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REVISION OF THE RHAPHIDOPHORIDAE (Orthoptera) OF NEW ZEALAND

Part XIII. A new genus from the Snares Islands

By Aola M. Richards[1]

Abstract : A new genus *Insulanoplectron* n. g. is erected, and the new species *Insulanoplectron spinosum* n. sp. is described from the Snares, a group of small islands to the south of New Zealand.

To the south of New Zealand lie several groups of small, isolated islands which have become known collectively as the Subantarctic Islands of New Zealand. These islands include the Antipodes Islands, Auckland Islands, Bounty Islands, Campbell Island and the Snares Islands. The Snares are closest to New Zealand, being situated about 104 kilometers SW of Stewart Island in latitude 48°S and longitude 166°35′ E. Over the years, the insect fauna of these islands has been extensively studied to determine its relationships with the New Zealand fauna (Chilton 1909; Gressitt 1964).

The Orthoptera are very poorly represented. Bounty, Campbell and Auckland Islands each have an unrelated monotypic genus of Rhaphidophoridae (Hutton 1897; Richards 1964). So far no Orthoptera are known from the Antipodes Islands. The Snares have a richer Orthoptera fauna than other subantarctic islands, as it includes representatives of both Henicidae and Rhaphidophoridae. Because of their close proximity to the South Island of New Zealand, it is not surprising that the Snares Orthoptera have closer affinities with the New Zealand fauna than with that on other subantarctic islands. Their relationships are closest with Fiordland species.

The henicid from the Snares was collected by H. B. Kirk in 1907, and considered by G. V. Hudson (1909) to be "closely allied to, if not specifically identical with *Onosandrus pallitarsis* Walker", a species already described from New Zealand. Many years later, Salmon (1950) placed *O. pallitarsis* in his new genus *Zealandosandrus* as *Z. subantarcticus* Salmon. He also included in this genus three other species from the southwest of the South Island of New Zealand.

The Rhaphidophoridae from the Snares were discovered by Drs R. A. Falla and C. A. Fleming in 1947, but the material was not adequate for detailed examination. Since then further specimens have been collected by P. M. Johns, but a good series is still lacking. However, it is now possible to erect a new monotypic genus, *Insulanoplectron* n. g., which is unrelated to other subantarctic rhaphidophorids, but has some affinities with New Zealand species.

Insulanoplectron spinosum n. sp. has certain habits in common with *Z. subantarcticus* and *Dendroplectron aucklandensis* Richards from the Auckland Islands, the closest group of islands to the south of the Snares. All species occur on *Olearia ;* but unlike *D. auck-*

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landensis, *I. spinosum* has not so far been found in petrel burrows as this ecological niche is occupied by *Z. subantarcticus*. It is of interest that one specimen of *I. spinosum* examined had the spines on the hind tibiae worn down, possibly due to digging.

Genus **Insulanoplectron** Richards, new genus

Body thickly clothed with short setae. Legs long and slender. Antennae very long and tapering, almost touching at their bases; scape about 4 × as large as pedicel; from segment 4 onwards segments subequal in length, but steadily decreasing in size, all segments thickly clothed with short setae. A single anterior, median ocellus present. Fastigium poorly developed, rising abruptly, grooved medianly and longitudinally. Maxillary palps with 3rd and 4th segments subequal in length. Fore coxa armed with a retrolateral spine. All femora sulcate ventrally. Apical spines on legs constant in number. Fore femur bears 1 prolateral apical spine beneath; fore tibia bears 4 apical spines, 1 above and 1 beneath both prolaterally and retrolaterally; fore tarsus unarmed. Middle femur bears 2 apical spines beneath, 1 prolateral and 1 retrolateral; middle tibia bears 4 apical spines, 1 above and 1 beneath both prolaterally and retrolaterally; middle tarsus unarmed. Hind femur unarmed; hind tibia bears a pair of long apical spurs above, a pair of subapical spines above, a pair of short apical spurs beneath and a pair of subapical spines beneath, 1 from each pair being prolateral and the other retrolateral; 2 proximal segments of hind tarsus each bear 2 apical spines above, 1 prolateral and 1 retrolateral; other 2 segments unarmed. Subgenital plate of ♀ trilobed. Subgenital plate of ♂ triangulate and grooved.

Type-species: *Insulanoplectron spinosum* n. sp.

Insulanoplectron spinosum Richards, new species Fig. 1-6.

Color: Head, pronotum, mesonotum, metanotum and abdominal tergites dark brown irregularly mottled with mid brown; femora and tibiae mottled or banded with dark brown or light brown; all tarsi light brown; antennae mid brown; ovipositor light reddish brown.

Body: Length 14 mm in ♂, and 17 or 18 mm in ♀. Antennae broken. Fastigium longer than high. Ventral surface of body thickly clothed with setae. Ovipositor 0.8 length of body; ventral valves weakly serrated 0.3 total length to apex (fig. 1).

Antennae: As in generic description. Third segment on dorsal aspect 1.5 as long as pedicel in ♂, and 1.3 as long in ♀; and on ventral aspect 1.3 as long as pedicel in ♂, and 1.5 as long in ♀. No spines present on flagella of ♂ or ♀.

Legs: Fore and middle legs subequal in length, with hind leg 1.6 length of fore and middle legs. Sexual dimorphism absent. All legs thickly clothed with setae. Hind femora and all tibiae armed with variable numbers of linear spines (Table 1). No linear spines occur on fore and middle femora or all tarsi. Apical spines constant in number, as in generic description. Dorsal apical spur of hind tibia 0.6 length of proximal segment of hind tarsus. Proximal segment of hind tarsus 0.8 length of other 3 segments together. Ratio of length of legs to length of body: Fore leg, ♂ 1.6 : 1; ♀ 1.3 : 1. Middle leg, ♂ 1.6 : 1; ♀ 1.3 : 1. Hind leg, ♂ 2.5 : 1; ♀ 2 : 1.

Genitalia. ♀: Suranal plate, fig. 2 (SAP), concave laterally; distal margin emarginate and glabrous; rest of plate sparsely clothed with setae; medianly plate bears a small, blunt spine. Subgenital plate, fig. 3 (SGP), slightly convex laterally; distal margin trilobed, each lobe rounded apically; whole plate sparsely clothed with setae. ♂: Suranal plate, fig. 4 (SPL), slightly concave laterally with distal margin rounded and glabrous, whole plate sparsely clothed with setae; medianly plate bears a large, blunt spine 1.7 length of plate. Subgenital plate, fig. 5 (H),

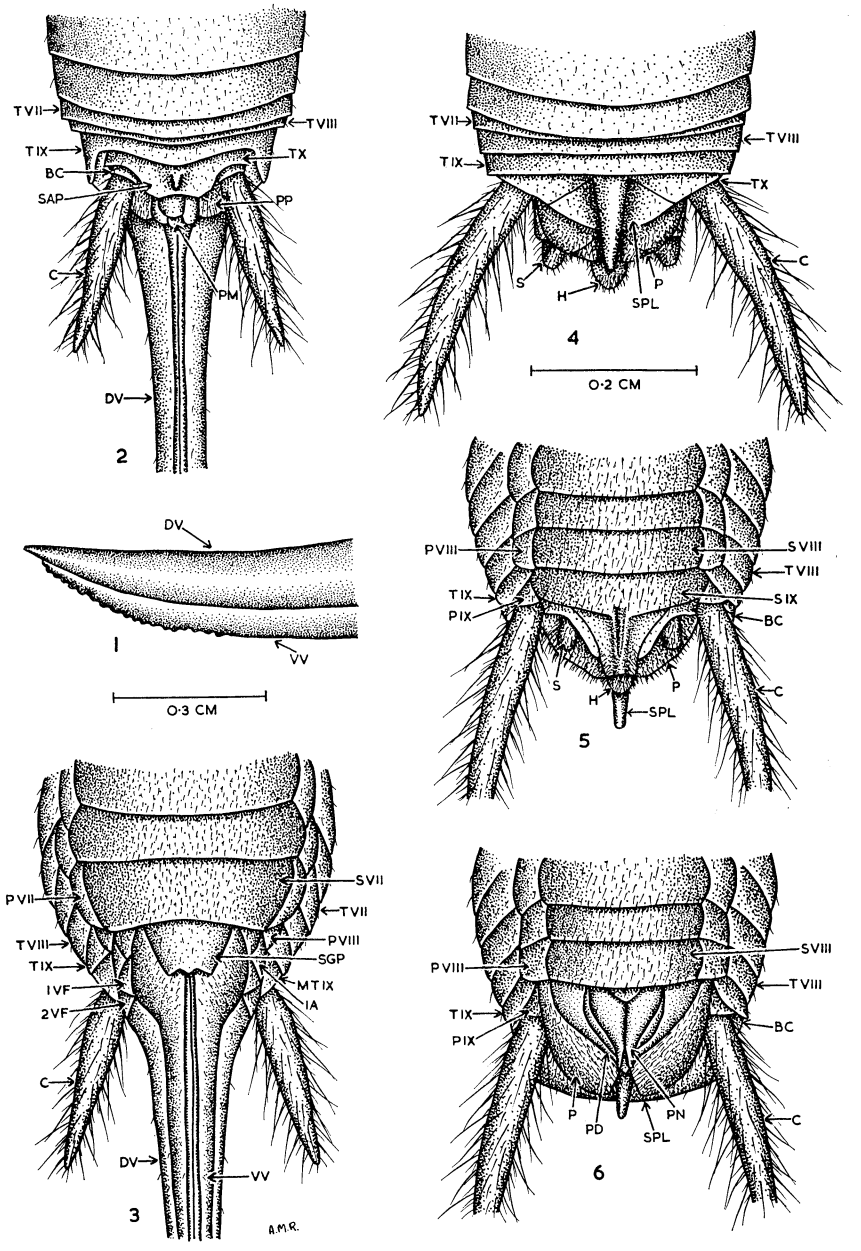

Fig. 1–6, *Insulanoplectron spinosum* n. sp.: 1, distal portion of ovipositor showing serrations on ventral valve; 2, ♀ genitalia, dorsal view; 3, ♀ genitalia, ventral view; 4, ♂ genitalia, dorsal view; 5, ♂ genitalia, ventral view; 6, ♂ genitalia, ventral view, subgenital plate removed to expose structures beneath. (♂ and ♀ genitalia drawn to different scales.)

Table I. Variability in number of linear spines on the legs of *Insulanoplectron spinosum* n. sp.

		MEAN		NUMBER SPECIMENS		STANDARD DEVIATION		RANGE	
		L	R	L	R	L	R	L	R
Fore Tibia Inf.	Pro.	3.0	3.0	6	5	0	0	3	3
	Retro.	3.0	3.0	6	5	0	0	3	3
Mid. Tibia Inf.	Pro.	3.0	3.0	6	6	0	0	3	3
	Retro.	3.0	3.0	6	6	0	0	3	3
Hind Femur Inf. ♂	Pro.	6.5	6.5	2	2	0.5	0.5	6-7	6-7
	Retro.	14.0	12.0	2	2	2.0	0	12-16	12
Hind Femur Inf. ♀ and nymphs.	Pro.	5.8	6.0	4	3	2.3	0.8	2-8	5-7
	Retro.	2.0	1.7	4	3	0.7	0.5	1-3	1-2
Hind Tibia Sup.	Pro.	18.0	17.6	6	5	2.3	1.5	15-22	16-20
	Retro.	19.2	18.2	6	5	1.8	2.3	16-21	15-21

L. — Left leg. Inf. — Inferior.
Pro. — Prolateral. R. — Right leg.
Retro. — Retrolateral. Sup. — Superior.

triangulate, 1.5 wider than long, concave laterally, tapering to a rounded apex thickly clothed with small setae; medianly plate grooved distally; proximal portion of plate thickly clothed with setae. On ventral surface rounded apex thickly clothed with setae. Pseudosternite and penis located beneath subgenital plate. Two styli, fig. 4, 5 (S), short, conical, thickly clothed with setae, length of styli being 0.25 length of sternite IX (S IX). Parameres, fig. 4, 5, 6 (P), elongate, 2.2 longer than wide, thickly clothed with setae. Pseudosternite, fig. 6 (PD), 1.7 wider than long, convex laterally tapering to a pointed apex. Penis, fig. 6 (PN), 2-lobed, each lobe 2.9 longer than wide. Paraprocts absent.

LOCALITY: SNARES ISLANDS: On *Olearia* on forest floor (type locality), coll. C. A. Fleming, 1-6.XII.1947; in leaf mould, coll. R. A. Falla, XII.1947; Station Point, on *Olearia* at night, coll. P. M. Johns, 2.I.1967. Holotype ♂ and allotype ♀ in Dominion Museum Collection, Wellington. Three paratypes (♂, ♀ and ♂ nymph) in Canterbury Museum Collection, Christchurch.

Remarks: Although differing in the apical spination of the hind femora, the genus *Insulanoplectron* shows some affinities in the structure of the ♂ and ♀ genitalia with bush-dwelling species of *Gymnoplectron* Hutton (as redefined in Richards, 1961), more particularly *G. delli* (Richards) from Fiordland and SW Otago (Richards 1954). It does not appear to be related to any of the other known genera of Macropathinae. Its main distinguishing characters are the apical spination of the legs and the structure of the genitalia, especially the development of a large spine on the suranal plate of the ♂ and the dorsal apical spur on the hind tibiae.

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INDEX TO FIGURES

BC. — basal segment of cercus.
C. — cercus.
DV. — dorsal valve.
H. — subgenital plate, ♂.
IA. — intersegmental apodeme.
P. — paramere (ectoparamere).
P. VII, P. VIII, P. IX — pleurite VII, VIII, IX.
PD. — pseudosternite.
PM. — perianal membrane.
PN. — penis.
PP. — paraproct.
S. — stylus.
S. VII, S. VIII, S. IX — sternite VII, VIII, IX.
SAP. — suranal plate, ♀.
SGP. — subgenital plate, ♀.
SPL. — suranal plate, ♂.
T. VII, T. VIII, T. IX, T. X — tergite VII, VIII, IX, X.
1 VF. — 1st valvifer.
2 VF. — 2nd valvifer.
VV. — ventral valve.