



## A new seahorse (Teleostei: Syngnathidae: *Hippocampus*) from south-western Australia

RALPH FOSTER<sup>1</sup> & MARTIN F. GOMON<sup>2</sup>

<sup>1</sup>Ichthyology Section, South Australian Museum, Adelaide SA 5000, Australia. E-mail: ralph.foster@samuseum.sa.gov.au

<sup>2</sup>Ichthyology, Museum Victoria, GPO Box 666 Melbourne Vic 3001, Australia. E-mail: mgomon@museum.vic.gov.au

### Abstract

A new species of syngnathid fish, *Hippocampus paradoxus* **sp. nov.**, from mid-continental shelf waters of south-western Australia is described from the only known specimen. It can be distinguished from all congeners, including the very similar *H. minotaur* Gomon 1997, by the following features: the lack of a dorsal fin, a series of fleshy, fin-like lobes along the dorsal midline of the trunk and tail and an extremely robust cleithrum and prominent first nuchal plate. In addition to the traditional methods of syngnathid taxonomists, X-ray microtomography (CT scanning) was employed and demonstrated to be a valuable research tool for examining seahorse species that are problematic due to reduced ossification and small size. CT scanning is more capable of imaging poorly ossified and soft tissue regions than traditional radiography and provides a detailed three dimensional view of salient features.

**Key words:** *Hippocampus paradoxus*, new species, Syngnathidae, X-ray microtomography

### Introduction

During a search of the syngnathid holdings of the South Australian Museum (SAMA), an unregistered *Hippocampus* specimen having very unusual characters was discovered. The specimen is clearly similar to *Hippocampus minotaur* Gomon 1997, a small, mid-shelf species known only from several specimens collected in south-eastern Australia. That species is notable for its reduced dermal ossification and in having the lowest number of trunk rings and dorsal fin rays of any previously recognised species of *Hippocampus*. The new specimen is of particular interest as it came from comparable depths off south-western Australia – more than 2000 km west of the known distribution of *H. minotaur* – and, though very similar in general form to the south-eastern species, has some obvious differences. Detailed examination confirmed that although it has meristic and morphological traits previously considered unique to *H. minotaur*, clear distinctions do exist. Attempts to find additional specimens were unsuccessful. This paper provides a name and formal description of the species.

Because of the fleshy nature of the specimen, X-ray microtomography (CT scanning) was employed to examine its skeletal structure. This is a novel technique in seahorse taxonomy as far as we are aware, and the results clearly demonstrate the benefits of using the technique to examine pygmy species that have proven to be problematic using traditional methods.

### Methods

The following measurements and counts were made following Lourie (2003), as refined by Lourie & Randall (2003): HL, head length; TrL, trunk length; TaL, tail length; SnL, snout length; OD, orbital diameter; PO, post-orbital length; SnD, snout depth; HD, head depth; PL, length of pectoral fin base; SL, standard length = HL+TrL+TaL; TrR, number of trunk rings; TaR, number of tail rings; PF, number of pectoral fin rays; AF, number of anal fin rays; DF, number of dorsal fin rays.