

## New *Tetrastichus* species, parasitoids of Diopsidae (Diptera) in Cameroon I (Hymenoptera: Eulophidae)

by

G. G. M. SCHULTEN & H. R. FEIJEN

**ABSTRACT.** — Two new *Tetrastichus* species are described, viz. *T. confusus* and *T. variabilis* which formerly were considered varieties of *T. diopsisi* (Risbec). The new species are parasitoids of diopsid flies (rice stemborers) in Cameroon.

### Introduction

It was reported earlier (Schulten & Feijen, 1983) that a number of *Tetrastichus* species which were considered by Risbec (1956) to be varieties of *T. diopsisi* are in fact undescribed species. The specimens studied by Risbec were bred in 1955 from larvae or pupae of diopsid species, collected in rice fields in North Cameroon (Descamps, 1957). The new species are described now because they are of importance for natural control of rice pests in Africa. However, it is presently impossible to indicate their exact taxonomic position since the Ethiopian *Tetrastichus* species are not well known and species groups are not recognized as yet.

Keys for identification were made by Masi (1940) and Risbec (1958). The new species key out as *T. diopsisi* with Risbec's key but the submarginal veins have 5-6 bristles. *T. diopsisi* also has 5 bristles on the submarginal vein, not 4 as stated by Risbec (1956, 1958). The specimens studied by Risbec were preserved in slides in dry condition and were kept at ORSTOM (Office de la Recherche Scientifique et Technique Outre Mer) in Bondy (France). A number of these slides could be made available. The types and paratypes were glued by us on card points and labelled according to the slide label in so far legible and are preserved by ORSTOM. Two and one paratypes of the respective species have been deposited in the Institute of Taxonomic Zoology (Zoölogisch Museum), Entomology Department, University of Amsterdam.

### *Tetrastichus confusus* n. sp. (figs. 1, 2, 5-7)

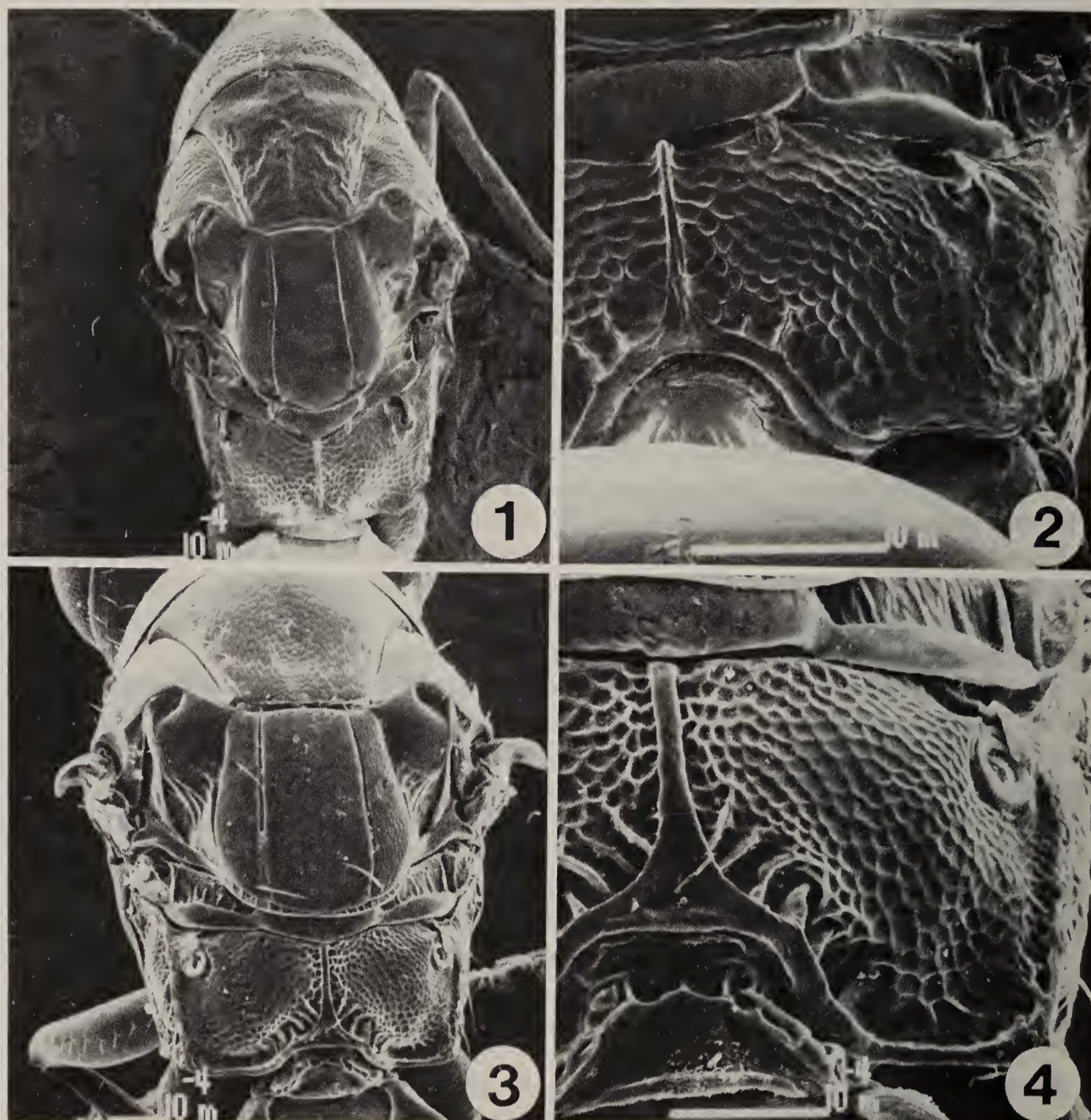
**Female.** — Length 2.3-2.5 mm; abdomen 1.6 times as long as the thorax, head and abdomen somewhat deformed due to desiccation.

**Colour.** — Head blue-green but ventral part of malar space, mandibles, clypeal region and facial lines reddish brown; antenna with scapus yellowish white but upperside dark-brown, especially distally; upperside of pedicellus dark-brown, underside yellow-brown; flagella brown; thorax blue-green, abdomen with greenish gloss; anterior and middle coxae whitish, posterior coxae largely blue-green; legs white but fifth tarsal segment brownish; wings hyaline; venation yellow-brown.

**Structure.** — Head transverse somewhat depressed anteriorly, ocellar triangle elevated, groove from lateral ocellus to eye margin, distance between lateral ocelli 1.2 times distance from lateral ocellus to eye margin, eye somewhat oval with very few dispersed bristles. Malar space about 3/4 the length of eye, malar sulcus foveate near eye margin, head frontally with deep depression broadest in the middle, antenna inserted a little above lower eye margin; clypeus margin with two rounded protrusions in the middle, mandible with two sharp teeth and a smaller blunt tooth.

Thorax (figs 1, 2) 1.8 times as long as broad; midlobe of mesoscutum with a row of 4-5 adnotaular bristles on either side, notaulices deep, scutellum with two median sutures and two pairs of admarginal bristles; propodeum with one bristle near exterior margin of spiracle, a second bristle more laterally and a row of 2-3 bristles running posteriorly of second bristle; no postspiracular carina. Antenna with pedicellus and flagellum about as long as thorax (fig. 5).

Legs slender, spur of mid tibia 0.4 times the length of first tarsal segment, second segment



Figs 1-4. Scanning electron micrographs of *Tetrastichus*. 1-2. *T. confusus*, female paratype. 1, thorax; 2, propodeum. 3-4. *T. variabilis*, female paratype. 3, thorax; 4, propodeum.

0.8 times the first; spur of hind tibia 0.7 times first tarsal segment, second segment 0.9 times first segment.

Forewing 2.9 times as long as broad, just reaching tip of gaster, costal cell 14-15 times as long as broad; proximally on ventral side of costal cell near submarginal vein a row of 5 bristles located closely together and a dispersed row of smaller bristles in the middle and distal part of the cell; dorsally on submarginal vein 5 large bristles; marginal vein 8 times as long as stigmal vein; stigma well defined; speculum rather large, wing beyond thickly pilose (fig. 6), longest marginal fringe one eleventh breadth of wing. Hindwing rather broad apically and blunt, longest fringe about half the breadth of wing at hamuli. Gaster elongate, strongly narrowing towards apex; tips of ovipositor just exposed. Terga with single row of bristles but apex of gaster with many bristles, and a pair of pygostylar bristles about three times as long as next longest bristle.

Sculpture: head, thorax and abdomen shining with an irregular reticulate pattern, larger part of hind coxae reticulate; propodeum with a much coarser reticulation (figs. 1, 2).

Male. — Length 1.4-1.7 mm; gaster ovoid, about as long as thorax; same colouration, struc-

ture and sculpture as female; scapus with a long carina; antenna with 6 funicular segments with basally a row of 8-11 long bristles (fig. 7).

Holotype: One female on card point from slide: "*Aprostocetus diopsisi* Risbec, Var. 1, ex. larvae *Diopsis thoracica* [= *D. macrophthalma* Dalman], Descamps, Garoua". Paratypes: 4 ♀, 7 ♂ from the same slide. Label added by us: Cameroon, Garoua, 1955.

*Tetrastichus variabilis* n. sp. (figs. 3, 4, 8-10)

Female. — Length 2.9-3.6 mm, abdomen 1.8 times longer than thorax; head somewhat deformed due to desiccation.

Colour. — The following parts are yellow: head below the implantation of antennae; a thin vertical line between the implantation of the antennae, which bifurcates over a small distance below the anterior ocellus, the genae and a small area around orbits extending a little in the groove on the vertex. Upper half of head blue-green; antenna with scapus yellowish white but upperside brown especially distally; upperside of pedicellus dark-brown, underside white brown; flagella brown, thorax and abdomen blue green (in some of the paratypes the dominant colour is green, in others blue or brown); anterior and middle coxae white, posterior coxae largely blue green, legs white but fifth tarsal segments brownish; wings hyaline, venation yellow brown.

Structure. — Head transverse somewhat depressed anteriorly, ocellar triangle elevated, groove from lateral ocellus to eye margin, distance between lateral ocelli as wide as the distance from lateral ocellus to eye margin, eye somewhat oval with very few dispersed hairs. Malar space about half the length of eye, malar sulcus foveate near eye margin, head frontally with deep depression, broadest in the middle; antenna inserted a little above the lower eye margin; clypeus margin with two rounded protrusions in the middle, mandible with two sharp teeth and a smaller blunt tooth.

Thorax (figs 3, 4) 1.6 times as long as broad, mesoscutum with two irregular rows of in total 7-9 adnotaular bristles on either side, notaulices deep, scutellum with two median sutures and two pairs of admarginal bristles; propodeum with one bristle near exterior margin of spiracle, a second bristle more laterally and a row of 2-3 bristles posteriorly of second bristle; postspiracular carina well developed.

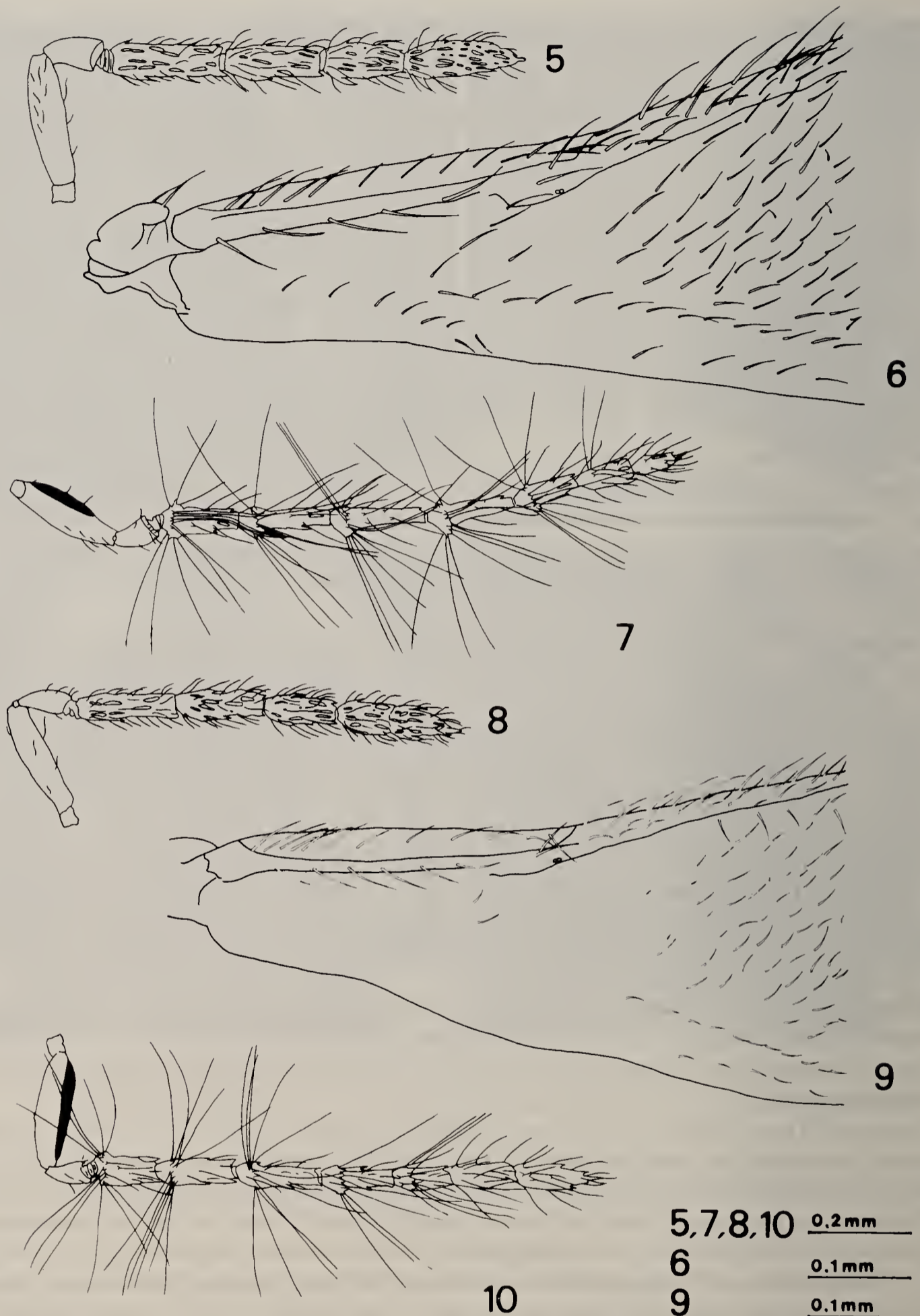
Antenna with pedicellus and flagellum about as long as thorax (fig. 8).

Legs slender, spur of mid tibia 0.4 times the length of first tarsal segment, second segment 0.7 times the first, spur of hind tibia 0.4-0.5 times first tarsal segment, second segment 0.8 times first segment.

Forewing 2.9 times as long as broad, not reaching tip of gaster, costal cell 14-15 times as long as broad. Proximally on ventral side of costal cell near submarginal vein a row of 5 bristles located closely together and a dispersed row of smaller bristles in the middle and distal part of the cell; dorsally on submarginal vein 5-6 bristles, marginal vein 7-8 times as long as stigmal vein; stigma well defined; proximal part of wing almost without bristles, wing beyond thickly pilose (fig. 9), longest marginal fringe one eleventh of breadth of wing. Hindwing rather broad apically and blunt, longest fringe about half the breadth of wing at hamuli. Gaster elongate, strongly narrowing towards apex; tips of ovipositor clearly exposed. Terga with a single row of bristles but apex of gaster with many bristles and a pair of pygostylar bristles about twice as long as next longest bristle.

Sculpture: head, thorax and abdomen shining with a regular reticulate pattern, larger part of hind coxae reticulated; propodeum with a much coarser reticulation (figs. 3, 4).

Male. — Length 1.6 mm; gaster ovoid about as long as thorax; same colouration, structure and sculpture as female; scapus with a long carina; antenna with 6 funicular segments with basally an incomplete whorl of 8-11 long bristles (fig. 10).



Figs 5-7. *Tetrastichus confusus*. 5, antennā, female paratype; 6, forewing, female paratype; 7, antenna, male. Figs 8-10. *Tetrastichus variabilis*. 8, antenna, female paratype; 9, forewing, female paratype; 10, antenna, male.

Holotype: One female on card point from slide: "*Aprostocetus diopsisi* Risbec, var. 3, ex. *Diopsis thoracica* [= *D. macrophthalma* Dalman], Descamps 255". Paratypes: 8 ♀, 1 ♂ from the same slide. Label added by us: Cameroon, Garoua, 1955.

Other material: One slide: "*Aprostocetus diopsisi* R., ex. *Diopsis*, Descamps 238 [= 236]". One slide labelled: "*Aprostocetus diopsisi*" Risbec, Var. 1, ex. larva *Diopsis collaris* [= *D. collaris* Westwood], Descamps 264, Garoua 7-'55". Label added by us: Cameroon, Garoua, 1955.

## REFERENCES

- Descamps, M., 1957. Recherches morphologiques et biologiques sur les Diopsidae du Nord-Cameroun. — *Minist. de la France d'Outre Mer, Dir. Elev. For., Sect. Techn. Agr. trop., Bull. Sci.* 7: 1-154.
- Masi, L., 1940. Descrizioni di calcididi raccolti in Somalia dal Prof. G. Ruso con note sulle specie congeneri. — *Boll. Lab. Ent. agr. Portici* 3: 309-321.
- Risbec, J., 1956. Hyménoptères parasites du Cameroun. — *Bull. Inst. fr. Afr. noire* 18: 120-125.
- , 1958. Contribution à la connaissance des hyménoptères chalcidoïdes et proctotrupoides de l'Afrique noire. — *Ann. Mus. Roy. Congo Belge, Tervuren* 8° [Zool.] 64: 1-27.
- Schulten, G. G. M. & H. R. Feijen, 1983. A redescription of *Tetrastichus diopsisi* (Hymenoptera: Eulophidae) a pupal parasitoid of *Diopsis macrophthalma* (Diptera: Diopsidae). — *Ent. Ber., Amst.* 43: 76-80.

Royal Tropical Institute, Mauritskade 63, 1092 AD Amsterdam; present address: F.A.O., Rome, Italy.

P.O. Box 1062, Zanzibar, Tanzania.

---

JANSSEN, A., 1983. DE DAGVLINDERS VAN DE BELGISCHE FAUNA: 1-39. Entomobrochure nr. 3 van de K. Antwerpse Maatschappij voor Dierkunde, Antwerpen. Prijs (ingenaaid) BFr. 120.

De publikatie begint met een historisch overzicht van 16 bladzijden van de waarnemingen van dagvlinders in België vanaf de verschijning van de catalogus van E. de Selys Longchamps in 1837 waarin 87 soorten vermeld werden tot en met de tegenwoordige stand van zaken. Op het ogenblik zijn met zekerheid 119 soorten binnen het Belgische areaal waargenomen. Interessant zijn voor ons de notities bij deze soorten.

In het tweede gedeelte wordt de huidige toestand van de Belgische dagvlinderfauna besproken. Ook daar komen natuurlijk soorten voor die slechts heel sporadisch gezien zijn. Zoals in Nederland *Palaeochrysophanus hippothoe* (Linnaeus) verdween door veranderde cultuurmethoden is dat in België gebeurd met *Colias palaeno* (Linnaeus) door uitdroging van de Hautes Fagnes. Zo zijn er meer notities die Nederlandse lepidopterologen ongetwijfeld zullen interesseren. Kopen dus deze brochure! Ze is te verkrijgen door storting van het bedrag op postrekening Brussel 000-0106543-37 ten name van Vereniging voor Entomologie, Diksmuidelaan 176, B2600 Berghem, België. — B. J. Lempke.

---

PRINS, W. O. DE, 1983. SYSTEMATISCHE NAAMLIJST VAN DE BELGISCHE LEPIDOPTERA. Entomobrochure 4: 1-57. Vereniging voor Entomologie van de Koninklijke Maatschappij voor Dierkunde van Antwerpen. Prijs (gebrocheerd) Bfr. 185.

De laatst verschenen naamlijst van de Lepidoptera van een bepaald territorium was die van Leraut (*Liste systématique et synonymique des Lépidoptères de France, Belgique et Corse*, 1980). Een bezwaar van deze overigens uitstekende lijst is, dat niet aangegeven is in welke van de drie genoemde gebieden een soort voorkomt. Met drie hoofdletters had dat makkelijk gekund. Vooral de Belgische entomologen voelen dit als een gemis. Hierin is nu voorzien door de afzonderlijke onlangs verschenen Belgische lijst. Gemakshalve wordt hierin de volgorde van Leraut aangehouden. Ook de nomenclatuur is praktisch identiek. Alleen voor de Nepticulidae is de in 1982 verschenen naamlijst van Van Nieuwerkerken (*Ent. Ber., Amst.* 42: 174-176) gevolgd.

De publicatie is te verkrijgen door storting van het bedrag op postrekening 000-0106543-37 ten name van bovengenoemde Vereniging, Diksmuidelaan 176, B-2600 Antwerpen. — B. J. Lempke.