

## Filling a gap on the blank distribution of the giant freshwater stingray *Urogymnus polylepis*: first records in Malay Peninsula (Chondrichthyes: Dasyatidae)

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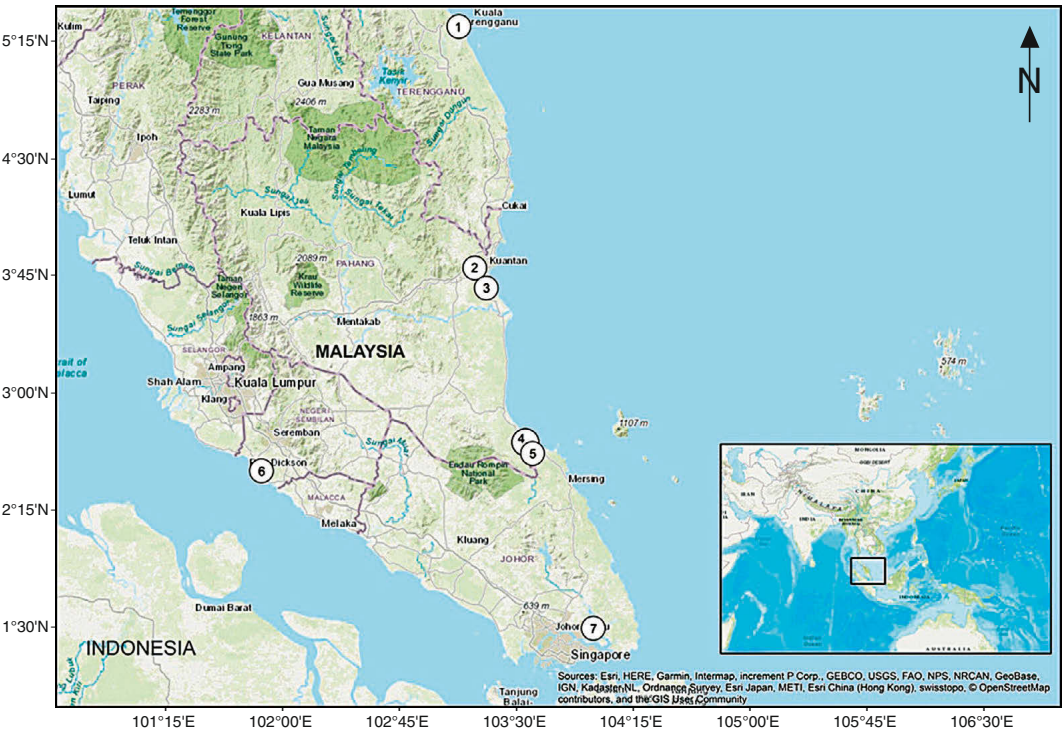
Only a small proportion of stingrays (Dasyatidae) occurs in freshwater, and includes obligate freshwater species and euryhaline species (Last et al., 2016a). The giant freshwater stingray *Urogymnus polylepis* belongs to a group of species found mainly in fresh and brackish water and is characterized by a large body size, reportedly attaining more than 600 kg and 2 m disc diameter (Monkolprasit & Roberts, 1990; Kottelat et al., 1993). Recently, a total of 97 species of Dasyatidae has been confirmed worldwide (Pollerspöck & Straube, 2019), including at least 10 species which are known to enter or live permanently in freshwater habitats of Southeast Asia [*Fluvitrygon kittipongi*, *F. oxyrhynchus*, *F. signifer*, *Hemitrygon laosensis*, *Himantura uarnak*, *Makararaja chindwinensis*, *Urogymnus granulatus*, *U. polylepis*, *Pastinachus ater*, and *P. solocirostris*] (Kottelat, 2013; Last et al., 2016a).

*Urogymnus polylepis* was first reported from freshwaters in 1990 from the Chao Phraya River in Thailand as *Himantura chaophraya* (Monkolprasit & Roberts, 1990). Information on the distribution of dasyatids is very limited in Southeast Asia, particularly for those species entering or occurring in freshwater (Last et al., 2016a). For example,

*Fluvitrygon oxyrhynchus* and *F. signifer* were only known from five or fewer major riverine systems (Compagno, 2016a–b; Last et al., 2016a), though recent surveys yielded a single record of *F. oxyrhynchus* and ten records of *F. signifier* in the Musi drainage, South Sumatra, indicating that both species are more widely distributed than previously expected (Iqbal et al., 2017, 2018). In addition, although the records of *Urogymnus polylepis* has increased (Iqbal & Yustian, 2016; Last et al., 2016a; Windusari et al., 2018), information on this species is still lacking in some regions. In this paper, we compiled records of occurrence of *Urogymnus polylepis* across the Malay Peninsula between 2012 and 2019. Doing so allowed us to analyze recent changes to the known distribution range of this species. The records were compiled from the Internet and local social media (mainly a few Facebook groups of local anglers); records were supported by photographs or other evidence (e.g. location, habitat type, morphology, and description from fishermen). We screened all records for authenticity and correct species identification, so that unconfirmed or ambiguous records were rejected. However, given that specimens were not directly examined, and that the Malay Peninsula is known

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**Fig. 1.** Records of *Urogymnus cf. polylepis* in Malay Peninsula between 2012 and 2019. Numbers correspond to those in Table 1 (see table for detailed localities and remarks).

for harbouring cryptic diversity in its biogeographically isolated valleys and basins, we chose to refer to the species as *Urogymnus cf. polylepis*.

Specimens of *Urogymnus cf. polylepis* were recorded at seven localities of Malay Peninsula

(Fig. 1). The identification of this species was based on the combination of a relatively large size and the following morphological characters: snout very broad with enlarged narrow apical lobe; disc slightly longer than wide, coloration

**Table 1.** Records of *Urogymnus cf. polylepis* between 2012 and 2019 in Malay Peninsula waters. Records are listed from north to south. Numbers refer to localities in Figure 1.

No	Site	Coordinates	Date	Remarks	Source
1	Merang, Terengganu, Malaysia	05°32'03"N 102°56'35"E	23 Jul 2013	ca. 300 kg	Ayahchik Penarik, facebook account (Fig. 3)
2	Tanjung Pahang, Kuantan, Malaysia	03°45'48"N 103°13'12"E	9 Mar 2019	ca. 200 kg	Profishganda (2019)
3	Tanjung Pahang, Kuantan, Malaysia	03°48'45"N 103°19'32"E	11 Jun 2012	41 kg	Muhammad Amilin Roslan, facebook account (Fig. 2).
4	Kuala Rompin, Pahang, Malaysia	02°49'09"N 103°29'03"E	16 Aug 2017	250 kg	Anonymous (2017)
5	Kuala Rompin, Pahang, Malaysia	02°49'09"N 103°29'03"E	24 Feb 2014	ca. 100 kg	Nabila (2014)
6	Kuala Lukut, Port Dikson, Malaysia	02°34'46"N 101°47'18"E	19 Nov 2017	120 kg	Zakaria (2017)
7	Kampung Johor Lama, Johor, Malaysia	01°34'51"N 104°00' 57"E	3 Jul 2015	150 kg	Anonymous (2015)



**Fig. 2.** *Urogymnus cf. polylepis* caught by local fishermen on 11 Jun 2012 in Tanjung Pahang, Kuantan, Malaysia (photograph by Muhammad Amilin Roslan).



**Fig. 3.** *Urogymnus cf. polylepis* caught by local fishermen on 23 July 2013 in Klang, Selangor, Malay Peninsula (photograph by Ayahchik Penarik).

of dorsal surface of disc uniformly brownish or greyish brown (Fig. 2), and ventral surface with a broad black marginal band around the disk (Fig. 3) [Monkolprasit & Roberts, 1990; Iqbal & Yustian, 2016; Last et al., 2016a; Windusari et al., 2018]. Details of sites, coordinates, dates and other remarks are provided in Figure 1 and Table 1.

*Urogymnus cf. polylepis* was recorded in the Malay Peninsula from Merang (Terengganu) in the north to Kampung Johor (Johor) in the southern part of Peninsula (Table 1). Records of individual weights ranged from 41 to 300 kg. Unfortunately, information on total length and disc width are unavailable, as in most instances measurements were not taken by fishermen, who frequently remove the tails of these rays to avoid the caudal sting. *Urogymnus cf. polylepis* reaches at least 2 m disc width and 5 m in total length, and can possibly grow larger according to reports from the Mekong and Chao Phraya Rivers of individuals weighing 500–600 kg (Monkolprasit & Roberts, 1990; Last et al., 2016a).

To date, there have been no reports of *Urogymnus cf. polylepis* occurring in the Malay Peninsula (Last et al., 2016b; Vidthayanon et al., 2016) and due to this, the known distribution range of this species is patchy throughout mainland Southeast Asia and the Greater Sunda Islands (Sumatra, Borneo and Java). However, new records between 2012 and 2019 presented herein fill such gap within the geographic distribution of *Urogymnus cf. polylepis*.

Iqbal & Yustian (2016) observed young stingrays occurring in waters surrounding the Malay Peninsula and recorded the lowest weight of one

individual from the Riau Province (Sumatra) at 32 kg. It is suggested that young stingrays weigh between 32 to 41 kg. We herein report the occurrence of a very young stingray weighing 41 kg from the Malay Peninsula which supports the findings of Vidthayanon et al. (2016). These authors reported large numbers of pregnant females occurring in brackish waters suggesting the potential for estuarine habitats to be used as pupping grounds. Continued monitoring via citizen science methods is urgently required to help understand the ecology of this species and for future conservation. Moreover, it is recommended that future research focuses on the movement behaviour of *Urogymnus cf. polylepis* between river systems.

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### Literature cited

Anonymous. 2015. [Fisherman caught giant stingrays in Hohor]. [in Malay]. Available from <https://www.mstar.com.my/lokal/semasa/2015/07/03/pari-gergasi/#OK5toEgmh0oX1i0K.99> (accessed 11 February 2019).

- 2017. [Uproar appeared 'giant stingray' 250 kg, fishermen sold RM700]. [in Malay]. Available from <https://www.projekmm.com/news/berita/2017/08/16/gempar-muncul-pari-hantu-250kg-nelayan-jualrm700/1443817#sthash.nmJ2b8RH.gbpl#quFYzJXFVhfcJ4KK.97> (accessed 11 February 2019).
- Compagno, L. J. V. 2016a. *Fluvitrygon oxyrhyncha*. The IUCN red list of threatened species 2016: e.T44185A104180982. Available from <http://www.iucnredlist.org/details/44185/0> (accessed 16 April 2018).
- 2016b. *Fluvitrygon signifer*. The IUCN red list of threatened species 2016: e.T39411A104182090. Available from <https://www.iucnredlist.org/species/39411/104182090> (accessed 16 April 2018).
- Iqbal, M. & I. Yustian. 2016. Occurrence of the giant freshwater stingray *Urogymnus polylepis* in Sumatra, Indonesia (Chondrichthyes: Dasyatidae). *Ichthyological Exploration of Freshwaters*, 27: 333–336.
- Iqbal, M., D. Setiawan & Ajiman. 2017. Presence of *Fluvitrygon oxyrhynchus* in Sumatra, Indonesia (Chondrichthyes: Dasyatidae). *Ichthyological Exploration of Freshwaters*, 28: 83–85.
- Iqbal, M., D. Setiawan & Ajiman. 2018. New data on the distribution of the endangered white-edge freshwater whipray *Fluvitrygon signifer* (Chondrichthyes: Dasyatidae). *Ichthyological Exploration of Freshwaters*, 28: 171–176.
- Kottelat, M. 2013. The fishes of inland waters of South-east Asia: a catalogue and core bibliography of the fishes known to occur in freshwaters, mangroves and estuaries. *Raffles Bulletin of Zoology, Supplement*, 27: 1–663.
- Kottelat, M., A. J. Whitten, S. N. Kartikasari & S. Wirjoatmodjo. 1993. *Freshwater fishes of western Indonesia and Sulawesi*. Periplus Editions, Hong Kong, 259 pp., 84 pls.
- Last, P. R., T. W. William, M. R. de Carvalho, B. Séret, M. F. W. Stehmann & G. J. P. Naylor. 2016a. Rays of the world. Cornell University Press, Ithaca, viii + 790 pp.
- Last, P. R., G. J. P. Naylor & B. M. Manjaji-Matsumoto. 2016b. A revised classification of the family Dasyatidae (Chondrichthyes: Myliobatiformes) based on new morphological and molecular insights. *Zootaxa*, 4139: 345–368.
- Monkolprasit, S. & T. R. Roberts. 1990. *Himantura chaophraya*, a new giant freshwater stingray from Thailand. *Japanese Journal of Ichthyology*, 37: 203–208.
- Nabila, N. 2014. [Giant stingray]. [in Malay]. Available from <https://web.facebook.com/photo.php?fbid=1403002349959642&set=a.1402993853293825&type=3&theater> (accessed 11 February 2019).
- Pollerspöck, J. & N. Straube. 2019. Shark-references.com Version 2019. Available from <https://www.shark-references.com> (accessed 20 March 2019).
- Profishganda. 2019. [Use crane to lifting giant stingray]. [in Malay]. Available from <https://web.facebook.com/watch/?v=1091738304331816> (accessed 2 April 2019).
- Vidthayanon, C., I. Baird & Z. Hogan. 2016. *Urogymnus polylepis*. The IUCN Red List of Threatened Species 2016: e.T195320A104292419. (accessed 16 April 2018).
- Windusari, Y., M. Iqbal, L. Hanum, H. Zulkifli & I. Yustian. 2018. Contemporary distribution records of the giant freshwater stingray *Urogymnus polylepis* in Borneo (Chondrichthyes: Dasyatidae). *Ichthyological Exploration of Freshwaters* (in press).
- Zakaria, M. D. 2017. [Lucky fishermen got giant stingray]. [in Malay]. Available from <https://www.hmetro.com.my/utama/2017/11/285333/rezeki-pari-gergasi> (accessed 11 February 2019).

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