

# *Xyrichtys wellingtoni*, a new species of Wrasse (Labridae) from Clipperton Island, Tropical Eastern Pacific Ocean

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## Abstract

*Xyrichtys wellingtoni*, new species, is described from 6 specimens, 19.0-64.7 mm SL, collected at Clipperton Island in the eastern Pacific Ocean. It is distinguished mainly on the basis of colour pattern. Terminal phase males are generally pink with a purple, diamond-shaped mark on each scale and have dark purple dorsal and anal fins. Juveniles and initial phase fish are mainly white to pale pink with translucent fins.

It is possibly allied to *X. perlas* from Panama. Both species share a relatively small size (less than 65 mm SL) for the genus and have a white or pinkish initial phase coloration (terminal phase of *X. perlas* is unknown). However, initial phase individuals of *X. perlas* differ in having a crescentic red mark on the operculum and pale yellow markings above the eye and near the origin of the lateral line. There is also a difference in the number of gill rakers, 24 for *X. wellingtoni* and 20-22 for *X. perlas*.

## Introduction

The wrasse genus *Xyrichtys* Cuvier, commonly known as razorfishes, inhabits sandy bottoms in shallow tropical seas. When threatened, by an approaching diver for example, they dive into the sand and are apparently capable of locomotion underneath the surface. These fishes are poorly studied and the genus remains in critical need of revision, largely because they are relatively difficult to find and capture. The only recent study, other than descriptions of new species, involved a review of the 12 species inhabiting Taiwanese seas by Shen and Yeh (1987). Worldwide there are approximately 25 known species, over half of which occur in the Indo-west Pacific region. The group is also well represented in the eastern Pacific and both sides of the Atlantic.

The present paper describes a new species of *Xyrichtys* collected by the authors during a two-week visit to remote Clipperton Island during 1994. This is the third member of the genus that has been described from the tropical eastern Pacific Ocean as a result of recent faunal surveys by the authors. *Xyrichtys victori* Wellington (1992) was described from the Galapagos Islands and *X. perlas* Wellington, Allen, and Robertson was described from the Perlas Islands, Panama. In addition, two other species occur in the region: *X. mundiceps* Gill from Baja California and *X. pavo* Valenciennes, which is widely distributed in the Indo-Pacific.

Methods of counting and measuring specimens are as follows: *standard length* (SL) is the straight-line distance from the front of the upper lip to the base of the caudal fin (posterior end of the hypural plate); *body depth* is the maximum depth from the base of the dorsal spines; *body width* is measured just posterior to the gill opening; *head length* is taken from the front of the upper lip to the most posterior point of the opercular flap; *snout length* is measured from the same anterior point to the fleshy edge of the orbit; *orbit diameter* is the greatest fleshy diameter of the orbit; *interorbital width* is the least bony width between orbits; *caudal peduncle depth* is the least depth of the peduncle; *caudal peduncle length* is the horizontal distance from the rear base of the anal fin to the base of the caudal fin; *pectoral and pelvic fin lengths* are the lengths of the longest rays; *pectoral-ray counts* include the rudimentary, splint-like uppermost ray; *lateral-line scale counts* are taken to the base of the caudal fin; *gill raker counts* include all rudiments, and are given in two parts, the upper limb plus the lower limb, the raker at the angle between the two limbs is included in the lower limb count. Only the three largest (adult) specimens were utilised for proportional measurements. Counts and morphometric proportions in parentheses refer to the range for paratypes if different than the holotype.

Type specimens of the new species are deposited at the National Museum of Natural History, Washington, D.C. (USNM), and the Western Australian Museum, Perth (WAM).

## *Xyrichtys wellingtoni*, new species

Fig. 1

**Holotype:** WAM P.30994-001, male, 71.6 mm SL, collected with mult-prong spear and rotenone in 18-20 m at Clipperton Island (approximately 10|18' N, 109|13' W), by D.R. Robertson on 22 April 1994.

**Paratypes:** USNM 337445, 5 specimens, 19.0-51.0 mm SL, collected with holotype.

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### Diagnosis

A species of *Xyrichtys* with the following combination of characters: Dorsal rays IX,12; anal rays III,12; pectoral rays 12; principal caudal rays 12 (middle 10 branched); upper and lower procurrent caudal rays 5 or 6; lateral-line interrupted with 21 + 5 pored scales; scales above lateral line to origin of dorsal fin 2; scales below lateral line to origin of anal fin 7; circumpeduncular scale rows 16; gill rakers on first arch 8 + 16 = 24; terminal phase generally pink with purple, diamond-shaped mark covering most of each scale; dorsal, anal, and basal half of caudal fin dark purple; pelvic fins dusky purple; pectoral fins translucent; juveniles and initial phase fish mainly white to pale pink with translucent fins.

### Description

Dorsal rays IX, 12; anal rays III,12; pectoral rays 15; pelvic rays I,5; principal caudal rays 12 (middle 10 branched); upper and lower procurrent caudal rays 5 or 6; lateral-line scales 21 + 5; scales above lateral line to origin of dorsal fin 2; scales below lateral line to origin of anal fin 7; circumpeduncular scale rows 16; gill rakers on first arch 8 + 16 = 24; vertebrae 25.

Body moderately elongate, the depth 3.1 (3.1-3.2) in SL, and strongly compressed, the width 3.7 (3.0-3.3) in depth; head length 3.3 (3.2-3.3) in SL; snout length 2.8 (2.8-2.9) in head; orbit diameter 3.9 (4.1-4.3) in head; interorbital space sharply convex, the least bony width 5.1 (6.0-6.3) in head; caudal peduncle depth 2.1 (2.3-2.4), caudal peduncle length 2.6 (2.4-3.1), both in head.

Mouth terminal, the maxilla not reaching a vertical at front edge of orbit; lower lip with a downward-projecting flap along the side; inner surface of upper lip papillose. Gill membranes broadly attached to isthmus. Front of upper and lower jaw with a pair of large, projecting, slightly recurved canine teeth, followed on side of jaws with row of 11-14 progressively smaller canines. Nostrils small, in front of upper anterior edge of eye, the anterior nostril in a short membranous tube, the posterior diagonally upward and behind the anterior nostril, covered by a flap from ventral margin. Suborbital pores around rim of eye from mid-posteriorly to below front edge of orbit 6.

Head naked except for 1-2 small scales on uppermost part of operculum and a few scales on posterior portion of nape; scales on midside of thorax less than half as large as those on side of body, becoming even smaller ventrally and anteriorly; fins naked except for row of small truncated scales at extreme base of dorsal and anal fins, and progressively smaller scales on basal portion of caudal fin. Lateral line in two parts, the anterior section gently curved anteriorly, terminating one scale row below base of tenth soft dorsal ray; the posterior section on middle of side of caudal peduncle; lateral-line scales with simple, unbranched tubules.

Origin of dorsal fin above first lateral-line scale; dorsal spines progressively longer, the first 4.5 (7.1) and the ninth 4.2 (4.3-6.0) in head; third to tenth dorsal soft rays subequal, 2.8 (2.4-3.0) in head; last five dorsal soft rays and all except first two anal soft rays branched; origin of anal fin below base of first dorsal soft ray; first anal spine slender, 7.7 (7.8-10.0)

**Table 1**

Proportional measurements of type specimens of *Xyrichtys wellingtoni* expressed as percentage of the standard length.

Character	Holotype WAM P.30994 -001	Paratype USNM 227445	Paratype USNM 337445
Standard length (mm)	63.8	48.5	48.6
Body depth	32.4	31.8	31.3
Body width	8.7	9.5	10.3
Head length	30.1	30.7	30.9
Snout length	10.8	10.7	10.9
Orbit diameter	7.7	7.4	7.2
Interorbital width	6.0	5.2	4.9
Caudal peduncle depth	14.4	12.8	13.4
Caudal peduncle length	11.8	12.6	10.1
Length 1st dorsal spine	6.7	6.0	4.3
Length last dorsal spine	7.2	7.2	5.1
Longest soft dorsal ray	10.8	12.6	10.3
Length 1st anal spine	3.9	3.9	3.1
Length 3rd anal spine	6.4*	10.7	8.0
Longest anal soft ray	10.8	8.7	10.3
Caudal fin length	21.5	22.9	23.6
Pectoral fin length	22.9	22.7	22.8
Pelvic fin length	15.5	13.0	13.0

\* damaged

in head; third anal spine 4.7 (2.9-3.8) in head; fourth to seventh anal soft rays longest, 2.8 (3.0-3.5) in head; caudal fin truncate to slightly rounded, 1.4 (1.3) in head; pectoral fins 1.3 (1.4) in head, the upper rays longest, except first ray rudimentary, two uppermost rays unbranched; origin of pelvic fins below pectoral fin base; pelvic spine slender, flexible distally; pelvic fins just reaching anus, their length 1.9 (2.3-2.4) in head.

*Colour in alcohol:* holotype (terminal phase) overall tan with dusky brown scale centres; fins mainly translucent, dorsal and anal slightly dusky. Juveniles and initial phase fish are uniformly yellowish tan with translucent fins

*Colour in life:* terminal phase generally pink with purple, diamond-shaped mark covering most of each scale; dorsal, anal, and basal half of caudal fin dark purple; pelvic fins dusky purple; pectoral fins translucent. Juveniles and initial phase fish mainly white to pale pink with translucent fins.



**Fig. 1.** - *Xyrichtys wellingtoni*, holotype (upper), 64.7 mm SL, and paratype, 51.0 mm SL, Clipperton Island, Eastern Pacific Ocean. *Xyrichtys wellingtoni*, holotype (en haut), 64,7 mm LS, et paratype, 51,0 mm LS, Clipperton Island, Océan Pacifique oriental.

#### Remarks

Affinities within the genus *Xyrichtys* remain poorly understood. Four species are presently known from the tropical eastern Pacific Ocean: *X. wellingtoni*, *X. mundiceps* Gill (Baja California, Mexico), *X. pavo* Valenciennes (Indo-Pacific), *X. perlas* Wellington, Allen, and Robertson (Gulf of Panama), and *X. victori* Wellington (Galapagos). *Xyrichtys wellingtoni* and *X. perlas* appear to be more closely allied to each other than the other species. They share a relatively small size (less than 65 mm SL) for the genus and both have a white or pinkish initial phase coloration (terminal phase of *X. perlas* is unknown). However, initial phase individuals of *X.*

*perlas* differ in having a crescentic red mark on the operculum and pale yellow markings above the eye and near the origin of the lateral line. There is also a difference in the number of gill rakers, 24 for *X. wellingtoni* and 20-22 for *X. perlas*.

Sandy bottoms were generally scarce at Clipperton Island, hence this sand-dependent species is apparently rare. All specimens were captured at an extensive, reef-surrounded sand patch, approximately 80 m long and 20 m wide. About 10 adult and juvenile individuals were sighted swimming slowly above the surface of the sand in 18-20 m depth.

The species is named *wellingtoni* in honour of **Dr. Jerry Wellington** of the University of Houston, Texas, who assisted with the collection of the type specimens.

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#### RÉSUMÉ

*Xyrichtys wellingtoni*, une nouvelle espèce de Girelle (Labridae) de Clipperton Island, Océan Pacifique oriental tropical.

Cette nouvelle espèce de Poisson-Rasoir est décrite sur 6 spécimens de 19 à 64,7 mm LT. Elle est caractérisée principalement par son patron de coloration, les mâles, en phase terminale étant généralement roses avec une marque pourpre sur chaque écaille et des nageoires dorsale et anale rouge violacé foncé, de même que la base de la caudale. Les juvéniles, comme la phase initiale, sont de blanc à rose pâle avec des nageoires transparentes. Elle pourrait être alliée à *X. perlas*, du Panama, mais la phase terminale de cette espèce est encore inconnue.