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PROHATSCHEKIA STOCKI SP. NOV. (COPEPODA: HATSCHEKIIDAE) A PARASITE OF AN AUSTRALIAN FISH, *RHINHOPLICHTHYS HASWELLI*

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ABSTRACT

A male and a female specimen of *Prohatschekia stocki* sp. nov. (Copepoda: Hatschekiidae) are described and illustrated. *P. stocki* is a parasite on the gills of the Australian fish species *Rhinoplichthys haswelli*.

ZUSAMMENFASSUNG

Ein Männchen und ein Weibchen von *Prohatschekia stocki* sp. nov. (Copepoda: Hatschekiidae) werden beschrieben und illustriert. *P. stocki* ist ein Schmarotzer auf den Kiemen von einem Australischen Fisch, *Rhinoplichthys haswelli*.

INTRODUCTION

Nunes-Ruivo (1954) established *Prohatschekia* for a new species, *P. cremouxi*, which differed from *Hatschekia* in possessing a third pair of biramous legs. *P. cremouxi* became the type species of the new genus. In the same paper, *Hatschekia Sebastisci* Yamaguti, 1939, was transferred to *Prohatschekia*. The next one to find a species of this genus was Shiino (1957), who described *P. laguncula* and transferred to *Prohatschekia* another of Yamaguti's (1939) species, *Hatschekia awatati*. The fifth species, *P. antennalis* was added by Avdeev & Kazachenko (1986).

A sample of parasitic copepods from deep-sea fishes of Australia, kindly made available to me by Dr. K. Rohde, contained another *Prohatschekia*, which I am unable to assign to any of the five known species of this genus. Conse-

quently, I must recognise it as a new species, which I propose to name *Prohatschekia stocki* sp. nov.

The specimens were examined under dissection and compound microscopes, magnified up to $\times 920$. Examination of entire specimens and of dissected appendages was carried out in bright light, as well as with the aid of the phase contrast and Nomarsky's interference contrast illumination. Berleze's fluid was used as a clearing and mounting medium. All drawings are free-hand, drawn with the aid of an eyepiece graticule.

DESCRIPTION

Record of specimens: Twenty six females and 23 males, collected on 10 Dec. 1981 in

Australian waters off the coast of New South Wales at depth 516-540 m, position 33°49'S 151°50'E-33°59'S 151°54'E. Type material is deposited in the collections of the British Museum (Natural History): holotype female Reg.No.BM(NH) 1989 882; allotype male Reg.No.BM(NH) 1989 883; 10 female and 10 male paratypes, Reg.No.BM(NH) 1989 884-893.

Host: *Rhinophlichthys haswelli* (McCulloch, 1907)

Habitat: Gills.

Etymology: The specific name honours Dr. Jan H. Stock, a renowned carcinologist and currently the President of the World Association of Copepodologists.

Female (Fig. 1): Cephalothorax cordiform, wider than long, with re-entrant anterior and rounded lateral margins. Trunk separated from cephalothorax by constriction, rapidly expanding to its full width; lateral margins uneven, with single setule at about 2/3 of trunk's length; posterolateral corners bearing subconical processes. Cuticle crinkled by numerous, minute, short, transverse ridges, small spinules sparsely scattered on posterolateral processes (not shown in Fig. 1). Abdomen not sharply delimited, small, of about equal length and width. Dimensions (in mm, based on 10 specimens): Total length 1.40-1.70 (1.60); cephalothorax length 0.22-0.36 (0.30), width 0.42-0.56 (0.49); trunk width 0.36-0.62 (0.52); egg sacs length 1.60-2.10 (1.85), diameter 0.12-0.16 (0.14).

First antenna (Fig. 2) indistinctly seven-segmented, setal formula 9-7-4-2-1-4-11; apical armature (Fig. 3) of four setae. Second antenna (Fig. 4) three-segmented, subchelate; basal segment subcylindrical, unarmed; second with fine, transverse, cuticular ridges along one margin; third (subchela) with similar ridges, two slender setae and powerful, sharp, curving claw. Parabasal papilla (Fig. 5) at base of second antenna with two digitiform processes of unequal length. Mandible (Fig. 6) stylet-like, devoid of teeth. First maxilla (Fig. 7) biramous,

both rami papilliform and bearing two setae of unequal length, those of exopod longer than those of endopod. Second maxilla (Fig. 8) brachiform, lacertus indistinctly two-segmented, first segment short, unarmed, second robust, with one seta on proximal part of inner margin; brachium subcylindrical, partially covered by irregular transverse ridges crested with fine bristles; short seta at base of claw; latter (Fig. 9) indistinctly divided into two parts; basal part bearing long, apparently soft process and shorter, spiniform seta; terminal part bifid, with unequally long tines. Maxilliped absent.

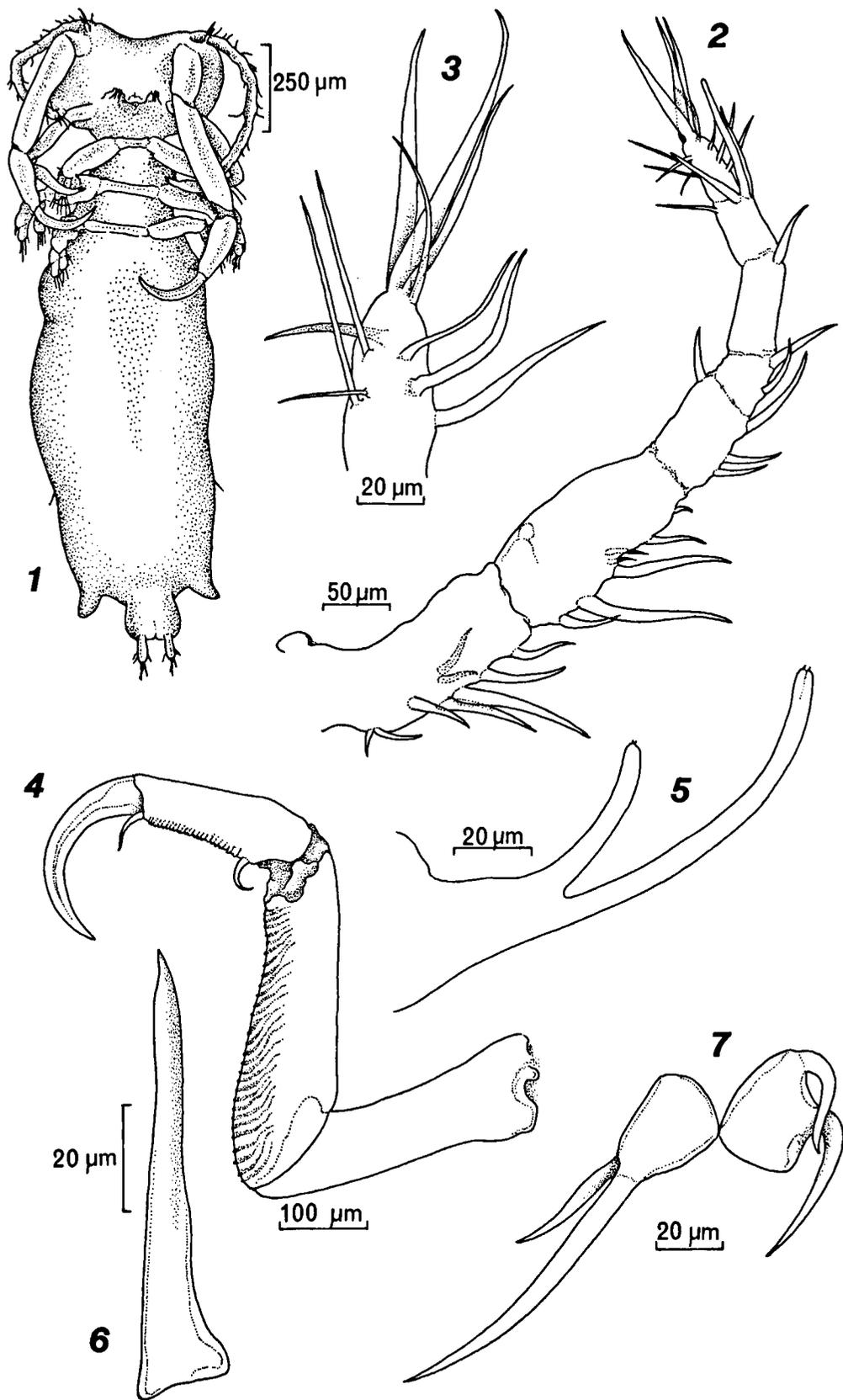
Three pairs of biramous legs (Figs. 10-12). Sympod of first leg with single, naked seta medial to base of endopod, all three sympods with similar, though smaller setae lateral to bases of exopods. All rami two-segmented, endopods shorter than exopods. Distal segments of endopods with transverse cuticular, wrinkle-like ridges. Similar ridge on distal segment of first exopod. Armature of rami as in table below.

	Exopod		Endopod	
	1	2	1	2
Leg 1	1-0	6	0-0	5
Leg 2	1-0	5	0-1	4
Leg 3	1-0	5	0-1	4

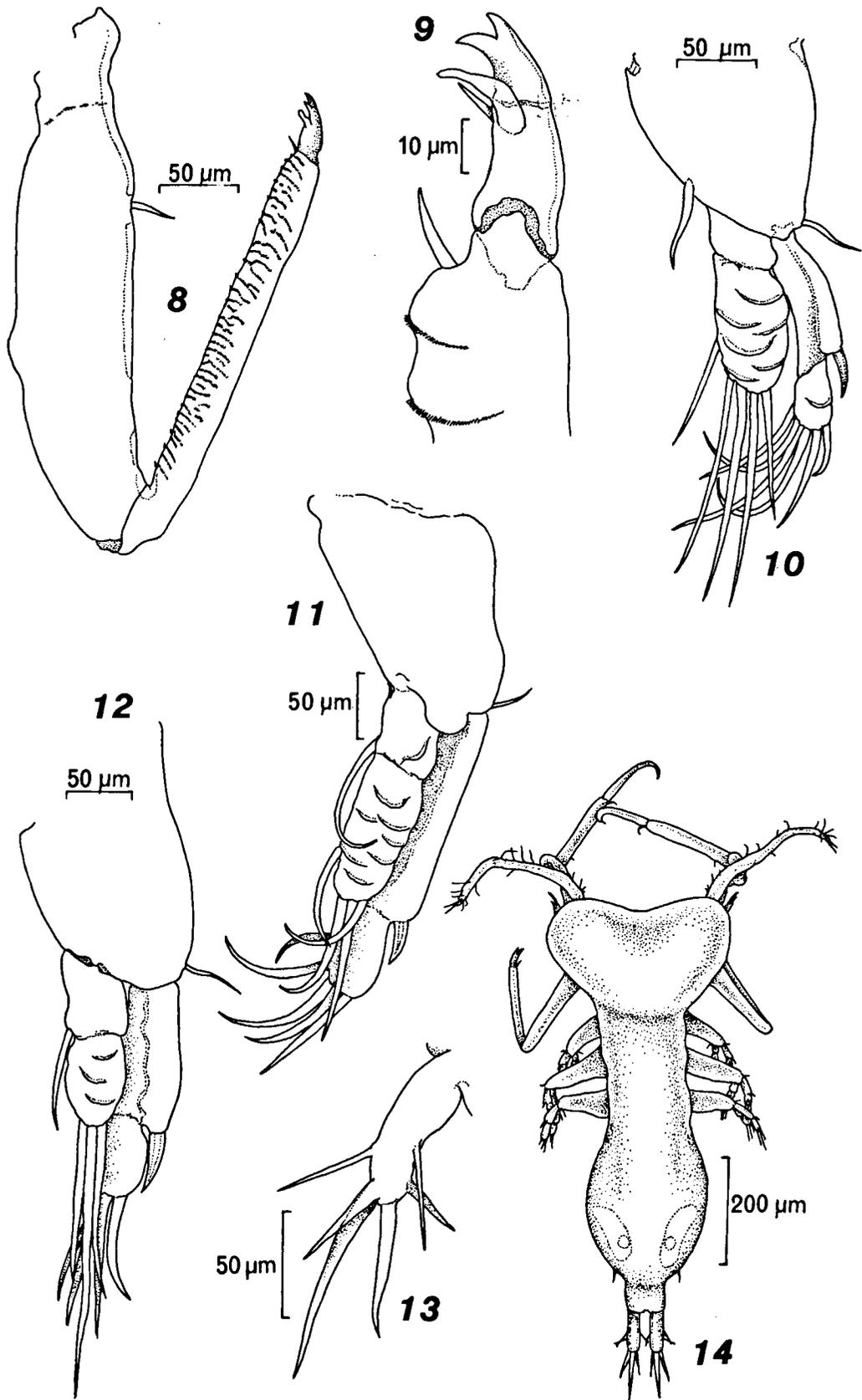
Caudal rami (Fig. 13) short, digitiform, bearing three apical and three subapical setae.

Male (Fig. 14): Cephalothorax cordiform, wider than long, similar to that of female, without sharp boundary between it and trunk. Latter unsegmented, narrower than cephalothorax, its anterior part subcylindrical, posterior slightly inflated, with short setae (fourth legs?) in posterolateral corners. Abdomen very short, unsegmented, not sharply delimited from trunk, subquadrangular. Caudal rami subcylindrical, longer than abdomen, armed as in female. Dimensions (in mm, based on 10 specimens): Total length 0.82-1.00 (0.94); cephalothorax length 0.20-0.26 (0.23), width 0.30-0.36 (0.33); trunk width 0.16-0.22 (0.20).

Appendages similar to those of female, though second antennae more slender.



Figs. 1-7. *Prohatschekia stocki*. Fig. 1. Female, ventral; Fig. 2. Second antenna, entire; Fig. 3. Same, terminal segment and apical armature; Fig. 4. Second antenna; Fig. 5. Parabasal papilla; Fig. 6. Mandible; Fig. 7. First maxilla.



Figs. 8-14. *Prohatschekia stocki*. Fig. 8. Second maxilla, entire; Fig. 9. Same, terminal claw; Fig. 10. First leg; Fig. 11. Second leg; Fig. 12. Third leg; Fig. 13. Caudal ramus; Fig. 14. Male, dorsal.

DISCUSSION

Prohatschekia stocki is distinguishable from all its five congeners by the shape of its cephalothorax and by the presence of posterolateral conical processes on its trunk. It also appears to differ from all but *P. cremouxi* in the armature of its legs. The differences, however, might be due to observer errors, loss of fragile setae from some rami, or individual variability in leg armature, known to occur sometimes in the family Hatschekiidae. (These comments do not apply to *P. laguncula*, which has uniquely modified endopods on all three pairs of legs.)

It is interesting to note that one appendage of *Prohatschekia* has been largely overlooked by previous authors. Like *Hatschekia*, its close relative, *Prohatschekia* possesses a very distinct parbasal papilla (Fig. 5) close to the base of the second antenna. Only Shiino (1957) observed it in his *P. laguncula*. He referred to it as the "accessory appendage at the base of the first antenna" and speculated that it probably represents the first maxilla. Nunes-Ruivo (1954) has shown small processes in the anterolateral corners of the cephalothorax of *P. cremouxi*. Her text mentions that the head "présentant sur les côtes deux expansions en pointe". These processes might represent the

basal papillae. It is almost certain that all members of the genus possess these papillae.

It is also noteworthy that the population of *P. stocki*, as represented in the sample on which this description is based, consists in about equal numbers of males and females. This sex ratio is most unusual for Hatschekiidae, a family the males of which are usually unknown, or at best rare. The male of *P. stocki* is the first to be described for the genus *Prohatschekia*.

The discovery of *P. stocki* provides the first record of this genus from Australian waters.

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