



A new species of the flathead genus *Onigocia* (Teleostei: Platycephalidae) collected from the Coral and Tasman Seas

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Abstract

A new species of platycephalid, *Onigocia lacrimalis*, is described on the basis of specimens collected from the Chesterfield Islands (Coral Sea) and Norfolk Ridge (Tasman Sea), at depths of 111–330 m. *Onigocia lacrimalis* differs from the six congeners of the genus in having 12–13 (usually 12) second dorsal-fin rays, 12 anal-fin rays, 21–25 pectoral-fin rays, 8 branched caudal-fin rays, anterior 2–4 scales of the lateral line with a spine, and a single preocular spine, and in lacking gill rakers on the upper arch, ocular and interopercular flaps, and distinct antrorse lachrymal spines.

Key words: *Onigocia lacrimalis* sp. nov., Platycephalidae, Coral Sea, Tasman Sea

Introduction

When visiting at the Australian Museum, Sydney, in 2006, Imamura found a single specimen of a platycephalid collected from Norfolk Ridge, Tasman Sea. This specimen belongs to the genus *Onigocia* Jordan and Thompson, 1913, in having a serrated suborbital ridge, lateral-line scales fewer than 40, with two exterior sensory openings posteriorly, and skinny sensory tubes on the cheek region well developed (see Imamura, 1996). However, its meristic counts do not fit those in the six known valid species of the genus. In addition, the specimen lacks distinct antrorse lachrymal spines. Such a character is not recognized in the other members of *Onigocia* and it was concluded that this specimen represents an undescribed species. Later, additional specimens of the new species, collected from Chesterfield Islands, Coral Sea, were found by authors in the fish collection of Muséum National d'Histoire Naturelle, Paris. The new species of *Onigocia* is described in this study.

Material and methods

Counts and measurements were made according to Hubbs and Lagler (1958) and were routinely taken from the left side, while gill rakers were counted on the right side. A small first dorsal spine was expressed by using plus sign. Measurements were made with calipers to the nearest 0.1 mm accuracy. Terminology of head spines follows Knapp *et al.* (2000). Institutional acronyms are from Leviton *et al.* (1985), except for the Natural History Museum (BMNH), the Hokkaido University Museum (HUMZ), National Institute of Coastal Aquaculture, Thailand (NICA), the National Museum of Nature and Science (NSMT), Natural History Museum and Institute, Chiba (CMNH) and South African Institute of Aquatic Biodiversity (SAIAB). Standard and head lengths are abbreviated as SL and HL, respectively.

***Onigocia lacrimalis*, sp. nov.**

New English name: Smooth-snout flathead

(Figs. 1–4)

Holotype: AMS I.42709-001, 138.5 mm SL, northern Norfolk Ridge, Tasman Sea (29°54.39'S, 167°41.05'E), 111–115 m depth, 15 May 2003.

Paratypes: 8 specimens. MNHN 1997-4080, 1 specimen, 96.1 mm SL, Chesterfield Islands, Coral Sea (22°35'S, 159°95'E), 295 m depth, 28 July 1984; MNHN 2003-1823, 1, 109.4 mm SL, Chesterfield Islands, Coral Sea (22°24'S, 159°16'E), 320–325 m, 13 Oct. 1986; MNHN 2006-1609, 3, 85.6–129.2 mm SL, Chesterfield Islands, Coral Sea (22°26'51"S, 159°21'26"E), 330 m, 13 Oct. 1986; MNHN 2006-1610, 1, 143.7 mm SL, Chesterfield Islands, Coral Sea (24°48'S, 159°40'E), 258–269 m, 9 Oct. 1986; MNHN 2006-1611, 1, 80.1 mm SL, Chesterfield Islands, Coral Sea (25°24'S, 159°47'E), 285 m, 8 Oct. 1986; USNM 390658, 1, 117.0 mm SL, collected with MNHN 1997-4080.

Non-type specimens: MNHN 1997-4081, 1, 54.6 mm SL, collected with MNHN 1997-4080; MNHN 2002-1321, 2, 74.7–80.6 mm SL, collected with MNHN 2006-1610; MNHN 2003-1858, 1, 86.9 mm SL, Chesterfield Islands, Coral Sea (24°44'S, 159°39'E), 280 m, 9 Oct. 1986.

Diagnosis. A species of *Onigocia* with 12–13 (usually 12) second dorsal-fin rays, 12 anal-fin rays, 21–25 pectoral-fin rays (mode 23), 8 branched caudal-fin rays, anterior 2–4 scales in the lateral line with a spine, a single preocular spine, and lacking gill rakers on upper arch, ocular and interopercular flaps, and distinct antorse lachrymal spines.

Description. Data for the holotype are presented first, followed by those for paratypes in parentheses or brackets. When non-type specimens have notable additional variations, they are also shown separately: first dorsal-fin rays I+VIII (I+VII–VIII, VII in three, VIII in five); second dorsal-fin rays 12 [12 (one non-type with 13)]; anal-fin rays 12 (12); pectoral-fin rays 2 (upper, unbranched) + 12 (middle, branched) + 9 (lower, unbranched) = 23 [2 + 10–11 + 9–11 = 21–24 (non-types with 2 + 9–12 + 10–12 = 23–25)]; pelvic-fin rays I, 5 (I, 5); branched caudal-fin rays 4 (upper) + 4 (lower) = 8 (4 + 4 = 8); scales in lateral line 35, anterior 3 scales with a spine (32–34, 2–4 with spine, often 3); oblique body-scale rows slanting downward and backward above lateral line 35 (32–35); oblique body-scale rows slanting downward and forward above lateral line 35 [32–35 (a non-type with 36)]; gill rakers 0 + 4 = 4 (0 + 4–5 = 4–5). Proportions as % SL: HL 42.2 (39.3–42.6); predorsal length 39.6 (37.3–40.1); length of first dorsal-fin base 20.7 (16.9–21.7); length of second dorsal-fin base 25.6 (24.2–28.9); length of anal-fin base 30.2 (26.9–32.7); caudal peduncle length 7.6 (7.4–9.1); caudal peduncle depth 4.2 (4.0–4.8); snout length 12.9 (12.1–13.2); orbital diameter 11.2 (10.7–12.0); upper jaw length 16.0 (15.1–16.8); lower jaw length 22.5 (20.9–23.6); interorbital width 2.2 (1.9–2.3); pectoral-fin length 18.3 (16.5–18.4); pelvic fin-length 28.4 (27.0–30.6); caudal-fin length 23.5 (22.1–26.2); length of first spine of first dorsal fin 6.4 (5.7–6.3); length of second spine of first dorsal fin 15.8 (15.2–19.3); length of first ray of second dorsal fin 15.2 (13.6–16.2); length of first anal fin ray 9.9 (7.4–9.0). Proportions as % HL: snout length 30.7 (30.2–31.9); orbital diameter 26.5 (26.8–28.7); upper jaw length 37.8 (37.1–39.6); lower jaw length 53.3 (53.3–55.5); interorbital width 5.1 (4.7–5.8).

Body depressed, mostly covered with ctenoid scales, some cycloid scales on undersurface. Head flattened; postorbital region, opercle and nape scaled. Snout slender, slightly longer than eye diameter (or shorter in two non-types). Upper surface of eye without papillae. Iris lappet scalloped dorsally, broad and simple ventrally (Fig. 2) (or bilobed dorsally, or absent dorsally and ventrally in some paratypes). Interorbit narrow and concave. Top and side of head bearing spines and serrated ridges. Nasal usually with one pair of small spines. Two (left side) or three (right) ethmoid spines present. Lachrymal lacking serration and distinct antorse spines. A single sharp preocular spine present, with a single (or two in some paratypes and three in one) small spine basally (Fig. 3). Distinct preorbital spines absent. Suborbital ridge with fine serrations, comprised of 22 (left) or 23 (right) small spines (17–27 in left and 16–23 in right in paratypes). Supraorbital ridge finely serrated except for anterior portion (Fig. 3). A single spine on fifth infraorbital (or absent in some paratypes). Spine absent on fourth infraorbital (or present in some paratypes). Postorbital region with several

small spines. Frontal with two (left) or three (right) spines. Pterotic with serrated ridge, ending with a sharp spine. One nuchal spine each on supratemporal on right, posttemporal and supracleithrum, respectively; supratemporal on left with 2 spines. Preopercle with three spines; uppermost one longest, not reaching posterior margin of opercle, bearing single supplementary spines; lowermost one smallest. Base of upper and lower opercular spines without serrations. Interopercular flap absent. Maxilla reaching near anterior margin of pupil. Teeth in bands on jaws and palatine, and in 2 separate patches on vomer; tooth band on upper jaw with an indistinct notch medially (with a distinct notch in all paratypes). Upper and lower jaws with villiform teeth; anteromedial portion of upper jaw with several short, slender, conical teeth. Tooth band on palatine narrow, with 2 irregular rows of small, conical teeth. Vomerine teeth villiform anteriorly, becoming larger and changing to small conical posteriorly. Lip margins without papillae. Sensory tubes from suborbitals and preopercle well developed, completely covering cheek region. Pored scales in lateral line with 2 exterior openings posteriorly. First dorsal fin originating slightly behind opercular margin. First and second dorsal fins narrowly separated. Pectoral fin rounded posteriorly. Posterior tip of pelvic fin attaining base of fifth (third to fifth in paratypes) anal-fin ray. Caudal fin slightly rounded posteriorly (or mostly straight in some paratypes).



FIGURE 1. Dorsal (upper) and lateral (lower) views of *Onigocia lacrimalis*, **sp. nov.**, holotype, AMS I.25752-001, 137.4 mm SL, collected from Tasman Sea.

Color in alcohol. Body and head light brown above, pale below. Body with three indistinct saddle-like brownish bands; one below first dorsal fin and two below second, respectively (or bands distinct in some paratypes). An indistinct patch on caudal peduncle. An indistinct brown spot below eye (or spot distinct in some paratypes). First dorsal fin with one grayish band and small dark spots except on anterodorsal area. Second dorsal fin with scattered melanophores and several small brown spots. Pectoral fin light brown, with small brown spots. Pelvic fin light brown; anterior portion with dark-brown (or light-brown in a paratype) blotch, extending along membranes posteriorly; posterior portion with small dark-brown spots (or pelvic fin mostly brown to black with a pale narrow outer margin and a pale posterior portion having small brown to

black spots in most paratypes). Anal fin pale. Caudal fin with narrow (or broad in most paratypes, its width varied from about one-third to one-fifth of caudal-fin length) pale-brown (dark-brown to black in paratypes) band posteriorly; posterior margin pale; several small brown spots scattered elsewhere on the fin.

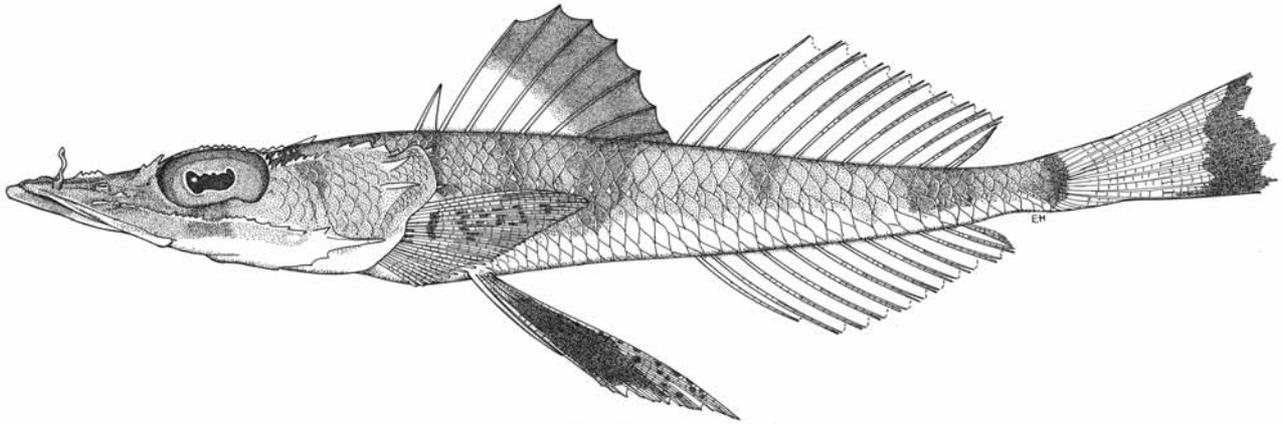


FIGURE 2. Lateral view of *Onigocia lacrimalis*, **sp. nov.**, paratype, USNM 390658, 117.0 mm SL, collected from Coral Sea.

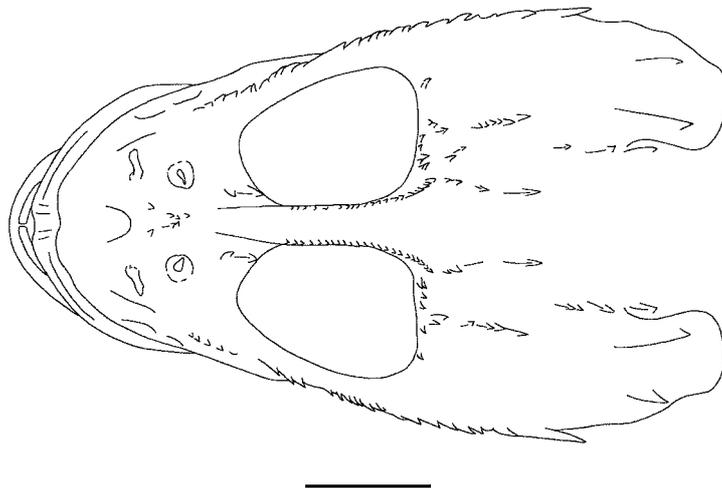


FIGURE 3. Dorsal view of head of *Onigocia lacrimalis*, **sp. nov.**, holotype, AMS I.25752-001, 137.4 mm SL, collected from Tasman Sea. Scale indicates 10 mm.

Distribution. Currently known only from the Chesterfield Islands, Coral Sea, and northern Norfolk Ridge, Tasman Sea, at depths of 111–330 m.

Etymology. The specific name alludes to the characteristic absence of distinct antrorse lachrymal spines in this species; applied as an adjective.

Remarks. *Onigocia lacrimalis* is easily separable from other members of the genus *Onigocia* in having 12–13 (usually 12) second-dorsal and 12 anal-fin rays [vs. both fins usually or always 11 rays in *O. bimaculata* Knapp, Imamura & Sakashita, 2000, *O. grandisquama* (Regan, 1908), *O. oligolepis* (Regan, 1908), and *O. pedimacula* (Regan, 1908)], 8 branched caudal-fin rays [vs. 9 or more in *O. grandisquama*, *O. macrolepis* (Bleeker, 1854), and *O. spinosa* (Temminck & Schlegel, 1843)], anterior 2–4 scales of the lateral line with a spine (vs. 10–20 in *O. spinosa*), a single preocular spine (vs. 3 or more in *O. bimaculata*, *O. oligolepis*, *O. pedimacula*, and *O. spinosa*), and in lacking gill rakers on the upper gill arch [vs. a single gill raker present in others, except for *O. pedimacula* which also lacks rakers], lacking an ocular flap (vs. present in *O. grandisquama*, *O. macrolepis*, and *O. spinosa*), and lacking an interopercular flap (vs. present in *O. bimaculata*). Although partial overlap is recognized, the number of pectoral-fin rays is also helpful in

separating *O. lacrimalis* from its congeners except for *O. oligolepis* [21–25 (mode 23) in *O. lacrimalis*, vs. usually 22 or fewer in others, except for *O. oligolepis* with 22–23 rays]. Finally, *Onigocia lacrimalis* is characterized in lacking distinct antrorse lachrymal spines, whereas all other members of the genus *Onigocia* have two or more distinct spines. The characters discussed here are summarized in Table 1 (for data of other members of *Onigocia*, see also Regan, 1908; Matsubara & Ochiai, 1955; Knapp, 1986, 1999; Imamura & Sakashita, 1997; Knapp *et al.* 2000; Imamura & McGrouther, 2008).

TABLE 1. Comparison of selected characters in the seven valid species of *Onigocia*.

	D2	A	P1	BC	LSS	GR	OF	IF	OS	LS
<i>O. lacrimalis</i> sp. nov. (n=13*)	12–13 (usually 12)	12	21–25	8	2–4	0+4–5	Absent	Absent	1	0
<i>O. bimaculata</i> (n=11*)	11	10–11 (usually 11)	19–22	9	2–8	1+4–7	Absent	Present	2–5	2
<i>O. grandisquama</i> (n=17*)	10–11 (usually 11)	11–12 (usually 11)	19–21	9–10	3–8	1+4–5 (usually 1+4)	Present	Absent	1–2	2
<i>O. macrolepis</i> (n=13)	11–12	12–13 (usually 12)	19–21	9–11 (usually 10)	2–5	1+4–5 (usually 1+4)	Present	Absent	1	2
<i>O. oligolepis</i> (n=1*)	11	11	22	?	3	1+4	Absent	Absent	3	2
<i>O. pedimacula</i> (n=1*)	11	11	21	8	3	0+4	Absent	Absent	4	2
<i>O. spinosa</i> (n=13*)	12	12	21–22	9–10 (usually 10)	10–20	1+4–5 (usually 1+4)	Present	Absent	2–6	2–4

*Including holotype or lectotype; D2, second dorsal-fin rays; A, anal-fin rays; P1, pectoral-fin rays; BC, branched caudal-fin rays; LSS, lateral-line scales with spine; GR, gill rakers; OF, ocular flap; IF, interopercular flap; OS, ocular spine; LS, distinct antrorse lachrymal spine.

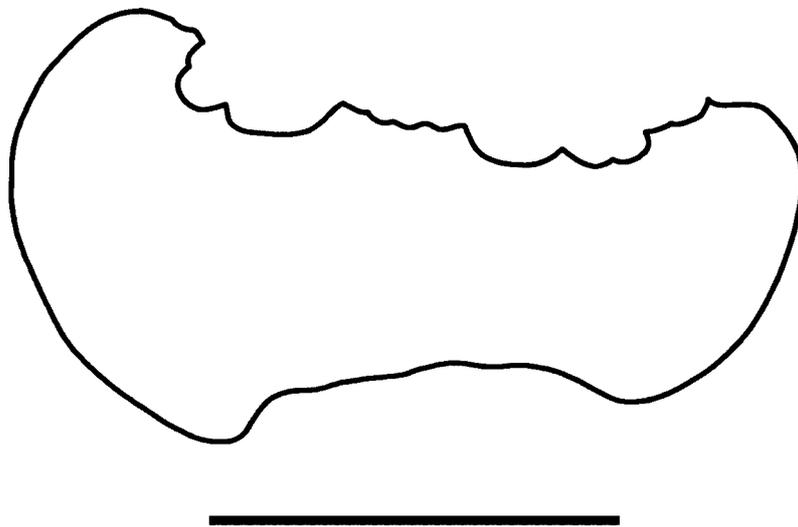


FIGURE 4. Iris lappet (left eye) of *Onigocia lacrimalis*, sp. nov., holotype, AMS I.25752-001, 137.4 mm SL, collected from Tasman Sea. Scale indicates 3 mm.

Comparative materials. *Onigocia bimaculata* (11 specimens): BPBM 19891 (2 paratypes, 42.3–56.0 mm), Red Sea; BPBM 33599 (74.6 mm), Coral Sea; MNHN 1977-0978 (2 paratypes, 30.2–37.4 mm), Israel; MNHN 1977-3920 (paratype, 56.4 mm), New Caledonia; NSMT-P 45638, 54248, 54249 (3 paratypes, 23.2–36.8 mm), NSMT-P 54247 (holotype, 58.6 mm), CMNH-ZF 13964 (66.6 mm), Japan. *O. grandisquama*

(17 specimens): AMS I.24489-005 (68.6 mm), BPBM 33845 (66.7 mm), Chesterfield Islands; QM I.23086, I.23267, I.36593, I.36770, I.36807, I.37439, I.37839 (5), I.37923, I.40097 (13 specimens, 38.8–77.5 mm), northeastern Australia; BMNH 1908.3.23.209 (holotype, 54.4 mm), Seychelles; NICA 242 (54.4 mm), Gulf of Thailand. *O. macrolepis* (13 specimens): HMNZ 35464, 48181, 49469, 65559, 79918, 79976, 109310, 109311, 110882, 142805, 142820, 142821 (12, 73.4–110.6 mm), Japan; HMNZ 79919 (59.3 mm), Taiwan. *O. oligolepis* (1 specimen): BMNH 1908.3.23.208 (holotype, 82.2 mm), Mauritius. *O. pedimacula* (1 specimen): BMNH 1901.12.31.45 (holotype, 44.0 mm), Maldives. *O. spinosa* (13 specimens): AMS I.22831-013 (1 of 11, 72.8 mm), northwestern Australia; HUMZ 5451, 71719, 110549, 110624, 199941 (5, 64.0–93.2 mm), RMNH 567a (lectotype, 93.1 mm), RMNH 567b-g (6 paralectotypes, 47.7–85.0 mm), Japan.

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