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Mangroves of the Northwest Australian and Sahul Shelf

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Abstract

Mangroves of the Northwest Australia and Sahul shelf is a regional ecosystem subgroup (level 4 unit of the IUCN Global Ecosystem Typology). It includes the marine ecoregions of Arafura Sea, Arnhem Coast to Gulf of Carpentaria, Bonaparte Coast, Exmouth to Broome, Gulf of Papua, Houtman, Lesser Sunda, Ningaloo, Shark Bay, Southeast Papua New Guinea and Torres Strait Northern Great Barrier Reef. In 2020 the mapped extent of this province was 18061.4 km^2 across, representing 12.3% of the global mangrove area. The biota is characterised by 50 mangrove plant species, including intermediates.

The province encompasses varied climates and geography, with habitats ranging from monsoonal coasts of southern New Guinea to arid western shores of northern Western Australia. A pronounced dry season (April–November) dominates, with 95% of river flow during the December–March wet season. Low-energy waves along northern Australia allow dense mangrove growth along nearly half the semi-arid tropical shoreline. In the Northern Territory, stands are woody and dense, extending inland along estuaries and exposed shores.

Today the Northwest Australia and Sahul shelf mangroves cover 95% of our broad estimation for 1970. However, the mangrove net area change has been -2.8% since 1996. If this trend continues an overall change of -6.0% is projected over the next 50 years. Furthermore, under a high sea level rise scenario (IPCC RCP8.5) ≈-7.6% of the Northwest Australia and Sahul shelf mangroves would be submerged by 2060. Moreover, 0.8% of the province's mangrove ecosystem is undergoing degradation, with the potential to increase to 2.5% within a 50-year period, based on a vegetation index decay analysis. Overall, the Northwest Australia and Sahul shelf mangrove ecosystem is assessed as **Least Concern** (**LC**).

Citation:
De Kluyver, T., Duke, N. C., Lovelock, C., Suárez, E. L. & McGregor S.G. (2023). '*IUCN Red List of Ecosystems, Mangroves of the Northwest Australia and Sahul Shelf*'. EcoEvoRxiv.

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Keywords:
Mangroves; Red List of ecosystems; ecosystem collapse; threats.

Ecosystem classification:
MFT1.2 Intertidal forests and shrublands

Assessment's distribution:
Northwest Australia and Sahul shelf province

Criterion	A	B	C	D	E	Overall
Subcriterion 1	**LC**	**LC**	**DD**	**DD**	**NE**	**LC**
Subcriterion 2	**LC**	**LC**	**LC**	**LC**		
Subcriterion 3	**DD**	**LC**	**DD**	**DD**		

CR: Critically Endangered, EN: Endangered, VU: Vulnerable, NT: NearThreatened, LC: Least Concern, DD Data Deficient, NE: Not Evaluated

Mangroves of the Northwest Australia and Sahul Shelf

LC

1. Ecosystem Classification

IUCN Global Ecosystem Typology (version 2.1, Keith *et al.* 2022):

Transitional Marine-Freshwater-Terrestrial realm

MFT1 Brackish tidal biome

MFT1.2 Intertidal forests and shrublands

MFT1.2_4_MP_32_34 Mangroves of the Northwest Australia and Sahul shelf

IUCN Habitats Classification Scheme (version 3.1, IUCN 2012):

1 Forest

1.7 Forest – Subtropical/tropical mangrove vegetation above high tide level

12 Marine Intertidal

12.7 Mangrove Submerged Roots

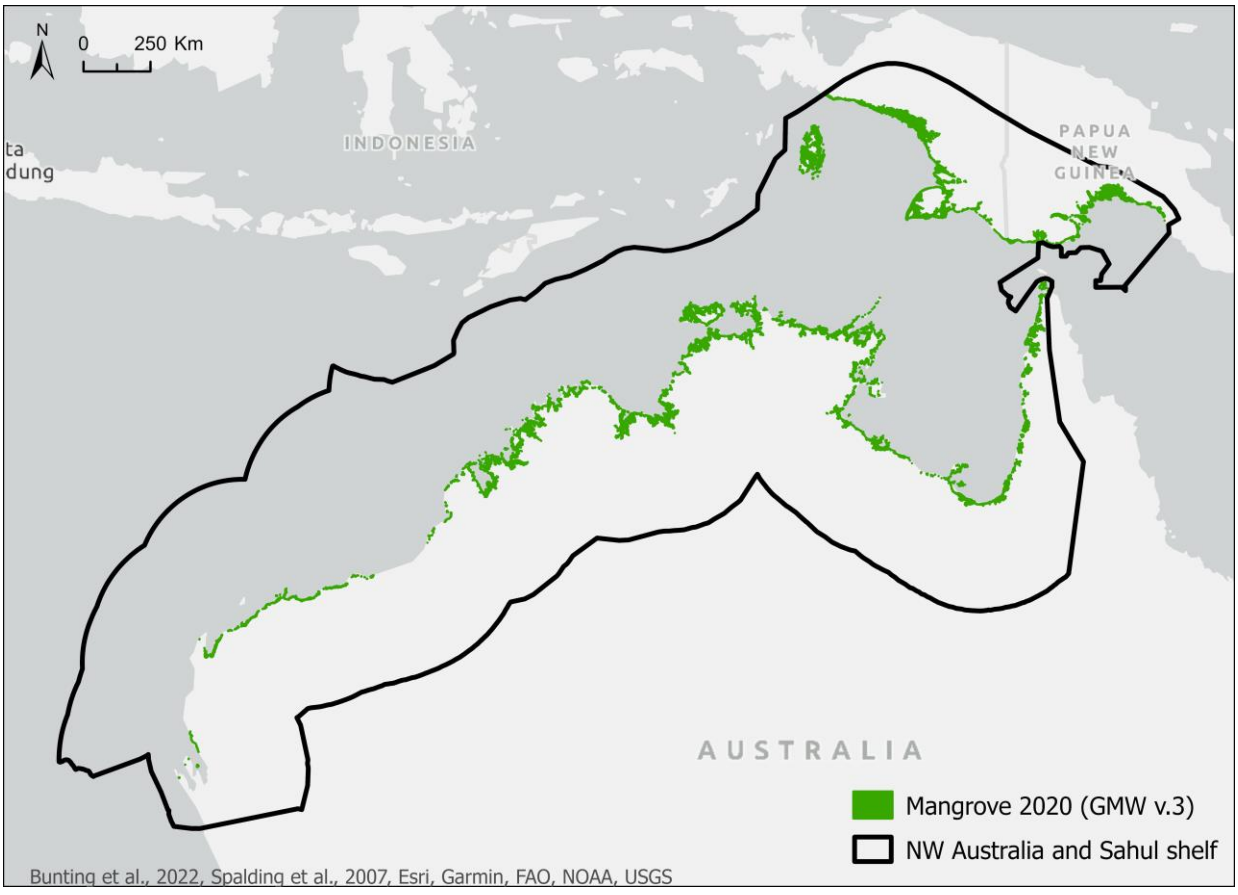

Figure 1. The mangroves of Northwest Australia and Sahul shelf.

2. Ecosystem Description

Spatial distribution

The Northwest Australia and Sahul Shelf (NW-Sahul) province spans three Australian states and territorial jurisdictions (northern Western Australia, the Northern Territory and far-western Queensland), plus a significant sector along the southern coast of New Guinea. The latter extends along the Indonesian provinces of Central and South Papua, and into Papua New Guinea to the Gulf of Papua and Port Moresby.

The mangrove habitats of this province include intertidal forest and shrublands situated along the coasts and estuaries leading into the Arafura Sea, Arnhem Coast to Gulf of Carpentaria, Bonaparte Coast, Exmouth to Broome, Gulf of Papua, Houtman, Lesser Sunda, Ningaloo, Shark Bay, Southeast Papua New Guinea, and Torres Strait Northern Great Barrier Reef, that extend across Australia, Indonesia and Papua New Guinea (Figure 1).

The estimated extent of mangroves in this province in 2020 was 18,061.4 km^2, representing about 12.3% of the global mangrove area. There was a -2.8 % net area change since 1996 (Bunting *et al*., 2022).

There are several Australian resources that summarise elements of the extent, composition and/or condition of mangrove habitats nationally for Australia. The Australian National Land and Water Resources Audit (NLWRA, 1998) provides an inventory of all major Australian estuaries. The audit lists 63 estuaries with a total area of 6,369.3 km^2 (including mangroves, tidal marshes, and tidal flats) within the Australian part of the NW-Sahul province. Mangroves were reported in all the listed estuaries and collectively occupied 1,722.9 km^2, a smaller area than reported above. However, the NLWRA does not report on coastal mangroves that exist outside of estuary boundaries, offering only a partial record of mangrove habitat in Australia. Despite this limitation, it provides a valuable historical record of the presence and distribution of intertidal habitats in Australian estuaries at both regional and national levels.

DCCEEW's National Vegetation Information System (NVIS) Version 6.0 includes mangroves in its national vegetation cover dataset. Analysis of the current spatial data set (DCCEEW, 2020) for the NW-Sahul province, estimates 7,232.3 km^2 of mangrove habitat (DCCEEW, 2020). However, this "point in time" estimate does not accurately represent the national mangrove extent in any specific year, as updates occur at irregular intervals based on state-level contributions. The most accurate record of Australia's annual gains and losses in forest extent comes from satellite remote sensing techniques, based on Landsat imagery. The publicly available National Forest and Sparse Woody Vegetation data (DCCEEW, 2022) incorporates a 3-class forest classification (no forest, sparse woody forest, forest) and extends from 1988 to the current reporting year and is updated annually. Analysis of this dataset, constrained to the NW-Sahul province, and with a maximum extent mangrove mask applied (GMW_v3_union_vec; Bunting *et al.,* 2022), estimates that 6,187.6 km^2 of mangrove were present in 2020, including the Torres Strait Islands. This is 1,740.2 km^2 less than the estimation based on the Global Mangrove Watch spatial data (Bunting *et al*., 2022). The discrepancy in these measures indicates that further research is urgently needed on extent and dynamics (Hickey et al. 2025) to accurately assess mangrove extent and condition across Australia to inform conservation and policy development and implementation.

Biotic components of the ecosystem (characteristic native biota)

The mangroves of the NW-Sahul province are biologically diverse with 33 species identified in the IUCN database (2022). However, Duke (2006, 2025) lists 29 mangrove species and intermediate taxa (including 1 introduced species) for NW Australia, 41 mangrove species for Southern Papua New Guinea, and 50 mangrove species for Western New Guinea, for a total of 50 mangrove species for the entire province (Table 1).

The mangroves of this bioregion are best categorised into two groups: those along the southern coast of New Guinea and those in northern Australia extending from the Gulf of Carpentaria to Shark Bay. The wetter climate in New Guinea supports high biomass mangrove stands with greater biodiversity, while those in northern and western Australia, located in the country's driest regions (semi-arid to arid), exhibit lower biomass and relatively lower biodiversity.

Mangroves along the Sahul coast of SW New Guinea are biodiversity rich and high in biomass (NC Duke).

Mangroves of the north-western Australian coast are characterised by broad tidal flats cloaked in wide, low biomass zones of Rhizophora stylosa, Avicennia marina and Ceriops australis backed by tidal saltmarsh (NC Duke).

There are at least 302 animal species across seven taxa in the IUCN Red List of Threatened Species (IUCN, 2022) that have natural history collection records, or observations, within this province and are associated with mangrove habitats (GBIF, 2021).

Mangroves offer a range of habitats that are suitable for a wide variety of fauna that, in turn, contribute to healthy ecosystem function. Although the focus of the current IUCN list is on vertebrates (seven taxa, 302 species), the invertebrates, including the meiofauna, are highly diverse and numerous. Many are major contributors to nutrient recycling (Lee, 2008; Nerot *et al*., 2009), are an important food source for both terrestrial and marine based vertebrates (Kathiresan and Bingham, 2001; Abrantes and Sheaves, 2009), are important pollinators (Aluri, *et al*., 1994; Williams, 2020), and/or impact human economies and health (Bell, *et al*., 1984; Meynecke *et al*., 2007; Knight, 2011; Siwiendrayanti *et al*., 2020). Invertebrates also influence mangrove vegetation structure and function through herbivory, propagule predation, and bioturbation (Cannicci, *et al*., 2008).

Polychaetes, crustaceans, and molluscs are the dominant aquatic macro-invertebrates in Australian mangroves and echinoderms, ascidians and coelenterates may also be present (Hutchings and Recher, 1982; Saenger *et al*., 1983). The arboreal environment is dominated by other arthropods, namely insects and

arachnids (Hutchings and Recher, 1982). Some insects, such as ants, may provide protection and counteract herbivory from other insects and sesarmid crabs (Cannicci, *et al*., 2008).

A diverse range of aquatic vertebrate species utilise mangrove habitats and their importance to local populations of marine or estuarine fish and crustaceans has been demonstrated in multiple studies (Pollard *et al*., 1994; Vance *et al*., 1996; Nagelkerken, *et al*., 2008). Their role as spawning grounds and nurseries, feeding grounds, and as refugia from predation and commercial fishing efforts contribute to the population health of both permanent and temporary resident fishes as well as invertebrates (Robertson and Duke, 1990 a,b; Lee, 1999; Nagelkerken *et al*., 2008).

A fish and prawn survey (targeting only the commercial species, *Penaeus merguiensis*) of the Embley River on the Gulf coast of western Cape York, North Queensland (Vance *et al*., 1996) identified 55 species of fish. These fish were mostly observed in the outer fringe of the mangrove whereas smaller fish species penetrated deeper into the mangroves with rising tides. This may be related to both reduced predation pressure and increased feeding opportunities (Vance, et a., 1996; Nagelkerken, *et al*., 2008). A separate study of fish assemblages in the Embley Estuary observed that, out of 197 species captured within the estuary, 66 were captured within the estuary's mangrove habitat and that 27 species of these were truly estuarine, that is they complete their entire life history in the estuary by living among the mangroves and in mangrove creeks (Blaber *et al*., 1989). Hutchins and Recher (1981) report that tropical representatives of the gobiid sub-family Oxcidercinae, including members of the genera *Periophthalmus*, *Periophthalmodon*, *Boleophthalmus* and *Scartelaos,* are adapted to living in mangroves. A survey of mudskipper species and their habitat selection along selected sites of Australia's north tropical coastline (from Derby, West Australia to Cairns, Queensland) reported on nine species in four genera (Takita *et al*., 2011). Two species, *Periophthalmus argentilineatus* and *Periophthalmus darwini* constructed burrows within the mangrove forest or occupied mangrove habitat when seeking shelter at high tide or when disturbed. *Periophthalmodon freycineti* was commonly observed to occupy mangrove habitat as juveniles, but not as adults. A population of *Periophthalmus novaeguineaensis* near Derby, Western Australia, changed its established burrow location from a mudflat to a mangrove forest at some time between two successive survey visits (Takita *et al*., 2011).

Most amphibians avoid tidal wetlands due to their intolerance to saline habitats (Kutt, 1977). However, an amphibian of concern is the feral cane toad, *Rhinella marina*, which is now spreading throughout Northern Australia including the Northern Territory. Adult cane toads can acclimate to salinities up to 50% saltwater (Liggins and Grigg, 1985) with larval development possible in up to 15% saltwater (Ely, 1944). Cane toads have been observed in mangrove forests (Rajpar and Zakaria, 2014) and can alter community structure through competition, predation, and toxicity. Field observations demonstrate that some predators, like saltwater crocodiles, *Crocodylus porosus*, and keelback snakes, *Tropidonophis mairii*, are resistant to cane toad toxins, while others, such as barramundi, *Lates calcarifer*, and the freshwater crocodile, *Crocodylus johnstoni*, are vulnerable (Shine, 2010).

Reptiles may be resident, such as mangrove specialist *Fordonia* sea snakes, or regular visitors, specifically aquatic and semi-aquatic species such as file snakes, sea snakes, and turtles. The saltwater crocodile, *Crocodylus porosus*, has an important status in this ecosystem as an apex predator. Milward (1982), in

reviewing the literature, lists 23 species (10 families) that may be associated with Australian mangroves nationally, but suggests that this is likely incomplete.

Saltwater crocodiles are a common sight moving within and between estuarine systems of the region (NC Duke).

Mangroves in the NW-Sahul province support diverse bird assemblages, with at least 70 bird species recorded in Darwin's monsoonal mangrove habitat, eight of which were listed as mangrove-dependant. (Mohd-Azlan, *et al*., 2012). A separate study (Noske, 1996) reported 50 bird species in the same mangrove habitat, 11 of which were reported as mangrove habitat-dependant. Individuals from 17 species were observed breeding in this mangrove habitat (Noske, 1996).

Although the richness and density of bird species is usually positively correlated with plant species richness, the density of the understory, and food resource distribution in mangroves (Mohd-Azlan *et al.,* 2015), the opposite is true in this province. Among the floristically poorer mangrove habitats of the Kimberly region of northern Australia, 157 species of avifauna were identified, of which 20 were mangrove specialists (Pearson *et al.,* 2013). In contrast, only 60 species were identified within the floristically more biodiverse Trinity Inlet mangrove habitats of tropical North Queensland, with only 12 mangrove specialists (Kutt, 1977)

Mistletoe birds feed voraciously on mistletoe fruits growing on mangrove trees (NC Duke).

Mangrove habitat also supports feeding and roosting activities from regular or seasonal mammals, particularly bats (Kutt, 1997; Hutchings and Recher, 1982), with 13 species of bat identified (Rog *et al*., 2020). Several species of Australian flying foxes, including the Spectacled flying-fox (*Pteropus conspicillatus*) and the Grey-headed flying-fox *(P. poliocephalus*), which are listed as endangered and vulnerable respectively, establish temporary roosting colonies in mangrove canopies (Kathiresan and Bingham, 2001; Timmiss, *et al*., 2020). Other smaller bat species may also roost in mangrove habitats, including maternity roosts (McConville, *et al*., 2013; McKenzie, *et al*., 2022; Law, *et al*., 2023).

Dugong are sometimes stranded on the shallow mud flats as they feed on seagrass growing close amongst the mangrove fringe (NC Duke).

Several introduced ungulate species commonly visit Australian tropical mangrove habitats of the NW Sahul province, including feral pigs (*Sus scrofa*), cattle (*Bos taurus*, *B. indicus*), and Asian water buffalo (*Bubalus bubalis*). These species cause significant damage to mangrove habitats with their hard hooves and by wallowing, propagule predation, and introduction of weeds.

Several earlier studies indicate that mangrove primary productivity was not a major contributor of carbon for primary or secondary consumers within the mangroves or the broader estuarine community (Kieckbusch, *et al*., 2004; Abrantes, 2008; Heithaus 2011), however more recent studies indicate mangroves make significant contributions to food webs (Abrantes et al. 2015, Then et al. 2021). Their importance also lies in their provision of substrate for marine animal and plant epiphytes and burrowing invertebrates and in the provision of shelter and food sources for resident and visiting vertebrate and invertebrate consumers (Kieckbusch, *et al*., 2004). Despite the variety of animals that are resident or regular visitors to subtropical and temperate mangroves the trophic level of this community is relatively low (Marley, *et al*., 2019; Mazumder, *et al*., 2019).

Feral pigs are observed in large numbers visiting and crossing the extensive tidal flats backing the shoreline mangrove zone (NC Duke).

Introduced water buffalo cause considerable damage to tidal marsh and mangrove areas throughout northern Australia (NC Duke).

Abiotic Components of the Ecosystem and Drivers of Change

Regional mangrove distributions are influenced by interactions among landscape position, rainfall, hydrology, sea level, sediment dynamics, subsidence, storm-driven processes, and disturbance by pests and predators. Rainfall and sediment supply from rivers and currents promote mangrove establishment and persistence, while waves and large tidal currents destabilise and erode mangrove substrates, mediating local-scale dynamics in ecosystem distributions. High rainfall reduces salinity stress and increases nutrient loading from adjacent catchments, while tidal flushing also regulates salinity. This RLE region borders the Arafura Sea and the Indian Ocean, spanning a diversity of relatively dry climatic and geographic settings (Fig. 2).

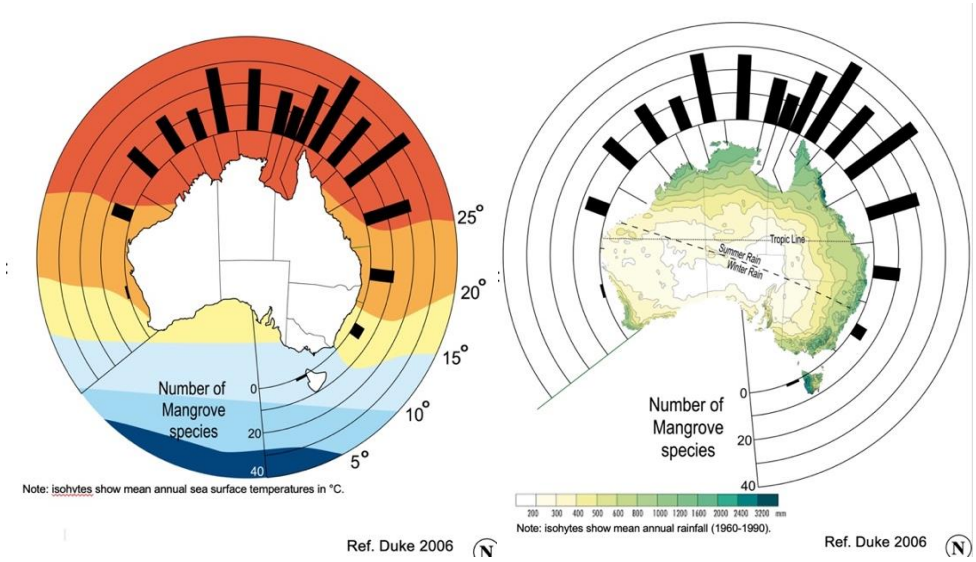

Figure 2. The climatic conditions (A: temperature and B: rainfall) strongly influence the biodiversity of mangroves, noting maximal numbers are found in hot (low latitude) and wet locations (Duke 2006).

Mangroves occur along coastal areas of this province (Ozestuaries 2006) and are affected by monsoonal hot or warm, relatively wet summers and low waves. Climatic conditions vary from arid to semi-arid and are associated with differences in species composition and structure. While there is a general decline in species numbers in the higher latitudes of the province as aridity generally increases, localised climatic factors help form enclaves of highly diverse mangrove communities in wetter locations.

The influences of rainfall directly relate to the relative proportions of mangroves, tidal saltmarsh and saltpans (or sabkha) that support cyanobacterial mat communities (Duke *et al*., 2019, Hickey et al. 2025). Long-term changes in rainfall cause predictable changes in the ratio of mangrove area to the total tidal wetland of mangroves plus tidal saltmarsh and saltpan (the wetland cover index, or WCI). Accordingly, lower rainfall levels correlate with relatively smaller areas of mangroves, while the area of tidal saltmarsh and saltpan are proportionally larger (Fig. 3).

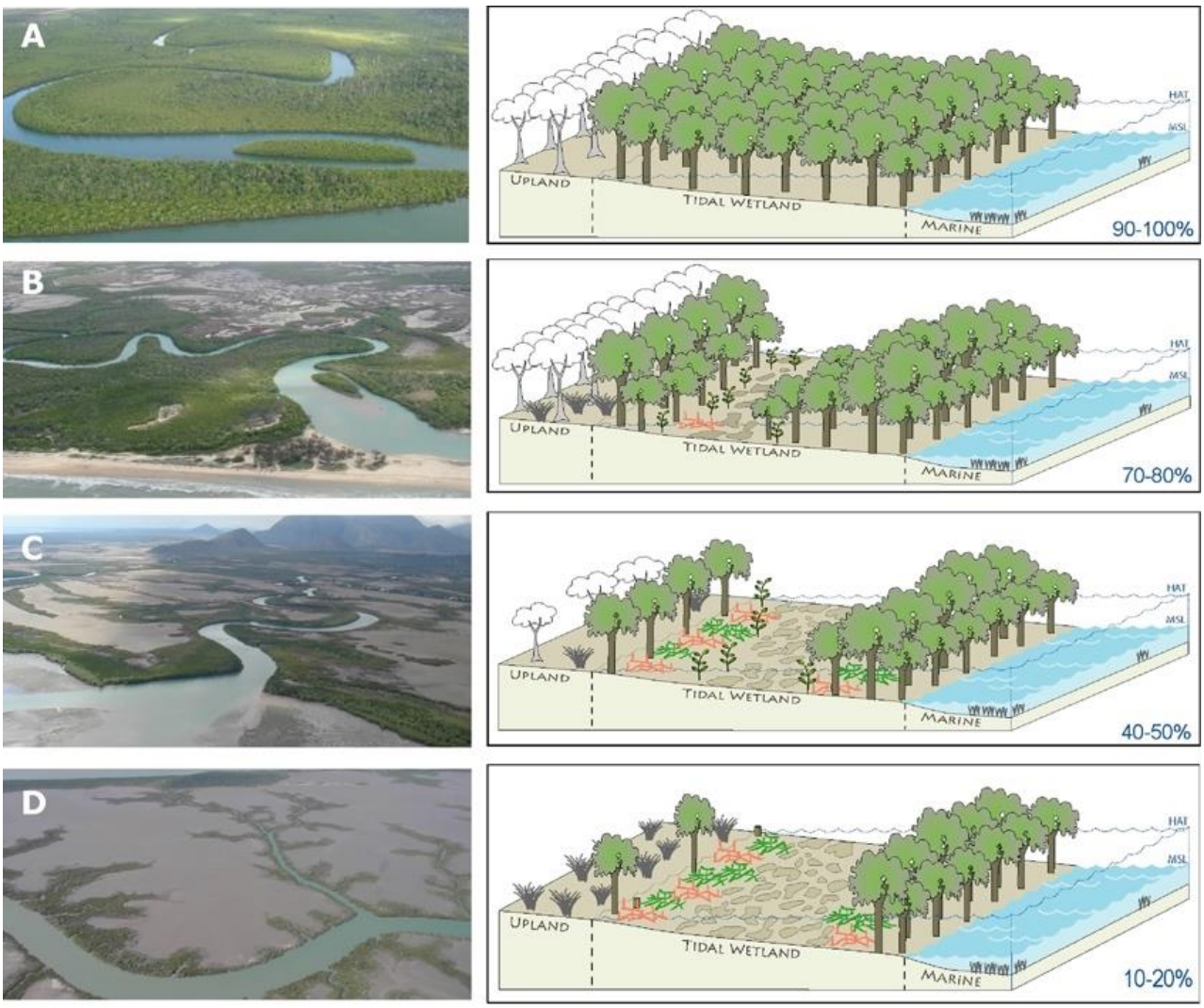

Figure 3. Extent of mangrove occurrence (defined by the Wetland Cover Index, WCI) across the tidal zone between mean sea level (MSL) and Highest Astronomical Tides (HAT) with WCI's of A. 90-100%; B. 70-80%; C. 40-50%; and D. 10-20%. While mangroves share the Tidal Wetland zone with tidal saltmarsh and microphyte saltpans, their respective proportions are dependent on long-term rainfall conditions. Accordingly, higher rainfall correlates with relatively larger areas of mangroves, while there will be fewer areas of saltmarsh and pans. The reverse occurs as rainfall levels are lower (Duke *et al.*, 2019).

Monsoonal Hot Wet Summers to Moderate Winters

The NW-Sahul province borders the Indian Ocean and Timor Sea, spanning diverse climatic and geographic settings and environments. The Southern shorelines of New Guinea are generally characterised by monsoonal climates with uniformly high temperatures and seasonal rainfall. The western coast of northern Western Australia receives low rainfall and has a long, seasonally dry period, from April to November. However, the northern Western Australian coast climate varies from tropical subhumid around Port Warrender. Areas which experience higher rainfall, such as the mangroves of the Tiwi Islands, north-east Arnhem Land and Kakadu, are species rich, whereas those bordering the Joseph Bonaparte Gulf and the Gulf of Carpentaria are much more arid and species poor.

The tidal range varies from over 10 metres around King Sound, 8 metres in Darwin Harbour and the west coast, to around 2 metres in the Gulf of Carpentaria. Extreme tidal flows characterise the macrotidal areas across low relief coastal landforms and coral platforms. In these areas, saline waters and mangroves penetrate

upstream as far as 100 km inland. In addition, Australia's northern coastline is largely affected by only low energy waves, further supporting the development of dense mangrove growth along nearly 50% of this mostly semi-arid tropical climatic region.

In response to increasingly variable abiotic conditions in temperature, rainfall and tides, species richness shifts from 19 species in the north to one around Shark Bay. In the Pilbara region, the coast is a complex of deltas, limestone barrier islands and lagoons, with a variable suite of substrates (Semeniuk 1993. By comparison, the Great Sandy Desert has little riverine input and consists of broad tidal flats and barrier banks composed of lime mud and quartz sand substrates.

NW region

Variable growth conditions

A high diversity of habitats spanning more than 20 degrees of latitude. Mangroves are influenced by micro to macro tides of 10 m, and seasonal climates ranging from tropical subhumid areas like Port Warrender through tropical arid and semi-arid areas like those bordering the Great Sandy Desert and Pilbara coast.

Contrasting arid and wet tropical climates

Some of the most arid coastal areas in Australia are contrasted with the wet tropical areas of the south-western shoreline of New Guinea. This has resulted in very different mangrove ecosystems in vastly different condition ranging from biodiverse, dense and tall forested stands to species poor, low density and sparse low thickets. This heterogeneous mix of climatic conditions is a key feature of the mangrove ecosystems in this province. But arid conditions dominate; and one local species, *Camptostemon schultzii*, the Kapok mangrove, is recognised as an arid mangrove community specialist.

Pristine condition and Aboriginal homeland management

Mangroves of this region are among the world's least impacted by human activities, with limited harvesting of trees, and only minor infrastructure in the form of a small number of boat ramps and access paths. However, there are sites of localised direct human damage, like that associated with development around Darwin, the capital city of the Northern Territory. However, the region is recognised mostly for its custodial management by Aboriginal groups. Much of the Northern Territory and Western Australian coastline is Aboriginal land and permits are required to access many coastal and estuarine areas, thereby supporting the broad conservation of these mangroves.

Feature Sub Areas - NW region

This NW-Sahul province spans three Australian state and territory jurisdictions (northern Western Australia, the Northern Territory and far-western Queensland), plus a significant northern sector along the southern coast of New Guinea, covering two other international jurisdictions of Indonesian Papua to the Gulf of Papua and Port Moresby in Papua New Guinea. Seven distinct areas can be defined by prevailing environmental conditions of climate, tidal range and topographic setting.

South New Guinea (SN) - Wet Tropic Expansive Estuarine Areas

Indonesian Papua to the Gulf of Papua and Port Moresby in Papua New Guinea – various local catchment areas, with typically wet and humid conditions. This shoreline is influenced by some of the highest runoff flow catchments in the world, exemplified by the Fly River running into the Gulf of Papua. The characteristic extreme high rainfalls of the area have influenced the local mangrove community which shows maximal diversity of species (>45 species) and maximal tree heights up to 50 metres.

Gulf of Carpentaria (GC) - Dry Tropic to Arid Tidal Flats

Cape York to Nhulunbuy (Gove) – ~30 local catchment areas, span arid, semi-arid, and tropical microclimates. The area is characterised by micro- and mesotidal coastal waters with relatively species poor tidal wetlands. The Flinders River Estuary is a large arid system with around 20 mangrove species. The region has around 21-36 mangrove taxa, with a total mangrove area of more than 2,000 km^2.

Top End (TE) - Monsoonal Wet Coast

Arnhem Bay to the Durabudboi River, to Beagle Gulf and the Finniss River – 12 local catchment areas, spanning humid areas affected by meso to macro tides. The north coast from around Darwin Harbour to Nhulunbuy is species rich, with large areas of tidal wetlands. Darwin Harbour contains some of the largest and most diverse mangroves in the territory. The most notable mangrove species is the endemic, *Avicennia integra*. The region has 31 mangrove taxa, with a total mangrove area of ~2,725 km^2.

Bonaparte Gulf (BG) - Macrotidal West

Daly River to the Keep and Victoria Rivers – there are five local catchment areas, spanning semi-arid areas affected by macro tides. Along the west coast to the Western Australian border there are macrotidal coastal waters and relatively species poor tidal wetlands. This region has 17 species of mangroves, with a total mangrove area of ~1,059 km^2.

Kimberley (KM) - Macro Tides and Monsoonal Rains

Cambridge Gulf and Bonaparte Archipelago, to Buccaneer Archipelago and King Sound, to Roebuck Bay and Cape Bossut – there are nine local catchment areas, spanning tropical areas with semi-arid to subhumid climates, flushed with tides up to 10 m in range. This northern region has up to 19 mangrove taxa, and a total mangrove area of ~1,850 km^2.

Pilbara and Great Sandy Desert (PI) – Broad Arid Flats and Barrier Islands

Cape Bossut to Exmouth Gulf – there are five local catchment areas including islands of the Dampier Archipelago, spanning tropical areas with arid climates. An unusual inland mangrove site of *Avicennia marina* occurs near Anna Plains, bordering the Great Sandy Desert. *Camptostemon schultzii* occurs further south on this arid west coast than the wetter Australian east coast. The region has nine mangrove taxa, and a total mangrove area of ~636 km^2.

Mid West (MW) - Ephemeral Arid Embayments

North West Cape to Geraldton – there are six local catchment areas plus the Houtman-Abrolhos Islands, spanning subtropical arid to semi-arid climates. Lake Macleod is the largest inland mangrove area in Australia where *Avicennia marina* fringes a vast salt lake. This central region has up to two species of mangroves, and a total mangrove area of ~14 km^2.

Key processes and interactions

Mangroves act as structural engineers possessing traits such as pneumatophores, salt excretion glands, vivipary, and propagule buoyancy that promote survival and recruitment in poorly aerated, saline, mobile, and tidally inundated substrates. They exhibit high efficiency in nitrogen use and nutrient resorption. Mangroves produce large amounts of detritus (e.g., leaves, twigs, and bark), which is either buried in waterlogged sediments, consumed by crabs and gastropods, or more commonly decomposed by fungi and bacteria, thereby mobilising carbon, and nutrients to other consumers in the mangrove and coastal food web. These ecosystems also serve as major blue carbon sinks, incorporating organic matter into sediments and living biomass (Figure 4).

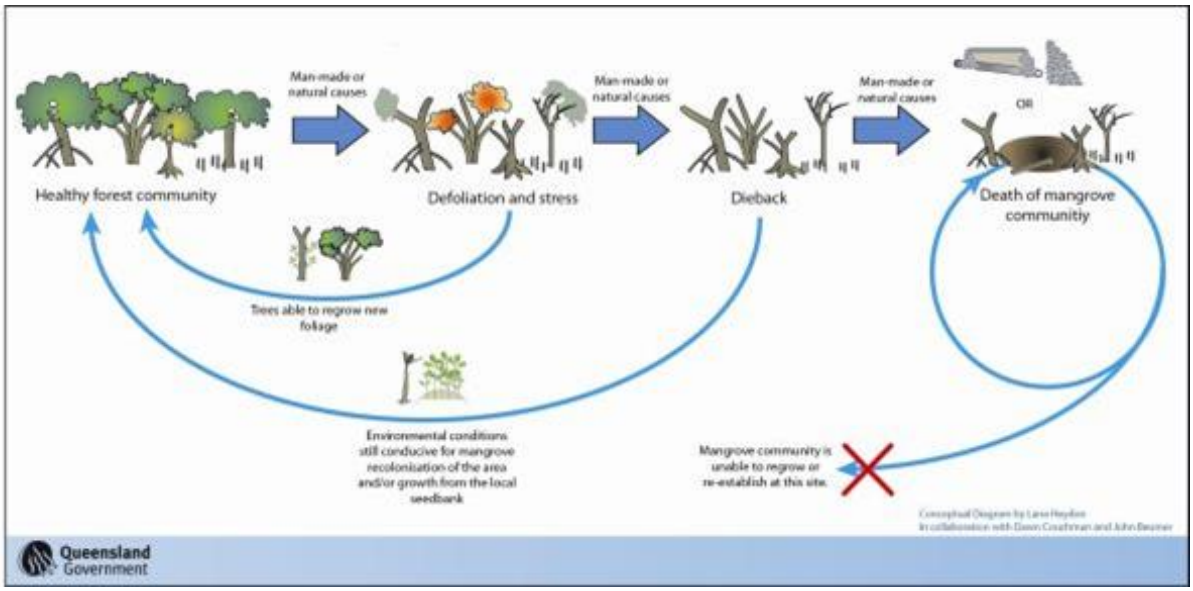

Figure 4. Drivers of change in mangrove habitat include human pressures along with natural influences (https://ozcoasts.org.au/conceptual-diagrams/science-models/processes/mangrove/)

Mangroves are interlinked with other inshore and tidal ecosystems such as tidal marsh and seagrass meadows. Threats to one may also affect the other ecosystems directly have impacts through their shared linkages. An overview of key linkages between mangroves tidal marsh and seagrasses and threats to their health and survival is provided in Figure 5.

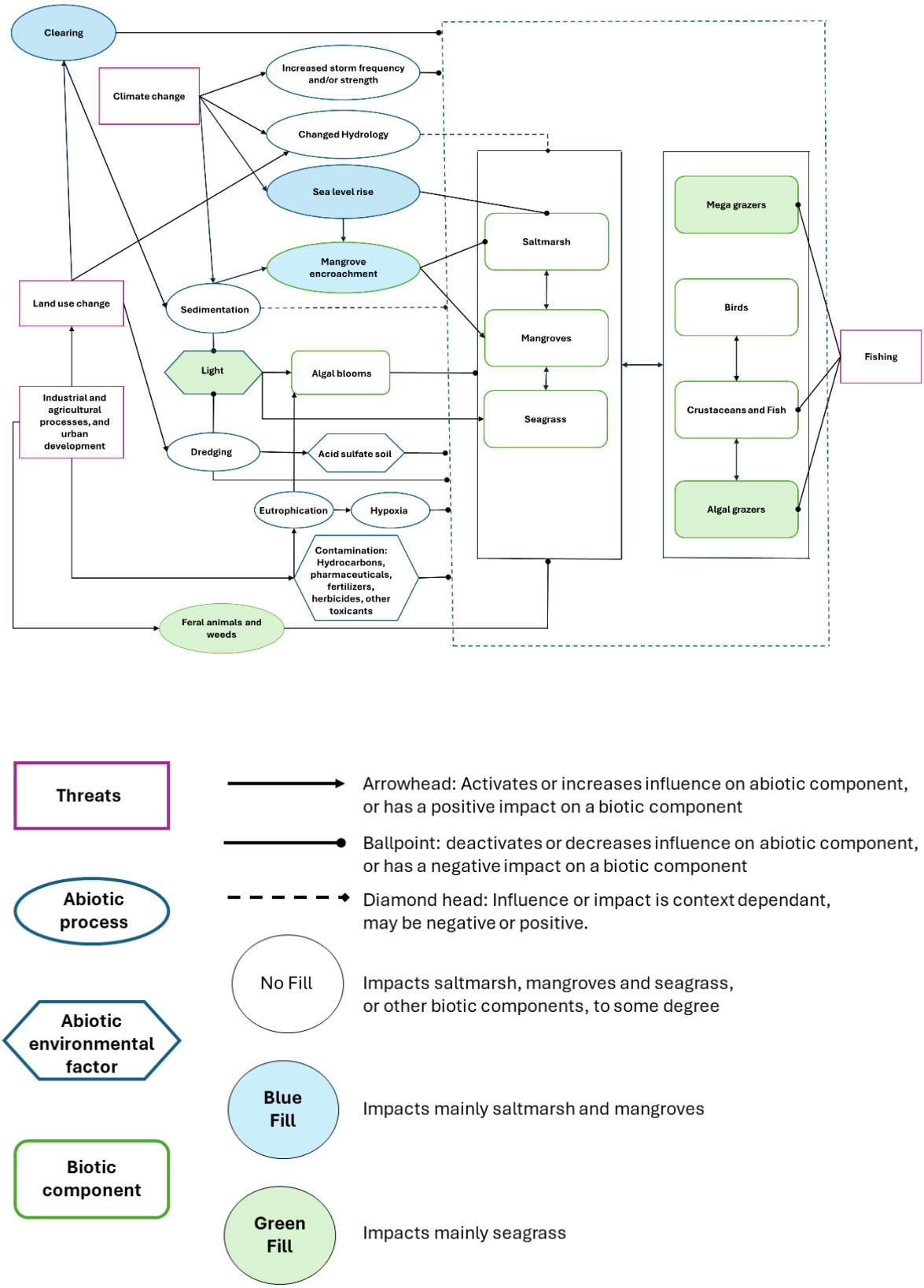

Figure 5. A conceptual model of key processes and threats to the linked inshore and tidal ecosystems of the NW-Sahul province. The key threats, represented generically in the diagram, are listed below under Threat Classification in Section 3: Ecosystem Threats and Vulnerabilities (adapted from Figure 2 in Sievers *et al.*, 2020).

3. Ecosystem Threats and Vulnerabilities

Main threatening process and pathways to degradation

Mangrove deforestation arises from various factors, including aquaculture, urbanisation, associated coastal development, over-harvesting, and pollution stemming from domestic, industrial, and agricultural land use. The wide range of influences and the specific indicators of change are described in the assessment of damaging processes in Australia's Gulf of Carpentaria (Duke *et al*., 2021, 2022). Human influences are exemplified by the significant losses caused by large oil spills (Duke, 2016) where mangroves are affected by spilled petroleum products during transportation by accidental damage to pipes and shipping vessels. Climate change is also affecting both weather patterns and sea levels. The location of mangrove forests within intertidal areas renders them vulnerable to predicted sea-level rise because of climate change. Measurements of sea-level rise around Darwin (Fig. 6) are 5.2 mm per year and further north-east in the Torres Straits exceed 8 mm per year. Tropical storms and cyclones can also damage mangrove forests through direct defoliation and destruction of trees, sediment erosion due to storm surge, as well as through the mass mortality of animal communities within the ecosystems. However, rainfall and runoff associated with cyclones can support mangrove productivity (Lovelock et al. 2011). The recovery of mangroves damaged by cyclones (see Duke *et al*., 2024) and other damaging events (e.g., Duke *et al*., 2022) are severely limited by the innate, finite regenerative capacity of mangrove habitat.

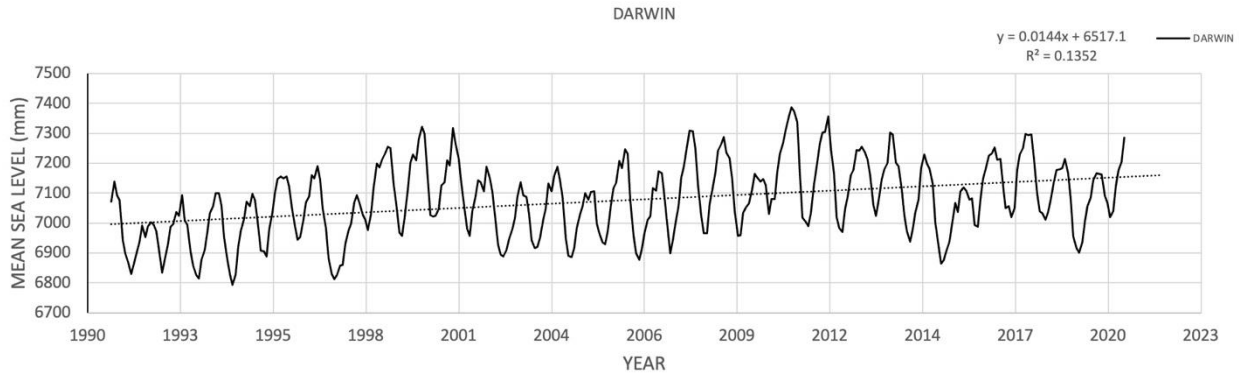

Figure 6. Rapidly rising sea levels, like those around Darwin of 5.2 mm per year are a significant threat to mangroves.

Introduced animals also contribute to mangrove degradation. For example, introduced wild pigs are of particular concern as they predate on fauna and damage young mangrove seedlings as they attempt establishment in higher elevation ecotones, putting the longer-term survival of mangrove forests at great risk with predicted rises in sea-level with global climate change.

Arguably one of the most damaging factors affecting mangrove in this region are the more extreme recent El Nino events. These previously unrecognised harmful influences from extreme oscillations in mean sea level driven by variations in ENSO, recently occurred along the northern coast of this region (Duke *et al*., 2017, 2022; Abhik *et al*., 2021; Gauthey *et al*., 2022; Chung *et al*., 2023) and in the Pilbara region (Lovelock et al. 2017, Hickey et al. 2021). In the Gulf of Carpentaria, during late 2015, an area of around 80 km^2 of mangroves were lost mostly in the shoreline mangrove zone (Fig. 7).

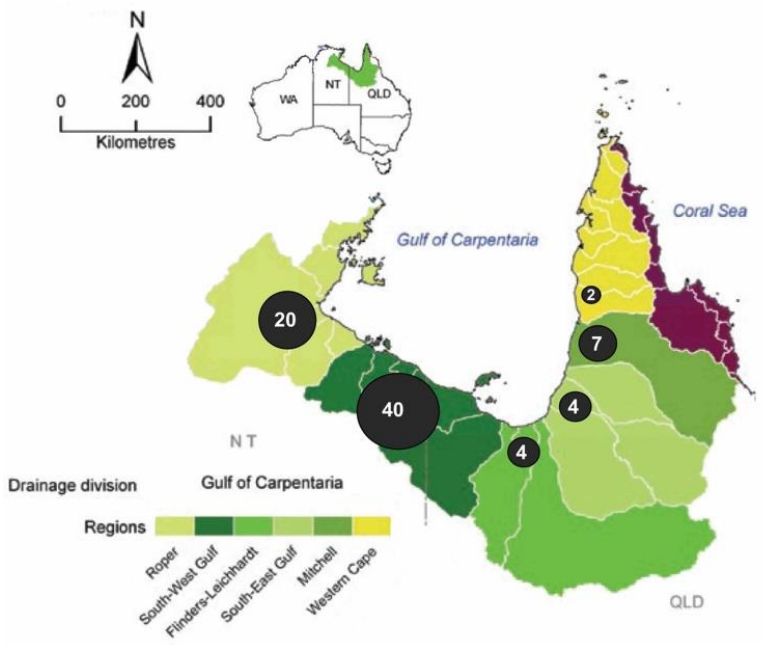

Figure 7. Extent of shoreline mangrove loss (in km2) following the 2015-16 El Nino event in 6 regional sectors of the Gulf of Carpentaria in north-eastern Australia (Duke *et al*., 2020). The relative amounts ranged between 2-10% of the total area of mangroves in each sector.

Extensive damage to shoreline vegetation in 2016 showed leaf loss and death, without other signs of physical disturbance like broken limbs or uprooting. Limmen Bight shoreline in the Northern Territory side of the Gulf of Carpentaria (NC Duke).

Of further interest and concern, it was found (Duke *et al*., 2022) that an earlier occurrence of unusually low sea levels had resulted in comparable significant losses of mangroves in the same region. This significant earlier event had gone unnoticed until 2022. While there had been recovery since the earlier event, it is acknowledged now that recovery processes have become more vulnerable, and less reliable. This concern is based on rates of recovery being negatively influenced by more frequent and severe disturbance events like severe tropical cyclones (Duke *et al*., 2024), coupled with the possibility of more frequent extreme El Nino

events and other co-occurring climate cycles driving more extreme mean sea levels, both low and high (Saintilan et al. 2022).

Region-wide Mangrove Condition Surveys

Two broadscale aerial surveys have been undertaken to appraise the condition of mangroves and tidal saltmarshes along large sections of coastline of this region from the Gulf of Carpentaria (GoC) to the Kimberley Coast (Figure 8): 1) GoC NESP survey - the north-eastern coast, specifically the Gulf of Carpentaria, between 2017 and 2020 (Duke et al., 2017, 2010, 2020); and 2) NT-WA Montara survey - the north-western coast from Broome to Darwin during 2009 (Duke et al., 2010; Pearce & Duke, 2013). These surveys acquired continuous, oblique, high-resolution, georeferenced photographs of the shoreline from helicopters flying parallel to the coastline at low altitudes ~30-100 m from the shoreline. While collecting imagery, observations were recorded of mangrove species composition, structure, condition, and potential threats by Professor Duke and Jock Mackenzie in 2017, 2019 and 2020.

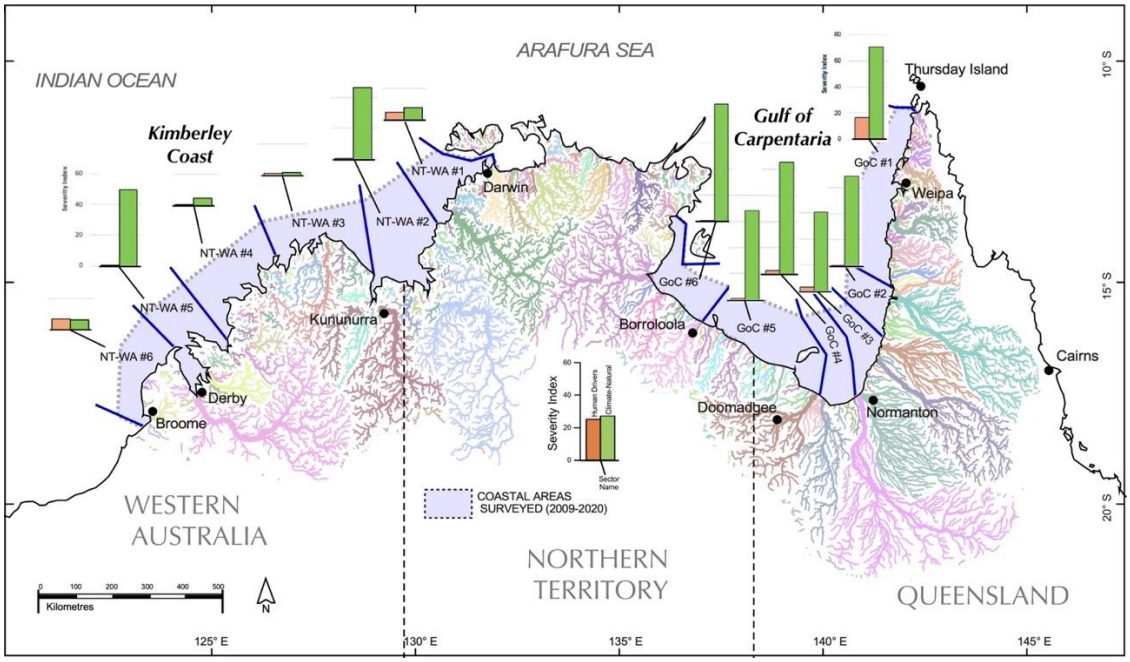

Figure 8. Aerial surveys of mangrove condition along two major coastline sections of Northern Australia (see Table 1) made in 2009 and 2017-2019 recorded environmental condition indicators of human and climate-natural drivers of change (Duke et al., 2010, 2020, 2022). Severity scores depict the notable dominance of climate-natural drivers along these sparsely populated coastal areas. Catchment tributaries, shown in arbitrary contrasting colours, depict the extent of coastal catchments across this area.

Mangrove and tidal saltmarsh communities, habitat structure, and observed environmental conditions were quantified and recorded for an assessment of the relative status and severity of human and natural-climate based drivers influencing mangrove forest condition and health. Severity scores were made where possible using 11 human and 13 climate-natural factors (see Duke et al., 2021 for indicator descriptions).

Table 1. Twelve sectors of Northern Australian coastline mangroves surveyed for assessments of shoreline habitat conditions (Figure 8), categorised in terms of Australian Natural Resource Management Regions (NRMs). Also listed are the number of estuaries and shoreline sections scored.

	NRM Region	Sector Code	Sector Locations	Scored Sections
1	Cape York – West Cape	GoC #1	West Cape	7
2	Northern Gulf - Mitchell	GoC #2	Mitchell	3
3	Northern Gulf – South East	GoC #3	SE Gulf	4
4	Southern Gulf - Leichhardt	GoC #4	Flinders-Leichhardt	2
5	Southern Gulf – South West	GoC #5	SW Gulf	14
6	Northern Territory - Roper	GoC #6	Roper	9
7	Northern Territory – Top End	NT-WA #1	Darwin-Ford	3
8	Northern Territory - Dussejour	NT-WA #2	Pearce-Dussejour	3
9	Northern Territory - Napier	NT-WA #3	Bernier-Napier	3
10	Northern Territory - Doubtful	NT-WA #4	Montague-Doubtful	3
11	Northern Territory - King	NT-WA #5	Cascade-King	2
12	Northern Territory - Broome	NT-WA #6	Beagle-Broome	2

Human related influences were relatively low compared to climate-natural threats in all sectors surveyed (Figure 8). While human effects generally coincided with more populated areas, climate-weather influences were mostly spread evenly across the region. The earlier survey also made fewer observations of the more encompassing range of indicators later scored for the Gulf of Carpentaria (Table 2), and for north-eastern Australia (De Kluyver et al., 2026).

Overall, a review of human related indicators, shows these were more evident in populated areas with built structures and modifications, excess nutrients and pollution (Table 2; Figure 9). However more widely across the region, human influences were mostly linked with rural activities like damage by livestock, introduced hooved animals, access tracks and scrub fires, plus smothering by invasive weeds. There were occasional sites of construction activity, grouped as human altered hydrology (including dams, rock walls and cut channels), direct losses (like reclamation) and encroachment (as areas with little or no buffering between developed areas and mangroves).

Table 2. Human threats (severity X extent) ranked for each sector of the Northern Australian coastline ordered from East to West (Figure 7) with severity scores from 0-1 (least severe) to 4-5 (most severe). Combined data from Duke et al. (2010, 2020, 2022).

HUMAN THREATS	1	2	3	4	5	6	7	8	9	10	11	12
Sector Code	GoC #1	GoC #2	GoC #3	GoC #4	GoC #5	GoC #6	NT-WA #1	NT-WA #2	NT-WA #3	NT-WA #4	NT-WA #5	NT-WA #6
Scored Sections	7	3	4	2	14	9	3	3	3	3	2	2
Structure Loss	0.8	1.0	0.4	0.0	1.0	0.7	1.0	0.1	0.1	0.0	0.1	1.4

Direct Loss	0.0											
Altered Hydrology	0.0											
Encroachment	0.0											
Access Tracks	0.8	1.0	0.4	0.0	1.0	0.7						
Stock Impacts	0.5	0.2	0.0	0.0	0.4	0.0						
Feral Damage	1.3	0.1	0.0	0.0	0.2	0.0						
Pollutant Impact	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nutrient Excess	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0
Fire Scorch	0.4	0.0	0.5	0.0	0.1	0.0						
Weed Smother	0.0	0.0	4.0	4.3	0.4	0.0						

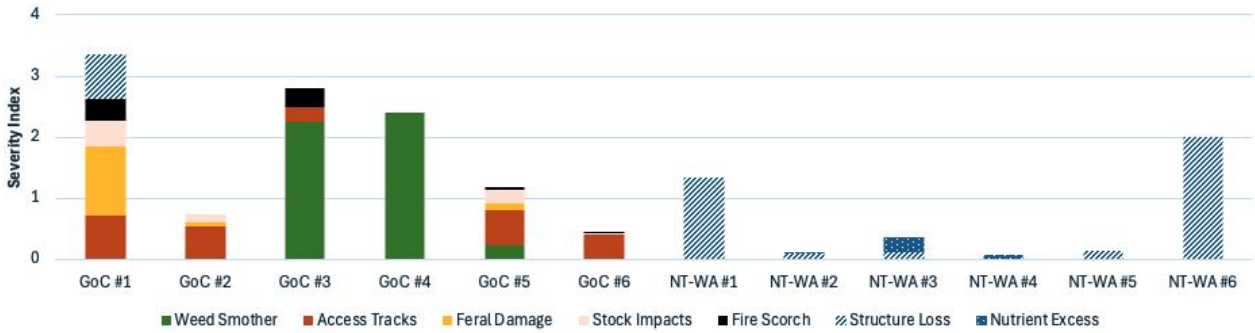

Figure 8. Observed human threats affecting Gulf of Carpentaria (Duke et al., 2020, 2022) and Northwestern (Duke et al., 2010) coasts of Australia (Table 2) include invasive weeds, access tracks, feral animal damage, stock impacts, scrub fires, plus also structural/reclamation losses and excess nutrients with algal growth.

In the Gulf of Carpentaria, the most dominant human drivers of change observed (Figure 8) included smothering by invasive weeds like Rubber Vine (*Cryptostegia grandiflora*), access tracks from off-road vehicles, introduced wild pigs (*Sus scrofa*) damage, stock impacts of grazing cattle amongst mangroves, and scrub fires burning and scorching upper intertidal mangroves. Weed smothering was notably greater around the South Eastern Gulf shoreline. Other types of influences like pollution and excess nutrients each were less evident. As noted, the presence of human factors overall were noticeably lower than climate-natural factors.

Dominant climate threats in the Gulf of Carpentaria (Table 3; Figure 9) included saltpan scouring, bank erosion and terrestrial retreat with rapidly rising sea levels, ecotone shifts with decreasing levels of rainfall, and dieback from 2015 severe ENSO event.

Table 3. Climate-Natural threats (severity X extent) ranked for each sector of the Northern Australian coastline ordered from East to West (Fig. 7) with severity scores from 0-1 (least severe) to 4-5 (most severe). Combined data from Duke et al. (2010, 2020, 2022).

CLIMATE THREATS	1	2	3	4	5	6	7	8	9	10	11	12
Sector Code	GoC #1	GoC #2	GoC #3	GoC #4	GoC #5	GoC #6	NT-WA #1	NT-WA #2	NT-WA #3	NT-WA #4	NT-WA #5	NT-WA #6
Scored Sections	7	3	4	2	14	9	3	3	3	3	2	2
Storm Damage	0.5	0.4	0.0	0.0	0.0	1.3						
Shoreline Erosion	2.3	0.7	0.0	0.0	0.3	2.1	0.8	4.0	0.2	0.1	2.0	0.8
Root Burial	0.5	0.5	0.7	0.6	0.3	0.0						
Inner Fringe Collapse	4.6											
Bank Erosion	1.7	2.9	3.9	5.0	2.6	1.6						
Pan Scouring	0.6	2.1	3.3	3.8	3.2	3.8						
Ecotone Shift -ve	2.5	2.1	0.7	2.2	1.4	1.8						
Ecotone Shift +ve	0.4											
Depositional Gain	1.1	1.8	1.6	3.2	0.7	0.9	0.3	2.7	0.0	0.6	5.0	0.1
Terrestrial Retreat	0.8	0.7	0.5	0.0	3.0	3.6						
Light Gaps	1.2	0.6	0.0	0.0	0.2	0.3						
Altered Hydrology	0.3	0.0	0.0	0.0	0.3	0.0						
2015 Dieback	0.1	2.0	1.3	2.3	2.1	2.6						

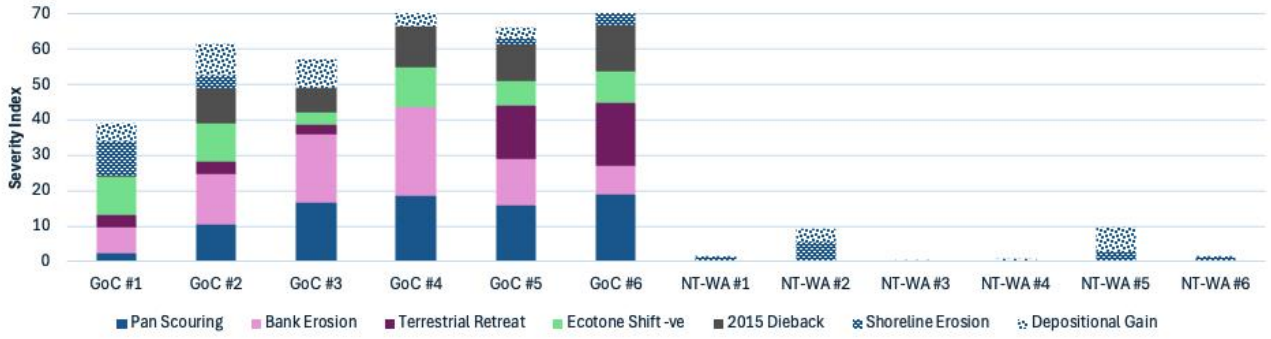

Figure 9. Observed climate-natural threats affecting Gulf of Carpentaria (Duke et al., 2020, 2022) and Northwestern (Duke et al., 2010) coasts of Australia (Table 3) include pan scouring, bank erosion (floods, storms and sea level rise), terrestrial retreat (sea level rise), ecotone shift negative (rainfall changes), 2015 ENSO dieback, shoreline erosion (sea level rise and storms).

While the effects of sea level rise were observed across the region, the indicator scores of shoreline erosion and terrestrial retreat in the Gulf of Carpentaria show a marked trend of increased indicator severity to the west (Figure 9, noting GoC#4-6) likely reflecting long-established increased rates of sea level rise along this coastline (Church et al., 2009).

A trend towards more severe and frequent tropical storms and cyclones has caused disproportionately greater damage to mangrove forests. The types of damage include direct defoliation and toppling of trees, sediment erosion, and the mass mortality of animal communities within affected ecosystems. Furthermore, these effects have been co-incidental with rising sea levels. The rates of sea level rise also vary across the region, with Darwin (Figure 6) having around 5.2 mm per year over the last 50 plus years. Combined damaging effects of severe tropical cyclones (see Duke et al., 2024) and other damaging occurrences like the severe ENSO events driving extremes in mean sea level (see Duke et al., 2022) have increased risks for mangrove regeneration and damage recovery. While mangroves are acknowledged regeneration specialists with multiple, well-developed life history traits, morphological and physiological traits, they are also highly vulnerable and limited by their fixed-rate regenerative capacity. The ever-increasing pressures on mangrove ecosystems appears to be approaching a vital threshold where damaging events are set to exceed the capacity of damaged mangrove areas to recover and regenerate (Armstrong-McKay et al., 2025).

Observations of altered states of the ecosystem, including ecosystem collapse

Ecosystem deterioration is recognised when the tree cover of dominant mangrove species declines significantly (Duke 2001). This indicates a severe loss of canopy and forest productivity that previously supported ecosystem services. These services contribute to maintaining mangrove-dependent biota, whether obligative or facultative, and the connectivity between adjacent intertidal and coastal ecosystems, such as saltmarsh, tidal saltpans, tidal mudflats, seagrass beds and coral reefs, as part of the normal exchange and functioning amongst healthy ecosystems (Barbier *et al*., 2008; Kathiresan and Bingham, 2001; Koch, *et al*., 2009; Meynecke, *et al*., 2008; Nagelkerken, *et al*., 2008).

These ecosystems exhibit remarkable dynamism, with species distributions adapting to local shifts in sediment distribution, tidal patterns, and variations in local inundation and salinity gradients (e.g. Hickey et al. 2025). Disruptive processes can trigger shifts in the dynamic equilibrium of the ecosystem, leading potentially to ecosystem collapse, if recovery is not possible. Ecosystem collapse is manifest through the following mechanisms: a) lost source of propagules after extensive regional dieback events that remove all parent material; b) restricted recruitment and survival of mangrove recruits due to adverse climatic conditions (e.g., low temperatures); c) alterations in rainfall, river inputs, waves, and tidal currents that destabilize and erode substrates, hindering recruitment and growth; d) shifts in rainfall patterns and tidal flushing altering salinity stress and nutrient loadings, impacting overall survival.

Threat Classification

IUCN Threat Classification (version 3.3, IUCN-CMP, 2022) relevant to mangroves of the NW-Sahul province:

1. Residential & commercial development

- 1.1 Housing & urban areas
- 1.2 Commercial & industrial areas

- 1.3 Tourism & recreation areas

2. Agriculture & aquaculture

- 2.1 Annual & perennial non-timber crops
  - 2.1.1 Shifting agriculture
  - 2.1.2 Small-holder farming
  - 2.1.3 Agro-industry farming
  - 2.1.4 Scale Unknown/Unrecorded
- 2.3 Livestock farming & ranching
  - 2.3.2 Small-holder grazing, ranching or farming
  - 2.3.3 Agro-industry grazing, ranching or farming
  - 2.3.4 Scale Unknown/Unrecorded
- 2.4 Marine & freshwater aquaculture
  - 2.4.2 Industrial aquaculture
  - 2.4.3 Scale Unknown/Unrecorded

3. Energy production & mining

- 3.1 Oil & gas drilling

4. Transportation & service corridors

- 4.1 Roads & railroads
- 4.2 Utility & service lines
- 4.3 Shipping lanes
- 4.4 Flight paths

5. Biological resource use

- 5.1 Hunting & collecting terrestrial animals
  - 5.1.1 Intentional use (species being assessed is the target)
  - 5.1.2 Unintentional effects (species being assessed is not the target)
  - 5.1.3 Persecution/control
  - 5.1.4 Motivation Unknown/Unrecorded
- 5.2 Gathering terrestrial plants
  - 5.2.1 Intentional use (species being assessed is the target)
  - 5.2.2 Unintentional effects (species being assessed is not the target)
  - 5.2.3 Persecution/control
  - 5.2.4 Motivation Unknown/Unrecorded
- 5.3 Logging & wood harvesting
  - 5.3.1 Intentional use: subsistence/small scale (species being assessed is the target [harvest]
  - 5.3.3 Unintentional effects: subsistence/small scale (species being assessed is not the target) [harvest]
  - 5.3.5 Motivation Unknown/Unrecorded
- 5.4 Fishing & harvesting aquatic resources

- 5.4.1 Intentional use: subsistence/small scale (species being assessed is the target) [harvest]
- 5.4.2 Intentional use: large scale (species being assessed is the target) [harvest]
- 5.4.3 Unintentional effects: subsistence/small scale (species being assessed is not the target) [harvest]
- 5.4.4 Unintentional effects: large scale (species being assessed is not the target) [harvest]
- 5.4.5 Persecution/control
- 5.4.6 Motivation Unknown/Unrecorded

6. Human intrusions & disturbance

- 6.1 Recreational activities
- 6.2 War, civil unrest & military exercises
- 6.3 Work & other activities

7. Natural system modifications

- 7.1 Fire & fire suppression
  - 7.1.1 Increase in fire frequency/intensity
  - 7.1.2 Suppression in fire frequency/intensity
  - 7.1.3 Trend Unknown/Unrecorded
- 7.2 Dams & water management/use
  - 7.2.1 Abstraction of surface water (domestic use)
  - 7.2.2 Abstraction of surface water (commercial use)
  - 7.2.3 Abstraction of surface water (agricultural use)
  - 7.2.4 Abstraction of surface water (unknown use)
  - 7.2.5 Abstraction of ground water (domestic use)
  - 7.2.6 Abstraction of ground water (commercial use)
  - 7.2.7 Abstraction of ground water (agricultural use)
  - 7.2.8 Abstraction of ground water (unknown use)
  - 7.2.9 Small dams
  - 7.2.10 Large dams
  - 7.2.11 Dams (size unknown)
- 7.3 Other ecosystem modifications

8. Invasive & other problematic species, genes & diseases

- 8.1 Invasive non-native/alien species/diseases
  - 8.1.1 Unspecified species
  - 8.1.2 Named species
- 8.2 Problematic native species/diseases
  - 8.2.1 Unspecified species
  - 8.2.2 Named species
- 8.4 Problematic species/diseases of unknown origin

- 8.4.1 Unspecified species
- 8.4.2 Named species

- 8.5 Viral/prion-induced diseases
  - 8.5.1 Unspecified "species" (disease)
  - 8.5.2 Named "species" (disease)
- 8.6 Diseases of unknown cause

9. Pollution

- 9.1 Domestic & urban waste water
  - 9.1.1 Sewage
  - 9.1.2 Run-off
  - 9.1.3 Type Unknown/Unrecorded
- 9.2 Industrial & military effluents
  - 9.2.1 Oil spills
  - 9.2.2 Seepage from mining
  - 9.2.3 Type Unknown/Unrecorded
- 9.3 Agricultural & forestry effluents
  - 9.3.1 Nutrient loads
  - 9.3.2 Soil erosion, sedimentation
  - 9.3.3 Herbicides & pesticides
  - 9.3.4 Type Unknown/Unrecorded
- 9.4 Garbage & solid waste
- 9.5 Air-borne pollutants
  - 9.5.1 Acid rain
  - 9.5.2 Smog
  - 9.5.3 Ozone
  - 9.5.4 Type Unknown/Unrecorded
- 9.6 Excess energy
  - 9.6.1 Light pollution
  - 9.6.2 Thermal pollution
  - 9.6.3 Noise pollution
  - 9.6.4 Type Unknown/Unrecorded

10. Geological events

- 10.2 Earthquakes/tsunamis
- 10.3 Avalanches/landslides

11. Climate change & severe weather

- 11.1 Habitat shifting & alteration
- 11.2 Droughts
- 11.3 Temperature extremes
- 11.4 Storms & flooding

- 11.5 Other impacts

4. Ecosystem Assessment

Criterion A: Reduction in Geographic Distribution

Subcriterion A1 measures the trend in ecosystem extent during the last 50-year time window. Unfortunately, there is currently no common regional dataset, or country-level studies for all jurisdictions that, together, provide information for the entire target area in 1970. There are no Australian, Indonesian or Papua New Guinean field-based studies that account for mangrove extent at regional levels, and insufficient local studies that, when aggregated, can provide a comprehensive account of mangrove extent within this province for the period around 1970, or later.

Satellite-based approaches, such as those discussed in the introduction, have provided more recent estimates of mangrove extent across the jurisdictions encompassed by the province. These extend from 1988, or 1996, onwards, depending on the origin of the spatial data. To estimate the NW-Sahul mangrove area from 1996 to 2020, we used the most recent version of the Global Mangrove Watch (GMW v3.0) spatial dataset. The mangrove area in the province (and in the corresponding countries) was corrected for both omission and commission errors, utilizing the equations in Bunting *et al.* (2022). Based on these data there was a loss of 516.1 km^2 of mangrove habitat in the period 1996 to 2020, which represents a -2.8 % net area change. This value reflects the offset between areas gained (+ 0.1%/year) and lost (- 0.2%/year).

Applying a linear regression to the 1996 to 2020 area estimates we obtained a rate of change of -0.1%/year (figure 8). Assuming this trend extends into the past, it is estimated that the extent of mangroves in the NW-Sahul province decreased by 1,014.8 km^2, which is approximately 5.3% decrease in its mangrove area over the last 50 years (1970-2020). Given that the change in geographic distribution is below the 30% risk threshold for this 50-year period, the ecosystem is assessed as **Least Concern** (**LC**) under subcriterion A1.

	Area 2020* (Km^2)	Area 1970* (Km^2)	Net area Change (Km^2)	% Net Area Change	Rate of change (%/year)
Mangroves of the NW-Sahul	18061.4	19076.2	-1014.8	5.3%	0.1%/yr

** Details on the methods and references used to estimate the mangrove area in 1970 are listed in appendix 3.*

Total mangrove area in 2020 is based on the Global Mangrove Watch Version 3 (GMW v3.0) dataset.

Subcriterion A2 measures the change in ecosystem extent in any 50-year period, including from the present to the future: Again, applying linear regression to the 1996 to 2020 area estimates, and extrapolating with a rate of change of -0.1%/year, it is predicted that the extent of mangroves in the NW-Sahul province will change by -5.9% from 1996 to 2046; by -8.6% from 1996 to 2070; but by -6.0% from 2020 to 2070 (figure 3). Given

that these predicted changes in mangrove extent are below the 30% risk threshold, the NW-Sahul mangrove ecosystem is assessed as **Least Concern** (**LC**) under subcriterion A2.

Subcriterion A3 measures changes in mangrove area since 1750. Unfortunately, there are no reliable data on the mangrove extent for the entire province during this period, and therefore the NW-Sahul mangrove ecosystem is classified as **Data Deficient** (**DD**) for this subcriterion.

Overall, the NW-Sahul Shelf province is assessed as **Least Concern** (**LC**) under criterion A.

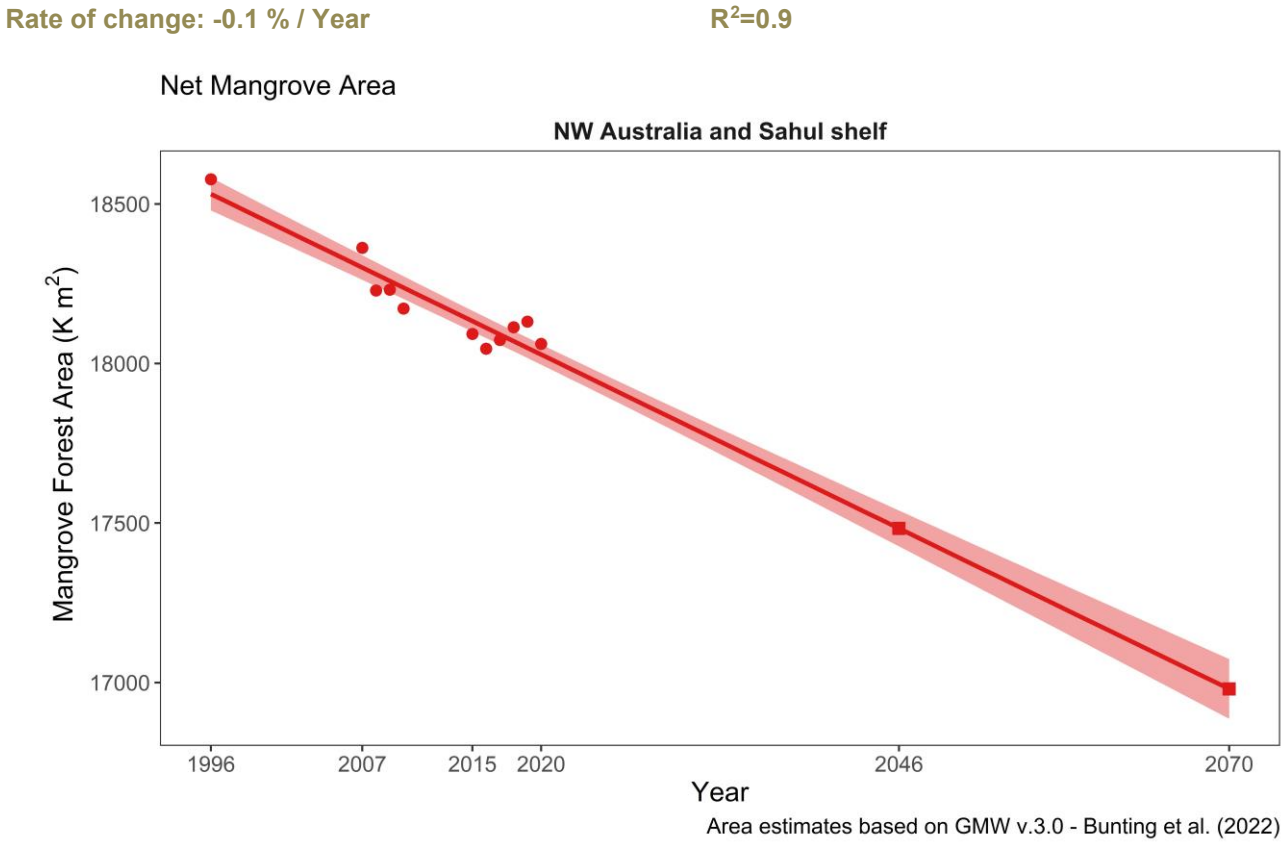

Figure 8. Projected extent of the NW-Sahul Shelf mangrove ecosystem to 2070. Circles represent the province mangrove area between 1996 and 2020 based on the GMW v3.0 dataset and equations in Bunting *et al*., (2022). The solid line and shaded area are the linear regression and 95% confidence intervals. Squares show the NW-Sahul Shelf province predicted mangrove area for 2046 and 2070. It is important to note that an exponential model (proportional rate of decline) did not give a better fit to the data (R^2 = 0.9).

Criterion B: Restricted Geographic Distribution

Criterion B measures the risk of ecosystem collapse associated with restricted geographical distribution, based on standard metrics (Extent of Occurrence EOO, Area of Occupancy AOO, and Threat-defined locations). These parameters were calculated based on the 2020 NW-Sahul province mangrove extent (GMW v.3).

Province	Extent of Occurrence EOO (Km^2)	Area of Occupancy (AOO)	Criterion B
The NW-Sahul Shelf	3,768,756.5	2478	**LC**

For 2020, AOO and EOO were measured as 2478 grid cells 10 x 10 km and 3,768,756.5 km^2, respectively (figure 9). Excluding from the AOO those grid cells that contain patches of mangrove forest that account for less than 1% of the grid cell area, (< 1 km^2), the AOO is measured as 1647, 10 x 10 km grid cells (Figure 4, red grids).

Considering the very high number of threat-defined-locations, there is no evidence of plausible catastrophic threats leading to potential disappearance of mangroves across their extent. As a result, the NW-Sahul mangrove ecosystem is assessed as **Least Concern** (**LC**) under criterion B.

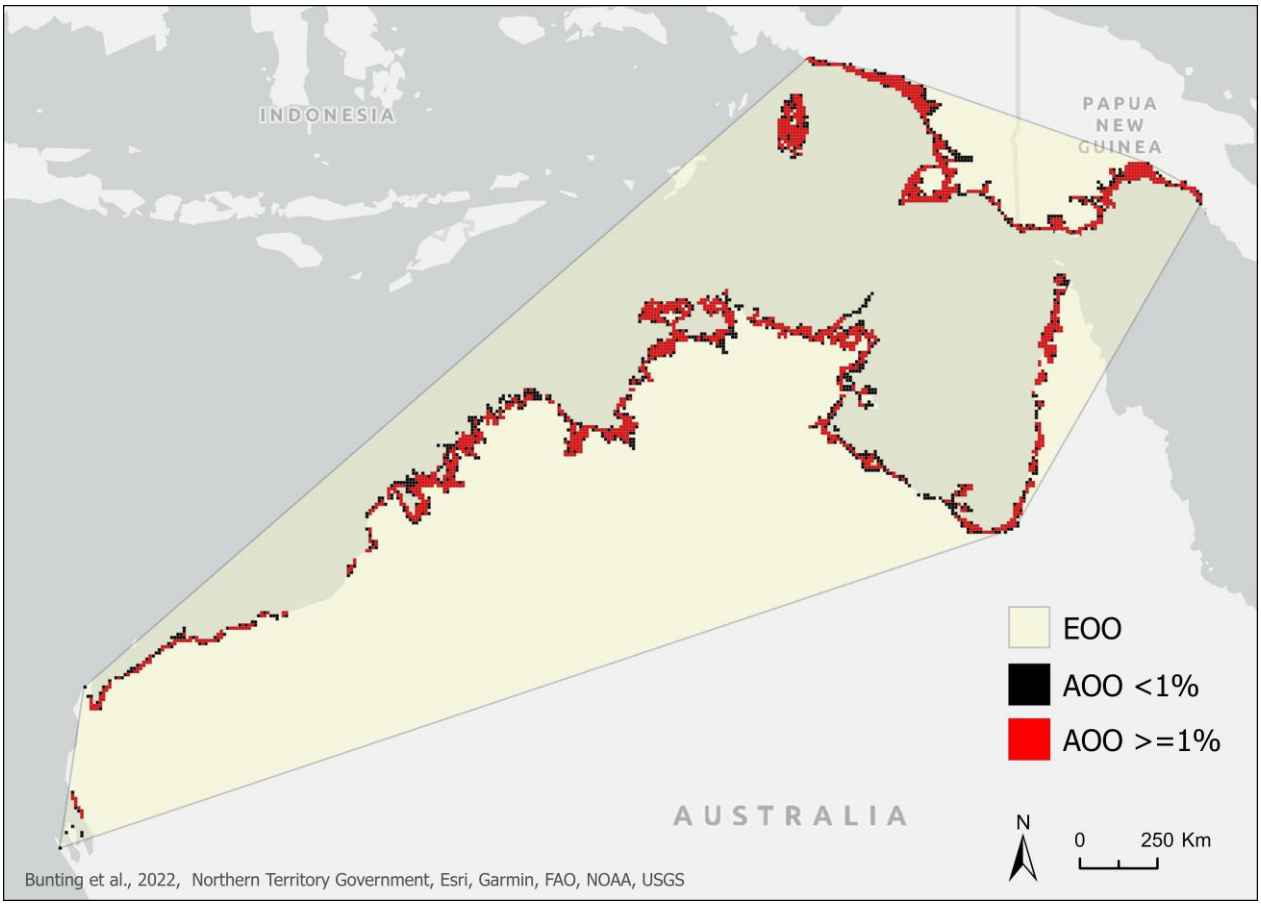

Figure 9. The NW-Sahul mangrove Extent Of Occurrence (EOO) and Area Of Occupancy (AOO) in 2020. Estimates based on 2020 GMW v3.0 spatial layer (Bunting *et al.*, 2022). The red 10 x 10 km grids (n=1647.) are more than 1% covered by the ecosystem, and the black grids <1% (n= 831).

Criterion C: Environmental Degradation

Criterion C measures the environmental degradation of abiotic variables necessary to support the ecosystem. Subcriterion C1 measures environmental degradation over the past 50 years: There are no reliable data to evaluate this subcriterion for the entire province, and therefore the NW-Sahul mangrove ecosystem is classified as **Data Deficient** (**DD**) for subcriterion C1.

Subcriterion C2 measures environmental degradation in the future, or over any 50-year period, including from the present. In this context, the impact of future sea level rise (SLR) on mangrove ecosystems was assessed by adopting the methodology presented by Schuerch *et al.* (2018). The published model was designed to calculate both absolute and relative change in the extent of wetland ecosystems under various regional SLR

scenarios (i.e. medium: RCP 4.5 and high: RCP 8.5), with consideration for sediment accretion. Therefore, Schuerch *et al*. (2018) model was applied to the NW-Sahul mangrove ecosystem boundary, using the spatial extent in 2010 (Giri *et al.,*2018) and assuming mangrove landward migration was not possible.

According to the results, under an extreme 1.1 m sea-level rise by 2100 scenario, the projected submerged area is approximately -7.6% by 2060, which remains below the 30% risk threshold. Therefore, considering that no mangrove recruitment can occur in a submerged system (100% relative severity), but that only 7.6% of the ecosystem extent will be affected by SLR, the NW-Sahul mangrove ecosystem is assessed as **Least Concern** (**LC**) for subcriterion C2.

Subcriterion C3 measures change in abiotic variables since 1750. There is a lack of reliable historic data on environmental degradation covering the entire province, and therefore the NW-Sahul province is classified as **Data Deficient** (**DD**) for this subcriterion.

Overall, the ecosystem is assessed as **Least Concern** (**LC**) under criterion C.

Criterion D: Disruption of biotic processes or interactions

The global mangrove degradation map developed by Worthington and Spalding (2018) was used to assess the level of biotic degradation in the NW-Sahul province. This map is based on degradation metrics calculated from vegetation indices (NDVI, EVI, SAVI, NDMI) using Landsat time series (≈2000 and 2017). These indices represent vegetation greenness and moisture condition.

Mangrove degradation was calculated at a pixel scale (30 m resolution), on areas intersecting with the 2017 mangrove extent map (GMW v2). Mangrove pixels were classified as degraded if two conditions were met: 1) at least 10 out of 12 degradation indices showed a decrease of more than 40% compared to the previous period; and 2) none of the twelve indices recovered to within 20% of their pre-2000 value (detailed methods and data are available at: maps.oceanwealth.org/mangrove-restoration/). The decay in vegetation indices has been used to identify mangrove degradation and abrupt changes, including mangrove die-back events, clear-cutting, fire damage, and logging; as well as to track mangrove regeneration (Lovelock *et al.,* 2017; Santana*.,* 2019; Murray *et al.,* 2020; Aljahdali *et al.,* 2021; Lee *et al.,* 2021). However, it is important to consider that changes observed in the vegetation indices can also be influenced by data artifacts (Akbar *et al.,* 2020). Therefore, a relative severity level of more than 50%, but less than 80%, was assumed.

The results from this analysis show that over a period of 17 years (~2000 to 2017), 0.8% of the NW-Sahul mangrove area is classified as degraded, resulting in an average annual rate of degradation of 0.05%. Assuming this trend remains constant, a further 2.5% of the NW-Sahul mangrove area would be classified as degraded over a 50-year period. Since less than 30% of the ecosystem will meet the category thresholds for criterion D, the NW-Sahul mangrove province is assessed as **Least Concern** (**LC**) under subcriterion D2b.

No data were found to assess the disruption of biotic processes and degradation over the past 50 years (subcriterion D1) or since 1750 (subcriterion D3). Thus, both subcriteria are classified as **Data Deficient** (**DD**).

Overall, the NW-Sahul ecosystem remains **Least Concern** (**LC**) under criterion D.

Criterion E: Quantitative Risk

No model was used to quantitatively assess the risk of ecosystem collapse for this ecosystem; hence criterion E was **Not Evaluated** (**NE**).

5. Summary of the Assessment

CRITERION			
A. Reduction in Geographic Distribution	**A1** Past 50 years	**A2** Future or any 50y period	**A3** Historical (1750)
	LC	LC	DD
B. Restricted Geo. Distribution	**B1** Extent of Occurrence	**B2** Area of Occupancy	**B3** # Threat-defined Locations >5
	LC	LC	LC
C. Environmental Degradation	**C1** Past 50 years (1970)	**C2** Future or any 50y period	**C3** Historical (1750)
	DD	LC	DD
D. Disruption of biotic processes	**D1** Past 50 years (1970)	**D2** Future or Any 50y period	**D3** Historical (1750)
	DD	LC	DD
E. Quantitative Risk analysis	NE		
OVERALL RISK CATEGORY	LC		

DD = Data Deficient; LC = Least Concern; NE = Not Evaluated

Overall, the status of the NW-Sahul mangrove ecosystem is assessed as **Least Concern** (**LC**).

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Acknowledgments
The development of the Northwest Australia and Sahul shelf Mangrove Red List of Ecosystems was made possible through the collaboration and dedication of the following academic and public service professionals who provided additional advice and resources:

- Kristian Bell, Blue Carbon Lab, RMIT University, Victoria, Australia
- Sabine Dittmann, College of Science and Engineering, Flinders University, South Australia, Australia
- Patrick Dwyer, Marine Estate Management – Coastal Systems (Offsets and Blue Carbon), NSW Department of Primary Industries – Fisheries, New South Wales, Australia
- Jim Longworth, Data and Analysis Branch - Geospatial Data Assets, Australian Government Department of Climate Change, Energy, the Environment and Water, Australian Capital Territory, Australia
- Richard Lucas, Sêr Cymru research chair in Earth observation, Aberystwyth University, Wales, United Kingdom
- Leo Lymburner, National Earth and Marine Observation Group, Geoscience Australia, Australian Capital Territory, Australia
- Nick Murray, Global Ecology Lab, College of Science and Engineering, James Cook University, Queensland, Australia
- Neil Saintilan, School of Natural Sciences – Marine research Centre, Macquarie University, New South Wales, Australia

We would also like to thank the IUCN SSC Mangrove Specialist Group and the Global Mangrove Alliance Science Working group, for their support in the delineation of the level 4 mangrove units that were the basis for this analysis. Special thanks to José Rafael Ferrer-Paris for his contribution to the production of the general ecosystem description template for the RLE mangrove assessments. We also wish to acknowledge Thomas Worthington for kindly providing the spatial data on mangrove degradation.

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The term "true mangrove" is considered misleading, erroneous and redundant, as determined during the recent IUCN Mangrove Specialist Group Red List Workshop in Abu Dhabi (April 2025). As such, we have not used this unnecessary descriptor in this publication.

7. Appendices

1. List of Key Mangrove Species

List of mangrove plant species according to Red List of Threatened Species (RLTS) spatial data (IUCN, 2022) and authoritative accounts (Duke, 2025. We included species whose range maps intersected with the boundary of the marine provinces/ecoregions described in the distribution section.

Class	Order	Family	Scientific name	RLTS category
Magnoliopsida	Lamiales	Acanthaceae	*Acanthus ebracteatus*	LC
Magnoliopsida	Lamiales	Acanthaceae	*Acanthus ilicifolius*	LC
Polypodiopsida	Polypodiales	Pteridaceae	*Acrostichum aureum*	LC
Polypodiopsida	Polypodiales	Pteridaceae	*Acrostichum speciosum*	LC
Magnoliopsida	Caryophyllales	Plumbaginaceae	*Aegialitis annulata*	LC
Magnoliopsida	Ericales	Primulaceae	*Aegiceras corniculatum*	LC
Magnoliopsida	Lamiales	Acanthaceae	*Avicennia alba*	LC
Magnoliopsida	Lamiales	Acanthaceae	*Avicennia integra*	VU
Magnoliopsida	Lamiales	Acanthaceae	*Avicennia marina*	LC
Magnoliopsida	Lamiales	Acanthaceae	*Avicennia officinalis*	LC
Magnoliopsida	Lamiales	Acanthaceae	*Avicennia rumphiana*	VU

Magnoliopsida	Ericales	Lecythidaceae	*Barringtonia racemosa*	LC
Magnoliopsida	Malpighiales	Rhizophoraceae	*Bruguiera cylindrica*	LC
Magnoliopsida	Malpighiales	Rhizophoraceae	*Bruguiera dungarra*	
Magnoliopsida	Malpighiales	Rhizophoraceae	*Bruguiera exaristata*	LC
Magnoliopsida	Malpighiales	Rhizophoraceae	*Bruguiera gymnorhiza*	LC
Magnoliopsida	Malpighiales	Rhizophoraceae	*Bruguiera hainesii*	CR
Magnoliopsida	Malpighiales	Rhizophoraceae	*Bruguiera parviflora*	LC
Magnoliopsida	Malpighiales	Rhizophoraceae	*Bruguiera rhynchopetala*	
Magnoliopsida	Malpighiales	Rhizophoraceae	*Bruguiera sexangula*	LC
Magnoliopsida	Malvales	Malvaceae	*Camptostemon schultzii*	LC
Magnoliopsida	Malpighiales	Rhizophoraceae	*Ceriops australis*	LC
Magnoliopsida	Malpighiales	Rhizophoraceae	*Ceriops pseudodecandra*	LC
Magnoliopsida	Malpighiales	Rhizophoraceae	*Ceriops tagal*	LC
Magnoliopsida	Myrtales	Combretaceae	*Conocarpus erectus*	LC
Magnoliopsida	Fabales	Fabaceae	*Cynometra iripa*	LC
Magnoliopsida	Ericales	Ebenaceae	*Diospyros littorea*	VU
Magnoliopsida	Lamiales	Bignoniaceae	*Dolichandrone spathacea*	LC

Magnoliopsida	Malpighiales	Euphorbiaceae	*Excoecaria agallocha*	LC
Magnoliopsida	Malvales	Malvaceae	*Heritiera littoralis*	LC
Magnoliopsida	Myrtales	Combretaceae	*Lumnitzera littorea*	LC
Magnoliopsida	Myrtales	Combretaceae	*Lumnitzera racemosa*	LC
Magnoliopsida	Myrtales	Combretaceae	*Lumnitzera rosea*	
Liliopsida	Arecales	Arecaceae	*Nypa fruticans*	LC
Magnoliopsida	Myrtales	Myrtaceae	*Osbornia octodonta*	LC
Magnoliopsida	Myrtales	Lythraceae	*Pemphis acidula*	LC
Magnoliopsida	Malpighiales	Rhizophoraceae	*Rhizophora annamalayana*	
Magnoliopsida	Malpighiales	Rhizophoraceae	*Rhizophora apiculata*	LC
Magnoliopsida	Malpighiales	Rhizophoraceae	*Rhizophora lamarckii*	
Magnoliopsida	Malpighiales	Rhizophoraceae	*Rhizophora mucronata*	LC
Magnoliopsida	Malpighiales	Rhizophoraceae	*Rhizophora stylosa*	LC
Magnoliopsida	Gentianales	Rubiaceae	*Scyphiphora hydrophylacea*	LC
Magnoliopsida	Myrtales	Lythraceae	*Sonneratia alba*	LC
Magnoliopsida	Myrtales	Lythraceae	*Sonneratia caseolaris*	LC
Magnoliopsida	Myrtales	Lythraceae	*Sonneratia gulngai*	

Magnoliopsida	Myrtales	Lythraceae	*Sonneratia lanceolata*	LC
Magnoliopsida	Myrtales	Lythraceae	*Sonneratia ovata*	NT
Magnoliopsida	Myrtales	Lythraceae	*Sonneratia urama*	
Magnoliopsida	Sapindales	Meliaceae	*Xylocarpus granatum*	LC
Magnoliopsida	Sapindales	Meliaceae	*Xylocarpus moluccensis*	LC

2. List of Associated Species

List of taxa that are associated with mangrove habitats in the Red List of Threatened Species (RLTS) database (IUCN, 2022). We included only species with entries for Habitat 1.7: "Forest - Subtropical/Tropical Mangrove Vegetation Above High Tide Level" or Habitat 12.7 for "Marine Intertidal - Mangrove Submerged Roots", and with suitability recorded as "Suitable", with "Major Importance" recorded as "Yes", and any value of seasonality except "Passage". We further filtered species with spatial point records in the GBIF (some species are excluded due to mismatch in taxonomic names, or lack of georeferenced records). The common names are those shown in the RLTS, except common names in brackets, which are from other sources.

Class	Order	Family	Scientific name	RLTS category	Common name
Actinopterygii	Albuliformes	Albulidae	*Albula glossodonta*	VU	Shortjaw Bonefish
Actinopterygii	Anguilliformes	Muraenidae	*Gymnothorax monochrous*	LC	Brown Moray, Drab Moray, Monochrome Moray, Monotone Moray, Plain Moray Eel
Actinopterygii	Anguilliformes	Muraenidae	*Uropterygius concolor*	LC	Brown Reef-eel, Unicolor Snake Moray, Uniform Reef-eel, Brown Moray Eel
Actinopterygii	Anguilliformes	Ophichthidae	*Scolecenchelys macroptera*	LC	Narrow Worm Eel, Slender Snake Eel

Class	Order	Family	Scientific name	RLTS category	Common name
Actinopterygii	Atheriniformes	Atherinidae	*Atherinomorus lacunosus*	LC	Sheschusu, Hardyhead Silverside
Actinopterygii	Atheriniformes	Pseudomugilidae	*Pseudomugil paludicola*	LC	Swamp Blue-Eye
Actinopterygii	Aulopiformes	Synodontidae	*Saurida nebulosa*	LC	Blotched Grinner, Blotched Saury, Clouded Saury, Nebulous Lizardfish, Anoli Nuageux, Clouded Lizardfish
Actinopterygii	Aulopiformes	Synodontidae	*Synodus sageneus*	LC	Anoli Poignard, Lagarto Espadachin, Speartoothed Grinner
Actinopterygii	Beloniformes	Zenarchopteridae	*Zenarchopterus buffonis*	LC	Buffon's River Garfish
Actinopterygii	Beloniformes	Zenarchopteridae	*Zenarchopterus dispar*	LC	Estuarine Halfbeak, Halfbeak, Spoon-fin Garfish, Spoonfin River Garfish, Viviparous Garfish, Viviparous Half Beak, Bigiw, Hémiramphe Dissemblable, I'usila, Jolong-jolong, Jolong Kajangan, Kajangan, Kansusuit, Kolaan, Morella, Patlay, Sa-sa, Siriw, Suasid, Sugi, Susay, Feathered River-garfish
Actinopterygii	Beloniformes	Zenarchopteridae	*Zenarchopterus dunckeri*	LC	
Actinopterygii	Beloniformes	Zenarchopteridae	*Zenarchopterus gilli*	LC	Estuary Garfish, Halfbeak, Short-nosed

Class	Order	Family	Scientific name	RLTS category	Common name
					River-garfish, Short-nosed River Halfbeak, Viviparous Halfbeak, Jolong Beguk, Jolong-jolong, Nyulung, Shortnose River Garfish
Actinopterygii	Beloniformes	Zenarchopteridae	*Zenarchopterus pappenheimi*	LC	Bangkok Halfbeak
Actinopterygii	Beloniformes	Zenarchopteridae	*Zenarchopterus rasori*	LC	
Actinopterygii	Clupeiformes	Clupeidae	*Anodontostoma selangkat*	LC	Indonesian Gizzard Shad
Actinopterygii	Clupeiformes	Clupeidae	*Sardinella albella*	LC	Perforated-scale Sardine, Sardine, Short-bodied Sardine, White Sardinelle, Sardinela Blanca, Sardinelle blanche, Sardinha Branca, White Sardinella
Actinopterygii	Clupeiformes	Clupeidae	*Sardinella fijiense*	LC	Fiji Herring, Fiji Sardinella
Actinopterygii	Clupeiformes	Clupeidae	*Sardinella melanura*	LC	Blacktip Sardinella
Actinopterygii	Clupeiformes	Engraulidae	*Encrasicholina punctifer*	LC	Anchovy, Commerson's anchovy, Oceanic anchovy, Anchois boucanier, Buccaneer anchovy
Actinopterygii	Clupeiformes	Engraulidae	*Stolephorus andhraensis*	LC	Andhra Anchovy
Actinopterygii	Clupeiformes	Engraulidae	*Stolephorus carpentariae*	LC	Gulf of Carpenteria Anchovy
Actinopterygii	Clupeiformes	Engraulidae	*Stolephorus nelsoni*	DD	

Class	Order	Family	Scientific name	RLTS category	Common name
Actinopterygii	Clupeiformes	Engraulidae	*Thryssa baelama*	LC	Anchovy, Baelama Anchovy, Dussumier's Thryssa, Hairfin Anchovy, Little Priest, Short-jawed Anchovy, Thryssa, Anchois-moustache sardin, Bocarte Belama, Petite Sardine, Sardine bâtarde
Actinopterygii	Clupeiformes	Engraulidae	*Thryssa brevicauda*	LC	Short-tail Thryssa
Actinopterygii	Clupeiformes	Pristigasteridae	*Pellona ditchela*	LC	Ummusfeta, Indian Pellona
Actinopterygii	Elopiformes	Elopidae	*Elops hawaiensis*	DD	
Actinopterygii	Elopiformes	Elopidae	*Elops machnata*	LC	
Actinopterygii	Elopiformes	Megalopidae	*Megalops cyprinoides*	DD	
Actinopterygii	Gobiiformes	Eleotridae	*Bostrychus sinensis*	LC	Chinese Gudgeon, Four-eyed Sleeper
Actinopterygii	Gobiiformes	Eleotridae	*Bostrychus zonatus*	LC	Barred Gudgeon, Sunset Gudgeon
Actinopterygii	Gobiiformes	Eleotridae	*Butis amboinensis*	LC	Olive Flathead-gudgeon, Ambon Gudgeon
Actinopterygii	Gobiiformes	Eleotridae	*Butis butis*	LC	Crazy Fish, Crimson-tipped Flathead Gudgeon, Crimson-tipped Flathead-sleeper, Duckbill Sleeper, Flat-headed Gudgeon, Pointed Head Gudgeon, Upside Down Sleeper, Crimson-tipped Gudgeon

Class	Order	Family	Scientific name	RLTS category	Common name
Actinopterygii	Gobiiformes	Eleotridae	*Butis gymnopomus*	LC	Gestreifte Spitzkopfgrundel, Striped Crazy Fish
Actinopterygii	Gobiiformes	Eleotridae	*Butis koilomatodon*	LC	Mud Sleeper, Bufanlueai, Durmiente, Modder-slaper, Puntang, Marblecheek Sleeper
Actinopterygii	Gobiiformes	Eleotridae	*Eleotris fusca*	LC	Dusky Sleeper, Donker Slaper, Brown Spinecheek Gudgeon
Actinopterygii	Gobiiformes	Eleotridae	*Eleotris melanosoma*	LC	Black Spinecheek Gudgeon, Breekop-slaper, Broadhead Sleeper
Actinopterygii	Gobiiformes	Eleotridae	*Ophiocara porocephala*	LC	Flathead Sleeper, Northern Mud Gudgeon, Bau, Cabot des Seychelles, Hoshimadarahaze, Matapolo, Paku, Spangled Gudgeon
Actinopterygii	Gobiiformes	Eleotridae	*Prionobutis microps*	LC	Small-eyed Sleeper
Actinopterygii	Gobiiformes	Gobiidae	*Acentrogobius audax*	LC	
Actinopterygii	Gobiiformes	Gobiidae	*Acentrogobius gracilis*	LC	Slender Amoya
Actinopterygii	Gobiiformes	Gobiidae	*Acentrogobius janthinopterus*	LC	Green-spotted Goby, Pupilspot Goby, Robust Mangrove Goby, Mangrove Goby
Actinopterygii	Gobiiformes	Gobiidae	*Amblyeleotris gymnocephala*	LC	Mask Shrimpgoby, Nakedhead Shrimpgoby, Masked Shrimpgoby

Class	Order	Family	Scientific name	RLTS category	Common name
Actinopterygii	Gobiiformes	Gobiidae	*Amblygobius esakiae*	LC	Snoutspot Goby, Snout-spot Goby
Actinopterygii	Gobiiformes	Gobiidae	*Amblygobius stethophthalmus*	LC	Freckled Goby
Actinopterygii	Gobiiformes	Gobiidae	*Asterropteryx semipunctata*	LC	Bluespotted Goby, Halfspotted Goby, Star-finned Goby, Starryfin Goby, Starry Goby
Actinopterygii	Gobiiformes	Gobiidae	*Boleophthalmus caeruleomaculatus*	LC	Blue-spotted Mudhopper, Blue-spotted Mudskipper, Goggle-eyed Mudskipper
Actinopterygii	Gobiiformes	Gobiidae	*Caragobius urolepis*	LC	Scaleless Worm Goby
Actinopterygii	Gobiiformes	Gobiidae	*Cryptocentrus leptocephalus*	LC	Leptocephalus Prawn-goby, Pink-spotted Watchman Goby, Singapore Shrimp-goby, Pink-speckled Shrimpgoby
Actinopterygii	Gobiiformes	Gobiidae	*Drombus halei*	LC	Hale's Drombus
Actinopterygii	Gobiiformes	Gobiidae	*Drombus triangularis*	LC	Brown Drombus
Actinopterygii	Gobiiformes	Gobiidae	*Eugnathogobius variegatus*	LC	Stripeface Goby
Actinopterygii	Gobiiformes	Gobiidae	*Exyrias puntang*	LC	Silver-spotted Goby, Silver Spotted Goby, Puntang Goby
Actinopterygii	Gobiiformes	Gobiidae	*Glossogobius circumspectus*	LC	Circumspect Flat-head Goby, Mangrove Flathead Goby, Circumspect Goby
Actinopterygii	Gobiiformes	Gobiidae	*Gnatholepis ophthalmotaenia*	LC	

Class	Order	Family	Scientific name	RLTS category	Common name
Actinopterygii	Gobiiformes	Gobiidae	*Hemigobius hoevenii*	LC	Banded Mullet-goby
Actinopterygii	Gobiiformes	Gobiidae	*Istigobius ornatus*	LC	Ornate Goby
Actinopterygii	Gobiiformes	Gobiidae	*Mahidolia mystacina*	LC	Smiling Goby, Flagfin Prawn Goby
Actinopterygii	Gobiiformes	Gobiidae	*Mugilogobius mertoni*	LC	Chequered Mangrove Goby, Gobi milet, Merton's Mangrove Goby
Actinopterygii	Gobiiformes	Gobiidae	*Mugilogobius platystoma*	LC	Bigmouth Mangrove Goby, Island Mangrove Goby, Indonesian Goby
Actinopterygii	Gobiiformes	Gobiidae	*Mugilogobius wilsoni*	LC	Wilson's Goby
Actinopterygii	Gobiiformes	Gobiidae	*Oligolepis jaarmani*	LC	Jaarman’s Goby
Actinopterygii	Gobiiformes	Gobiidae	*Oligolepis stomias*	DD	
Actinopterygii	Gobiiformes	Gobiidae	*Oxyurichthys microlepis*	LC	Long-tailed Goby, Small-scaled Goby, Maned Goby
Actinopterygii	Gobiiformes	Gobiidae	*Oxyurichthys ophthalmonema*	LC	Tentacle-goby, Eyebrow Goby
Actinopterygii	Gobiiformes	Gobiidae	*Oxyurichthys takagi*	LC	
Actinopterygii	Gobiiformes	Gobiidae	*Pandaka rouxi*	LC	Aru Pandaka
Actinopterygii	Gobiiformes	Gobiidae	*Parachaeturichthys polynema*	LC	Ocellus-tail Goby, Taileyed Goby, Lancet-tail Goby
Actinopterygii	Gobiiformes	Gobiidae	*Paratrypauchen microcephalus*	LC	Blind Goby, Red Eel Goby, Comb Goby
Actinopterygii	Gobiiformes	Gobiidae	*Periophthalmodon freycineti*	LC	Great Mud-hopper, Pug-headed Mudskipper, Giant Mudskipper

Class	Order	Family	Scientific name	RLTS category	Common name
Actinopterygii	Gobiiformes	Gobiidae	*Periophthalmus argentilineatus*	LC	Big fin Mudhopper, Silver Mudskipper, Barred Mudskipper
Actinopterygii	Gobiiformes	Gobiidae	*Periophthalmus kalolo*	LC	African Mudhopper, Common Mudskipper, Sailfin Mudskipper, Silverline Mudskipper, Kalolo Mudskipper
Actinopterygii	Gobiiformes	Gobiidae	*Periophthalmus malaccensis*	DD	
Actinopterygii	Gobiiformes	Gobiidae	*Periophthalmus minutus*	LC	Australian Mudskipper, Minute Mudskipper
Actinopterygii	Gobiiformes	Gobiidae	*Periophthalmus novaeguineaensis*	LC	New Guinea Mudskipper
Actinopterygii	Gobiiformes	Gobiidae	*Periophthalmus weberi*	LC	Weber's Mudskipper
Actinopterygii	Gobiiformes	Gobiidae	*Psammogobius biocellatus*	LC	Sleepy Goby
Actinopterygii	Gobiiformes	Gobiidae	*Pseudogobius melanosticta*	LC	Balck-spotted Snubnose Goby, Black-spotted Goby
Actinopterygii	Gobiiformes	Gobiidae	*Redigobius balteatus*	LC	Rhino-horn Goby, Skunk Goby, Girdled Goby
Actinopterygii	Gobiiformes	Gobiidae	*Redigobius chrysosoma*	LC	Spotfin Goby
Actinopterygii	Gobiiformes	Gobiidae	*Taenioides cirratus*	DD	
Actinopterygii	Gobiiformes	Gobiidae	*Valenciennea muralis*	LC	Mural goby, Mural goby (FB), Mural sleeper-goby, Striped goby
Actinopterygii	Gobiiformes	Gobiidae	*Yongeichthys nebulosus*	LC	Hair-finned Goby, Shadow Goby
Actinopterygii	Gobiiformes	Gobiidae	*Zappa confluentus*	LC	Slender Mudskipper
Actinopterygii	Lophiiformes	Antennariidae	*Antennarius biocellatus*	DD	

Class	Order	Family	Scientific name	RLTS category	Common name
Actinopterygii	Mugiliformes	Mugilidae	*Planiliza subviridis*	LC	Brown-backed Mullet, Brown-banded Mullet, Dussumier's Mullet, Flat-tail Mullet, Greenback Grey Mullet, Green Back Mullet, Green Mullet, Grey Mullet, Mullet, Red Eye Liza, Squaretail Mullet, Thick-zipped Mullet, Greenback Mullet
Actinopterygii	Ophidiiformes	Carapidae	*Encheliophis homei*	LC	Silver Pearlfish
Actinopterygii	Perciformes	Ambassidae	*Ambassis interrupta*	LC	Glassfish, Glass Perch, Interrupta Glassy Perchlet, Long-spined Glass Perchlet, Long-spined Perchlet, Northern Perchlet, Perchlet, Sailfin Perchlet, Langaray, Petek, Pridin, Seriding Duri, Seriding Putih, Serinding, Long-spined Glassfish
Actinopterygii	Perciformes	Ambassidae	*Ambassis nalua*	LC	Glassfish, Nalua-chanda, Scalloped Glassfish, Aringil, Khaomao, Pangkah, Pengkah, Pengkat, Perdin, Pridin, Seriding, Seriding Kipas, Seriding putih, Serinding, Tongkai, Scalloped Perchlet

Class	Order	Family	Scientific name	RLTS category	Common name
Actinopterygii	Perciformes	Ambassidae	*Ambassis urotaenia*	LC	Banded-Tail Glassy Perchlet, Bleeker's Glassfish, Glassfish, Ambache, Ambache Du Large, Ambasse, Pridin, Rek-rek Merah, Seriding, Seriding Jalur, Takasago-ishimochi, Bleeker's Glass Perchlet
Actinopterygii	Perciformes	Ambassidae	*Ambassis vachellii*	LC	Telkara Perchlet, Vachell's Glassfish
Actinopterygii	Perciformes	Apogonidae	*Apogon amboinensis*	DD	
Actinopterygii	Perciformes	Apogonidae	*Apogonichthyoides melas*	LC	Blackspot Cardinalfish, Black Cardinalfish
Actinopterygii	Perciformes	Apogonidae	*Fowleria variegata*	LC	Multi-spotted Cardinalfish, Peppered Cardinalfish, Spotted Cardinalfish, Variegated Cardinalfish
Actinopterygii	Perciformes	Apogonidae	*Ostorhinchus lateralis*	LC	Coastal Cardinalfish, Humpback Cardinalfish, Inshore Cardinalfish, Humpback Cardinal
Actinopterygii	Perciformes	Apogonidae	*Pseudamia amblyuroptera*	LC	Pearl-jawed Cardinalfish, White-jawed Cardinalfish
Actinopterygii	Perciformes	Apogonidae	*Sphaeramia orbicularis*	LC	Chubby Cardinal, Polka-dot Cardinalfish, Orbiculate Cardinalfish
Actinopterygii	Perciformes	Apogonidae	*Taeniamia buruensis*	LC	Buru Cardinalfish
Actinopterygii	Perciformes	Apogonidae	*Yarica hyalosoma*	LC	Hump-backed Cardinalfish, Humpbacked

Class	Order	Family	Scientific name	RLTS category	Common name
					Cardinalfish, Humpbacked Cardinal Fish, Dangat, Gelagah Laut, Kagami-tenjikudai, Muang, Sebekah, Sebekah Bonggol, Semangka, Seriding, Serodong, Mangrove Cardinalfish
Actinopterygii	Perciformes	Blenniidae	*Meiacanthus anema*	LC	Freshwater Fangblenny, Threadless Blenny
Actinopterygii	Perciformes	Blenniidae	*Omobranchus ferox*	LC	Fang-toothed Blenny, Gossamer Oysterblenny, Rotund Blenny, Spinnerak-blennie, Kawaginpo, Gossamer Blenny
Actinopterygii	Perciformes	Blenniidae	*Omobranchus obliquus*	LC	Mangrove Blenny
Actinopterygii	Perciformes	Blenniidae	*Omobranchus verticalis*	LC	
Actinopterygii	Perciformes	Blenniidae	*Omox biporos*	LC	Doublepore Blenny, Omox Blenny
Actinopterygii	Perciformes	Caesionidae	*Caesio cuning*	LC	Red-bellied Fusilier, Robust Fusilier, Yellow-tail Fusilier, Caesio à Ventre Rouge, Fusilero Vientre Colorado, Redbelly yellowtail fusilier
Actinopterygii	Perciformes	Carangidae	*Atule mate*	LC	Bukko, Hammam, Jinnes, Jurel Rabo Amarillo, Yaneeser, Yellowtail Scad
Actinopterygii	Perciformes	Datnioididae	*Datnioides polota*	LC	Silver Tiger Fish

Class	Order	Family	Scientific name	RLTS category	Common name
Actinopterygii	Perciformes	Ephippidae	*Platax orbicularis*	LC	Batfish, Circular Batfish, Circular Spadefish, Circular Spadefish Batfish, Narrowbanded Batfish, Orbicular Batfish, Round Batfish, Round Bat Fish, Sicklefish, Morcego, Papillon, Poisson Chauve-souris Orbiculaire, Poule D'eau, Tsubame-uo, Orbiculate Batfish
Actinopterygii	Perciformes	Epinephelidae	*Epinephelus coeruleopunctatus*	LC	Garrupa, Ocellated Rock-cod, Rock Cod, Small-spotted Rock Cod, Snowy Grouper, Vieille Cuisinier, White-spotted Grouper, White-spotted Reef-cod, White-spotted Rockcod, Whitespotted Rockcod, Hakuten-hata, Mero Nevero, Merou A Taches Blanches, Merou Taches Blanches, Whitespotted Grouper
Actinopterygii	Perciformes	Epinephelidae	*Epinephelus coioides*	LC	Estuary Cod, Hamoor, Hamour, Orange-spotted Grouper
Actinopterygii	Perciformes	Epinephelidae	*Epinephelus malabaricus*	LC	Malabar Grouper

Class	Order	Family	Scientific name	RLTS category	Common name
Actinopterygii	Perciformes	Epinephelidae	*Epinephelus miliaris*	LC	Netfin Rockcod, Mero Colmenar, Merou Abielle, Vielle Abielle, Vielle Fou-fou, Netfin Grouper
Actinopterygii	Perciformes	Epinephelidae	*Epinephelus polystigma*	LC	Mero Punteado Blanco, Mérou Points Blancs, White-dotted Grouper
Actinopterygii	Perciformes	Epinephelidae	*Epinephelus tauvina*	DD	
Actinopterygii	Perciformes	Gerreidae	*Gerres erythrourus*	LC	Deep Body Silver Biddy, Deep-bodied Mojarra
Actinopterygii	Perciformes	Gerreidae	*Gerres filamentosus*	LC	Flagfin Mojarra, Threadfin Silverbiddy, Whipfin Mojarra
Actinopterygii	Perciformes	Haemulidae	*Diagramma labiosum*	LC	Painted Sweetlips
Actinopterygii	Perciformes	Haemulidae	*Plectorhinchus gibbosus*	LC	Brown Sweetlips
Actinopterygii	Perciformes	Haemulidae	*Pomadasys argenteus*	LC	Silver Javelin
Actinopterygii	Perciformes	Haemulidae	*Pomadasys kaakan*	LC	Spotted Grunter-bream, Spotted Javelinfish, Yellow-finned Javelin-fish, Grondeur javelot, Javelin Grunter
Actinopterygii	Perciformes	Kuhliidae	*Kuhlia munda*	DD	
Actinopterygii	Perciformes	Labridae	*Novaculichthys macrolepidotus*	LC	Green-banner wrasse, Seagrass nurse, Seagrass razorfish, Seagrass wrasse
Actinopterygii	Perciformes	Leiognathidae	*Eubleekeria splendens*	LC	Blacktip Ponyfish, Splendid Ponyfish
Actinopterygii	Perciformes	Leiognathidae	*Gazza minuta*	LC	Toothpony, Toothed Ponyfish
Actinopterygii	Perciformes	Leiognathidae	*Leiognathus equulus*	LC	Common Ponyfish

Class	Order	Family	Scientific name	RLTS category	Common name
Actinopterygii	Perciformes	Lethrinidae	*Lethrinus genivittatus*	LC	Lancer, Longspine Emperor, Thread-fin Emperor, Chul-gal-dom, Communard, Ito-fuefuki, Ito-fue-fuki, Ketambak, Kiros, Landok, Mempinang, Pelandok
Actinopterygii	Perciformes	Lethrinidae	*Lethrinus harak*	LC	Black-blotch Emperor, Blackspot Emperor, Emperador San Pedro, Empereur Saint Pierre, Thumbprint Emperor
Actinopterygii	Perciformes	Lethrinidae	*Lethrinus laticaudis*	LC	Grass Sweetlip, Grass Emperor
Actinopterygii	Perciformes	Lethrinidae	*Lethrinus nebulosus*	LC	Lesser Spangled Emperor, Bec-de-cane nuageux, Capitaine blanc, Capitaine rouge, Emperador Relámpago, Empereur Moris, Lethrinus nuageux, Spangled Emperor
Actinopterygii	Perciformes	Lethrinidae	*Lethrinus ornatus*	LC	Yellow-striped Emperor, Emperador Ornado, Ornate Emperor
Actinopterygii	Perciformes	Lethrinidae	*Lethrinus semicinctus*	LC	Black Blotch Emperor, Reticulated Emperor, Semicinctus Emperor, Emperador de Malla, Black-Spot Emperor
Actinopterygii	Perciformes	Lutjanidae	*Lutjanus argentimaculatus*	LC	Creek Red Bream, Dog Bream, Gray Snapper,

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					Mangrove Jack, Mangrove Snapper, Purple Sea Perch, Red Bass, Red Bream, Red Perch, Red Reef Bream, Red Snapper, River Roman, River Snapper, Rock Barramundi, Silver-spotted Gray Snapper, Yellow Snapper, Carpe, Marjaan, Pargo Amarillo, Pargo de Manglar, Pargo de Mangle, Pargo Dientan, Pargo Rabo Amarillo, Rouget, Sarde, Sheggrah, Vivaneau des Mangroves, Mangrove Red Snapper
Actinopterygii	Perciformes	Lutjanidae	*Lutjanus bitaeniatus*	LC	Indonesian Seaperch, White-tipped Sea-perch, Whitetip Snapper, Pargo de Indonesia, Vivaneau de l'Indonesie, Indonesian Snapper
Actinopterygii	Perciformes	Lutjanidae	*Lutjanus ehrenbergii*	LC	Black-spot Snapper, Ehrenberg's Seaperch, Ehrenbergs' Seaperch, Ehrenberg's Snapper, Pargo Manchado, Vivaneau Carpe,

Class	Order	Family	Scientific name	RLTS category	Common name
					Vivaneau Encrier, Blackspot Snapper
Actinopterygii	Perciformes	Lutjanidae	*Lutjanus fulviflamma*	LC	Blackspot Seaperch, Black-spot Sea Perch, Black-spot Snapper, Blackspot Snapper, Finger-mark Bream, Golden Snapper, Humpback Red Snapper, Long-spot Snapper, Longspot Snapper, Malabar Thyrssa, Moses Perch, Red Bream, Snapper, Carpe, Chemise, Daurade à Tache Noire, Dorade à Tache Noire, Gibelot, Pargo Tintero, Vivaneau Gibelot, Dory Snapper
Actinopterygii	Perciformes	Lutjanidae	*Lutjanus fulvus*	LC	Blacktailed Snapper, Black-tail Snapper, Flametail Snapper, Redmargined Seaperch, Taiva, Waigeu Snapper, Yellow-margined Seaperch, Yellow-margined Sea-perch, Yellowmargined Seaperch, Yellow-margined Sea Perch, Yellowmargined Sea Perch, Yellow Striped Snapper, Dorade de

Class	Order	Family	Scientific name	RLTS category	Common name
					Palétuvier, Lutjan Fauve, Pargo Rabo Negro, Vivaneau Queue Noire, Blacktail Snapper
Actinopterygii	Perciformes	Lutjanidae	*Lutjanus johnii*	LC	Big-scaled Bream, Fingermark Bream, Fingermark Seaperch, Golden Snapper, John's Seaperch, John's Sea-perch, Mangrove Snapper, Moses Perch, One Spot Snapper, Red Bream, Snapper, Spotted-scale Sea-perch, Lutjan à Tache Unique, Pargo Jaspeado, Vivaneau Ziebelo, Ziebelo, John's Snapper
Actinopterygii	Perciformes	Lutjanidae	*Lutjanus maxweberi*	DD	
Actinopterygii	Perciformes	Lutjanidae	*Lutjanus russellii*	LC	Fingermark Bream, Moses Perch, Moses Seaperch, Moses Snapper, Moses' Snapper, Red Bream, Russell's One Spot Snapper, Russell's Sea-perch, Russel's Snapper, Snapper, Communard, Hublot, Pargo Ojo de Buey, Vivaneau Hublot, Russell's Snapper

Class	Order	Family	Scientific name	RLTS category	Common name
Actinopterygii	Perciformes	Lutjanidae	*Lutjanus sebae*	LC	Emperor Red Snapper, Emperor Snapper, Emperor's Red-snapper, Government Bream, King Snapper, Queenfish, Red Emperor, Redfish, Red Kelp, Seba's Snapper, Bourgeois, Empereur Rouge, Pargo Imperial, Pouatte, Vivaneau Bourgeois, Red Emperor Snapper
Actinopterygii	Perciformes	Microdesmidae	*Parioglossus formosus*	LC	
Actinopterygii	Perciformes	Microdesmidae	*Parioglossus palustris*	LC	
Actinopterygii	Perciformes	Microdesmidae	*Parioglossus rainfordi*	LC	
Actinopterygii	Perciformes	Microdesmidae	*Parioglossus raoi*	LC	Andaman Dart-goby, Rao's Dartfish, Rao's Hover Goby, Yellow Dartfish
Actinopterygii	Perciformes	Monodactylidae	*Monodactylus argenteus*	LC	Silver Moony
Actinopterygii	Perciformes	Mullidae	*Parupeneus barberinus*	LC	Dash-dot goatfish, Dot-and-dash goatfish, Goatfish, Half and half goatfish, Spotted golden goatfish, Barberin, Barbet rayé, Capucin barberin, Rouget barberin, Rouget-barbet barberin, Dash-and-dot goatfish

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Actinopterygii	Perciformes	Nemipteridae	*Pentapodus setosus*	LC	Butterfly Whiptail
Actinopterygii	Perciformes	Nemipteridae	*Scolopsis ciliata*	LC	Ciliate Spinecheek, Silver-line Spinecheek, Whitestreak Monocle Bream, Scolopsis Taches Orange, Saw-jawed Monocle Bream
Actinopterygii	Perciformes	Polynemidae	*Polydactylus microstomus*	LC	Smallmouth Threadfin, Thread Fish, Barbudo de Boca Pequeña, Barbure à Petite Bouche, Small-mouthed Threadfin
Actinopterygii	Perciformes	Pomacentridae	*Dascyllus trimaculatus*	LC	Domino Damselfish, Three-spot Damsel, Three-spot Dascyllus, Three-spot Humbug, Demoiselle à trois taches, Domino Noir, Threespot Damselfish
Actinopterygii	Perciformes	Pomacentridae	*Dischistodus perspicillatus*	LC	Two-barred Puller, White Demoiselle, White Damsel
Actinopterygii	Perciformes	Pomacentridae	*Dischistodus pseudochrysopoecilus*	LC	Monarch Damsel
Actinopterygii	Perciformes	Pomacentridae	*Neopomacentrus azysron*	LC	Orange-tailed Damselfish, Yellowtail Demoiselle, Yellowtail Damsel
Actinopterygii	Perciformes	Pomacentridae	*Neopomacentrus taeniurus*	DD	
Actinopterygii	Perciformes	Pomacentridae	*Pomacentrus taeniometopon*	LC	Brackish Damsel, River Damsel

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Actinopterygii	Perciformes	Scatophagidae	*Scatophagus argus*	LC	Argus Fish, Butterfish, Butter Fish, Common Scat, Leopard Scat, Scat, Spotted Butt, Spotted Butterfish, Spotted Butter Fish, Spotted Scad, Almindelig Argusfisk, Argus, Argusfisch, Argusfisk, Bushami, Gemeiner Argusfisch, Graner Argusfisch, Kurohoshimanj dai, Pavillon Tachet, Pingo Manchado, Plettet argusfisk, Spotted Scat
Actinopterygii	Perciformes	Scatophagidae	*Selenotoca multifasciata*	LC	Striped Scat
Actinopterygii	Perciformes	Sciaenidae	*Johnius australis*	LC	Bottlenose Jewfish
Actinopterygii	Perciformes	Sciaenidae	*Johnius belangerii*	LC	Belangeri Croaker, Belanger's Jewfish, Boulenger's Croaker, Jewfish, Mini-knob, Corvina de Belanger, Courbine de Belanger, Belanger's Croaker
Actinopterygii	Perciformes	Sciaenidae	*Johnius borneensis*	LC	Croaker, Jewfish, Sharpnose Hammer Croaker, Sharp-toothed Hammer Croaker, Sharp Toothed Hammer Croaker, Corvina Dientusa, Courbine

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					Dentue, Hammer Croaker
Actinopterygii	Perciformes	Sciaenidae	*Nibea coibor*	DD	
Actinopterygii	Perciformes	Sciaenidae	*Nibea leptolepis*	LC	Small Scale Croaker
Actinopterygii	Perciformes	Sciaenidae	*Nibea microgenys*	LC	Small-jaw Croaker, Small-mouthed Croaker
Actinopterygii	Perciformes	Siganidae	*Siganus guttatus*	LC	Golden Rabbitfish
Actinopterygii	Perciformes	Siganidae	*Siganus lineatus*	LC	Lined Rabbitfish
Actinopterygii	Perciformes	Siganidae	*Siganus randalli*	LC	Randall's Rabbitfish
Actinopterygii	Perciformes	Siganidae	*Siganus vermiculatus*	LC	Maze Rabbitfish, Vermiculate Rabbitfish, Vermiculated Spinefoot
Actinopterygii	Perciformes	Sparidae	*Acanthopagrus morrisoni*	LC	Japanese Bream, Western Australian Bream, Western Yellow-finned Bream, Yellowfin Bream, Yellowfin Seabream, Western Yellowfin Bream
Actinopterygii	Perciformes	Terapontidae	*Mesopristes argenteus*	LC	Silver Grunter
Actinopterygii	Perciformes	Terapontidae	*Mesopristes cancellatus*	LC	Tapiroid Grunter
Actinopterygii	Perciformes	Toxotidae	*Toxotes jaculatrix*	LC	Banded Archerfish
Actinopterygii	Pleuronectiformes	Cynoglossidae	*Cynoglossus puncticeps*	LC	Speckled Tonguesole
Actinopterygii	Pleuronectiformes	Cynoglossidae	*Paraplagusia guttata*	DD	
Actinopterygii	Pleuronectiformes	Cynoglossidae	*Paraplagusia sinerama*	LC	Dusky Tongue Sole
Actinopterygii	Pleuronectiformes	Paralichthyidae	*Pseudorhombus arsius*	LC	False Brill, Smooth-scale Brill, Lenguado Dentudo, Rite Dentu, Largetooth Flounder
Actinopterygii	Pleuronectiformes	Soleidae	*Brachirus aspilos*	LC	Dusky Sole
Actinopterygii	Pleuronectiformes	Soleidae	*Leptachirus lorentz*	DD	

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Actinopterygii	Pleuronectiformes	Soleidae	*Leptachirus robertsi*	DD	
Actinopterygii	Pleuronectiformes	Soleidae	*Paradicula setifer*	LC	
Actinopterygii	Pleuronectiformes	Soleidae	*Phyllichthys sclerolepis*	DD	
Actinopterygii	Scorpaeniformes	Platycephalidae	*Cociella punctata*	LC	Mangrove Crocodilefish, Plettet Fladhovedulk, Spotted Flathead
Actinopterygii	Scorpaeniformes	Platycephalidae	*Cymbacephalus beauforti*	LC	De Beaufort's Flathead, Giant Flathead, Poisson-crocodile de Beaufort, Crocodile Fish
Actinopterygii	Scorpaeniformes	Tetrarogidae	*Tetraroge barbata*	LC	Bearded Roguefish, Mangrove Waspfish, Agohige-okoze, Ostindisk Hvepsefisk
Actinopterygii	Siluriformes	Ariidae	*Cochlefelis danielsi*	LC	Daniel's Catfish
Actinopterygii	Syngnathiformes	Syngnathidae	*Choeroichthys sculptus*	LC	Gegraveerde Pypvis, Tia'i Pape, Veistosneula, Sculptured Pipefish
Actinopterygii	Syngnathiformes	Syngnathidae	*Festucalex scalaris*	LC	Ladder Pipefish
Actinopterygii	Syngnathiformes	Syngnathidae	*Hippichthys cyanospilos*	LC	Blue-spotted Pipefish, Ward's Pipefish, Blouspikkelde-pypvis, Dagum-dagum, Hakuten-ya´ji, Korek telinga, Kuda laut, Tangkur kuda, Undok-undok, Undok-undok bintik biru, Bluespeckled Pipefish
Actinopterygii	Syngnathiformes	Syngnathidae	*Hippichthys heptagonus*	LC	Belly Pipefish, Freshwater pipefish, Madura Pipefish,

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					Pipefish, Short-snouted pipefish, Small-headed pipefish, Amime-kawa-yoji, Boepens-Pypvis, Dagum-dagum, Reticulated Freshwater Pipefish
Actinopterygii	Syngnathiformes	Syngnathidae	*Hippichthys parvicarinatus*	LC	Short-keel Pipefish
Actinopterygii	Syngnathiformes	Syngnathidae	*Hippichthys penicillus*	LC	Huin-jeom-sil-go-gi, Beady Pipefish
Actinopterygii	Syngnathiformes	Syngnathidae	*Hippichthys spicifer*	LC	Banded Freshwater Pipefish, Blue Spotted Pipefish, Balkpens-pypvis, Braune Seenadel, Dagum-dagum, Indische Seenadel, Indisk ferskvandsnåléfisk, Kawa-ya´ji, Okaneula, Trey krawpoeu, Bellybarred Pipefish
Actinopterygii	Tetraodontiformes	Monacanthidae	*Anacanthus barbatus*	LC	Barbeled leatherjacket, Bearded Filefish, Beardie, Ukeguchino Hosomionagano Okinahagi, Bearded Leatherjacket
Actinopterygii	Tetraodontiformes	Monacanthidae	*Colurodontis paxmani*	DD	*(no common names provided)*
Actinopterygii	Tetraodontiformes	Tetraodontidae	*Arothron hispidus*	LC	Broadbarred Toadfish, Pufferfish, Stars And Stripes Puffer, Stars-and-stripes Pufferfish,

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					Stripebelly Puffer, Whitespotted Blaasop, White Spotted Blow Fish, Whitespotted Puffer, Ballon à Épaule Noire, Ballon Pintade, Botete Panza Rayada, Botete Pintado, Bourse-du-sable, Poisson-ballon à Taches Blanches, Poisson-ballon Pintade, Tamboril Verde De Puntos Blancos, White-spotted Puffer
Actinopterygii	Tetraodontiformes	Tetraodontidae	*Arothron immaculatus*	LC	Blackedged Blaasop, Immaculate Blow Fish, Immaculate Pufferfish, Narrow-lined Toadfish, Immaculate Puffer
Actinopterygii	Tetraodontiformes	Tetraodontidae	*Arothron manilensis*	LC	Narrow-lined Pufferfish, Narrowlined Toadfish, Striped Puffer, Narrow-lined Puffer
Actinopterygii	Tetraodontiformes	Tetraodontidae	*Arothron reticularis*	LC	Reticulated Blowfish, Reticulated Blow Fish, Reticulated Puffer, Reticulated Toadfish, Reticulated Pufferfish
Actinopterygii	Tetraodontiformes	Tetraodontidae	*Arothron stellatus*	LC	Star Blaasop, Staring Blow Fish, Star Puffer, Starry Pufferfish, Starry Toadfish, Stellate Puffer

Class	Order	Family	Scientific name	RLTS category	Common name
Actinopterygii	Tetraodontiformes	Tetraodontidae	*Chelonodontops patoca*	LC	Gangetic Blow Fish, Gangetic Pufferfish, Marbled Toad, Milkspotted Toadfish, Pufferfish, Milkspotted Puffer
Actinopterygii	Tetraodontiformes	Tetraodontidae	*Dichotomyctere erythrotaenia*	LC	Red-striped Toadfish
Actinopterygii	Tetraodontiformes	Tetraodontidae	*Lagocephalus lunaris*	LC	Green Rough-backed Puffer, Moontail Puffer, Lunartail Puffer
Actinopterygii	Tetraodontiformes	Tetraodontidae	*Marilyna darwinii*	LC	*(no common names provided)*
Actinopterygii	Tetraodontiformes	Tetraodontidae	*Marilyna meraukensis*	LC	Merauke Toadfish
Actinopterygii	Tetraodontiformes	Tetraodontidae	*Marilyna pleurosticta*	LC	Banded Toadfish
Actinopterygii	Tetraodontiformes	Tetraodontidae	*Takifugu oblongus*	LC	Oblong Blow Fish, Lattice Blaasop
Anthozoa	Scleractinia	Rhizangiidae	*Siderastrea savignyana*	LC	Collared Sparrowhawk
Aves	Accipitriformes	Accipitridae	*Accipiter cirrocephalus*	LC	Variable Goshawk
Aves	Accipitriformes	Accipitridae	*Accipiter hiogaster*	LC	Black-mantled Goshawk
Aves	Accipitriformes	Accipitridae	*Accipiter melanochlamys*	LC	Grey Goshawk
Aves	Accipitriformes	Accipitridae	*Accipiter novaehollandiae*	LC	Pacific Baza
Aves	Accipitriformes	Accipitridae	*Aviceda subcristata*	LC	Brahminy Kite
Aves	Accipitriformes	Accipitridae	*Haliastur indus*	NT	Azor de Doria, Doria's Goshawk
Aves	Accipitriformes	Accipitridae	*Megatriorchis doriae*	LC	Balbuzard Pacheur, Osprey
Aves	Accipitriformes	Pandionidae	*Pandion haliaetus*	LC	Chestnut Teal
Aves	Anseriformes	Anatidae	*Anas castanea*	LC	Raja Shelduck, Radjah Shelduck

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Aves	Anseriformes	Anatidae	*Radjah radjah*	LC	Australian Owlet-Nightjar
Aves	Caprimulgiformes	Aegothelidae	*Aegotheles cristatus*	LC	Large-tailed Nightjar
Aves	Caprimulgiformes	Caprimulgidae	*Caprimulgus macrurus*	LC	Spotted Eared-Nightjar, Spotted Nightjar
Aves	Caprimulgiformes	Caprimulgidae	*Eurostopodus argus*	LC	Papuan Eared-Nightjar, Papuan Nightjar
Aves	Caprimulgiformes	Caprimulgidae	*Eurostopodus papuensis*	LC	Moustached Treeswift
Aves	Caprimulgiformes	Hemiprocnidae	*Hemiprocne mystacea*	LC	Petit Gravelot, Little Ringed Plover
Aves	Charadriiformes	Charadriidae	*Charadrius dubius*	LC	Lesser Sand-Plover, Mongolian Dotterel, Mongolian Plover, Pluvier de Mongolie, Lesser Sandplover
Aves	Charadriiformes	Charadriidae	*Charadrius mongolus*	LC	Pacific Golden-Plover, Pluvier dor oriental, Pacific Golden Plover
Aves	Charadriiformes	Charadriidae	*Pluvialis fulva*	LC	Chevalier guignette, Common Sandpiper
Aves	Charadriiformes	Scolopacidae	*Actitis hypoleucos*	LC	Courlis corlieu, Whimbrel
Aves	Charadriiformes	Scolopacidae	*Numenius phaeopus*	LC	Greenshank, Chevalier aboyeur, Common Greenshank
Aves	Charadriiformes	Scolopacidae	*Tringa nebularia*	LC	Chevalier de Tarek, Terek Sandpiper
Aves	Charadriiformes	Scolopacidae	*Xenus cinereus*	NT	Black-necked Stork
Aves	Ciconiiformes	Ciconiidae	*Ephippiorhynchus asiaticus*	NT	Nicobar Dove, Paloma de Nicobar, Nicobar Pigeon

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Aves	Columbiformes	Columbidae	*Caloenas nicobarica*	LC	Brown-capped Emerald Dove
Aves	Columbiformes	Columbidae	*Chalcophaps longirostris*	LC	Pied Imperial Pigeon, Pied Imperial-Pigeon
Aves	Columbiformes	Columbidae	*Ducula bicolor*	LC	Collared Imperial Pigeon, Collared Imperial-Pigeon
Aves	Columbiformes	Columbidae	*Ducula mullerii*	LC	Torresian Imperial Pigeon, Torresian Imperial-pigeon
Aves	Columbiformes	Columbidae	*Ducula spilorrhoa*	LC	Banded Imperial-Pigeon, Zoe Imperial Pigeon, Zoe's Imperial-pigeon
Aves	Columbiformes	Columbidae	*Ducula zoeae*	VU	Blue Crowned-pigeon, Common Crowned Pigeon, Great Goura, Western Crowned Pigeon, Western Crowned-Pigeon, Paloma Crestada Azul
Aves	Columbiformes	Columbidae	*Goura cristata*	LC	Common Bronzewing
Aves	Columbiformes	Columbidae	*Phaps chalcoptera*	LC	Orange-fronted Fruit Dove, Orange-fronted Fruit-Dove
Aves	Columbiformes	Columbidae	*Ptilinopus aurantiifrons*	LC	Orange-bellied Fruit Dove, Orange-bellied Fruit-Dove
Aves	Columbiformes	Columbidae	*Ptilinopus iozonus*	LC	Rose-crowned Fruit Dove, Rose-crowned Fruit-Dove
Aves	Columbiformes	Columbidae	*Ptilinopus regina*	LC	Superb Fruit-dove, Superb Fruit Dove,

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					Eastern Superb Fruit-dove
Aves	Columbiformes	Columbidae	*Ptilinopus superbus*	LC	Wallace's Fruit Dove, Wallace's Fruit-Dove
Aves	Columbiformes	Columbidae	*Ptilinopus wallacii*	LC	Azure Kingfisher
Aves	Coraciiformes	Alcedinidae	*Ceyx azureus*	LC	Little Kingfisher
Aves	Coraciiformes	Alcedinidae	*Ceyx pusillus*	LC	Rufous-bellied Kookaburra
Aves	Coraciiformes	Alcedinidae	*Dacelo gaudichaud*	LC	Blue-winged Kookaburra
Aves	Coraciiformes	Alcedinidae	*Dacelo leachii*	LC	Yellow-billed Kingfisher
Aves	Coraciiformes	Alcedinidae	*Syma torotoro*	LC	White-collared Kingfisher, Collared Kingfisher
Aves	Coraciiformes	Alcedinidae	*Todiramphus chloris*	LC	Forest Kingfisher
Aves	Coraciiformes	Alcedinidae	*Todiramphus macleayii*	LC	Sacred Kingfisher
Aves	Coraciiformes	Alcedinidae	*Todiramphus sanctus*	LC	Blue-tailed Bee-eater
Aves	Coraciiformes	Meropidae	*Merops philippinus*	LC	Chestnut-breasted Cuckoo
Aves	Cuculiformes	Cuculidae	*Cacomantis castaneiventris*	LC	Fan-tailed Cuckoo
Aves	Cuculiformes	Cuculidae	*Cacomantis flabelliformis*	LC	Brush Cuckoo
Aves	Cuculiformes	Cuculidae	*Cacomantis variolosus*	LC	Pheasant Coucal
Aves	Cuculiformes	Cuculidae	*Centropus phasianinus*	LC	Shining Bronze Cuckoo, Shining Bronze-Cuckoo, Shining Cuckoo
Aves	Cuculiformes	Cuculidae	*Chalcites lucidus*	LC	Little Bronze-cuckoo
Aves	Cuculiformes	Cuculidae	*Chalcites minutillus*	LC	Palid Cuckoo, Pallid Cuckoo
Aves	Cuculiformes	Cuculidae	*Heteroscenes pallidus*	LC	Channel-billed Cuckoo

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Aves	Cuculiformes	Cuculidae	*Scythrops novaehollandiae*	LC	Oriental Hobby
Aves	Falconiformes	Falconidae	*Falco severus*	LC	White-browed Crake
Aves	Gruiformes	Rallidae	*Amaurornis cinerea*	LC	Oblong Blow Fish, Lattice Blaasop
Aves	Gruiformes	Rallidae	*Eulabeornis castaneoventris*	LC	Chestnut Rail
Aves	Gruiformes	Rallidae	*Hypotaenidia philippensis*	LC	Banded Land-Rail, Banded Rail, Sharpe's Rail, Râle tiklin, Buff-banded Rail
Aves	Gruiformes	Rallidae	*Megacrex inepta*	LC	Papuan Flightless Rail, New Guinea Flightless Rail
Aves	Gruiformes	Rallidae	*Porzana fluminea*	LC	Australian Spotted Crake, Australian Crake
Aves	Passeriformes	Acanthizidae	*Acanthiza iredalei*	LC	Slender-billed Thornbill
Aves	Passeriformes	Acanthizidae	*Gerygone chloronota*	LC	Green-backed Gerygone
Aves	Passeriformes	Acanthizidae	*Gerygone levigaster*	LC	Mangrove Gerygone
Aves	Passeriformes	Acanthizidae	*Gerygone magnirostris*	LC	Large-billed Gerygone
Aves	Passeriformes	Acanthizidae	*Gerygone tenebrosa*	LC	Dusky Gerygone
Aves	Passeriformes	Acanthizidae	*Sericornis frontalis*	LC	White-browed Scrubwren
Aves	Passeriformes	Artamidae	*Artamus cinereus*	LC	Black-faced Woodswallow
Aves	Passeriformes	Artamidae	*Artamus leucoryn*	LC	White-breasted Woodswallow
Aves	Passeriformes	Artamidae	*Artamus personatus*	LC	Masked Woodswallow
Aves	Passeriformes	Artamidae	*Melloria quoyi*	LC	Black Butcherbird
Aves	Passeriformes	Campephagidae	*Coracina boyeri*	LC	Boyer's Cuckoo-shrike, Boyer's Cuckooshrike

Class	Order	Family	Scientific name	RLTS category	Common name
Aves	Passeriformes	Campephagidae	*Coracina novaehollandiae*	LC	Black-faced Cuckoo-shrike, Black-faced Cuckooshrike
Aves	Passeriformes	Campephagidae	*Coracina papuensis*	LC	White-bellied Cuckoo-shrike, White-bellied Cuckooshrike
Aves	Passeriformes	Campephagidae	*Edolisoma melas*	LC	Black Cicadabird, New Guinea Cuckooshrike, New Guinea Cicadabird
Aves	Passeriformes	Campephagidae	*Edolisoma tenuirostre*	LC	Slender-billed Cicadabird
Aves	Passeriformes	Campephagidae	*Lalage atrovirens*	LC	Black-browed Triller
Aves	Passeriformes	Campephagidae	*Lalage leucomela*	LC	Varied Triller
Aves	Passeriformes	Corvidae	*Corvus fuscicapillus*	NT	Brown-headed Crow
Aves	Passeriformes	Dicaeidae	*Dicaeum hirundinaceum*	LC	Mistletoebird
Aves	Passeriformes	Dicaeidae	*Dicaeum ignicolle*	LC	Aru Flowerpecker
Aves	Passeriformes	Dicruridae	*Dicrurus bracteatus*	LC	Spangled Drongo
Aves	Passeriformes	Estrildidae	*Erythrura trichroa*	LC	Blue-faced Parrot-Finch, Blue-faced Parrotfinch
Aves	Passeriformes	Estrildidae	*Lonchura castaneothorax*	LC	Chestnut-breasted Munia, Chestnut-breasted Mannikin
Aves	Passeriformes	Estrildidae	*Lonchura flaviprymna*	LC	Yellow-rumped Munia, Yellow-rumped Mannikin
Aves	Passeriformes	Estrildidae	*Neochmia temporalis*	LC	Red-browed Firetail, Red-browed Finch
Aves	Passeriformes	Locustellidae	*Helopsaltes amnicola*	LC	Sakhalin Grasshopper-warbler
Aves	Passeriformes	Locustellidae	*Helopsaltes fasciolatus*	LC	Gray's Grasshopper-warbler

Class	Order	Family	Scientific name	RLTS category	Common name
Aves	Passeriformes	Locustellidae	*Poodytes gramineus*	LC	Little Grassbird
Aves	Passeriformes	Maluridae	*Malurus amabilis*	LC	Lovely Fairywren, Lovely Fairy-wren
Aves	Passeriformes	Meliphagidae	*Cissomela pectoralis*	LC	Banded Honeyeater
Aves	Passeriformes	Meliphagidae	*Conopophila albogularis*	LC	Rufous-banded Honeyeater
Aves	Passeriformes	Meliphagidae	*Conopophila rufogularis*	LC	Rufous-throated Honeyeater
Aves	Passeriformes	Meliphagidae	*Entomyzon albipennis*	LC	White-quilled Honeyeater
Aves	Passeriformes	Meliphagidae	*Entomyzon cyanotis*	LC	Blue-faced Honeyeater
Aves	Passeriformes	Meliphagidae	*Epthianura albifrons*	LC	White-fronted Chat
Aves	Passeriformes	Meliphagidae	*Gavicalis versicolor*	LC	Varied Honeyeater
Aves	Passeriformes	Meliphagidae	*Gavicalis virescens*	LC	Singing Honeyeater
Aves	Passeriformes	Meliphagidae	*Lichmera alboauricularis*	LC	Silver-eared Honeyeater
Aves	Passeriformes	Meliphagidae	*Lichmera indistincta*	LC	Brown Honeyeater
Aves	Passeriformes	Meliphagidae	*Meliphaga notata*	LC	Yellow-spotted Honeyeater
Aves	Passeriformes	Meliphagidae	*Melithreptus albogularis*	LC	White-throated Honeyeater
Aves	Passeriformes	Meliphagidae	*Microptilotis analogus*	LC	Mimic Honeyeater
Aves	Passeriformes	Meliphagidae	*Microptilotis cinereifrons*	LC	Elegant Honeyeater
Aves	Passeriformes	Meliphagidae	*Microptilotis gracilis*	LC	Graceful Honeyeater
Aves	Passeriformes	Meliphagidae	*Myzomela erythrocephala*	LC	Red-headed Honeyeater, Red-headed Myzomela
Aves	Passeriformes	Meliphagidae	*Myzomela obscura*	LC	Dusky Myzomela
Aves	Passeriformes	Meliphagidae	*Myzomela sanguinolenta*	LC	Scarlet Honeyeater, Scarlet Myzomela
Aves	Passeriformes	Meliphagidae	*Philemon argenticeps*	LC	Silver-crowned Friarbird

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Aves	Passeriformes	Meliphagidae	*Philemon buceroides*	LC	Helmeted Friarbird
Aves	Passeriformes	Meliphagidae	*Philemon citreogularis*	LC	Little Friarbird
Aves	Passeriformes	Meliphagidae	*Philemon corniculatus*	LC	Noisy Friarbird
Aves	Passeriformes	Meliphagidae	*Plectorhyncha lanceolata*	LC	Striped Honeyeater
Aves	Passeriformes	Meliphagidae	*Ptilotula flavescens*	LC	Yellow-tinted Honeyeater
Aves	Passeriformes	Meliphagidae	*Ramsayornis fasciatus*	LC	Bar-breasted Honeyeater
Aves	Passeriformes	Meliphagidae	*Ramsayornis modestus*	LC	Brown-backed Honeyeater
Aves	Passeriformes	Meliphagidae	*Stomiopera flava*	LC	Yellow Honeyeater
Aves	Passeriformes	Meliphagidae	*Stomiopera unicolor*	LC	White-gaped Honeyeater
Aves	Passeriformes	Meliphagidae	*Trichodere cockerelli*	LC	White-streaked Honeyeater
Aves	Passeriformes	Meliphagidae	*Xanthotis flaviventer*	LC	Tawny-breasted Honeyeater
Aves	Passeriformes	Monarchidae	*Monarcha frater*	LC	Black-winged Monarch
Aves	Passeriformes	Monarchidae	*Monarcha melanopsis*	LC	Black-faced Monarch
Aves	Passeriformes	Monarchidae	*Myiagra alecto*	LC	Shining Flycatcher
Aves	Passeriformes	Monarchidae	*Myiagra rubecula*	LC	Leaden Flycatcher
Aves	Passeriformes	Monarchidae	*Myiagra ruficollis*	LC	Broad-billed Flycatcher
Aves	Passeriformes	Monarchidae	*Symposiachrus trivirgatus*	LC	Spectacled Monarch
Aves	Passeriformes	Nectariniidae	*Cinnyris idenburgi*	LC	Rand's Sunbird
Aves	Passeriformes	Nectariniidae	*Cinnyris jugularis*	LC	Olive-backed Sunbird
Aves	Passeriformes	Nectariniidae	*Leptocoma aspasia*	LC	Black Sunbird
Aves	Passeriformes	Oriolidae	*Oriolus flavocinctus*	LC	Yellow Oriole, Green Oriole
Aves	Passeriformes	Oriolidae	*Oriolus szalayi*	LC	Brown Oriole

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Aves	Passeriformes	Oriolidae	*Pitohui dichrous*	LC	Hooded Pitohui
Aves	Passeriformes	Oriolidae	*Sphecotheres vieilloti*	LC	Australasian Figbird
Aves	Passeriformes	Pachycephalidae	*Colluricincla harmonica*	LC	Grey Shrikethrush, Grey Shrike-thrush
Aves	Passeriformes	Pachycephalidae	*Colluricincla megarhyncha*	LC	Little Shrikethrush, Little Shrike-thrush
Aves	Passeriformes	Pachycephalidae	*Pachycephala griseiceps*	LC	Grey-headed Whistler, Brown Whistler
Aves	Passeriformes	Pachycephalidae	*Pachycephala lanioides*	LC	White-breasted Whistler
Aves	Passeriformes	Pachycephalidae	*Pachycephala leucogastra*	LC	White-bellied Whistler
Aves	Passeriformes	Pachycephalidae	*Pachycephala melanura*	LC	Mangrove Golden Whistler, Black-tailed Whistler
Aves	Passeriformes	Pachycephalidae	*Pachycephala pectoralis*	LC	Golden Whistler
Aves	Passeriformes	Pachycephalidae	*Pachycephala phaionota*	LC	Island Whistler
Aves	Passeriformes	Pachycephalidae	*Pachycephala rufiventris*	LC	Rufous Whistler
Aves	Passeriformes	Pachycephalidae	*Pachycephala simplex*	LC	Brown Whistler, Grey Whistler
Aves	Passeriformes	Paradisaeidae	*Lophorina intercedens*	LC	Eastern Riflebird, Growling Riflebird
Aves	Passeriformes	Paradisaeidae	*Lophorina magnifica*	LC	Magnificent Riflebird
Aves	Passeriformes	Paradisaeidae	*Manucodia ater*	LC	Glossy-mantled Manucode
Aves	Passeriformes	Paradisaeidae	*Phonygammus keraudrenii*	LC	Trumpet Manucode
Aves	Passeriformes	Pardalotidae	*Pardalotus striatus*	LC	Striated Pardalote
Aves	Passeriformes	Petroicidae	*Microeca flavigaster*	LC	Lemon-bellied Flyrobin
Aves	Passeriformes	Petroicidae	*Microeca tormenti*	LC	Kimberley Flyrobin

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Aves	Passeriformes	Petroicidae	*Peneoenanthe pulverulenta*	LC	Mangrove Robin
Aves	Passeriformes	Pittidae	*Pitta iris*	LC	Rainbow Pitta
Aves	Passeriformes	Pittidae	*Pitta novaeguineae*	LC	Eastern Hooded Pitta
Aves	Passeriformes	Pittidae	*Pitta versicolor*	LC	Noisy Pitta
Aves	Passeriformes	Ptilonorhynchidae	*Chlamydera cerviniventris*	LC	Fawn-breasted Bowerbird
Aves	Passeriformes	Ptilonorhynchidae	*Chlamydera nuchalis*	LC	Great Bowerbird
Aves	Passeriformes	Rhipiduridae	*Rhipidura albiscapa*	LC	Grey Fantail
Aves	Passeriformes	Rhipiduridae	*Rhipidura dryas*	LC	Arafura Fantail
Aves	Passeriformes	Rhipiduridae	*Rhipidura isura*	LC	Northern Fantail
Aves	Passeriformes	Rhipiduridae	*Rhipidura leucothorax*	LC	White-bellied Thicket Fantail, White-bellied Thicket-Fantail
Aves	Passeriformes	Rhipiduridae	*Rhipidura maculipectus*	LC	Black Thicket Fantail, Black Thicket-Fantail
Aves	Passeriformes	Rhipiduridae	*Rhipidura phasiana*	LC	Mangrove Grey Fantail, Mangrove Fantail
Aves	Passeriformes	Rhipiduridae	*Rhipidura rufifrons*	LC	CHuchurika, Rufous Fantail
Aves	Passeriformes	Sturnidae	*Aplonis metallica*	LC	Metallic Starling
Aves	Passeriformes	Zosteropidae	*Zosterops citrinella*	LC	Ashy-bellied White-eye, Pale White-eye
Aves	Passeriformes	Zosteropidae	*Zosterops lateralis*	LC	Silvereye
Aves	Passeriformes	Zosteropidae	*Zosterops luteus*	LC	Canary White-eye, Yellow White-eye, Australian Yellow White-eye
Aves	Pelecaniformes	Ardeidae	*Ardea plumifera*	LC	Plumed Egret
Aves	Pelecaniformes	Ardeidae	*Ardea sumatrana*	LC	Great-billed Heron
Aves	Pelecaniformes	Ardeidae	*Butorides striata*	LC	Striated Heron, Green-backed Heron

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Aves	Pelecaniformes	Ardeidae	*Egretta garzetta*	LC	Little Egret
Aves	Pelecaniformes	Ardeidae	*Egretta novaehollandiae*	LC	White-faced Heron
Aves	Pelecaniformes	Ardeidae	*Egretta picata*	LC	Pied Heron
Aves	Pelecaniformes	Ardeidae	*Egretta sacra*	LC	Eastern Reef Egret, Pacific Reef-Egret, Pacific Reef Heron, Reef Heron
Aves	Pelecaniformes	Ardeidae	*Ixobrychus dubius*	LC	Australian Little Bittern
Aves	Pelecaniformes	Ardeidae	*Ixobrychus flavicollis*	LC	Black Bittern
Aves	Pelecaniformes	Ardeidae	*Ixobrychus sinensis*	LC	Blongios de Chine, Yellow Bittern
Aves	Pelecaniformes	Ardeidae	*Nycticorax caledonicus*	LC	Nankeen Night Heron, Nankeen Night-Heron, Rufous Night Heron, Rufous Night-Heron
Aves	Pelecaniformes	Threskiornithidae	*Platalea regia*	LC	Royal Spoonbill
Aves	Pelecaniformes	Threskiornithidae	*Threskiornis moluccus*	LC	Australian Ibis, Australian White Ibis, White Ibis
Aves	Psittaciformes	Psittacidae	*Aprosmictus erythropterus*	LC	Red-winged Parrot
Aves	Psittaciformes	Psittacidae	*Chalcopsitta scintillata*	LC	Streaked Lory, Yellow-streaked Lory
Aves	Psittaciformes	Psittacidae	*Charmosyna placentis*	LC	Red-flanked Lorikeet
Aves	Psittaciformes	Psittacidae	*Cyclopsitta diophthalma*	LC	Double-eyed Fig Parrot, Double-eyed Fig-Parrot
Aves	Psittaciformes	Psittacidae	*Eclectus polychloros*	LC	Papuan Eclectus
Aves	Psittaciformes	Psittacidae	*Geoffroyus geoffroyi*	LC	Red-cheeked Parrot
Aves	Psittaciformes	Psittacidae	*Micropsitta keiensis*	LC	Yellow-capped Pygmy Parrot, Yellow-capped Pygmy-Parrot

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Aves	Psittaciformes	Psittacidae	*Neophema petrophila*	LC	Rock Parrot
Aves	Psittaciformes	Psittacidae	*Platycercus venustus*	LC	Northern Rosella
Aves	Psittaciformes	Psittacidae	*Pseudeos fuscata*	LC	Dusky Lory
Aves	Psittaciformes	Psittacidae	*Psittaculirostris cervicalis*	LC	Red-faced Fig-parrot
Aves	Psittaciformes	Psittacidae	*Psittaculirostris godmani*	LC	Yellow-naped Fig-parrot
Aves	Psittaciformes	Psittacidae	*Trichoglossus haematodus*	LC	Rainbow Lorikeet, Coconut Lorikeet
Aves	Psittaciformes	Psittacidae	*Trichoglossus moluccanus*	LC	Rainbow Lorikeet
Aves	Psittaciformes	Psittacidae	*Trichoglossus rubritorquis*	LC	Red-collared Lorikeet
Aves	Strigiformes	Strigidae	*Ninox rufa*	LC	Rufous Boobook, Rufous Owl
Aves	Strigiformes	Tytonidae	*Tyto novaehollandiae*	LC	Australian Masked-owl
Aves	Struthioniformes	Casuariidae	*Casuarius casuarius*	LC	Southern Cassowary
Aves	Suliformes	Anhingidae	*Anhinga novaehollandiae*	LC	Australasian Darter
Aves	Suliformes	Fregatidae	*Fregata ariel*	LC	Frégate ariel, Lesser Frigatebird
Aves	Suliformes	Fregatidae	*Fregata minor*	LC	Great Frigatebird, Frégate du Pacifique
Aves	Suliformes	Phalacrocoracidae	*Microcarbo melanoleucos*	LC	Little Shag, Little Pied Cormorant
Aves	Suliformes	Phalacrocoracidae	*Phalacrocorax sulcirostris*	LC	Little Black Shag, Little Black Cormorant
Aves	Suliformes	Phalacrocoracidae	*Phalacrocorax varius*	LC	Australian Pied Cormorant, Pied Cormorant, Pied Shag, Great Pied Cormorant

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Chondrichthyes	Carcharhiniformes	Carcharhinidae	*Carcharhinus amblyrhynchoides*	VU	Chalarm Nah-moo, Cucut lanjaman, Pating, Graceful Shark
Chondrichthyes	Carcharhiniformes	Carcharhinidae	*Carcharhinus amboinensis*	VU	Java Shark, Hiu buas, Javahaj, Merak bulu, Mongiwa, Pigeye Shark
Chondrichthyes	Carcharhiniformes	Carcharhinidae	*Carcharhinus cautus*	LC	Nervous Shark
Chondrichthyes	Carcharhiniformes	Carcharhinidae	*Carcharhinus melanopterus*	VU	Blacktip Reef Shark
Chondrichthyes	Carcharhiniformes	Carcharhinidae	*Negaprion acutidens*	EN	Gursh, Sharptooth Lemon Shark
Chondrichthyes	Myliobatiformes	Dasyatidae	*Hemitrygon longicauda*	NT	Merauke Stingray
Chondrichthyes	Myliobatiformes	Dasyatidae	*Himantura leoparda*	VU	Pari Bunga, Pari Macan, Leopard Whipray
Chondrichthyes	Myliobatiformes	Dasyatidae	*Maculabatis toshi*	LC	Brown Whipray
Chondrichthyes	Myliobatiformes	Dasyatidae	*Pastinachus ater*	VU	Banana-tail Ray, Amarbirra, Par, Pari Bendera, Pari Daun, Pari Nyonya, Pari Tanjung, Yimarbirra, Broad Cowtail Ray
Chondrichthyes	Myliobatiformes	Dasyatidae	*Pateobatis hortlei*	NT	Hortle's Whipray
Chondrichthyes	Myliobatiformes	Dasyatidae	*Taeniura lymma*	LC	Bluespotted Fantail Ray, Bluespotted Ribbontail, Bluespotted Ribbontail Ray, Ribbontailed Stingray, Bluespotted Lagoon Ray
Chondrichthyes	Myliobatiformes	Dasyatidae	*Urogymnus granulatus*	VU	MacLeay's Coachwhip Ray, Whitetail Stingray, Whitetail Whipray, Ojiro-ei, Mangrove Whipray

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Chondrichthyes	Rhinopristiformes	Pristidae	*Anoxypristis cuspidata*	EN	Knifetooth Sawfish, Pointed Sawfish, Pejepeine, Pez Sierra, Poisson-scie, Sayyaf, Sayyafah, Narrow Sawfish
Chondrichthyes	Rhinopristiformes	Pristidae	*Pristis clavata*	CR	Queensland Sawfish, Dwarf Sawfish
Chondrichthyes	Rhinopristiformes	Pristidae	*Pristis pristis*	CR	Freshwater Sawfish, Liara, Largetooth Sawfish
Chondrichthyes	Rhinopristiformes	Pristidae	*Pristis zijsron*	CR	Narrowsnout Sawfish, Olive Sawfish, Blundo, Pejepeine, Poisson-scie, Sayyaf, Green Sawfish
Gastropoda	Cycloneritida	Neritidae	*Clithon faba*	LC	Kanokogai
Gastropoda	Cycloneritida	Neritidae	*Neritina zigzag*	LC	
Gastropoda	Cycloneritida	Neritidae	*Neritodryas subsulcata*	DD	
Gastropoda	Ellobiida	Ellobiidae	*Auriculastra subula*	LC	
Gastropoda	Ellobiida	Ellobiidae	*Cassidula aurisfelis*	LC	Cat's Ear Cassidula
Gastropoda	Ellobiida	Ellobiidae	*Cassidula crassiuscula*	LC	
Gastropoda	Ellobiida	Ellobiidae	*Ellobium aurisjudae*	LC	Auricule de Judas, Judas Ear Cassidula
Gastropoda	Ellobiida	Ellobiidae	*Ellobium aurismidae*	LC	Midas Ear Cassidula
Gastropoda	Ellobiida	Ellobiidae	*Laemodonta bella*	LC	
Gastropoda	Ellobiida	Ellobiidae	*Laemodonta punctigera*	LC	
Gastropoda	Ellobiida	Ellobiidae	*Laemodonta striata*	LC	
Gastropoda	Littorinimorpha	Clenchiellidae	*Clenchiella microscopica*	LC	
Gastropoda	Littorinimorpha	Iravadiidae	*Iravadia mahimensis*	LC	
Gastropoda	Littorinimorpha	Iravadiidae	*Iravadia rohdei*	LC	
Gastropoda	Littorinimorpha	Littorinidae	*Littoraria undulata*	LC	

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Gastropoda	Littorinimorpha	Stenothyridae	*Stenothyra perdives*	DD	
Gastropoda	Littorinimorpha	Tateidae	*Ascorhis occidua*	LC	
Gastropoda	Littorinimorpha	Tateidae	*Ascorhis tasmanica*	LC	
Gastropoda	Neogastropoda	Conidae	*Conus austroviola*	DD	
Gastropoda	Neogastropoda	Conidae	*Conus frigidus*	LC	Frigid Cone
Gastropoda	Neogastropoda	Conidae	*Conus furvus*	LC	
Gastropoda	Neogastropoda	Conidae	*Conus insculptus*	LC	
Gastropoda	Neogastropoda	Conidae	*Conus varius*	LC	
Gastropoda	Sorbeoconcha	Potamididae	*Cerithium coralium*	LC	Coral Cerith
Gastropoda	Sorbeoconcha	Thiaridae	*Sermyla riqueti*	LC	
Holothuroidea	Aspidochirotida	Holothuriidae	*Holothuria impatiens*	DD	
Holothuroidea	Aspidochirotida	Holothuriidae	*Holothuria scabra*	EN	Golden Sandfish, Sandfish
Insecta	Odonata	Coenagrionidae	*Paracercion malayanum*	LC	
Insecta	Odonata	Libellulidae	*Camacinia gigantea*	LC	
Insecta	Odonata	Libellulidae	*Raphismia bispina*	LC	Mangrove Dwarf, Spiny-chested Percher
Insecta	Orthoptera	Mogoplistidae	*Talia bandumu*	VU	Western Mangrove Cricket
Liliopsida	Alismatales	Cymodoceaceae	*Halodule pinifolia*	LC	
Liliopsida	Alismatales	Cymodoceaceae	*Halodule uninervis*	LC	Narrowleaf Seagrass, A'shab bahriya
Liliopsida	Alismatales	Cymodoceaceae	*Thalassodendron ciliatum*	LC	
Liliopsida	Alismatales	Hydrocharitaceae	*Enhalus acoroides*	LC	
Liliopsida	Alismatales	Hydrocharitaceae	*Halophila ovalis*	LC	
Liliopsida	Alismatales	Zosteraceae	*Zostera muelleri*	LC	
Liliopsida	Arecales	Arecaceae	*Licuala ramsayi*	LC	
Liliopsida	Arecales	Arecaceae	*Ptychosperma lauterbachii*	LC	

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Liliopsida	Dioscoreales	Dioscoreaceae	*Dioscorea transversa*	LC	Long yam
Liliopsida	Pandanales	Pandanaceae	*Pandanus tectorius*	LC	Vacouet, Vadra, Voivoi, Beach Pandanus
Magnoliopsida	Apiales	Araliaceae	*Polyscias macgillivrayi*	LC	
Magnoliopsida	Boraginales	Cordiaceae	*Cordia subcordata*	LC	
Magnoliopsida	Ericales	Lecythidaceae	*Barringtonia asiatica*	LC	
Magnoliopsida	Ericales	Primulaceae	*Aegiceras floridum*	NT	
Magnoliopsida	Fabales	Fabaceae	*Albizia retusa*	LC	
Magnoliopsida	Fabales	Fabaceae	*Cynometra ramiflora*	LC	Katong
Magnoliopsida	Fabales	Fabaceae	*Dalbergia beccarii*	LC	
Magnoliopsida	Fabales	Fabaceae	*Dalbergia candenatensis*	LC	Kalong, Kulayeetti, Tuba-tuba
Magnoliopsida	Fabales	Fabaceae	*Dalbergia ferruginea*	LC	Balibagan, Balintodok, Balitadhan, Metabibi, Oca-oca, Akar langsa
Magnoliopsida	Fabales	Fabaceae	*Inocarpus fagifer*	LC	Polynesian Chestnut, Aila, Châtaignier de Tahiti, I'i, Ivi, Tahitian Chestnut
Magnoliopsida	Fabales	Fabaceae	*Intsia bijuga*	NT	Borneo Teak, Moluccan Ironwood, Merbau Asam, Merbau
Magnoliopsida	Fabales	Fabaceae	*Intsia palembanica*	NT	
Magnoliopsida	Fagales	Casuarinaceae	*Gymnostoma sumatranum*	LC	Cemara Sumatra
Magnoliopsida	Lamiales	Acanthaceae	*Acanthus volubilis*	LC	
Magnoliopsida	Lamiales	Lamiaceae	*Teijsmanniodendron hollrungii*	LC	
Magnoliopsida	Lamiales	Scrophulariaceae	*Myoporum montanum*	LC	Waterbush, Western Boobialla
Magnoliopsida	Magnoliales	Myristicaceae	*Horsfieldia irya*	LC	
Magnoliopsida	Malpighiales	Euphorbiaceae	*Excoecaria indica*	DD	

Class	Order	Family	Scientific name	RLTS category	Common name
Magnoliopsida	Malpighiales	Euphorbiaceae	*Mallotus claoxyloides*	LC	
Magnoliopsida	Malpighiales	Euphorbiaceae	*Mallotus tiliifolius*	LC	
Magnoliopsida	Malpighiales	Euphorbiaceae	*Pimelodendron amboinicum*	LC	
Magnoliopsida	Malpighiales	Phyllanthaceae	*Antidesma contractum*	LC	
Magnoliopsida	Malpighiales	Phyllanthaceae	*Baccaurea nanihua*	LC	
Magnoliopsida	Malpighiales	Phyllanthaceae	*Glochidion novoguineense*	LC	
Magnoliopsida	Malpighiales	Phyllanthaceae	*Phyllanthus lanceilimbus*	LC	
Magnoliopsida	Malpighiales	Rhizophoraceae	*Ceriops zippeliana*	LC	
Magnoliopsida	Malvales	Malvaceae	*Brownlowia argentata*	DD	
Magnoliopsida	Malvales	Malvaceae	*Brownlowia tersa*	NT	
Magnoliopsida	Malvales	Malvaceae	*Hibiscus tiliaceus*	LC	Coast Cottonwood
Magnoliopsida	Malvales	Malvaceae	*Thespesia populnea*	LC	Portia Tree
Magnoliopsida	Myrtales	Combretaceae	*Terminalia catappa*	LC	Tropical Almond, Ketapang, Talisay, Tavola
Magnoliopsida	Myrtales	Myrtaceae	*Syzygium branderhorstii*	LC	
Magnoliopsida	Proteales	Proteaceae	*Hakea pedunculata*	LC	
Magnoliopsida	Santalales	Olacaceae	*Olax imbricata*	LC	
Magnoliopsida	Sapindales	Meliaceae	*Aglaia cucullata*	DD	
Magnoliopsida	Sapindales	Meliaceae	*Vavaea amicorum*	LC	
Mammalia	Chiroptera	Emballonuridae	*Mosia nigrescens*	LC	Dark Sheath-tailed Bat, Lesser Sheath-tailed Bat
Mammalia	Chiroptera	Emballonuridae	*Saccolaimus flaviventris*	LC	Yellow-bellied Pouched Bat, Yellow-bellied Sheath-tailed Bat
Mammalia	Chiroptera	Emballonuridae	*Taphozous australis*	NT	Coastal Tomb Bat, Southern Sheath-tailed

Class	Order	Family	Scientific name	RLTS category	Common name
					Bat, Coastal Sheath-tailed Bat
Mammalia	Chiroptera	Hipposideridae	*Aselliscus tricuspidatus*	LC	Temminck's Asian Trident Bat, Temminck's Trident Bat, Temminck-Dreizackblattnase, Trident Leaf-nosed Bat
Mammalia	Chiroptera	Hipposideridae	*Hipposideros ater*	LC	Bi-coloured Leaf-nosed Bat, Dusky Roundleaf Bat, Dwiwarna Pathra Nas Wawalu, Dusky Leaf-nosed Bat
Mammalia	Chiroptera	Hipposideridae	*Hipposideros calcaratus*	LC	Spurred Roundleaf Bat, Spurred Leaf-nosed Bat
Mammalia	Chiroptera	Megadermatidae	*Macroderma gigas*	VU	Australian False Vampire Bat, Ghost Bat
Mammalia	Chiroptera	Molossidae	*Ozimops beccarii*	LC	Beccari's Mastiff Bat, Beccari's Free-tailed Bat
Mammalia	Chiroptera	Molossidae	*Ozimops cobourgianus*	LC	Western Little Free-tailed Bat, Northern Coastal Free-tailed Bat
Mammalia	Chiroptera	Pteropodidae	*Macroglossus minimus*	LC	Lesser Long-tongued Fruit Bat, Dagger-toothed Long-nosed Fruit Bat
Mammalia	Chiroptera	Pteropodidae	*Nyctimene robinsoni*	LC	Queensland Tube-nosed Bat, Queensland Tube-nosed Fruit Bat, Eastern Tube-nosed Bat
Mammalia	Chiroptera	Pteropodidae	*Pteropus conspicillatus*	EN	Spectacled Flying-fox, Zorro Volador de

Class	Order	Family	Scientific name	RLTS category	Common name
					Anteojos, Spectacled Flying Fox
Mammalia	Chiroptera	Pteropodidae	*Pteropus macrotis*	LC	Big-eared Flying Fox, Zorro Volador de Orejas Grandes, Large-eared Flying Fox
Mammalia	Chiroptera	Pteropodidae	*Pteropus neohibernicus*	LC	Bismarck Flying-fox, Giant Flying Fox, Greater Flying Fox, Zorro Volador de Bismarck, Great Flying Fox
Mammalia	Chiroptera	Pteropodidae	*Pteropus scapulatus*	LC	Zorro Volador de Queensland, Little Red Flying Fox
Mammalia	Chiroptera	Pteropodidae	*Syconycteris australis*	LC	Eastern Blossom Bat, Southern Blossom Bat, Common Blossom Bat
Mammalia	Chiroptera	Vespertilionidae	*Nyctophilus arnhemensis*	LC	Arnhem Long-eared Bat
Mammalia	Chiroptera	Vespertilionidae	*Pipistrellus westralis*	LC	Koopman's Pipistrelle, Northern Pipistrelle
Mammalia	Chiroptera	Vespertilionidae	*Scotorepens sanborni*	LC	Northern Broad-nosed Bat
Mammalia	Dasyuromorphia	Dasyuridae	*Planigale maculata*	LC	Pygmy Planigale, Planigale Commun, Common Planigale
Mammalia	Diprotodontia	Phalangeridae	*Phalanger orientalis*	LC	Common Phalanger, Grey Cuscus, Couscous de la Sonde, Couscous Gris, Cuscus Gris, Cuscus Oriental,

Class	Order	Family	Scientific name	RLTS category	Common name
					Northern Common Cuscus
Mammalia	Diprotodontia	Phalangeridae	*Spilocuscus maculatus*	LC	Short-tailed Spotted Cuscus, Spotted Phalanger, Couscous Tacheté, Cuscus Manchado, Phalanger Tacheté, Common Spotted Cuscus
Mammalia	Rodentia	Muridae	*Hydromys chrysogaster*	LC	Rakali, Common Water Rat
Mammalia	Rodentia	Muridae	*Melomys burtoni*	LC	Grassland Mosaic-tailed Rat, Grassland Melomys
Mammalia	Rodentia	Muridae	*Uromys caudimaculatus*	LC	Giant White-tailed Rat, Mottled-tailed Giant Rat, White-tailed Giant Rat
Mammalia	Rodentia	Muridae	*Xeromys myoides*	VU	False Swamp Rat, False Water-rat, False Water Rat, Faux Rat d'Eau, Rata Bastarda de Agua, Water Mouse
Mammalia	Sirenia	Dugongidae	*Dugong dugon*	VU	Sea Cow, Babi Laut, Baghr al-Bahr, Dugon, Dugong, Duyong, Lembu Laut, Seekuh
Reptilia	Crocodylia	Crocodylidae	*Crocodylus porosus*	LC	Saltwater Crocodile, Estuarine Crocodile, Indo-Pacific Crocodile, Salt-water Crocodile, Saltie, Crocodile d'estuaire, Crocodile marin, Cocodrilo

Class	Order	Family	Scientific name	RLTS category	Common name
					Poroso, Buaya muara, Buaya katak, Ius, Baya, Kone huala, Pukpuk, Geta kimbula, Jara Kaenumkem
Reptilia	Squamata	Acrochordidae	*Acrochordus granulatus*	LC	Little Filesnake, Little Wartsnake, Marine File Snake, Small Warty Snake, Wart Snake
Reptilia	Squamata	Agamidae	*Lophognathus gilberti*	LC	Gilbert's Lashtail, Ta-ta Lizard, Gilbert's Dragon
Reptilia	Squamata	Agamidae	*Lophognathus longirostris*	LC	Long-nosed Water Dragon, Long-snouted Lashtail
Reptilia	Squamata	Colubridae	*Boiga irregularis*	LC	Brown Catsnake, Brown Tree Snake
Reptilia	Squamata	Colubridae	*Dendrelaphis calligaster*	LC	Northern Green Tree-snake, Northern Tree Snake, Nördliche Bronzenatter, Green Tree Snake
Reptilia	Squamata	Colubridae	*Dendrelaphis punctulatus*	LC	Common Tree Snake, Green Tree Snake
Reptilia	Squamata	Elapidae	*Ephalophis greyae*	LC	North-western Mangrove Sea Snake
Reptilia	Squamata	Elapidae	*Hydrelaps darwiniensis*	LC	Black-ringed Sea Snake, Port Darwin Sea Snake
Reptilia	Squamata	Elapidae	*Hydrophis cyanocinctus*	LC	Bluebanded Sea Snake, Hydrophide à bandes bleues, Annulated Sea Snake
Reptilia	Squamata	Elapidae	*Hydrophis gracilis*	LC	Narrow-headed Sea Snake, Slender Sea

Class	Order	Family	Scientific name	RLTS category	Common name
					Snake, Graceful Small-headed Sea Snake
Reptilia	Squamata	Elapidae	*Hydrophis schistosus*	LC	Hook-nosed Sea Snake, Enhydrine ardoisée, Beaked Sea Snake
Reptilia	Squamata	Elapidae	*Laticauda colubrina*	LC	Columbrine Sea Krait, Yellow-lipped Sea Krait
Reptilia	Squamata	Elapidae	*Laticauda laticaudata*	LC	Blackbanded Sea Krait, Brown-lipped Sea Krait, Plature à Bandes
Reptilia	Squamata	Elapidae	*Parahydrophis mertoni*	DD	*(no species listed)*
Reptilia	Squamata	Gekkonidae	*Hemiphyllodactylus typus*	LC	Common Dwarf Gecko, Indo-Pacific Tree Gecko, Indo-Pacific Slender Gecko
Reptilia	Squamata	Gekkonidae	*Lepidodactylus lugubris*	LC	Common Smooth-scaled Gecko, Mangrove Smooth-scaled Gecko, Mourning Gecko
Reptilia	Squamata	Gekkonidae	*Lepidodactylus pumilus*	LC	Slender Chained Gecko
Reptilia	Squamata	Homalopsidae	*Cerberus australis*	LC	Australian Rockadam, Australian Bokadam
Reptilia	Squamata	Homalopsidae	*Djokoiskandarus annulata*	DD	
Reptilia	Squamata	Homalopsidae	*Fordonia leucobalia*	LC	Crab-eating Water Snake, Fordonia, Fordon's Water Snake, Mangrove Snake, Plain Fordonia, White-bellied Freshwater Snake, White-bellied Mangrove Snake,

Class	Order	Family	Scientific name	RLTS category	Common name
					White-bellied Water Snake, Crab-eating Snake
Reptilia	Squamata	Homalopsidae	*Myron karnsi*	DD	
Reptilia	Squamata	Homalopsidae	*Myron resetari*	VU	Broome Mangrove Snake, Resetar's Mangrove Snake, Roebuck Bay Mangrove Snake
Reptilia	Squamata	Homalopsidae	*Myron richardsonii*	LC	Australian Myron, Gray's Water Snake, Richardson's Freshwater Snake, Richardson's Grey Mangrove Snake, Tree-striped Myron, Richardson's Mangrove Snake
Reptilia	Squamata	Scincidae	*Carlia sexdentata*	LC	Closed-litter Rainbow-skink, Macleay's Rainbow-skink, Robust Rainbow-skink, Six-toothed Rainbow-skink
Reptilia	Squamata	Scincidae	*Cryptoblepharus virgatus*	LC	New Guinea Striped Snake-eyed Skink, Wall Skink, Cream-striped Shining-skink
Reptilia	Squamata	Scincidae	*Ctenotus robustus*	LC	Striped Skink, Robust Ctenotus
Reptilia	Squamata	Scincidae	*Emoia atrocostata*	LC	Gray Swamp Skink, Littoral Skink, Mangrove Skink, Littoral Whiptail-skink

Class	Order	Family	Scientific name	RLTS category	Common name
Reptilia	Squamata	Scincidae	*Glaphyromorphus nigricaudis*	LC	Black-tailed Bar-lipped Skink
Reptilia	Squamata	Varanidae	*Varanus beccarii*	DD	
Reptilia	Squamata	Varanidae	*Varanus indicus*	LC	Biawak Pasifik, Pazifikwaran, Mangrove Monitor
Reptilia	Squamata	Varanidae	*Varanus panoptes*	LC	Horn's Monitor, Yellow-spotted Monitor
Reptilia	Squamata	Varanidae	*Varanus prasinus*	LC	Emerald Monitor
Reptilia	Squamata	Varanidae	*Varanus semiremex*	LC	Rusty Monitor
Reptilia	Testudines	Chelidae	*Elseya rhodini*	LC	Rhodin's Stream Turtle, Southern New Guinea Stream Turtle
Reptilia	Testudines	Cheloniidae	*Eretmochelys imbricata*	CR	Caret, Tortue à bec faucon, Tortue Caret, Tortue imbriquée, Tortuga de Carey, Hawksbill Turtle
Actinopterygii	Albuliformes	Albulidae	*Albula glossodonta*	VU	Shortjaw Bonefish

3. National Estimates for subcriterion A1

To estimate the NW-Sahul mangrove area from 1996 to 2020, we used the most recent version of the Global Mangrove Watch (GMW v3.0) spatial dataset. The mangrove area in each contributing country, and the province overall, were corrected for both omission and commission errors, utilizing the equations in Bunting *et al*. (2022). We then estimated the mangrove area in 1970 for each country, assuming a linear relationship between mangrove extent and time and back casting the regression. Finally, we summed up the country estimates to determine the total mangrove area in the NW-Sahul province (Table a). We assumed that the percentage of mangrove extent by country within the province remained constant over time, as the percentages did not change between 1996 and 2020 (GMW v3.0 dataset). However, there were no regional statistics or global studies available for the period approaching 1970 to verify this approach (Table b). Therefore, the estimates for 1970 should be considered indicative only.

Table a. Estimated mangrove area by country in 1970 and 2020. Estimates for 2020* mangrove area are based on the Global Mangrove Watch Version 3 (GMW v3.0) dataset. There were insufficient historical studies available to calculate mangrove area for each country in 1970 (Table b).**

Year	Country total 2020*	Within province 2020*	Country total 1970**	Within province 1970**
The NW-Sahul	44232.0	18061.4	DD	DD
Australia	10185.0	7125.7	DD	8032.5
Papua New Guinea	29536.3	2882.9	DD	DD
Indonesia	8052.8	8052.8	DD	DD

Table b. List of selected studies considered to have reliable information on mangrove area for the period around 1970 in each country of the NW-Sahul province.

Country	Year	Mangrove Area (Ha)	Reference
Australia	NA	NA	No local or regional published studies on extent or condition of NW Australian mangrove habitat available for the period around 1970
For all countries.			FAO (2003). Status and trends in mangrove area extent worldwide. By Wilkie, M.L. and Fortuna, S. Forest Resources Assessment Working Paper No. 63. Forest Resources Division.