

Mangroves of the Australian Coral Sea



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Abstract

Mangroves of the Australian Coral Sea is a regional ecosystem subgroup (level 4 unit of the IUCN Global Ecosystem Typology). It includes the marine ecoregions of the Central and Southern Great Barrier Reef, Coral Sea, Torres Strait Northern Great Barrier Reef, and Tweed-Moreton. The Australian Coral Sea mangrove province mapped extent in 2020 was 2398.3 km² across, representing 1.6% of the global mangrove area. The biota is characterised by 46 species of mangroves.

This bioregion is notable for having the most biomass-rich mangrove forests in Australia, with trees reaching heights of 25–30 meters, particularly in lush tropical areas adjacent to the Wet Tropics rainforests, such as the Daintree River. Isolated pockets along the northeast coast also exhibit both high biomass and biodiversity. The mangroves are divided into three sub-regions, based on rainfall, tidal ranges, and distinct geological and physiographic conditions.

Today the Australian Coral Sea mangroves cover ≈8% more than our broad estimation for 1970, although the mangrove net area change has been -1.6% between 1996 and 2020. If this trend continues an overall change of -5.3% is projected over the next 50 years. However, an alternative scenario, based on mangrove forest dynamics, suggests that cyclical increases and decreases may result in relatively stable mangrove cover over time. Furthermore, under a high sea level rise scenario (IPCC RCP8.5) ≈-7.2% of the Australian Coral Sea mangroves could be submerged by 2060. Additionally, 1.1% of the province's mangrove ecosystem is undergoing degradation, with the potential to increase to 3.4% within 50 years, based on a vegetation index decay analysis. Overall, the Australian Coral Sea mangrove ecosystem is assessed as **Least Concern (LC)**.

Citation:

De Kluyver, T., Duke, N. C., Lovelock, C. E., Suárez, E. L. & McGregor S. G. (2023). 'IUCN Red List of Ecosystems, Mangroves of the Australian Coral Sea'. 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:

Australian Coral Sea Province

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

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

Mangroves of the Australian Coral Sea 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_33 Mangroves of the Australian Coral Sea

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

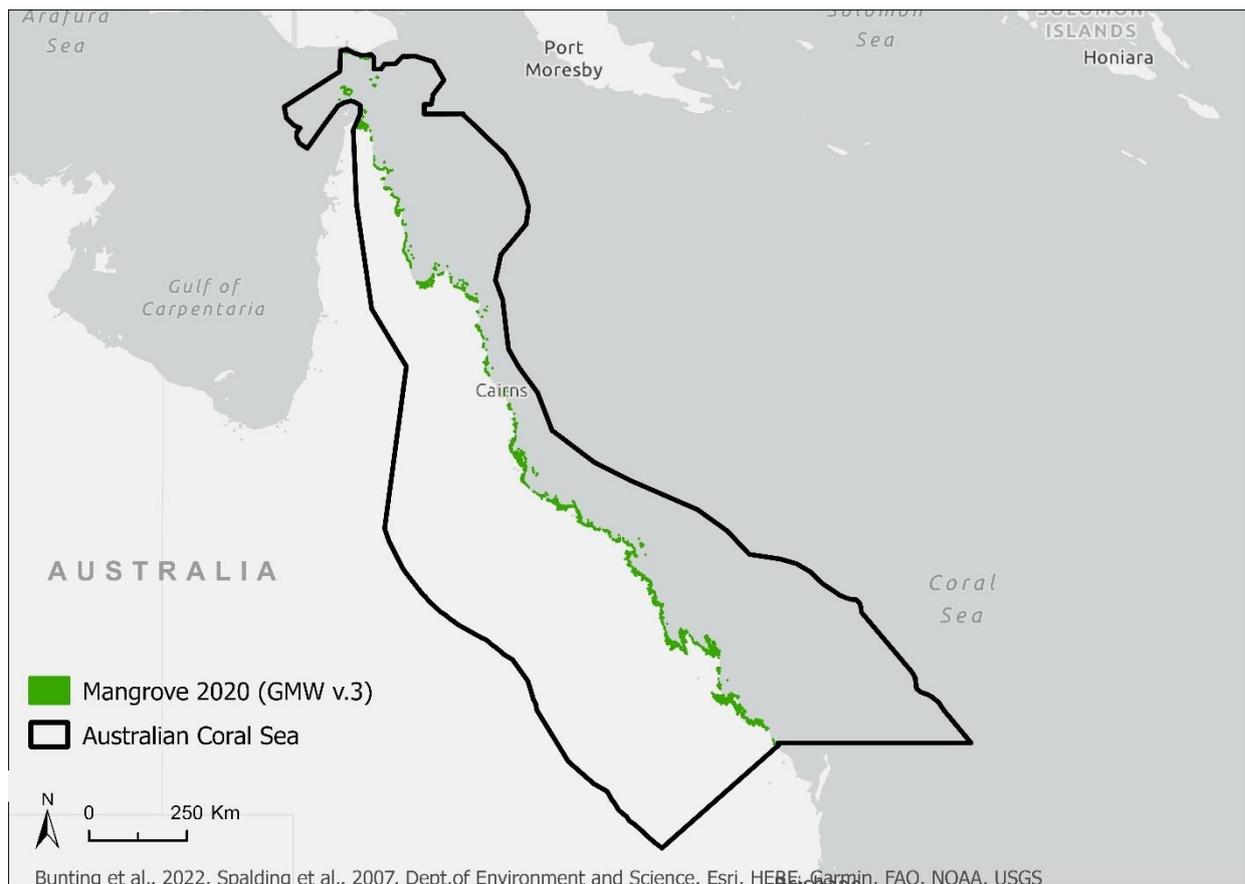


Figure 1. The mangroves of the Australian Coral Sea province

2. Ecosystem Description

Spatial distribution

The entire Australian Coral Sea province is within the Australian State of Queensland. Its mangroves comprise intertidal forests and shrublands of the Torres Strait islands and along Australia's east coast from Cape York to Central Queensland, bordering the Northern, Central and Southern Great Barrier Reef ecoregions (Figure 1). In 2020, the estimated mangrove extent in this province was 2,398.3 km², representing approximately 1.6% of the global mangrove area. There has been a net area change of -1.6% since 1996 (Bunting *et al.*, 2022).

Several other resources summarise the extent, composition and condition of mangrove habitats in Queensland and nationally. The National Land and Water Resources Audit (NLWRA, 1998) provides an inventory of all Australian estuaries. Within the Coral Sea province, it identifies 185 estuaries, covering a total area of 2305.9 km² (including mangroves, tidal marshes, and tidal flats). According to the NLWRA report, mangroves occupied a smaller total area of 1,153 km² across 95 estuaries. However, the NLWRA does not report on coastal mangroves that exist outside 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.

Queensland also conducted a state-based survey of its coastal wetlands that included analysis of Landsat images supported by ground-based surveys. For the Coral Sea province, these surveys report a total of 2,627 km² of mangrove habitat, including scrub mangrove along the east coast of Queensland from Cape York to Tin Can Inlet (Danaher, 1995; Danaher, 1995b; Bruinsma *et al.*, 1999; Bruinsma, 2000; Bruinsma, 2001; Bruinsma and Danaher, 2000; Bruinsma and Danaher, 2001). These surveys cover slightly more coastline than the Coral Sea province, providing a comprehensive snapshot of mangrove species distribution and relative abundance from 1995 to 2001. Additional local mangrove surveys and supporting information are provided in Accad *et al.*, 2016; Bunt 1996; Bunt 1997; Bunt and Bunt 1999; Bunt and Williams 1981; Bunt *et al.*, 1991; Duke *et al.*, 2017; Duke, Burrows, and Mackenzie 2015; Mackenzie *et al.*, 2012, and Roder *et al.*, 2002.

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 Coral Sea province, estimates 2,675.8 km² 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 Coral Sea province, and with a maximum extent mangrove mask applied (GMW_v3_union_vec; Bunting *et al.*, 2022), estimates that 2,197.5 km² of mangrove were present in 2020, including the Torres Strait Islands. This is 525 km² 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 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)

This bioregion is notable for having the most biomass-rich mangrove forests in Australia, with trees reaching heights of 25–30 meters, particularly in lush tropical areas adjacent to the Wet Tropics rainforests, such as the Daintree River. The north-east coast generally has isolated and unique, pockets of high biomass and high biodiversity. Three sub-regional mangrove habitat formations are recognised determined by varying rainfall and tidal ranges, plus different geological and physiographic settings.



Mangrove stands in the Daintree River estuary of north-eastern Australia (photo credit: NC Duke).

The mangroves of the Australian Coral Sea province are biologically diverse. The reported number of species varies, with the IUCN listing 31 mangrove plants (IUCN, 2022), while comprehensive Australian reports list 46, of which 38 are native, 1 is introduced and 7 are intermediates or hybrids (Duke, 2006, 2025; Cooper *et al.*, 2016; Duke & Kudo, 2018). Nine species are found nowhere else in Australia, though most taxa have broader distributions, including in the rich mangrove ecosystems of nearby New Guinea, which, in the past were periodically connected by land bridges during ice ages with lower sea levels. Appendix 2 includes the list of taxa that are associated with mangrove habitats in the Red List of Threatened Species database

Mangroves offer a range of habitats that are suitable for a wide variety of fauna that, in turn, contribute to healthy ecosystem function. There are at least 421 animal species across 7 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). Although the focus of the current list is on vertebrates (5 Classes, 400 species), the invertebrates, including the meiofauna, are highly diverse and numerous. Insects and arachnids dominate the arboreal environment (Hutchings & Recher 1982) and 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 within a mangrove (Aluri, *et al.*, 1994; Williams, 2020), and/or impact human economies

and health (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).



Mangrove crabs (sesarmids) consume and remove leaf, their behaviour continually bioturbates mangrove soils (photo credit: NC Duke).

A diverse range of vertebrate species utilise mangrove habitats. Meynecke, *et al.* (2007) demonstrated that the size and structural connectivity of tidal habitats, including mangroves, significantly correlate with fisheries capture data for certain commercial fish and crustacea species in Queensland. 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). A survey in Endeavour River National Park, comprising mangrove, heath and woodland habitats, reported that many terrestrial vertebrates (excepting amphibians) that are typically found in heath and woodland, also inhabit mangroves (Hines and McDonald, 2007). The study observed 13 amphibians, 18 reptiles, 74 birds, and 13 mammals, including three feral species, with 44 of these species found in mangroves.

Most amphibians avoid tidal wetlands due to their intolerance of saline habitats (Kutt, 1977). However, some, like the green and golden bell frog, *Litoria aurea*, have been observed breeding in mangrove creeks on Kooragang Island (NSW). The presence of this species is likely linked to freshwater lensing caused by human disturbance (Gould *et al.*, 2023). An amphibian of concern is the feral cane toad, *Rhinella marina*. 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).



Cane toads are often found in mangrove forests in the Daintree River estuary (photo credit: NC Duke).



Saltwater crocodiles are a common feature (and tourist attraction) in mangrove lined waterways of north-eastern Australia, like this one in the Daintree River (photo credit: NC Duke).

Reptiles may be 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.

Mangroves in the Australian Coral Sea province support diverse bird assemblages, with at least 70 species recorded, mostly insectivores and nectarivores (Mohd-Azlan *et al.*, 2012). Among the non-shorebirds, 14 are largely restricted to mangroves, a further 12 utilise mangroves as their primary habitat, and 17 have been confirmed as breeding residents (Kutt, 1977). A further 60 species were recorded as regular or seasonal residents. Shorebirds are also common with an estimated 17 species present in North Queensland's Trinity

Inlet (Kutt, 1977).



Large Anhinga novaehollandiae are common fish catchers in the Daintree River estuary (photo credit: NC Duke).

The southern cassowary (*Casuarius casuarius johnsonii*) is a frequent visitor to the mangroves of Queensland's Cape York and Wet Tropics. This species uses this habitat as an intermittent source of food and as a transit zone between areas of lowland forest (Westcott *et al.*, 2008 and 2014). Although its conservation status is listed as "Least Concern" in the IUCN database, Australia lists it as endangered within its jurisdiction under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (Department of the Environment, Water, Heritage and the Arts, 2010). It may act in the dispersal of pond apple (*Annona glabra*), which is an invasive weed of forests, riparian zones and wetlands, including mangroves (Westcott, *et al.*, 2008).

Although few mammals are considered endemic to mangroves this habitat does support feeding and roosting activities from regular or seasonal visitors, particularly bats (Kutt, 1997; Hutchings and Recher, 1982). 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 tree hollows, including maternity roosts (McConville, *et al.*, 2013; McKenzie, *et al.*, 2022; Law, *et al.*, 2023). Rodents, such as the white-tailed rat, *Uromys caudimlatus*, and the water rat *Hydromys chrysogmter*, forager along the mangrove margins in north Queensland (Kutt, 1977).



Small rodents forage in the mangroves. Although they are rarely seen, their footprints are commonly observed (photo credit: NC Duke).

Several introduced hooved ungulate species commonly visit Australian tropical mangroves, 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. Other less frequent visitors to tropical and sub-tropical mangroves that can cause ecosystem disruption through competition, predation and toxic interactions include introduced wild goats (*Capra hircus*), cats (*Felis catus*), and Cane toads (*Rhinella marina*).

Several studies indicate that, despite their high primary productivity, mangrove plants are not the sole, nor necessarily the major contributor of nutrient resources for resident primary and secondary consumers and the broader estuarine community (Kieckbusch, *et al.*, 2004; Abrantes, 2008; Heithaus 2011), although other studies indicate they support food webs (Abrantes *et al.* 2015, Then *et al.* 2021). A comparative study demonstrated that a similar four level trophic structure existed within both a tropical (Malaysia) and temperate (south-east Australia) mangrove ecosystems in which sediment organic matter rather than mangrove detritus was the base trophic resource (Mazumder, *et al.*, 2019). Marley *et al.* (2019) demonstrated that, for mangroves fringing an adjacent mudflat, the mangrove and mudflat food webs were connected by highly mobile top predators that included birds and caimans.



Introduced wild pigs cause considerable damage to tidal wetlands (photo credit: NC Duke).

Abiotic Drivers of Ecosystem Change

Mangroves occur along most coastal areas of this province (Ozestuaries, 2006), where they are affected by monsoonal hot or warm, wet summers and low energy waves. Climatic conditions vary considerably from very wet to very dry and are associated with distinct differences in species composition and structure (Figure 2). While there is a general decline in species numbers in the largely semi-arid coastal areas of the south localised climatic factors help form enclaves of highly diverse mangrove communities in wetter locations.

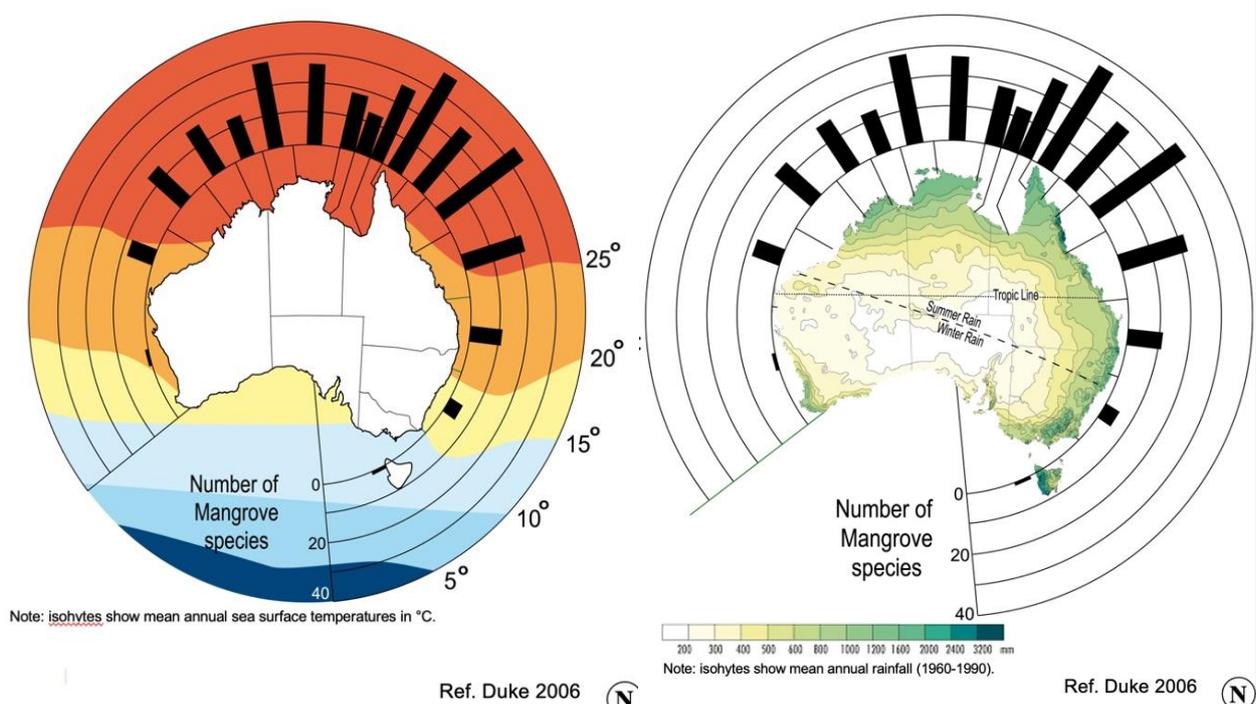


Figure 2. The climatic conditions (temperature and rainfall) strongly influence the biodiversity of mangroves, noting maximal numbers are found in hot (low latitude) and wet locations (Figure reproduced from Duke 2006 with permission).

Higher rainfall positively correlates with larger spatial extent of mangroves, and fewer areas of tidal saltmarsh and saltpan (Duke *et al.*, 2019). Consequently, areas with high rainfall have a higher Wetland Cover Index (WCI), while drier areas have a lower WCI (Figure 3).

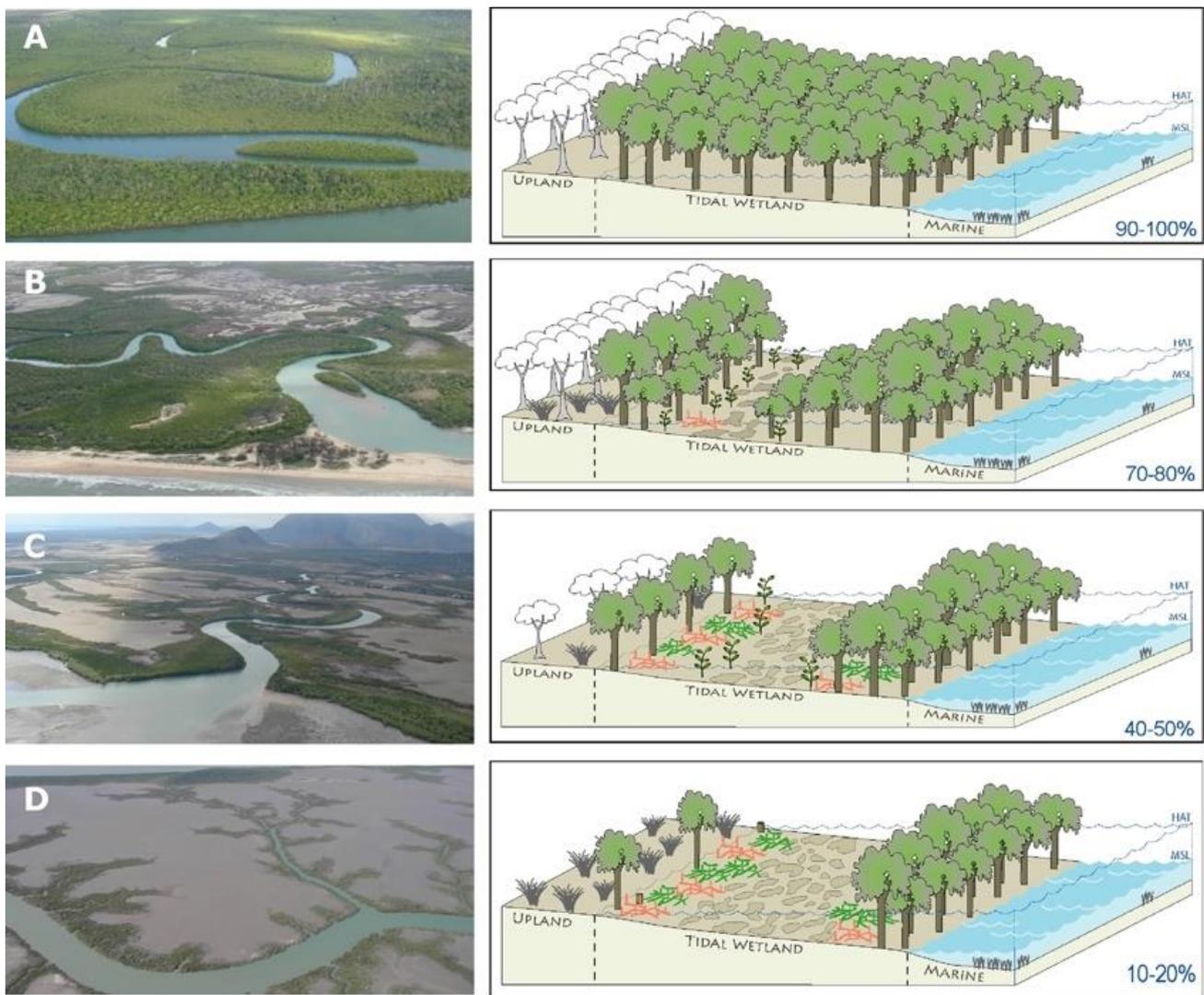


Figure 3. Extent of mangrove occurrence across the tidal zone between mean sea level and upper-elevation limits. Mangroves share this zone with tidal saltmarsh and microphyte salt pans, however their respective proportions are linked to local rainfall conditions. Accordingly, more rain correlates with relatively larger areas of mangroves (a and b), while the area of saltmarsh and pans decreases. The reverse occurs as rainfall decreases (c and d). Image reproduced from Duke *et al.* 2019 with permission).

Torres Strait Islands (TS) - Tropic Moderate Rains between Cape York and Papua New Guinea

Torres Strait islands – there are multiple small catchment areas spanning this humid to wet tropical sub-region, which has micro tides and is characterised by minimal estuarine stands. The sub-region has 32 mangroves, with a total mangrove area of approximately 503 km². Boigu Island has 27 mangroves, making it one of the most species-rich islands in the region.

Eastern Cape York (EC) - Wet Tropic Rainforests Bordering the Great Barrier Reef

Cape York to Hinchinbrook Island – this sub-region has 15 local catchment areas spanning humid to very wet tropical areas with micro to meso tides. The Daintree River has 31 mangrove species, making it one of the most species-rich estuaries in the world. *Sonneratia caseolaris* features in this region as an upriver mangrove restricted to river-dominated estuaries in wetter areas. The region has 42 mangrove species, with a total mangrove area of approximately 1,000 km².

Central (CQ) - Catchments Big and Small to the Great Barrier Reef

Palm Islands to Port Curtis – this sub-region has 15 local catchment areas in semi-arid to humid tropical areas with meso- to macro- tides. The Fitzroy River has a semi-arid catchment area, the largest in this sub-region, and has 14 mangrove species. There are a total of 23 mangroves species covering approximately 895 km².

Key processes and interactions

Mangroves are moulded and renewed by major drivers of human pressures and natural influences. These forested environments 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 substrata. 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, and then decomposed further by meiofauna, fungi and bacteria, thus mobilising carbon, and nutrients to other biota in the mangrove and coastal ecosystem. Mangrove ecosystems also serve as major blue carbon sinks, incorporating organic matter into sediments and living biomass (Serrano et al. 2019).

3. Ecosystem Threats and vulnerabilities**Main threatening processes and pathways to degradation**

Coastal wetland habitats, which include mangrove, tidal marsh and seagrass, are threatened by the combined pressures of human and natural drivers of change. These interlinked habitats experience highly dynamic physical and climatic conditions and commonly undergo damage-recovery cycles. Degradation occurs when coastal wetland systems are exposed to repeated damage over intervals shorter than recovery time, with some threats common to all habitats or, if affecting a subset, having indirect and/or direct effects through their shared linkages (Figure 4).

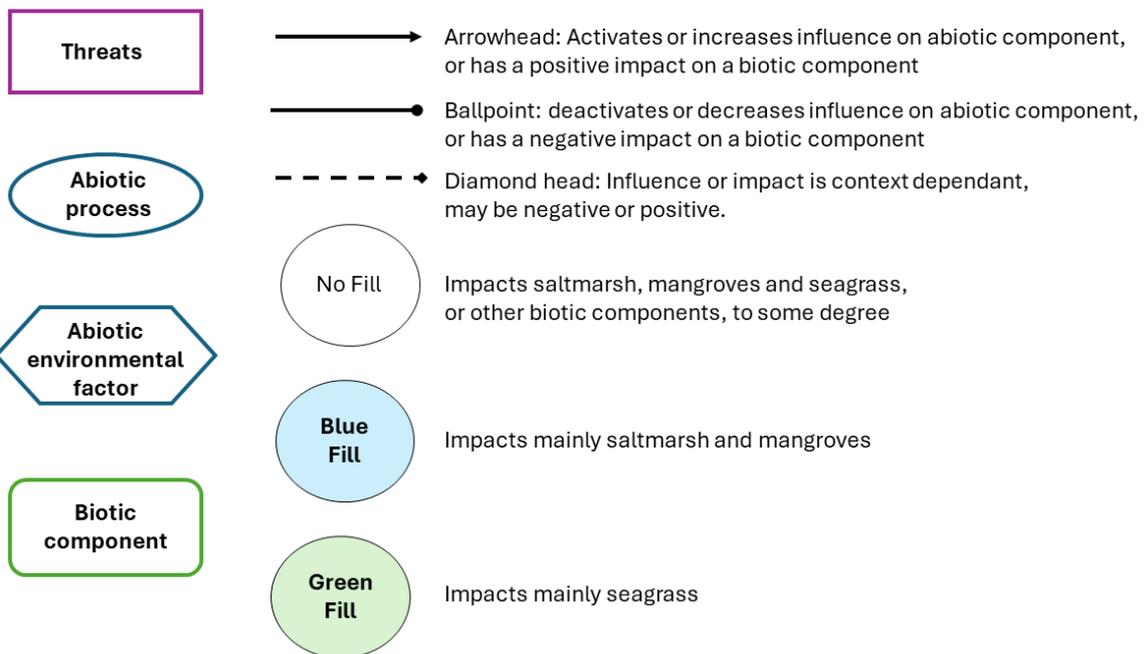
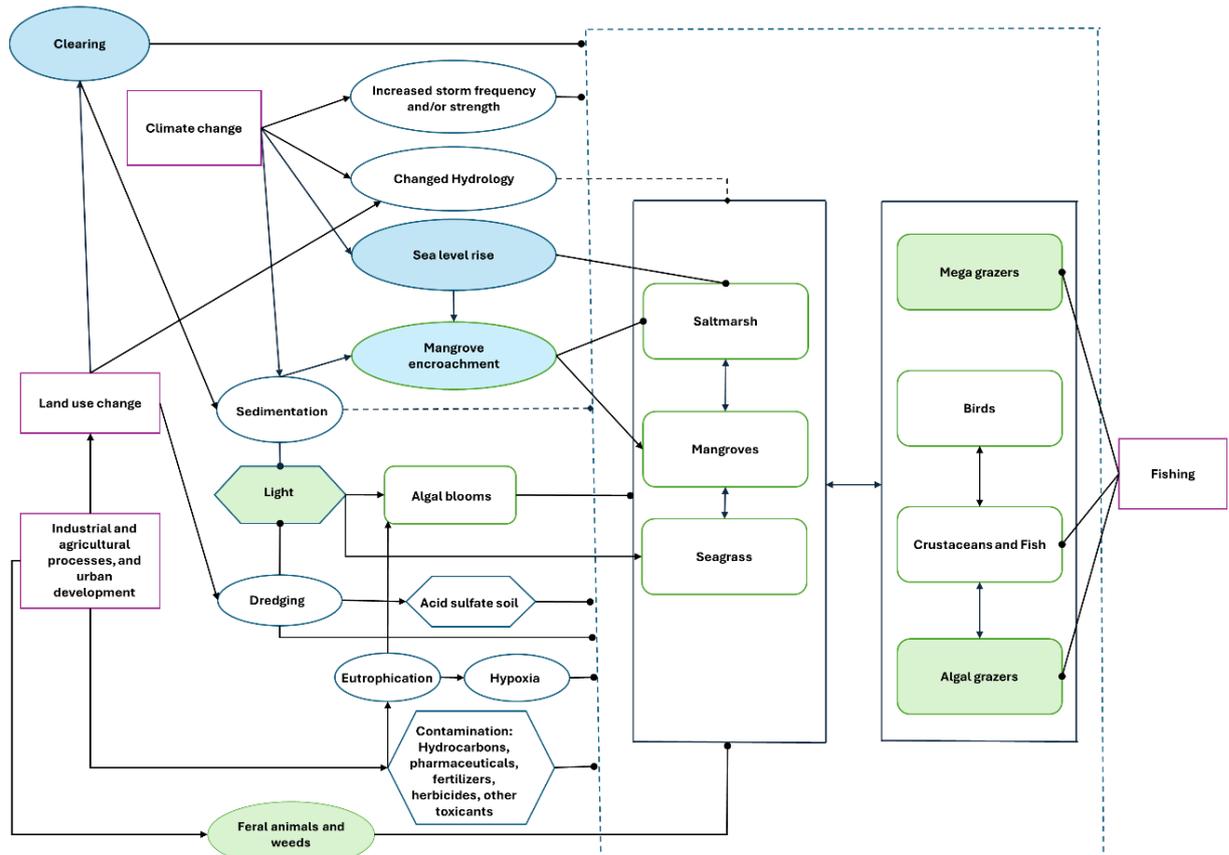


Figure 4. A conceptual model of key processes and threats to the interlinked inshore and tidal ecosystems of the Australian Coral Sea province. The key threats, represented generically in this diagram, are listed below under Threat Classification in Section 3: Ecosystem Threats and Vulnerabilities (Conceptual model modified from Figure 2 in Sievers *et al.*, 2020).

Human pressures include deforestation which arises from various factors, including aquaculture, urbanisation, associated coastal development, and pollution stemming from domestic, industrial, and agricultural land use (Duke, 2020). For example, there are significant losses from large oil spills (Duke, 2016). The wide range of influences and the indicators of change are more fully described in a key assessment of damaging processes in Australia's Gulf of Carpentaria (Duke *et al.*, 2021).

Tropical storms and cyclones can 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. Severe tropical cyclones (Category 3 and greater) have increased in both frequency and intensity over the last decade (Duke *et al.*, 2024), increasing exponentially in the damage caused to mangroves of the Great Barrier Reef region (Figure 5).

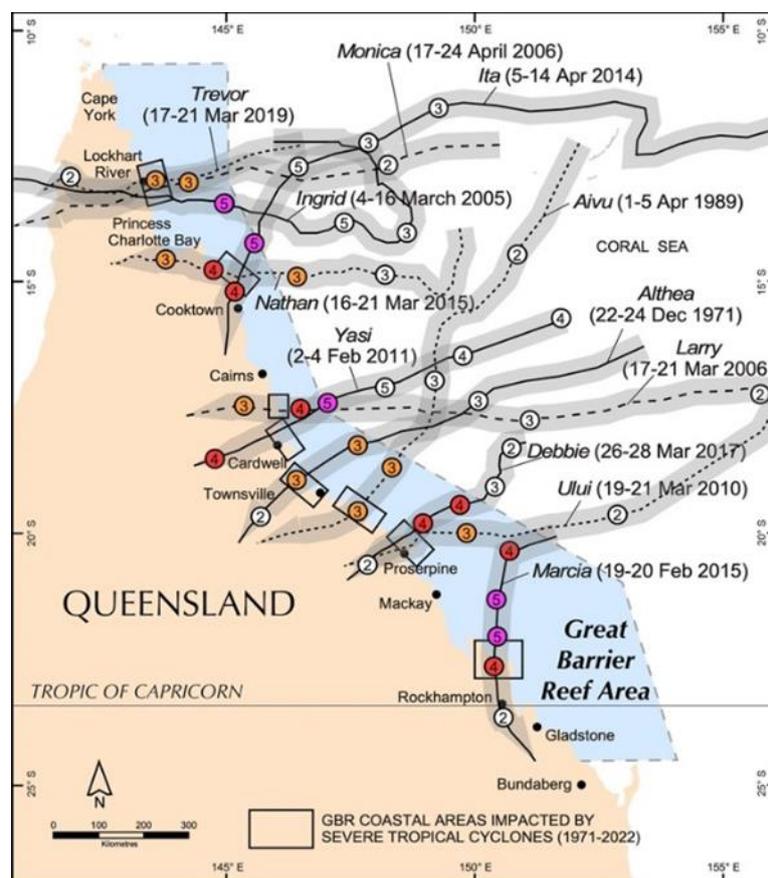


Figure 5. Eleven severe tropical cyclones have seriously affected mangroves in this region with notable increased severity and frequency in recent decades (Duke *et al.* 2024).

Co-incident with the increased damaging events of cyclones, mangroves are also threatened by rapidly rising sea levels. Rates of sea level rise vary between 4.8 mm per year near Cairns (Figure 6) up to 8 mm per year in the Torres Strait. 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.

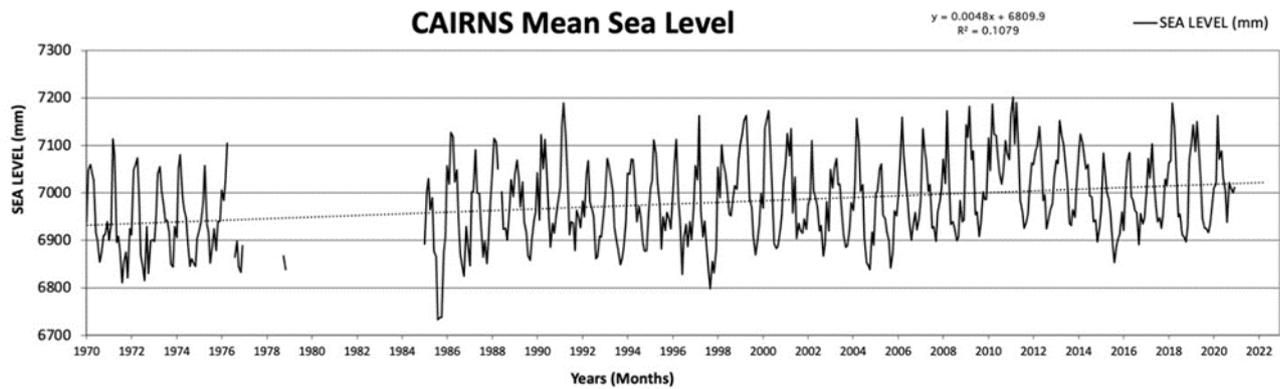


Figure 6. Rising sea levels (long-term trend), like those around Cairns of 4.8 mm per year, are a serious threat to mangroves, and coupled with other human and natural threats, severely limits the capacity for mangrove propagation and recovery (Duke *et al.*, 2022).

The presence of introduced wild animals into the Australian landscape also contributes to mangrove degradation. Introduced wild pigs, whose populations are increasing, are of particular concern. They impact the mangroves directly due to their herbivory, predation of benthic fauna, and propagule consumption, and damage sediment, plants, and their pneumatophores, with their hooves and wallowing activities.

Definition of the collapsed state of the ecosystem

Ecosystem deterioration is recognised when the tree cover of dominant mangrove species declines significantly and where there is decreased recruitment (Duke 2001). Changes to inundation and wave and wind energy may result in unsuitable soil biogeochemical conditions and soil subsidence (Yando *et al.* 2021). Degradation leads to 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 salt pans, 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).

Mangrove ecosystems exhibit remarkable dynamism, with species distributions adapting to local shifts in sediment distribution, tidal patterns, and variations in local inundation and salinity gradients. Disruptive processes, such as increasingly extreme, climate change driven mechanisms, can trigger shifts in the dynamic equilibrium of the ecosystem, leading potentially to ecosystem collapse, if recovery is not possible. Ecosystem collapse may 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 propagules due to adverse climatic conditions (e.g., low temperatures); c) alterations in rainfall, river inputs, waves, and tidal currents that destabilise and erode substrates, hindering recruitment and growth; d) shifts in rainfall patterns and tidal flushing altering salinity stress and nutrient loadings, impacting overall survival. Ecosystem collapse is recognised when the tree cover of diagnostic mangrove species dwindles to zero, indicating complete loss (100% mortality).

Region-wide Mangrove Condition Surveys

This study appraised the condition of mangroves and tidal saltmarshes along the NE coastline of Australia from Gladstone to Cape York (Figure 7, Table 1) in two sections: the northern coast during May-June 2017 and the southern coast in May 2023 (Table 1). Surveys involved taking continuous georeferenced photographs of the shoreline from a helicopter at an approximate altitude of ~30 m and ~100 m. Mangrove and tidal saltmarsh communities, habitat structure, and indicative environmental conditions were quantified and recorded in an assessment of the relative status of human and natural-climate based drivers influencing mangrove forest condition and health.

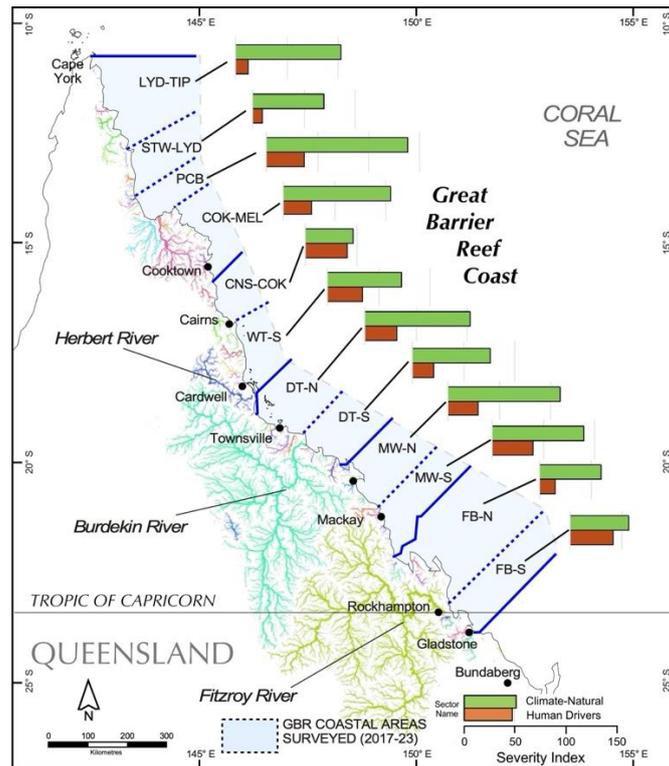


Figure 7. Twelve sectors of the NE Australian coast surveyed for assessments of shoreline mangrove ecosystem conditions (Duke & Mackenzie, 2018), Canning & Duke, 2023) showing histograms of total relative human & climate-natural effects.

Table 1. Twelve sectors of the NE Australian coast surveyed for assessments of shoreline mangrove ecosystem conditions (Fig. 6), defined in terms of Australian Natural Resource Management Regions (NRMs).

	NRM Region	Sector Code	Sector Locations
1	Cape York - Tip	LYD-TIP	Cape York to Lloyd Bay
2	Cape York - Lloyd	STW-LYD	Lloyd Bay to Stewart River
3	Cape York - PCB	PCB	Princess Charlotte Bay
4	Cape York - South	COK-MEL	Cape Melville to Cooktown
5	Terrain - North	CNS-COK	Cooktown to Cairns
6	Terrain - South	WT-S	Cairns to Herbert River
7	NQ Dry Tropics	DT-N	Townsville to Taylors Beach

8	NQ Dry Tropics - South	DT-S	Burdekin River to Saddleback Island
9	Reef Catchments - North	MW-N	Shute Harbour to Mackay North
10	Reef Catchments - South	MW-S	Rocky Dam to West Hill
11	Fitzroy Basin Association - North	FB-N	St Lawrence to Fitzroy River Mouth
12	Fitzroy Basin Association - South	FB-S	Port Alma to Rodds Bay

Climate-natural threats were greatest in all sectors, showing greater overall levels of severity and exceeding direct human threats (Figure 7). While human effects generally decreased with more sparsely populated areas in the north of the province, climate-weather influences were mostly spread evenly from south to north. However, there were indications of more rapidly rising sea levels towards the north, were affecting mangrove condition.

Human related influences (Table 2; Figure 8) shifted to rural pressures like damage by stock and introduced wild animals to the north. By contrast, there were more access tracks and habitat damage by recreational vehicles to the south. In addition, there were notable construction activities grouped under altered hydrology (like dams, rock walls and cut channels), direct losses (like reclamation) and encroachment (e.g. areas with left with little to no buffering between development occupied areas and mangroves).

Table 2. Human threats (severity X extent) ranked for each sector of the NE Australian coastline ordered from South to North (Figure 7) with severity scores from 0-1 (least severe) to 4-5 (most severe). Combined data from Duke & Mackenzie (2018), and Canning & Duke (2023).

HUMAN THREATS	1	2	3	4	5	6	7	8	9	10	11	12
Sector Code	FB-S	FB-N	MW-S	MW-N	DT-S	DT-N	WT-S	CNS-COK	COK-MEL	PCB	STW-LYD	LYD-TIP
Number of Major Estuaries	4	3	2	2	3	2	3	9	4	3	3	8
Structure Loss	0.7	0.4	0.0	0.0	0.4	0.3	0.4	0.0	0.0	0.0	0.0	0.0
Direct Loss	0.7	0.2	0.3	0.0	0.2	0.3	0.8	0.1	0.0	0.0	0.0	0.0
Altered Hydrology	1.2	0.6	1.1	0.5	0.9	0.8	0.8	1.8	0.0	0.0	0.0	0.0
Encroachment	0.7	0.2	1.1	0.9	0.6	0.8	1.5	0.8	0.0	0.0	0.0	0.0
Access Tracks	1.1	0.3	0.9	0.4	0.3	1.0	0.6	1.1	0.4	1.7	0.0	0.0
Stock Impacts	0.3	0.2	0.3	0.4	0.2	0.3	0.1	0.5	1.8	2.2	0.6	0.4
Introduced hooved animal Damage	0.0	0.1	0.5	0.1	0.0	0.3	0.1	0.8	1.6	1.0	0.7	1.1
Pollutant Impact	0.7	0.1	0.8	1.7	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0
Nutrient Excess	0.0	0.0	0.2	0.0	0.1	0.1	0.0	0.2	0.0	0.0	0.0	0.0
Fire Scorch	0.2	0.0	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0
Weed Smother	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0

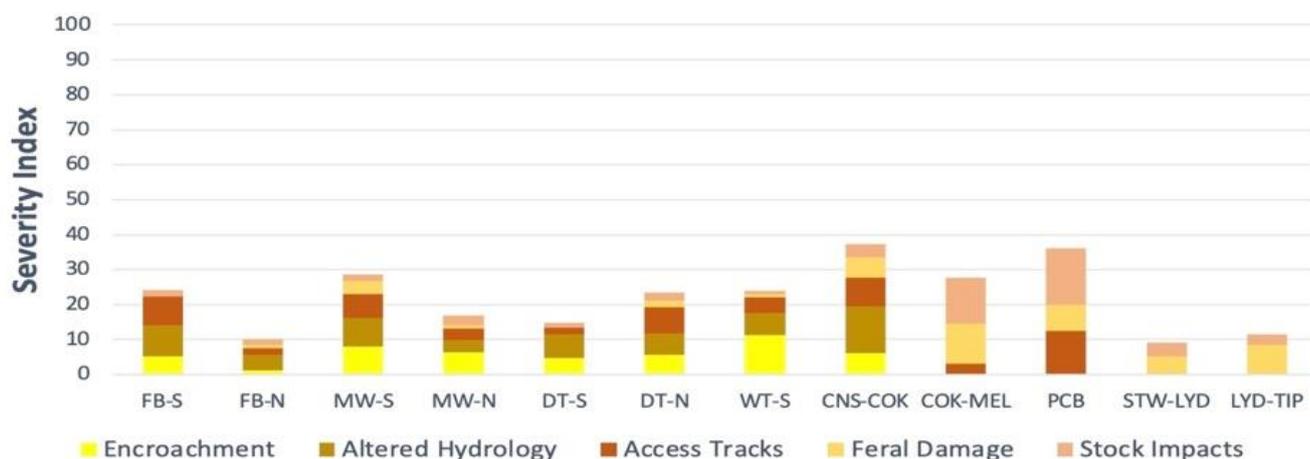


Figure 8. The five overall most dominant human threats affecting the NE coast of Australia (Table 2) include encroachment/reclamation, altered hydrology, access tracks, feral animal damage and stock impacts (Duke & Mackenzie 2018; Canning & Duke 2023).

The most dominant human drivers of change observed included encroachment with direct losses due to reclamation and landfill, altered hydrology as blocking/redirecting water runoff and exchange, access tracks as vehicle damage, introduced wild animal and stock damage as made by wild pigs, grazing cattle, and horses commonly accessing mangroves as a desired food source. Other types of influences like pollution, invasive plants, bush fires, and excess nutrients each were less evident.

The dominant climate threats (Table 3; Figure 9) included ecotone shift negative with changes in rainfall, shoreline erosion with more severe storm waves, more serious storm damage, bank erosion with floods and storm events (enhanced with sea level rise), plus pan scouring and terrestrial retreat also influenced by rising sea levels.

Table 3. Climate-Natural threat indicators (severity X extent) ranked for each sector of the NE Australian coastline ordered from South to North (Fig. 7) with severity scores from 0-1 (least severe) to 4-5 (most severe). Combined data from Duke & Mackenzie (2018), and Canning & Duke (2023).

CLIMATE CHANGE INDICATORS	1	2	3	4	5	6	7	8	9	10	11	12
Sector Code	FB-S	FB-N	MW-S	MW-N	DT-S	DT-N	WT-S	CNS-COK	COK-MEL	PCB	STW-LYD	LYD-TIP
Number of Major Estuaries	4	3	2	2	3	2	3	9	4	3	3	8
Storm Damage	0.2	0.0	0.0	0.7	1.5	1.4	1.3	0.6	2.5	0.8	1.7	1.9
Shoreline Erosion	1.5	1.3	2.5	2.2	1.4	2.7	1.9	0.0	2.0	2.1	0.4	1.1
Root Burial	0.1	0.3	1.3	1.5	0.5	0.9	1.1	0.7	1.0	0.0	0.0	1.5
Inner Fringe Collapse	0.1	1.0	0.4	1.2	1.2	1.1	1.1	0.0	0.4	0.0	0.0	0.0
Bank Erosion	1.4	0.0	1.3	1.6	1.0	1.4	1.1	1.1	2.1	4.8	2.9	1.7
Pan Scouring	1.5	1.9	2.2	2.0	1.2	1.8	0.3	0.1	0.0	0.0	0.0	0.1
Ecotone Shift -ve	0.8	0.8	0.4	0.5	0.9	1.1	1.1	1.3	0.6	1.1	0.7	1.8
Ecotone Shift +ve	0.0	0.3	0.4	0.2	0.0	0.0	0.2	0.3	0.6	1.8	0.4	0.6

Depositional Gain	0.1	0.5	1.0	1.3	0.7	1.1	0.9	0.5	0.7	2.2	0.8	0.5
Terrestrial Retreat	1.7	1.3	1.3	2.0	1.2	1.5	0.3	0.8	3.3	5.0	1.4	3.0
Light Gaps	0.3	0.5	0.5	1.1	0.3	0.6	0.2	0.5	0.9	0.8	1.1	1.2
Altered Hydrology	0.0	0.2	0.6	0.6	0.5	0.4	0.4	0.4	0.0	0.0	0.0	0.6

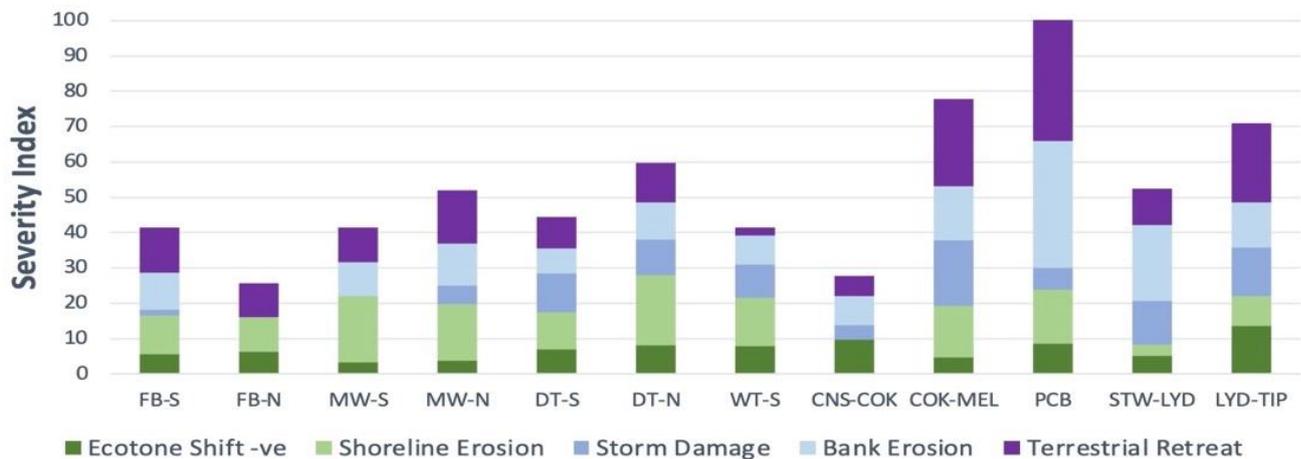


Figure 9. The five overall most dominant climate-natural threats affecting the NE coast of Australia (Table 3) include ecotone shift negative (rainfall changes), shoreline erosion (sea level rise and storms), storm damage, bank erosion (floods, storms and sea level rise), and terrestrial retreat (sea level rise) (Duke & Mackenzie 2018; Canning & Duke 2023).

While the effects of sea level rise were observed across the region, the indicator scores of shoreline erosion and terrestrial retreat show a marked trend of increased severity to the north (Fig. 9) 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-incident with rising sea levels. However, high rainfall events which lead to increased sediment delivery to river dominated estuaries have also been observed to contribute to soil surface elevation gains in mangroves of this region, which may increase their resilience to sea level rise (Lovelock et al. 2021). The rates of sea level rise also vary across the region, with Cairns (Figure 6) having around 4.8 mm per year over the last 50 plus years, while those further north in Torres Strait have more than 8 mm per year (e.g., Duke & Mackenzie 2018). The 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 exposed a fundamental weak point in 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 seemingly 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).

Threat Classification

IUCN Threat Classification (version 3.3, IUCN-CMP, 2022) relevant to mangroves of the Australian Coral Sea 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
- 3.3 Renewable energy

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 over the past 50 years. Unfortunately, there is no comprehensive regional dataset that provides information for the entire target area in 1970. Mangroves were not considered commercially important in Australia at the time, so surveys of their extent were not undertaken, composition and condition were generally limited small-scale scientific surveys. Examples of these surveys within the Coral Sea province include Accad *et al.*, 2016; Bunt 1996; Bunt 1997; Bunt and Bunt 1999; Bunt and Williams 1981; Bunt *et al.*, 1991; Duke, Burrows, Mackenzie 2015; Duke *et al.* 2017; Mackenzie *et al.*, 2012 and Roder *et al.*, 2002.

The State of Queensland undertook a series of systematic surveys of mangrove ecosystems along Queensland's entire mainland coastline between 1995 to 2001. These were one-off studies, and when aggregated, only provide a snapshot of Queensland's mangroves over a limited time-period. Moreover, the data rarely precedes the Bunting *et al.* (2020) time series.

Satellite-based approaches have provided more recent estimates of mangrove extent. To estimate the

Australian Coral Sea 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 was corrected for both omission and commission errors, utilizing the equations in Bunting *et al.* (2022). We calculated a loss of 38.41 km² of mangrove habitat in the period 1996 to 2020, which represents a -1.6 % change in area. 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 -0.07% per year (Figure 10). Assuming this trend holds for the past, it is estimated that the extent of mangroves in the Australian Coral Sea province has decreased by 84.3 km², an approximate -3.4% decrease 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.

A separate study analysing Australia’s mangrove extent between 1987 and 2016 (Lymburner *et al.*, 2019) demonstrates that, for the Northern and Southern Great Barrier Reef regions (roughly equivalent to the Coral Sea province), there were periodic and minor fluctuations in mangrove forest extent and canopy cover within the time series. The Coral Sea province has relatively low population density, and its few major population centres are widely spaced, likely impacting mangrove habitat on a local rather than regional scale. In conjunction with legislated protections for Queensland mangrove habitats (Rogers *et al.*, 2016), this helps protect their current extent. This supports the proposition that the mangrove habitat within the province has remained relatively stable over the study period.

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 1996–2020 area estimates and projecting forward at an annual rate of -0.07% per year, it is predicted that the extent of mangroves in the Australian Coral Sea province will decrease by -4.7% from 1996 to 2046, by -6.8% from 1996 to 2070, and by -5.3% from 2020 to 2070. Given that these projected changes remain below the 30% risk threshold, the Australian Coral Sea mangrove ecosystem is assessed as **Least Concern (LC)** under subcriterion A2.

Mangroves of the Australian Coral Sea	Area 2020* (Km ²)	Area 1970* (Km ²)	Net area Change (Km ²)	% Net Area Change	Rate of change (%/year)
	2398.3	2482.5	-84.3	-3.4	-0.07%/year

* 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 A3 measures changes in mangrove area since 1750. Based on data derived from modelling by the Australian Department of Climate Change, Energy, the Environment and Water (DCCEEW, 2021), the pre-1750 extent of mangroves within the Australian Coral Sea province was estimated to be 2,722.0 km². The loss of 324 km² of mangroves to 2020 represents an estimated 12% reduction in the province's mangrove habitat in the period 1750 to 2020 at an annual change rate of -0.04%. The Australian Coral Sea mangrove ecosystem is therefore classified as **Least Concern (LC)** for this subcriterion as the historical loss estimate is

below the 50% threshold.

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

Rate of change: -0.1 % /year

R²=0.6

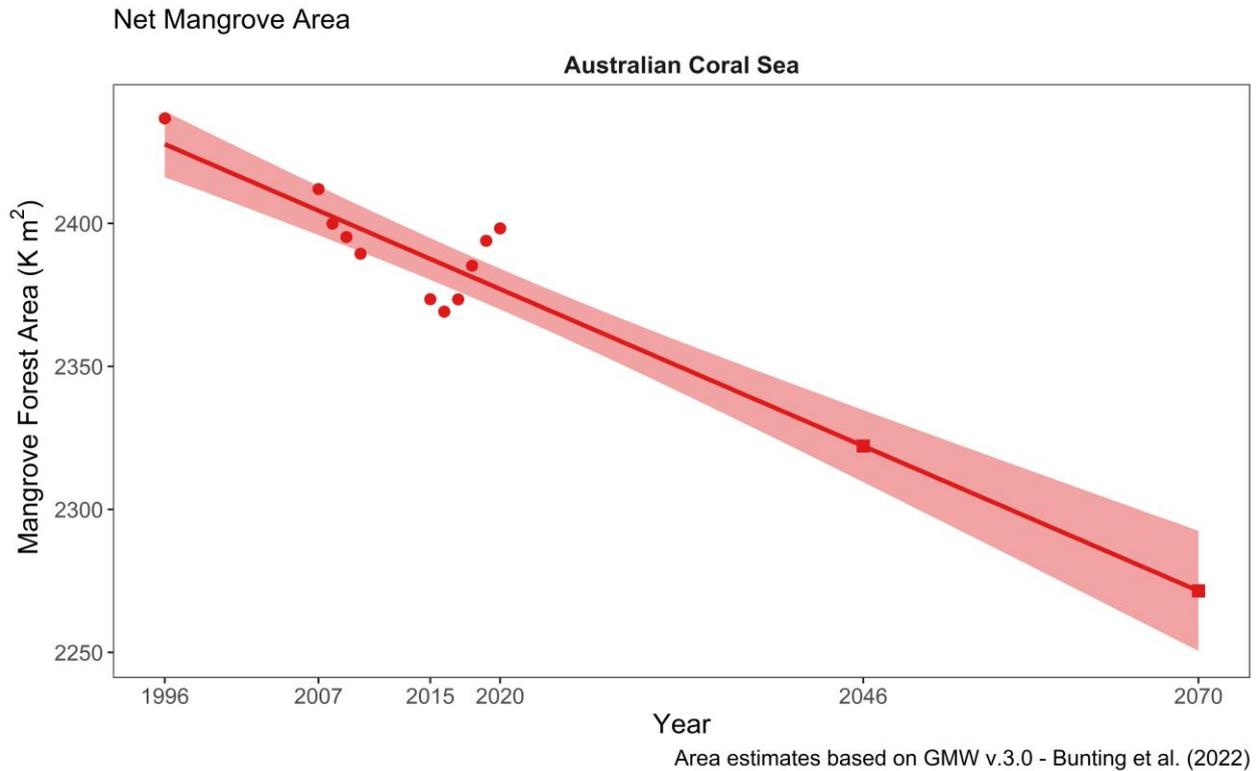


Figure 10. Projected extent of the Australian Coral Sea mangrove ecosystem to 2070. Circles represent the province mangrove area between 1996 and 2020 based on the GMW v3.0 dataset and equations in Bunting *et al.*, (2022). The solid line and shaded area are the linear regression and 95% confidence intervals. Squares show the Australian Coral Sea 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 (R² = 0.6).

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 Australian Coral Sea province mangrove extent (GMW v.3).

Province	Extent of Occurrence	Area of Occupancy	Criterion B
	EOO (Km ²)	(AOO >1%)	
The Australian Coral Sea	308815.4	307	LC

For 2020, AOO and EOO were measured as 491 grid cells 10 x 10 km and 308815.4 km², respectively. 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 Km²), the AOO is measured as **307, 10 x 10 km grid cells** (Figure 11, 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 in a short period of time. As a result, the Australian Coral Sea mangrove ecosystem is assessed as **Least Concern (LC)** under criterion B.

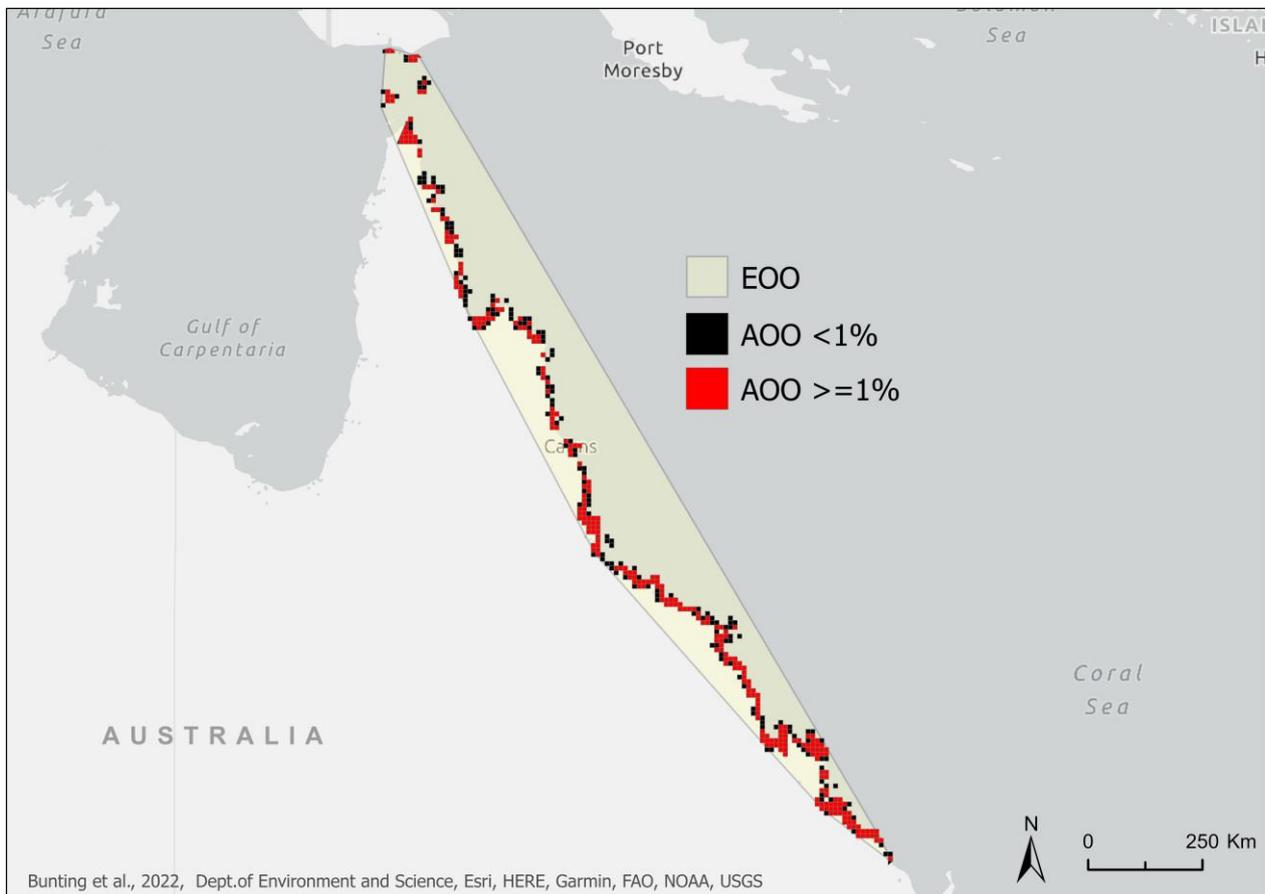


Figure 11. The Australian Coral Sea mangrove Extent Of Occurrence (EOO) and Area Of Occupancy (AOO) in 2020. Estimates based on 2020 GMW v3.0 spatial layer (Bunting *et al.*, 2022). The red 10 x 10 km grids (n=307.) are more than 1% covered by the ecosystem, and the black grids <1% (n= 184).

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 Australian Coral Sea mangrove ecosystem is classified as **Data Deficient (DD)** for subcriterion C1.

Subcriterion C2 measures environmental degradation over any 50-year period, including projections from the present into the future. 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.

We applied the Schuerch *et al.* (2018) model to the Australian Coral Sea mangrove ecosystem boundary, using the spatial extent in 2010 (Giri *et al.* (2018) and assuming mangrove landward migration was not possible.

Under an extreme sea-level rise scenario of 1.1 meters by 2100, the projected submerged area is ~7.2% by 2060, which remains below the 30% risk threshold. Therefore, considering that no mangroves can survive in a submerged system (100% relative severity), but that only ~7.2% of the ecosystem extent will be affected by SLR, the Australian Coral Sea 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 Australian Coral Sea 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 Australian Coral Sea 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 (30m 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) all twelve indices did not recover 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 (Lovell *et al.*, 2017; Santana *et al.*, 2018; Murray *et al.*, 2020; Duke *et al.*, 2022; Aljahdali *et al.*, 2021; Lee *et al.*, 2021; Duke *et al.*, 2024). 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), 1.1% of the Australian Coral Sea mangrove area is classified as degraded, resulting in an average annual rate of degradation of 0.1%. Assuming this trend remains constant, 3.4% of the Australian Coral Sea 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 Australian Coral Sea 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 Australian Coral Sea 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	A1	A2	A3
A. Reduction in Geographic Distribution	Past 50 years LC	Future or any 50y period LC	Historical (1750) LC
B. Restricted Geo. Distribution	B1 Extent of Occurrence LC	B2 Area of Occupancy LC	B3 # Threat-defined Locations >5 LC
C. Environmental Degradation	C1 Past 50 years (1970) DD	C2 Future or any 50y period LC	C3 Historical (1750) DD
D. Disruption of biotic processes	D1 Past 50 years (1970) DD	D2 Future or Any 50y period LC	D3 Historical (1750) DD
E. Quantitative Risk analysis	NE		
OVERALL RISK CATEGORY	LC		

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

Overall, the status of the Australian Coral Sea mangrove ecosystem is assessed as **Least Concern (LC)**.

6. References

- Abrantes, K. (2008). *Trophic structure and the importance of terrestrial wetland producers for aquatic food webs in tropical Australian estuaries* JamesCook University]. Townsville.
- Abrantes, K., & Sheaves, M. (2009). Use of a $\delta^{13}\text{C}$ – $\delta^{15}\text{N}$ relationship to determine animal trophic positions in a tropical Australian estuarine wetland. *Austral Ecology*, 35, 96-103. <https://doi.org/10.1111/j.1442-9993.2009.02017.x>
- Abrantes, K.G., Johnston, R., Connolly, R.M. and Sheaves, M., (2015). Importance of mangrove carbon for aquatic food webs in wet–dry tropical estuaries. *Estuaries and Coasts*, 38(1), pp.383-399.
- Accad, A., Li, J., Dowling, R., & Guymer, G. P. (2016). Mangrove and associated communities of Moreton Bay, Queensland, Australia: change in extent 1955-1997-2012. *Queensland Government*.
- Akbar, M. R., Arisanto, P. A. A., Sukirno, B. A., Merdeka, P. H., Priadhi, M. M., & Zallesa, S. (2020). Mangrove vegetation health index analysis by implementing NDVI (normalized difference vegetation index) classification method on sentinel-2 image data case study: Segara Anakan, Kabupaten Cilacap. *IOP Conference Series: Earth and Environmental Science*, 584(1), 012069. <https://doi.org/10.1088/1755-1315/584/1/012069>

- Aljahdali, M. O., Munawar, S., & Khan, W. R. (2021). Monitoring Mangrove Forest Degradation and Regeneration: Landsat Time Series Analysis of Moisture and Vegetation Indices at Rabigh Lagoon, Red Sea. *Forests*, 12(1), 52. <https://www.mdpi.com/1999-4907/12/1/52>
- Aluri, R. J. S., Reddi, C., & Sujatha, B. (1994). Pollination in mangrove plants. *Journal of Nature Conservation*, 6, 89-96.
- Amir, A. A. and N. C. Duke **2019**. Distinct characteristics of canopy gaps in the subtropical mangroves of Moreton Bay, Australia. *Estuarine Coast Shelf Science* 222: 66-80. <https://doi.org/10.1016/j.ecss.2019.04.007>
- Armstrong-McKay, D. I., Buxton, J. E., Loriani, S., Wunderling, N., Abis, B., Abrams, J. F., Aksenov, Y., Arellano Nava, B., Brunetti, M., Chiessi, C.M., Dakos, V., Dennis, D.P., Duke, N.C., . . . Tharammal, T. **2025**. Status of Earth System Tipping Points: What's New? In T. M. Lenton, M. Milkoreit, S. Willcock, J. F. Abrams, D. I. Armstrong McKay, J. E. Buxton, J. F. Donges, S. Loriani, N. Wunderling, F. Alkemade, M. Barrett, S. Constantino, T. Powell, S. R. Smith, C. A. Boulton, P. Pinho, H. A. Dijkstra, P. Pearce-Kelly, R. M. Roman-Cuesta, & D. Dennis (Eds.), *The Global Tipping Points Report* (pp. 107-125, 310-331). Exeter, UK: University of Exeter. <https://global-tipping-points.org/>
- Beard, D. J., Dyal, A., Rositano, D. R., Creasey, J., & Smith, C. S. (2003). *OzEstuaries Online GIS (now OzCoasts)*. Geoscience Australia, Canberra. <https://pid.geoscience.gov.au/dataset/ga/59827>
- Bruinsma, C. (2000). *Sand Bay to Keppel Bay* (Queensland Coastal Wetland Resources, Issue.
- Bruinsma, C. (2001). *Cape Tribulation to Bowling Green Bay* (Queensland Coastal Wetland Resources, Issue.
- Bruinsma, C., & Danaher, K. (2000). Round Hill Head to Tin Can Inlet. *Queensland Coastal Wetland Resources, Issue*.
- Bruinsma, C., & Danaher, K. (2001). The Whitsunday Region. *Queensland Coastal Wetland Resources, Issue*.
- Bruinsma, C., Danaher, K., Treloar, P., & Sheppard, R. (1999). Queensland Coastal Wetland Resource Investigation of the Bowen Region: Cape Upstart to Gloucester Island. *Brisbane, Queensland: Queensland Department of Primary Industries*.
- Bruinsma, C., & Duncan, S. (2000). Queensland coastal wetland resources: the Northern Territory border to Flinders River. *Project Report. State of Queensland, Brisbane, Queensland*.
- Bunt, J., Williams, W., & Duke, N. (1982). Mangrove distributions in north-east Australia. *Journal of Biogeography*, 9(2), 111-120.
- Bunt, J., Williams, W., Hunter, J., & Clay, H. (1991). Mangrove sequencing: analysis of zonation in a complete river system. *Marine Ecology Progress Series*, 72(3), 289-294.
- Bunt, J. J. (1997). The mangrove floral and vegetational diversity of Hinchinbrook Island and the adjacent coast.
- Bunt, J. S. (1996). Mangrove Zonation: An Examination of Data from Seventeen Riverine Estuaries in Tropical Australia. *Annals of Botany*, 78(3), 333-341. <https://doi.org/10.1006/anbo.1996.0128>
- Bunt, J. S., & Bunt, E. D. (1999). Complexity and variety of zonal pattern in the mangroves of the Hinchinbrook area, Northeastern Australia. *Mangroves and Salt Marshes*, 3(3), 165-176. <https://doi.org/10.1023/a:1009999610091>
- Bunt, J. S., & Williams, W. T. (1981). Vegetational relationships in the mangroves of tropical Australia. *Marine Ecology Progress Series*, 4, 349-359.
- Bunting, P., Rosenqvist, A., Hilarides, L., Lucas, R. M., Thomas, N., Tadono, T., Worthington, T. A., Spalding, M., Murray, N. J., & Rebelo, L.-M. (2022). Global Mangrove Extent Change 1996–2020: Global Mangrove Watch Version 3.0. *Remote Sensing*, 14(15), 3657. <https://www.mdpi.com/2072-4292/14/15/3657>
- Cannicci, S., Burrows, D., Fratini, S., Smith Iii, T. J., Offenbergh, J., & Dahdouh-Guebas, F. (2008). Faunal impact on vegetation structure and ecosystem function in mangrove forests: A review. *Aquatic Botany*, 89(2), 186-200. <https://doi.org/http://dx.doi.org/10.1016/j.aquabot.2008.01.009>

- Canning, A., Duke, N.C. (2023). Southern Great Barrier Reef Mangrove and Saltmarsh Condition Survey 2023. Centre for Tropical Water and Aquatic Ecosystem Research. *TropWATER Report 23/70*. James Cook University, Townsville, 69 pp.
- Cooper, W.E., H. Kudo and N.C. Duke. (2016). *Bruguiera hainesii* C.G.Rogers (Rhizophoraceae), an endangered recently discovered in Australia. *Austrobaileya* 9(4): 481-488. <https://doi.org/10.5962/p.299876>
- Danaher, K. (1995a). Coastal Wetlands Resources Investigation of the Burdekin Delta for Declaration as Fisheries Reserves. *Report to Ocean Rescue 2000*. Project Report. State of Queensland, Brisbane, Queensland.
- Danaher, K. (1995b). Marine vegetation of Cape York Peninsula. *CYPLUS*.
- Danaher, K., & Stevens, T. (1995). Resource assessment of tidal wetland vegetation of western Cape York Peninsula, North Queensland. *Queensland Department of Primary Industries*.
- DCCEEW (2020). NVIS data products - Version 6. *Commonwealth of Australia*. <http://www.environment.gov.au/land/native-vegetation/national-vegetation-information-system/data-products>
- DCCEEW (2021). Australia - Pre-1750 Major Vegetation Groups - NVIS Version 6.0 (Albers 100m analysis product). *Australian Government*. <https://erin.maps.arcgis.com/home/item.html?id=b4c89e4927b649839f2c3b8228b2ea52>
- DCCEEW (2022). *National forest and sparse woody vegetation data. Version 6.0*. [Spatial data]. *Australian Government*.
- Department of the Environment, Water, Heritage and the Arts. (2010). Significant impact guidelines for the endangered southern cassowary (*Casuarius casuarius johnsonii*) Wet Tropics population. Nationally threatened species and ecological communities EPBC Act Policy statement 3.15. *Australian Government*
- Dowling, R. (1978). The mangrove communities of Moreton Bay. Royal Society of Queensland. *Northern Moreton Bay Symposium*.
- Dowling, R., & Stephens, K. (1998). Coastal Wetlands of South East Queensland. *Queensland Government*.
- Dowling, R. M. (1986). *The mangrove vegetation of Moreton Bay [Queensland] (0726-4755)*. *Queensland Botany Bulletin, Issue*.
- Duke, N.C. (2001). Gap creation and regenerative processes driving diversity and structure of mangrove ecosystems. *Wetlands Ecology and Management*, 9: 257-269. <https://doi.org/10.1023/A:1011121109886>
- Duke, N.C. (2006). Australia's Mangroves. The authoritative guide to Australia's mangrove plants. *University of Queensland and Norman C Duke, Brisbane*, 200 pages. ISBN: 978-0-646-46196-0 http://www.mangrovetwatch.org.au/index.php?option=com_content&view=category&layout=blog&id=97&Itemid=300286
- Duke, N.C. (2016). Oil spill impacts on mangroves: recommendations for operational procedures and planning based on a global review. *Marine Pollution Bulletin* 109(2): 700-715. <https://doi.org/10.1016/j.marpol.2016.06.082>
- Duke, N.C. (2017). Mangrove floristics and biogeography revisited: further deductions from biodiversity hot spots, ancestral discontinuities and common evolutionary processes. *Mangrove Ecosystems: A Global Biogeographic Perspective. Structure, Function and Services*. V. H. Rivera-Monroy, S.Y. Lee, E. Kristensen and R.R.Twilley, Springer. 2: 17-53. https://doi.org/10.1007/978-3-319-62206-4_2
- Duke, N.C. (2020). Mangrove harbingers of coastal degradation seen in their responses to global climate change coupled with ever-increasing human pressures. *Human Ecology Journal of the Commonwealth Human Ecology Council – Mangrove Special Issue* 30: 19-23. <https://www.checinternational.org/wp-content/uploads/2020/06/Journal-30-Mangroves.pdf>. ISSN: 0268 4918
- Duke, N.C. (2025). World Mangrove iD-2: expert ID for the World's mangrove plants. Currumbin, MangroveWatch Publication. ISBN: 978-0-9923659-2-9. App version for Apple Smart Devices.

<https://apps.apple.com/au/app/mangroveapp/id6738599802>. App version for Android Smart Devices.
<https://play.google.com/store/apps/details?id=com.mangroveapp.mobile&hl=en>

- Duke N.C., Mackenzie J. (2018). East Cape York Report 2017. Final Report: East Cape York Shoreline Environmental Surveys. Report to the Commonwealth of Australia. Centre for Tropical Water and Aquatic Ecosystem Research *TropWATER Publication 17/67*, James Cook University, Townsville, 144 pp. <https://doi.org/10.13140/RG.2.2.13197.35043>
- Duke, N.C. and H. Kudo. (2018). *Bruguiera* × *dungarra*, a new hybrid between mangrove species *B. exaristata* and *B. gymnorhiza* (Rhizophoraceae) recently discovered in north-east Australia. *Blumea*, 63: 279-285. <https://doi.org/10.3767/blumea.2018.63.03.03>
- Duke, N. C. and A. W. D. Larkum (2019). Mangroves and seagrasses. Chapter 18 in ‘*The Great Barrier Reef: Biology, Environment and Management.*’ 2nd Edition. P.A. Hutchings, M.J. Kingsford and O. Hoegh-Guldberg. Collingwood, VIC, CSIRO Publishing: 219-228. ISBN: 9781486308194
- Duke, N. C., Burrows, D., & Mackenzie, J. (2015). Mangrove and Freshwater Wetland Habitat Status of the Torres Strait Islands: Biodiversity, Biomass and Changing Condition of Wetlands. *Report to the National Environmental Research Program. Reef and Rainforest Research Centre Limited, Cairns, Issue. R. a. R. R. Centre.*
- Duke, N. C., Kovacs, J. M., Griffiths, A. D., Preece, L., Hill, D. J. E., van Oosterzee, P., Mackenzie, J., Morning, H. S., & Burrows, D. (2017). Large-scale dieback of mangroves in Australia’s Gulf of Carpentaria: a severe ecosystem response, coincidental with an unusually extreme weather event. *Marine and Freshwater Research*, 68(10), 1816-1829. <https://doi.org/https://doi.org/10.1071/MF16322>
- Duke, N.C., C. Field, J.R. Mackenzie, J.-O. Meynecke and A.L. Wood. (2019). Rainfall and its possible hysteresis effect on the proportional cover of tropical tidal wetland mangroves and saltmarsh-saltpans. *Marine and Freshwater Research* 70(8): 1047-1055. <https://doi.org/10.1071/MF18321>.
- Duke, N.C., L.B. Hutley, J.R. Mackenzie, D. Burrows. 2021. Processes and factors driving change in mangrove forests – an evaluation based on the mass dieback event in Australia’s Gulf of Carpentaria. In: ‘*Ecosystem Collapse - and Climate Change*’, editors: Josep G. Canadell and Robert B. Jackson, Springer, Ecol. Studies 241: 221-264. https://link.springer.com/chapter/10.1007/978-3-030-71330-0_9
- Duke, N.C., J.R. Mackenzie, A.D. Canning, L.B. Hutley, A.J. Bourke, J.M. Kovacs, R. Cormier, G. Staben, L. Lymburner and E. Ai. (2022). ENSO-driven extreme oscillations in mean sea level destabilise critical shoreline mangroves – an emerging threat with greenhouse warming. *PLOS Climate* 1(8), 23pp. <https://doi.org/10.1371/journal.pclm.0000037>
- Duke, N.C., A.D. Canning and J. Mackenzie. (2024). More intense severe tropical cyclones in recent decades cause greater impacts on mangroves bordering Australia’s Great Barrier Reef. In Chapter 15, pp 225-253: ‘*Coral Reefs: Physical and Biological Links in the Great Barrier Reef*’, editors: E. Wolanski and M. Kingsford, CRC Press - Taylor & Francis Group. <https://doi.org/10.1201/9781420041675>
- Ely, C. A. (1944). Development of *Bufo marinus* Larvae in Dilute Sea Water. *Copeia*, 1944(4), 256-256. <https://doi.org/10.2307/1438692>
- GBIF. (2022). The Global Biodiversity Information Facility: Species distribution records [Data set].
- Giri, C., Ochieng, E., Tieszen, L. L., Zhu, Z., Singh, A., Loveland, T., Masek, J., Duke, N. (2011). Status and distribution of mangrove forests of the world using earth observation satellite data. *Global Ecology and Biogeography*, 20(1), 154-159. <https://doi.org/10.1111/j.1466-8238.2010.00584.x>
- Gould, J., Beranek, C., Schmahl, K., Donnelly, R., Matthews, L., Callen, A., & McHenry, C. (2023). Lovers in strange places: amphibian calling and amplexus detected in tidal mangrove creeks after rainfall. *Australian Journal of Zoology*, 71(5). <https://doi.org/https://doi.org/10.1071/ZO23042>
- Heithaus, E. R., Heithaus, P. A., Heithaus, M. R., Burkholder, D., & Layman, C. A. (2011). Trophic dynamics in a relatively pristine subtropical fringing mangrove community. *Marine Ecology Progress Series*, 428, 49-61. <https://www.int-res.com/abstracts/meps/v428/p49-61/>

- Hines, H., & McDonald, K. (2007). A survey of the terrestrial vertebrates of the endeavour river national park and resources reserve, North Queensland. *Queensland Naturalist*, 45(4-6), 32-51.
- Hutchings, P. A., & Recher, H. F. (1982). The fauna of Australian mangroves. *Proceedings of the Linnean Society of New South Wales*, 106, 39. <https://biostor.org/reference/68081>
- IUCN-CMP. (2022). *Unified Classification of Direct Threats (3.3) [Data set]*. <https://www.iucnredlist.org/resources/threat-classification-scheme>
- IUCN. (2012). *Habitats classification scheme (3.1). [Data set]*. <https://www.iucnredlist.org/resources/habitat-classification-scheme>
- IUCN. (2022). *The IUCN Red List of Threatened Species. (Version 2022-2) [Data set]*. <https://www.iucnredlist.org>
- Kathiresan, K., & Bingham, B. L. (2001). Biology of Mangroves and Mangrove Ecosystems. *Advances in marine biology*, 40, 145.
- Keith, D. A., Ferrer-Paris, J. R., Nicholson, E., & Kingsford, R. T. (Eds.). (2020). *IUCN Global Ecosystem Typology 2.0: Descriptive profiles for biomes and ecosystem functional groups*. IUCN, International Union for Conservation of Nature. <https://doi.org/10.2305/IUCN.CH.2020.13.en>
- Kieckbusch, D. K., Koch, M. S., Serafy, J. E., & Anderson, W. T. (2004). Trophic Linkages Among Primary Producers and Consumers in Fringing Mangroves of Subtropical Lagoons. *Bulletin of Marine Science*, 74(2), 271-285. <https://www.ingentaconnect.com/content/umrsmas/bullmar/2004/00000074/00000002/art00003>
- Knight, J. M. (2011). A Model of Mosquito–Mangrove Basin Ecosystems with Implications for Management. *Ecosystems*, 14(8), 1382-1395. <https://doi.org/10.1007/s10021-011-9487-x>
- Kutt, A. S. (1997). Terrestrial vertebrate survey in the coastal wetlands surrounding Cairns International Airport, North Queensland. *Australian zoologist*, 30(3), 300-309. <https://doi.org/10.7882/az.1997.005>
- Law, B., Gonsalves, L., Chidel, M., & McConville, A. (2023). When bat eats bat: diet and roosts of the greater broad-nosed bat (*Scoteanax rueppellii*) across different regions and habitats. *Australian Mammalogy*, 45(3), 324-334. <https://doi.org/https://doi.org/10.1071/AM23010>
- Lee, C. K. F., Duncan, C., Nicholson, E., Fatoyinbo, T. E., Lagomasino, D., Thomas, N., Worthington, T. A., & Murray, N. J. (2021). Mapping the Extent of Mangrove Ecosystem Degradation by Integrating an Ecological Conceptual Model with Satellite Data. *Remote Sensing*, 13(11), 2047. <https://www.mdpi.com/2072-4292/13/11/2047>
- Lee, S. Y. (1999). Tropical mangrove ecology: Physical and biotic factors influencing ecosystem structure and function. *Australian Journal of Ecology*, 24(4), 355-366. <https://doi.org/https://doi.org/10.1046/j.1442-9993.1999.00984.x>
- Liggins, G., & Grigg, G. (1985). Osmoregulation of the cane toad, *Bufo marinus*, in salt water. *Comparative Biochemistry and Physiology Part A: Physiology*, 82(3), 613-619.
- Lovelock, C. E., Feller, I. C., Reef, R., Hickey, S., & Ball, M. C. (2017). Mangrove dieback during fluctuating sea levels. *Scientific Reports*, 7(1), 1680. <https://doi.org/10.1038/s41598-017-01927-6>
- Lovelock, C.E., Ball, M.C., Brothers, N., Pearse, A. and Reef, R., (2025). Dynamics of surface accretion and surface elevation differ between river and tide dominated settings in tropical mangroves. *Limnology and Oceanography*, 70(5), pp.1424-1437.
- Lymburner, L., Bunting, P., Lucas, R., Scarth, P., Alam, I., Phillips, C., Ticehurst, C., & Held, A. (2019). Mapping the multi-decadal mangrove dynamics of the Australian coastline. *Remote Sensing of Environment*, accepted, 17. <https://doi.org/https://doi.org/10.1016/j.rse.2019.05.004>
- Mackenzie, J., Duke, N., Wood, A., & Burrows, D. (2012). MangroveWatch Noosa River - Baseline Data Report. *TropWATER*.
- Marley, G., Lawrence, A. J., Phillip, D. A. T., & Hayden, B. (2019). Mangrove and mudflat food webs are segregated across four trophic levels, yet connected by highly mobile top predators. *Marine Ecology Progress Series*, 632, 13-25. <https://www.int-res.com/abstracts/meps/v632/p13-25>

- Mazumder, D., Saintilan, N., Yusoff, F. M., & Kelleway, J. J. (2019). Equivalence of trophic structure between a tropical and temperate mangrove ecosystem in the Indo-Pacific. *Marine and Freshwater Research, online*. <https://doi.org/https://doi.org/10.1071/MF18072>
- McConville, A., Law, B. S., & Mahony, M. J. (2013). Mangroves as maternity roosts for a colony of the rare east-coast free-tailed bat (*Mormopterus norfolkensis*) in south-eastern Australia. *Wildlife Research, 40*(4), 318-327. <https://doi.org/https://doi.org/10.1071/WR12222>
- McKenzie, N. L., Wyrwoll, K.-H., & Bullen, R. D. (2022). Glacial origin of bat ensembles in tropical Western Australia. *Australian Journal of Zoology, 70*(1), 1-21. <https://doi.org/https://doi.org/10.1071/ZO21035>
- Meynecke, J.-O., Lee, S., Duke, N., & Warnken, J. (2007). Relationships between estuarine habitats and coastal fisheries in Queensland, Australia. *Bulletin of Marine Science -Miami, 80*, 773-793.
- Mohd-Azlan, J., Noske, R. A., & Lawes, M. J. (2012). Avian species-assemblage structure and indicator bird species of mangroves in the Australian monsoon tropics. *Emu - Austral Ornithology, 112*(4), 287-297. <https://doi.org/10.1071/MU12018>
- Murray, N. J., Keith, D. A., Tizard, R., Duncan, A., Htut, W. T., Oo, A. H., Ya, K. Z., & Grantham, M. (2020). *Threatened ecosystems of Myanmar: An IUCN Red List of Ecosystems Assessment. Version 1*. <https://doi.org/10.19121/2019.Report.37457>
- Nerot, C., Meziane, T., Provost-Govrich, A., Rybarczyk, H., & Lee, S. (2009). Role of grapsid crabs, *Parasesarma erythroactyla*, in entry of mangrove leaves into an estuarine food web: A mesocosm study. *Marine Biology, 156*. <https://doi.org/10.1007/s00227-009-1262-6>
- NLWRA. (1998). *Estuary Datasets*. Australian Government. http://www.ozcoasts.gov.au/search_data/estuary_data.jsp
- Norris, A., & Low, T. (2005). Review of the management of feral animals and their impact on biodiversity in the Rangelands: A resource to aid NRM planning. *C. o. Australia*.
- Rajpar, M. N., & Zakaria, M. (2014). MangroveFaunaofAsia. In I. Faridah-Hanum, A. Latiff, K. R. Hakeem, & M. Ozturk (Eds.), *Mangrove Ecosystems of Asia: Status, Challenges and Management Strategies* (pp. 154-198). Springer.
- Robertson, A. I., & Duke, N. C. (1990). Mangrove fish-communities in tropical Queensland, Australia: Spatial and temporal patterns in densities, biomass and community structure. *Marine Biology, 104*(3), 369-379. <https://doi.org/10.1007/BF01314339>
- Robertson, A. I., & Duke, N. C. (1990). Recruitment, growth and residence time of fishes in a tropical Australian mangrove system. *Estuarine, Coastal and Shelf Science, 31*(5), 723-743. [https://doi.org/https://doi.org/10.1016/0272-7714\(90\)90022-J](https://doi.org/https://doi.org/10.1016/0272-7714(90)90022-J)
- Roder, C., Thomas, R., Rasheed, M., & McKenzie, L. (2002). Mangrove and Riparian Habitat Resources Fringing Mourilyan Harbour and the Moresby River Estuary, August-October 2000 (DPI Information Series no. QI 02062). *N. F. C. Queensland Fisheries Service, Cairns*.
- Rogers, K., Boon, P. I., Branigan, S., Duke, N. C., Field, C. D., Fitzsimons, J. A., Kirkman, H., Mackenzie, J. R., & Saintilan, N. (2016). The state of legislation and policy protecting Australia's mangrove and salt marsh and their ecosystem services. *Marine Policy, 72*, 139-155. <https://doi.org/https://doi.org/10.1016/j.marpol.2016.06.025>
- Saenger, P., Hegerl, E.J., Davie, J.S. (1983) Global status of mangrove ecosystems. *The Environmentalist, 3* (3), 92pp. [https://doi.org/10.1016/S0251-1088\(83\)90284-X](https://doi.org/10.1016/S0251-1088(83)90284-X)
- Santana, N. C. (2019). Fire Recurrence and Normalized Difference Vegetation Index (NDVI) Dynamics in Brazilian Savanna. *Fire, 2*(1), 1. <https://www.mdpi.com/2571-6255/2/1/1>
- Schuerch, M., Spencer, T., Temmerman, S., Kirwan, M. L., Wolff, C., Lincke, D., McOwen, C. J., Pickering, M. D., Reef, R., Vafeidis, A. T., Hinkel, J., Nicholls, R. J., & Brown, S. (2018). Future response of global coastal wetlands to sea-level rise. *Nature, 561*(7722), 231-234. <https://doi.org/10.1038/s41586-018-0476-5>
- Serrano, O., Lovelock, C.E., B. Atwood, T., Macreadie, P.I., Canto, R., Phinn, S., Arias-Ortiz, A., Bai, L., Baldock, J., Bedulli, C. and Carnell, P., (2019). Australian vegetated coastal ecosystems as global hotspots for climate change mitigation. *Nature communications, 10*(1), 4313.

- Shine, R. (2010). The Ecological Impact of Invasive Cane Toads (*Bufo Marinus*) in Australia. *The Quarterly Review of Biology*, 85(3), 253-291. <https://doi.org/10.1086/655116>
- Sievers, Michael, Pearson, Ryan M., Turschwell, Mischa P., Bishop, Melanie J., Bland, Lucie, Brown, Christopher J., Tulloch, Vivitskaia J. D., Haig, Jodie A., Olds, Andrew D., Maxwell, Paul S., and Connolly, Rod M. (2020) Integrating outcomes of IUCN red list of ecosystems assessments for connected coastal wetlands. *Ecological Indicators*, 116, 106489. <https://doi.org/10.1016/j.ecolind.2020.106489>
- Siwiendrayanti, A., Anggoro, S., & Nurjazuli, N. (2020). Literature review: The contribution of mangrove ecosystem condition to mosquito population *E3S Web Conference*. <https://doi.org/10.1051/e3sconf/202020205016>
- Spalding, M. D., Fox, H. E., Allen, G. R., Davidson, N., Ferdaña, Z. A., Finlayson, M., Halpern, B. S., Jorge, M. A., Lombana, A., Lourie, S. A., Martin, K. D., McManus, E., Molnar, J., Recchia, C. A., & Robertson, J. (2007). Marine Ecoregions of the World: A Bioregionalization of Coastal and Shelf Areas. *BioScience*, 57(7), 573-583. <https://doi.org/10.1641/b570707>
- Then, A.Y.H., Adame, M.F., Fry, B., Chong, V.C., Riekenberg, P.M., Mohammad Zakaria, R. and Lee, S.Y., (2021). Stable isotopes clearly track mangrove inputs and food web changes along a reforestation gradient. *Ecosystems*, 24(4), 939-954.
- Timmiss, L. A., Martin, J. M., Murray, N. J., Welbergen, J. A., Westcott, D., McKeown, A., & Kingsford, R. T. (2020). Threatened but not conserved: flying-fox roosting and foraging habitat in Australia. *Australian Journal of Zoology*, 68(6), 226-233. <https://doi.org/https://doi.org/10.1071/ZO20086>
- Westcott, D. A., Metcalfe, S., Jones, D., Bradford, M., McKeown, A., & Ford, A. (2014). Estimation of the population size and distribution of the southern cassowary, *Casuarius casuarius*, in the Wet Tropics Region of Australia. *Report to the National Environmental Research Program*. R. a. R. R. C. Limited.
- Westcott, D. A., Setter, M., Bradford, M. G., McKeown, A., & Setter, S. (2008). Cassowary dispersal of the invasive pond apple in a tropical rainforest: the contribution of subordinate dispersal modes in invasion. *Diversity and Distributions*, 14(2), 432-439. <https://doi.org/https://doi.org/10.1111/j.1472-4642.2007.00416.x>
- Williams, G. (2020). Aspects of the reproductive ecology of a south-east Australian *Avicennia marina* mangrove community — flower visitors and potential pollinators. *Cunninghamia*, 20, 209-244. <https://doi.org/doi:10.7751/cunninghamia.2020.012>
- Worthington, T. A., & Spalding, M. (2018). Mangrove Restoration Potential: A global map highlighting a critical opportunity. In U. o. Cambridge (Ed.), *Apollo - University of Cambridge Repository* (pp. 36). University of Cambridge.
- Worthington, T. A., zu Ermgassen, P. S. E., Friess, D. A., Krauss, K. W., Lovelock, C. E., Thorley, J., Tingey, R., Woodroffe, C. D., Bunting, P., Cormier, N., Lagomasino, D., Lucas, R., Murray, N. J., Sutherland, W. J., & Spalding, M. (2020). A global biophysical typology of mangroves and its relevance for ecosystem structure and deforestation. *Scientific Reports*, 10(1), 14652. <https://doi.org/10.1038/s41598-020-71194-5>
- Yando, E.S., Sloey, T.M., Dahdouh-Guebas, F., Rogers, K., Abuchahla, G.M., Cannicci, S., Cauty, S.W., Jennerjahn, T.C., Ogurcak, D.E., Adams, J.B. and Connolly, R.M., (2021). Conceptualizing ecosystem degradation using mangrove forests as a model system. *Biological Conservation*, 263, 109355.

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Acknowledgments

The development of the Australian Coral Sea 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 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	<i>Acanthus ebracteatus</i>	LC
Magnoliopsida	Lamiales	Acanthaceae	<i>Acanthus ilicifolius</i>	LC
Polypodiopsida	Polypodiales	Pteridaceae	<i>Acrostichum aureum</i>	LC
Polypodiopsida	Polypodiales	Pteridaceae	<i>Acrostichum speciosum</i>	LC
Magnoliopsida	Caryophyllales	Plumbaginaceae	<i>Aegialitis annulata</i>	LC
Magnoliopsida	Ericales	Primulaceae	<i>Aegiceras corniculatum</i>	LC
Magnoliopsida	Lamiales	Acanthaceae	<i>Avicennia marina</i>	LC
Magnoliopsida	Lamiales	Acanthaceae	<i>Avicennia officinalis</i>	LC
Magnoliopsida	Ericales	Lecythidaceae	<i>Barringtonia racemosa</i>	LC
Magnoliopsida	Malpighiales	Rhizophoraceae	<i>Bruguiera cylindrica</i>	LC
Magnoliopsida	Malpighiales	Rhizophoraceae	<i>Bruguiera dungarra</i>	n/a
Magnoliopsida	Malpighiales	Rhizophoraceae	<i>Bruguiera exaristata</i>	LC
Magnoliopsida	Malpighiales	Rhizophoraceae	<i>Bruguiera gymnorhiza</i>	LC
Magnoliopsida	Malpighiales	Rhizophoraceae	<i>Bruguiera hainesii</i>	CR
Magnoliopsida	Malpighiales	Rhizophoraceae	<i>Bruguiera parviflora</i>	LC
Magnoliopsida	Malpighiales	Rhizophoraceae	<i>Bruguiera rhychnopetala</i>	LC

Magnoliopsida	Malpighiales	Rhizophoraceae	<i>Bruguiera sexangula</i>	LC
Magnoliopsida	Malvales	Malvaceae	<i>Camptostemon schultzii</i>	LC
Magnoliopsida	Malpighiales	Rhizophoraceae	<i>Ceriops australis</i>	LC
Magnoliopsida	Malpighiales	Rhizophoraceae	<i>Ceriops pseudodecandra</i>	LC
Magnoliopsida	Malpighiales	Rhizophoraceae	<i>Ceriops tagal</i>	LC
Magnoliopsida	Fabales	Fabaceae	<i>Cynometra iripa</i>	LC
Magnoliopsida	Ericales	Ebenaceae	<i>Diospyros littorea</i>	VU
Magnoliopsida	Lamiales	Bignoniaceae	<i>Dolichandrone spathacea</i>	LC
Magnoliopsida	Malpighiales	Euphorbiaceae	<i>Excoecaria agallocha</i>	LC
Magnoliopsida	Malvales	Malvaceae	<i>Heritiera littoralis</i>	LC
Magnoliopsida	Myrtales	Combretaceae	<i>Lumnitzera littorea</i>	LC
Magnoliopsida	Myrtales	Combretaceae	<i>Lumnitzera racemosa</i>	LC
Magnoliopsida	Myrtales	Combretaceae	<i>Lumnitzera rosea</i>	LC
Liliopsida	Arecales	Areaceae	<i>Nypa fruticans</i>	LC
Magnoliopsida	Myrtales	Myrtaceae	<i>Osbornia octodonta</i>	LC
Magnoliopsida	Myrtales	Lythraceae	<i>Pemphis acidula</i>	LC
Magnoliopsida	Malpighiales	Rhizophoraceae	<i>Rhizophora annamalayana</i>	LC
Magnoliopsida	Malpighiales	Rhizophoraceae	<i>Rhizophora apiculata</i>	LC
Magnoliopsida	Malpighiales	Rhizophoraceae	<i>Rhizophora lamarckii</i>	LC
Magnoliopsida	Malpighiales	Rhizophoraceae	<i>Rhizophora mangle</i>	LC
Magnoliopsida	Malpighiales	Rhizophoraceae	<i>Rhizophora</i>	LC

			<i>mucronata</i>	
Magnoliopsida	Malpighiales	Rhizophoraceae	<i>Rhizophora stylosa</i>	LC
Magnoliopsida	Gentianales	Rubiaceae	<i>Scyphiphora hydrophylacea</i>	LC
Magnoliopsida	Myrtales	Lythraceae	<i>Sonneratia alba</i>	LC
Magnoliopsida	Myrtales	Lythraceae	<i>Sonneratia caseolaris</i>	LC
Magnoliopsida	Myrtales	Lythraceae	<i>Sonneratia gulngai</i>	LC
Magnoliopsida	Myrtales	Lythraceae	<i>Sonneratia lanceolata</i>	LC
Magnoliopsida	Myrtales	Lythraceae	<i>Sonneratia ovata</i>	NT
Magnoliopsida	Sapindales	Meliaceae	<i>Xylocarpus granatum</i>	LC
Magnoliopsida	Sapindales	Meliaceae	<i>Xylocarpus moluccensis</i>	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
HOLOTHUROIDEA	ASPIDOCHIROTIDA	HOLOTHURIIDAE	<i>Holothuria impatiens</i>	DD	Bottleneck Sea Cucumber
HOLOTHUROIDEA	ASPIDOCHIROTIDA	HOLOTHURIIDAE	<i>Holothuria scabra</i>	EN	Golden Sandfish, Sandfish
GASTROPODA	CYCLONERITIDA	NERITIDAE	<i>Neritina zigzag</i>	LC	
GASTROPODA	ELLOBIIDA	ELLOBIIDAE	<i>Auriculastra subula</i>	LC	
GASTROPODA	ELLOBIIDA	ELLOBIIDAE	<i>Cassidula aurisfelis</i>	LC	Cat's Ear Cassidula
GASTROPODA	ELLOBIIDA	ELLOBIIDAE	<i>Cassidula crassiuscula</i>	LC	
GASTROPODA	ELLOBIIDA	ELLOBIIDAE	<i>Ellobium aurisjudae</i>	LC	Auricule de Judas, Judas Ear Cassidula
GASTROPODA	ELLOBIIDA	ELLOBIIDAE	<i>Ellobium aurismidae</i>	LC	Midas Ear Cassidula
GASTROPODA	ELLOBIIDA	ELLOBIIDAE	<i>Laemodonta bella</i>	LC	
GASTROPODA	ELLOBIIDA	ELLOBIIDAE	<i>Laemodonta punctigera</i>	LC	
GASTROPODA	ELLOBIIDA	ELLOBIIDAE	<i>Laemodonta striata</i>	LC	
GASTROPODA	ELLOBIIDA	ELLOBIIDAE	<i>Ophicardelus sulcatus</i>	LC	
GASTROPODA	LITTORINIMORPHA	IRAVADIIDAE	<i>Iravadia mahimensis</i>	LC	
GASTROPODA	LITTORINIMORPHA	LITTORINIDAE	<i>Littoraria undulata</i>	LC	
GASTROPODA	LITTORINIMORPHA	TATEIDAE	<i>Ascorhis tasmanica</i>	LC	
GASTROPODA	NEOGASTROPODA	CONIDAE	<i>Conus frigidus</i>	LC	Frigid Cone
GASTROPODA	NEOGASTROPODA	CONIDAE	<i>Conus furvus</i>	LC	
GASTROPODA	NEOGASTROPODA	CONIDAE	<i>Conus varius</i>	LC	
GASTROPODA	PYLOPULMONATA	AMPHIBOLIDAE	<i>Salinator solida</i>	LC	
GASTROPODA	SORBEOCONCHA	POTAMIDIDAE	<i>Cerithium coralium</i>	LC	Coral Cerith
GASTROPODA	SORBEOCONCHA	THIARIDAE	<i>Sermyla riqueti</i>	LC	

Class	Order	Family	Scientific name	RLTS category	Common name
CHONDRICHTHYES	CARCHARHINIFORMES	CARCHARHINIDAE	<i>Carcharhinus amblyrhynchoides</i>	VU	Chalarm Nah-moo, Cucut lanjaman, Graceful Shark, Pating, Yu
CHONDRICHTHYES	CARCHARHINIFORMES	CARCHARHINIDAE	<i>Carcharhinus amboinensis</i>	VU	Hiu buas, Java Shark, Javahaj, Merak bulu, Mongiwa, Pigeeye Shark
CHONDRICHTHYES	CARCHARHINIFORMES	CARCHARHINIDAE	<i>Carcharhinus cautus</i>	LC	Nervous Shark
CHONDRICHTHYES	CARCHARHINIFORMES	CARCHARHINIDAE	<i>Carcharhinus melanopterus</i>	VU	Blacktip Reef Shark
CHONDRICHTHYES	CARCHARHINIFORMES	CARCHARHINIDAE	<i>Negaprion acutidens</i>	EN	Gursh, Sharptooth Lemon Shark
CHONDRICHTHYES	MYLIOBATIFORMES	DASYATIDAE	<i>Hemistrygon longicauda</i>	NT	Merauke Stingray
CHONDRICHTHYES	MYLIOBATIFORMES	DASYATIDAE	<i>Himantura leoparda</i>	VU	Leopard Whipray, Pari Bunga, Pari Macan
CHONDRICHTHYES	MYLIOBATIFORMES	DASYATIDAE	<i>Maculabatis toshi</i>	LC	Brown Whipray
CHONDRICHTHYES	MYLIOBATIFORMES	DASYATIDAE	<i>Pastinachus ater</i>	VU	Amarbirra, Banana-tail Ray, Broad Cowtail Ray, Par, Pari Bendera, Pari Daun, Pari Nyonya, Pari Tanjung, Yimabirra
CHONDRICHTHYES	MYLIOBATIFORMES	DASYATIDAE	<i>Pateobatis hortlei</i>	NT	Hortle's Whipray
CHONDRICHTHYES	MYLIOBATIFORMES	DASYATIDAE	<i>Taeniura lymma</i>	LC	Bluespotted Fantail Ray, Bluespotted Lagoon Ray, Bluespotted Ribbontail, Bluespotted Ribbontail Ray, Ribbontailed Stingray
CHONDRICHTHYES	MYLIOBATIFORMES	DASYATIDAE	<i>Urogymnus granulatus</i>	VU	MacLeay's Coachwhip Ray, Mangrove Whipray, Ojiro-ei, Whitetail Stingray, Whitetail Whipray
CHONDRICHTHYES	RHINOPRISTIFORMES	PRISTIDAE	<i>Anoxypristis cuspidata</i>	EN	Knifetooth Sawfish, Narrow Sawfish, Pejepeine, Pez Sierra,

Class	Order	Family	Scientific name	RLTS category	Common name
					Pointed Sawfish, Poisson-scie, Sayyaf, Sayyafah
CHONDRICHTHYES	RHINOPRISTIFORMES	PRISTIDAE	<i>Pristis clavata</i>	CR	Dwarf Sawfish, Queensland Sawfish
CHONDRICHTHYES	RHINOPRISTIFORMES	PRISTIDAE	<i>Pristis pristis</i>	CR	Freshwater Sawfish, Largetooth Sawfish, Liara
CHONDRICHTHYES	RHINOPRISTIFORMES	PRISTIDAE	<i>Pristis zijsron</i>	CR	Blundo, Green Sawfish, Narrowsnout Sawfish, Olive Sawfish, Pejepeine, Poisson-scie, Sayyaf
ACTINOPTERYGII	ALBULIFORMES	ALBULIDAE	<i>Albula glossodonta</i>	VU	Shortjaw Bonefish
ACTINOPTERYGII	ANGUILLIFORMES	OPHICHTHIDAE	<i>Scolecenchelys macroptera</i>	LC	Narrow Worm Eel, Slender Snake Eel
ACTINOPTERYGII	ATHERINIFORMES	ATHERINIDAE	<i>Atherinomorus lacunosus</i>	LC	Hardyhead Silverside, Sheschusu
ACTINOPTERYGII	ATHERINIFORMES	PSEUDOMUGILIDAE	<i>Pseudomugil paludicola</i>	LC	Swamp Blue-Eye
ACTINOPTERYGII	AULOPIFORMES	SYNODONTIDAE	<i>Saurida nebulosa</i>	LC	Anoli Nuageux, Blotched Grinner, Blotched Saury, Clouded Lizardfish, Clouded Saury, Lagarto Nubá-fero, Nebulous Lizardfish
ACTINOPTERYGII	AULOPIFORMES	SYNODONTIDAE	<i>Synodus sageneus</i>	LC	Anoli Poignard, Lagarto Espadachin, Speartoothed Grinner
ACTINOPTERYGII	BELONIFORMES	ZENARCHOPTERIDAE	<i>Zenarchopterus buffonis</i>	LC	Buffon's River Garfish
ACTINOPTERYGII	BELONIFORMES	ZENARCHOPTERIDAE	<i>Zenarchopterus dispar</i>	LC	Bigiw, Estuarine Halfbeak, Feathered River-garfish, Halfbeak, l'usila, Jolong Kajangan, Jolong-jolong, Kajangan, Kansusuit, Kolaan, Morella, Patlay, Sa-sa, Siriw, Spoon-fin Garfish, Spoonfin River

Class	Order	Family	Scientific name	RLTS category	Common name
					Garfish, Suasid, Sugi, Susay, Viviparous Garfish, Viviparous Half Beak
ACTINOPTERYGII	BELONIFORMES	ZENARCHOPTERIDAE	Zenarchopterus gilli	LC	Estuary Garfish, Halfbeak, Jolong Beguk, Jolong-jolong, Nyulung, Shortnose River Garfish, Short-nosed River Halfbeak, Short-nosed River-garfish, Viviparous Halfbeak
ACTINOPTERYGII	BELONIFORMES	ZENARCHOPTERIDAE	Zenarchopterus rasori	LC	
ACTINOPTERYGII	CLUPEIFORMES	CLUPEIDAE	Sardinella albella	LC	Perforated-scale Sardine, Sardine, Sardinella Blanca, Sardinelle blanche, Sardinha Branca, Short-bodied Sardine, White Sardinella, White Sardinelle
ACTINOPTERYGII	CLUPEIFORMES	CLUPEIDAE	Sardinella fijiense	LC	Fiji Herring, Fiji Sardinella
ACTINOPTERYGII	CLUPEIFORMES	CLUPEIDAE	Sardinella melanura	LC	Blacktip Sardinella
ACTINOPTERYGII	CLUPEIFORMES	ENGRAULIDAE	Encrasicholina punctifer	LC	Anchois boucanier, Anchovy, Boqueran bucanero, Buccaneer anchovy, Commerson's anchovy, Oceanic 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	Nelson's Anchovy
ACTINOPTERYGII	CLUPEIFORMES	ENGRAULIDAE	Thryssa baelama	LC	Anchois-moustache sardin, Anchovy, Baelama Anchovy, Bocarte Belama,

Class	Order	Family	Scientific name	RLTS category	Common name
					Dussumier's Thryssa, Hairfin Anchovy, Little Priest, Petite Sardine, Short-jawed Anchovy, Thryssa
ACTINOPTERYGII	CLUPEIFORMES	ENGRAULIDAE	Thryssa brevicauda	LC	Short-tail Thryssa
ACTINOPTERYGII	CLUPEIFORMES	PRISTIGASTERIDAE	Pellona ditchela	LC	Indian Pellona, Ummusfeta
ACTINOPTERYGII	ELOPIFORMES	ELOPIDAE	Elops hawaiiensis	DD	Alho, Awa, Awa'aua, Awa'awa, Balila, Balusu, Banana Fsh, Bandeng Lanang, Bandeng Lelaki, Bayedbed, Bayirbir, Bedbed, Bidbid, Bid-bid, Bidbir, Bulan-bulan, Giant Herring, Hawaiian Giant Herring, Hawaiian Ladyfish, Hawaiian Tarpon, Hawaiian Tenpounder, Karaiwashi, Kara-iwashi, Kugao, Ladyfish, Lulong, Malacho salman, Mayos, Medbed, Mid-bid, Pincushionfish, Puyus, Tangiron, Tenpounder, Torres Strait Herring, Tuloy, Ua
ACTINOPTERYGII	ELOPIFORMES	MEGALOPIDAE	Megalops cyprinoides	DD	Indo-Pacific Tarpon
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	Ambon Gudgeon, Olive Flathead-gudgeon

Class	Order	Family	Scientific name	RLTS category	Common name
ACTINOPTERYGII	GOBIIFORMES	ELEOTRIDAE	Butis butis	LC	Crazy Fish, Crimson-tipped Flathead Gudgeon, Crimson-tipped Flathead-sleeper, Crimson-tipped Gudgeon, Duckbill Sleeper, Flat-headed Gudgeon, Pointed Head Gudgeon, Upside Down Sleeper
ACTINOPTERYGII	GOBIIFORMES	ELEOTRIDAE	Butis gymnopomus	LC	Gestreifte Spitzkopfgrundel, Striped Crazy Fish
ACTINOPTERYGII	GOBIIFORMES	ELEOTRIDAE	Butis koilomatodon	LC	Bufanlueai, Durmiente, Marblecheek Sleeper, Modder-slaper, Mud Sleeper, Puntang
ACTINOPTERYGII	GOBIIFORMES	ELEOTRIDAE	Eleotris acanthopomus	LC	Chichibu-modoki, Spinecheek Gudgeon
ACTINOPTERYGII	GOBIIFORMES	ELEOTRIDAE	Eleotris fusca	LC	Brown Spinecheek Gudgeon, Donker Slaper, Dusky Sleeper
ACTINOPTERYGII	GOBIIFORMES	ELEOTRIDAE	Eleotris melanosoma	LC	Black Spinecheek Gudgeon, Breekop-slaper, Broadhead Sleeper
ACTINOPTERYGII	GOBIIFORMES	ELEOTRIDAE	Ophiocara porocephala	LC	Bau, Cabot des Seychelles, Flathead Sleeper, Hoshimadarahaze, Matapolo, Northern Mud Gudgeon, Paku, Schlangenkopfschläfergrundel, Spangled Gudgeon
ACTINOPTERYGII	GOBIIFORMES	ELEOTRIDAE	Prionobutis microps	LC	Small-eyed Sleeper
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	Acentrogobius gracilis	LC	Slender Amoya

Class	Order	Family	Scientific name	RLTS category	Common name
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Acentrogobius janthinopterus</i>	LC	Green-spotted Goby, Mangrove Goby, Pupilsport Goby, Robust Mangrove Goby
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Amblyeleotris gymnocephala</i>	LC	Mask Shrimpgoby, Masked Shrimpgoby, Nakedhead Shrimpgoby
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Asterropteryx semipunctata</i>	LC	Bluespotted Goby, Halfspotted Goby, Star-finned Goby, Starry Goby, Starryfin Goby
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Boleophthalmus caeruleomaculatus</i>	LC	Blue-spotted Mudhopper, Blue-spotted Mudskipper, Goggle-eyed Mudskipper
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Caragobius urolepis</i>	LC	Scaleless Worm Goby
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Cryptocentrus leptocephalus</i>	LC	Leptocephalus Prawn-goby, Pink-speckled Shrimpgoby, Pink-spotted Watchman Goby, Singapore Shrimp-goby
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Drombus halei</i>	LC	Hale's Drombus
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Drombus triangularis</i>	LC	Brown Drombus
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Eugnathogobius mindora</i>	LC	
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Exyrias puntang</i>	LC	Puntang Goby, Silver Spotted Goby, Silver-spotted Goby
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Feia nympha</i>	LC	Feia Goby, Nymph Goby
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Glossogobius circumspectus</i>	LC	Circumspect Flat-head Goby, Circumspect Goby, Mangrove Flathead Goby
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Gnatholepis ophthalmotaenia</i>	LC	
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Hemigobius hoevenii</i>	LC	Banded Mullet-goby
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Istigobius ornatus</i>	LC	Ornate Goby

Class	Order	Family	Scientific name	RLTS category	Common name
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Mahidolia mystacina</i>	LC	Flagfin Prawn Goby, Smiling Goby
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Mugilogobius mertoni</i>	LC	Chequered Mangrove Goby, Gobi millet, Merton's Mangrove Goby
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Mugilogobius notospilus</i>	LC	Freshwater Mangrove Goby, Island Goby, Pacific Mangrove Goby
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Mugilogobius platystoma</i>	LC	Bigmouth Mangrove Goby, Indonesian Goby, Island Mangrove Goby
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Mugilogobius wilsoni</i>	LC	Wilson's Goby
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Oligolepis stomias</i>	DD	Kuchisakahaze, Plain Teardrop Goby
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Oxyurichthys ophthalmonema</i>	LC	Eyebrow Goby, Tentacle-goby
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Parachaeturichthys polynema</i>	LC	Lancet-tail Goby, Ocellus-tail Goby, Taileyed Goby
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Paratrypauchen microcephalus</i>	LC	Blind Goby, Comb Goby, Red Eel Goby
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Periophthalmodon freycineti</i>	LC	Giant Mudskipper, Great Mud-hopper, Pug-headed Mudskipper
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Periophthalmus argentilineatus</i>	LC	Barred Mudskipper, Big fin Mudhopper, Silver Mudskipper
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Periophthalmus kalolo</i>	LC	African Mudhopper, Common Mudskipper, Kalolo Mudskipper, Sailfin Mudskipper, Silverline Mudskipper
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Periophthalmus minutus</i>	LC	Australian Mudskipper, Minute Mudskipper

Class	Order	Family	Scientific name	RLTS category	Common name
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Periophthalmus novaeguineensis</i>	LC	New Guinea Mudskipper
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Periophthalmus weberi</i>	LC	Weber's Mudskipper
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Psammogobius biocellatus</i>	LC	Sleepy Goby
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Pseudogobius melanosticta</i>	LC	Balck-spotted Snubnose Goby, Black-spotted Goby
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Redigobius balteatus</i>	LC	Girdled Goby, Rhino-horn Goby, Skunk Goby
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Redigobius chrysosoma</i>	LC	Spotfin Goby
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Sicyopterus lagocephalus</i>	LC	NA
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Taenioides cirratus</i>	DD	Bearded Wormgoby, Whiskered Eel Goby
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Valenciennea muralis</i>	LC	Mural goby, Mural goby, Mural sleeper-goby, Striped goby
ACTINOPTERYGII	GOBIIFORMES	GOBIIDAE	<i>Yongeichthys nebulosus</i>	LC	Hair-finned Goby, Shadow Goby
ACTINOPTERYGII	LOPHIIFORMES	ANTENNARIIDAE	<i>Antennarius biocellatus</i>	DD	Brackish Frogfish, Brackish Water Anglerfish, Brackish-water Frogfish
ACTINOPTERYGII	MUGILIFORMES	MUGILIDAE	<i>Planiliza subviridis</i>	LC	Brown-backed Mullet, Brown-banded Mullet, Dussumier's Mullet, Flat-tail Mullet, Green Back Mullet, Green Mullet, Greenback Grey Mullet, Greenback Mullet, Grey Mullet, Mullet, Red Eye Liza, Squaretail Mullet, Thick-zipped Mullet
ACTINOPTERYGII	OPHIDIIFORMES	CARAPIDAE	<i>Encheliophis homei</i>	LC	Silver Pearlfish
ACTINOPTERYGII	PERCIFORMES	AMBASSIDAE	<i>Ambassis interrupta</i>	LC	Glass Perch, Glassfish, Interrupta Glassy

Class	Order	Family	Scientific name	RLTS category	Common name
					Perchlet, Langaray, Long-spined Glass Perchlet, Long-spined Glassfish, Long-spined Perchlet, Northern Perchlet, Perchlet, Petek, Pridin, Sailfin Perchlet, Seriding Duri, Seriding putih, Seriding
ACTINOPTERYGII	PERCIFORMES	AMBASSIDAE	Ambassis nalua	LC	Aringil, Glassfish, Khaomao, Nalua-chanda, Pangkah, Pengkah, Pengkat, Perdin, Pridin, Scalloped Glassfish, Scalloped Perchlet, Seriding, Seriding Kipas, Seriding putih, Serinding, Tongkai
ACTINOPTERYGII	PERCIFORMES	AMBASSIDAE	Ambassis urotaenia	LC	Ambache, Ambache Du Large, Ambasse, Banded-Tail Glassy Perchlet, Bleeker's Glassfish, Bleeker's Glass Perchlet, Glassfish, Pridin, Rek-rek Merah, Seriding, Seriding Jalur, Takasago-ishimochi
ACTINOPTERYGII	PERCIFORMES	AMBASSIDAE	Ambassis vachellii	LC	Telkara Perchlet, Vachell's Glassfish
ACTINOPTERYGII	PERCIFORMES	APOGONIDAE	Apogon amboinensis	DD	Amami-ishimochi, Ambon Cardinalfish
ACTINOPTERYGII	PERCIFORMES	APOGONIDAE	Fowleria variegata	LC	Multi-spotted Cardinalfish, Peppered Cardinalfish, Spotted Cardinalfish, Variegated Cardinalfish

Class	Order	Family	Scientific name	RLTS category	Common name
ACTINOPTERYGII	PERCIFORMES	APOGONIDAE	<i>Ostorhinchus lateralis</i>	LC	Coastal Cardinalfish, Humpback Cardinal, Humpback Cardinalfish, Inshore Cardinalfish
ACTINOPTERYGII	PERCIFORMES	APOGONIDAE	<i>Sphaeramia orbicularis</i>	LC	Chubby Cardinal, Orbiculate Cardinalfish, Polka-dot Cardinalfish
ACTINOPTERYGII	PERCIFORMES	APOGONIDAE	<i>Yarica hyalosoma</i>	LC	Dangat, Gelagah Laut, Humpbacked Cardinal Fish, Humpbacked Cardinalfish, Humpbacked Cardinalfish, Kagami-tenjikudai, Mangrove Cardinalfish, Muang, Sebekah, Sebekah Bonggol, Semangka, Seriding, Serodong
ACTINOPTERYGII	PERCIFORMES	BLENNIIDAE	<i>Meiacanthus anema</i>	LC	Freshwater Fangblenny, Threadless Blenny
ACTINOPTERYGII	PERCIFORMES	BLENNIIDAE	<i>Omobranchus ferox</i>	LC	Fang-toothed Blenny, Gossamer Blenny, Gossamer Oysterblenny, Kawaginpo, Rotund Blenny, Spinnerak-blennie
ACTINOPTERYGII	PERCIFORMES	BLENNIIDAE	<i>Omobranchus verticalis</i>	LC	
ACTINOPTERYGII	PERCIFORMES	BLENNIIDAE	<i>Omox biporos</i>	LC	Doublepore Blenny, Omox Blenny
ACTINOPTERYGII	PERCIFORMES	CAESIONIDAE	<i>Caesio cuning</i>	LC	Caesio à Ventre Rouge, Fusilero Vientre Colorado, Red-bellied Fusilier, Redbelly yellowtail fusilier, Robust Fusilier, Yellow-tail Fusilier

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ACTINOPTERYGII	PERCIFORMES	CARANGIDAE	Atule mate	LC	Bukko, Hammam, Jinnes, Jurel Rabo Amarillo, Sélar queue jaune, Yaneeser, Yellowtail Scad
ACTINOPTERYGII	PERCIFORMES	DATNIOIDIDAE	Datnioides polota	LC	Silver Tiger Fish
ACTINOPTERYGII	PERCIFORMES	EPHIPPIDAE	Platax orbicularis	LC	Batfish, Circular Batfish, Circular Spadefish, Circular Spadefish Batfish, Morcego, Narrowbanded Batfish, Orbicular Batfish, Orbiculate Batfish, Papillon, Poisson Chauve-souris Orbiculaire, Poule D'eau, Round Bat Fish, Round Batfish, Sickfish, Tsubame-uo
ACTINOPTERYGII	PERCIFORMES	EPINEPHELIDAE	Epinephelus coeruleopunctatus	LC	Garrupa, Hakuten-hata, Mero Nevero, Merou A Taches Blanches, Merou Taches Blanches, Ocellated Rock-cod, Rock Cod, Small-spotted Rock Cod, Snowy Grouper, Vieille Cuisinier, Whitespotted Grouper, White-spotted Grouper, White-spotted Reef-cod, Whitespotted Rockcod, White-spotted Rockcod
ACTINOPTERYGII	PERCIFORMES	EPINEPHELIDAE	Epinephelus coioides	LC	Estuary Cod, Hamoor, Hamour, Mérou taches oranges, Orange-spotted Grouper
ACTINOPTERYGII	PERCIFORMES	EPINEPHELIDAE	Epinephelus malabaricus	LC	Malabar Grouper

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ACTINOPTERYGII	PERCIFORMES	EPINEPHELIDAE	<i>Epinephelus polystigma</i>	LC	Marou Points Blancs, Mero Punteado Blanco, White-dotted Grouper
ACTINOPTERYGII	PERCIFORMES	EPINEPHELIDAE	<i>Epinephelus tauvina</i>	DD	Estuary Rock-cod, Giant Grouper, Greasy Grouper, Greasy Rockcod, Green Grouper, Ju-shi-ban-yu, Loche Mouchetee, Mero Lutria, Merou Loutre, Reef Cod, Speckled Rockcod, Spotted Grouper, Vielle Lutre, Vielle Negre, Zhu-gao-ban
ACTINOPTERYGII	PERCIFORMES	GERREIDAE	<i>Gerres erythrourus</i>	LC	Deep Body Silver Bidy, Deep-bodied Mojarra
ACTINOPTERYGII	PERCIFORMES	GERREIDAE	<i>Gerres filamentosus</i>	LC	Flagfin Mojarra, Threadfin Silverbidy, Whipfin Mojarra
ACTINOPTERYGII	PERCIFORMES	HAEMULIDAE	<i>Diagramma labiosum</i>	LC	Painted Sweetlips
ACTINOPTERYGII	PERCIFORMES	HAEMULIDAE	<i>Plectorhinchus gibbosus</i>	LC	Brown Sweetlips
ACTINOPTERYGII	PERCIFORMES	HAEMULIDAE	<i>Pomadasys argenteus</i>	LC	Silver Javelin
ACTINOPTERYGII	PERCIFORMES	HAEMULIDAE	<i>Pomadasys kaakan</i>	LC	Grondeur javelot, Javelin Grunter, Spotted Grunter-bream, Spotted Javelinfish, Yellow-finned Javelin-fish
ACTINOPTERYGII	PERCIFORMES	KUHLIIDAE	<i>Kuhlia munda</i>	DD	Silver Flagtail
ACTINOPTERYGII	PERCIFORMES	LABRIDAE	<i>Novaculichthys macrolepidotus</i>	LC	Á hire-tensumodoki, Green-banner wrasse, Seagrass nurse, Seagrass razorfish, Seagrass wrasse
ACTINOPTERYGII	PERCIFORMES	LEIOGNATHIDAE	<i>Eubleekeria splendens</i>	LC	Blacktip Ponyfish, Splendid Ponyfish

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ACTINOPTERYGII	PERCIFORMES	LEIOGNATHIDAE	<i>Gazza minuta</i>	LC	Toothed Ponyfish, Toothpony
ACTINOPTERYGII	PERCIFORMES	LEIOGNATHIDAE	<i>Leiognathus equulus</i>	LC	Common Ponyfish
ACTINOPTERYGII	PERCIFORMES	LETHRINIDAE	<i>Lethrinus genivittatus</i>	LC	Chul-gal-dom, Communard, Ito-fuefuki, Ito-fue-fuki, Ketambak, Kiros, Lancer, Landok, Longspine Emperor, Mempinang, Pelandok, Thread-fin Emperor
ACTINOPTERYGII	PERCIFORMES	LETHRINIDAE	<i>Lethrinus harak</i>	LC	Black-blotch Emperor, Blackspot Emperor, Bossu Taché, Emperador San Pedro, Empereur Saint Pierre, Thumbprint Emperor
ACTINOPTERYGII	PERCIFORMES	LETHRINIDAE	<i>Lethrinus laticaudis</i>	LC	Grass Emperor, Grass Sweetlip
ACTINOPTERYGII	PERCIFORMES	LETHRINIDAE	<i>Lethrinus nebulosus</i>	LC	Bec-de-cane nuageux, Capitaine blanc, Capitaine rouge, Empereur Moris, Lesser Spangled Emperor, Lethrinus nuageux, Spangled Emperor
ACTINOPTERYGII	PERCIFORMES	LETHRINIDAE	<i>Lethrinus ornatus</i>	LC	Emperador Ornado, Empereur Orné, Ornate Emperor, Yellow-striped Emperor
ACTINOPTERYGII	PERCIFORMES	LETHRINIDAE	<i>Lethrinus semicinctus</i>	LC	Black Blotch Emperor, Black-Spot Emperor, Emperador de Malla, Reticulated Emperor, Semicinctus Emperor

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ACTINOPTERYGII	PERCIFORMES	LUTJANIDAE	<i>Lutjanus argentimaculatus</i>	LC	Carpe, Creek Red Bream, Dog Bream, Gray Snapper, Mangrove Jack, Mangrove Red Snapper, Mangrove Snapper, Marjaan, Pargo Amarillo, Pargo de Manglar, Pargo de Mangle, Pargo Dientón, Pargo Rabo Amarillo, Purple Sea Perch, Red Bass, Red Bream, Red Perch, Red Reef Bream, Red Snapper, River Roman, River Snapper, Rock Barramundi, Rouget, Sarde, Sheggrah, Silver-spotted Gray Snapper, Vivaneau des Mangroves, Yellow Snapper
ACTINOPTERYGII	PERCIFORMES	LUTJANIDAE	<i>Lutjanus bitaeniatus</i>	LC	Indonesian Seaperch, Indonesian Snapper, Pargo de Indonesia, Vivaneau de l'Indonesie, Whitetip Snapper, White-tipped Sea-perch
ACTINOPTERYGII	PERCIFORMES	LUTJANIDAE	<i>Lutjanus ehrenbergii</i>	LC	Blackspot Snapper, Black-spot Snapper, Ehrenbergs' Seaperch, Ehrenberg's Seaperch, Ehrenberg's Snapper, Pargo Manchado, Vivaneau Carpe, Vivaneau Encrier

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ACTINOPTERYGII	PERCIFORMES	LUTJANIDAE	Lutjanus fulviflamma	LC	Black-spot Sea Perch, Blackspot Seaperch, Blackspot Snapper, Black-spot Snapper, Carpe, Chemise, Daurade à Tache Noire, Dorade à Tache Noire, Dory Snapper, Finger-mark Bream, Gibelot, Golden Snapper, Humpback Red Snapper, Longspot Snapper, Long-spot Snapper, Malabar Thyrssa, Moses Perch, Pargo Tintero, Red Bream, Snapper, Vivaneau Gibelot
ACTINOPTERYGII	PERCIFORMES	LUTJANIDAE	Lutjanus fulvus	LC	Blacktail Snapper, Black-tail Snapper, Blacktailed Snapper, Dorade de Palétuvier, Flametail Snapper, Lutjan Fauve, Pargo Rabo Negro, Redmargined Seaperch, Taiva, Vivaneau Queue Noire, Waigeu Snapper, Yellow Striped Snapper, Yellowmargined Sea Perch, Yellow-margined Sea Perch, Yellowmargined Seaperch, Yellow-margined Seaperch, Yellow-margined Sea-perch

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ACTINOPTERYGII	PERCIFORMES	LUTJANIDAE	Lutjanus johnii	LC	Big-scaled Bream, Fingermark Bream, Fingermark Seaperch, Golden Snapper, John's Seaperch, John's Snapper, Lutjan à Tache Unique, Mangrove Snapper, Moses Perch, One Spot Snapper, Pargo Jaspeado, Red Bream, Snapper, Spotted-scale Sea-perch, Vivaneau Ziebelo, Ziebelo
ACTINOPTERYGII	PERCIFORMES	LUTJANIDAE	Lutjanus maxweberi	DD	Pargo Enano, Pygmy Snapper, Vivaneau Nain
ACTINOPTERYGII	PERCIFORMES	LUTJANIDAE	Lutjanus russellii	LC	Communard, Fingermark Bream, Hublot, Moses Perch, Moses Seaperch, Moses Snapper, Moses' Snapper, Pargo Ojo de Buey, Red Bream, Russell's One Spot Snapper, Russell's Sea-perch, Russell's Snapper, Russel's Snapper, Snapper, Vivaneau Hublot
ACTINOPTERYGII	PERCIFORMES	LUTJANIDAE	Lutjanus sebae	LC	Bourgeois, Empereur Rouge, Emperor Red Snapper, Emperor Snapper, Emperor's Red-snapper, Government Bream, King Snapper, Pargo Imperial, Pouatte, Queenfish, Red Emperor, Red Emperor Snapper,

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					Red Kelp, Redfish, Seba's Snapper, Vivaneau Bourgeois
ACTINOPTERYGII	PERCIFORMES	MICRODESMIDAE	<i>Parioglossus formosus</i>	LC	
ACTINOPTERYGII	PERCIFORMES	MICRODESMIDAE	<i>Parioglossus palustris</i>	LC	
ACTINOPTERYGII	PERCIFORMES	MICRODESMIDAE	<i>Parioglossus rainfordi</i>	LC	
ACTINOPTERYGII	PERCIFORMES	MICRODESMIDAE	<i>Parioglossus taeniatus</i>	LC	Slim Striped Dartfish, Striped Dartfish, Taeniatus Dartfish, Taeniatus Hover Goby
ACTINOPTERYGII	PERCIFORMES	MONODACTYLIDAE	<i>Monodactylus argenteus</i>	LC	Silver Moony
ACTINOPTERYGII	PERCIFORMES	MULLIDAE	<i>Parupeneus barberinus</i>	LC	Barberin, Barbet ray, Capucin barberin, Dash-and-dot goatfish, Dash-dot goatfish, Dot-and-dash goatfish, Goatfish, Half and half goatfish, Rouget barberin, Rouget-barbet barberin, Spotted golden goatfish
ACTINOPTERYGII	PERCIFORMES	POLYNEMIDAE	<i>Polydactylus microstomus</i>	LC	Barbudo de Boca Pequeña, Barbure à Petite Bouche, Smallmouth Threadfin, Small-mouthed Threadfin, Thread Fish
ACTINOPTERYGII	PERCIFORMES	POMACENTRIDAE	<i>Dascyllus trimaculatus</i>	LC	Demoiselle à trois taches, Domino Damselfish, Domino Noir, Three-spot Damsel, Threespot Damselfish, Three-spot Dascyllus, Three-spot Humbug

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ACTINOPTERYGII	PERCIFORMES	POMACENTRIDAE	Dischistodus perspicillatus	LC	Two-barred Puller, White Damsel, White Demoiselle
ACTINOPTERYGII	PERCIFORMES	POMACENTRIDAE	Dischistodus pseudochrysopoecilus	LC	Monarch Damsel
ACTINOPTERYGII	PERCIFORMES	POMACENTRIDAE	Neopomacentrus azysron	LC	Orange-tailed Damselfish, Yellowtail Damsel, Yellowtail Demoiselle
ACTINOPTERYGII	PERCIFORMES	POMACENTRIDAE	Neopomacentrus taeniurus	DD	Freshwater Damsel, Freshwater Demoiselle
ACTINOPTERYGII	PERCIFORMES	POMACENTRIDAE	Pomacentrus taeniometopon	LC	Brackish Damsel, River Damsel
ACTINOPTERYGII	PERCIFORMES	SCATOPHAGIDAE	Scatophagus argus	LC	Almindelig Argusfisk, Argus, Argus Fish, Argusfisch, Argusfisk, Bushami, Butter Fish, Butterfish, Common Scat, Gemeiner Argusfisch, Grüner Argusfisch, Kurohoshimanjūdai, Leopard Scat, Pavillon Tacheta, Pingo Manchado, Plettet argusfisk, Scat, Spotted Butt, Spotted Butter Fish, Spotted Butterfish, Spotted Scad, Spotted Scat
ACTINOPTERYGII	PERCIFORMES	SCATOPHAGIDAE	Selenotoca multifasciata	LC	Striped Scat
ACTINOPTERYGII	PERCIFORMES	SCIAENIDAE	Johnius australis	LC	Bottlenose Jewfish
ACTINOPTERYGII	PERCIFORMES	SCIAENIDAE	Johnius borneensis	LC	Corvina Dientusa, Courbine Dentue, Croaker, Hammer Croaker, Jewfish, Sharp

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					Toothed Hammer Croaker, Sharpnose Hammer Croaker, Sharp-toothed Hammer Croaker
ACTINOPTERYGII	PERCIFORMES	SIGANIDAE	<i>Siganus lineatus</i>	LC	Lined Rabbitfish
ACTINOPTERYGII	PERCIFORMES	SIGANIDAE	<i>Siganus vermiculatus</i>	LC	Maze Rabbitfish, Vermiculate Rabbitfish, Vermiculated Spinefoot
ACTINOPTERYGII	PERCIFORMES	SPARIDAE	<i>Acanthopagrus australis</i>	LC	Australian Sea Bream, Australian Seabream, Black Bream, Bream, Common Bream, Eastern Black Bream, Sea Bream, Silver Bream, Surf Bream, Yellowfin Bream
ACTINOPTERYGII	PERCIFORMES	TERAPONTIDAE	<i>Mesopristes argenteus</i>	LC	Silver Grunter
ACTINOPTERYGII	PERCIFORMES	TERAPONTIDAE	<i>Mesopristes cancellatus</i>	LC	Tapiroid Grunter
ACTINOPTERYGII	PERCIFORMES	TOXOTIDAE	<i>Toxotes jaculatrix</i>	LC	Banded Archerfish
ACTINOPTERYGII	PLEURONECTIFORMES	CYNOGLOSSIDAE	<i>Cynoglossus puncticeps</i>	LC	Speckled Tonguesole
ACTINOPTERYGII	PLEURONECTIFORMES	CYNOGLOSSIDAE	<i>Paraplagusia guttata</i>	DD	
ACTINOPTERYGII	PLEURONECTIFORMES	CYNOGLOSSIDAE	<i>Paraplagusia sinerama</i>	LC	Dusky Tongue Sole
ACTINOPTERYGII	PLEURONECTIFORMES	PARALICHTHYIDAE	<i>Pseudorhombus arsius</i>	LC	False Brill, Largetooth Flounder, Lenguado Dentudo, Rite Dentu, Smooth-scale Brill
ACTINOPTERYGII	PLEURONECTIFORMES	SOLEIDAE	<i>Brachirus aspilos</i>	LC	Dusky Sole
ACTINOPTERYGII	PLEURONECTIFORMES	SOLEIDAE	<i>Paradicula setifer</i>	LC	
ACTINOPTERYGII	PLEURONECTIFORMES	SOLEIDAE	<i>Phyllichthys sclerolepis</i>	DD	Hardscale Sole
ACTINOPTERYGII	SCORPAENIFORMES	PLATYCEPHALIDAE	<i>Cociella punctata</i>	LC	Mangrove Crocodilefish, Plettet Fladhovedulk, Spotted Flathead
ACTINOPTERYGII	SILURIFORMES	ARIIDAE	<i>Cochlefelis danielsi</i>	LC	Daniel's Catfish

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ACTINOPTERYGII	SYNGNATHIFORMES	SYNGNATHIDAE	Choeroichthys sculptus	LC	Gegraveerde Pypvis, Sculptured Pipefish, Tia'i Pape, Veistosneula
ACTINOPTERYGII	SYNGNATHIFORMES	SYNGNATHIDAE	Hippichthys cyanospilos	LC	Blouspikkelde-pypvis, Bluespeckled Pipefish, Blue-spotted Pipefish, Cá Chia với xanh, Dagum-dagum, Hakuten-yôji, Korek telinga, Kuda laut, Tangkur kuda, Undok-undok, Undok-undok bintik biru, Ward's Pipefish
ACTINOPTERYGII	SYNGNATHIFORMES	SYNGNATHIDAE	Hippichthys heptagonus	LC	Amime-kawa-yoji, Belly Pipefish, Boepens-Pypvis, Freshwater pipefish, Madura Pipefish, Pipefish, Reticulated Freshwater Pipefish, Short-snouted pipefish, Small-headed pipefish
ACTINOPTERYGII	SYNGNATHIFORMES	SYNGNATHIDAE	Hippichthys parvicarinatus	LC	Short-keel Pipefish
ACTINOPTERYGII	SYNGNATHIFORMES	SYNGNATHIDAE	Hippichthys penicillus	LC	Beady Pipefish, Huin-jeom-sil-go-gi
ACTINOPTERYGII	SYNGNATHIFORMES	SYNGNATHIDAE	Hippichthys spicifer	LC	Balkpens-pypvis, Banded Freshwater Pipefish, Bellybarred Pipefish, Blue Spotted Pipefish, Braune Seenadel, Dagum-dagum, Indische Seenadel, Indisk ferskvandsnålefisk, Kawa-yôji, Okaneula, Trey krawpoeu

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ACTINOPTERYGII	TETRAODONTIFORMES	MONACANTHIDAE	Anacanthus barbatus	LC	Barbeled leatherjacket, Bearded Filefish, Bearded Leatherjacket, Beardie, Ukeguchino Hosomionagano Okinahagi
ACTINOPTERYGII	TETRAODONTIFORMES	MONACANTHIDAE	Colurodontis paxmani	DD	Paxman's Leatherjacket
ACTINOPTERYGII	TETRAODONTIFORMES	TETRAODONTIDAE	Arothron hispidus	LC	Ballon à Épaule Noire, Ballon Pintade, Botete Panza Rayada, Botete Pintado, Bourse-du-sable, Broadbarred Toadfish, Compère à Taches Blanches, Poisson-ballon à Taches Blanches, Poisson-ballon Pintade, Pufferfish, Stars And Stripes Puffer, Stars-and-stripes Pufferfish, Stripebelly Puffer, Tamboril Verde De Puntos Blancos, White Spotted Blow Fish, Whitespotted Blaasop, Whitespotted Puffer, White-spotted Puffer
ACTINOPTERYGII	TETRAODONTIFORMES	TETRAODONTIDAE	Arothron immaculatus	LC	Blackedged Blaasop, Immaculate Blow Fish, Immaculate Puffer, Immaculate Pufferfish, Narrow-lined Toadfish
ACTINOPTERYGII	TETRAODONTIFORMES	TETRAODONTIDAE	Arothron manilensis	LC	Narrow-lined Puffer, Narrow-lined Pufferfish, Narrowlined Toadfish, Striped Puffer

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ACTINOPTERYGII	TETRAODONTIFORMES	TETRAODONTIDAE	<i>Arothron reticularis</i>	LC	Reticulated Blow Fish, Reticulated Blowfish, Reticulated Puffer, Reticulated Pufferfish, Reticulated Toadfish
ACTINOPTERYGII	TETRAODONTIFORMES	TETRAODONTIDAE	<i>Arothron stellatus</i>	LC	Ballon étoilé, Ballon Constellé, Baudruche Zébrée, Poisson-ballon étoilé, Star Blaasop, Star Puffer, Staring Blow Fish, Starry Pufferfish, Starry Toadfish, Stellate Puffer
ACTINOPTERYGII	TETRAODONTIFORMES	TETRAODONTIDAE	<i>Chelonodontops patoca</i>	LC	Gangetic Blow Fish, Gangetic Pufferfish, Marbled Toad, Milkspotted Puffer, Milkspotted Toadfish, Pufferfish
ACTINOPTERYGII	TETRAODONTIFORMES	TETRAODONTIDAE	<i>Dichotomyctere erythrotaenia</i>	LC	Red-striped Toadfish
ACTINOPTERYGII	TETRAODONTIFORMES	TETRAODONTIDAE	<i>Lagocephalus lunaris</i>	LC	Green Rough-backed Puffer, Lunartail Puffer, Moontail Puffer
ACTINOPTERYGII	TETRAODONTIFORMES	TETRAODONTIDAE	<i>Leiodon dapsilis</i>	DD	Plentiful Toby
ACTINOPTERYGII	TETRAODONTIFORMES	TETRAODONTIDAE	<i>Marilyna darwinii</i>	LC	
ACTINOPTERYGII	TETRAODONTIFORMES	TETRAODONTIDAE	<i>Marilyna meraukensis</i>	LC	Merauke Toadfish
ACTINOPTERYGII	TETRAODONTIFORMES	TETRAODONTIDAE	<i>Marilyna pleurosticta</i>	LC	Banded Toadfish
ACTINOPTERYGII	TETRAODONTIFORMES	TETRAODONTIDAE	<i>Takifugu oblongus</i>	LC	Lattice Blaasop, Oblong Blow Fish
ACTINOPTERYGII	TETRAODONTIFORMES	TETRAODONTIDAE	<i>Tetractenos hamiltoni</i>	LC	Common Toadfish
REPTILIA	SQUAMATA	ACROCHORDIDAE	<i>Acrochordus granulatus</i>	LC	Little Filesnake, Little Wartsnake, Marine File Snake, Small Warty Snake, Wart Snake

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REPTILIA	SQUAMATA	COLUBRIDAE	<i>Boiga irregularis</i>	LC	Brown Catsnake, Brown Tree Snake
REPTILIA	SQUAMATA	COLUBRIDAE	<i>Dendrelaphis calligaster</i>	LC	Green Tree Snake, Nördliche Bronzenatter, Northern Green Tree-snake, Northern Tree Snake
REPTILIA	SQUAMATA	COLUBRIDAE	<i>Dendrelaphis punctulatus</i>	LC	Common Tree Snake, Green Tree Snake
REPTILIA	SQUAMATA	ELAPIDAE	<i>Cryptophis nigrescens</i>	LC	Eastern Small-eyed Snake, Short-tailed Snake, Small-eyed Snake
REPTILIA	SQUAMATA	ELAPIDAE	<i>Hydrelaps darwiniensis</i>	LC	Black-ringed Sea Snake, Port Darwin Sea Snake
REPTILIA	SQUAMATA	ELAPIDAE	<i>Hydrophis cyanocinctus</i>	LC	Annulated Sea Snake, Bluebanded Sea Snake, Hydrophide à bandes bleues
REPTILIA	SQUAMATA	ELAPIDAE	<i>Hydrophis gracilis</i>	LC	Graceful Small-headed Sea Snake, Narrow-headed Sea snake, Slender Sea Snake
REPTILIA	SQUAMATA	ELAPIDAE	<i>Hydrophis schistosus</i>	LC	Beaked Sea Snake, Enhydrine ardoisée, Hook-nosed Sea Snake
REPTILIA	SQUAMATA	ELAPIDAE	<i>Laticauda laticaudata</i>	LC	Blackbanded Sea Krait, Brown-lipped Sea Krait, Plature à Bandes
REPTILIA	SQUAMATA	ELAPIDAE	<i>Parahydrophis mertoni</i>	DD	Arafura Smooth Sea Snake, Northern Mangrove Sea Snake
REPTILIA	SQUAMATA	GEKKONIDAE	<i>Gehyra baliola</i>	LC	Banana Gecko, Short-tailed Dtella

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REPTILIA	SQUAMATA	GEKKONIDAE	<i>Lepidodactylus lugubris</i>	LC	Common Smooth-Scaled Gecko, Mangrove Smooth-scaled Gecko, Mourning Gecko
REPTILIA	SQUAMATA	GEKKONIDAE	<i>Lepidodactylus pumilus</i>	LC	Slender Chained Gecko
REPTILIA	SQUAMATA	HOMALOPSIDAE	<i>Cerberus australis</i>	LC	Australian Bokadam, Australian Rockadam
REPTILIA	SQUAMATA	HOMALOPSIDAE	<i>Djokoiskandarus annulata</i>	DD	Banded Water Snake, Banded Watersnake
REPTILIA	SQUAMATA	SCINCIDAE	<i>Carlia sexdentata</i>	LC	Closed-litter Rainbow-skink, Macleay's Rainbow-skink, Robust Rainbow-Skink, Six-toothed Rainbow-skink
REPTILIA	SQUAMATA	SCINCIDAE	<i>Cryptoblepharus virgatus</i>	LC	Cream-striped Shinning-skink, New Guinea Striped Snake-eyed Skink, Wall Skink
REPTILIA	SQUAMATA	SCINCIDAE	<i>Ctenotus robustus</i>	LC	Robust Ctenotus, Striped Skink
REPTILIA	SQUAMATA	SCINCIDAE	<i>Emoia atrocostata</i>	LC	Gray Swamp Skink, Littoral Skink, Littoral Whiptail-skink, Mangrove Skink
REPTILIA	SQUAMATA	SCINCIDAE	<i>Glaphyromorphus nigricaudis</i>	LC	Black-tailed Bar-lipped Skink
REPTILIA	SQUAMATA	SCINCIDAE	<i>Lampropholis delicata</i>	LC	Dark-flecked Garden Sunskink, Garden Skink, Grass Skink, Rainbow Skink
REPTILIA	SQUAMATA	VARANIDAE	<i>Varanus finschi</i>	LC	Finsch's Monitor
REPTILIA	SQUAMATA	VARANIDAE	<i>Varanus indicus</i>	LC	Biawak Pasifik, Mangrove Monitor, Pazifikwaran

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REPTILIA	SQUAMATA	VARANIDAE	<i>Varanus panoptes</i>	LC	Horna's Monitor, Yellow-spotted Monitor
REPTILIA	SQUAMATA	VARANIDAE	<i>Varanus prasinus</i>	LC	Emerald Monitor
REPTILIA	SQUAMATA	VARANIDAE	<i>Varanus semiremex</i>	LC	Rusty Monitor
REPTILIA	TESTUDINES	CHELIDAE	<i>Eelseya rhodini</i>	LC	Rhodin's Stream Turtle, Southern New Guinea Stream Turtle
REPTILIA	TESTUDINES	CHELONIIDAE	<i>Eretmochelys imbricata</i>	CR	Caret, Hawksbill Turtle, Tortue à écailles, Tortue à bec faucon, Tortue Caret, Tortue imbriquée, Tortuga de Carey
AVES	ACCIPITRIFORMES	ACCIPITRIDAE	<i>Accipiter cirrocephalus</i>	LC	Collared Sparrowhawk
AVES	ACCIPITRIFORMES	ACCIPITRIDAE	<i>Accipiter novaehollandiae</i>	LC	Grey Goshawk
AVES	ACCIPITRIFORMES	ACCIPITRIDAE	<i>Aviceda subcristata</i>	LC	Pacific Baza
AVES	ACCIPITRIFORMES	ACCIPITRIDAE	<i>Haliastur indus</i>	LC	Brahminy Kite
AVES	ACCIPITRIFORMES	PANDIONIDAE	<i>Pandion haliaetus</i>	LC	Gray Swamp Skink, Littoral Skink, Littoral Whiptail-skink, Mangrove Skink
AVES	ANSERIFORMES	ANATIDAE	<i>Anas castanea</i>	LC	Black-tailed Bar-lipped Skink
AVES	ANSERIFORMES	ANATIDAE	<i>Radjah radjah</i>	LC	Radjah Shelduck, Raja Shelduck
AVES	CAPRIMULGIFORMES	AEGOTHELIDAE	<i>Aegotheles cristatus</i>	LC	Australian Owlet-Nightjar
AVES	CAPRIMULGIFORMES	CAPRIMULGIDAE	<i>Caprimulgus macrurus</i>	LC	Large-tailed Nightjar
AVES	CAPRIMULGIFORMES	CAPRIMULGIDAE	<i>Eurostopodus argus</i>	LC	Spotted Eared-Nightjar, Spotted Nightjar
AVES	CHARADRIIFORMES	CHARADRIIDAE	<i>Charadrius mongolus</i>	LC	Lesser Sandplover, Lesser Sand-Plover, Mongolian Dotterel, Mongolian Plover, Pluvier de Mongolie

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AVES	CHARADRIIFORMES	CHARADRIIDAE	<i>Pluvialis fulva</i>	LC	Pacific Golden Plover, Pacific Golden-Plover, Pluvier doré oriental
AVES	CHARADRIIFORMES	SCOLOPACIDAE	<i>Actitis hypoleucos</i>	LC	Chevalier guignette, Common Sandpiper
AVES	CHARADRIIFORMES	SCOLOPACIDAE	<i>Numenius phaeopus</i>	LC	Courlis corlieu, Whimbrel
AVES	CHARADRIIFORMES	SCOLOPACIDAE	<i>Tringa nebularia</i>	LC	Chevalier aboyeur, Common Greenshank, Greenshank
AVES	CHARADRIIFORMES	SCOLOPACIDAE	<i>Xenus cinereus</i>	LC	Chevalier de Terek, Terek Sandpiper
AVES	CICONIIFORMES	CICONIIDAE	<i>Ephippiorhynchus asiaticus</i>	NT	Black-necked Stork, Jabirú Asiático
AVES	COLUMBIFORMES	COLUMBIDAE	<i>Chalcophaps longirostris</i>	LC	Brown-capped Emerald Dove
AVES	COLUMBIFORMES	COLUMBIDAE	<i>Ducula mullerii</i>	LC	Collared Imperial Pigeon, Collared Imperial-Pigeon
AVES	COLUMBIFORMES	COLUMBIDAE	<i>Ducula spilorrhoa</i>	LC	Torresian Imperial Pigeon, Torresian Imperial-pigeon
AVES	COLUMBIFORMES	COLUMBIDAE	<i>Phaps chalcoptera</i>	LC	Common Bronzewing
AVES	COLUMBIFORMES	COLUMBIDAE	<i>Ptilinopus iozonus</i>	LC	Orange-bellied Fruit Dove, Orange-bellied Fruit-Dove
AVES	COLUMBIFORMES	COLUMBIDAE	<i>Ptilinopus regina</i>	LC	Rose-crowned Fruit Dove, Rose-crowned Fruit-Dove
AVES	COLUMBIFORMES	COLUMBIDAE	<i>Ptilinopus superbus</i>	LC	Eastern Superb Fruit- dove, Superb Fruit Dove, Superb Fruit-dove
AVES	CORACIIFORMES	ALCEDINIDAE	<i>Ceyx azureus</i>	LC	Azure Kingfisher
AVES	CORACIIFORMES	ALCEDINIDAE	<i>Ceyx pusillus</i>	LC	Little Kingfisher
AVES	CORACIIFORMES	ALCEDINIDAE	<i>Dacelo leachii</i>	LC	Blue-winged Kookaburra
AVES	CORACIIFORMES	ALCEDINIDAE	<i>Syma torotoro</i>	LC	Yellow-billed Kingfisher

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AVES	CORACIIFORMES	ALCEDINIDAE	Todiramphus chloris	LC	Collared Kingfisher, Martin-chasseur à collier blanc, White-collared Kingfisher
AVES	CORACIIFORMES	ALCEDINIDAE	Todiramphus macleayii	LC	Forest Kingfisher
AVES	CORACIIFORMES	ALCEDINIDAE	Todiramphus sanctus	LC	Sacred Kingfisher
AVES	CORACIIFORMES	MEROPIIDAE	Merops philippinus	LC	Blue-tailed Bee-eater
AVES	CUCULIFORMES	CUCULIDAE	Cacomantis castaneiventris	LC	Chestnut-breasted Cuckoo
AVES	CUCULIFORMES	CUCULIDAE	Cacomantis flabelliformis	LC	Fan-tailed Cuckoo
AVES	CUCULIFORMES	CUCULIDAE	Cacomantis variolosus	LC	Brush Cuckoo
AVES	CUCULIFORMES	CUCULIDAE	Centropus phasianinus	LC	Pheasant Coucal
AVES	CUCULIFORMES	CUCULIDAE	Chalcites lucidus	LC	Shining Bronze Cuckoo, Shining Bronze-Cuckoo, Shining Cuckoo
AVES	CUCULIFORMES	CUCULIDAE	Chalcites minutillus	LC	Little Bronze-cuckoo
AVES	CUCULIFORMES	CUCULIDAE	Heteroscenes pallidus	LC	Palid Cuckoo, Pallid Cuckoo
AVES	CUCULIFORMES	CUCULIDAE	Scythrops novaehollandiae	LC	Channel-billed Cuckoo
AVES	GRUIFORMES	RALLIDAE	Amaurornis cinerea	LC	White-browed Crake
AVES	GRUIFORMES	RALLIDAE	Hypotaenidia philippensis	LC	Banded Land-Rail, Banded Rail, Buff-banded Rail, Râle tiklin, Sharpe's Rail
AVES	GRUIFORMES	RALLIDAE	Porzana fluminea	LC	Australian Crake, Australian Spotted Crake
AVES	PASSERIFORMES	ACANTHIZIDAE	Acanthiza lineata	LC	Striated Thornbill
AVES	PASSERIFORMES	ACANTHIZIDAE	Acanthiza nana	LC	Yellow Thornbill
AVES	PASSERIFORMES	ACANTHIZIDAE	Gerygone levigaster	LC	Mangrove Gerygone
AVES	PASSERIFORMES	ACANTHIZIDAE	Gerygone magnirostris	LC	Large-billed Gerygone
AVES	PASSERIFORMES	ACANTHIZIDAE	Gerygone mouki	LC	Brown Gerygone
AVES	PASSERIFORMES	ACANTHIZIDAE	Sericornis frontalis	LC	White-browed Scrubwren
AVES	PASSERIFORMES	ARTAMIDAE	Artamus cinereus	LC	Black-faced Woodswallow

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AVES	PASSERIFORMES	ARTAMIDAE	<i>Artamus leucorhyn</i>	LC	White-breasted Woodswallow
AVES	PASSERIFORMES	ARTAMIDAE	<i>Artamus personatus</i>	LC	Masked Woodswallow
AVES	PASSERIFORMES	ARTAMIDAE	<i>Melloria quoyi</i>	LC	Black Butcherbird
AVES	PASSERIFORMES	CAMPEPHAGIDAE	<i>Coracina novaehollandiae</i>	LC	Black-faced Cuckooshrike, Black-faced Cuckoo-shrike
AVES	PASSERIFORMES	CAMPEPHAGIDAE	<i>Coracina papuensis</i>	LC	White-bellied Cuckooshrike, White-bellied Cuckoo-shrike
AVES	PASSERIFORMES	CAMPEPHAGIDAE	<i>Edolisoma tenuirostre</i>	LC	Slender-billed Cicadabird
AVES	PASSERIFORMES	CAMPEPHAGIDAE	<i>Lalage leucomela</i>	LC	Varied Triller
AVES	PASSERIFORMES	DICAEIDAE	<i>Dicaeum hirundinaceum</i>	LC	Mistletoebird
AVES	PASSERIFORMES	DICRURIDAE	<i>Dicrurus bracteatus</i>	LC	Spangled Drongo
AVES	PASSERIFORMES	ESTRILDIDAE	<i>Erythrura trichroa</i>	LC	Blue-faced Parrotfinch, Blue-faced Parrot-Finch
AVES	PASSERIFORMES	ESTRILDIDAE	<i>Lonchura castaneothorax</i>	LC	Chestnut-breasted Mannikin, Chestnut-breasted Munia
AVES	PASSERIFORMES	ESTRILDIDAE	<i>Neochmia temporalis</i>	LC	Red-browed Finch, Red-browed Firetail
AVES	PASSERIFORMES	LOCUSTELLIDAE	<i>Poodytes gramineus</i>	LC	Little Grassbird
AVES	PASSERIFORMES	MALURIDAE	<i>Malurus amabilis</i>	LC	Lovely Fairywren, Lovely Fairy-wren
AVES	PASSERIFORMES	MELIPHAGIDAE	<i>Bolemoreus frenatus</i>	LC	Bridled Honeyeater
AVES	PASSERIFORMES	MELIPHAGIDAE	<i>Cissomela pectoralis</i>	LC	Banded Honeyeater
AVES	PASSERIFORMES	MELIPHAGIDAE	<i>Conopophila albogularis</i>	LC	Rufous-banded Honeyeater
AVES	PASSERIFORMES	MELIPHAGIDAE	<i>Conopophila rufogularis</i>	LC	Rufous-throated Honeyeater
AVES	PASSERIFORMES	MELIPHAGIDAE	<i>Entomyzon cyanotis</i>	LC	Blue-faced Honeyeater
AVES	PASSERIFORMES	MELIPHAGIDAE	<i>Epthianura albifrons</i>	LC	White-fronted Chat
AVES	PASSERIFORMES	MELIPHAGIDAE	<i>Gavicalis fasciogularis</i>	LC	Mangrove Honeyeater
AVES	PASSERIFORMES	MELIPHAGIDAE	<i>Gavicalis versicolor</i>	LC	Varied Honeyeater

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AVES	PASSERIFORMES	MELIPHAGIDAE	Gavicalis virescens	LC	Singing Honeyeater
AVES	PASSERIFORMES	MELIPHAGIDAE	Lichenostomus melanops	LC	Yellow-tufted 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 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
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	MELIPHAGIDAE	Xanthotis macleayanus	LC	Macleay Honeyeater, Macleay's Honeyeater
AVES	PASSERIFORMES	MONARCHIDAE	Carterornis leucotis	LC	White-eared Monarch

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AVES	PASSERIFORMES	MONARCHIDAE	<i>Monarcha frater</i>	LC	Black-winged Monarch
AVES	PASSERIFORMES	MONARCHIDAE	<i>Monarcha melanopsis</i>	LC	Black-faced Monarch
AVES	PASSERIFORMES	MONARCHIDAE	<i>Myiagra alecto</i>	LC	Shining Flycatcher
AVES	PASSERIFORMES	MONARCHIDAE	<i>Myiagra rubecula</i>	LC	Leaden Flycatcher
AVES	PASSERIFORMES	MONARCHIDAE	<i>Myiagra ruficollis</i>	LC	Broad-billed Flycatcher
AVES	PASSERIFORMES	MONARCHIDAE	<i>Symposiachrus trivirgatus</i>	LC	Spectacled Monarch
AVES	PASSERIFORMES	NECTARINIIDAE	<i>Cinnyris jugularis</i>	LC	Olive-backed Sunbird
AVES	PASSERIFORMES	ORIOLIDAE	<i>Oriolus flavocinctus</i>	LC	Green Oriole, Yellow Oriole
AVES	PASSERIFORMES	ORIOLIDAE	<i>Sphecotheres vieilloti</i>	LC	Australasian Figbird
AVES	PASSERIFORMES	PACHYCEPHALIDAE	<i>Colluricincla harmonica</i>	LC	Grey Shrikethrush, Grey Shrike-thrush
AVES	PASSERIFORMES	PACHYCEPHALIDAE	<i>Colluricincla megarhyncha</i>	LC	Little Shrikethrush, Little Shrike-thrush
AVES	PASSERIFORMES	PACHYCEPHALIDAE	<i>Pachycephala griseiceps</i>	LC	Brown Whistler, Grey-headed Whistler
AVES	PASSERIFORMES	PACHYCEPHALIDAE	<i>Pachycephala melanura</i>	LC	Black-tailed Whistler, Mangrove Golden Whistler
AVES	PASSERIFORMES	PACHYCEPHALIDAE	<i>Pachycephala pectoralis</i>	LC	Golden Whistler
AVES	PASSERIFORMES	PACHYCEPHALIDAE	<i>Pachycephala rufiventris</i>	LC	Rufous Whistler
AVES	PASSERIFORMES	PARADISAEIDAE	<i>Lophorina magnifica</i>	LC	Magnificent Riflebird
AVES	PASSERIFORMES	PARADISAEIDAE	<i>Lophorina victoriae</i>	VU	Victoria's Riflebird
AVES	PASSERIFORMES	PARADISAEIDAE	<i>Phonygamus keraudrenii</i>	LC	Trumpet Manucode
AVES	PASSERIFORMES	PARDALOTIDAE	<i>Pardalotus striatus</i>	LC	Striated Pardalote
AVES	PASSERIFORMES	PETROICIDAE	<i>Microeca flavigaster</i>	LC	Lemon-bellied Flyrobin
AVES	PASSERIFORMES	PETROICIDAE	<i>Peneoenanthe pulverulenta</i>	LC	Mangrove Robin
AVES	PASSERIFORMES	PITTIDAE	<i>Pitta versicolor</i>	LC	Noisy Pitta
AVES	PASSERIFORMES	PTILONORHYNCHIDAE	<i>Chlamydera cerviniventris</i>	LC	Fawn-breasted Bowerbird
AVES	PASSERIFORMES	PTILONORHYNCHIDAE	<i>Chlamydera nuchalis</i>	LC	Great Bowerbird
AVES	PASSERIFORMES	RHIPIDURIDAE	<i>Rhipidura albiscapa</i>	LC	Grey Fantail

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AVES	PASSERIFORMES	RHIPIDURIDAE	<i>Rhipidura dryas</i>	LC	Arafura Fantail
AVES	PASSERIFORMES	RHIPIDURIDAE	<i>Rhipidura isura</i>	LC	Northern Fantail
AVES	PASSERIFORMES	RHIPIDURIDAE	<i>Rhipidura phasiana</i>	LC	Mangrove Fantail, Mangrove Grey Fantail
AVES	PASSERIFORMES	RHIPIDURIDAE	<i>Rhipidura rufifrons</i>	LC	Chuchurika, Rufous Fantail
AVES	PASSERIFORMES	STURNIDAE	<i>Aplonis metallica</i>	LC	Metallic Starling
AVES	PASSERIFORMES	ZOSTEROPIDAE	<i>Zosterops citrinella</i>	LC	Ashy-bellied White-eye, Pale White-eye
AVES	PASSERIFORMES	ZOSTEROPIDAE	<i>Zosterops lateralis</i>	LC	Silvereye
AVES	PASSERIFORMES	ZOSTEROPIDAE	<i>Zosterops luteus</i>	LC	Australian Yellow White- eye, Canary White-eye, Yellow White-eye
AVES	PELECANIFORMES	ARDEIDAE	<i>Ardea plumifera</i>	LC	Plumed Egret
AVES	PELECANIFORMES	ARDEIDAE	<i>Ardea sumatrana</i>	LC	Great-billed Heron
AVES	PELECANIFORMES	ARDEIDAE	<i>Butorides striata</i>	LC	Green-backed Heron, Striated Heron
AVES	PELECANIFORMES	ARDEIDAE	<i>Egretta garzetta</i>	LC	Little Egret
AVES	PELECANIFORMES	ARDEIDAE	<i>Egretta novaehollandiae</i>	LC	White-faced Heron
AVES	PELECANIFORMES	ARDEIDAE	<i>Egretta picata</i>	LC	Pied Heron
AVES	PELECANIFORMES	ARDEIDAE	<i>Egretta sacra</i>	LC	Eastern Reef Egret, Pacific Reef Heron, Pacific Reef- Egret, Reef Heron
AVES	PELECANIFORMES	ARDEIDAE	<i>Ixobrychus dubius</i>	LC	Australian Little Bittern
AVES	PELECANIFORMES	ARDEIDAE	<i>Ixobrychus flavicollis</i>	LC	Black Bittern
AVES	PELECANIFORMES	ARDEIDAE	<i>Ixobrychus sinensis</i>	LC	Blongios de Chine, Yellow Bittern
AVES	PELECANIFORMES	ARDEIDAE	<i>Nycticorax caledonicus</i>	LC	Nankeen Night Heron, Nankeen Night-Heron, Rufous Night Heron, Rufous Night-Heron
AVES	PELECANIFORMES	THRESKIORNITHIDAE	<i>Platalea regia</i>	LC	Royal Spoonbill

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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	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	Psephotus haematonotus	LC	Red-rumped Parrot
AVES	PSITTACIFORMES	PSITTACIDAE	Trichoglossus moluccanus	LC	Rainbow Lorikeet
AVES	STRIGIFORMES	STRIGIDAE	Ninox rufa	LC	Rufous Boobook, Rufous Owl
AVES	STRIGIFORMES	TYTONIDAE	Tyto novaehollandiae	LC	Australian Masked-owl
AVES	STRUTHIONIFORMES	CASUARIIDAE	Casuarus 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	Frégate du Pacifique, Great Frigatebird
AVES	SULIFORMES	PHALACROCORACIDAE	Microcarbo melanoleucos	LC	Little Pied Cormorant, Little Shag
AVES	SULIFORMES	PHALACROCORACIDAE	Phalacrocorax sulcirostris	LC	Little Black Cormorant, Little Black Shag
AVES	SULIFORMES	PHALACROCORACIDAE	Phalacrocorax varius	LC	Australian Pied Cormorant, Great Pied Cormorant, Pied Cormorant, Pied Shag
MAMMALIA	CHIROPTERA	EMBALLONURIDAE	Saccolaimus flaviventris	LC	Yellow-bellied Pouched Bat, Yellow-bellied Sheath-tailed Bat
MAMMALIA	CHIROPTERA	EMBALLONURIDAE	Taphozous australis	NT	Coastal Sheath-tailed Bat, Coastal Tomb Bat, Southern Sheath-tailed Bat

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MAMMALIA	CHIROPTERA	HIPPOSIDERIDAE	<i>Hipposideros ater</i>	LC	Bi-coloured Leaf-nosed Bat, Dusky Leaf-nosed Bat, Dusky Roundleaf Bat, Dwiwarna Pathra Nas Wawalu
MAMMALIA	CHIROPTERA	MEGADERMATIDAE	<i>Macroderma gigas</i>	VU	Australian False Vampire Bat, Ghost Bat
MAMMALIA	CHIROPTERA	PTEROPODIDAE	<i>Macroglossus minimus</i>	LC	Dagger-toothed Long-nosed Fruit Bat, Lesser Long-tongued Fruit Bat
MAMMALIA	CHIROPTERA	PTEROPODIDAE	<i>Nyctimene robinsoni</i>	LC	Eastern Tube-nosed Bat, Queensland Tube-nosed Bat, Queensland Tube-nosed Fruit Bat
MAMMALIA	CHIROPTERA	PTEROPODIDAE	<i>Pteropus conspicillatus</i>	EN	Spectacled Flying Fox, Spectacled Flying-fox, Zorro Volador De Anteojos
MAMMALIA	CHIROPTERA	PTEROPODIDAE	<i>Pteropus macrotis</i>	LC	Big-eared Flying Fox, Large-eared Flying Fox, Zorro Volador de Orejas Grandes
MAMMALIA	CHIROPTERA	PTEROPODIDAE	<i>Pteropus poliocephalus</i>	VU	Gray-headed Flying Fox, Grey-headed Flying Fox, Grey-headed Flying-fox, Zorro Volador de Cabeza Gris
MAMMALIA	CHIROPTERA	PTEROPODIDAE	<i>Pteropus scapulatus</i>	LC	Little Red Flying Fox, Zorro Volador de Queensland
MAMMALIA	CHIROPTERA	PTEROPODIDAE	<i>Syconycteris australis</i>	LC	Common Blossom Bat, Eastern Blossom Bat, Southern Blossom Bat
MAMMALIA	CHIROPTERA	VESPERTILIONIDAE	<i>Nyctophilus arnhemensis</i>	LC	Arnhem Long-eared Bat

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MAMMALIA	CHIROPTERA	VESPERTILIONIDAE	Scotorepens sanborni	LC	Northern Broad-nosed Bat
MAMMALIA	DASYUROMORPHIA	DASYURIDAE	Planigale maculata	LC	Common Planigale, Planigale Commun, Pygmy Planigale
MAMMALIA	DIPROTODONTIA	PHALANGERIDAE	Spilocuscus maculatus	LC	Common Spotted Cuscus, Couscous Tacheté, Cuscús Manchado, Phalanger Tacheté, Short-tailed Spotted Cuscus, Spotted Phalanger
MAMMALIA	RODENTIA	MURIDAE	Hydromys chrysogaster	LC	Common Water Rat, Rakali
MAMMALIA	RODENTIA	MURIDAE	Melomys burtoni	LC	Grassland Melomys, Grassland Mosaic-tailed Rat
MAMMALIA	RODENTIA	MURIDAE	Melomys cervinipes	LC	Fawn-footed Melomys, Fawn-footed Mosaic-tailed Rat
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	Babi Laut, Baghr al-Bahr, Dugon, Dugong, Duyong, Lembu Laut, Sea Cow, Seekuh
Magnoliopsida	Magnoliales	Annonaceae	<i>Annona glabra</i>	LC	Monkey Apple

Class	Order	Family	Scientific name	RLTS category	Common name
Magnoliopsida	Malvales	Malvaceae	<i>Brownlowia argentata</i>	DD	
Equisetopsida	Fabales	Fabaceae	<i>Cynometra ramiflora</i>	LC	
Equisetopsida	Fabales	Fabaceae	<i>Dalbergia candenatensis</i>	LC	Firefly Mangrove Tree
Magnoliopsida	Malvales	Malvaceae	<i>Lagunaria patersonia</i>	NE	Norfolk Island Hibiscus
Magnoliopsida	Sapindales	Anacardiaceae	<i>Schinus terebinthifolia</i>	NE	Broad-leafed Pepper Tree
Magnoliopsida	Malvales	Malvaceae	<i>Thespesia populnea</i>	LC	Portia Tree
Magnoliopsida	Malvales	Malvaceae	<i>Hibiscus tiliaceus</i>	LC	Coast Cottonwood
Magnoliopsida	Sapindales	Meliaceae	<i>Xylocarpus rumphii</i>	NE	

National Estimates for subcriterion A1

The Coral Sea province sits entirely within Australia’s jurisdictional boundary. Reliable published information was not available on Australia’s Coral Sea mangrove ecosystem extent for 1970. We estimated the mangrove area at that time by assuming a linear relationship between mangrove extent and time and extrapolating backwards from available mangrove extent data. The data set covered the period 1988 to 2021 and was sourced from two sets of curated Landsat spatial data, GMW v3.0 (Bunting 2022), and Australia’s forest extent data (DCCEEW, 2022). However, using mangrove area estimates from different sources can lead to uncertainty (Friess and Webb 2014) and there were no regional statistics or global studies available for this period. Thus, the estimates for 1970 should be considered only indicative

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

	Country total		Within province	
Year	2020*	2020*	1970**	1970**
Australia	10185	2398.3	DD	2282
The Australian Coral Sea	10185	2398.3	DD	2282

Table b. List of selected studies considered to have reliable information on mangrove area for the period around 1970 of the Australian Coral Sea province.

Country	Year	Mangrove Area (Ha)	Reference
Country	0	0	Author (year) title. Journal. Volume page. Doi
Australia	NA	NA	No local or regional published studies on extent or condition of Queensland 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.