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## *Hippocampus tristis*, a Lazarus species of seahorse (Teleostei: Syngnathidae) from Australia

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### Abstract

*Hippocampus tristis* Castelnau, 1872 was described from a single specimen that came from the Melbourne Fish Market in Australia. Following Kuiters (2001) revision of Australian seahorses, two additional specimens of *H. tristis* were found in the South Australian Museum, housed under the name “*Hippocampus novae-hollandiae*”. Despite extensive diving in the southern region for several decades whilst looking out for this taxon, none have been found and Kuiters (2009) presumed it was extinct. However, a photograph of a seahorse taken in December, 2018 at St Leonards Pier, just north from Swan Bay in Port Phillip Bay, Victoria, Australia is, based on visible diagnostic characters, without a doubt the long-lost *H. tristis*.

**Key words:** taxonomy, ichthyology, reef fishes, Indo-Pacific Ocean, Melbourne, Victoria, rediscovery

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### Introduction

The description of *Hippocampus tristis* by Castelnau was published in 1872 under the title “The Melbourne Fish Market”, and stated “this was on fishes observed at Melbourne, alive or in fresh state for one year, which almost all come from the Fish Market”. Castelnau briefly described two seahorse species, each from a single specimen: one as *Hippocampus Novae Hollandiae* Günther, 1870 and the other as *Hippocampus tristis*, a new species. The two specimens are presently together in a jar in the Paris Museum labeled as MNHN A4537 (Fig. 1)

and A4538 and the notation “From Swan”. During the 1870s, there was a Chinese fishing community in the Swan region near the heads of Port Phillip Bay supplying the Melbourne Market with seafood from Bass Strait. The settlement called Fishermen’s Flat was situated on Swan Island and the mainland area of what is now known as Queenscliff. Their catches may have been presented at the Market as “from Swan” to identify that source.

Castelnau’s descriptions are minimal (Fig. 2) and do not include diagnostic characters. On my examination, the two specimens both belong to his new species *H. tristis*. He lists 14 dorsal-fin rays for the new type and 17 rays for the other, and whilst both are yellow, one was covered with small red spots and the other with transverse stripes. Such differences in fin-ray counts and color patterns are variations that are not diagnostic among seahorses and could be expected in any species of Syngnathidae.

No additional specimens had been identified since Castelnau, and I had never observed the species in many decades of extensive diving in southern Australia, even while looking out for seahorses. However, after my revision of Australian seahorses in Kuitert (2001) and after it was presumed extinct in Kuitert (2009), I recently came across two specimens in the South Australian Museum (SAMA F732), dredged in 1920 and housed under the name *Hippocampus novae-hollandiae* [sic] (Fig. 3). Subsequently, I received an underwater photograph of a seahorse for identification, taken in December, 2018 at St Leonards Pier, just north from Swan Bay in Port Phillip Bay, Victoria, Australia (Fig. 4). It was apparent from visible diagnostic characters that the seahorse was, without a doubt, the long-lost *H. tristis*. Since *H. tristis* was thought to be extinct and is now rediscovered almost 100 years later, it can be considered a “Lazarus” seahorse species.

## *Hippocampus tristis*, Castelnau, 1872

### Lazarus Seahorse

Figures 1, 3–5

*Hippocampus novae hollandiae* [sic] (non Steindachner) (in part) Günther 1870: 201 (South Australia).

*Hippocampus Novae Hollandiae* [sic] (non Steindachner) Castelnau 1872: 197 (Melbourne Fish Market, Australia).

*Hippocampus whitei* (non Bleeker) (in part) Paxton et al. 1989: 42; Gomon et al. 1994: 449 (Australia).

*Hippocampus kuda* (non Bleeker) (in part) Lourie et al. 1999: 109; 2016: 31 (Australia).

**Holotype.** MNHN A4537 male, 85 mm height, Australia, Victoria, Melbourne Fish Market, “From Swan”, F.L. Castelnau, 1872.

**Non-type material.** MNHN A4358, male, 101 mm height, Australia, Victoria, Melbourne Fish Market, “From Swan”, F.L. Castelnau, 1872; SAM F732, 18 cm and 13 cm height, Australia, South Australia, Gulf St Vincent, dredge, 22 January 1920.

**Diagnosis.** Dorsal-fin rays 14–17; subdorsal rings 2+1–2; tail rings 33–34; nose profile straight, small spine present; head and body spines small and blunt, proportionally small in largest specimen; most trunk ridges with low tubercles; upper shoulder-ring spine situated just below gill opening; lower shoulder-ring spine thick, knob-like, single or double with less developed secondary spine anteriorly; neck ridge short and distinctly raised above gill openings.

**Description.** Dorsal-fin rays 14–17; pectoral-fin rays 15–16; anal-fin rays 4; subdorsal rings 2+1–2; trunk rings 11; tail rings 33–34.

Spines or tubercles: subdorsal 3/0,1,0; head and body spines small and blunt, most trunk ridges with low tubercles; tubercles on males mainly on inferior trunk ridges and on tail along pouch region; nose spine small but distinct; spine above eye small, directed upward, lateral head spine moderately long; shoulder-ring spines variable from moderately developed, small uppermost spine just below gill-opening, central spine at level of last pectoral-fin ray, and the lowermost spine single or double, thick and knob-like when double, a less developed secondary spine anteriorly; neck ridge short and distinctly raised above gill opening.

HIPPOCAMPUS NOVÆ-HOLLANDIÆ.

Hip. Novæ Hollandiæ, *Sitzgsber, Ak. Wiss. Wien.*, 1866  
(Dr. Gunther)

————— *Gunther, Catal.*, vol. viii., p. 201.

Dorsal fins with seventeen rays ; the occipital coronet forms a little crown of five branches, leaving like a small crater between them.

The body is yellow, covered with small red spots ; dorsal fin with a longitudinal brown narrow band ; the rays marbled brown and white ; back generally more or less marbled with brown.

HIPPOCAMPUS TRISTIS.

Same form as the preceding, but the tail shorter ; dorsal fin with fourteen rays ; the shields of the body covered with transverse stripes ; the anterior abdominal crest of the body divided in points generally bifid.

Dorsal fin with a narrow longitudinal brown band, and the rays marbled with the same colour. No filaments,

One specimen.



Figure 1 (above) *Hippocampus tristis*, holotype, MNHN A4537 (courtesy Sara Lourie, modified).



Figure 2 (top right) Description of original two specimens of *Hippocampus tristis* by Castelnau (1872).

Figure 3 (right) *Hippocampus tristis*, SAMA F732, two specimens, 18 cm & 13 cm high, from dredging in 1920 at Gulf St Vincent, South Australia (courtesy Ralph Foster).



**Figure 4.** *Hippocampus tristis*, underwater photograph at 2 m depth at St Leonards Pier, Victoria, Australia; about 12 cm high (courtesy Sally Watson).

Coronet: small and leaning back with diverging short spines on apex, posterior ones enlarged.

Largest specimen 18 cm high (Fig. 3).

**Color in life.** (Fig. 4) The original description reported one specimen as yellow covered with small red spots, adding that the other specimen had transverse stripes and a dorsal fin with a narrow brown band and marbling. The underwater photograph shows an all-yellow seahorse with faint darker transverse bands and fine white linear spotting on the head and radiating short white lines on the inner iris.

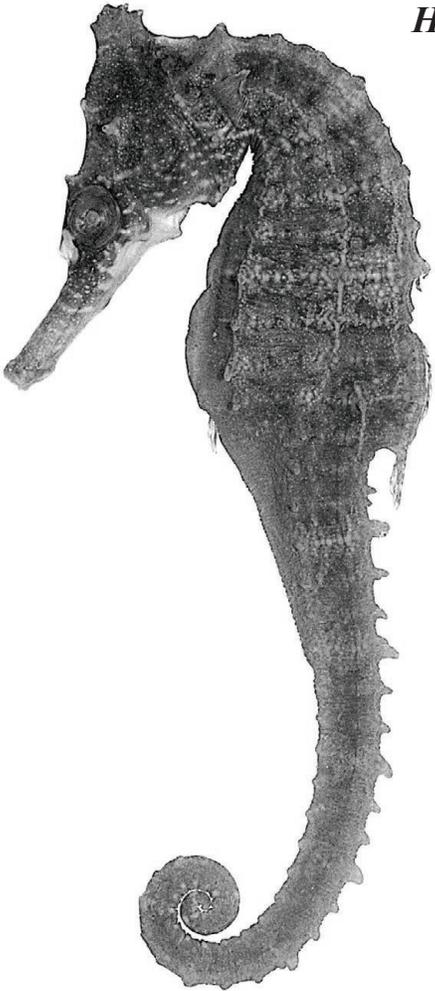
**Color in preservative.** (Figs. 1 & 2) Uniformly brownish without spots or dark markings.

**Distribution.** *Hippocampus tristis* is a temperate species, only known from the Australian south coast: the Bass-region near the heads of Port Phillip Bay, Victoria and the Gulf St Vincent, South Australia.

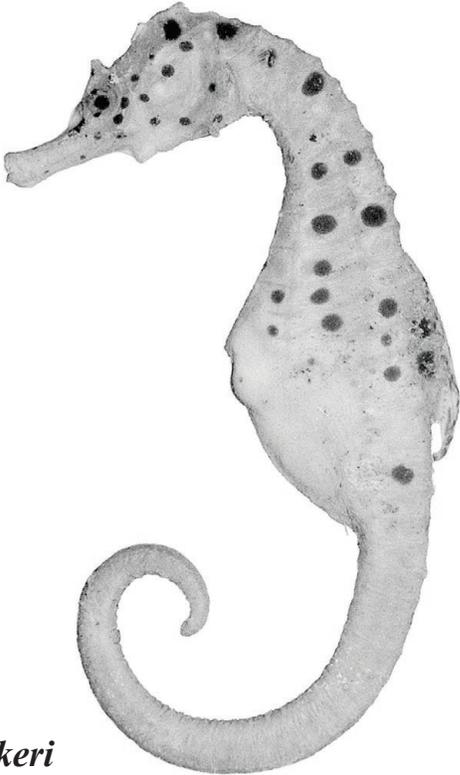
**Remarks.** *Hippocampus tristis* is now known from 5 individuals: the original two from Castelnau (1872), two from 1920 recently found in the South Australian Museum, and the underwater photograph from 2018 (Fig. 4). The photograph is certainly *H. tristis* based on the diagnostic spine details on the head: the simple low coronet, small nose-spine, small spine above eye, and shoulder-ring lower double spine (cheek-spine), that is clearly



*H. tristis*



*H. whitei*



*H. bleekeri*



*H. breviceps*

Figure 5. Profiles of South Australian *Hippocampus* spp. (R.H. Kuitert and *H. tristis* courtesy Sara Lourie, modified).

apparent in the larger specimen in Fig. 3 and on the live specimen. Corresponding to the original description, the body is yellow and the trunk has transverse bands, though faint (these bands may darken and be clearer when freshly dead). The fish was found at St. Leonards Pier in a small cave among rocks of a shallow reef. It is likely a stray from Bass Strait brought in by the notoriously strong tidal currents that occur in the heads region of Port Phillip Bay. As divers have not reported more individuals from Victorian and South Australian waters, and some specimens found in collections were from relatively deep dredges, *H. tristis* likely lives secretively in relatively deep water on rocky weed or sponge reefs. This is the case with many other reef fishes known from a single or a few specimens, among the seahorses: *Hippocampus jugumus* Kuitert, 2001; *Hippocampus minotaur* Gomon, 1997; *Hippocampus paradoxus* Foster & Gomon, 2010; and *Hippocampus zebra* Whitley, 1964.

Several prior works have incorrectly treated *H. tristis*. There is an undescribed similar seahorse from New South Wales and, until locating the two specimens of *H. tristis* in the South Australian Museum, Kuitert assumed that Castelnau's fish were probably imports of those from New South Wales. The undescribed east coast species was included in error in the treatment of *H. tristis* in the revision of Australian Seahorses by Kuitert (2001: 316–317). It was also illustrated in Kuitert (2003: 43) as *H. tristis* and in Kuitert (2009: 117) as *H. cf. tristis*. Lourie, Vincent & Hall (1999) incorrectly synonymized the temperate *H. tristis* with the tropical *Hippocampus kuda* Bleeker, 1852, type from Singapore.

The South Australian Museum specimens of *H. tristis* were registered as *Hippocampus novaehollandiae* Steindachner, 1866 or listed as *Hippocampus whitei* Bleeker, 1855, which has caused erroneous geographical distributions in prior publications (*H. novaehollandiae* is a junior synonym of *H. whitei*).

Günther (1870) referred in his description of *H. novaehollandiae* to a south coast specimen as a “very old specimen, South Australia. –In this example all the tubercles are very obtuse and rounded off.” His remarks on the tubercles suggests that this specimen is *H. tristis*, but the specimen is apparently lost.

**Comparisons.** Two other seahorse species co-occur with *H. tristis* in South Australia. *Hippocampus bleekeri* Fowler, 1907 is distinguished by having 13 (vs. 11) trunk rings, smooth ridges (vs. with tubercles), and a long-based dorsal fin with 27–30 soft rays (vs. 14–17). *Hippocampus breviceps* Peters, 1869 is distinguished by a stouter body, shorter snout, and smaller adult size (Fig. 5).

*H. whitei* is a similar-looking species, but not sympatric with *H. tristis*, occurring only in central New South Wales, Australia. It has a distinctive head profile and is readily distinguished by the shape of the more elevated coronet crowned with 5 small blunt spines (Fig. 5). Its body color varies from yellow to near black, but is usually dusky-brown, whilst the tubercles on trunk and tail ridges are more spine-like with sharp tips. It was described from a drawing in White (1790) of a seahorse from Sydney. All locality records of *H. whitei* other than from central New South Wales are based on misidentifications. To the north, in Queensland, it is replaced by its sibling *Hippocampus procerus* Kuitert, 2001. Records from the western Indian Ocean are based on unrelated local species: two specimens recorded as ‘*H. whitei*’, trawled near the Seychelles in 57 m depth, are *Hippocampus borboniensis* Duméril, 1870 (Kuitert 2003: 42, as *H. borboriensis* [sic]). The report of *H. whitei* from southern Africa by Smith & Heemstra (1986), i.e. ‘from Natal and southern Mozambique’, is based on a 60-mm specimen of *Hippocampus nataliensis* von Bonde, 1923 from Inhaca Island, Mozambique (misidentified as *H. novaehollandiae* in Smith [1963]).

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