Supplementary Material to:

USING LANDMARK-BASED GEOMETRIC MORPHOMETRICS FOR HOLOTYPE SELECTION IN CRYPTIC SPECIES: A CASE STUDY OF WESTERN AUSTRALIAN *HALICYCLOPS* (COPEPODA, CYCLOPOIDA)

BY

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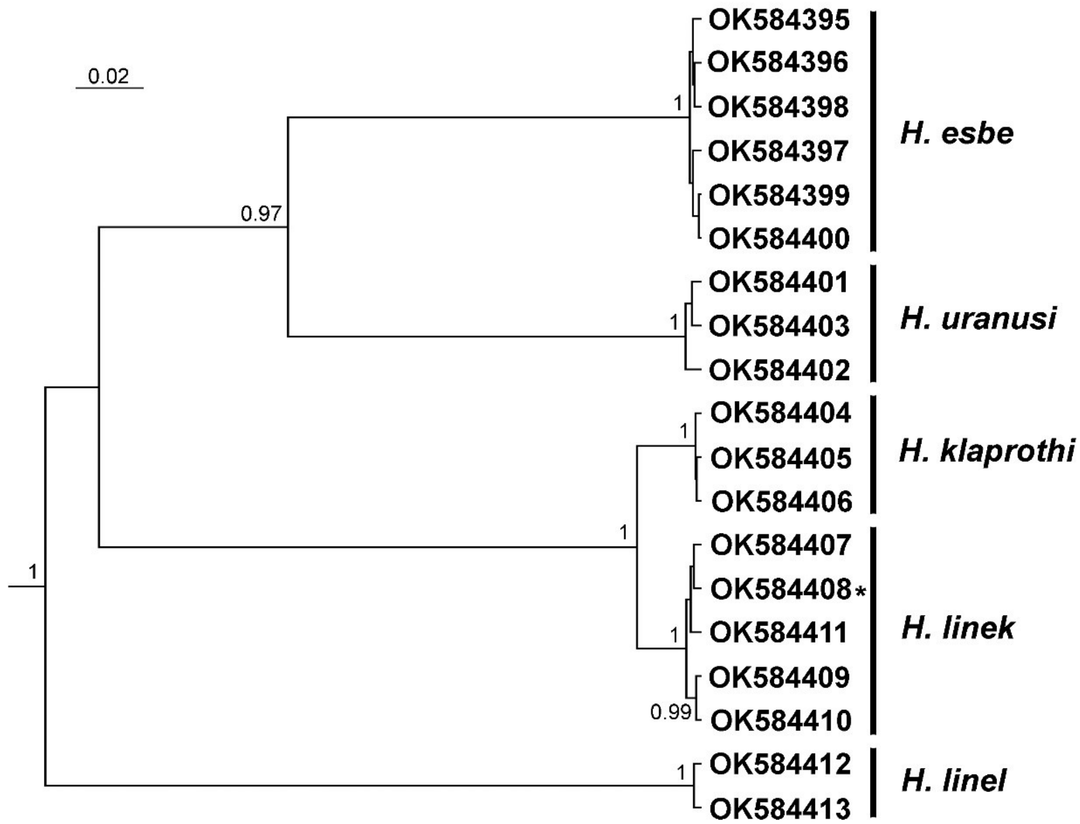

Fig. S1. Bayesian inference (BI) cladogram based on partial 12S sequences from 19 *Halicyclops* specimens (table S-I), showing only BI posterior probabilities larger than 0.9. Five cryptic species indicated on the right are also used for calculating average pairwise distances (table S-IV). Specimen codes are their GenBank accession numbers, and asterisk marks a holotype.

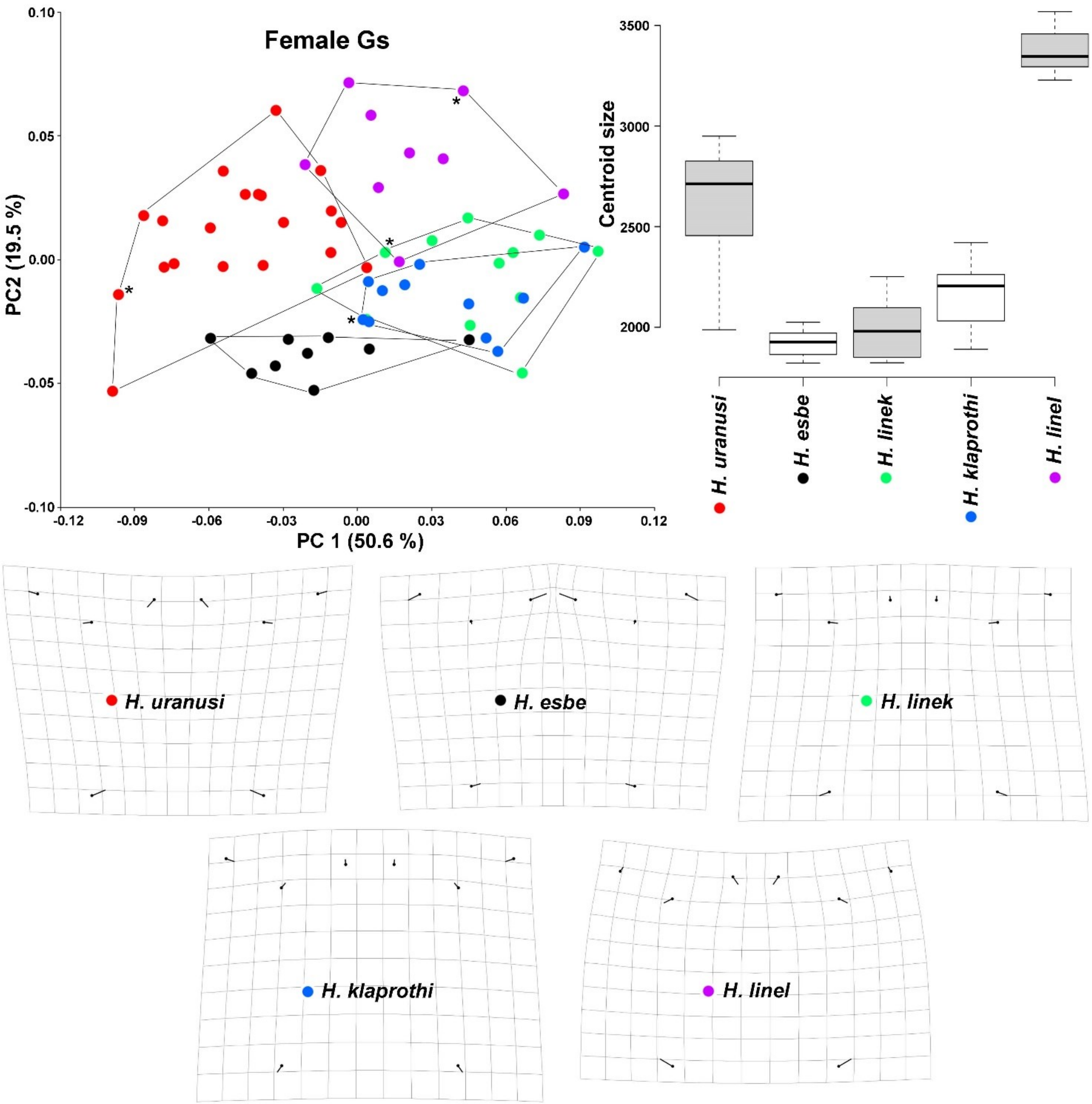

Fig. S2. Graphical visualisation of the geometric morphometric analysis based on eight landmarks (fig. 2) in the female Gs dataset (table S-I). Scatter plot (top left) shows delimitation of species by principal component analysis as convex hulls in morphospace defined by the first two eigenvectors (PCs); relative amount of shape variation explained by PCs is provided in the brackets and holotypes are marked with an asterisk. Box-plot (top right) is based on centroid size; centre lines show the medians; box limits indicate the 25th and 75th percentiles; whiskers extend 1.5× the interquartile range from the 25th and 75th percentiles. Transformation grids (scaled 1.5×) visualize shape changes for each species relative to the mean shape of the whole sample; all scaled to the same centroid size.

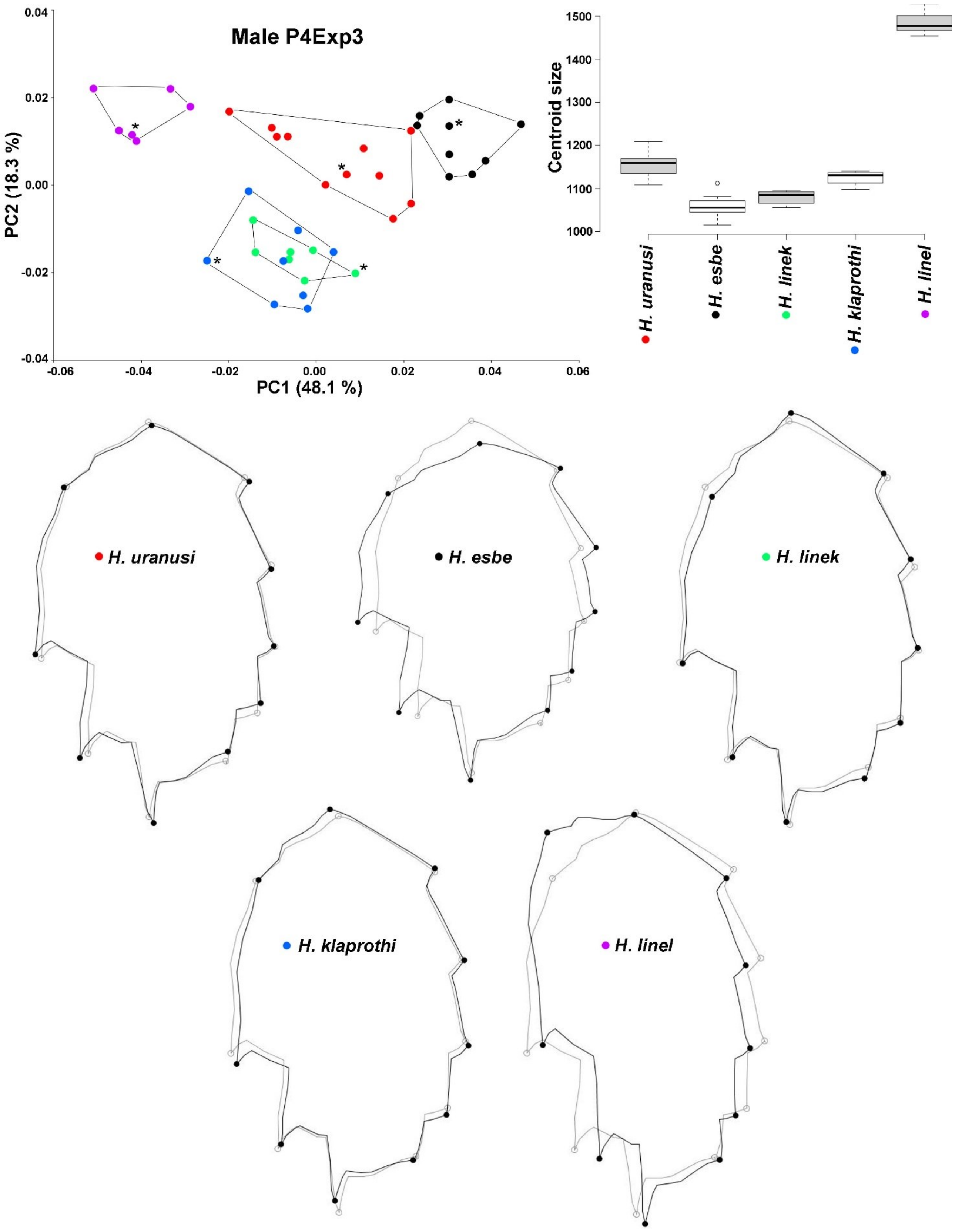

Fig. S3. Graphical visualisation of the geometric morphometric analysis based on 10 landmarks (fig. 2) in the male P4Exp3 dataset (table S-I). Explanations for scatter plot (top left) as in fig. S1, except here allotypes are marked with an asterisk. Explanations for box-plot (top right) as in fig. S1, except here one outlier represented by a dot. Warped outlines (scaled 3×) visualize shape changes for each species (black) relative to the mean shape of the whole sample (grey); all scaled to the same centroid size.

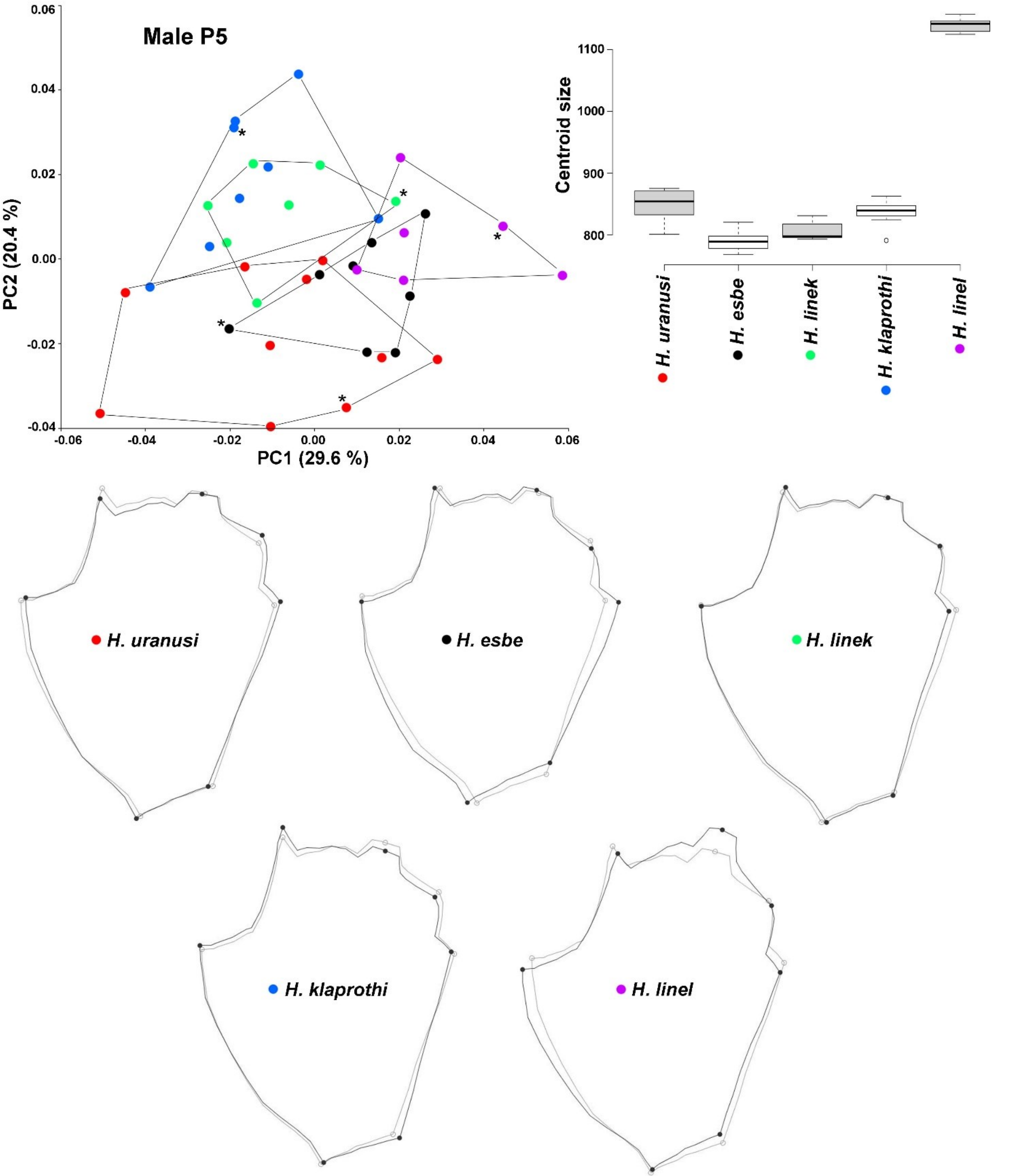

Fig. S4. Graphical visualisation of the geometric morphometric analysis based on seven landmarks (fig. 2) in the male P5 dataset (table S-I). Explanations for scatter plot (top left), box-plot (top right), and warped outlines (scaled 2×) as in fig. S2.

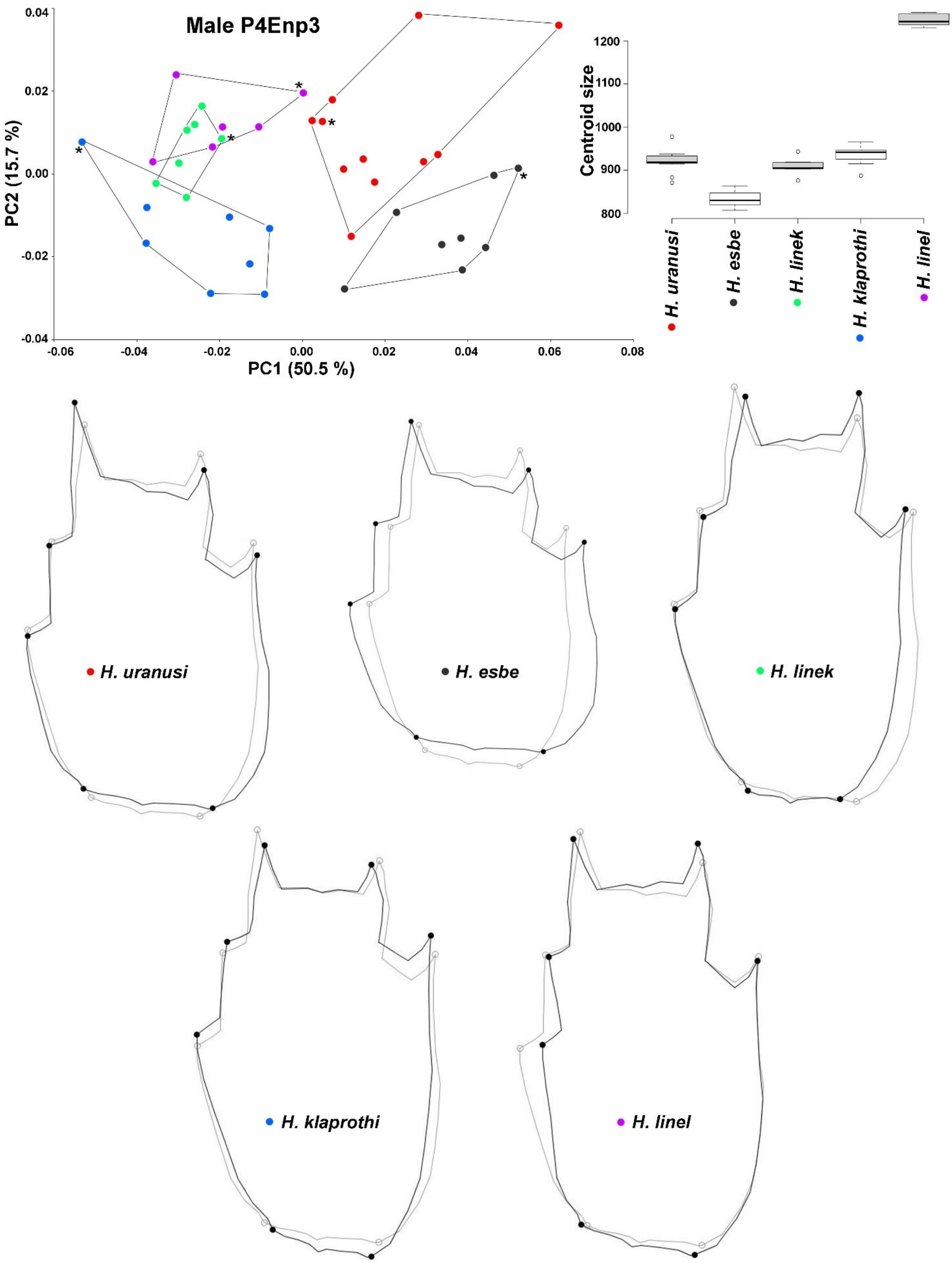

Fig. S5. Graphical visualisation of the geometric morphometric analysis based on seven landmarks (fig. 2) in the male P4Enp3 dataset (table S-I). Explanations for scatter plot (top left), box-plot (top right), and warped outlines (scaled 3×) as in fig. S2.

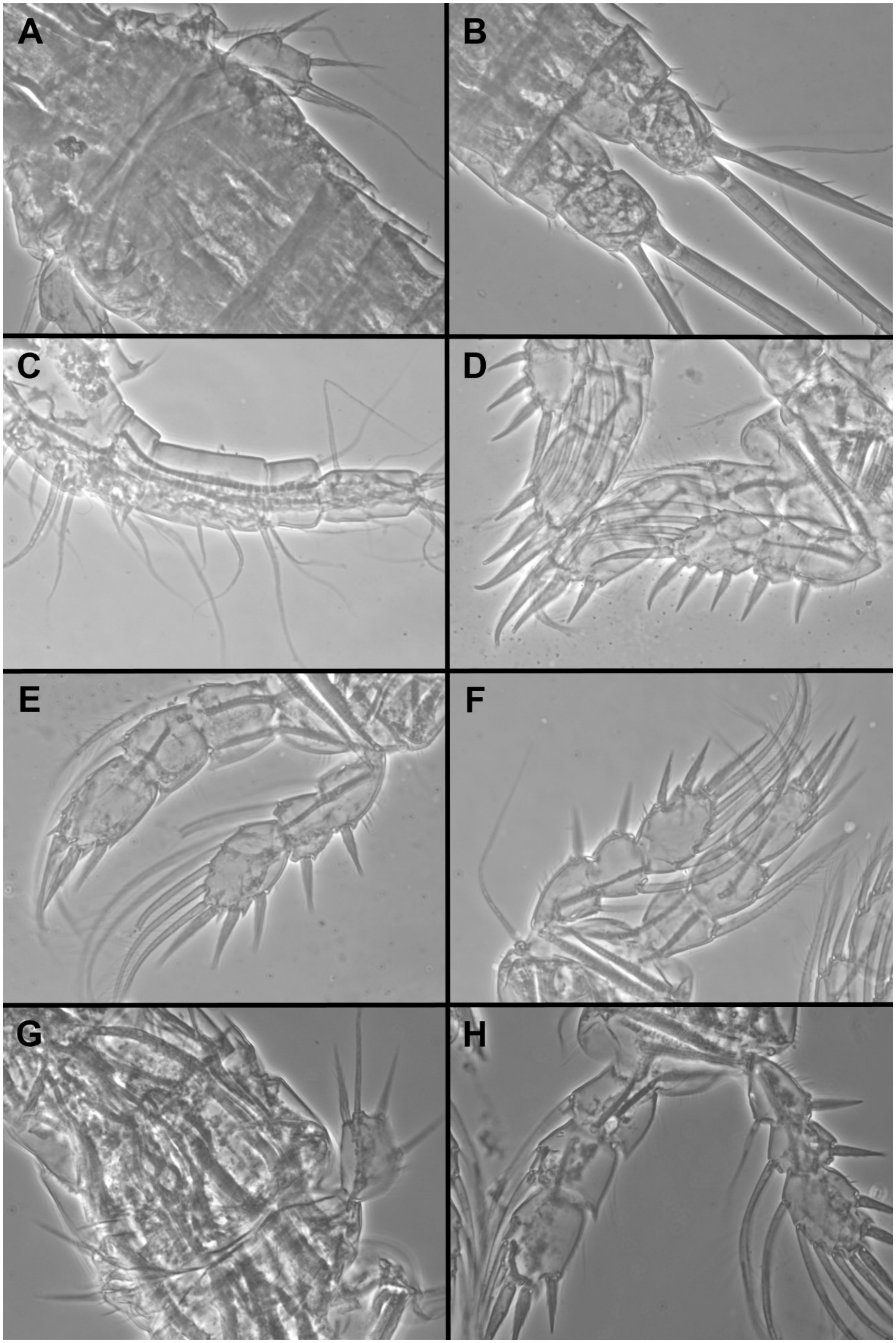

Fig. S6. *Halicyclops eberhardi* De Laurentiis, Pesce & Humphreys, 2001, compound light microscope photographs, all with 40× objective; A-F, holotype female; G & H, paratype female: A, genital double-somite and fifth legs; B, last two urosomites and caudal rami; C, antennula; D, second swimming leg; E, third swimming leg; F, fourth swimming leg; G, genital double-somite and fifth legs; H, third swimming leg.

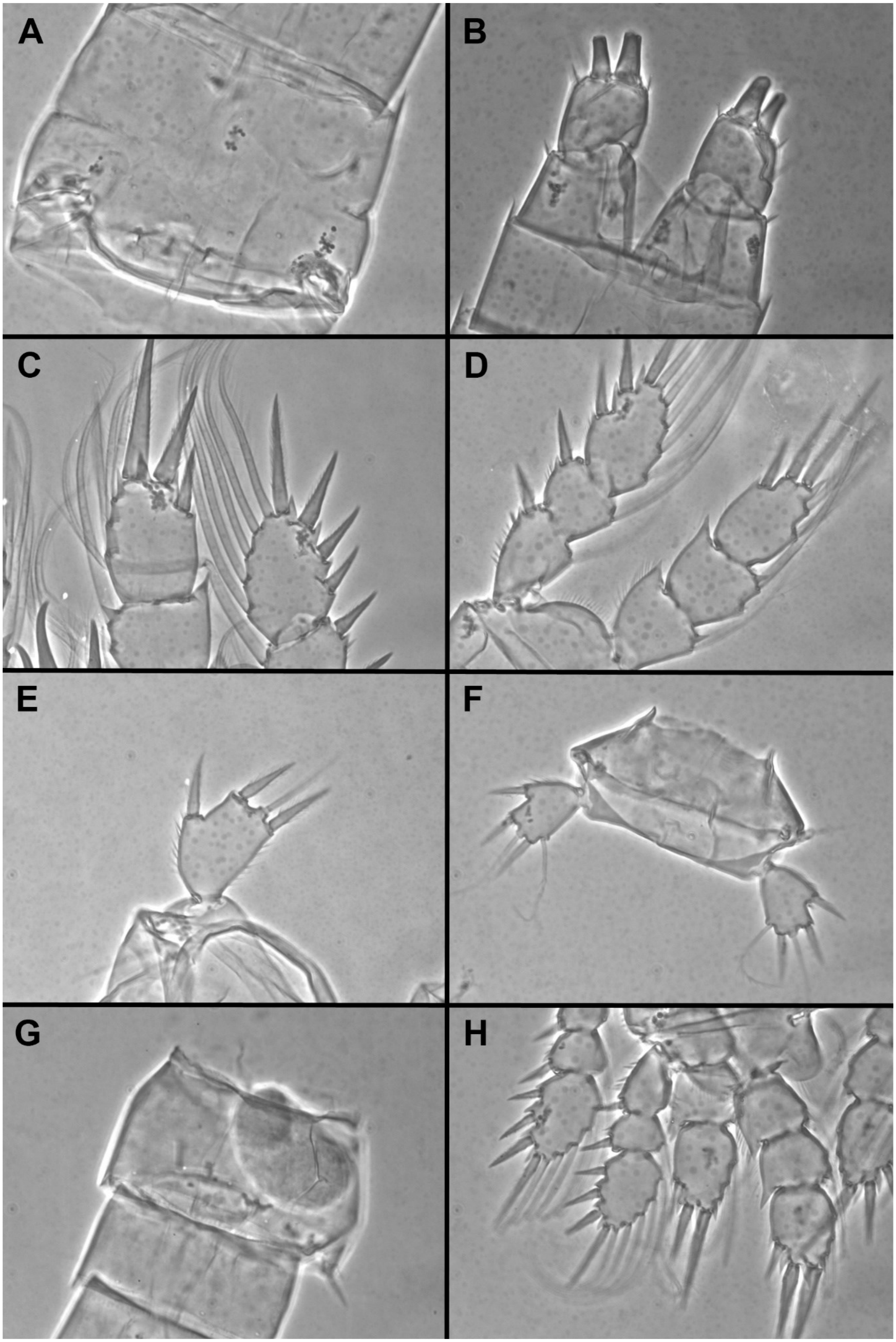

Fig. S7. *Halicyclops uranusi* sp. nov., compound light microscope photographs, all with 40× objective; A-F, holotype female; G & H, allotype male: A, genital double-somite; B, last two urosomites and caudal rami; C, third swimming leg; D, fourth swimming leg; E, fifth leg; F, fifth legs; G, genital somite; H, second and third swimming legs.

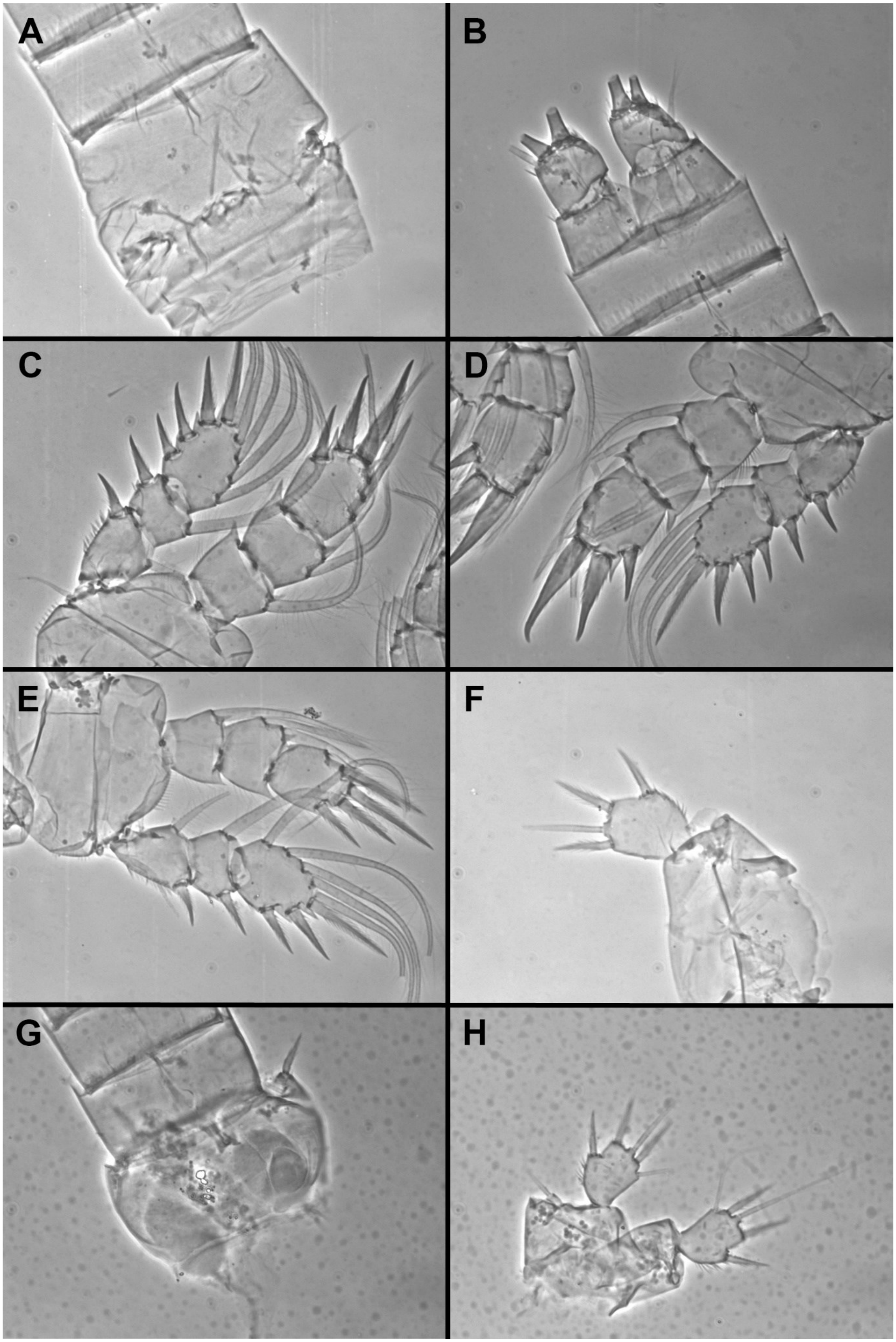

Fig. S8. *Halicyclops esbe* sp. nov., compound light microscope photographs, all with 40× objective; A-F, holotype female; G & H, allotype male: A, genital double-somite; B, last two urosomites and caudal rami; C, second swimming leg; D, third swimming leg; E, fourth swimming leg; F, fifth leg; G, genital somite; H, fifth legs.

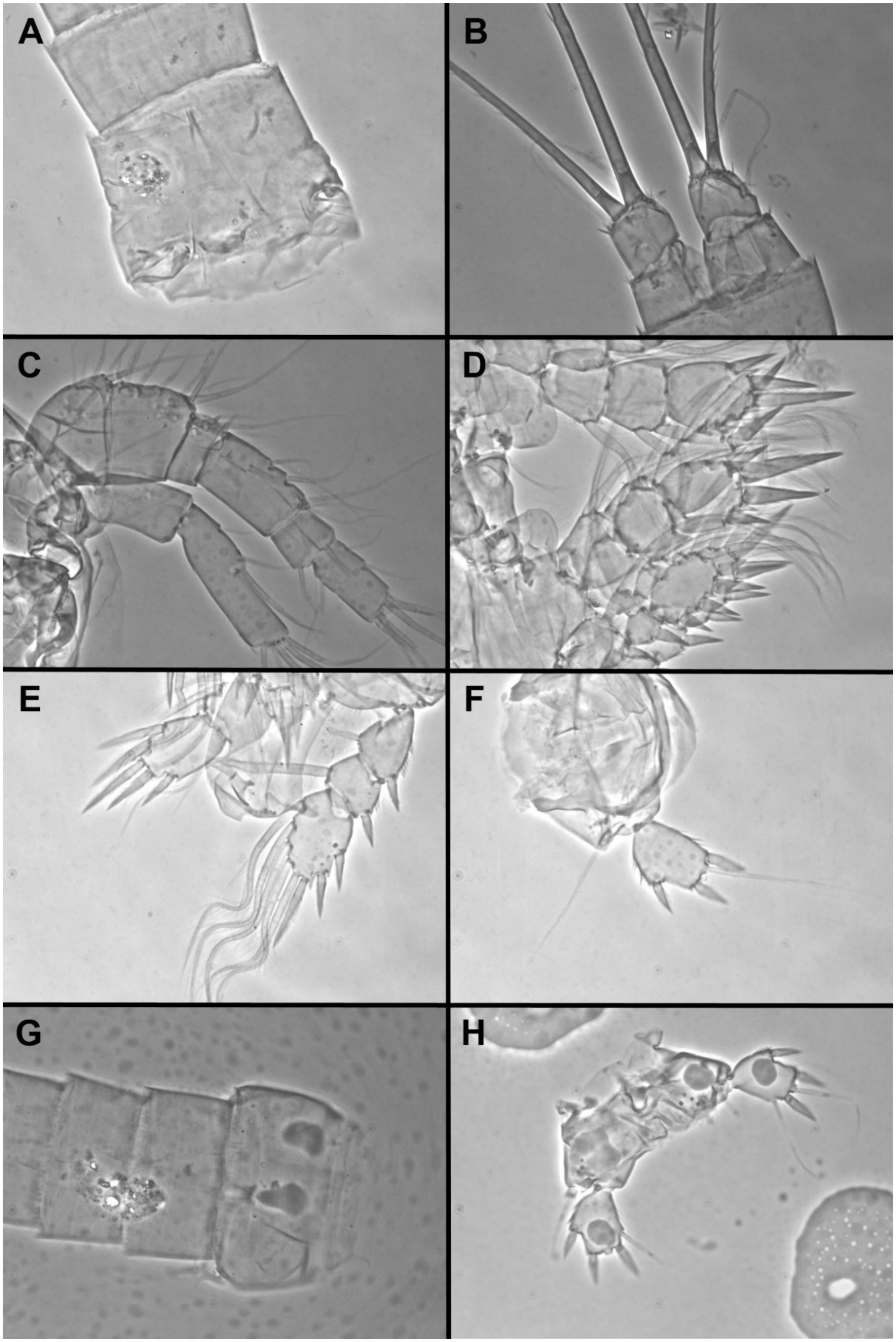

Fig. S9. *Halicyclops linek* sp. nov., compound light microscope photographs, all with 40× objective; A-F, holotype female; G & H, allotype male: A, genital double-somite; B, anal somite and caudal rami; C, antennula and antenna; D, second and third swimming legs; E, fourth swimming leg; F, fifth leg; G, genital somite and three posterior urosomites; H, fifth legs.

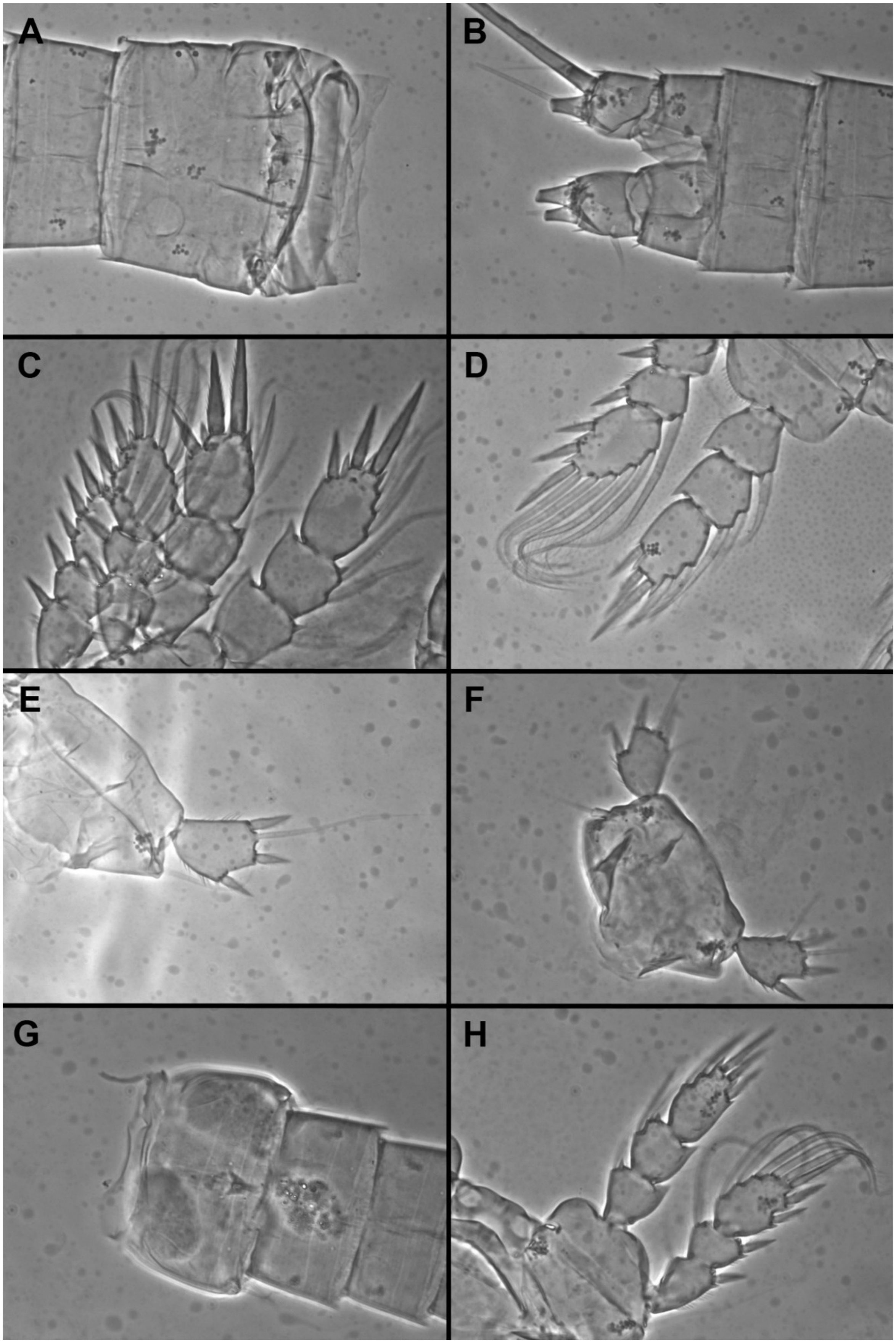

Fig. S10. *Halicyclops klaprothi* sp. nov., compound light microscope photographs, all with 40× objective; A-E, holotype female; F-H, allotype male: A, genital double-somite; B, last three urosomites and caudal rami; C, second and third swimming legs; D, fourth swimming leg; E, fifth leg; F, fifth legs; G, genital somite and two posterior urosomites; H, fourth swimming leg.

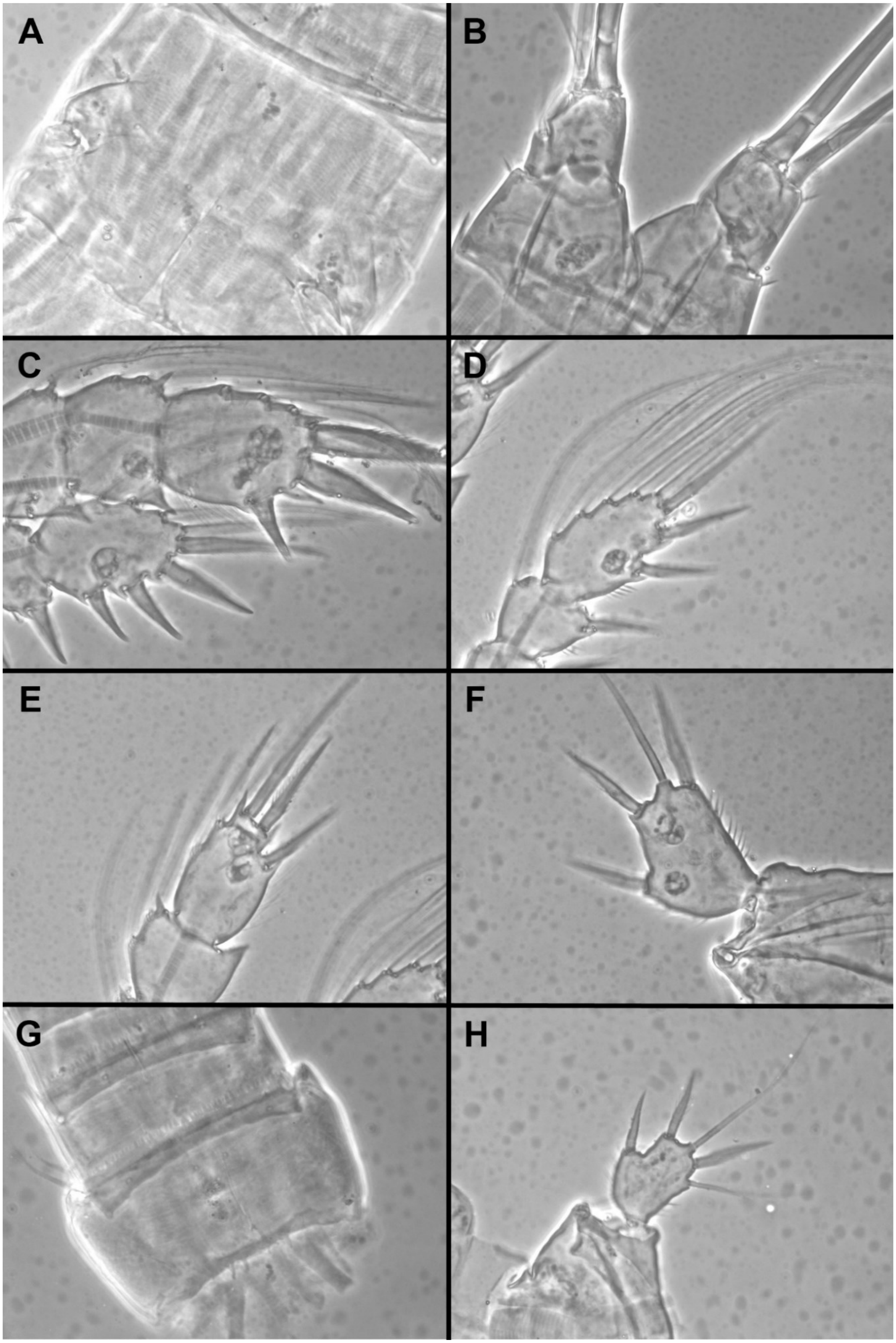

Fig. S11. *Halicyclops linel* sp. nov., compound light microscope photographs, all with 40× objective; A-F, holotype female; G & H, allotype male: A, genital double-somite; B, anal somite and caudal rami; C, third swimming leg; D, exopod of fourth swimming leg; E, endopod of fourth swimming leg; F, fifth leg; G, genital somite and one posterior urosomite; H, fifth leg.

TABLE S-I

List of examined specimens belonging to five cryptic species of *Halicyclops* from Yeelirrie and *H. eberhardi*. For abbreviations see text

TKN	Species	Sex	Type	WAM	Date	Line	Bore	Sample	Coordinates	LBGM datasets	COI	12S
1	*esbe*	F	Paratype	76340	16/3/10	SB	SB14	LN8516	27.344283 120.307708	P5, P4Enp3, P4Exp3	MW301712	no
2	*esbe*	F	Paratype	76341	16/3/10	SB	SB14	LN8516	27.344283 120.307708	Gs, P5, P4Enp3, P4Exp3	MW301713	no
3	*esbe*	F	Paratype	76342	16/3/10	SB	SB14	LN8516	27.344283 120.307708	P5, P4Enp3, P4Exp3	MW301714	OK584395
4	*esbe*	F	Paratype	76343	16/3/10	SB	SB14	LN8516	27.344283 120.307708	Gs, P5, P4Enp3, P4Exp3	MW301715	OK584396
5	*esbe*	F	Paratype	76344	16/3/10	SB	SB14	LN8516	27.344283 120.307708	Gs, P5, P4Enp3	MW301716	OK584397
6	*esbe*	F	Paratype	76345	16/3/10	SB	SB14	LN8516	27.344283 120.307708	Gs, P5, P4Enp3, P4Exp3	MW301717	no
7	*esbe*	F	Paratype	76346	16/3/10	SB	SB14	LN8516	27.344283 120.307708	Gs, P4Enp3, P4Exp3	MW301718	no
8	*esbe*	F	Holotype	76347	16/3/10	SB	SB14	LN8516	27.344283 120.307708	P5, P4Enp3, P4Exp3	MW301719	no
9	*esbe*	F	Paratype	76348	16/3/10	SB	SB14	LN8516	27.344283 120.307708	P5, P4Enp3, P4Exp3	MW301720	no
10	*esbe*	F	Paratype	76349	16/3/10	SB	SB14	LN8516	27.344283 120.307708	P5, P4Enp3, P4Exp3	MW301721	no
11	*esbe*	F	Paratype	76350	16/3/10	SB	SB14	LN8516	27.344283 120.307708	Gs, P5, P4Enp3, P4Exp3	MW301722	OK584398
12	*esbe*	F	Paratype	76351	16/3/10	SB	SB14	LN8516	27.344283 120.307708	Gs, P5, P4Enp3	MW301723	no
13	*esbe*	F	Paratype	76352	16/3/10	SB	SB14	LN8516	27.344283 120.307708	Gs, P5, P4Enp3, P4Exp3	MW301724	no
14	*esbe*	F	Paratype	76353	16/3/10	SB	SB14	LN8516	27.344283 120.307708	Gs, P5, P4Enp3, P4Exp3	MW301725	no
15	*esbe*	F	Paratype	76354	16/3/10	SB	SB14	LN8516	27.344283 120.307708	P5, P4Enp3, P4Exp3	MW301726	no
16	*esbe*	M	Paratype	76355	16/3/10	SB	SB14	LN8516	27.344283 120.307708	Gs, P5, P4Enp3, P4Exp3	MW301727	no
17	*esbe*	M	Paratype	76356	16/3/10	SB	SB14	LN8516	27.344283 120.307708	Gs, P5, P4Enp3, P4Exp3	MW301728	OK584399
18	*esbe*	M	Paratype	76357	16/3/10	SB	SB14	LN8516	27.344283 120.307708	Gs, P5, P4Enp3, P4Exp3	MW301729	no
20	*esbe*	M	Paratype	76358	16/3/10	SB	SB14	LN8516	27.344283 120.307708	Gs, P5, P4Enp3, P4Exp3	MW301730	OK584400
21	*esbe*	M	Paratype	76359	16/3/10	SB	SB14	LN8516	27.344283 120.307708	Gs, P5, P4Exp3	MW301731	no
22	*esbe*	M	Paratype	76360	16/3/10	SB	SB14	LN8516	27.344283 120.307708	Gs, P4Enp3, P4Exp3	MW301732	no
23	*esbe*	M	Paratype	76361	16/3/10	SB	SB14	LN8516	27.344283 120.307708	Gs, P5, P4Enp3, P4Exp3	no	no
24	*esbe*	M	Allotype	76362	16/3/10	SB	SB14	LN8516	27.344283 120.307708	Gs, P5, P4Enp3, P4Exp3	no	no
25	*esbe*	M	Paratype	76363	16/3/10	SB	SB14	LN8516	27.344283 120.307708	P5, P4Enp3, P4Exp3	MW301733	no
26	*linek*	F	Paratype	76281	20/3/10	K	YYHC048KA	LN8463	27.247640 120.054900	Gs, P5, P4Enp3, P4Exp3	MW301734	no
27	*linek*	F	Paratype	76282	20/3/10	K	YYHC048KA	LN8463	27.247640 120.054900	Gs, P5, P4Enp3, P4Exp3	MW301735	no
28	*linek*	F	Paratype	76283	20/3/10	K	YYHC048KA	LN8463	27.247640 120.054900	Gs, P5, P4Enp3, P4Exp3	MW301736	no
29	*linek*	F	Paratype	76284	20/3/10	K	YYHC048KA	LN8463	27.247640 120.054900	Gs, P5, P4Enp3, P4Exp3	MW301737	no
31	*linek*	M	Paratype	76285	20/3/10	K	YYHC048KA	LN8463	27.247640 120.054900	Gs, P5, P4Enp3, P4Exp3	MW301738	no
32	*linek*	M	Paratype	76286	20/3/10	K	YYHC048KA	LN8463	27.247640 120.054900	Gs	MW301739	no
33	*linek*	F	Paratype	76287	23/9/10	K	YYHC048KA	LN100467	27.247640 120.054900	Gs, P5, P4Enp3, P4Exp3	MW301740	no
34	*linek*	F	Paratype	76288	23/9/10	K	YYHC048KA	LN100467	27.247640 120.054900	Gs, P5, P4Enp3, P4Exp3	MW301741	no
35	*linek*	F	Paratype	76289	23/9/10	K	YYHC048KA	LN100467	27.247640 120.054900	Gs, P5, P4Enp3, P4Exp3	MW301742	no
36	*linek*	F	Paratype	76290	23/9/10	K	YYHC048KA	LN100467	27.247640 120.054900	Gs, P5, P4Enp3, P4Exp3	MW301743	no
37	*linek*	F	Paratype	76291	23/9/10	K	YYHC048KA	LN100467	27.247640 120.054900	Gs, P5, P4Enp3, P4Exp3	MW301744	OK584411
38	*linek*	F	Holotype	76292	23/9/10	K	YYHC048KA	LN100467	27.247640 120.054900	Gs, P5, P4Enp3, P4Exp3	MW301745	OK584408
39	*linek*	F	Paratype	76293	23/9/10	K	YYHC048KA	LN100467	27.247640 120.054900	P5, P4Enp3, P4Exp3	MW301746	OK584407
40	*linek*	F	Paratype	76294	23/9/10	K	YYHC048KA	LN100467	27.247640 120.054900	Gs, P5, P4Enp3, P4Exp3	MW301747	no
41	*linek*	F	Paratype	76295	23/9/10	K	YYHC048KA	LN100467	27.247640 120.054900	Gs, P5, P4Enp3, P4Exp3	MW301793	no
42	*linek*	F	Paratype	76296	23/9/10	K	YYHC048KA	LN100467	27.247640 120.054900	P5	MW301748	OK584409
43	*linek*	M	Paratype	76297	23/9/10	K	YYHC048KA	LN100467	27.247640 120.054900	Gs, P5, P4Enp3, P4Exp3	MW301749	OK584410
44	*linek*	M	Paratype	76298	23/9/10	K	YYHC048KA	LN100467	27.247640 120.054900	Gs, P5, P4Enp3, P4Exp3	MW301750	no
45	*linek*	M	Paratype	76299	23/9/10	K	YYHC048KA	LN100467	27.247640 120.054900	P5, P4Enp3, P4Exp3	MW301794	no
46	*linek*	M	Paratype	76300	23/9/10	K	YYHC048KA	LN100467	27.247640 120.054900	Gs, P5, P4Enp3, P4Exp3	MW301751	no
47	*linek*	M	Paratype	76301	23/9/10	K	YYHC048KA	LN100467	27.247640 120.054900	Gs, P5, P4Enp3, P4Exp3	MW301705	no
48	*linek*	M	Allotype	76302	23/9/10	K	YYHC048KA	LN100467	27.247640 120.054900	Gs, P5, P4Enp3, P4Exp3	*	no
51	*linel*	F	Paratype	76392	18/3/10	L	L-UNK-1	LN7137	27.329832 120.150590	Gs, P5, P4Enp3, P4Exp3	MW301803	no
52	*linel*	F	Paratype	76393	18/3/10	L	L-UNK-1	LN7137	27.329832 120.150590	Gs, P5, P4Enp3, P4Exp3	MW301802	no
53	*linel*	F	Paratype	76394	18/3/10	L	L-UNK-1	LN7137	27.329832 120.150590	Gs, P5, P4Enp3, P4Exp3	MW301801	no
54	*linel*	M	Paratype	76395	18/3/10	L	L-UNK-1	LN7137	27.329832 120.150590	Gs, P5, P4Enp3, P4Exp3	MW301805	no
55	*linel*	M	Paratype	76396	18/3/10	L	L-UNK-1	LN7137	27.329832 120.150590	Gs, P5, P4Enp3, P4Exp3	MW301804	no
56	*linel*	F	Paratype	76364	16/3/10	L	L-UNK-1	LN8534	27.329832 120.150590	P5, P4Enp3, P4Exp3	MW301800	no
57	*linel*	F	Paratype	76365	16/3/10	L	L-UNK-1	LN8534	27.329832 120.150590	Gs, P5, P4Enp3, P4Exp3	MW301799	no
58	*linel*	M	Paratype	76366	16/3/10	L	L-UNK-1	LN8534	27.329832 120.150590	Gs, P5, P4Enp3, P4Exp3	no	no
59	*linel*	M	Paratype	76367	16/3/10	L	L-UNK-1	LN8534	27.329832 120.150590	Gs, P5, P4Enp3, P4Exp3	no	OK584412
61	*linel*	M	Paratype	76368	16/3/10	L	L-UNK-1	LN8534	27.329832 120.150590	Gs, P5, P4Enp3, P4Exp3	no	OK584413
62	*klaprothi*	F	Paratype	76303	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301752	no
63	*uranusi*	F	Paratype	76304	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301753	no
66	*uranusi*	F	Paratype	76305	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301754	no
69	*uranusi*	F	Paratype	76306	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301755	OK584401
70	*klaprothi*	F	no	no	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	no	MW301756	no
71	*uranusi*	M	Paratype	76307	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301757	OK584403
74	*uranusi*	F	Paratype	76308	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301758	OK584402
75	*uranusi*	F	Paratype	76309	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	P5, P4Enp3, P4Exp3	MW301759	no
77	*uranusi*	F	Paratype	76310	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301760	no
78	*klaprothi*	F	Paratype	76311	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301711	no
79	*uranusi*	F	Paratype	76312	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301761	no
80	*uranusi*	F	Paratype	76313	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301762	no
81	*klaprothi*	F	Paratype	76314	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301763	OK584404
82	*uranusi*	F	Paratype	76315	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301764	no
83	*uranusi*	F	Holotype	76316	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301765	no
84	*uranusi*	F	Paratype	76317	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301766	no
85	*uranusi*	F	Paratype	76318	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301767	no
86	*uranusi*	F	Paratype	76319	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301768	no
87	*klaprothi*	F	Paratype	76320	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301769	no
88	*uranusi*	F	Paratype	76321	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301770	no
89	*klaprothi*	F	Paratype	76322	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301771	OK584405
90	*uranusi*	F	Paratype	76323	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301772	no
91	*klaprothi*	F	Paratype	76324	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301773	no
92	*klaprothi*	M	Allotype	76325	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301774	no
93	*uranusi*	M	Paratype	76326	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301775	no
94	*klaprothi*	M	Paratype	76327	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301776	no
95	*uranusi*	M	Paratype	76328	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301777	no
96	*uranusi*	M	Paratype	76329	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301778	no
97	*uranusi*	M	Paratype	76330	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301779	no
99	*uranusi*	M	Allotype	76331	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301780	no
100	*klaprothi*	M	Paratype	76332	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301781	no
101	*klaprothi*	M	Paratype	76333	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301782	no
102	*klaprothi*	M	Paratype	76334	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301783	OK584406
103	*uranusi*	M	Paratype	76335	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	P5, P4Enp3, P4Exp3	*	no
105	*uranusi*	M	Paratype	76336	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	P5, P4Enp3, P4Exp3	MW301784	no
106	*klaprothi*	M	Paratype	76337	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301785	no
108	*klaprothi*	M	Paratype	76338	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301786	no
110	*klaprothi*	M	Paratype	76339	21/3/10	1.5	YYAC33	LN8303	27.169565 119.871815	Gs, P5, P4Enp3, P4Exp3	MW301787	no
113	*klaprothi*	F	Paratype	76378	1/9/09	F	YU1	LN6616	27.142601 119.853144	Gs, P5, P4Enp3, P4Exp3	MW301788	no
114	*klaprothi*	F	Paratype	76379	1/9/09	F	YU1	LN6616	27.142601 119.853144	Gs, P5, P4Enp3, P4Exp3	MW301703	no
116	*klaprothi*	F	Paratype	76380	1/9/09	F	YU1	LN6616	27.142601 119.853144	Gs, P5, P4Enp3, P4Exp3	MW301704	no
117	*klaprothi*	F	Paratype	76381	1/9/09	F	YU1	LN6616	27.142601 119.853144	Gs, P5, P4Enp3, P4Exp3	MW301706	no
118	*klaprothi*	F	Paratype	76382	1/9/09	F	YU1	LN6616	27.142601 119.853144	P5, P4Enp3, P4Exp3	MW301707	no
120	*klaprothi*	F	Holotype	76383	1/9/09	F	YU1	LN6616	27.142601 119.853144	Gs, P5, P4Enp3, P4Exp3	MW301708	no
127	*klaprothi*	F	Paratype	76384	1/9/09	F	YU1	LN6616	27.142601 119.853144	no	MW301710	no
129	*uranusi*	F	Paratype	76369	17/3/10	3.5	YYAC328	LN8392	27.175601 119.907658	Gs, P5, P4Enp3, P4Exp3	MW301789	no
130	*uranusi*	F	Paratype	76370	17/3/10	3.5	YYAC328	LN8392	27.175601 119.907658	P5, P4Enp3, P4Exp3	*	no
131	*uranusi*	F	Paratype	76371	17/3/10	3.5	YYAC328	LN8392	27.175601 119.907658	Gs, P5, P4Enp3, P4Exp3	MW301790	no
133	*uranusi*	F	Paratype	76372	17/3/10	3.5	YYAC328	LN8392	27.175601 119.907658	Gs, P5, P4Enp3, P4Exp3	MW301791	no
134	*uranusi*	F	Paratype	76373	17/3/10	3.5	YYAC328	LN8392	27.175601 119.907658	Gs, P5, P4Enp3, P4Exp3	MW301792	no
135	*uranusi*	F	Paratype	76374	17/3/10	3.5	YYAC328	LN8392	27.175601 119.907658	Gs, P5, P4Enp3, P4Exp3	*	no
136	*uranusi*	M	Paratype	76375	17/3/10	3.5	YYAC328	LN8392	27.175601 119.907658	Gs, P5, P4Enp3, P4Exp3	*	no
137	*uranusi*	M	Paratype	76376	17/3/10	3.5	YYAC328	LN8392	27.175601 119.907658	Gs, P5, P4Enp3, P4Exp3	*	no
138	*uranusi*	M	Paratype	76377	17/3/10	3.5	YYAC328	LN8392	27.175601 119.907658	Gs, P4Enp3, P4Exp3	*	no
142	*uranusi*	F	Paratype	76385	10/1/10	3.5	YYAC328	LN7685	27.175601 119.907658	Gs, P5, P4Enp3	MW301709	no
193	*linel*	F	Paratype	76386	14/11/09	L	L-UNK-1	LN7314	27.329832 120.150590	Gs, P5, P4Enp3, P4Exp3	MW301798	no
194	*linel*	F	Holotype	76387	14/11/09	L	L-UNK-1	LN7314	27.329832 120.150590	Gs, P5, P4Enp3, P4Exp3	MW301807	no
195	*linel*	F	Paratype	76388	14/11/09	L	L-UNK-1	LN7314	27.329832 120.150590	Gs, P5, P4Enp3, P4Exp3	MW301797	no
196	*linel*	F	Paratype	76389	14/11/09	L	L-UNK-1	LN7314	27.329832 120.150590	Gs, P5, P4Enp3, P4Exp3	MW301796	no
197	*linel*	F	Paratype	76390	14/11/09	L	L-UNK-1	LN7314	27.329832 120.150590	Gs, P5, P4Enp3, P4Exp3	MW301795	no
198	*linel*	M	Allotype	76391	14/11/09	L	L-UNK-1	LN7314	27.329832 120.150590	Gs, P5, P4Enp3, P4Exp3	MW301806	no
199	*eberhardi*	F	Holotype	24700	25/6/98	no	GSWA15A	BES6008	26.400560 119.763100	P5, P4Enp3, P4Exp3	no	no
200	*eberhardi*	F	Paratype	24702	24/6/98	no	GSWA15A	BES5988	26.400560 119.763100	P5, P4Enp3, P4Exp3	no	no
201	*eberhardi*	F	Paratype	24702	24/6/98	no	GSWA15A	BES5988	26.400560 119.763100	P4Enp3, P4Exp3	no	no
202	*esbe*	F	no	no	12/1/10	SB	SB14	LN7600	27.344283 120.307708	no	MW301699	no
203	*klaprothi*	F	no	no	16/3/10	3.5	YYAC0170	LN8337	27.170421 119.901633	no	MW301693	no
204	*uranusi*	F	no	no	16/3/10	1.5	YYAC33	LN8359	27.169565 119.871815	no	MW301694	no
205	*linek*	F	no	no	18/3/10	K	YYHC0049K	LN8458	27.247548 120.054862	no	MW301702	no
206	*klaprothi*	F	no	no	15/3/10	F	YU1	LN8493	27.142601 119.853144	no	MW301695	no
207	*esbe*	F	no	no	16/3/10	SB	SB14	LN8516	27.344283 120.307708	no	MW301696	no
208	*klaprothi*	F	no	no	16/3/10	2	YYAC1007A	LN8523	27.165236 119.883142	no	MW301697	no
209	*klaprothi*	F	no	no	18/3/10	F	YU1	LN8564	27.142601 119.853144	no	MW301700	no
210	*linek*	F	no	no	22/9/10	K	YYHC0048KA	LN100467	27.247640 120.054900	no	MW301701	no
211	*klaprothi*	F	no	no	18/3/10	H	TPB33-1	LN8562b	27.133739 119.827871	no	MW301698	no

TABLE S-II

List of internal primers developed from an initial alignment of 526 bp (obtained with universal COI primers), with their start and stop positions in that alignment

Primer code	Primer structure	Start	Stop
Frag1.F1	5'GCTTTTATYATAATTTTTTTTACAG	17	41
Frag1.R1	5'ARWGAAAAAATAGCAAAATC	282	263
Frag1.F2	5'CTTTTATYATAATTTTTTTTACAG	18	41
Frag2.R3	5'AYCAACARAATAAHGGAGTWC	392	372
Frag2.R1	5'CAACARAATAAHGGAGTWCG	390	371

TABLE S-III

Average pairwise K2P distances within (diagonal) and between five new *Halicyclops* species from Yeelirrie, based on 115 partial mtCOI sequences (see fig. 3; table S-I)

Species	1	2	3	4	5
1. *H. klaprothi*	0.0102				
2. *H. uranusi*	0.2117	0.0179			
3. *H. esbe*	0.2199	0.1777	0.0015		
4. *H. linek*	0.0730	0.2045	0.2160	0.0056	
5. *H. linel*	0.2423	0.2504	0.1956	0.2772	0.0053

TABLE S-IV

Average pairwise K2P distances within (diagonal) and between five new *Halicyclops* species from Yeelirrie, based on 19 partial 12S sequences (see fig. S1; table S-I)

Species	1	2	3	4	5
1. *H. klaprothi*	0.0000				
2. *H. uranusi*	0.2164	0.0047			
3. *H. esbe*	0.2643	0.1916	0.0009		
4. *H. linek*	0.0335	0.2234	0.2594	0.0024	
5. *H. linel*	0.2567	0.2179	0.3069	0.2414	0.0024

TABLE S-V

Cross-validation scores (as percentages) from discriminant function analysis (DFA) among six examined *Halicyclops* species for all morphological structures separated for females (F) and males (M). Asterisks mark values that do not show statistically significant Procrustes distances after 10,000 runs in permutation tests ($P \geq 0.05$); abbreviations for morphological structures (datasests) as in fig. 2; *Halicyclops eberhardi* is known only after females and for this species data were also not scored for Gs, so some comparisons are not applicable (n/a)

Species pairs	F Gs	M Gs	F P5	M P5	F P4Exp3	M P4Exp3	F P4Enp3	M P4Enp3
uranusi-esbe	100-100	89-100	86-71	90-100	80-85	73-89	95-80	82-75
uranusi-linek	95-83	78-86	68-64	70-86	95-100	82-57	95-100	100-100
uranusi-klaprothi	95-100	78-88	73-58*	60-63	90-91	91-75	100-100	91-88
uranusi-linel	95-78	78-83	95-100	90-100	95-100	91-83	95-90	91-83
uranusi-eberhardi	n/a	n/a	100-0	n/a	100-100	n/a	95-33	n/a
esbe-linek	100-92	88-86	79-93	75-86	100-100	100-100	100-100	100-100
esbe-klaprothi	100-100	100-100	93-67	88-88	100-100	100-88	100-100	88-88
esbe-linel	100-100	88-100	93-100	75-100	100-100	100-100	100-100	75-83
esbe-eberhardi	n/a	n/a	93-50	n/a	92-100	n/a	87-67	n/a
linek-klaprothi	67-82*	57-63*	86-58	57-75*	100-91	71-63	85-75	57-63
linek-linel	92-78	86-100	79-70	100-67	85-100	100-100	85-80	71-33
linek-eberhardi	n/a	n/a	100-50	n/a	85-33	n/a	92-67	n/a
klaprothi-linel	100-67	100-83	92-90	88-100	82-70	100-100	83-80	63-33
klaprothi-eberhardi	n/a	n/a	100-50	n/a	100-67	n/a	83-100	n/a
linel-eberhardi	n/a	n/a	70-50	n/a	100-100	n/a	80-33	n/a