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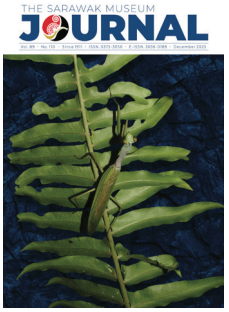

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NEW RECORD OF THE PORCUPINE WHIPRAY, *UROGYMNUS ASPERRIMUS* (BLOCH & SCHNEIDER, 1801) (DASYATIDAE) IN LAYANG LAYANG ISLAND, MALAYSIA

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ABSTRACT

The Porcupine Whipray (*Urogymnus asperrimus*), an elasmobranch classified as Endangered on The International Union for Conservation of Nature Red List of Threatened Species (IUCN), is highly vulnerable to population decline due to its slow reproductive rate and susceptibility to overexploitation. It is easily recognized by the dense covering of large, spiny thorns across its dorsal surface, and although previously observed in Malaysia, it was recorded for the first time at Layang-Layang Island. This study aims to document and validate the occurrence of this species in the remote oceanic atoll, a recognized marine biodiversity hotspot within the Spratly Islands. A single specimen was observed in situ during SCUBA-based visual surveys conducted in April 2025 within the Coral Garden area, characterized by sandy substrates adjacent to coral reefs. Species identification was confirmed through key morphological traits and supported by photographic evidence. This record represents a significant extension of the known distribution range of *U. asperrimus* and highlights the ecological importance of Layang-Layang Island as a potential refuge for threatened marine fauna. The findings emphasize the urgent need for continued biodiversity assessments, long-term species monitoring, and targeted conservation strategies, particularly in remote and understudied marine habitats. This new record also enriches the national biodiversity inventory and provides valuable data for regional elasmobranch conservation planning.

Keywords: Porcupine whipray, Layang-Layang Island, threatened, biodiversity, elasmobranch, conservation

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INTRODUCTION

The elasmobranch (sharks, rays and skates) act as the critical ecological roles in marine ecosystems, but many species are under threat and vanishing due to overfishing, habitat degradation and climate change worldwide (Dulvy *et al*., 2014). Although the landing of rays only contributed a small percentage, it plays a significant role in economic income for fishers in this region (Ahmad *et al*., 2014). Whiprays (family *Dasyatidae*) comprise one of the most diverse and widely distributed groups of benthic rays, with members occurring in tropical and subtropical waters of the Atlantic, Indian, and Pacific Oceans. To date, more than 90 valid species have been recognized within the family, making it among the most speciose lineages of batoid fishes (Last, Naylor, & Manjaji-Matsumoto, 2016). They inhabit a broad range of habitats, from estuaries and mangroves to sandy coastal shelves and coral reefs, where they play important ecological roles as mesopredators and benthic feeders.

In Malaysia, approximately 28 species of whiprays have been recorded, encompassing a wide taxonomic range. These include representatives of the genera *Dasyatis, Himantura, Pastinachus, Taeniura, Pteroplatytrygon*, and *Urogymnus* (Yano *et al*., 2005). Many of these species are ecologically significant components of coastal and reef ecosystems, yet several face increasing threats from fishing pressure and habitat degradation (Then, Lim, & Loh, 2022).

The family *Dasyatidae* is characterized by a depressed, disc-shaped body; ventrally positioned gill slits and mouth; and a long, slender, whip-like tail armed with one or more venomous spines. Unlike some other batoid groups, dasyatids lack a caudal fin and typically do not possess a dorsal fin on the tail. Morphological diversity within the family is considerable, ranging from small inshore species measuring less than 30 cm in disc width to massive rays exceeding several metres and weighing hundreds of kilograms. This diversity has historically made *Dasyatidae* a taxonomically challenging group, with many species only recently clarified through integrative approaches combining morphology and molecular phylogenetics (Last *et al*., 2016).
Among dasyatids, the porcupine whipray (*Urogymnus asperrimus*) is morphologically distinctive, characterized by a dense covering of large, spiny thorns across its dorsal surface, which is further covered with dermal denticles and thorn-like tubercles. It typically inhabits shallow coastal waters associated with sandy or muddy substrata within the Indo-Pacific region (Syazwan *et al*., 2020). These features set them apart from superficially similar genera such as *Pastinachus* or *Himantura*. The genus currently comprises a small number of species, including the porcupine whipray (*U. asperrimus*), which is particularly distinctive for its dense covering of large spiny thorns across the dorsal surface (FishBase, 2023).