



## Two new softnose skates of the genus *Brochiraja* (Rajoidei: Arhynchobatidae) from the deepwater slopes and banks of the Norfolk Ridge (South-West Pacific)

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### Abstract

Two new species of the softnose skate genus *Brochiraja* are described based on material collected from the Norfolk Ridge in the northern Tasman Sea (South-West Pacific). Most of this material was collected in 2003 by the New Zealand vessel, RV *Tangaroa*, during the NORFANZ voyage. These species extend the known range of the genus northward along the Norfolk Ridge, and along with *B. aenigma*, are the only other representatives of the genus found outside seas adjacent New Zealand. *Brochiraja heuresa* **sp. nov.** is known from the western Norfolk Ridge and the Wanganella Bank at 870–1350 m depth, whereas *B. vittacauda* **sp. nov.** is known from a smaller area of the western Norfolk Ridge at 629–973 m depth. These species differ from each other, and from other nominal members of the genus, in morphometrics, meristics, coloration and squamation.

**Key words:** Arhynchobatidae, skates, new species, *Brochiraja heuresa*, *Brochiraja vittacauda*, Wanganella Bank, Norfolk Ridge, Tasman Sea, South-West Pacific

### Introduction

Softnose skates of the genus *Brochiraja* (family Arhynchobatidae), which are known only from the Tasman Sea, South-West Pacific, are distinguished from all skates by the presence of a bifurcated rostral spine. The genus was erected by Last & McEachran (2006) and is presently based on six species: *Brochiraja asperula* (Garrick & Paul, 1974), *B. spinifera* (Garrick & Paul, 1974), *B. albilabiata* Last & McEachran, 2006, *B. aenigma* Last & McEachran, 2006, *B. leviveneta* Last & McEachran, 2006, and *B. microspinifera* Last & McEachran, 2006. All of these species, except one, are confined to the continental slope around New Zealand or the plateaus adjacent; *Brochiraja aenigma* is known from a single specimen taken from the Wanganella Bank, near the southern margin of the Norfolk Ridge.

In May–June 2003, a month long voyage of discovery to the northern Tasman Sea, known as the NORFANZ expedition, investigated the marine biodiversity of the ridges and sea mounts of the region. Most of the region had never been surveyed before and a historically important collection of fishes was obtained (Williams *et al.*, 2006). Unidentifiable skates of a then new genus (now *Brochiraja* Last & McEachran, 2006) were collected during the survey. These specimens have since been examined more fully as part of revisionary work on the fish fauna of New Zealand, soon to be published as a regional guide (Roberts *et al.*, in prep). The collection contains 19 specimens of two undescribed species and these new taxa are formally described and figured below.

### Methods

The descriptive format is based mainly on McEachran & Fechhelm (1982) and the methods follow Last *et al.*, 2008. The ‘snout angle’ was taken across the disc at the front of the spiracles (rather than the common alternative, from the front of the orbits). Data for the holotype and paratypes are given separately; also, data for males and