

= Plain maskray =

The plain maskray or brown stingray (*Neotrygon annotata*) is a species of stingray in the family Dasyatidae . It is found in shallow , soft @-@ bottomed habitats off northern Australia . Reaching 24 cm (9 @.@ 4 in) in width , this species has a diamond @-@ shaped , grayish green pectoral fin disc . Its short , whip @-@ like tail has alternating black and white bands and fin folds above and below . There are short rows of thorns on the back and the base of the tail , but otherwise the skin is smooth . While this species possesses the dark mask @-@ like pattern across its eyes common to its genus , it is not ornately patterned like other maskrays .

Benthic in nature , the plain maskray feeds mainly on caridean shrimp and polychaete worms , and to a lesser extent on small bony fishes . It is viviparous , with females producing litters of one or two young that are nourished during gestation via histotroph (" uterine milk ") . This species lacks economic value but is caught incidentally in bottom trawls , which it is thought to be less able to withstand than other maskrays due to its gracile build . As it also has a limited distribution and low fecundity , the International Union for Conservation of Nature (IUCN) has listed it as Near Threatened .

= Taxonomy and phylogeny =

The first scientific description of the plain maskray was authored by Commonwealth Scientific and Industrial Research Organisation (CSIRO) researcher Peter Last in a 1987 issue of Memoirs of the National Museum of Victoria . The specific name *annotatus* comes from the Latin *an* (" not ") and *notatus* (" marked ") , and refers to the ray 's coloration . The holotype is a male 21 @.@ 2 cm (8 @.@ 3 in) across , caught off Western Australia ; several paratypes were also designated . Last tentatively placed the species in the genus *Dasyatis* , noting that it belonged to the " maskray " species group that also included the bluespotted stingray (then *Dasyatis kuhlii*) . In 2008 , Last and William White elevated the *kuhlii* group to the rank of full genus as *Neotrygon* , on the basis of morphological and molecular phylogenetic evidence .

In a 2012 phylogenetic analysis based on mitochondrial and nuclear DNA , the plain maskray and the Ningaloo maskray (*N. ningalooensis*) were found to be the most basal members of *Neotrygon* . The divergence of the *N. annotata* lineage was estimated to have occurred ~ 54 Ma . Furthermore , the individuals sequenced in the study sorted into two genetically distinct clades , suggesting that *N. annotata* is a cryptic species complex . The two putative species were estimated to have diverged ~ 4 @.@ 9 Ma ; the precipitating event was likely the splitting of the ancestral population by coastline changes .

= Description =

The pectoral fin disc of the plain maskray is thin and diamond @-@ shaped with narrowly rounded outer corners , measuring 1 @.@ 1 ? 1 @.@ 3 times longer than wide . The leading margins of the disc are gently concave and converge at a broad angle to the pointed tip of the snout . The small eyes are placed close together , and behind them are the spiracles . The nostrils are elongated and have a skirt @-@ shaped flap of skin between them . The small mouth bears prominent furrows at the corners and contains two slender papillae on the floor . Small papillae are also found around the outside of the mouth . There are five pairs of gill slits . The pelvic fins are fairly large and pointed .

The tail is short , barely exceeding the length of the disc when intact , and has a broad and flattened base leading to usually two stinging spines . After the stings , the tail becomes slender and bears a long ventral fin fold and a much shorter , lower dorsal fin fold . Most of the body lacks dermal denticles ; a midline row of 4 ? 13 small , closely spaced thorns is present behind the spiracles , and another row of 0 ? 4 thorns before the stings . The dorsal coloration is grayish green , becoming pinkish towards the disc margins ; there is a dark mask @-@ like shape around the eyes and a pair of small dark blotches behind the spiracles . The tail behind the stings has alternating black and white bands of variable width , ending with black at the tip . The underside is plain white

and the ventral fin fold is light grayish in color . This species grows to 24 cm (9 @. @ 4 in) across and 45 cm (18 in) long .

= = Distribution and habitat = =

The plain maskray inhabits the continental shelf of northern Australia from the Wellesley Islands in Queensland to the Bonaparte Archipelago in Western Australia , including the Gulf of Carpentaria and the Timor and Arafura Seas . There are unsubstantiated reports that its range extends to southern Papua New Guinea . It is the least common of the several maskray species native to the region . This species is a bottom @-@ dweller that prefers habitats with fine sediment . It has been recorded from between 12 and 62 m (39 and 203 ft) deep , and tends to be found farther away from shore than other maskrays in its range .

= = Biology and ecology = =

The plain maskray generally hunts at the surface of the bottom substrate , rather than digging for prey . Its diet consists predominantly of caridean shrimp and polychaete worms . Small bony fishes are also eaten , along with the occasional penaeid prawn or amphipod . Larger rays consume a greater variety of prey and relatively more polychaete worms when compared to smaller rays . This species is parasitized by the tapeworm *Acanthobothrium jonesi* .

Like other stingrays , the plain maskray is viviparous with the developing embryos sustained to term by histotroph (" uterine milk ") produced by the mother . Mature females have a single functional ovary and uterus , on the left . Litter size is one or two ; the newborns measure 12 ? 14 cm (4 @. @ 7 ? 5 @. @ 5 in) across . Males and females reach sexual maturity at disc widths of 20 ? 21 cm (7 @. @ 9 ? 8 @. @ 3 in) and 18 ? 19 cm (7 @. @ 1 ? 7 @. @ 5 in) respectively . The maximum lifespan is estimated to be 9 years for males and 13 years for females .

= = Human interactions = =

The main conservation threat to the plain maskray is incidental capture by commercial bottom trawl fisheries . In the present day , this is mostly caused by Australia 's Northern Prawn Fishery , which operates throughout its range . Although this species is discarded when caught , it is more delicate @-@ bodied than other maskrays and is thus unlikely to survive encounters with trawling gear . Historically , this species may also have been negatively affected by Japanese , Chinese , and Taiwanese trawlers that fished intensively off northern Australia from 1959 to 1990 . These factors , coupled with the plain maskray 's limited distribution and low reproductive rate , have resulted in its being assessed as Near Threatened by the International Union for Conservation of Nature (IUCN) .