2008. The Journal of Arachnology 36:176–179

SHORT COMMUNICATION

A new species of Monoscutinae (Arachnida, Opiliones, Monoscutidae) from New Zealand, with a redescription of *Monoscutum titirangiense*

Christopher Taylor: Department of Environmental Biology, Curtin University of Technology, GPO Box U1987, Perth, Western Australia 6845, Australia. E-mail: c.taylor1@student.curtin.edu.au

Abstract. *Templar incongruens* new genus and species (Monoscutidae) is described and assigned to the subfamily Monoscutinae (Opiliones). It is distinguished from other Monoscutinae by different ornamentation, relatively shorter legs, and enlarged chelicerae in the male. A redescription of *Monoscutum titirangiense* Forster 1948 is also given.

Keywords: Taxonomy, new species, new genus, morphology, Australasia

The subfamily Monoscutinae was established by R.R. Forster in 1948 for two new monotypic genera (*Monoscutum titirangiense* Forster 1948 and *Acihasta salebrosa* Forster 1948) of heavily sclerotized, dorsoventrally flattened harvestmen from northern New Zealand. Although Forster placed his new subfamily in the Phalangiidae, it was seemingly quite distinct from any other member of that family, with relatively short legs and almost the entire dorsum fused into a single scute (hence the name *Monoscutum*).

Since the original publication, no further species of Monoscutinae have been described, though undescribed species have been recorded from eastern Australia (Hunt & Cokendolpher 1991). Šilhavý (1970) transferred *Monoscutum* to the Neopilionidae as part of the Megalopsalidinae. Megalopsalidinae was then raised to family rank by Martens (1976), and the subfamilies Monoscutinae and Megalopsalidinae were treated as distinct by Hunt (1990) and Hunt & Cokendolpher (1991). Crawford (1992) pointed out that the name Monoscutinae Forster 1948 has priority over Megalopsalidinae Forster 1949, and the correct name for the family uniting the two subfamilies is Monoscutidae.

The two subfamilies of Monoscutidae have been united solely by the structure of the penis (both possess paired bristle groups at the junction of shaft and glans), and have been regarded as quite distinct in external appearance. While Monoscutinae is described as dorsoventrally flattened and sexually monomorphic, Megalopsalidinae generally has a globular body, is less heavily sclerotized, and has greatly enlarged chelicerae in the male (Forster 1949). However, better-preserved specimens of Monoscutinae do not show the high degree of dorsoventral flattening previously regarded as characteristic of the subfamily, which therefore appears to be an artifact of preservation. The new genus of Monoscutinae described below also possesses enlarged chelicerae in the male, though they are nowhere near the extraordinarily large appendages possessed by some Megalopsalidinae (Forster 1944; Taylor 2004). The greater sclerotization of Monoscutinae remains a distinguishing feature of the subfamily. Also notable are the ozopores, which are small and not easily visible from above in Monoscutinae, but large and readily visible in Megalopsalidinae.

The new genus and species *Templar incongruens* is here described from specimens collected near Christchurch, South Island, New Zealand, increasing the known range of Monoscutinae. The opportunity is also taken to present a redescription of *Monoscutum titirangiense*, the actual characteristics of which differ enough from the original published description that some confusion might otherwise be possible.

METHODS

Specimens were examined under alcohol using a Leica MZ6 microscope and drawings made using a camera lucida. Genitalia were examined under an Olympus BH-2 compound microscope using K-Y® Brand jelly as a mountant as described in Cokendolpher & Sissom (2000). Measurements were taken of all specimens using a graticule and are given below as averages in millimeters with standard deviations in parentheses. Prosoma and total body lengths were both taken down the midline, while width was measured at the widest part of the prosoma between the second and third legs. Leg measurements are given from leg I to IV. The specimens examined for this study are lodged in Auckland Museum (AMNZ), Te Papa Tongarewa, Wellington (MONZ) and Canterbury Museum, Christchurch (CMNZ), all in New Zealand. The system of approximately equal-sized areas within New Zealand designed by Crosby et al. (1998) for recording specimen localities was followed.

TAXONOMY

Family Monoscutidae Forster 1948
Templar new genus

Type species.—*Templar incongruens* new species.

Etymology.—Name given in recognition of the appearance of the female of the type species – heavily armored, and with a Cross marking.

Diagnosis.—Distinguished from *Acihasta* by absence of flanking spines on the dorsum of the opisthosoma and from *Monoscutum* by denticles on dorsum of body being simple and rounded, not complex, without large denticle on ocularium. Pedipalp patellar apophysis short, rounded. Legs short (e.g., femur II ca. one-third length of body versus three-quarters in *Monoscutum*).

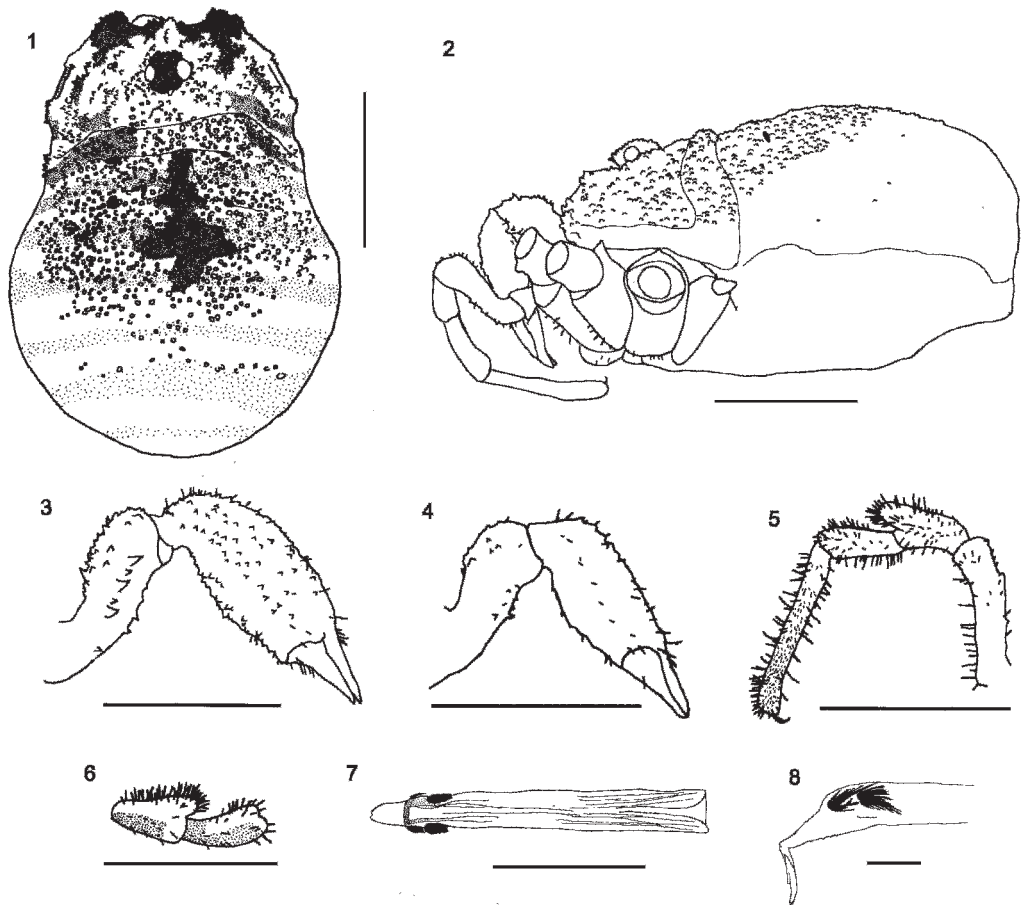
Description.—As for type and only known species.

Templar incongruens new species
(Figs. 1–8)

Material examined.—NEW ZEALAND: South Island: Mid Canterbury: Holotype male: Ahuriri Reserve, 43°41′S, 172°38′E, 22 January 2000, M.S. Harvey (CMNZ). Paratype: 1 female, collected with holotype (CMNZ).

Etymology.—Latin for "incongruent," to reflect the presence in this species of enlarged chelicerae in the male, a feature previously associated with the subfamily Megalopsalidinae, not Monoscutinae.

Description.—*Male:* Prosoma length 0.76, total body length, 2.3, width 1.52. Mottled medium and dark brown; carapace with lighter longitudinal stripes on either side of ocularium. Dorsum of prosoma



Figures 1–8.—*Templar incongruens* new species: 1. Dorsal view of body, female paratype; 2. Lateral view, female paratype; 3. Male chelicera, lateral view, male holotype; 4. Female chelicera, lateral view, female paratype; 5. Female pedipalp, medial view, female paratype; 6. Patella and tibia, male pedipalp, dorsal view, male holotype; 7. Penis, ventral view, male holotype; 8. Penis, lateral view, male holotype. Scale bars = 1 mm (Figs. 1–6), 0.05 mm (Fig. 7), 0.01 mm (Fig. 8).

and first five segments of opisthosoma except for lateral margins densely and evenly covered with simple, rounded denticles. Ocularium rugose. Ozopores small, not visible from above.

Chelicerae: Segment I 0.72, segment II 1.42. Both segments heavily denticulate. Segment I with ventral row of large denticles. Segment II enlarged relative to segment I. Outside of fingers smoothly convex.

Pedipalps: Femur 0.57, patella 0.29, tibia 0.35, tarsus 0.71. Femur without spines; setae in rows on sides and centerline of femur, with concentration of setae at inner distal end. Patella with rows of setae on sides and centerline. Patellar apophysis rounded, not extending far past patella-tibia junction, with scattered large setae. Tibia with rows of setae on sides, otherwise glabrous, and concentration of setae at inner distal end. Tarsus uniformly covered with small setae, with interspersed large setae.

Legs: Femora 0.88, 1.81, 0.86, 1.32; patellae 0.40, 0.70, 0.35, 0.53; tibiae 0.83, 1.68, 0.81, 1.09. Legs noticeably shorter than in other Monoscutidae. Femora, patellae and tibiae of all legs denticulate except leg II, which has only femur denticulate. Tibia II not divided into pseudosegments.

Penis: Glans bent dorsad to shaft, stylus slightly anteriad from vertical. Bristle groups on left smaller than right, with left anterior group very reduced.

Female: Prosoma length 1.0, total body length 2.94, width 1.84. Features as for male except for following. Mottled medium- and yellow-brown with darker median crucifix-shaped marking on opisthosoma from first to fourth segments, with "cross-bar" on third segment.

Chelicerae: Segment I 0.43, segment II 0.96. Chelicerae smaller than in male; no row of enlarged denticles on segment I.

Pedipalps: Femur 0.74, patella 0.33, tibia 0.40, tarsus 0.95.

Legs: Femora 0.95, 1.87, 0.84, 1.34; patellae 0.45, 0.76, 0.41, 0.54; tibiae 0.68, 1.97, 0.86, 1.18.

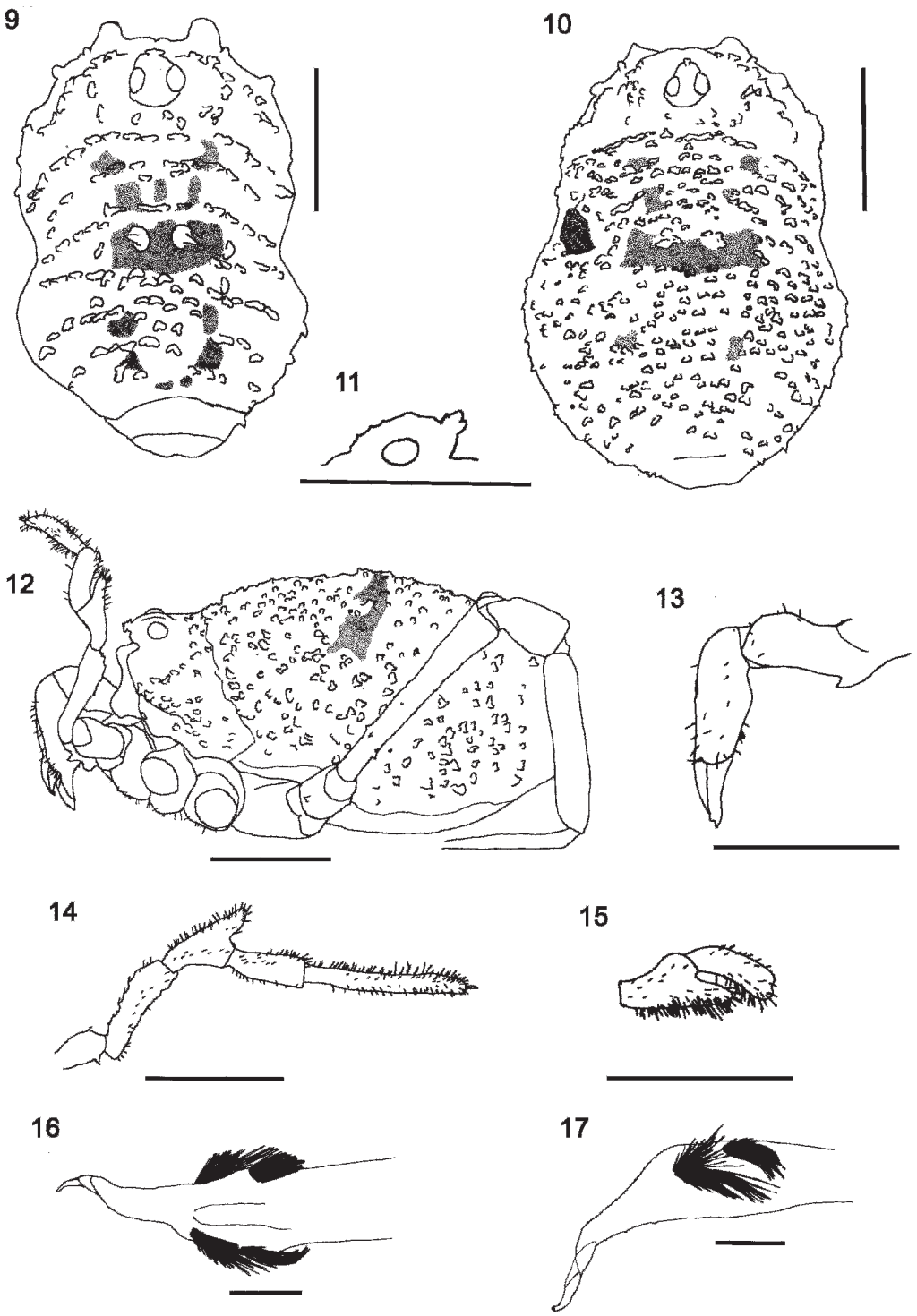
Remarks.—Though I was originally reluctant to establish a new genus for this species, and so leave Monoscutinae with three species in as many genera, *Templar incongruens* differs at least as much from either *Monoscutum titirangiense* and *Acihasta salebrosa* as they differ from each other, if not more so. As mentioned above, *Templar* is not entirely congruent with the original description of Monoscutinae by Forster (1948), but is placed in that subfamily pending a proper phylogenetic analysis of the Monoscutidae as a whole.

Due to insufficient specimens, it cannot be established at present whether the differences in color pattern described for the male and female represent differences between the sexes or simply differences between individuals. Unfortunately, the male genitalia were lost after examination.

Monoscutum Forster 1948

Monoscutum Forster 1948:314.

Type species.—*Monoscutum titirangiense* Forster 1948, by original designation.



Figures 9–17.—*Monoscutum titirangiense* Forster: 9. Dorsal view, male (AMNZ 60921). 10. Dorsal view, female (AMNZ 61458); 11. Female eye mound, lateral view (AMNZ 61459); 12. Lateral view, female (AMNZ 61458); 13. Female chelicera, lateral view (do.); 14. Female pedipalp, lateral view (AMNZ 61459); 15. Patella and tibia, female pedipalp, dorsal view (do.); 16. Penis, ventral view (AMNZ 61121); 17. Penis, lateral view (do.) Scale bars = 1 mm (Figs. 9–15), 0.01 mm (Figs. 16, 17).

Remarks.—No further species of *Monoscutum* have been described since *M. titirangiense*. *Monoscutum* is distinguished from both *Acihasta* and *Templar* by the complex ornamentation covering the dorsum, and also from *Acihasta* by the absence of flanking spines on the opisthosoma.

Monoscutum titirangiense Forster 1948
(Figs. 9–16)

Monoscutum titirangiensis [sic] Forster 1948:314–315, figs. 1–4.
Monoscutum titirangiense Forster: Šilhavý 1970:173.

Material examined.—NEW ZEALAND: North Island: Auckland: syntypes 1 ♂, 1 ♀: Titirangi, 36°56′S, 174°39′E, 12 December 1945, R. Forster (Tube 2/60) (MONZ AH.000076).

Other material examined: NEW ZEALAND: Auckland: 1 ♂, Atuanui, Mt Auckland, 36°27′S, 174°28′E, February 2002, A. Warren (AMNZ 60921); 6 ♂, 2 ♀, Atuanui, Mt Auckland, January 2002, A. Warren (AMNZ 61121); 1 ♀, Mataitai Forest S[outh?] A[uckland?], 39°59′S, 175°08′E, February 2002, A. Warren (AMNZ 61458); 1 ♀, Mataitai Forest S. A., February 2002, A. Warren (AMNZ 61459); ♂, Atuanui, Mt Auckland, February 2002, A. Warren (AMNZ 61795); 1 ♀, Atuanui, Mt Auckland, April 2002, A. Warren (AMNZ 61796); 1 ♂, 1 ♀, Atuanui, Mt Auckland, April 2002, A. Warren (AMNZ 61805); 1 ♂, Mataitai Forest S. A., March 2002, A. Warren (AMNZ 61960); 2 ♀, Mataitai Forest S. A., March 2002, A. Warren (AMNZ 61968); 1 ♀, Atuanui, Mt Auckland, April 2002, A. Warren (AMNZ 61997).

Description.—*Male:* Prosoma length 0.94 (0.07), total body length 3.13 (0.09), width 1.95 (0.09). Uniformly brown with dark brown saddle around central opisthosomal spines, small lateral darker patches in front of saddle and lighter median area behind saddle. Dorsum fused except for final two segments of opisthosoma; bearing multiple complex denticles, generally with short central column and two lateral projections, though individual denticles may be more or less irregular in form. Denticles on carapace roughly in rows along lateral and posterior margins of carapace, as well as directly behind and on either side of ocularium. Ocularium with single large anteromedian complex denticle with small lateral projections and enlarged central projection. Ozopores small, not obvious from above. Denticles on opisthosoma mostly in rows along segment boundaries. Two large median spines on third segment of opisthosoma. Extra denticles medially on two segments directly behind spines. Outermost denticle on three rows behind spines often shows reduction of medial branch and enlargement of lateral branch to form small laterally-projecting spine. Single such denticle on center of each side of first free segment.

Chelicerae: Segment I 0.40 (0.05), segment II 0.90 (0.03). No denticles on chelicerae. Second segment with anterior medial row of setae. Outer edges of fingers smoothly convex.

Pedipalps: Femur 0.74 (0.04), patella 0.38 (0.04), tibia 0.46 (0.03), tarsus 0.95 (0.03). Femur with row of spinose setae, bent distad, on inner dorsal edge; setae in rows on sides and centerline of femur, with concentration of setae at inner distal end. Patella with rows of setae on sides and centerline. Patellar apophysis triangular, about half as long as patella, directed at angle of about 45° from tibia, with scattered large setae. Tibia with rows of setae on sides, otherwise glabrous, and concentration of setae at inner distal end. Tarsus uniformly covered with small setae, with interspersed large setae.

Legs: Femora 1.35 (0.09), 3.26 (0.31), 1.28 (0.08), 2.15 (0.13); patellae 0.60 (0.07), 0.85 (0.09), 0.54 (0.12), 0.66 (0.03); tibiae 1.27 (0.12), 3.09 (0.19), 1.17 (0.09), 1.67 (0.10). Femora, patellae and tibiae of all legs with longitudinal rows of stout setae, no spines. Tibia II with four pseudosegments.

Penis: Glans bent dorsad to shaft, stylus directed anteriad from vertical. Left anterior bristle group not reduced.

Female: Prosoma length 1.13 (0.07), total body length 4.02 (0.26), width 2.14 (0.17). As for male, except for following. Generally more rugose, denticles on opisthosoma more numerous and not arranged in any obvious pattern. Large median tubercles on third segment of opisthosoma irregular in form, rather than spines.

Chelicerae: Segment I 0.42 (0.07), segment II 1.01 (0.09).

Pedipalps: Femur 0.84 (0.06), patella 0.46 (0.04), tibia 0.53 (0.03), tarsus 1.09 (0.05). *Legs*: Femora 1.21 (0.05), 3.15 (0.26), 1.23 (0.15), 2.09 (0.12); patellae 0.60 (0.06), 0.89 (0.10), 0.60 (0.05), 0.71 (0.06); tibiae 1.20 (0.07), 3.00 (0.21), 1.08 (0.09), 1.63 (0.11).

Remarks.—The description given here differs somewhat from Forster's (1948) original. Despite the type vial containing specimens of both sexes, Forster's description is seemingly based on the male only (nevertheless, as the specimens are still conspecific, I do not designate a lectotype). Forster made no mention of the complex form of the denticles, and they appear rounded in his illustration. He also seems to have overlooked the distinct appearance of the female.

ACKNOWLEDGMENTS

Thanks are due to Phil Sirvid of Te Papa Tongarewa and John Early of Auckland Museum for loaning specimens. My thanks also to Mark Harvey of Western Australian Museum for advice, proof-reading this paper and for the loan of the specimens of the new species. Research for this paper was conducted at and funded by Curtin University.

LITERATURE CITED

Cokendolpher, J.C. & W.D. Sissom. 2000. Further contributions to the study of *Dalquestia* (Opiliones, Sclerosomatidae). Entomological News 111:243–249.

Crawford, R.L. 1992. Catalogue of the genera and type species of the harvestman superfamily Phalangioidea (Arachnida). Burke Museum Contributions in Anthropology and Natural History 8:1–60.

Crosby, T.K., J.S. Dugdale & J.C. Watt. 1998. Area codes for recording specimen localities in the New Zealand subregion. New Zealand Journal of Zoology 25:175–183.

Forster, R.R. 1944. The genus *Megalopsalis* Roewer in New Zealand with keys to the New Zealand genera of Opiliones. Records of the Dominion Museum 1:183–192.

Forster, R.R. 1948. A new sub-family and species of New Zealand Opiliones. Records of the Auckland Institute and Museum 3:313–318.

Forster, R.R. 1949. Australian Opiliones. Memoirs of the National Museum of Victoria 16:59–89.

Hunt, G.S. 1990. Taxonomic value of spiracle microstructure in the Megalopsalididae (Opiliones, Phalangioidea). Acta Zoologica Fennica 190:187–194.

Hunt, G.S. & J.C. Cokendolpher. 1991. Ballarrinae, a new subfamily of harvestmen from the Southern Hemisphere. Records of the Australian Museum 43:131–169.

Martens, J. 1976. Genitalmorphologie, System und Phylogenie der Weberknechte (Arachnida: Opiliones). Entomologica Germanica 3:51–68.

Šilhavý, V. 1970. Nouvelles recherches sur la famille des Neopilionidae Lawrence. Bulletin du Muséum National d'Histoire Naturelle series 2, 41(Supplement 1):171–175.

Taylor, C.K. 2004. New Zealand harvestmen of the subfamily Megalopsalidinae (Opiliones: Monoscutidae) — the genus *Pantopsalis*. Tuhinga 15:53–76.

Manuscript received 14 February 2007, revised 20 July 2007.