

Photographic evidence of Freshwater
whipray *Urogymnus dalyensis*
(Myliobatiformes: Dasyatidae) in
Indonesian waters

By Yuanita Windusari

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Abstract

On 24 December 2017, an individual of *Urogymnus dalyensis* (c. 90-110 cm) was caught and photographed from Lampu Satu beach, Merauke, Indonesia. Lampu Satu beach is an estuarine habitat on sandy substrate surrounded by settlement with mainly coconut trees, and approximately 5 km of Maro river (a muddy substrate surrounded by mangrove vegetation). This finding constitutes the first record of *Urogymnus dalyensis* for Indonesia.

² **Key words:** First record; Dasyatidae; *Urogymnus dalyensis*; West Papua; Merauke; estuarine.

Introduction

The Stingrays (family Dasyatidae) are small to massive rays (adult disc width from 23 cm to at least 220 cm), with the largest estimated to weigh up to 600 kg, making them amongs ⁶ the largest of all fishes (Last et al., 2016a). Members of the family are found in fresh, brackish, and also marine (con ¹¹ tinal and insular shelves and uppermost slopes; one species oceanic) waters, and are known from the Atlantic (including Mediterranean Sea), Indian and Pacific oceans (Nelson et al., 2016). Stingray taxonomy is made difficult by the similarity in appearance between many species, and also because they are often poorly represented in museum collections due to their large size (Last and Compagno, 1999; Last et al., 2016a).

There are up to 52 species of stingrays of the family Dasyatidae that are known to enter or to live permanently in freshwaters in the Indo-Pacific region (Last and Stevens, 1994; Last ⁸ al., 2016b; White et al. 2017). One of them is the giant freshwater whipray *Urogymnus dalyensis*. This species was previously described as *Himantura chaophraya* (Monkolprasit & Roberts, 1990; Last & Stevens, 1994). Specimens from Australia and Papua New Guinea were then split to become *Himantura dalyensis* (Last and Manjaji-Matsumoto, 2008). More recent r ⁵ sions have been made within the Dasyatidae family, and the species is now called *Urogymnus dalyensis* (Last et al. 2016a; Last et al., 2016b; Froese & Pauly 2018).

The presence of a single individual of *Urogymnus dalyensis* based photographic evidences, as described in this paper, is the first known record of this species from Indonesian waters.

Materials and Methods

On 24 December 2017, a single large dasytid ray was caught and photographed by local people (Fig. 1-2) at Lampu Satu beach (08°30'47.81"S, 140°22'18.71"E), Merauke district, Papua province, Indonesia (Fig. 3). Lampu Satu beach is an estuarine habitat on sandy substrate surrounded by settlement and mainly coconut trees. This site is 5 km east of the mouth of the Maro River (largest river in Merauke district). The mouth of Maro river is muddy substrate surrounded by mangrove vegetation.

This large dasytid ray was estimated from photographs to have a disc width of between 90 and 110 cm. Unfortunately the specimen was not preserved, nor detailed morphometric measurements or meristic counts taken. Identification is therefore based on the features that are visible in the photographs.

The ray was immediately determined as *Urogymnus dalyensis* by combination of major features and its distributional range.



Figure 1. The specimen of *Urogymnus dalyensis* caught on 24 December 2017 at Lampu Satu beach, Merauke district, Papua province, Indonesia (Photo: Lham Jr).

Results and Discussion

The fish was initially identified as *Urogymnus dalyensis* using the following specific characteristics: large body; dorsal surface yellowish brown; plain coloured whipray with oval to subcircular disc with an enlarged triangular apical lobe and tail whip-like without skin folds (as per description by Last and Manjaji-Matsumoto (2008), Last et al. (2016a) and White et al. (2017)) (see Fig. 1-2).

The species is distinguished from other *Urogymnus* species (*Urogymnus acanthobothrium*, *U. asperrimus*, *U. granulatus* and *U. lobistoma*) which occur in Australia and Papuan waters by its disc pattern (Last and Stevens, 1994; Last and Manjaji-Matsumoto, 2008; Last et al., 2016a; Last et al., 2016c; White et al., 2017). Our preliminary identification as *Urogymnus dalyensis* was confirmed by Dr. William White and

Dr. Mabel Manjaji-Matsumoto, the leading expert for dasyatids of the Indo-Pacific region (Pers. Comm. via Muhammad Iqbal). *U. polylepis* is the only similar species to *U. dalyensis* (Last et al., 2016b). The main characters of the upper surface to distinguish *U. dalyensis* from *U. polylepis* are the proportion of the tail length (1.9–2.2 vs. 2.8–3.1), and the size of the mid-shoulder denticles (2–4 greatly enlarged denticles vs 1–6 small or inconspicuous). Unfortunately these characters are not clear in the photographs. However, *U. dalyensis* has a combination of yellowish brown dorsal surface, and length of orbit and spiracle 2.6–3.2 in snout length (Fig. 1-2); vs greyish or brownish dorsal surface, and length of orbit and spiracle 3.3–4.4 in snout length (Last et al. 2016b).



Figure 2. Another side of *Urogymnus dalyensis* caught on 24 December 2017 at Lampu Satu beach, Merauke district, Papua province, Indonesia (Photo: Lham Jr).

Urogymnus dalyensis is typically found in the estuarine and freshwater environments of northern Australia, although it may also occur in the Fly River Basin of Papua New Guinea (Last and Stevens, 1994; Last and Manjaji-Matsumoto, 2008; White et al., 2017). Range has not been fully mapped, and it has been suggested that this species may occur in most large tropical rivers of northern Australia (Last and Stevens, 1994; Kyne, 2016).

The record of *U. dalyensis* in Indonesian waters provides additional information that extends the known distribution of this large whipray, although this extension is not that surprising, since it is from about 75 km from Papua New Guinean waters territory, and about 150–200 km from the Fly River of Papua New Guinea (closest area previously known to have *U. dalyensis*). The absence of previous records of *U. dalyensis* from Indonesian Papua waters is likely to be a lack of local experts to identify and document stingray records. Recent studies show a few species of stingray in Indonesian waters that are present locally but which have been overlooked previously (e.g. Iqbal and Yustian, 2016; Iqbal et al., 2017; Iqbal et al., 2018; Windusari et al., 2019). Genetic samples of *U. dalyensis* from Indonesian Papua would be useful to compare relationships between this Indonesian population, and other known populations from Papua New Guinea and Australian waters (William White Pers. Comm).

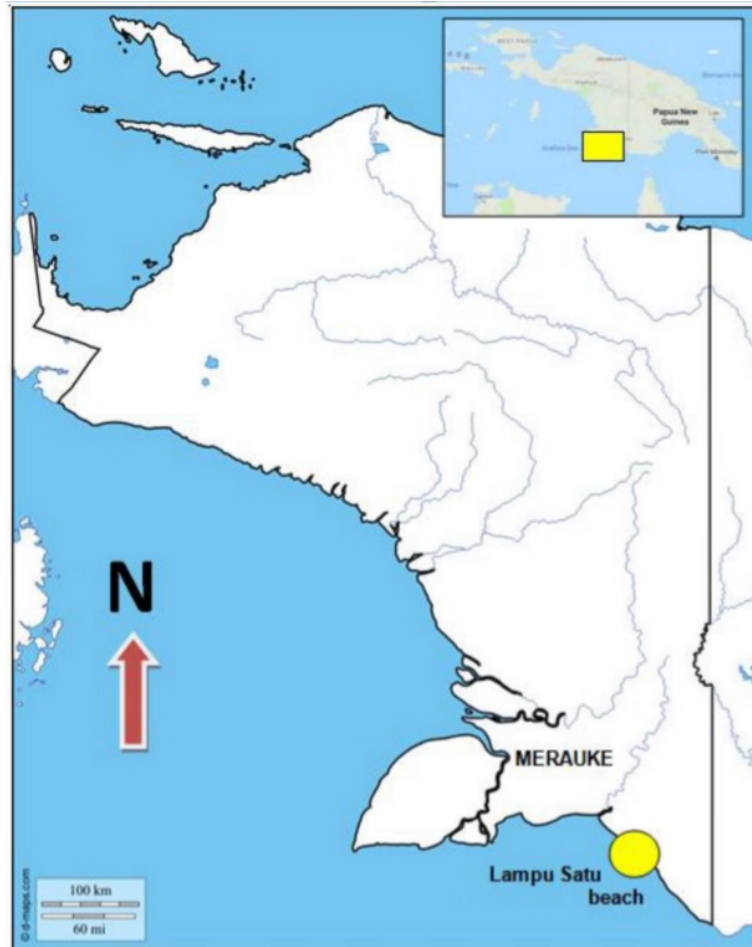


Figure 3. Map showing location of *Urogymnus dalyensis* (yellow circle) in Lampu Satu beach, Merauke district, Papua province, Indonesia.

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References

- Froese, R. & Pauly, D. (eds). (2017) *Urogymnus dalyensis* (Last & Manjaji-Matsumoto, 2008). <https://www.fishbase.de/summary/Urogymnus-dalyensis> [accessed 20/June/2018].
- Iqbal, M. & Yustian, I. (2016) Occurrence of the giant freshwater stingray *Urogymnus polylepis* in Sumatra, Indonesia (Chondrichthyes: Dasyatidae). *Ichthyological Exploration of Freshwaters*, 27(4), 333-336.
- Iqbal, M., Setiawan, D. & Ajiman. (2017) Presence of *Fluvitrygon oxyrhynchus* in Sumatra, Indonesia (Chondrichthyes: Dasyatidae). *Ichthyological Exploration of Freshwaters*, 28, 85–87.

- Iqbal, M., Setiawan, D. & Ajiman. (2018) New data on the distribution of the endangered white-edge freshwater whipray *Fluvitrygon signifer* (Chondrichthyes: Dasyatidae). *Ichthyological Exploration of Freshwaters*, 28(2), 171-176.
- Kyne, P.M. (2016) *Urogymnus dalyensis*. The IUCN Red List of Threatened Species 2016: e.T195319A104250402. <http://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T195319A104250402.en> [accessed 20/June/2018].
- Last, P.R. & Compagno, L.J.V. (1999) Dasyatidae (Stingrays) In: Carpenter K.E. & Niem V. (Eds.), *FAO species identification guide for fishery purposes. The living marine resources of the Western Central Pacific. Volume 3. Batoid fishes, chimaeras and bony fishes part 1 (Elopidae to Linophrynidae)*. FAO, Rome. pp. 1479-1510.
- Last, P.R. & Manjaji-matsumoto, B.M. (2008) *Himantura dalyensis* sp. nov., a new estuarine whipray (Myliobatoidei: Dasyatidae) from northern Australia. In: Last, P.R., White, W.T. & Pogonoski, J.J. (Eds.), *Descriptions of new Australian Chondrichthyan*. CSIRO Marine and Atmospheric Research, Hobart. pp. 283-291.
- Last, P.R., Naylor, G.J.P. & Manjaji-matsumoto, B.M. (2016a) A revised classification of the family Dasyatidae (Chondrichthyes: Myliobatiformes) based on new morphological and molecular insights. *Zootaxa*, 4139, 345-368.
- Last, P.R. & Stevens, J.D. (1994) *Sharks and rays of Australia*. CSIRO, Australia. 513 pp + 84 pls.
- Last, P.R., Manjaji-matsumoto, B.M., Naylor, G.J.P. & White, W.T. (2016b) Stingrays (Family Dasyatidae) In: Last P.R., William W.T., de Carvalho M.R., Séret B., Stehmann M.F.W. & Naylor G.J.P. (Eds.), *Rays of the world*. Cornell University Press, Ithaca. pp. 521-618.
- Last, P.R., White, W.T. & Kyne, P.M. (2016c). *Urogymnus acanthobothrium* sp. nov., a new euryhaline whipray (Myliobatiformes: Dasyatidae) from Australia and Papua New Guinea. *Zootaxa*, 4147(2), 162-176.
- Monkolprasit, S. & Roberts, T.R. (1990) *Himantura chaophyraya*, a new giant freshwater stingray from Thailand. *Japanese Journal of Ichthyology*, 37(3), 203-208.
- Nelson, J.S., Terry, C., Grande, T.C. & Wilson, M.V.H. (2016) *Fishes of the World*. 5th Edit., John Wiley & Sons, Hoboken. 752 pp.
- White, W.T., Baje, L., Sabub, B., Appleyard, S.A., Pogonoski, J.J. & Mana, R.R. (2017) *Sharks and rays of Papua New Guinea*. Australian Centre for International Agricultural Research, Canberra. 327 pp.
- Windusari, Y., M. Iqbal, L. Hanum, H. Zulkifli & Yustian, I. 2019. Contemporary distribution records of the giant freshwater stingray *Urogymnus polylepis* in Borneo (Chondrichthyes: Dasyatidae). *Ichthyological Exploration of Freshwaters* (in press).

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