

Threatened fishes of the world: *Pristis microdon* Latham 1794 (Pristidae)

Dean C. Thorburn & David L. Morgan

Centre for Fish and Fisheries Research, Murdoch University, South St Murdoch, Western Australia 6150
(email: thorburn@murdoch.edu.au; d.morgan@murdoch.edu.au)

Common names: Freshwater sawfish, Leichhardt's sawfish, smalltooth sawfish. **Conservation status:** Endangered (IUCN Red List 2003), vulnerable (Australian Environment Protection and Biodiversity Conservation Act 1999). **Identification:** Distinguished by first dorsal fin being considerably anterior to pelvic fins, caudal fin has a conspicuous ventral lobe (Compagno & Last 1998). Reputed to attain 700 cm TL. Rostral saw broad with 14–23 teeth on each side (17–23 teeth in Australian waters), but differs between sexes (17–21 for females and 19–23 for males in northern Australia) (Ishihara et al. 1991, Thorburn & Morgan et al. 2004a). Uncertainty exists to whether *P. microdon* should be synonymised with *Pristis perotteti* and *Pristis zephyreus* from the Atlantic and eastern Pacific (Compagno & Last 1998), however, Ishihara et al. (1991) demonstrated a significant difference in rostral teeth counts between *P. microdon* and *P. perotteti*, e.g. 17–21 teeth in Australian female *P. microdon* cf. 14–17 in female *P. perotteti*. Similarly, male *P. perotteti* have 16–20 teeth cf. 19–23 in male *P. microdon*. **Distribution:** Tropical waters of Indo-West Pacific, including northern Australia, New Guinea, South-east Asia, India and eastern Africa, but also includes the Americas and western Africa if synonymised with *P. perotteti* and *P. zephyreus*. **Abundance:** Sawfish populations have been decimated from gill net and trawl fisheries (Simpfendorfer 2000). Current rates of decline for *P. microdon* are unsustainable and it faces extirpation from many parts of its range. Northern Australia may soon represent the only geographical region where populations persist (Pogonoski et al. 2002). **Habitat and ecology:** Often considered to occur purely in inland waters, including estuaries (Last & Stevens 1994), with only recent reports from marine waters in Australia (Thorburn et al. 2004b). It has been recorded over 400 km from the coast in the Fitzroy River (Western Australia) (Morgan et al. 2004). Tanaka (1991) reports that growth of this species is slow (18 cm in first year and 10 cm in the tenth), with 247 and 361 cm TL specimens estimated to be 16 and 44 years of age, respectively. This is in contrast with the findings of Wilson (1999) who reports that young are born at 50 cm and an individual grew from 60 to 260 cm in three years, while Thorburn et al. 2004a, based on annuli present on vertebral centra collected from individuals from the Fitzroy River, Western Australia, estimated that those measuring 1000 mm TL were ~ 1 year old, between 1400–1600 mm TL were ~ 2 years old, and between 1800–2200 mm TL were ~ 3 years old. **Reproduction:** Thought to breed in freshwater (Tanaka 1991; Compagno & Last 1998; Wilson 1999), however the only reports of mature animals are from a 360 cm TL mature male from the Oriomo River mouth (New Guinea) (Tanaka 1991) and one mature 300 cm TL male off the northern Pilbara coast (Western Australia), hundreds of kilometres south of the nearest riverine population (Fitzroy River) (Thorburn et al. 2004b). Thirty five of 36 *P. microdon* captured in Tanaka's (1991) study from northern Australian and New Guinean fresh and estuarine waters were immature. Similarly, all 30 males (80–230 cm) captured during a study of the Fitzroy River were immature (Thorburn et al. 2004a). It is suggested that rivers may act as nursery grounds. Maturity attained at lengths greater than 240 m (Compagno & Last 1998, Thorburn & Morgan unpubl. data). **Threats:** Commercial and recreational fisheries and habitat degradation of rivers. Rostral teeth make them extremely vulnerable to nets of all mesh sizes. While protected in Australian



- Compagno, L.J.V. & P.R. Last. 1998. Order Pristiformes Pristidae sawfishes. pp. 1410-1417. In: K.E. Carpenter & V.H. Niem (ed.) FAO Species Identification Guide for Fisheries Purposes. The Living Marine Resources of the Western Central Pacific. Vol. 3. Batoid fishes, chimaeras and bony fishes part 1 (Elopidae to Linophrynidae). FAO, Rome.
- Ishihara, H., T. Taniuchi & M. Shimizu. 1991. Sexual dimorphism in number of rostral teeth in the sawfish, *Pristis microdon* collected from Australia and Papua New Guinea. University Museum, University of Tokyo, Nature and Culture 3: 83–89.
- Last, P.R. & J.D. Stevens. 1994. Sharks and Rays of Australia. CSIRO Division of Fisheries, CSIRO, Australia. 513 pp.
- Morgan, D.L., M.G. Allen, P. Bedford & M. Horstman. 2004. Fish fauna of the Fitzroy River in the Kimberley region of Western Australia - including the Bunuba, Gooniyandi, Ngarinyin, Nyikina and Walmajarri Aboriginal names. Rec. West. Aust. Mus. 22:147–161.
- Pogonoski, J.J., D.A. Pollard & J.R. Paxton. 2002. Conservation overview and action plan for Australian threatened and potentially threatened marine and estuarine fishes. Environment Australia, Canberra. 375 pp.
- Simpfendorfer, C.A. 2000. Predicting population recovery rates for endangered western Atlantic sawfishes using demographic analysis. Env. Biol. Fish. 58: 371–377.

Commonwealth Waters, which incorporate marine waters beyond three nautical miles from the low water mark, it is not protected in nearshore waters or rivers inside this limit. **Conservation recommendations:** Urgent assessment of populations in marine, estuarine and riverine waters of northern Australia. Australian State and Territory Governments should protect *P. microdon* in waters that fall under their jurisdiction.

-
- Tanaka, S. 1991. Age estimation of freshwater sawfish and sharks in northern Australia and Papua New Guinea. University Museum, University of Tokyo, Nature and Culture 3: 71–82.
- Thorburn, D.C., D.L. Morgan, A.J. Rowland & H.S. Gill. 2004b. Elasmobranchs in the Fitzroy River, Western Australia. Report to the Natural Heritage Trust. 29 pp.
- Thorburn, D., D. Morgan, H. Gill, M. Johnson, H. Wallace-Smith, T. Vigilante, A. Gorrington, I. Croft & J. Fenton 2004a. Biology and cultural significance of the freshwater sawfish (*Pristis microdon*) in the Fitzroy River, Kimberley, Western Australia. 57 pp.
- Wilson, D. 1999. Freshwater sawfish *Pristis microdon*. Australia New Guinea Fishes Associations' A–Z notebook of native freshwater fish. ANGFA Bulletin 41. Not paginated.