BULLETIN DE L'INSTITUT ROYAL DES SCIENCES NATURELLES DE BELGIQUE, ENTOMOLOGIE, 62: 105-108, 1992
BULLETIN VAN HET KONINKLIJK BELGISCH INSTITUUT VOOR NATUURWETENSCHAPPEN, ENTOMOLOGIE, 62: 105-108, 1992

A new larval trombidiid, *Paputrombidium grootaerti* n.g. and n. sp. (Acari, Trombidiidae), parasitic on *Cymatopus* spp. (Diptera) from Papua New Guinea*

by A. FAIN

Summary

A new larval trombidiid, *Paputrombidium grootaerti* n.g. and n. sp. (Acari, Trombidiidae) is described from a fly *Cymatopus* spp. Dolichopodidae) from Laing Is., Papua New Guinea. A new subfamily, Paputrombidiinae is created for this genus.
Key words: Taxonomy, Acari, Trombidiidae, *Cymatopus* (Diptera), Papua.

Résumé

Paputrombidium grootaerti n.g. et n. sp. (Acari, Trombidiidae) est décrit d'après des larves parasitant des diptères du genre *Cymatopus* (Dolichopodidae) récoltés dans l'île de Laing, Papouasie, Nouvelle-Guinée. Une nouvelle sous-famille, Paputrombidiinae est crée pour contenir ce genre.
Mots clés: Taxonomie, Acari, Trombidiidae, *Cymatopus* (Diptera), Papua.

The flies infected by these mites were collected by Dr P. Grootaert on Laing Island, situated along the N.W. coast of Papua, New Guinea. Except for one specimen, which was attached to the neck, all the specimens were fixed to the ventral surface of the body, between the hind coxae.
As the flies carrying these mites belong to the intertidal fauna, one may surmise that the corresponding adults live in very wet and perhaps marine habitat. These larvae present some unusual characters and differ markedly from the other genera of the family Trombidiidae and we erect a new subfamily to accomodate them, Paputrombidiinae n. subfam.
All the measurements used here are in micrometers.
The standard data given in Table I are those proposed by R.V. Southcott (1986), except for the solenidia which are not listed by this author.

Family Trombidiidae
Subfamily Paputrombidiinae nov. subfam.

Definition:
Only the larval stage is known. The main character separating the genus *Paputrombidium* from all the other genera described in the Trombidiidae (see Southcott, 1986) is the number of setae on the coxae I-III. These coxae bear, at both sides, 4 - 6 - 7 long barbed, almost bipectinate setae. A second character is the terminal situation of the gnathosoma not observed in the Trombidiidae. The movable digit of the chelicerae are relatively long and narrow. Palptarsus very small. Palpfemur with a barbed seta. Mouth lacking a chitinized ring. Dorsal shields striated longitudinally, as in *Neothrombium* Oudemans (1909). Anterior shield with setae as in the genus *Trombidium*, posterior shield with 3 pairs of setae as in the genus *Neothrombium*. Two pairs of prominent eyes. Urstigma oval attached to coxa I. Hysteronotum and opisthogaster with very numerous bipectinate setae. Uropore present. Coxae striated, the coxae II and III devoid of posterior epimerites. Epimera I and II fused inside and forming a continuous apodeme. Legs with 6 segments. Trochanter and femur striated transversely, tarsus, tibia and genu striated longidudinally. Tarsi with 3 smooth normal claws, the central one thinner than the laterals. Number of solenidia on legs: Tarsi 1-1-0. Tibiae 2-2-0. Genua 2-1-1. Solenidia of genua II and III much longer than their respective segments.

Type genus:
Paputrombidium nov. gen.

Paputrombidium n. gen.

Definition:
as for the subfamily

Type species:
Paputrombidium grootaerti n. sp.

Paputrombidium grootaerti n. sp.

This species is named for Dr P. Grootaert, who discovered this species in Papua.

(*) Contribution no. 258 of the Leopold III Biological Station, Laing Island.

Holotype larva: (figs. 1-7): Body long and narrow. Idiosoma 232 and 105 wide. Gnathosoma almost completely terminal. The dorsal shield covers only a very small part of the cheliceral bases. *Dorsum:* anterior shield striated longitudinally except in a very short part (5 long) which is bare. The shield is very lightly sclerotized. On both sides of the shield the cuticle is also striated but not sclerotized. Sensillae situated slightly inside and in front of the PL setae, the latter situated in the posterolateral corners of the shield. Sensillae barbed in their apical four fifth. Posterior shield longitudinally striated, with a posterior margin straight and the anterior margin strongly convex, it bears 3 pairs of barbed setae 24 to 30 long. Anterior pair of eyes strongly prominent, their diameter is 12. Posterior pair of eyes smaller (diameter 9 × 11) and oval. Hysteronotum with 16-17 transverse rows of 12-14 bipectinate setae 15-22 long. *Venter*: coxae II and III devoid of epimerites. Urstigma well developed. Coxae I-III with 4-6-7 pairs of bipectinate setae 18 to 28 long. Intercoxal setae bipectinate 30 long. Hysterogaster with 10-11 transverse rows of 12-14 bipectinate setae. *Legs*: the three apical segments striated longitudinally, the femora and trochanters striated transversely. Chaetotaxy (number of *n* setae) Trochanters 1-1-1. Femora 6-4-4. Genua 6-2-2. Tibiae 6-5-5. Tarsi 17-13-13. *Solenidia*: See table I. *Eupathidia*: two on the apex of tarsus I, a ven-

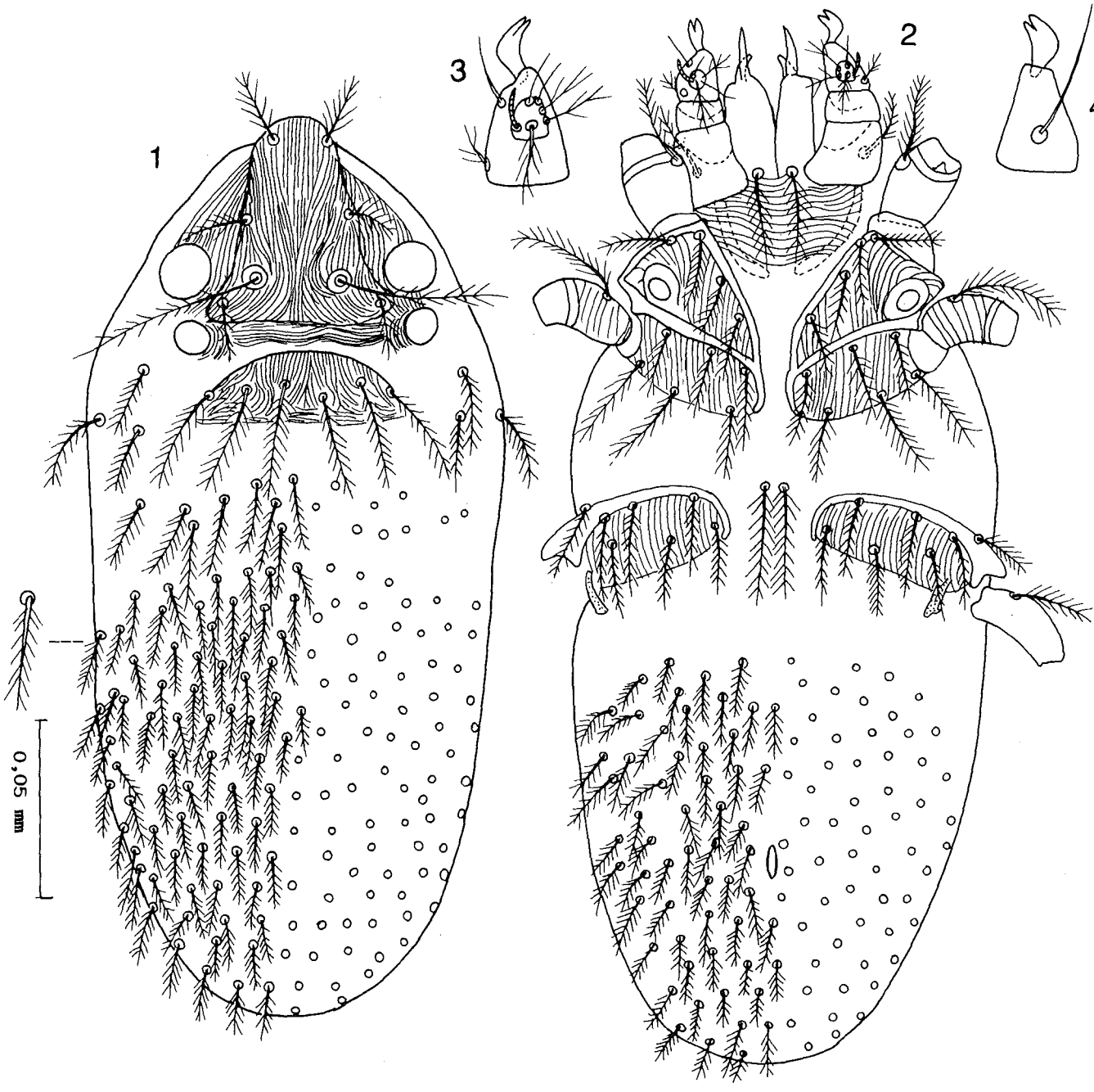

Fig. 1-4 – *Paputrombidium grootaerti* n.sp. Larva. Dorsal view (1) and ventral view (2). Tibia and tarsus of palp in ventral view (3). Tibia of palp in dorsal view (4).

tral and a dorsal. *Famulus* (ε): tarsus I with ε slightly apical to *ωI*, tarsus II with ε more basal than *ωII*. The small dorsoapical spine on tibia I could be either a famulus ε or a simple microseta *k*. We have discussed this question in a paper on the "ereynetal organ" in the Ereynetidae (Fain, 1985). In the Ereynetidae this small seta is clearly associated with the solenidion *φI*, which is internal (sunk in the tibia) in this family of mites, and it should therefore be considered as a famulus. This situation appears the same as in the Trombidiidae and the Erythraeidae, except that the solenidion of tibia I is completely external. There is another microseta in *Paputrombidium*, situated on genu I, it is called here *k*. The setae that we have called "eupathidies du type épineux" (Fain and Elsen, 1987 and Fain, 1987) are in fact either famuli (our Eti and Eta), our simple microsetae (our EgI and EgII).

Gnathosoma terminal, with a pair of ventral paramedian bipectinate setae 22 long.

Palps: with a well-developed barbed seta on femur, 3 setae on tibia, a solenidion and 5 setae, of which 3 barbed, on tarsus. Apical spine of tibia curved and bifid.

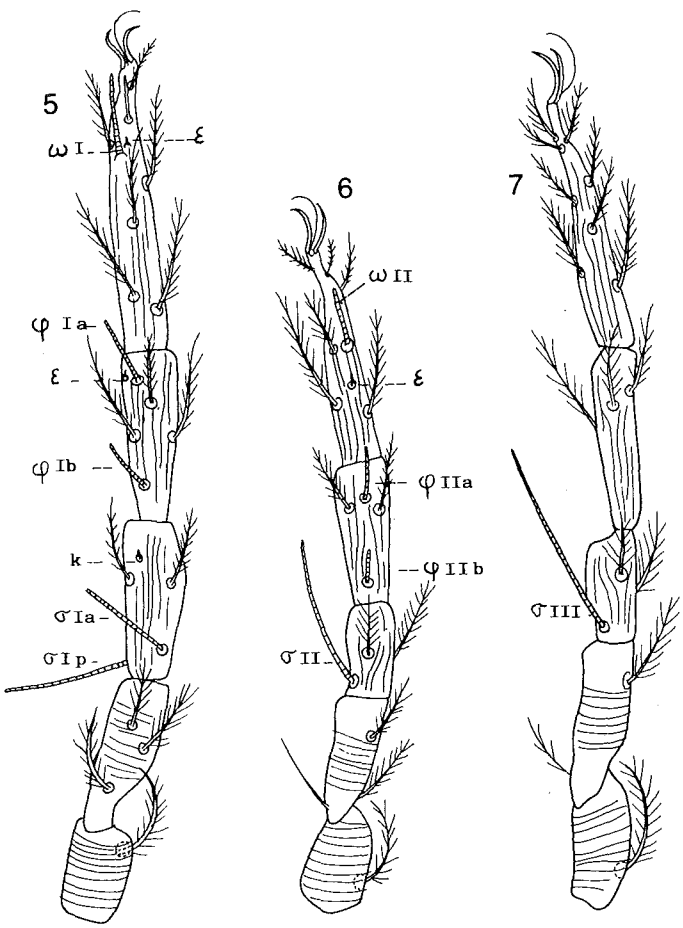

Fig. 5-7 – *Paputrombidium grootaerti* n.sp. Larva, legs I (5), II (6) and III (7) in dorsal view.

Table I: Standard data (in micrometers) for the holotype and 3 paratypes of *Paputrombidium grootaerti*

	Holotype	Paratypes				
		1	2	3	Minimum	Maximum
Anterior shield:						
AM	18	18	18	17	17	18
AL	13	12	13	14	12	14
PL	18	15	14	19	14	19
Sens	50	48	49	49	48	50
AMB	14	12	12	12	12	14
AW	25	22	21	24	21	25
PW	35	32	36	36	32	36
MA	22	19	18	18	18	22
AP	21	19	19	21	19	21
SA	15	14	13	13	13	15
SP	10	9	8	10	8	10
SB	19	18	19	17	17	19
L	53	52	45	52	45	53
W	42	38	39	42	38	42
LN	9	9	7	6	6	9
ASB	46	42	36	34	34	46
PSB	10	9	8	8	8	10
Posterior shield:						
PSL	18	18	16	18	16	18
PSW	60	52	52	51	51	60
QW	9	8	9	9	8	9
QL	28	27	27	26	26	28
Legs (length)						
Tal	62	61	–	60	60	62
Ta2	47	48	–	45	45	48
Ta3	54	52	–	51	51	54
Ti1	41	42	42	42	41	42
Ti2	32	36	36	33	32	36
Ti3	43	43	45	43	43	45
Ge1	37	36	36	38	36	38
Ge2	24	24	23	22	22	24
Ge3	25	26	26	26	25	26
Fe1	40	36	36	36	36	40
Fe2	31	30	30	29	29	31
Fe3	38	36	36	36	36	38
ωI	19-15	19	–	20	15	20
ωII	14-15	18	17	18	14	18
φ I apic.	15	13	15	15	13	15
Φ I basal	12	11	12	11	11	12
φ II apic.	13	13	13	12	12	13
φ II bas.	19	18	18	15	15	19
σ I ant.	22	24	22	20	20	24
σ I post.	28	30	28	27	27	30
σ II	42	43	42	44	42	44
σ III	50	51	52	58	50	58
Idiosoma						
L	232	222	280	270	222	280
W	105	111	122	150	105	150

Host and locality:
Holotype larva from *Cymatopus tibialis* Kertész, 1901 (Dolichopodidae), from Laing Island along the N.W. coast of Papua New Guinea. (Coll. P. Grootaert, March 1992). Paratypes: 2 larvae with the same data as holotype; 8 larvae from *Cymatopus leopoldi* Meuffels & Grootaert with same data as holotype. Holotype and 9 paratypes in the Institut royal des Sciences naturelles de Belgique, one paratype in the British Museum, Natural History, London. The *Cymatopus* flies are bound to the intertidal zone of reefflats. The larvae and pupae are found in the fouling of the rocks in the intertidal zone. At low tide the adult flies are feeding on the reefflat. At high tide they accumulate on the beach, fleeing from the rolling waves. Mites were found on about 6% of the adult flies (males and females in the same number).

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A. FAIN
Département d'Entomologie,
Institut royal des Sciences
naturelles de Belgique,
Rue Vautier 29,
1040 Bruxelles.