

Description of a new species of *Heteroclinus* (Blennioidei: Clinidae) from southern Australia

BY DOUGLASS F. HOESE¹ AND DENISE S. RENNIS²

¹Fish Section, Australian Museum, 6 College St., Sydney, NSW 2010, Australia (Doug.Hoese@austmus.gov.au)
²Folly Beach, South Carolina, U.S.A.

Abstract

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A new species of *Heteroclinus* is described from Victoria, South Australia and Western Australia. The species is distinctive from other Australian clinids in having two well-developed segmented pelvic rays, first dorsal fin on head originating just behind or at posterior end of eye, a reduced lateral line and in fin-ray counts.

Keywords

Fish, Blennioidei, Clinidae, *Heteroclinus*, new species

Introduction

Clinid fishes represent one of the most speciose groups of fishes from southern waters of Australia. Over 35 species are known, with only three extending to the tropics or southern parts of the tropics. George and Springer (1980) reviewed the species of the tribe Ophiclinini. Hoese (1976) described one new species of *Heteroclinus* and reviewed the historical studies of clinid fishes of Australia. Rennis et al. (1994) placed the temperate species of the tribe Clinini into the genera *Heteroclinus* and *Cristiceps*. The description provided here forms part of a revision of the remaining clinid fishes of Australia and contrasts all the species in the *Heteroclinus adelaidae* complex.

Currently three genera of the tribe Clinini are known from Australia: *Springeratus*, with a single species, *Cristiceps* with three and *Heteroclinus* with 25 species. Further studies on the relationships within the group may alter the generic classification. One species (*Heteroclinus flavescens* found in southern Australia and New Zealand) has been regarded as belonging to the separate genus *Cologrammus*. More detailed information on relationships will be included in our revision of the genus *Heteroclinus*.

Methods

Counts and measurements largely follow those given by Hubbs and Lagler (1958). The last anal ray and last dorsal ray are separate, not branched and are counted as separate rays. In lists of material examined, institution abbreviations follow

Leviton et al. (1985). The number of specimens is given following the registration number and the size range in mm, standard length is given in parentheses. The dorsal-fin ray count is partitioned into three parts, anterior first dorsal fin (separate, or connected basally to the second dorsal fin), second dorsal spines and dorsal segmented rays (part of second dorsal fin). Circumorbital pore count includes pores in contact with or immediately adjacent to the eye and includes all pores in the infraorbital series.

Heteroclinus Castelnau, 1872

Heteroclinus adelaidae complex

Members of the *Heteroclinus adelaidae* complex, which includes *H. adelaidae*, *H. macrophthalmus* and the species described below, all have only two developed segmented pelvic rays and the anal fin broadly connected by membrane to about the middle of the caudal peduncle.

Heteroclinus kuiteri, sp. nov.

Figures 1–3

Heteroclinus sp. 1: Rennis, Hoese & Gomon, 1994: 746, fig. 652 (southern Australia); Hutchins, 2005 (Western Australia)

Heteroclinus species 2: Hutchins, 1994: (Western Australia)

Material examined. Holotype: AMS I.19777-009, a 44 mm SL male, Portsea Pier, Port Phillip Bay, Vic., R. Kuiters, 12 Apr, 1977. *Paratypes.* Vic.: AMS I.19921-009, 1(41), Port Phillip Bay, R. Kuiters, 30 Jul, 1977; AMS I.19775-002, 1(42), Portsea, Port Phillip Bay, R. Kuiters, AMS I.19776-005, 3(46–49), Flinders Pier, R. Kuiters, 13 Apr, 1977;



Figure 1. Holotype of *Heteroclinus kuiteri* AMS I.19777-009, a 44 mm SL male. Photo is of the right side and reversed to better show the fins (tip of dorsal fin hidden on left side) and allow comparison with other specimens, photographed several years after collection.



Figure 2. Male paratype of *Heteroclinus kuiteri*, AMS I.19777-006, 39 mm SL male, photographed a few weeks after collection.

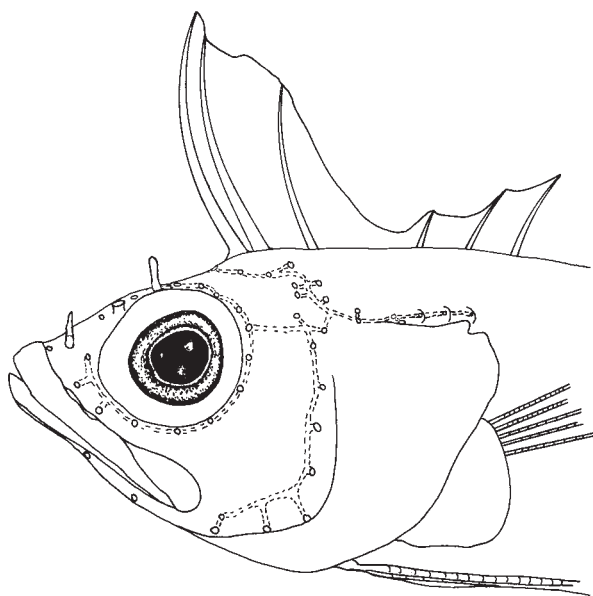


Figure 3. Head of *Heteroclinus kuiteri*, composite based on holotype and paratypes showing distribution of head pores. Note that only the upper 5 pectoral rays shown.

AMS I.19777-006, 3(34–38), collected with holotype; AMS I.24050-001, 2(47–60), Port Phillip Bay, R. Kuitert, 1981; AMS I.24051-001, 1(58), Port Phillip Bay, R. Kuitert, 1981; AMS I.24218-001, 4(39–53), Port Phillip Bay, R. Kuitert, 6–9 Jun, 1976; NMV A.2603, 1(41), Refuge Cove, 5 m, G. Poore & H. Lew-Ton, 9 Feb, 1982; NMV A.2604, 1(35), south headland, Refuge Cove, 5 m, G. Poore & H. Lew-Ton, 10 Feb, 1983; NMV A.2606, 2(41–44), south headland, Refuge Cove, 13 m, C. Larsen, T. Cochran and R. Wilson, 10 Feb, 1982; NMV A.2607, 1(42), south headland, Refuge Cove, 13 m, C. Larsen, T. Cochran & R. Wilson, 10 Feb, 1982; NMV A.2608, 1(48), south headland, Refuge Cove, 13 m, C. Larsen, T. Cochran & R. Wilson, 10 Feb, 1982; NMV A.3577, 1(45), Portsea, Port Phillip Bay, 5 m, B. Ruffe, 12 Mar, 1984; NMV A.3579, 1(36), off Stony Point, Western Port Bay, 16 m, Fisheries and Wildlife Department “Caprella”, 1 Jun, 1967; ZMUC (uncatalogued), 4(44–52), Western Port, T. Mortensen, 6 Sep, 1914. SA NMV A.498, 1(64), Port Lincoln, J. Veitsch, 16 Dec, 1968 WA: WAM P.25767-010, 3(38–47), Sandy Hook I., Recherche Archipelago, J.B. Hutchins, 10 Apr, 1977; WAM P.26599-004, 4(34–48), Cosy Corner (34°15'S, 115°01'E), J.B. Hutchins, 11 Apr, 1980.

Diagnosis. Dorsal fins III, XXIX–XXXI, 2–4 (usually 3); anal II, 21–24 (usually 22–23); segmented caudal rays 10–11 (usually 11); pectoral rays 12–13 (usually 12); pelvic rays I, 2 (sometimes with basal element of a rudimentary 3rd ray only visible on dissection); gill rakers on outer face of 1st arch, 1–2+5–7=6–9 (usually 7–8). Lateral line composed of an arched section above pectoral fin curving to midline behind pectoral fin and continuing horizontally along midline of body; posterior straight portion of lateral line reduced, lateral line scales not extending beyond middle of anal fin; anteriormost lateral line

scales from end of head to above middle of pectoral fin overlapping with a single median posterior pore, posteriorly lateral line scales separate with a median pore at each end. Circumorbital pores uniserial (12–17 pores). Orbital tentacle short (1.3–4% SL), with rounded margin, sometimes with minute lateral lobes. Nasal tentacle elongate, spoon-shaped. 1st dorsal fin elevated, higher than 2nd dorsal fin; 2nd dorsal spine usually longest (6.1–13.9% SL, in females, 12.6–16% SL, in males), 1st spine rarely the longest; 1st dorsal fin originating over or just before posterior margin of eye, posterior end of fin connected by membrane to basal one-quarter to half of 2nd dorsal fin. Pterygiophores from 1st dorsal fin in groove on skull. All dorsal spines followed by fleshy flaps bound in interspinous membrane extending from tips of spines. Last dorsal rays evenly spaced, membrane from last ray connected to upper base of caudal fin at end of caudal peduncle. Last anal ray broadly connected by membrane to just beyond middle of caudal peduncle. Pelvic rays thin (a 3rd rudimentary ray sometimes present, visible only on dissection), 2nd ray reaching to about the anus. Gill rakers on outer face of 1st arch short and pointed. Body slender to moderate (depth at anal origin 16.2–20.3% SL). Often with broad dark stripe on midside.

Description. 1st dorsal III (34*); 2nd dorsal-fin spines XXIX(6), XXX(17), XXXI(10*), segmented dorsal rays 2(4), 3(27*), 4(3); anal fin-rays II, 21(1), II, 22(13*), II, 23(18), II, 24(2); pectoral fin-rays 12(30*), 13(4); pelvic rays I, 2(34*); segmented caudal rays 10(2); 11(31*) vertebrae 14+28(6), 14+29(7), 14+30(1), 15+29(1). Circumorbital pores 12(1), 13(5), 14(9*), 15(7), 16(1), 18(1); total gill rakers on outer face of 1st arch 6(4), 7(6), 8(15*), 9(2); lower gill rakers on outer face of 1st arch 5(7), 6(18*), 7(2). Pored lateral-line scales 19–25 (arched portion of line) + 0–15 (straight portion of line); anterior lateral line scales 19(4), 20(3), 21(4), 22(8), 23(1), 24(3*), 25(4); posterior lateral line scales 0(2), 2(2*), 3(2), 4(3), 5(1), 6(1) 7(2), 8(1), 9(1), 10(3), 11(2), 12(4), 13(1), 14(2), 15(1); branchiostegal rays 6(14*). Vomer with single row of teeth forming a V; palatine without teeth.

Head compressed, moderate to large (27.2–30.4% SL, 34–37 mm, 23.2–27.7% SL, 38–61 mm); snout obtusely pointed, snout less than eye diameter, (3.6–6.3% SL), eye (6.9–9.7% SL), interorbital narrow, about half to three-quarters eye diameter; mouth short, jaws reaching to below middle of eye, upper jaw length, 9.3–13.2% SL; anterior nostril tubular with simple nasal tentacle; posterior nostril with elevated rim at anterodorsal margin of eye; gill rakers very short and simple; rakers on 2nd and following arches moderately developed; tongue tip broadly rounded; upper jaw with outer row of conical teeth, slightly enlarged extending to near end of premaxilla; anteriorly 3–4 inner rows of smaller conical teeth tapering laterally to 1 row, ending around middle of premaxilla; lower jaw with outer row of conical teeth enlarged covering all of dentary; 2 or 3 inner rows of smaller teeth tapering laterally to a single row ending before middle of dentary; intromittent organ elongate, pointed and curved forward as in *Heteroclinus macrophthalmus* figured by Hoese (1976).

Head pores as shown in fig. 3, circumorbital and preopercular pores uniserial.

Head largely naked, body scales small and cycloid extending forward to above operculum below end of 1st dorsal fin; scales overlapping and forming distinct rows anteriorly, becoming nonimbricate and irregular posteriorly.

1st dorsal fin elevated, about twice height of 2nd dorsal in males and slightly higher than 2nd dorsal in females; 2nd spine usually longest, with 1st and 2nd spines subequal in height and longer than 3rd spine; membrane from 1st dorsal fin connects to body at base of 2nd dorsal fin; 2nd dorsal origin above a point before pectoral origin and behind pelvic insertion; 1st spine of 2nd dorsal short, spines becoming progressively longer posteriorly, with last spine the longest; dorsal segmented rays evenly spaced; anal origin below 11th or 12th spine of 2nd dorsal fin, anal spines short, anal segmented rays longer and becoming progressively longer posteriorly; caudal fin with rounded margin (16.3–19.2% SL); pectoral fin with rounded margin, rays unbranched, central rays longest, reaching to above or just behind anus; pelvic fins with hidden spine, 2 developed rays and usually a 3rd rudimentary ray visible only on dissection.

Coloration of freshly collected material. (Based on colour photos provided by R. Kuiter from Vic. and B. Hutchins from WA). Colour variable. Sometimes with head, tail, and dorsal portion of trunk dark with a brown and white mottled midlateral band extending posteriorly from eye across upper half of preoperculum and operculum, along trunk, and breaking into oblong patches on tail; females and some males brown with 8 dark-brown irregularly shaped vertical bars across trunk and tail extending onto dorsal and anal fins, bars often broken forming irregular saddle-shaped spots, those along back darkest; some males and females with body uniform brown or lightly mottled; 1st dorsal fin black; females with 1st spine sometimes banded; caudal and ventral fins pale, usually with a series of red spots forming transverse bands; snout and edges of interorbital frequently white; lower half of head with large black spots, large dark spot often present basally on pectoral rays 8–10; females with belly, ventral portions of tail and midlateral portions of trunk and tail sometimes with white spots.

Coloration in alcohol. Similar to fresh coloration, except that pigment less intense and red becoming pale brown.

Distribution. The species is known from Vic., Port Lincoln, SA and Cosy Corner, near Albany and Sandy Hook I. off Esperance, WA. It is associated with rocks and algae in shallow water from depths of 5–13 m.

Etymology. Named for Rudie Kuiter, who provided much of the type material and valuable material of other Australian clinids.

Remarks. One sample from Western Port, Victoria (ZMUC) is unusual in that one specimen has 13-13 pectoral rays, two have

12-13 and one has 12-12. Only one other specimen was found with 13 pectoral rays.

Heteroclinus kuiteri is most similar to *H. adelaidae* Castelnau and *H. macrophthalmus* Hoese, in having the last anal ray broadly connected by a membrane to the caudal peduncle, two slender and elongate pelvic rays and often a rudimentary third pelvic ray, visible only upon dissection. *Heteroclinus kuiteri* differs from *H. macrophthalmus* in lacking free filaments extending off the first few dorsal spines (free and branched in *H. macrophthalmus*), simple orbital tentacle (versus tentacle branched with five lobes) and fewer dorsal rays (two–four, versus usually five). *Heteroclinus kuiteri* differs from *H. adelaidae* in having more numerous pectoral rays 12–13 (versus 11), dorsal fin origin over or before posterior margin of eye (versus over posterior preopercular margin), with pterygiophores in groove in skull (versus pterygiophores behind skull) and no black line along anterior lateral line (versus usually present).

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