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Abergasilus amplexus Hewitt, 1978 (Ergasilidae: Copepoda) from New Zealand, with a description of the male

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Abstract The male of *Abergasilus amplexus* Hewitt, 1978 is described for the first time. Previous records of *A. amplexus* are discussed and a new locality, Te Whanga Lagoon, Chatham Islands, is reported.

Keywords Copepoda; *Abergasilus amplexus*; taxonomy; distribution; Chatham Islands; new records.

INTRODUCTION

The genus *Abergasilus* contains only one species, *Abergasilus amplexus* Hewitt, 1978, the female of which was described by Hewitt (1978) from the gills of *Retropinna retropinna* (Richardson, 1848) and *Anguilla australis* Richardson, 1848 taken from Lake Ellesmere, New Zealand. Hewitt (1978) also recorded that the copepod had been found on a further 9 species of teleost from this euryhaline lake.

The female copepod is extremely common in summer, and Hine (1978) recorded that 89.6% of 280 *A. australis* he examined were infested. However, initial attempts to locate ergasilid males in plankton samples from the lake were unsuccessful. Regular monthly sampling was begun in March 1980, and in December 1980 5 males and 2 females were recovered, enabling the male to be described for the first time. Because Hewitt (1978, p. 177) relied heavily on scanning electron micrographs, he was uncertain of the ornamentation on legs 2 and 3. His description of the female is accordingly corrected.

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METHODS

Specimens were dissected with glass needles and examined in Berlese mountant using phase contrast and Nomarski illumination. All drawings were prepared with the aid of a camera-lucida.

Genus *Abergasilus* Hewitt, 1978

FEMALE. Head fused with thoracic segment 1 to form cephalosome; metasomal segments 1–4 freely articulated, segments 1–3 progressively narrowing, segment 4 much reduced; urosomal segment 1 as wide as last metasomal segment, genital segment as wide as metasomal segment 3, 3 posterior segments narrowed; antenna 1 of 6 joints; antenna 2 of 3 joints with base of second joint developed as massive spine which abuts against claw-like third joint; maxilla 1 reduced; maxilla 2 well developed; maxillipeds absent; legs 1–3 biramous, all rami of 3 joints, legs 4,5 absent or reduced to setae. Euryhaline parasite on gills of teleost fishes.

MALE. Genital segment as wide as metasomal segment 4, 4 posterior segments narrowed; antenna 1 6-segmented; antenna 2 3-segmented, subchelate; maxilla 1 reduced, maxilla 2 well developed, maxillipeds 5-segmented, fifth segment elongated to form scythe-like subchelae; legs 1–3 biramous, rami 3-segmented; legs 4–5 as for female; leg 6 represented by seta; planktonic.

Abergasilus amplexus Hewitt, 1978

MATERIAL EXAMINED. Seven females from the gills of *Anguilla australis* Richardson, 1848 caught off Timberyard Point, Lake Ellesmere (43°50'S,172°30'E), 5 November 1975.

Twelve females from the gills of *A. australis* caught in Te Whanga Lagoon, Chatham Islands (44°0'S, 176°20'W), 12 March 1979.

Sixteen females from the gills of *Retropinna retropinna* (Richardson, 1848) caught in Te Whanga Lagoon, Chatham Islands, 12 March 1979.

Five males from a plankton sample obtained off Timberyard Point, Lake Ellesmere, 17 December

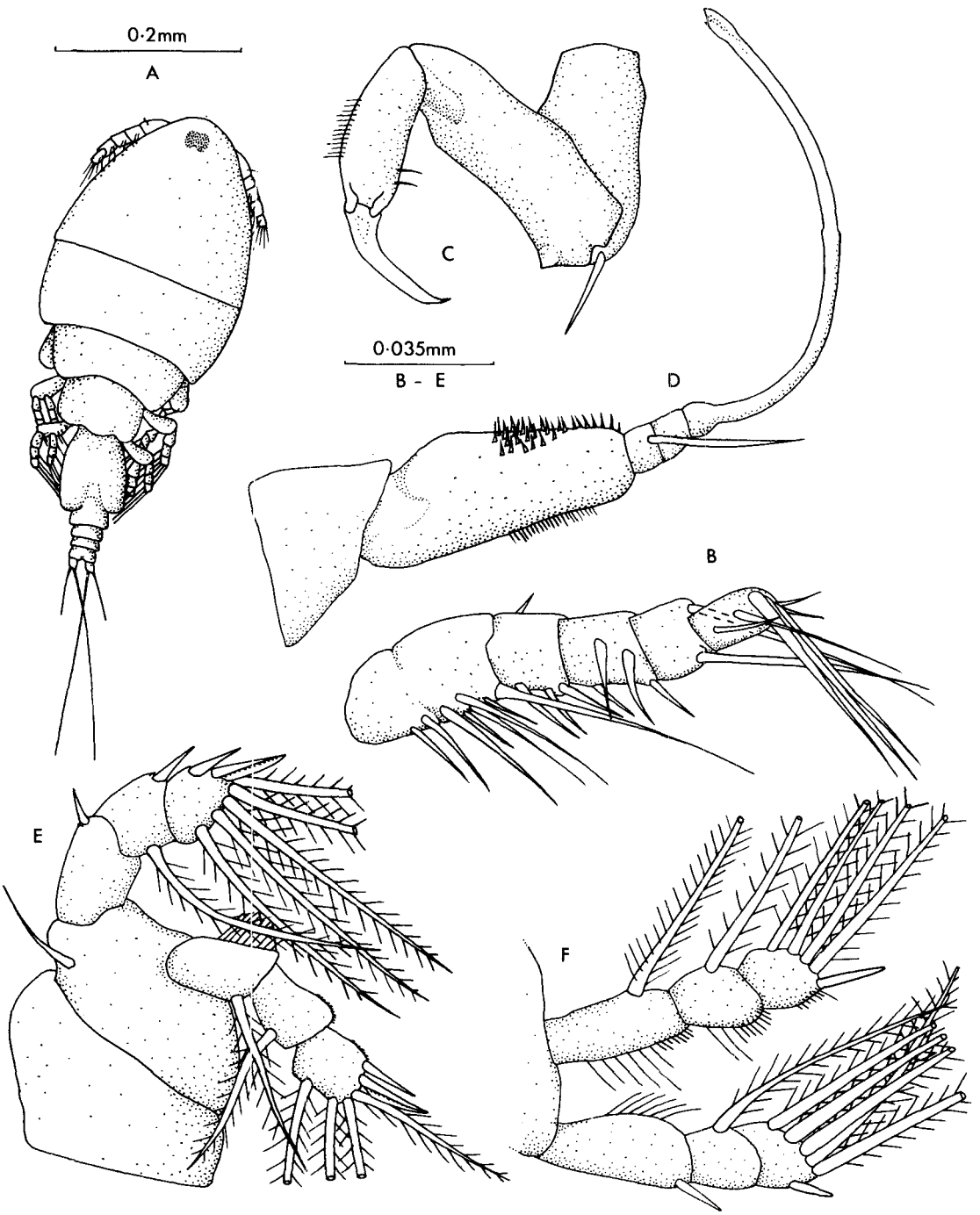

Fig. 1 *Abergasilus amplexus* Hewitt, 1978, male: A, dorsal view; B, antenna; C, antenna 2; D, maxilliped; E, leg 1; F, leg 2 exopodite and endopodite.

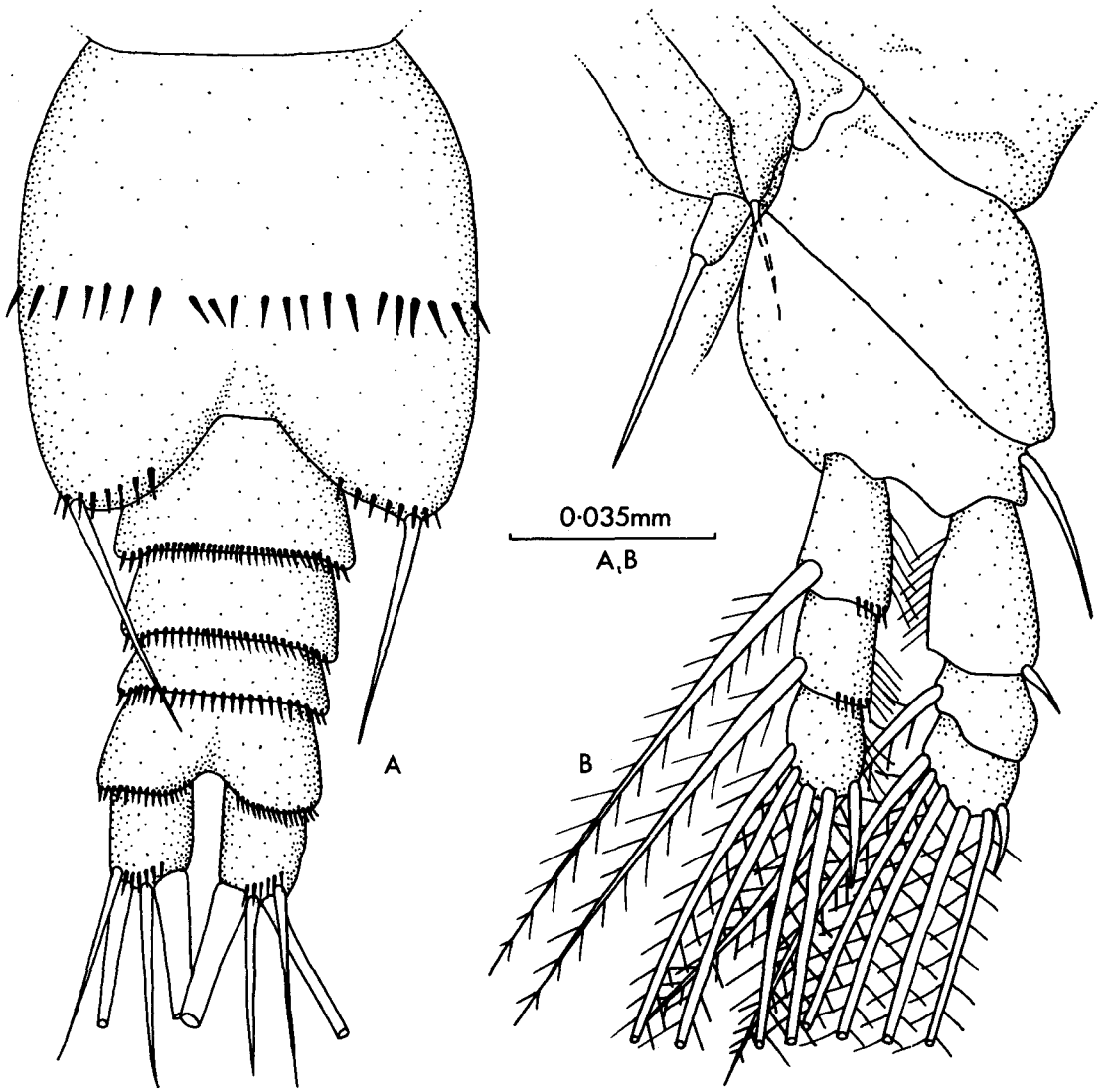

Fig. 2 *Abergasilus amplexus* Hewitt, 1978, male: A, legs 4, 5, and abdomen, ventral surface; B, leg 3.

1980; 2 are deposited in the New Zealand National Museum (Z.Cr. 2302–3), remaining specimens in author's collection.

FEMALE. As described by Hewitt (1978) with the exception of the following.

Mandible. Of typical ergasilid type; basal segment subrectangular, bears terminal falciform denticulate blade; posterior margin bears long narrow palp with pectinate margin; anterior margin has protuberance bearing small clavate process.

Legs 1–3. The ornamentation on the legs as described by Hewitt (1978, table 1) is erroneous. The ornamentation as determined from dissected Lake Ellesmere material is as follows (roman numerals, spines; arabic numerals, plumose setae).

	Coxopodite	Basipodite		1	2	3
L_1	0–0	0–1	exopodite	I–0	I–1	II–5
			endopodite	*0–1	0–1	II–4
L_2	0–0	0–1	exopodite	I–0	0–1	I–5
			endopodite	0–1	0–1	I–4
L_3	0–0	0–1	exopodite	I–0	0–1	I–5
			endopodite	0–1	0–1	I–4

*spine-like elongation of distal outer corner.

The distribution of spinules and "small hairs" on the legs is as shown by Hewitt (1978).

Legs 4, 5 are each represented by a single non-plumose seta as suggested by Hewitt (1978).

The uropods each carry 1 seta which is almost as long as the cephalosome, and 3 much shorter setae, not 4 as reported by Hewitt (1978).

No variation in setation was seen in the specimens examined.

MALE (Fig. 1A). Total length, anterior margin of cephalosome to posterior margin of uropods, 0.50 mm, range 0.45–0.55 mm (n = 5). Greatest width 0.23 mm, range 0.23–0.24 mm. Morphology similar to female except where specified below. Genital complex bears leg 6. Four urosome segments follow (one more than in female).

Antenna 1 (Fig. 1B) 6-segmented. First and second segments not clearly demarcated, giving impression of 5 segments. Setal formula 2, 6, 4, 4, 2, 7. Antenna 2 (Fig. 1C) 3-segmented, subchelate. Basal segment length twice width, seta on apex. Second segment elongate, length 3 × width, bears very small projection on proximal margin which opposes with tip of claw. Terminal segment bears stout claw on apex, 2 setules on inner margin and row of setules on outer margin.

Maxilliped (Fig. 1D). Basal segment of maxilliped triangular, unarmed. Second segment elongate, length 3 × width, bears multiple row of spines on inner margin, row of setules on outer margin. Segment 3 bears seta. Segments 3, 4, and 5 form long thin scythe-like subchela. Length of subchela equal to or greater than rest of maxilliped.

Legs 1–5 (Fig. 1E, F, 2B). Setation as for female. Endopodite leg 1 without spine-like projection of first segment seen in female.

Genital complex (Fig. 2A) slightly longer than wide, bears 3 rows of spines on ventral surface, 1 row of about 20 spines near midpoint, and 1 row spines at each posterior lateral margin immediately anterior to the long seta representing leg 6.

Remarks. This is the second male ergasilid to be found in a New Zealand lake, the other being *Thersitina inopinata* Percival, 1937, taken from the plankton of Lake Poerua, Westland (Percival 1937). The male described above is easily distinguished from *Thersitina* by having only 3 instead of 4 well developed pairs of legs. This character alone distinguishes *Abergasilus* Hewitt, 1978 from all other ergasilid genera. Antenna 2 of the male differs greatly from the stout chela of the female, but all the other differences, as described above, are typical of the differences between male and female Ergasilidae (Kabata 1979).

Distribution of *Abergasilus*

This copepod was originally known only from Lake Ellesmere and the Makara Stream. However, the record of 6 females from the Makara Stream, near Wellington, collected by Dr P. M. Hine (Hewitt 1978) must be considered as unconfirmed since, although the vial of specimens bears such a label, Dr Hine was overseas in August 1974 when the specimens were apparently collected and he is convinced that he has never found *A. amplexus* in the Makara Stream despite extensive collecting there over many years (Hewitt and Hine, pers. comms; Hine 1978, p. 183, table 2). Hine (1978) also recorded one specimen of *A. amplexus* from *Anguilla dieffenbachii* Gray, 1842 taken from the Awakino River, Taranaki.

Confirmation that *A. amplexus* does occur elsewhere was obtained in March 1979, when specimens were recovered by P. M. Hine, and identified by me from the gills of *Retropinna retropinna* and *Anguilla australis* taken from the euryhaline Te Whanga Lagoon, Chatham Islands. These specimens were a royal blue colour, unlike the creamy white with blue eyespot seen in specimens from L. Ellesmere *Abergasilus*. No other differences in size, shape, or setation of the appendages could be detected.

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