

The synonymy of *Diceropyga opercularis* (Walker) and
D. insularis (Walker) with a description of
D. breddini n. sp. (Homoptera, Cicadidae)

by

J. P. DUFFELS

Zoologisch Museum, Amsterdam

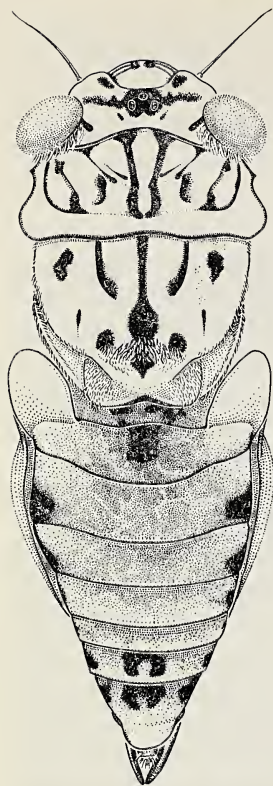
Diceropyga was established by STÅL (1870) as a new subgenus of *Cosmopsaltria* Stål, 1866. In the differential diagnosis of *Diceropyga*, its author already introduced external characters of the male genital segments for the distinction of this subgenus. According to STÅL the last abdominal segment of the males of *Diceropyga* is sharply pointed on both sides, meaning, in fact, that the lateral sides of the pygofer are acutely dentate apically.

In 1905 DISTANT elevated *Diceropyga* to genus rank in preparation for his synonymic catalogue (1906) and designated *D. oblecta* (Fabricius, 1803) as the type of the genus. But this author also widened the rather narrow concept of *Diceropyga* considerably by the addition of about 20 species, mainly transferred from *Cosmopsaltria*. Most of these species fit well within *Diceropyga* in the original sense. Nevertheless a small number of newly added species grouped around *D. chlorogaster* (Boisduval, 1835) is taxonomically rather disjunct from the other species more or less closely related to *D. oblecta*, the type of the genus. These two species-groups are principally characterized by the different shape of the lateral sides of the pygofer in the males. These sides are apically more or less acutely dentate in the species of the "*oblecta*-group" but provided with a broad obtuse process in the representatives of the "*chlorogaster*-group".

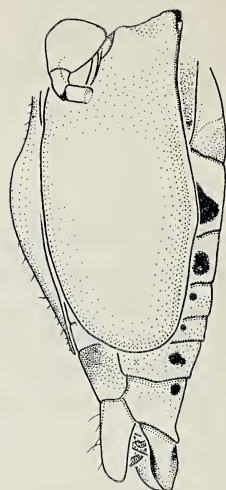
As it now stands *Diceropyga* still covers rather a heterogeneous collection of species. Anticipating the conclusions of a revisionary study of the genus, it must be pointed out here that the species of the "*chlorogaster*-group" are very closely related, and sufficiently distinct from those of the "*oblecta*-group" to merit a separate taxonomical position. I refrain from this step for the present, pending the revision of the whole genus.

In the present paper I give a preliminary note on the taxonomy of three species of the "*chlorogaster*-group" viz. *D. opercularis* (Walker, 1858), *D. insularis* (Walker, 1858) and *D. breddini* n. sp. In view of the revision of the whole genus I have examined the types of *opercularis* and *insularis*, both of the male sex, preserved in the collection of the British Museum (Nat. Hist.). The study of these types was necessary the more so as WALKER's descriptions were insufficient and as DISTANT and other authors did not point out decisive characters for recognizing these species. The type specimens are rather badly preserved and have lost most of their original coloration. But after a comparison of the types of *opercularis* and *insularis* and especially of their genitalia I do not doubt that both names refer to the same species.

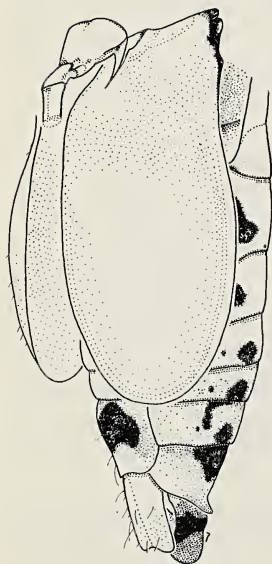
Now a new question arises with regards to the valid name for the species since *insularis* and *opercularis* were described by WALKER in two different books both published in 1858. It is clear that the solution of this priority problem depends on the possibility to trace the dates of publication of these books.



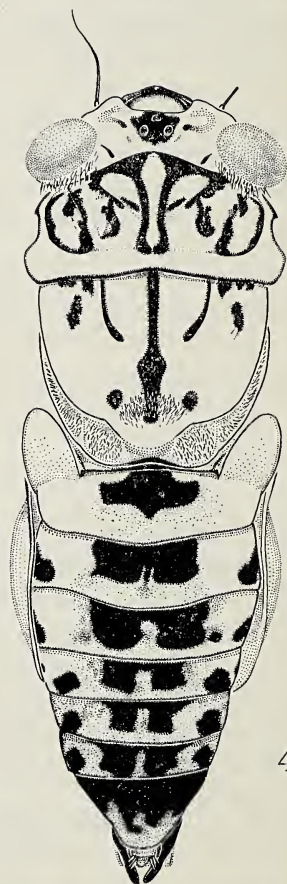
1



2



3



4

Figs. 1—2. *D. opercularis*, male from Minahassa. 1, body in dorsal view; 2, abdomen with opercula in ventro-lateral view.

Figs. 3—4. *D. breddini*, male holotype. 3, abdomen with opercula in ventro-lateral view; 4, body in dorsal view. Del. B. WEIJDE.

D. insularis was described in the "List of specimens of Homopterous insects in the collection of the British Museum. Supplement". It was rather easy to date this list by means of one of SHERBORN'S very useful papers (1934) dealing with the dates of publication of the catalogues of natural history (post 1850) issued by the British Museum. The catalogue in question was published on April 17th, 1858.

The other species under consideration, *D. opercularis*, was described in the Homoptera-part of the "Insecta Saundersiana". In spite of many efforts, I was unsuccessful to find the date of publication in the bibliographical literature. Finally I consulted the British Museum with regard to this question. As a result of the gratefully acknowledged investigations of Miss S. BLUNDELL of the Department of Printed Books, the problem was solved as appears from the following passage of her letter: "the volume of Insecta Saundersiana dealing with Homoptera bears the Museum's date stamp for April 13th, 1858. The Museum's copy would have been available to the public on or shortly after that date."

The above mentioned data lead to the conclusion that the name *opercularis* is only a few days older than *insularis*. Consequently *opercularis* is the valid name for the species whereas *insularis* falls as a junior synonym.

This paper was based on material belonging to the following institutions, indicated henceforth by the abbreviations in parentheses: British Museum (Nat. Hist.), London (BM); Deutsches Entomologisches Institut, Eberswalde (DEI); Institut Zoologiczny, Polska Akademia Nauk, Warszawa (IZW); Rijksmuseum van Natuurlijke Historie, Leiden (RML); Staatliches Museum für Tierkunde, Dresden (SMD); Zoölogisch Museum, Amsterdam (ZMA). For the loan of this material I am greatly obliged to the authorities of these museums and to Dr. P. H. VAN DOESBURG Jr. (Leiden), Dr. R. KRAUSE (Dresden), Dr. G. PETERSEN (Eberswalde) and Dr. H. SZELEGIEWICZ (Warszawa). I take pleasure in expressing here my cordial thanks to Dr. W. J. KNIGHT for his aid during my stay at the British Museum (Nat. Hist.). This visit to London was made possible by a grant from the Netherlands Organization for the Advancement of Pure Research, Z. W. O. (Nr. R 954-58).

Diceropyga opercularis (Walker, 1858)

figs. 1, 2 & 5

Dundubia opercularis Walker, 1858a: 7.

Dundubia insularis Walker, 1858b: 8 (n. syn.).

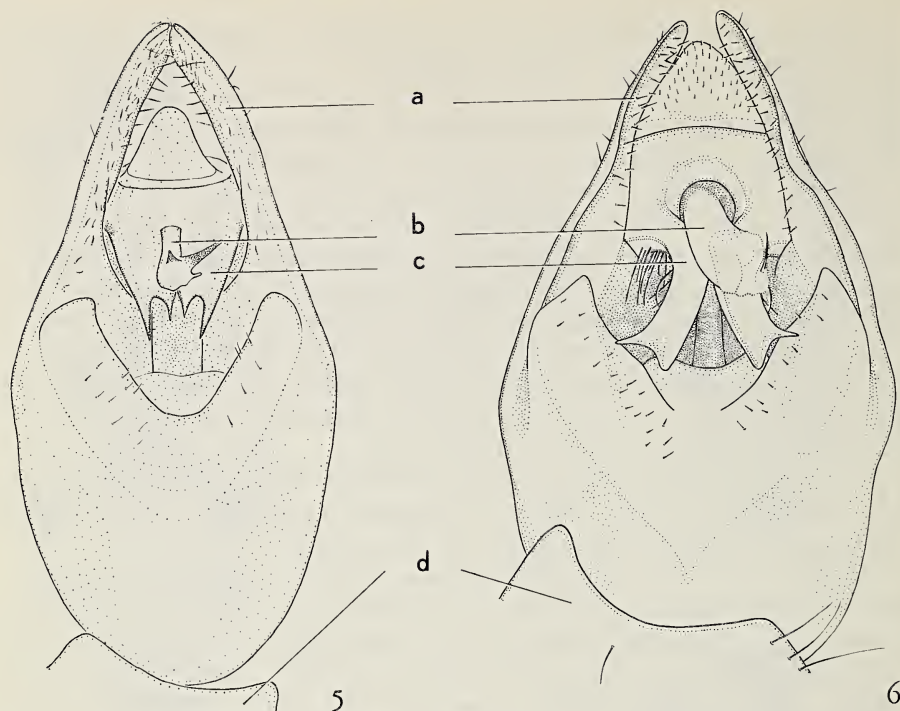
Cosmopsaltria opercularis; DISTANT, 1891: 63, pl. V figs. 16, 16a-b; DISTANT, 1892: XII.

Cosmopsaltria insularis; DISTANT, 1891: 64, pl. IX figs. 12, 12a-b; DISTANT 1892: XII; BREDDIN, 1901: 26.

Diceropyga opercularis; DISTANT, 1906: 63; DISTANT, 1912: 50; SINGH-PRUTHI, 1925: 190; LALLEMAND, 1931: 75; KATO, 1932: 166.

Diceropyga insularis; DISTANT, 1906: 63; DISTANT, 1912: 50; KATO, 1932a: 166.

Material examined — The ♂ holotype of *Dundubia opercularis* in the BM bears the following three labels: „Celebes or Mindanao”; a round label with



Figs. 5—6. Male genitalia; a, process of the lateral sides of the pygofer; b, aedeagus; c, uncus; d, sternite VIII. 5, holotype of *D. opercularis*; 6, holotype of *D. breddini*. Del. B. WEIJDE.

"Type" in a green circle; "opercularis". The ♂ holotype of *Dundubia insularis* in the BM also bears three labels: a round blue label "Celebes" with on the reverse side "55/22"; a round label with "Type" in a green circle; "Dundubia insularis W type". CELEBES: Celebes, 1 ♂, BM; Celebes, 1871 (A. B. Meijer), *opercularis* Walk., Distant coll. 1911-383, 1 ♂, BM; Celebes, 1871 (A. B. Meijer), 361, 1 ♂, SMD; Minahassa, 3 ♂, 1 ♀, ZMA; N. Celebes, Minahassa, Tomohon, 1950 (G. H. van Rijssel), 2 ♂, 1 ♀, ZMA; N. Celebes, Bolaang Mongondon, Modajag, IX.1917 (W. Kaudern) 1 ♂, RML; N. Celebes, Tomohon (Berends & ten Kate) 1 ♂, RML; N. Celebes, Menado (Mohari) 1 ♂, IZW; Tondano (Forsten) 1 ♂, RML. Without locality 1 ♂, RML.

DESCRIPTION

Head. — Vertex with a black spot round the ocelli, a black to brownish spot on the vertex lobe and a transverse spot more hindwards, laterally of the anterior ocellus. Two pairs of very small oblong black spots are situated respectively mediad of the eyes and latero-distad of the posterior ocelli. Underside of the vertex lobe usually with a black transverse line reaching from the lower base of the antenna nearly to the eye. Anterior part of the postclypeus on each side with five or six black transverse furrows enclosing a median oval spot of the ground colour. From this spot a black line, equal in width along its whole length, runs down to

the ochraceous coloured anteclypeus. Rostrum ochraceous with a black apex, passing the hind coxae.

Thorax. — Ground colour ochraceous. Pronotum with two percurrent paramedian black fasciae, widened anteriorly along the front margin of the pronotum and nearly connected posteriorly at the anterior margin of the pronotum collar, and a pair of brownish black spots between the two pairs of fissures. In most specimens a very narrow, oblique, black line near the paramedian fascia just above the paramedian fissure.

Lateral fissures and the surrounding fissure, only laterad of the lateral fissures, more or less broadly black to black brown. Outermost posterior margin of the pronotum collar very narrowly black.

Mesonotum with a black median fascia, percurrent from anterior margin of the mesonotum to cruciform elevation; this fascia is very narrow anteriorly, widens at two thirds of its length to three or four times its anterior width and then narrows posteriorly towards the cruciform elevation. The very narrow paramedian fasciae are curved somewhat medially and reach from front margin to the centre of the mesonotum; a round black spot is situated in front of the anterior angles of the cruciform elevation. Moreover a black spot laterally of the paramedian fasciae; in a few specimens there is a very narrow black, longitudinal stripe behind this spot.

Legs. — Femora ochraceous. Fore femora with two black spines, connected by a black line and with two faint, brownish spots near the apex. Tibiae ochraceous, fore and middle tibiae somewhat darker to the apex, hind tibiae with a broad brownish ring close to the apex. Tarsi ochraceous, more brownish near the claws.

Tegmina and wings. — Hyaline. Basal venation of wings and tegmina light brown, apical venation more dark brown. Basal veins of the second and third apical areas of the tegmina infuscated.

Opercula. — Male operculum (fig. 2) light ochraceous or greenish, latero-basal margin very narrowly brownish. The operculum reaches the 6th or 7th segment. The basal part of the operculum is rather flat, the apical two thirds very convex. In a natural position the operculum is adpressed close to the abdomen. Basal part of the lateral margin sinuate, apical two thirds rather strongly convex up to the somewhat obliquely rounded apex, medial margin slightly curved from the base to the apex.

Female operculum ochraceous, clothed with a yellowish pilosity. The brownish colour of the latero-basal angle extends along the lateral margin. Lateral margin more or less curved, latero-distal edge right or acute-angled. Hind margin weakly undulate reaching the posterior margin of segment 2.

Abdomen. — Male: Upperside ochraceous to brownish, sometimes tinged with greenish. Anterior margin of segment 2 with a median, black, obconical spot. Anterior margin of the segments 3—6 medially tinged more or less brownish to blackbrown, usually rather distinct on the segments 3 & 4. Segments 7 & 8 medially with a pair of brownish to black spots along the anterior margin. The segments 3—7 bear a pair of lateral spots, rather large on the segments 3—4 but usually smaller on the other segments. Underside of the abdomen light ochraceous with the exception of the brownish coloured, basal two thirds of the seventh ventrite, in a few specimens reduced to a pair of oblique spots touching the anterior margin of the ventrite in the middle.

Female: Upperside and underside ochraceous, somewhat more brownish towards the tip. Upperside with a narrow, median triangular spot on segment 2 just behind the cruciform elevation. Anterior margin of segment 9 latero-dorsally with a rather large triangular black spot. The 7th ventrite laterally provided with a small brownish spot and a sometimes faint, median, brownish triangle at the anterior margin. Ovipositor black with the adjacent parts of the 9th segment broadly margined with black.

Male genitalia (fig 5). — Lateral sides of the pygofer apically with a broad obtuse process. This process is ochraceous with the exception of the brownish upper and lower edges. Uncus with a pair of rather long sharp teeth, each having medially a short sharp tooth.

Measurements. — Length of the body ♂: 24-27.5 mm, ♀: 20-21 mm; length of head from apex of postclypeus to pronotum ♂ & ♀: 2.8-3 mm; length of pronotum ♂: 3.5-3.9 mm, ♀: 3.2-3.5 mm; length of mesonotum including cruciform elevation ♂: 5.3-6.2 mm, ♀: 5-5.5 mm; width of head including eyes ♂: 7.8-8.5 mm, ♀: 8 mm; width of pronotum ♂: 7.8-8.5 mm, ♀: 8 mm; width of mesonotum ♂: 7-7.6 mm, ♀: 7.7 mm; length of tegminum ♂: 32-34.5 mm, ♀: 31.5-33 mm.

Distribution. — The distributional area of this species seems to be confined to the north-eastern part of Celebes.

***Diceropyga breddini* n. sp.**
figs. 3, 4 & 6

Cosmopsaltria opercularis sensu BREDDIN, 1901: 26, 126 [pro parte]

Material examined. — Holotype: Nord-Celebes, Toli-Toli, XI-XII.1895 (H. Fruhstorfer) ♂, BM. Paratypes: Nord Celebes, Toli-Toli, XI-XII.1895 (H. Fruhstorfer) 3 ♂, 3 ♀, BM, 1 ♂, IZW, idem from Distant coll. 1911-383, 3 ♂, BM, idem from Heyene coll. 98-34, 1 ♂, BM, idem from coll. Breddin, 4 ♂, 1 ♀, DEI, idem from coll. Breddin, *Cosmopsaltria opercularis* [in BREDDIN's writing] 1 ♂, DEI; Centr. Celebes, Koelawi, 6.XI.1918 (W. Kaudern) 1 ♂ 1 ♀, RML, same data but 27.VI.1918, 1 ♂, RML. Flores? *Diceropyga insularis* Walk., Melichar det., 1 ♂, DEI.

The differential diagnosis of *breddini* as given here is mainly based on the males viz., the colour pattern of the male abdomen and the structure of the male genitalia. On account of the characters mentioned below, it is hardly possible to separate the females of *opercularis* and *breddini*. The present species differs from *opercularis* in the following characters:

Head. — The two spots on both sides of the vertex are mostly connected laterally, forming a thick, semi-circular figure. The black line on the underside of the vertex lobe is usually reduced to a brownish black spot near the base of the antenna.

Thorax. — The pronotum has the same pattern of black spots and fasciae as in *opercularis* but somewhat thicker. Mesonotum as in *opercularis*.

Opercula. — The apical part of the male operculum of *opercularis* (fig. 2) is often somewhat more oblique than the regularly curved apex of the operculum of

breddini (fig. 3). The apical part of the operculum is usually less convex than in *opercularis*. These differences in the shape of the opercula of *opercularis* and *breddini* are not sufficiently characteristic for separating the two species. Female operculum as in *opercularis*.

Abdomen. — Male: Ground colour ochraceous to brownish, sometimes tinged with greenish. The males of *breddini* can easily be separated from *opercularis* by the highly characteristic colour pattern of the abdomen. Upperside of the abdomen on segment 2 with a median black transverse fascia, laterally free from the anterior margin of the segment, usually about as broad as, sometimes narrower than, the cruciform elevation. Corresponding fasciae on segments 3—4, situated against the anterior margin of the segment, are somewhat broader than the fascia on segment 2; posterior edges of these fasciae excavated medially. Segments 3 & 4 laterally provided with a pair of spots, on the 4th segment somewhat smaller than on the 3rd. The spots are partly situated under the lateral margin of the operculum. Segments 5—7 medially provided with a bicuspidate black marking at the anterior margin of the segments, and a pair of paramedian spots; the black markings on each of these segments are sometimes transversely connected to a broad black stripe. Anterior two thirds of segment 8 black. Underside of the abdomen light ochraceous with the exception of a rather large, generally posteriorly bilobate, spot on the basal two thirds of the 7th ventrite; this spot is sometimes reduced to a pair of oblique spots. Female abdomen as in *opercularis*.

Male genitalia (fig. 6). — Lateral sides of the pygofer apically black to brownish black. The uncus lobe splits apically into a medial acute apex, and a laterally curved, very slender and sharply pointed spur, in some specimens reduced to a very short spine.

Measurements. — Length of the body ♂: 25.5–31.5 mm, ♀: 23 mm; length of head from apex of postclypeus to pronotum ♂: 2.8–3.6 mm, ♀: 2.7–3.0 mm; length of pronotum ♂: 3.2–4.2 mm, ♀: 3.4–4.0 mm; length of mesonotum including cruciform elevation ♂: 5.3–6.5 mm, ♀: 5.9–6.3 mm; width of head ♂: 8.0–9.5 mm, ♀: 7.9–8.7 mm; width of pronotum ♂: 7.6–9.2 mm, ♀: 8.5–9.0 mm; width of mesonotum ♂: 7.2–8.0 mm, ♀: 7.5–7.6 mm; length of tegminum ♂: 30–36 mm, ♀: 33–34 mm.

Distribution. — The doubtful locality “Flores (?)” needs confirmation. At present it seems more probable that this species is strictly confined to Celebes.

This species is dedicated to Gustav BREDDIN in recognition of his fine work on the Hemiptera fauna of Celebes.

References

- BREDDIN, G., 1901, Die Hemipteren von Celebes. Ein Beitrag zur Faunistik der Insel. *Abb. naturforsch. Ges. Halle* 24 : 1—213, pl. I.
 DISTANT, W. L., 1890, A monograph of Oriental Cicadidae 3: 49—72, pls. V—VI.
 ———, 1892, A monograph of Oriental Cicadidae 7: I—XIV, 145—158, pl. XV.
 ———, 1905, Rhynchotal notes. - XXIX. *Ann. Mag. nat. Hist.* (7) 15: 58—70.
 ———, 1906, A synonymic catalogue of Homoptera part 1, Cicadidae: 1—207.
 ———, 1912, Homoptera, fam. Cicadidae, subfam. Cicadinae. *Genera Insectorum* 142: 1—64, pls. I—VII.
 KATO, M., 1932, Monograph of the Cicadidae: 1—450, pls. 1—32, text figs. 1—122.

- LALLEMAND, V., 1931, Hemiptera - Homoptera in: Résultats Scientifiques du Voyage aux Indes Orientales Néerlandaises de LL.AA.RR. le Prince et la Princesse Léopold de Belgique 4 (1) : 71—85. *Mém. Mus. r. Hist. nat. Belg.* (hors série).
- SHERBORN, C. D., 1934, Dates of publication of catalogues of Natural History (post 1850) issued by the British Museum. *Ann. Mag. nat. Hist.* (10) 13: 308—312.
- SINGH-PRUTHI, H., 1925, The morphology of the male genitalia in Rhynchota. *Trans. ent. Soc. Lond.* 1925 : 127—267, pls. VI-XXXII.
- STÅL, C., 1870, Hemiptera insularum Philippinarum. Bidrag till Philipppinska öarnes Hemipter-fauna. *Öfvers. Vetensk. Akad. För.* 27 : 607—776, pls. VII—IX.
- WALKER, F., 1858a, List of the specimens of Homopterous insects in the collection of the British Museum. Supplement : 1—369.
- , 1858b, Homoptera. Insecta Saundersiana: or characters of undescribed insects in the collection of William Wilson Saunders, Esq. : 1—117.

A record of *Gomphus graslini* Rambur, 1842 (Odonata) from Spain

by

H. OVERBEEK

Zoölogisch Museum, Amsterdam

In July 1969 the author made a collecting trip to southern Spain with Messrs. J. O. DE BOOIS and A. TEN HOUTEN. During this trip we secured fifteen males of the dragonfly *Gomphus graslini* Rambur at the Rio Majaceite, a tributary stream of the Guadalete in the province of Cadiz. I was rather surprised to find this species so far to the south. *G. graslini* was only known from central and southern France, west of the Rhône, where it occurs most abundantly in the department Indre (R. MARTIN, 1931) and in the valleys of the Lot and the Dordogne (P. AGUESSE, 1968).

We caught the specimens on July 18th, some kilometers downstream the weir of the Pantano de los Hurones, about 12 km west of Ubrique. One of the few places where it was possible to reach the streambed, is near a bridge over a tributary brook. Upstream the river is enclosed between steep rocks. Downstream the banks are covered with a dense and impenetrable vegetation. There were many narrow shady tracts with fast running water, varied by wider and deeper parts — but not more than 20 m wide — with a muddy bottom and more turbid water. Here the flow was quiet. We found that the species preferred these deeper parts of the river. The males liked to perch on the vegetation, one to three feet above the water surface, rather than on stones. We found them on the sunny as well as on the shady side. From these places the males made short flights over the water surface. We could not find any female or exuviae. Among the other Odonata occurring there, we found *Irene boyeria* (Fonsc.) flying near the shady tracts, and on the rocky parts upstream *Oxygastra curtisi* (Dale), *Onychogomphus forcipatus unguiculatus* (v. d. Lind.) and *Zygonyx torrida* (Kirby). The latter was noticed also flying high over the vegetation and over the road.

The collected males agree completely with the description given by SELYS (1857). The species is characterized by the shape of the cercodes having a strong lateral dent (fig. 1 a, b), the black legs with two yellow lines on the femora and