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Revision of the Rhaphidophoridae (Orthoptera) of New Zealand

Part XII.—A New Species of *Pallidoplectron* Richards

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Abstract

A new species of Rhaphidophoridae belonging to the genus *Pallidoplectron* Richards, *Pallidoplectron subterraneum* n.sp. is described. A key is given to the species in the genus *Pallidoplectron*.

INTRODUCTION

THE genus *Pallidoplectron* Richards consists of cavernicolous members of the subfamily Macropathinae. So far all species in the genus are confined to the northern half of the North Island of New Zealand, and all have been taken from limestone caves. They are closely associated with water, and usually are found in caves supporting a large population of glow-worms, *Arachnocampa luminosa* (Skuse).

To date three species are known. *Pallidoplectron turneri* Richards occurs in the Te Kuiti district, particularly round Waitomo (Richards, 1958), and at Waitanguru (May, 1963). *P. peniculosum* Richards has been collected only from Waipu Cave, Waipu, about 100 miles north of Auckland (Richards, 1960). *P. subterraneum* n.sp. occurs in the Waikato at Onewhero, east of Port Waikato, and at Matira, west of Huntly.

Several years ago a number of specimens of a new species of *Pallidoplectron* were collected from Tomac Tomo, near Karamu, south-west of Hamilton. The specimens when examined by the author were found to be immature, and so the species could not be described at that time. Unfortunately, due to an accident, these specimens were destroyed, and, although the area has been searched, no further material has been obtained from this locality. Considering the geographical distribution of the three species now described, it is probable that the specimens destroyed belonged to *P. subterraneum*, and that the distribution of this species will be found to extend from Port Waikato to just south of Hamilton.

P. turneri occurs in large numbers at Waitomo, a population of over 500 having been studied by the author during 1955 in the Glow-worm Grotto of Waitomo Cave. *P. peniculosum* and *P. subterraneum*, however, do not appear to be nearly as numerous, and only small numbers have been obtained for study.

It is of interest to note that *P. subterraneum* not only lies between the other two species geographically, but also is intermediate in many taxonomic characters.

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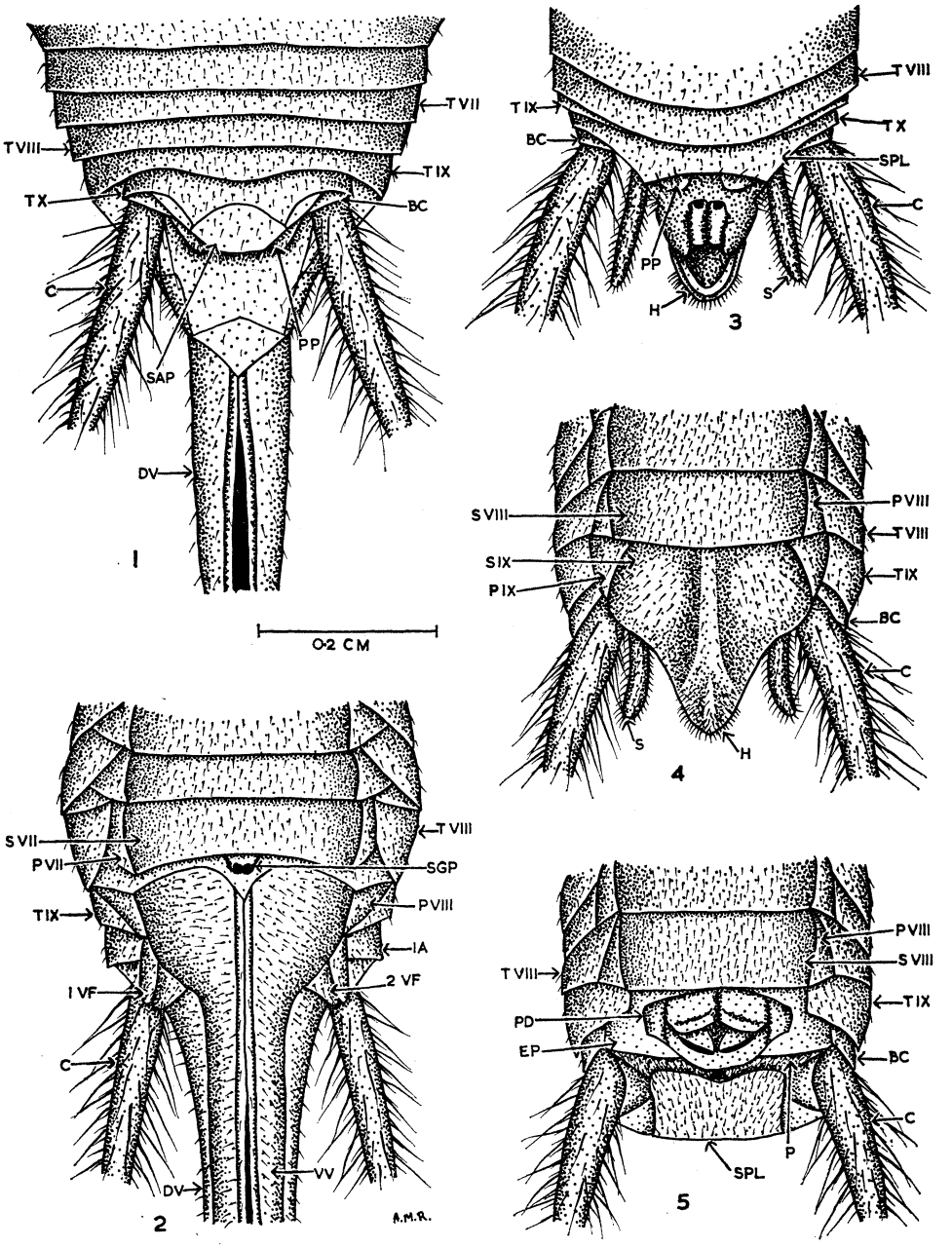

TEXT-FIG. 1.—*Pallidoplectron subterraneum* n.sp. Fig. 1—Female genitalia, dorsal view. Fig. 2—Female genitalia, ventral view. Fig. 3—Male genitalia, dorsal view. Fig. 4—Male genitalia, ventral view. Fig. 5—Male genitalia, ventral view, subgenital plate removed to expose structures beneath.

KEY TO THE SPECIES OF *Pallidoplectron*

1. Hind femora with approximately four or more prolateral linear spines, and one or more retrolateral linear spines 2
   Hind femora with approximately less than four prolateral linear spines. Retrolateral linear spines usually absent ..... *P. turneri* Richards

2. Subgenital plate of male attenuated; ventral surface with two lobes fused medianly, each bearing five small processes distally .... *P. peniculosum* Richards
   Subgenital plate of male not so attenuated; two lobes on ventral surface fused medianly, but without processes ..... *P. subterraneum* n.sp.

Genus PALLIDOPLECTRON Richards, 1958. *Trans. Roy. Soc. N.Z., 85,* p. 703.

Pallidoplectron subterraneum n.sp. Text-fig. 1, figs. 1-5.

COLOUR. Basic colour mid brown, with pronotum, mesonotum, metanotum and abdominal terga irregularly mottled with light brown and ochreous; femora and tibiae banded with light brown and ochreous; tarsi light brown; antennae mid brown; ovipositor reddish brown.

BODY. Length 15mm. Body thickly clothed with setae. Ovipositor 0.8 length of body. Antennae broken. Fastigium longer than high with base touching scape of antennae. Maxillary palps with fourth segment 0.8 length of third segment. Pronotum and mesonotum margined laterally and posteriorly.

ANTENNAE. As in generic description (Richards, 1958). Third segment narrower than pedicel, but subequal in length with it. All segments thickly clothed with short setae. Sexual dimorphism is shown by antennae of male being much stouter and longer than those of female; no spines present on flagella of male or female.

LEGS. Thickly clothed with short setae. Fore and middle legs subequal in length, with hind leg 1.7 length of fore and middle legs. Sexual dimorphism is shown by fore and middle legs of female being 0.9 as long as male, and hind legs of female 0.8 as long as male. No linear spines on fore and middle femora, or fore, middle and hind tarsi. Variable number of linear spines present on hind femora and fore, middle and hind tibiae (Table I). Apical spines constant in number as in generic description. Length of proximal segment of hind tarsus subequal with other three together. Ratio of length of legs to length of body: Fore leg—male, 2:1; female, 1.9:1. Middle leg—male, 2:1; female, 1.7:1. Hind leg—male, 3.4:1; female, 2.9:1.

GENITALIA. *Female*: Suranal plate, Fig. 1 (SAP), slightly convex laterally, with distal margin truncated and bearing two groups of setae. Subgenital plate, Fig. 2 (SGP), straight laterally, distal margin bearing two darkly coloured tubercles; plate glabrous.

Male: Suranal plate, Fig. 3 (SPL), concave laterally, distal margin emarginate and notched medianly, greater part of plate folded back under tergite X; distal margin clothed with two groups of short setae, rest of plate clothed with long and short setae. Subgenital plate, Figs. 3, 4 (H), convex laterally, attenuated and rounded distally; well developed median keel thickly clothed with setae distally, rest of dorsal surface of plate sparsely clothed with setae; ventral surface glabrous. Distal portion of plate curved over ventrally; proximal to the median depression two lobes fuse together medianly; from these lobes extend two lateral lobes fused proximally to the lateral margins of the plate. Two styli, Figs. 3, 4 (S), thickly clothed with short setae, length of styli being 0.4 length of sternite IX (S IX). Subgenital plate covers genitalia. Parameres, Figs. 3, 5 (P), small, partly obscured by suranal plate, broad at base, tapering to a point, two times longer than broad, thickly clothed with setae. Pseudosternite, Fig. 5 (PD), two times broader than long; lateral margin notched medianly, distal margin rounded. From proximal end to 0.5 length of pseudosternite a chitinous flap overlies pseudosternite and is fused to it laterally 0.5 up from proximal border. Penis not visible. Paraprocts absent.

INDEX TO TEXT-FIGURE

BC—Basal segment of cercus. C—Cercus. DV—Dorsal valve. EP—Endoparamere. H—Subgenital plate, male. IA—Intersegmental apodeme. P—Paramere (ectoparamere). P VII, P VIII, P IX—Pleurite VII, VIII, IX. PD—Pseudosternite. PP—Paraproct. S—Stylus. S VII, S VIII, S IX—Sternite VII, VIII, IX. SAP—Suranal plate, female. SGP—Subgenital plate, female. SPL—Suranal plate, male. T VII, T. VIII, T IX, T X—Tergite VII, VIII, IX, X. 1 VF—1st valvifer. 2 VF—2nd valvifer. VV—Ventral valve.

TABLE I.

Variability in Number of Linear Spines on the Legs of Six Specimens of *Pallidoplectron subterraneum* n.sp.

		Arith. Mean		No. of Specimens		Std. Dev.		Range (or distribution)	
		L	R	L	R	L	R	L	R
Fore Femur	Pro.	0	0	6	6	0	0	0	0
Inf.	Retro.	0	0	6	6	0	0	0	0
Fore Tibia	Pro.	2	2	6	6	0	0	2	2
Inf.	Retro.	2	2	6	6	0	0	2	2
Fore Tarsus	Pro.	0	0	6	6	0	0	0	0
	Retro.	0	0	6	6	0	0	0	0
Mid Femur	Pro.	0	0	6	6	0	0	0	0
Inf.	Retro.	0	0	6	6	0	0	0	0
Mid Tibia	Pro.	0	0	6	6	0	0	0	0
Sup.	Retro.	0	0	6	6	0	0	0	0
Mid Tibia	Pro.	2	2	6	6	0	0	2	2
Inf.	Retro.	2	2	6	6	0	0	2	2
Mid Tarsus	Pro.	0	0	6	6	0	0	0	0
	Retro.	0	0	6	6	0	0	0	0
Hind Femur	Pro.	7	7	6	6	1.5	1.8	5–9	4–10
Inf.	Retro.	2.7	3.7	6	6	1.9	2.4	0–6	2–9
Hind Tibia	Pro.	28.3	27.5	6	6	1.1	1.9	27–30	25–31
Sup.	Retro.	30.5	30.2	6	6	2.9	2.2	27–34	26–33
Hind Tarsus	Pro.	0	0	6	6	0	0	0	0
1 Sup.	Retro.	0	0	6	6	0	0	0	0
Hind Tarsus	Pro.	0	0	6	6	0	0	0	0
2 Sup.	Retro.	0	0	6	6	0	0	0	0

INDEX TO TABLE

Arith. Mean—Arithmetic Mean
L.—Left leg.
Pro.—Prolateral.
Retro.—Retrolateral.
Std. Dev.—Standard Deviation.
Inf.—Inferior.
Mid.—Middle.
R.—Right leg.
Sup.—Superior.

LOCALITY. Near entrance, Pine Bluff Cave, Matira, west from Huntly (type locality), coll. B. M. May 30.6.1963, 1 ♂, 1 ♀; entrance Gaskell's Drain Cave, Matira, coll. B.M. May 5.10.1963, 3 ♂♂; entrance Keals Cave, Onewhero, coll. B.M. May 28.7.1957, 1 ♀.

TYPES. Holotype male, allotype female and paratype male in Plant Diseases Division Collection, D.S.I.R., Auckland.

P. subterraneum is intermediate in characters between *P. turneri* and *P. peniculosum*. It differs from them in:

1. Development of sexual dimorphism.
2. Number of linear spines on the hind femora.
3. Shape of suranal plate of male.
4. Shape of subgenital plate of male.

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