BULLETIN DE L'INSTITUT ROYAL DES SCIENCES NATURELLES DE BELGIQUE, ENTOMOLOGIE, 65: 105-107, 1995
BULLETIN VAN HET KONINKLIJK BELGISCH INSTITUUT VOOR NATUURWETENSCHAPPEN, ENTOMOLOGIE, 65: 105-107, 1995

A new species of the genus *Paputrombidium* FAIN, 1992 (Acari: Trombidiidae) from a fly *Chersodromia* spp. (Diptera; Hybotidae) from Papua New Guinea

by A. FAIN & P. GROOTAERT

Abstract

Paputrombidium chersodromia n.sp. (Acari: Trombidiidae), parasitic on *Chersodromia* spp. (Diptera: Hybotidae), is described from Papua New Guinea.
Key words: Taxonomy. Larva of *Paputrombidium*. Acari. Parasitic on Diptera. Papua New Guinea.

Résumé

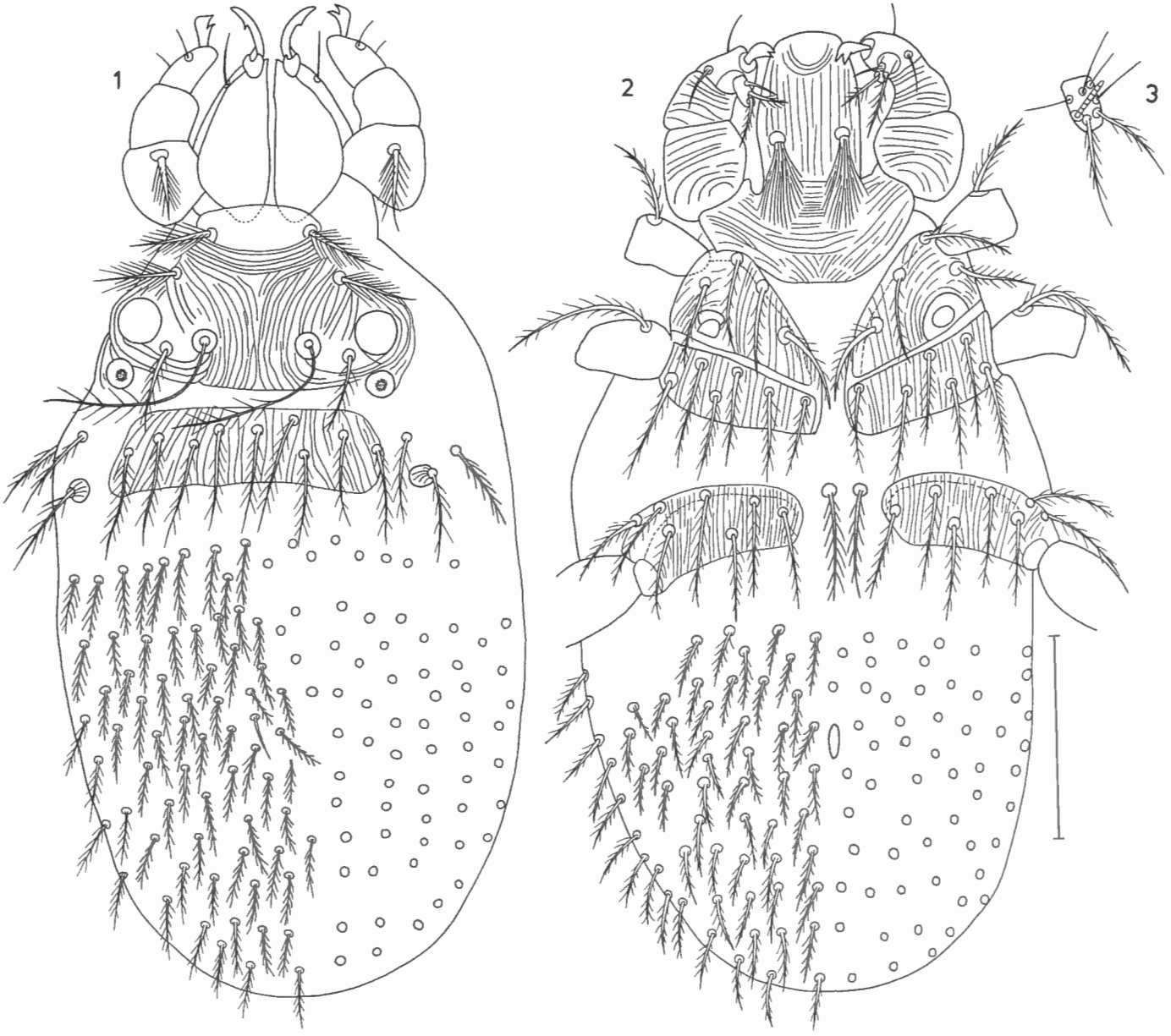
Paputrombidium chersodromia n.sp. (Acari: Trombidiidae), parasite de mouches du genre *Chersodromia* (Diptera: Hybotidae), est décrit de Papouasie Nouvelle Guinée.
Mots clé: Larve de *Paputrombidium*. Acari. Parasite de Diptères. Papouasie Nouvelle Guinée.

Introduction

We describe here a second species in the genus *Paputrombidium* FAIN, 1992 (Acari: Trombidiidae). The three larvae, representing the species, were attached to the abdomen of small flies of the genus *Chersodromia* (Hybotidae) from Papua New Guinea.
Paputrombidium grootaerti FAIN, 1992, the nominotypical species of the genus was collected in the same locality (Laing I.) but from another dipteran host (*Cymatopus* sp., a marine dolichopodid genus). The hosts of both trombidiid species have a completely different biology and that can explain the presence of two species of the same genus in a rather restricted habitat (see below).
The measurements used here are in micrometers.

Family *Trombidiidae* LEACH, 1815
Subfamily *Paputrombidiinae*, FAIN, 1992
Genus *Paputrombidium* FAIN, 1992
Paputrombidium chersodromia nov. spec.

Larva (holotype) (figs 1-6): Body elongate but less than in *P. grootaerti*. *Metric data* of the holotype and of one paratype (measurements of the latter between brackets): Length and width of idiosoma 180 (210) and 114 (125). The paratype is distinctly flattened. *Anterior shield*: AM 18 (18); AL 18 (19); PL 20 (22); SENS 36 (-); AMB 27 (26); AW 39 (38); PW 48 (48); MA 15 (14); AP 18 (20); SA 18 (17); SP 11 (12); SB 27 (26); L 48 (47); W (eyes excluded) 45 (50); LN 9 (11); ASB 39 (40); PSB 12 (12). Posteromedian shield: PSW 63 (63); PSL 21 (23); QL 25 to 30 (24 to 30). *Legs*: Tal 44 (44); Ta2 37 (39); Ta3 36 (38); Ti1 33 (30); Ti2 27 (26); Ti3 33 (34); Ge1 30 (28); Ge2 21 (19); Ge3 21 (22); Fe1 30 (30); Fe2 27 (26); Fe3 30 (28). *Solenidia*: *ωI* 18 (18); *ωII* 16 (17); *φ*I apical or anterior 13 (13); *φI* basal or posterior 16 (17); *φII* apical 11 (12); φII basal 11 (12); σI anterior 13 (14); σII posterior 13-14 (14); σIII 27 (28). *Gnathosoma* almost terminal. Dorsum: anterior shield mostly striated longitudinally or obliquely except in a short anterior part at the level of AM where there are a few transverse striations; in front of these striations the shield is smooth. Setae AM and AL very thick with numerous very thin and long pectinations. Sensillae with about 15 rather long pectinations in their apical half or two thirds. Anterior pair of eyes rounded, 12 wide, posterior pair 6 wide. Posterior shield with 9 pectinate setae 27-30 long. Hysteronotum with about 13-14 transverse rows of 13-13-13-11-14-12-11-10-11-10-8-8-7-4 pectinate setae (total 135 to 140 setae 14 to 19 long). Coxae I to III with 2-6-7 pectinate setae 18 to 28 long. Intercoxal pair of setae 27 long. Urstigma oval. Hysterogaster with 10 rows of 8-5-12-12-12-12-12-11-9-6 pectinate setae and 8 pairs of lateral setae (total 110 to 120 setae) 12 to 18 long. *Legs*: number of pectinate setae: Trochanters 1-1-1; Femora 5-3-3; Genua 4-2-2; Tibiae 6-5-5; Tarsi 17-13-13. Femora I to III with a very thin and smooth prebasal seta. The gnathosoma bears a pair of very broad ventral setae. Tarsi I with one dorsal eupathidia.



Figs 1-3. – *Paputrombidium chersodromia* n.sp. Larva in dorsal view (1) and ventral view (2); palptarsus (3). Scale line 50 μm (Figs 1-2).

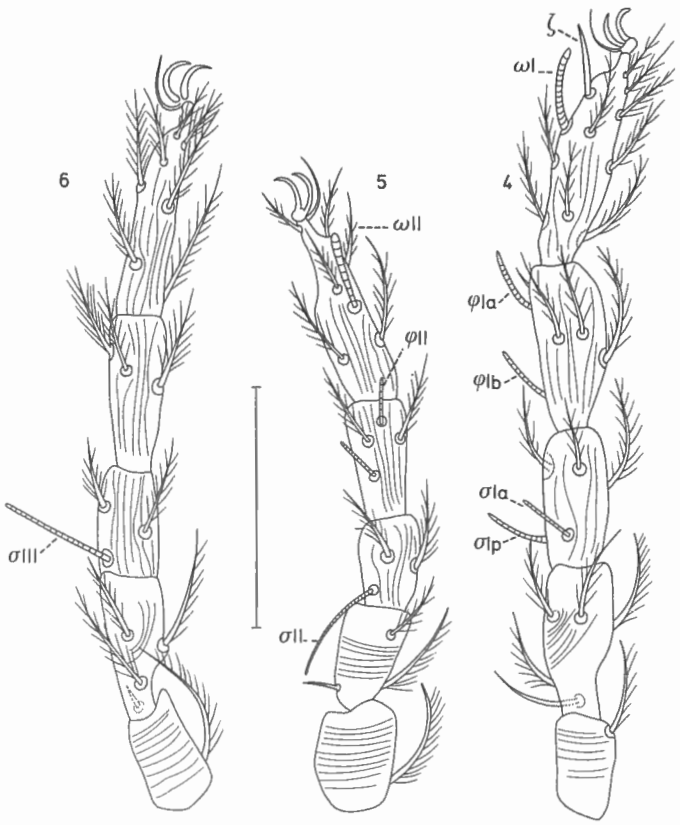
Hosts and localities

Holotype larva from *Chersodromia flavipyga* (Diptera: Hybotidae) from Papua New Guinea, Madang province, Laing Island, Station XIX, 7 May 1994 (leg. P. GROOTAERT, sample no. 069). Two paratypes (one in bad condition) from a *Chersodromia sp.* from New Ireland, Nusen I., Papua New Guinea, 24 April 1993 (leg. P. GROOTAERT, sample no. 051). Types in IRSNB.

Remarks

P. chersodromia n.sp. differs from *P. grootaerti* by the following characters:

1. Body distinctly shorter and relatively wider
2. AMB, AW, PW and SB much longer
3. All the legs shorter
4. Solenidia, especially σI, σII and σIII, much shorter
5. Posterior shield trapezoidal bearing 9 setae (this shield is strongly convex in *P. grootaerti* and bears only 6 setae)
6. The pair of ventral setae of gnathosoma and the setae AM and PL are much thicker than in *P. grootaerti.*



Figs 4-6. – *Paputrombidium chersodromia* n.sp. Larva: leg I in dorso-lateral view (4); leg II in dorso-lateral view (5); leg III in dorso-lateral view (6). Scale line 50 μm.

Biology of the host

The genus *Chersodromia* consists of small (1-2 mm) halophilic flies which are bottom dwellers. They are restricted to sandy parts of the beaches and so are not found on rocky shores. *Ch. flavipyga*, the host of *P. chersodromia*, was found associated on Laing I. with burrows of ghost crabs (GROOTAERT & VAN DE VELDE, 1994). It is not clear yet if it represents a case of commensalism (development of larvae in food or droppings of the crabs) or opportunism (shelter for heath and wind).

Paputrombidium grootaerti, the first described species on Laing I., was found on *Cymatopus* flies. These flies are larger (2.5-5 mm) than *Chersodromia*, and are also bottom dwellers. They are however found foraging at low tide on rocky substrates in the intertidal zone where they feed on larvae and emerging adults of chironomid and ceratopogonid flies. At high tide they aggregate often in large numbers on the supralittoral part of the beach. Their larvae and pupae live in the thin layer of algae and debris on rocks in the intertidal zone. There is no association known with crabs.

Although both host flies occur together on the same island, they live in different habitats and have quite a different biology.

References

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