



## Review of records of sawfishes (Chondrichthyes: Pristidae) from Fiji, with deletion of *Pristis zijsron* Bleeker, 1851 and *Pristis* sp. from the fauna

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Sawfishes (Pristidae) are large shark-like batoids with a distinctive flattened, greatly elongated rostrum armed on each side with a row of large transverse teeth. Two genera and at least four species occur in the Indo-West Pacific, of which *Anoxypristis cuspidata* (Latham, 1794), *Pristis microdon* Latham, 1794 and *P. zijsron* Bleeker, 1851 have widespread distributions and *P. clavata* Garman, 1906 appears to be restricted to northern Australia (Compagno & Last, 1999; Last & Stevens, 2009; Phillips *et al.*, 2011). All sawfishes are threatened by over fishing and habitat loss, with range reductions and local extinctions reported for several species (Simpfendorfer, 2000; Monte-Luna *et al.*, 2007; Last & Stevens, 2009; Wueringer, *et al.* 2009; Phillips *et al.*, 2011). All Indo-Pacific sawfishes are assessed by the IUCN as Critically Endangered with decreasing population trends (IUCN Red List of Threatened Species, <http://www.iucnredlist.org/>, 10 Sep. 2011).

Sawfishes generally inhabit shallow inner shelf and coastal waters, as well as estuarine and freshwater habitats (Last & Stevens, 2009; Wueringer *et al.*, 2009). The eastern distributional limit of sawfishes in the tropical Western Central Pacific is generally considered to encompass the Philippine Islands, Papua New Guinea, Bougainville and the northeast coast of Australia (Compagno & Last, 1999; Powell & Powell, 1999; Last & Stevens, 2009). However, Seeto & Baldwin (2010) reported *P. zijsron* and *Pristis* sp. from Fiji based upon the provenance of specimens held in the ichthyology collections of the Australian Museum Sydney (AMS) and Melbourne Museum, Museum Victoria (NMV) respectively. This represents a 3000 km eastwards range extension for the family. Given their conservation status and lack of contemporary records of sawfishes from Fiji or elsewhere in Oceania (Ryan 1980; Boseto 2006; Rasalato *et al.* 2010; Polidoro *et al.* 2011; B. Carlson, R Thaman, J. Brunnschweiler, M. Neumann pers. comm.; J.S. pers. obs.) it is important to confirm the identity and provenance of these specimens. We report that information herein.

All Fijian sawfish material held by the AMS and NMV proved to be dried rostra. These were identified to species using diagnostic morphological characters described by Compagno & Last (1999), Thorburn *et al.* (2007) and Last & Stevens (2009). The authors' identifications of the NMV material were independently checked by N. Phillips, Murdoch University. Photographs and detailed measurements of this material are available from the senior author upon request. The AMS material was not measured in detail as it was only possible to examine photographs of the rostra. The measurements of rostral length and width reported here were made directly from a ruler included in the photographs for scale.

**Material examined:** *Pristis zijsron*: AMS IB.2315, photographs of two dried rostra, Fiji or New Guinea, coll. Gaze or Geach, 1949; (1) rostrum length (RL) c. 284 mm, width at last tooth (WB) c. 34 mm (8.35 in length), sides of rostrum almost parallel, spacing between posterior teeth noticeably wider than anterior teeth, posterior teeth conspicuously shorter than anterior teeth, tooth count 27/25; (2) RL 262 mm, WB 32 mm (8.19 in length), sides of rostrum almost parallel, spacing between posterior most teeth noticeably wider than anterior teeth, posterior teeth conspicuously shorter than anterior teeth, tooth count 26/27. *Pristis microdon*: NMV A15774, with native implements from Fiji I., coll. Mrs J. G. Howden, 24.8.1929: RL 381 mm, WB 68.7 mm (5.54 times in length), rostrum tapering noticeably towards tip, width at tip (WT) 29.83 mm (0.43 WB), tooth count 21/22, length of largest intact tooth 23.03 mm, groove on posterior edge of tooth extending into the rostrum. *Pristis clavata*: NMV A15810, three rostra, with native implements from Fiji I., Mrs J. G. Howden, 24.8.1929: (1) RL 165.3, WB 30.8 mm (5.37 in length), WT 17.6 mm (0.57 WB), tooth count 20/21, length of largest intact tooth 11.9 mm, posterior edge of teeth convex; (2) RL 223, WB 37.94 mm (5.88 in length), WT 20.95 mm (0.55 WB), tooth count 21/22, length of largest intact tooth 20.09 mm, shallow groove on posterior edge of tooth; (3)

RL 231.22, WB 39.7 mm (5.82 in length), WT 20.56 mm (0.52 WB), tooth count 22/23, length of largest intact tooth 19.19 mm, posterior edge of teeth convex.

**Remarks.** Although the collection data associated with NMV A15774 and A15810 indicates that these rostra originated from Fiji, further investigation revealed they formed part of a mixed purchase that included a club and a basket from Fiji, two carvings from New Guinea, and spear throwers, throwing sticks and ceremonial objects from Australia (D. Bray pers. comm.). The provenance of these specimens is therefore unknown, although as noted above *P. clavata* is considered to be endemic to northern Australia. *Pristis microdon* occurs in New Guinea and Australia (Last & Stevens, 2009).

As it is not possible to determine the provenance of any of the material examined there is no physical evidence of the occurrence of sawfishes in Fijian waters. Furthermore putative linguistic evidence for their occurrence in Fiji is also doubtful. Capell (1973, p. 180) gave *saku-laya* as the Fijian name for “the saw-fish proper.” However Blust’s (1980, pp. 140, 389) reconstruction of this name suggests that it actually applies to the sailfish (*Istiophorus platypterus*), and Capell’s (1973) definition of *saku* as “a sword-fish, *Makaira* spp.,” with *saku-laya* listed as a “kind” is consistent with that interpretation. Morgan (1999) gives the Fijian name for the sailfish as *sa'u laca*.

The occurrence of sawfishes at oceanic islands has been questioned by some authors (e.g. Monte-Luna *et al.*, 2007); however sawfish were occasionally landed at Nabukalou Creek, central Suva, during the early to mid 1960s (JS pers. obs.). Unfortunately, the species of sawfish and their capture locations are unknown.

Bull sharks (*Carcharhinus leucas*) frequently utilise the same coastal habitats as sawfishes. The fact that both Whitley (1927) and Fowler (1959) recorded *C. leucas* from Fiji but not sawfishes, suggests that if they occurred in Fiji sawfishes were either rare, or present only as vagrants. If the latter of these scenarios was the case, then depletion and range contraction of western source populations could explain the lack of contemporary records. Confirmation of the species of sawfish occurring in Fiji must await the capture and examination of new specimens, or the discovery of historic photographs and/or additional museum specimens. Until this occurs, *Pristis zijsron* should be deleted from the fauna. Reference to *Pristis* sp. from Fiji should also be avoided as it is possible that *Anoxypristis* could straggle to Fiji. Two other shark-like batoids, *Glaucostegus typus* (Rhinobatidae) and *Rhynchobatus* sp. (Rhynchobatidae, as *R. djiddensis*, see Compagno & Last, 2008, p. 230), are recorded from Fiji, with *Rhynchobatus* sp. recorded as far east as Western Samoa (Wass, 1984; Compagno & Last, 2008; Seeto & Baldwin, 2010). The status of these species in Oceania is also very poorly known.

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