netherlands from a single specimen only (1 ♂, Tegelen, 12.V.1964, C. Ottenheim leg., Zt). Gauld (1973) states that this species is in Great Britain "apparently a rare species found occasionally in woodland rides during the day".

*Platophion areolaris* (Brauns, 1890).

A rare species of which two females have been recorded from the Netherlands (1 ♀, Tegelen, 16—17.VII.1967, M. P. Peerdeman leg., L.; 1 ♀, Meinweg, 11.VII.1967, F. J. van Oosterhout leg., L).

Gauld (1973) also uses the following characters to discriminate between this and the following species: "Cu1 in hind wing mid-way between M + Cu and 1A; propodeum with carinae forming a distinct D-shaped area superomedia... *areolaris*. Cu1 closer to 1A than to M + Cu, propodeum with area superomedia wanting... *ocellaris*". The holotype of *areolaris* (on loan in Wageningen from the Berlin Museum) shows these differences. The specimens from the Leiden Museum are intermediate in this respect. The colour of the interocellar area is always testaceous or black, yet it remains questionable whether or not *areolaris* and *ocellaris* are different species.

*Platophion ocellaris* (Ulbricht, 1926).

Uncommon species known from the following provinces: Noord Holland (Muiderberg, Naardermeer), Noord Brabant (Boxtel, Heeze), Overijssel (Denekamp), Gelderland (Assel, Loenen, Wageningen), Limburg (Meinweg, Tegelen, Velden, Vijlen, Vijlener Bos). Specimens were collected from 22.V—28.VI.

Examined are 30 specimens (A 2, L 16, Zk 4, Zt 8).

*Ophion impressus* (Thunberg, 1822).

= *ventricosus* Gravenhorst, 1829.

Known from the following provinces: Noord Holland (Bergen, Hilversum, Santpoort, Vogelenzang), Zuid Holland (Den Haag, Meijndel, Schelluinen), Utrecht (Nieuwersluis), Noord Brabant (Breda, Burgst, Haaren, Heeze), Friesland (Beetsterzwaag), Gelderland (Arnhem, Hoenderloo), Overijssel (Colmschate), Limburg (Houthem, Meinweg, Rothem, Tegelen). The period of flight is rather short, from 30.IV—6.VI.

Examined are 56 specimens (A 2, L 10, W 32, Zt 12).

*Ophion minutus* Kriechbaumer, 1897.

Widely distributed, not yet recorded from the provinces of Groningen and Zeeland. Collecting dates are from 25.III—24.VI, rarely in VII, VIII or IX. One male and two females (Naarden, 26—28.III.1920, A) were reared from *Hybernia* [= *Erannis*, Geometridae] and one female (Delden, 4.IV.1919, Zt), was bred from a "wilgenbladwesp" larva [= *Nematus salicis* (Linnaeus), Tenthredinidae].

Noteworthy is that all three pale marked species, *minutus*, *obscuratus* and *forticornis* apparently are bivoltine, together with *parvulus*.

The names *minutus* and *parvulus* are used here for two different species, in spite of Townes' (in Townes, Momoi & Townes, 1965) statement that *minutus* and *parvulus* are synonymous. The types of both were re-examined by Aubert (1974), who concluded about *parvulus*: "Espèce certainement distincte de la précédente [*minutus*], contrairement au dire de Townes...". Perkins (i.l., Gauld pers. comm., 1977), also examined the types and arrived at the same conclusions as Aubert.

Examined are 126 specimens (A 22, L 20, W 23, Zk 39, Zt 22).

*Ophion scutellaris* Thomson, 1888.

= *longicornis* Brauns, 1889.

= *stigmaticus* Morley, 1914.

Widely distributed, known from all provinces except Drenthe. The species is known to fly from 9.III—14.V, rarely in VI or VII.

Examined are 133 specimens (A 45, L 27, W 17, Zk 24, Zt 20).

*Ophion luteus* (Linnaeus, 1758).

= *distans* Thomson, 1888.

= *calcaratus* Morley, 1914.

? = *slaviceki* Kriechbaumer, 1892.

Widely distributed and very common; known from all provinces. The species is on the wing from 15.V.—28.IX, rarely X.

Gauld (1973, 1976) distinguishes *luteus* from *slaviceki* (= *luteus* auct., nec Linnaeus) on account of its smaller size and shorter mid-tibial spur. Since other differences than those listed were not found and because these characters are not interpreted here as a base for specific distinction, *slaviceki* is regarded as a synonym of *luteus*.

Examined are 243 specimens (A 104, L 73, W 19, Zk 27, Zt 20).

*Ophion obscuratus* Fabricius, 1798.

= *obscurus* Fabricius, 1804.

A widely distributed and very common species, known from all provinces except Groningen and Drenthe. The species is bivoltine, on the wing from IV—VI and IX—X, rarely III, VII, VIII or XI. No reared specimens were examined from the Netherlands but in the collection of the Dept. of Entomology, Wageningen, several German specimens are present, which were bred from *Acrionicta cuspis* (Hübner) [Noctuidae], *Agrotis strigula* [= *Lycophotia porphyrea* (Denis & Schifferrmüller), Noctuidae] and *Cerura furcula* [= *Harpyia furcula* (Clerck), Notodontidae].

Examined are 306 specimens (A 51, L 154, W 21, Zk 41, Zt 39).

*Ophion forticornis* Morley, 1914.

= *baueri* Habermehl, 1930, new synonymy.

Rare species, known from the following provinces: Noord Holland (Hilversum, Vogelenzang), Zuid Holland (Oostvoorne), Utrecht (Soestduinen), Gelderland (Assel, Hoge Veluwe, Putten), Limburg (Venlo). One female was collected in a train between Assen and Groningen and there is a further specimen in the Koornneef collection (W), without data but probably from Gelderland. The dates of collecting are from 4.V—5.VI and 10.IX (1 ♀, Oostvoorne, L.).

Morley (1914) and Gauld (1973) suggest that *forticornis* might be a parasite of coastal Noctuidae because the (scarce) British localities are coastal; this does not apply to the Netherlands. The medially distinctly raised lateral and central carinae of the propodeum and the pale marked thorax are used by Habermehl (1930) to define *baueri*. Although the type could not be traced yet, *baueri* is quite certain synonymous with *forticornis*.

Examined are 11 specimens (A 4, L 3, W 2, Zk 1, Zt 1).

*Ophion pteridis* Kriechbaumer, 1879.

Widely distributed and quite common; not known from the provinces of Groningen and Zeeland. Specimens were collected from 1.VII—9.IX, less frequently in VI.

Examined are 133 specimens (A 16, L 64, W 12, Zk 22, Zt 19).

*Ophion longigena* Thomson, 1888.

Rare species; only one female is known from the Netherlands (Valkenburg, 22.VI.1962, A).

*Ophion costatus* Ratzeburg, 1848.

Until now known from the following provinces: Noord Holland (Amsterdam, Hilversum, Overveen), Zuid Holland (Arkel, Dirksland, Goeree, Melissant, Middelharnis, Oostvoorne), Zeeland (Oostkapelle), Noord Brabant (Bergen op Zoom, Breda), Gelderland (Beusichem,



Lienden), Limburg (Arcen, Tegelen). The species is known to fly from 11.V—18.VII, rarely in VIII.

*O. costatus* is not referable to the *luteus* species-complex (Gauld, 1973), but is more related to *mocsaryi*, *parvulus* and *brevicornis*.

Examined are 40 specimens (A 14, L 9, Zk 12, Zt 5).

*Ophion mocsaryi* Brauns, 1890.

Widely distributed, not yet recorded from the provinces of Zeeland and Drenthe. The species was collected from 25.IV—20.VII, two females from Oostvoorne were collected 10.IX.

Examined are 65 specimens (A 14, L 16, W 6, Zk 11, Zt 18).

*Ophion parvulus* Kriechbaumer, 1879.

Widely distributed, not yet recorded from the provinces of Groningen, Utrecht and Zeeland. Apparently bivoltine; from V—VII (very frequent VI) and X (especially first half), first record is from 30.III and there are a few dates in IV, VII, VIII and IX. One female (extremely large specimen, wing length 18 mm, from Bergen aan Zee, 24.VII.1946, Zt), was reared from a "Pijlstaart" [=Sphingidae], one male (Almelo, 30.VI.1946, Zt), from *Cosmotriche potatoria* [= *Philudoria potatoria* (Linnaeus), Lasiocampidae], and one male (Beetsterzwaag, 18.IV.1923, A) was bred from *Taeniocampa cruda* [= *Orthosia cruda* (Denis & Schiffermüller), Noctuidae].

Examined are 99 specimens (A 18, L 49, W 8, Zk 17, Zt 7).

*Ophion brevicornis* Morley, 1914.

Uncommon; known from Noord Holland (Amsterdam or Muiderberg), Noord Brabant (Breda, Burgst, Heeze, Liesbosch, Teteringen), Friesland (Beetsterzwaag), Overijssel (Denekamp, Ommen), Gelderland (Wilp) and Limburg (Arcen, Houthem, Valkenburg). The period of flight is from 27.V—8.VII. One specimen (from Amsterdam or Muiderberg, W), was reared from *Cosmia (Calymnia) trapezina* (Linnaeus) [Noctuidae].

*O. brevicornis* is related to *parvulus*, and is not to be included in the *luteus* species-complex as proposed by Gauld (1976).

Examined are 42 specimens (A 2, W 31, Zt 9).

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*Cecidologia indica*, vanaf vol. 1, 1966, niet geheel compleet.

EDNEY, E. B., 1977. WATER BALANCE IN LAND ARTHROPODS. Deel 9 van de serie *Zoophysiology and Ecology*. XII + 282 pp.; 109 figs, 36 tab.; ca. 850 refs.; index 10 kolommen. Springer Verlag, Berlin. ISBN 3-540-08084-8. Prijs (gebonden) DM 78.—

Het fundamentele probleem voor land arthropoden — klein en dus met een relatief groot verdampend oppervlak, tevens levend in een milieu dat veelal tijdelijk uitdroging mogelijk maakt — is zonder twijfel hun waterhuishouding. Aan dit probleem zitten vele fascinerende, vaak moeilijk te analyseren, oecologische en fysiologische aspecten. De auteur, die al twintig jaar aan dit onderwerp werkt, heeft hierover een voortreffelijke, goed leesbare en zeer veelomvattende samenvatting geschreven. Na een korte inleiding waarin de voornaamste eigenschappen van water(damp) (naar mijn smaak wat te beknopt) en het arthropodenintegument worden uiteengezet, komen hoofdstukken over watergehalte van de dieren, waterverlies dóór de cuticula, door verdamping, excretie en osmoregulatie, opzettelijke verdamping voor afkoeling, opname van vloeibaar water, metabolisch water, en een voor mij verrassend hoofdstuk over opname van waterdamp. De waterbalans van eieren, onder meer in relatie tot hun oppervlaktesculptuur, wordt in een apart hoofdstuk besproken. Voor de lezer die niet veel tijd heeft tenslotte nog een samenvatting.

De verzorging van het boek is alleszins plezierig. Over dit onderwerp verschijnen niet al te veel boeken en des te gelukkiger is het dat het werk van Edney het product is van iemand die veel te zeggen heeft, en die weet hoe hij dat moet doen. — W. N. Ellis.