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Mangroves of the East Central and Southeast Australian Shelf

VU

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Abstract

Mangroves of the East Central and Southeast Australian Shelf is a regional ecosystem subgroup (level 4 unit of the IUCN Global Ecosystem Typology). It includes the marine ecoregions of Bassian, Cape Howe, Lord Howe and Norfolk Islands, Manning-Hawkesbury, Tweed-Moreton, and Western Bassian. The East Central and Southeast Australian Shelf mangrove province mapped extent in 2020 was 462.2 km^2, representing 0.3% of the global mangrove area.

The province has a warmer subtropical northern region but is largely temperate in climate that results in a gradient of decreasing mangrove diversity as latitude increases. There are 11 species of mangrove reported for this province, only 6 of which are still present at the border between Queensland and New South Wales. This is reduced to only one species in Victoria and South Australia. The province is also diverse in its geomorphology with its northern extent characterised by large coastal sand islands protecting estuaries then, moving south into New South Wales, broad river estuaries and drowned river valleys and bays, and into southern NSW and Victoria with their large coastal lakes and lagoons, large bays and finally the coastal cliffs and rocky inlets of western Victoria and SE South Australia. All but the last of which offer a variety of habitats in which mangroves are established.

Today the East Central and Southeast Australian Shelf mangroves cover +1.3% greater extent than our broad estimation for 1970. However, the mangrove net area change has been 0.1% since 1996. If this trend continues an overall change of 0.4% is projected over the next 50 years. However, under a high sea level rise scenario (IPCC RCP8.5) ≈-33.7% of the East Central and Southeast Australian Shelf mangroves would be submerged by 2060. Moreover, 0.7% of the province's mangrove ecosystem is undergoing degradation, with the potential to increase to 2.1% within a 50-year period, based on a vegetation index decay analysis. Overall, the East Central and Southeast Australian Shelf mangrove ecosystem is assessed as **Vulnerable** (**VU**).

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Summary of the assessment:

Ecosystem classification:
MFT1.2 Intertidal forests and shrublands

Assessment's distribution:
East Central and Southeast Australian Shelf province

<table>
<tr><th>Criterion</th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>Overall</th></tr>
<tr><td>Subcriterion 1</td><td>DD</td><td>LC</td><td>DD</td><td>DD</td><td rowspan="3">NE</td><td rowspan="3">VU</td></tr>
<tr><td>Subcriterion 2</td><td>LC</td><td>LC</td><td>VU</td><td>LC</td></tr>
<tr><td>Subcriterion 3</td><td>VU</td><td>LC</td><td>DD</td><td>DD</td></tr>
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CR: Critically Endangered, EN: Endangered, VU: Vulnerable, NT: NearThreatened, LC: Least Concern, DD: Data Deficient, NE: Not Evaluated

Mangroves of the East Central and Southeast Australian Shelf

VU

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_55x_56r Mangroves of the East Central and Southeast Australian Shelf

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

1 Forest

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

12 Marine Intertidal

12.7 Mangrove Submerged Roots

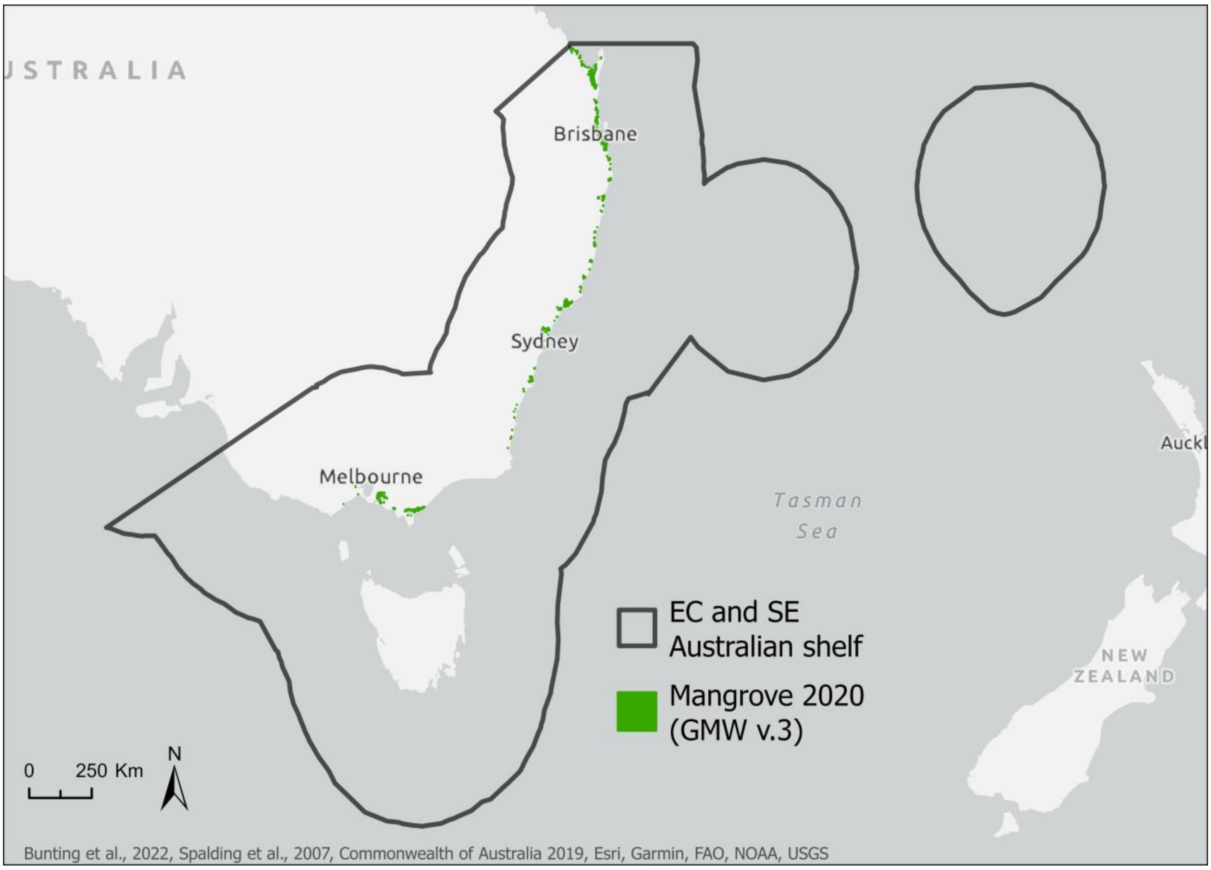


Figure 1. The mangroves of East Central and Southeast Australian Shelf.

2. Ecosystem Description

Spatial distribution

The Red List of Ecosystems (RLE) province of East Central and Southeast Australian Shelf (EC-SE Shelf) extends across five Australian states from SE Queensland (SE Qld), entirely through New South Wales (NSW) and Victoria, into eastern South Australia (SA), and across Bass Strait to the island state of Tasmania. It includes Jervis Bay, the coastal territorial holding of the Australian Capital Territory, and the offshore islands of Lord Howe and Norfolk (Figure 1). It supports intertidal mangrove forest and shrubland of the marine regions of Bassian, Cape Howe, Lord Howe and Norfolk Islands, Manning-Hawkesbury, Tweed-Moreton, and Western Bassian**.**

The estimated extent of mangroves in this province is 462.2 km^2 in 2020, representing about 0.3% of the global mangrove area. There has been a 0.1 % net area change since 1996 (Bunting *et al*., 2022). Based on data derived from modelling by the Australian Department of Climate Change, Energy, the Environment and Water (DCCEEW, 2021), the pre-colonisation extent of mangroves within the EC-SE Shelf Province was 900.2 km2. This represents an estimated 49% reduction in the province**'**s mangrove habitat in the period 1750 to 2020. Since 2020 there has been dieback of mangroves in several estuaries due to flood impacts (e.g. Bennion *et al.* 2024).

There are several other resources that summarise elements of the extent, composition or condition of mangrove habitats in this province and nationally. The National Land and Water Resources Audit (NLWRA, 1998) provides an inventory of all Australian estuaries. Within the boundaries of the EC-SE Shelf province, it records 349 estuaries with a total area of 2008.5 km^2, composed of mangroves, tidal marsh and tidal flats, but reports mangroves in only 109 estuaries. These mangroves occupied 509.9 km^2.

Mangroves are not observed in Tasmania, although their establishment there appears imminent since Avicennia propagules are reported on beaches of Bass Straits Deal Island in 2024 (Apanie Wood, Melbourne Water, Pers. Comm.). Other Australian States have undertaken surveys to quantify the extent and condition of their intertidal habitats, including mangroves. Queensland's state-based survey of coastal wetlands along its coastline included analysis of Landsat images supported by ground-based surveys. The SE Qld coastline within the EC-SE Shelf province, including K'gari (Frazer Island), had an estimated 405 km^2 of mangrove habitat, including scrub mangrove (Dowling and Stephens, 1998; Bruinsma and Danaher, 2000).

Mangrove creeks in south-eastern Queensland are typically bordered by thick shrubby river mangroves, Aegiceras corniculatum, with taller open canopy stands behind of grey mangrove, Avicennia marina trees (NC Duke).

The NLWRA (1998) identified 69 estuaries with mangroves in New South Wales and estimated their total mangrove area to be 125.6 km^2. Two state-sponsored surveys of the NSW coastline each reported on 164 estuaries, including Jervis Bay (West *et al*., 1985; Creese *et al*., 2009). The earlier report (West *et al*., 1985) estimated a total mangrove area of 106.7 km^2 within 60 estuaries while Creese *et al*. (2009) reported two decades later a total mangrove area of 125.9 km^2 within 80 estuaries. The 2021 NSW State of the Environment Report lists 187 estuaries with 86 containing mangrove and the most recent state mapping finds 132.2 km^2 of mangrove (West *et al*., 2025).

Victoria has the world's southern-most stand of mangroves. As with NSW, its coastline is also entirely within the EC-SE Shelf Province. The NLWRA (1998) records 64 estuaries in Victoria, 6 of which have mangroves for a total mangrove area of 35.2 km^2. However, this increases to 52 km^2 when the shoreline mangrove habitats within Port Phillip, Westernport Bay, and French Island are included (Boon *et al*.,2011, 2015).

South Australia's southeastern coastline, from the state border with Victoria to Cape Jaffa, is also included in the EC-SE Shelf Province. There is no mangrove habitat observed within that part of the EC-SE Shelf provincial coastline. Therefore, the total mangrove area for the EC-SE Shelf Province, based on estimates from the various state surveys, ranges between 563 to 583 km^2.

DCCEEW's national vegetation cover spatial data set, the National Vegetation Information System (NVIS) Version 6.0, includes mangroves. Analysis of the current spatial data set for the EC-SE Shelf Province extent, estimates 493.9 km^2 of mangrove habitat (DCCEEW, 2020). However, this "point in time" estimate does not accurately represent the national mangrove extent in any specific year as updates occur at irregular intervals based on state-level contributions

The most accurate record of Australia's annual gains and losses in forest extent comes from satellite remote sensing techniques, based on Landsat imagery. The publicly available National Forest and Sparse Woody Vegetation data (DCCEEW, 2022) incorporates a 3-class forest classification (no forest, sparse woody forest,

forest) and extends from 1988 to the current reporting year and is updated annually. Analysis of this dataset, constrained to the EC-SE Shelf province with a maximum extent mangrove mask applied (GMW_v3_union_vec; Bunting *et al.,* 2022), estimates that 437.4 km^2 of mangrove were present in 2020. This is 24.8 km^2 less than the estimation based on the Global Mangrove Watch spatial data (Bunting *et al*., 2022). The discrepancy in these measures indicates that further research is 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)

The mangroves of the East Central and Southeast Australian Shelf province are characterised by 11 species of mangroves reported for this province (IUCN 2022, and Duke 2006, 2012a,b). The species *Acanthus ilicifolius* and *Aegialitis annulata*, reported on of the Red List of Threatened Species, are not observed within the limits of this province while *Acrostichum speciosum* was added to the list of mangroves (Duke 2006, 2012a,b; Appendix 1). There are also several associate plant species that are found within and on the fringes of mangrove habitat in this province, *Lagunaria patersonia, Schinus terebinthifolia, Thespesia populnea, Hibiscus tiliaceous, Myoporum montanum,* and *Pandanus tectorius* (Duke 2025, & pers. Comm.). The coastline overall has a gradient of decreasing mangrove diversity that contrasts with the corresponding increased diversity of saltmarsh plants (Saintilan, 2009). Mangrove species range from 11 in southern Queensland, 6 in New South Wales, to one, *Avicennia marina*, in Victoria and South Australia, and none in Tasmania. Mangroves with saltmarsh and seagrass form dynamic land-sea boundaries that contribute towards fisheries and food chains of estuaries (Carlson, *et al*., 2021) and are important sites of carbon storage, or blue carbon (Serrano et al. 2019, Ewers-Lewis et al. 2018, Rogers et al. 2019) and coastal protection (e.g. Morris et al. 2023).

Mangroves forests can attain considerable biomass. In the Hawkesbury River, located in central New South Wales, areas of *Avicennia marina* trees up to 16 m tall are associated with new mudflats with high nutrient levels (Saintilan, 1998). In addition, mangrove heights increase with distance upstream as plants take advantage of lower salinities.

Light gap on the edge of mangroves on the Hawkesbury River displays the density and volume of these high biomass forests of Avicennia marina.

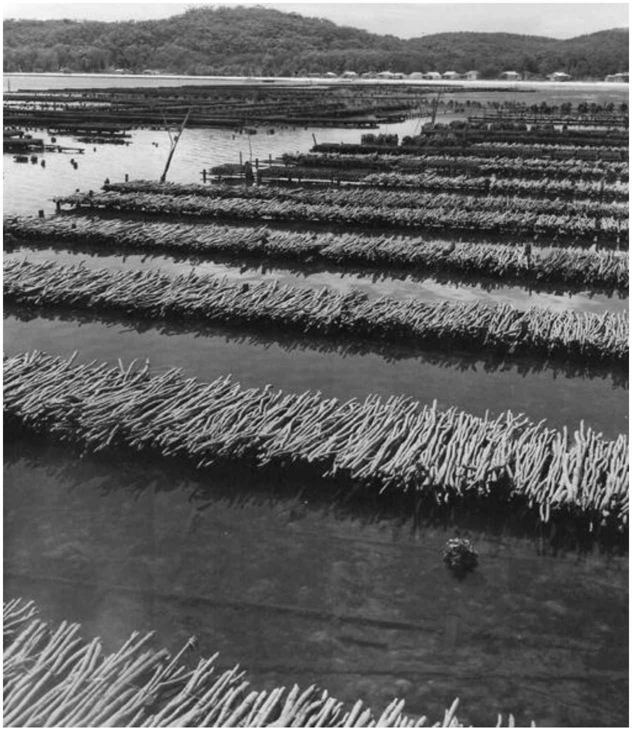
Decline in mangrove diversity in higher Latitudes

The coastline overall has a marked decrease in mangrove diversity to the South that contrasts with a corresponding increase in the diversity of saltmarsh plants (Duke 2006). Mangrove species numbers range from 11 in southern Queensland, 6 in New South Wales, to one, *Avicennia marina*, in Victoria and South Australia, and none in Tasmania (Duke 2006). Mangroves with saltmarsh and seagrass form dynamic land-sea boundaries that contribute towards fisheries and food chains of estuaries (Carlson, *et al*., 2021).

There are at least 229 animal species across 8 taxa in the IUCN Red List of Threatened Species (IUCN, 2022) that have natural history collection records, or observations, within the distribution of this province and are associated with mangrove habitats (GBIF, 2021). Mangroves offer a range of habitats that are suitable for a wide variety of fauna that, in turn, contribute to healthy ecosystem function**.** Although the focus of the current IUCN list is on vertebrates (6 taxa, 213 species), the invertebrates, including the meiofauna, are highly diverse and numerous. Many are major contributors to nutrient recycling (Lee, 2008; Nerot *et al*., 2009), are an important food source for both terrestrial and marine based vertebrates (Kathiresan and Bingham, 2001; Abrantes and Sheaves, 2009), are important pollinators (Aluri, *et al*., 1994; Williams, 2020), or impact human economies and health (Bell, *et al*., 1984; Meynecke *et al*., 2007; Taylor et al., 2018; Knight, 2011; Siwiendrayanti *et al*., 2020). Invertebrates also influence mangrove habitat vegetation structure and function through herbivory, propagule predation, and bioturbation (Cannicci, *et al*., 2008).

Thirteen gastropod species make up the invertebrate component in the list of associated species (Appendix 2) for this province (GBIF, 2021). Polychaetes, crustaceans, and molluscs are the dominant aquatic macro-invertebrates in Australian mangrove habitats, while echinoderms, ascidians and coelenterates are also present (Hutchings and Recher, 1982).

Several oyster species are farmed in NSW including the native Sydney rock oyster (Saccostrea glomerata), the introduced Pacific oyster (Magallana gigas =Crassostrea gigas), the native flat oyster (Ostrea angasi) and the Akoya pearl oyster (Pinctada imbricata). Of these species, the Sydney rock oyster is the mainstay of the large oyster industry making up 90% of the $58.4M oyster industry in 2021-22. The industry in the early 1900s had relied heavily on growing this species on cut wooden stakes of the River Mangrove Aegiceras corniculatum.



In northern NSW during the early 1900s, Sydney Rock Oysters were grown extensively using cut stems of River Mangrove Aegiceras corniculatum (Clarke 2013, with permission).

The arboreal environment is dominated by other arthropods, namely insects and arachnids. The northern most part of the province (Mary River Heads to Brunswick Heads) is habitat for the endangered (IUCN, 2022) Illidge Ant-blue Butterfly (*Acrodipsas illidgei*) which is endemic to the RLE province (ALA, N.D.; Breitfuss and Dale, 2021). *Acrodipsas illidgei* has an obligate, myrmecophagous relationship (butterfly larvae predate ant larvae and pupae) with a host arboreal ant, *Crematogaster sp*. (*laevicep*s group) that commonly, but not exclusively, nests in mangrove trees (Beale and Zalucki, 1995; Sampson, 2007; Flanders *et al*., 2013). Research suggests that other ant-plant interactions are also important in mangrove habitats and provide protection and counteract herbivory from other insects and sesarmid crabs (Cannicci, *et al*., 2008) and otherwise impact community composition and tree health (Flanders *et al.*, 2013).

Avicennia marina possesses protandrous, entomophilous flowers (Clarke and Myerscough, 1991, Aluri *et al*., 1994, Williams, 2020) that produce a hexose rich nectar and is highly attractive to flies and bees, including *Apis mellifera* the invasive honeybee (Aluri *et al*., 2012). Williams (2020) observed that *Avicennia marina* flowers in the warm temperate Harrington Inlet (Manning River) of northern New South Wales were visited by a diverse range of native insects, with *Apis mellifera* and 113 other insect species carrying pollen loads after visiting *Avicennia marina* flowers. Williams (2020) concluded that *Avicennia marina* within the Harrington Inlet seasonally recruited from an adjoining littoral rainforest pollinator network. There are also multiple herbivorous insects in the province, including *Doratifera stenosa*. Many invertebrate taxa representing a range of important species actively contribute to mangrove habitat structure, function, health (or disease), and herbivory, were not captured in the current search criteria of the IUCN Red List database.

Herbivorous caterpillars of the Limacod moth Doratifera stenosa (Duke 2002) were observed devouring Rhizophora stylosa leaves in Moreton Bay, SE Queensland (NC Duke).

A diverse range of aquatic vertebrate species make use of mangrove habitat. Their importance to local populations of marine or estuarine fish was demonstrated by Pollard, *et al*. (1994) who studied the impact of flood mitigation works within lower reaches of the Clarence River (New South Wales) and its creeks. These reaches are normally tidal but became freshwater habitats when connectivity to marine waters was disrupted by drainage infrastructure including flood gates. The loss of tidal habitat, including mangroves, correlated with reduced marine and estuarine fish capture data for several local commercial fish and crustacean species. Their role as nurseries, feeding grounds, and as refugia from predation are vital to the population health of both permanent and temporary resident fishes as well as invertebrates (Robertson and Duke, 1990a, 1990b; Lee, 1999, Taylor et al 2018, Jänes et al, 2019, 2020).

The list of associated species (Appendix 2) records 56 bony fish and 9 cartilaginous fish species associated with mangrove habitat within this province (GBIF, 2021). In Botany Bay, New South Wales, 46 species of fish were identified, of which fifteen were categorised as permanent residents (Bell *et al.,* 1984). The mangroves here are important nursery habitats for estuarine and inshore marine fish, with a number of these species then maintaining cyclical temporary residency as adults for feeding (Bell *et al.,* 1984).

Rog *et al*. (2020) surveyed 10 Australian mangrove forests for terrestrial vertebrates. Two sites were in Tropical Queensland and the other eight were within the EC-SE Province, extending from SE Queensland (3), New South Wales (3), and Victoria (2). Sixty-five terrestrial vertebrate species were detected, comprising amphibians (4), reptiles (19) and mammals (42). Thirteen of these were feral specie; amphibians (1), reptiles (1), mammals (11).

Amphibians are not reported in the list of associated species (Appendix 2) for this province (GBIF, 2021). Most amphibians are unlikely to access tidal wetlands due to their intolerance to saline habitats (Kutt, 1977). However, there is evidence elsewhere that, provided the conditions are favourable, native amphibians may utilise mangrove habitat. The green and golden bell frog, *Litoria aurea*, has been observed to visit mangrove creeks on Kooragang Island (within this province in central NSW) to perform breeding activities. It is hypothesised that this is made possible by human disturbance affecting local hydrology and enabling extended periods of freshwater lensing within the mangrove creeks that the frogs take advantage of (Gould, *et al*., 2023). Fauna surveys of Australia's tropical, sub-tropical and temperate east coast mangroves (Rog *et al*., 2020) have also detected the Australian green tree frog (*Litoria caerulea*), Eastern dwarf tree frog (*Litoria fallax*), and the Rocket frog (*Litoria nasuta*), the distribution of each species extending from tropical/sub-tropical Queensland into the temperate coastlines of central and southern New South Wales and, except for *L. nasuta*, into Victoria (ALA, N.D.).

An amphibian of particular concern is the feral cane toad, *Rhinella marina*. Adult cane toads can acclimate to salinities up to 50% seawater (Liggins and Grigg, 1985) with the development of larvae possible at 15% seawater (Ely, 1944). They are observed in mangrove forests (Rajpar and Zakaria, 2014) and can impact community structure through competition, predation, and toxicity towards predators. Field observations demonstrate resistance to toad toxicity by some native species (Norris and Low, 2005; Shine, 2010). However, many other mangrove residents or visitors that predate on adult or larval toads succumb to toad toxin (Shine, 2010). These toads are common in Queensland and the Northern Territory but are now extending their range into northern New South Wales.

Of the seven species of reptiles listed in Appendix 2 for this province (GBIF, 2021) one is reported as critically endangered, the Hawksbill turtle (*Eretmochelys imbricata*). Terrestrial reptiles may be occasional or opportunistic inhabitants of mangrove habitat. Rog *et al*. (2020), for example, observed 19 reptile species in mangrove fauna surveys, 15 of which have ranges that intersect with the sub-tropical and temperate coastlines of the East Central and Southeast Australian Shelf.

Fifty-four species of bird are reported in the list of associated species (Appendix 2) for this province (GBIF, 2021). Australian mangrove bird assemblages are mostly nectarivores (Mohd-Azlan *et al*., 2012). Australian temperate mangroves host reasonably diverse bird assemblages with at least 41 species recorded in mangroves near Newcastle, New South Wales (Goodenough, 2009) compared to more than 70 species reported in North Queensland mangroves (Kutt, 1977). Mohd-Azlan *et al*. (2015) studied the role of mangrove complexity in overall bird species richness and density. They found that high bird species richness and density correlated with plant species richness, the density of the understory and food resource distribution. Australia's temperate mangroves, with low plant species richness and poorer structural diversity, do possess lower bird species richness and density than observed in North Queensland's tropical mangroves. In Victoria, whose mangrove forest is composed of the stunted form of one mangrove species, *Avicennia marina*, there are a variety of aquatic birds that feed or roost regularly within their mangrove habitat including cormorants, ibis, spoonbills, egrets, herons, oystercatchers, Grey-tailed Tattlers, Terek Sandpipers, Common Sandpipers and Greenshank (Harty, 2011).

Five mammal species are reported in the list of associated species (Appendix 2) that are associated with this province (GBIF, 2021). Although Australian mammals are not 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 habitats, including maternity roosting, where some take advantage of tree hollows in old growth mangroves (McConville, *et al*., 2013; McKenzie, *et al*., 2022; Law, *et al*., 2023). Thirteen species of bat, out of 42 mammal species, were observed in Rog's mangrove fauna surveys (Rog *et al.,* 2020).

Introduced ungulate species were observed in Australian sub-tropical and temperate mangroves (Rog *et al*., 2016), including feral pigs (*Sus scrofa*), cattle (*Bos taurus*), and rusa and hog deer (*Rusa timorensis, Axis porcinus*). They cause significant damage to mangrove habitats through sediment disturbance by wallowing and hard hooves, propagule predation, and introduction of weeds. Other visiting species can also cause disruption to mangrove ecosystems including various canids (Canus lupis, Vulpus vulpus), feral cats (Felis catus), rodents (Rattus rattus, Mus musculus), and cane toads (Rhinella marinus). These species may alter competition dynamics, exacerbate predation or introduce toxic interactions.

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.

Abiotic Components of the Ecosystem

Apart from variations in sea level and tides, the dominant abiotic influences on mangroves are temperature and rainfall (Duke et al. 1998a). Many mangrove soils are low in nutrients, especially nitrogen and phosphorus. Regional distributions are influenced by interactions among landscape position, rainfall, hydrology, sea level, sediment dynamics, subsidence, storm-driven processes, and disturbance by pests and predators. Rainfall and sediment supply from rivers and currents promote mangrove establishment and persistence, while waves and large tidal currents destabilise and erode mangrove substrates, mediating local-scale dynamics in ecosystem distributions. High rainfall reduces salinity stress and increases nutrient loading from adjacent catchments, while tidal flushing also regulates salinity.

Wet Summer to Winter Transition

The Australian south-east coast is a high wave-energy coastline, where mangroves are mostly confined within sheltered embayments and estuaries. Of the nearly 200 estuaries and small coastal creeks, about half contain mangroves, covering a combined area of 462 km^2. The floristic diversity notably declines with increasing latitude, from 10 species in southeast Queensland, to two in the Sydney area. *Aegiceras corniculatum* occurs further south to Merimbula Lake after which only scattered individuals of *Avicennia marina* are found in the Wonboyn River and south into Victoria. There are no mangroves in Tasmania. Other species are confined to the northern estuaries of New South Wales (Saintilan *et al*., 2014), with the southernmost occurrence of *Bruguiera gymnorhiza* and *Acrostichum speciosum* (mangrove fern) at Moonee Creek (-30.205725, 153.158090) and *Rhizophora stylosa* at South West Rocks Creek (-30.885305, 153.036978). *Excoecaria agallocha* has been recorded as far south as the Manning River (West *et al*, 1985).

Rhizophora stylosa and *Bruguiera gymnorhiza* are most common in back-barrier areas. Palynological evidence from the Richmond River suggests these species were previously more extensive (Hashimoto *et al* 2006). Their presence in the region had declined over the past 6000 years. This comes in contrast to very recent observations of expansion of *Avicennia marina* into neighbouring saltmarsh habitat in many NSW estuaries. The reason for this recent expansion appears to be related to human influences including rising sea levels and climate change (e.g., Duke et al. 1998a; Duke et al. 2019).

High Human Population Numbers.

Coastal areas have high populations especially along the central coast from Newcastle to Wollongong in New South Wales. Mangroves have been a casualty of the 'sea change' shift bringing further residential and industrial development to coastal areas. Levels of loss are, however, being contained with greater community awareness and better statutory protection.

Feature Sub Areas – SE region

This RLE region occurs within a single country jurisdiction of Australia's south-eastern coastline (spanning 5 State jurisdictions) bordering the Tasman Sea, Bass Strait, and the Great Southern Ocean from the Bustard Heads in Queensland, south along the coast of New South Wales, around the coasts of Victoria and Tasmania, and westwards to its boundary at Cape Jaffa in South Australia.

Mangroves occur naturally along much of this coastline, including the small Australian Capital Territory area of Jervis Bay that sits within New South Wales. To the north, mangrove occurrence is mostly within tidal estuaries, coastal lakes and embayments (Duke 2012a,b). These locations are largely influenced by wet summers, micro tides, and moderate wave exposure. To the south, mangroves occur naturally along sheltered sections mostly within broad inlets and coastal lakes, influenced by cool, continually moist conditions, micro to meso-tides with moderate to severe wave exposure. The different types of mangrove habitat, determined by their distinct geological and physiographic settings, are characterised in seven sub regions each with local catchment areas (*sensu* Duke, 2006).

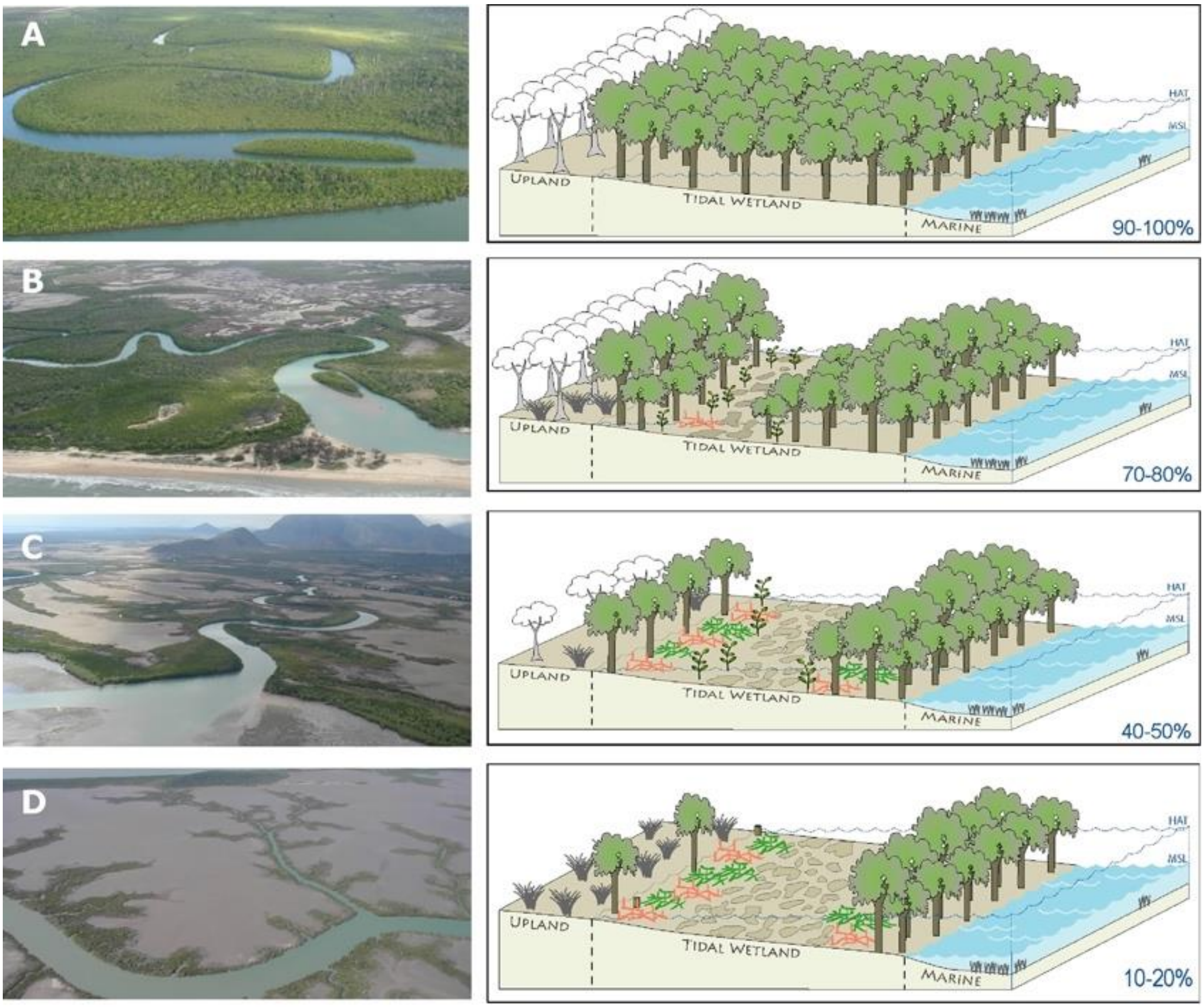


Figure 2. Cover extent of mangrove occurrence across the tidal zone between mean sea level (MSL) and upper-elevation limits (HAT). Mangroves share this zone with tidal saltmarsh and microphyte saltpans, however their respective proportions are proportionate with local rainfall conditions. Accordingly, 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).

Southeast Queensland (SQ) - Subtropical Transition and Large Sand Islands

Curtis Island to Currumbin Creek on the Gold Coast and Tweed Heads - 16 local catchment areas, span humid subtropical areas with meso to micro tides. Brisbane River in Moreton Bay includes 6 species, with *Avicennia marina* dominating and *Aegiceras corniculatum* common in upstream reaches. The region has up to 11 mangroves, with a total mangrove area of ~533 km^2. Throughout the area long-term variations in annual rainfall notably and predictably influence mangrove canopy cover and extent (Duke et al., 2019; Figure 2). The area is also notably affected by lightning strikes creating small (50-100 m2) circular light gaps in otherwise mostly closed canopy stands (Amir & Duke 2019).

Northern Rivers (RN) - Broad River Estuaries and Coastal Creeks

Tweed Heads to the Hastings River at Port Macquarie – 32 estuaries in 7 local catchment areas. The geomorphology of this region is dominated by Holocene and Pleistocene barriers, dissected by large coastal rivers and numerous creeks with micro tides. Mangrove diversity is highest in back-barrier depressions connected to main river channels. Climate is subtropical, with a distinct summer rainfall peak. Frosts are rare to absent. This region has 6 species of mangroves.

Central Coast and Sydney (CN) - Drowned River Valleys

Manning River at Taree, to the Wollongong Coast – 16 estuaries in 7 local catchment areas. The region is characterised by sandstone bedrock coastlines with numerous drowned river valleys, including the Hawkesbury River, Port Jackson, Botany Bay/Georges River and Port Hacking. Mangrove communities consisting of *Avicennia marina* and *Aegiceras corniculatum* dominate these estuaries with the latter species often forming dense thickets upstream. This region has 3 species of mangroves.

South Coast (SN) - Coastal Lakes and Lagoons

Shoalhaven River at Nowra, to Nadgee Lake and Cape Howe – 21 estuaries in 6 local catchment areas. Includes the Jervis Bay Territory. Sandstone bedrock coastlines with few large rivers and numerous barrier estuaries. This region has 2 species of mangroves, with *Avicennia marina* as the dominant mangrove. *Aegiceras corniculatum* is rare, extending as far south as Merimbula Lake. Mangroves may be absent from intermittently closed/open lakes and lagoons. Frosts may be frequent, though not intense.

Gippsland East (GV) - Coastal Lakes and Snowy Mountains

From Andersons Inlet to Mallacoota Inlet – 8 coastal areas, with the largest coastal lake system in the southern hemisphere. Mangroves occur in 3 locations, including: Andersons Inlet near Inverloch in South Gippsland; Corner Inlet and the Nooramunga Marine and Coastal Parks, between Wilsons Promontory National Park and McLoughlins Beach; and, Cunninghame Arm, Lakes Entrance - the latter being the eastern-most mangrove site in Victoria. Corner Inlet is the southern-most mangrove stand in Australia, and this site is also the highest latitude site of any mangrove in the world. The region has one mangrove species, *Avicennia marina*, with a total mangrove area of ~25 km^2.

Port Phillip and Western Port Bays (CV) - Large Sheltered Embayments

From the Barwon River in Port Phillip Bay to the Powlett River in Western Port Bay – 6 coastal areas, characterised by the two large, south facing embayments. Mangroves occur in these two large bays: Port Phillip Bay has three or four mangrove sites, including Barwon Heads within the Barwon River estuary near Geelong, Limeburners Bay and Hovells Creek estuary at Corio, and Williamstown in the Jawbone Flora and Fauna Reserve, at the mouth of Kororoit Creek, and under the West Gate Bridge in the Stony Creek Backwash adjoining the Yarra River estuary around Melbourne; and, mangroves occur throughout Western Port Bay, including French Island and Rhyll and Churchill Islands off Phillip Island. The region has one mangrove species, *Avicennia marina*, with a total mangrove area of ~38 km^2.

Southern Ocean West Coast (VS) - Exposed Cliffs and Rocky Inlets

From Cape Jaffa, South Australia to Discovery Bay and the Glenelg River, and Anglesea and Thompson Creek in Victoria – 7 coastal areas, including South Australia's Limestone Coast, spanning some of the most exposed and rugged coasts in the country. There are no mangroves along this coastline.

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.

3. Ecosystem Threats and vulnerabilities

Main threatening process 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 or direct effects through their shared linkages (Figure 3).

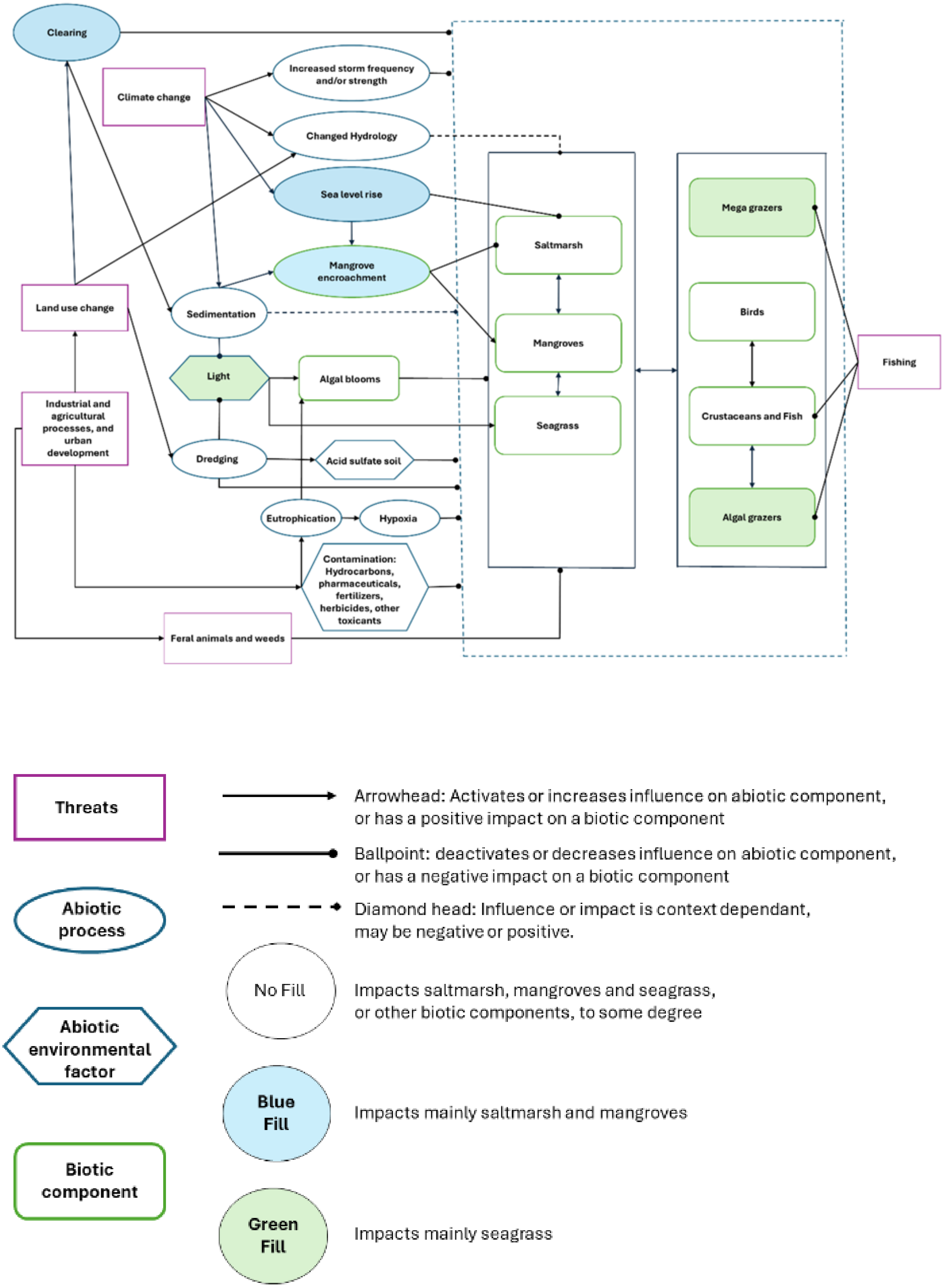
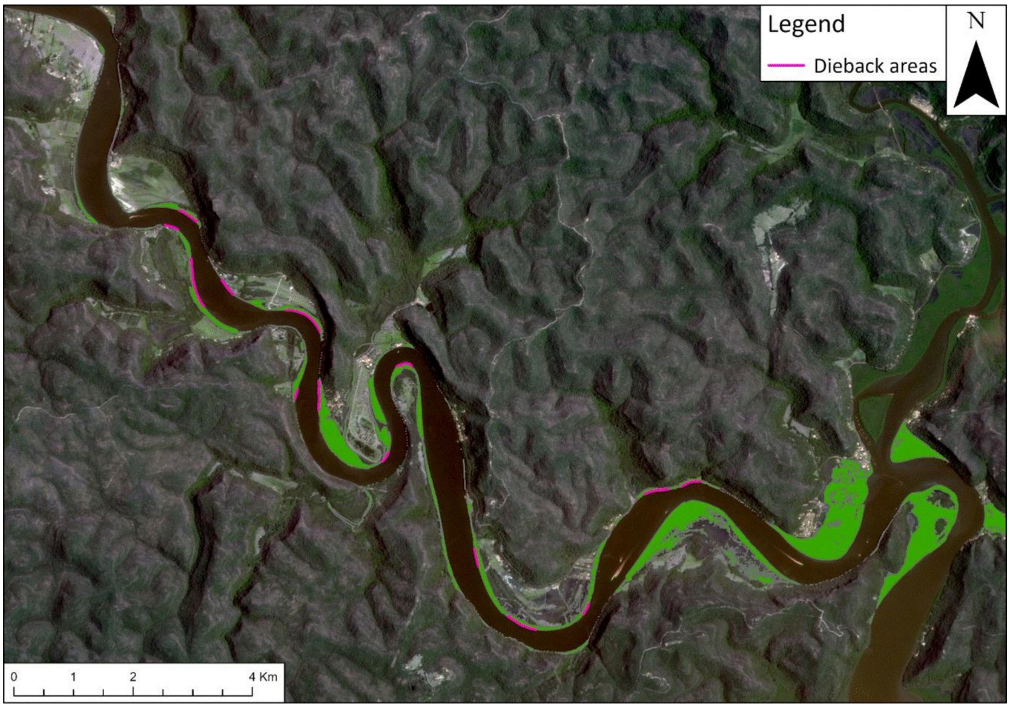


Figure 3. A conceptual model of key processes and threats to the linked inshore and tidal ecosystems of the Australian Coral Sea province. The key threats, represented generically in this diagram, are listed below under Threat Classification in Section 3: Ecosystem Threats and Vulnerabilities (modified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

Mangroves within the RLE are affected by multi-factorial threats, with many continuing to deal with the lasting consequence of earlier actions such as clearing, draining or changing estuary entrance condition with fixed training walls. Along the New South Wales, Victorian and South Australian coastlines only two small estuaries in SE Queensland are relatively unaffected (Murray *et al.,* 2006). Impacts to hydrology including catchment and tidal flows and the sediment supply it delivers can threaten mangrove systems.

The 2021 and 2022 extreme weather events along Australia's east coast were characterised by significant rainfall over extended periods in Southeast Queensland and New South Wales. As a result, many coastal river systems within the East Central and Southeast Australia Shelf experienced flood events. The Hawkesbury River, which lies within the central coast of NSW, experienced four flood events between March 2021 to July 2022. Three exceeded major flood level, a flood height not reached in the previous 30 years. Mangrove dieback events were observed in the upper estuary of the Hawkesbury River following the major flood in March 2021 (Figure 4). *Avicennia marina* was most affected. The flooding resulted in the deposition of large amounts of sandy sediment along the intertidal margin, which smothered the pneumatophores of *A. marina*, and likely caused this mortality (Hughes, 2023). *Aegiceras corniculatum*, which forms the water-side vegetation fringe and sometimes an understory of *A. marina* was less impacted, possibly because they achieve gas exchange through lenticels positioned along their trunk and stems, and leaf stomata (Li and Chan, 2008).



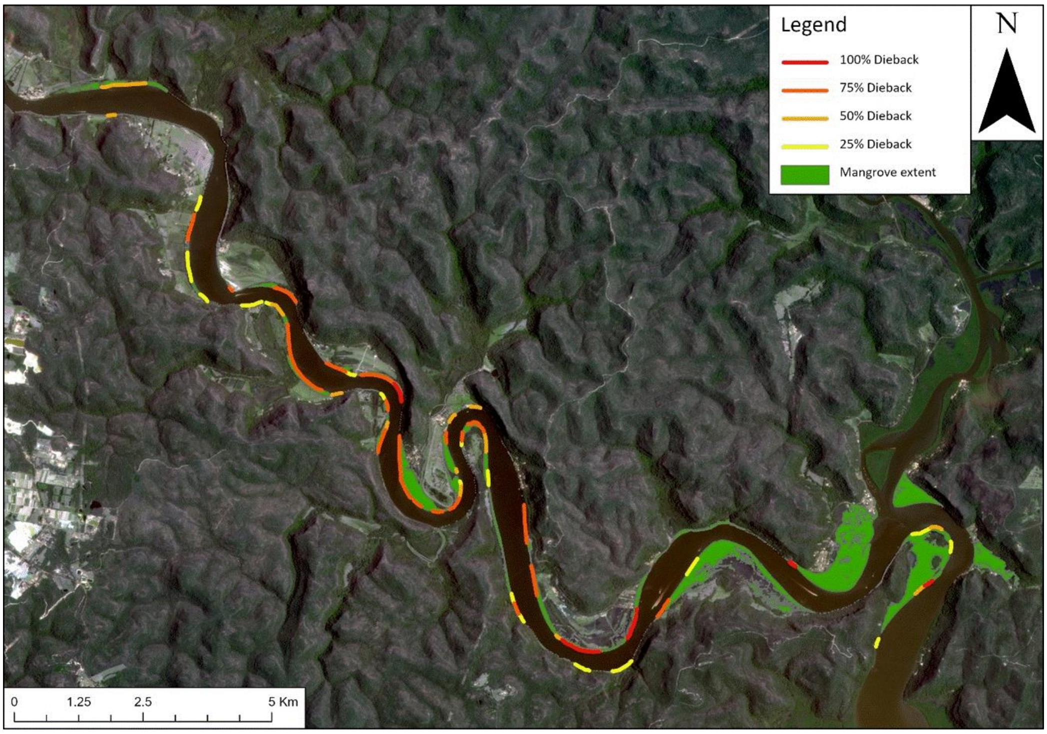


Figure 4. Mangrove dieback area within the Hawkesbury River estuary after (Upper) the March 2021 flood, and (Lower) after floods in March, April (a moderate level flood) and July 2022 (Amy Hughes, with permission).

Hawkesbury River estuary mangrove dieback event. Upper left: Pneumatophores of Avicennia marina. Upper right: Stem lenticels of Aegiceras corniculatum. Lower left: Increased sedimentation on a point bar along the river. Lower right: Living Ae. corniculatum in the foreground understory with dead A. marina behind.

In mid-2021, following the March 2021 rainfall event, a separate dieback event was observed on the Myall River estuary. Here fringing mangroves succumbed, possibly due to prolonged inundation. Severe flooding of the Richmond, Evans and Brisbane estuaries also resulted in widespread dieback. Following a flood in 2011, 92% of mangroves present along part of the Brisbane River died or were severely affected following sediment smothering (Dowling 2012).

Dieback of fringing mangrove on the Richmond River estuary after the February – March 2022 extreme rainfall event.

Mangroves have also been affected by severe bushfires in 2019/2020 (Glasby et al. 2023). Across NSW, these fires affected 19 estuarine systems killing 183 ha of tidal saltmarsh, and 23 ha of mangroves. The worst affected mangroves (*A. marina* and *A. corniculatum*) were those growing adjacent to burnt wet sclerophyll forest. Mangroves died mostly from scalding rather than being charred and burnt. Affected mangroves were almost exclusively associated with extreme or high severity fires in adjacent terrestrial vegetation, yet saltmarshes were also impacted in some cases by moderate or low-intensity fires. Many species of saltmarsh plants re-sprouted or germinated after 6–24 months. By contrast, the majority of fire-affected mangrove trees appeared to be dead 24 months after the fires, despite observations of epicormic growth on some trees after six months. Based on these instances, bushfire impacts on estuarine wetlands are expected to become more frequent. Hazard reduction and clearing of supratidal vegetation is considered essential for minimising damage to mangroves and tidal saltmarsh.

Large areas of mangroves killed mostly by scalding heat from catastrophic bushfires that swept through NSW coastal wet sclerophyll forests in 2019-2020 (Simon Rowe, with permission).

Mangrove habitats are dynamic and naturally resilient in the face of occasional localised catastrophic weather-related events such as temporary but intensive change to the hydrologic cycle. However climate change is resulting in increased severity and frequency of such events, which is likely to decrease the resilience of mangrove ecosystems (Cote and Darling, 2010; Balke, *et al*., 2014; Cinco-Castro and Herrera-Silveira, 2020). The observed mangrove dieback in the upper estuary of the Hawkesbury River increased significantly with successive flood events. This immediately impacts local ecosystem functions that other local flora and fauna rely upon and may cause changes to their populations (Boucek, *et al*., 2022). Catastrophic or increased frequency of disturbance may also induce ecosystem shifts (Asbridge *et al*., 2018; Osland *et al*., 2020).
Mangroves in southern Moreton Bay were severely damaged by a hail storm in 1998 (Duke et al., 2003). The mangrove species most affected were *Rhizophora stylosa* and *Ceriops australis* where trees and shrubs died after leaves had been stripped from their canopies and bark severely scored. In contrast, another dominant

species in the area, *Avicennia marina*, having its leaves stripped off, later resprouted and re-established in the months afterwards. However, in the longer term, numerous surviving large *A. marina* trees later died after being eroded and undermined when exposed sediments were mobilised following the death of surrounding mangrove species.

In 1998, a severe hail storm swept across southern Moreton Bay islands killing around 40 ha of mangroves in a few hours (NC Duke).

In the early 1900s, sticks from black mangroves (*A. corniculatum*) were heavily harvested from large sections of the northern NSW coastline for wooden growing racks used in oyster farms at the time (Clarke 2013). Considering there were 100s of farms, and the annual supply of sticks for individual farms ranged up to 250,000 sticks per year, occurrences of this mangrove species became rare. The local extinction of this species was prevented only when River Mangrove sticks were replaced but cut hardwood sticks in 1945. It is suspected there were lasting effects on the heavily harvested areas. However, the species is considered relatively common today.

Sticks of Aegiceras corniculatum, River Mangrove, were heavily harvested for oyster farm growing racks in the early 1900s (John Clarke, with permission). The long term impacts remain unquantified.

Mangroves have been killed by large oil spills in estuarine systems notably around Sydney and Brisbane (Duke at al. 1998b) and in shipping port areas generally. A spill in the Brisbane River in 2004 caused the death of less than one hectare because it was contained with booms within a small tidal tributary. As a management strategy, this intervention appeared to work despite the death of most mangrove plants and invertebrate fauna within the impounded area. Generally, mangroves are known to be severely damaged by oil spills, and recovery from deforestation takes up to 20 years (Duke 2016).

Mangroves were killed by an oil spill in Lytton Drain, Brisbane River in 2004 (NC Duke).

Habitat loss or change within mangroves or their adjacent terrestrial or marine ecosystems results in altered ecosystem function that may lessen ecosystem resilience and robustness. Yerman and Ross (2004) investigated the importance of adjacent habitat in influencing invertebrate diversity in mangroves in the Parramatta River, an urban river within Sydney, New South Wales. Invertebrate diversity was reduced within mangroves that were adjacent to a built environment, such as bund walls or parks, compared to those next to tidal marsh. The loss of tidal marsh through urban and commercial expansion reduces habitat choice and likely influences nutrient production, recycling, and availability. The authors noted the work of Congdon and McComb (1980), and Clarke (1983), who hypothesised that algal biomass on mangrove pneumatophores was reduced when salt marsh was absent and that this negatively influenced higher trophic levels.

Williams (2020) study, described in the "mangrove fauna" section, illustrated that *Avicennia marina* makes use of an extensive adjacent terrestrial pollinator network. However, these results were not reflected in a separate study in which Hermansen *et al*. (2014b) concluded that, although 38 insect species were observed to visit *Avicennia marina* flowers in two estuaries in central (Georges River) and southern (Minnamurra River) New South Wales, *Apis mellifera* was the dominant pollinator of *Avicennia marina* at both locations.

The observed differences in the effectiveness and composition of the native pollinator networks may reflect differences in study design, an issue Hermansen *et al*. (2014b) discussed with respect to other, earlier studies. However, Williams (2020) study area (Manning River estuary) was adjacent to a significant area of native vegetation, while the Hermansen *et al*. (2014a, b) study areas were surrounded by highly urbanised (Georges River) or mixed urban and agricultural landscapes (Minnamurra River). Altered landscapes and habitat fragmentation adversely affect native pollinators (Potts *et al*., 2010, Chatterjee *et al*., 2025) and may explain the discrepancy in pollinator network diversity between the two studies. The impact of *Apis mellifera* as a competitor to Australian native pollinators is uncertain (Prendergast, *et al*., 2023).

Chatterjee *et al*. (2025) observed that, in tropical mangroves, insect abundance was directly associated with floral abundance, while Hermansen et al. (2014a) showed that the smaller temperate *Avicennia marina* stands attracted fewer *Apis mellifera* visits compared to large stands. Also, *Apis mellifera* is an inefficient pollinator in other habitats, an aspect not fully compensated for by its higher visitor rate to flowers with respect to native pollinators, and which results in slightly lower seed set (Page and Williams, 2022). The smaller *Avicennia marina* stands also experienced higher rates of same plant pollen deposition (geitonogamy) resulting in reduced cross-pollination (Hermansen *et al*., 2014a).

Although land use change and habitat fragmentation reduces pollinator numbers and the composition of pollinator networks the impacts on *Avicennia marina* communities may not be immediately obvious. *Avicennia marina* has protandrous flowers that should promote outcrossing but experience some geitonogamy because of the sequencing and synchrony of flowering and pollinator behaviour. This results in higher rates of maternal abortions of fruit due to inbreeding depression in those flowers (Clarke and Myerscough, 1991). Yet geitonogamy may also support some level of fruit set in isolated colonising plants (Primack et al., 1981) that supports local reproduction and promotes growth of frontier populations around new colonisers (Nathan and Gruner, 2023).

The impact of reduced pollen transfer within or between *Avicennia marina* communities due to decreased pollinator effectiveness may be counteracted by propagule dispersal away from the parent community (Aluri, et al., 2012). However, gene flow between mangrove communities can also be impeded along coastlines where there are strong barriers to propagule dispersion (Binks, et al., 2018).

Definition of the collapsed state of the ecosystem

Ecosystem collapse is recognized when the tree cover of mangrove species dwindles to zero, indicating complete loss of cover (100%). Collapsed mangrove ecosystems may transition to open water, unvegetated salt flats or mudflats or to saltmarsh. Collapsed mangrove ecosystems have abiotic characteristics that exceed tolerances of mangroves. For example, the duration of inundation may be too long or salinity too high to support mangrove growth. Indicators of collapse may include loss of mangrove canopy cover, increases in the area of open water and bare soil, increasing patchiness, or loss of ground surface elevation. However, mangroves can 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 can trigger shifts in this dynamism, potentially leading to ecosystem collapse (Duke 2001; Duke *et al*., 2021.

The reduction or total loss of mangrove trees will result in the loss of ecosystem services they provide. This results in enhanced shoreline erosion and coastal sedimentation, loss of habitat and food provision. Neighbouring terrestrial, coastal and offshore ecosystems may be impacted by the loss of protective and trophic services provided by mangroves.

Ecosystem collapse would be manifest through the following mechanisms (e.g., Duke *et al*., 2021; 2022; 2024): a) restricted recruitment and survival of mangroves due to adverse climatic conditions (e.g., low temperatures); b) alterations in rainfall, river inputs, waves, and tidal currents that destabilize and erode substrates or smother pneumatophores causing mangrove death and hindering recruitment and growth; c) shifts in rainfall patterns, catchment flows and tidal flushing altering salinity stress and nutrient loadings, impacting overall survival; d) impacts of decadal climate patterns such as the interannual variability in sea level associated with El Niño-Southern Oscillation (ENSO) cycle; e) catastrophic events such as cyclones, severe flooding or tsunami wave.

Threat Classification

IUCN Threat Classification (version 3.3, IUCN-CMP, 2022) relevant to mangroves of the East Central and Southeast Australian Shelf province:

1. Residential & commercial development

- 1.1 Housing & urban areas
- 1.2 Commercial & industrial areas
- 1.3 Tourism & recreation areas

2. Agriculture & aquaculture

- 2.3 Livestock farming & ranching
    - 2.3.1 Nomadic grazing
    - 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
    - 2.4.1 Subsistence/artisanal aquaculture
    - 2.4.2 Industrial aquaculture
    - 2.4.3 Scale Unknown/Unrecorded

3. Energy production & mining

- 3.1 Oil & gas drilling
- 3.2 Mining & quarrying
- 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

- 5.2 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
- 5.4 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

- 6.3 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

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
    - 9.2.3 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
  - 9.5.4 Type Unknown/Unrecorded
- 9.6 Excess energy
  - 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

12. Other options

- 12.1 Other threat

* Harvesting of mangroves, particularly *Aegiceras corniculatum* for oyster sticks, was historically a very significant use. While intentional use is now very minimal, there appears to be a legacy of this impact in some areas.

4. Ecosystem Assessment

Criterion A: Reduction in Geographic Distribution

Subcriterion A1 measures the trend in ecosystem extent during the last 50-year time window. Unfortunately, there is currently no common regional dataset that provides information for the entire target area in 1970. However, state-level estimates of mangrove extent can be used to extrapolate the trend between 1970 and 2020, if these are available. Accordingly, we reviewed the literature for reliable published sources that contain information on mangrove area estimates close to 1970 (both before and after) for each Australian state within the province. Although there is evidence of a small extent increase in mangroves between 1987 to 2016 for some parts of the province (Lymburner *et al.,* 2019) and a point estimate at the national level for mangroves from 1979 (Galloway, 1979), these are insufficient to extrapolate a regression in time. Given the lack of available fata, the ecosystem is assessed as **Data Deficient** (**DD**) under subcriterion A1.

Sub-criterion A2 measures the change in ecosystem extent in any 50-year period, including from the present to the future: The East Central and Southeast Australian Shelf province mangroves show a net area change of 0.1% (1996-2020) based on the Global Mangrove Watch time series (Bunting *et al.,* 2022). This value reflects the offset between areas gained (+ 0.5%/year) and lost (- 0.4%/year) over this period. Linear regression of this data provides a small positive slope so that extrapolation to 2070 will result in an additional 2.1 km^2 mangrove habitat over the entire province. Therefore, the ecosystem is assessed as **Least Concern** (**LC**) under sub-criterion A2.

Sub-criterion A3 measures changes in mangrove area since 1750. Based on data derived from Australia's pre-1750 vegetation model (DCCEEW, 2021), the province lost 438 km^2 between 1750 and 2020, which is a loss of 49% of the original mangrove extent. Based on the precautionary principle, we have assessed the East Central and Southeast Australian Shelf mangrove ecosystem as **Vulnerable** (**VU**) under sub-criterion A3.

Overall, the ecosystem is assessed as **Vulnerable** (**VU**) under criterion A.

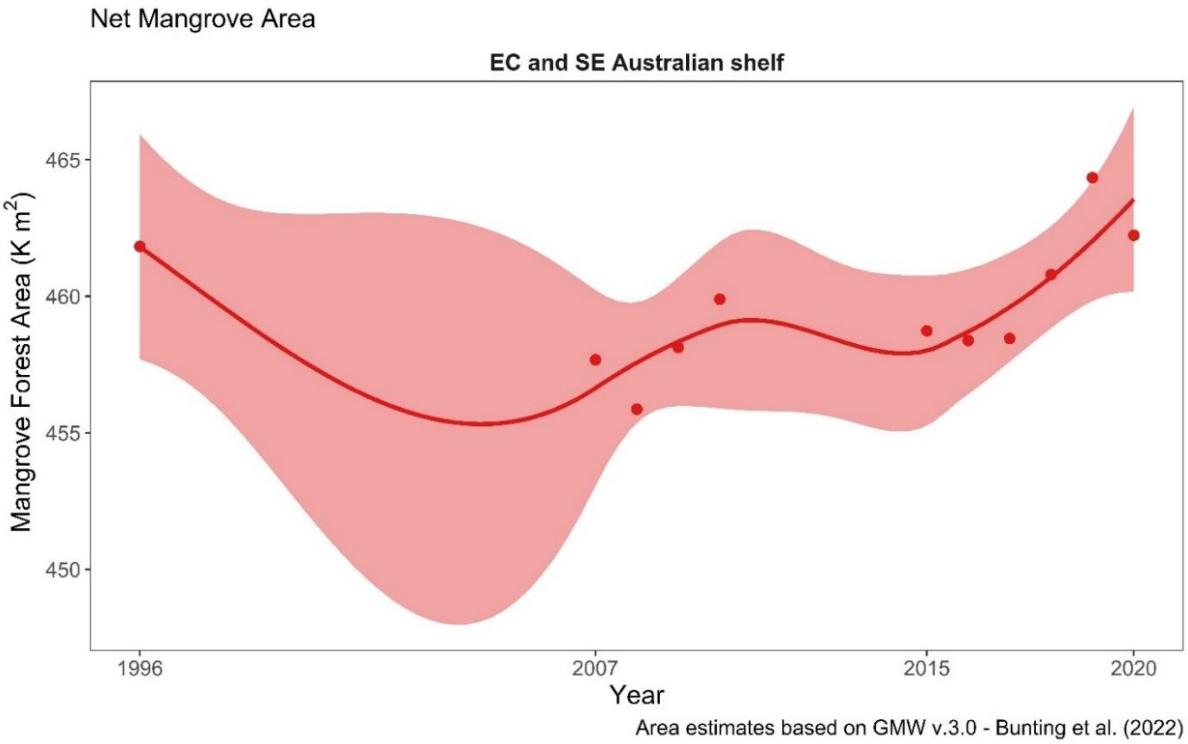


Figure 5. East Central and Southeast Australian Shelf mangrove ecosystem extent between 1996 to 2020 based. Circles represent the province mangrove area between 1996 and 2020 based on the GMW v3.0 dataset and equations in Bunting *et al.*, (2022). The solid line and shaded area are the losses smoothing method and 95% confidence intervals.

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 East Central and Southeast Australian Shelf province mangrove extent (GMW v.3).

Province	Extent of Occurrence EOO (Km^2)	Area of Occupancy (AOO > 1%)	Criterion B
The East Central and Southeast Australian Shelf	585425.1	115	**LC**

For 2020, AOO and EOO were measured as 254 grid cells 10 x 10 km and 585425.1 km^2, respectively (Figure 6). Excluding from the AOO those grid cells that contain patches of mangrove forest that account for less than 1% of the grid cell area, (< 1 km^2), the AOO is measured as **115, 10 x 10 km grid cells** (Figure 6, red grids).

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

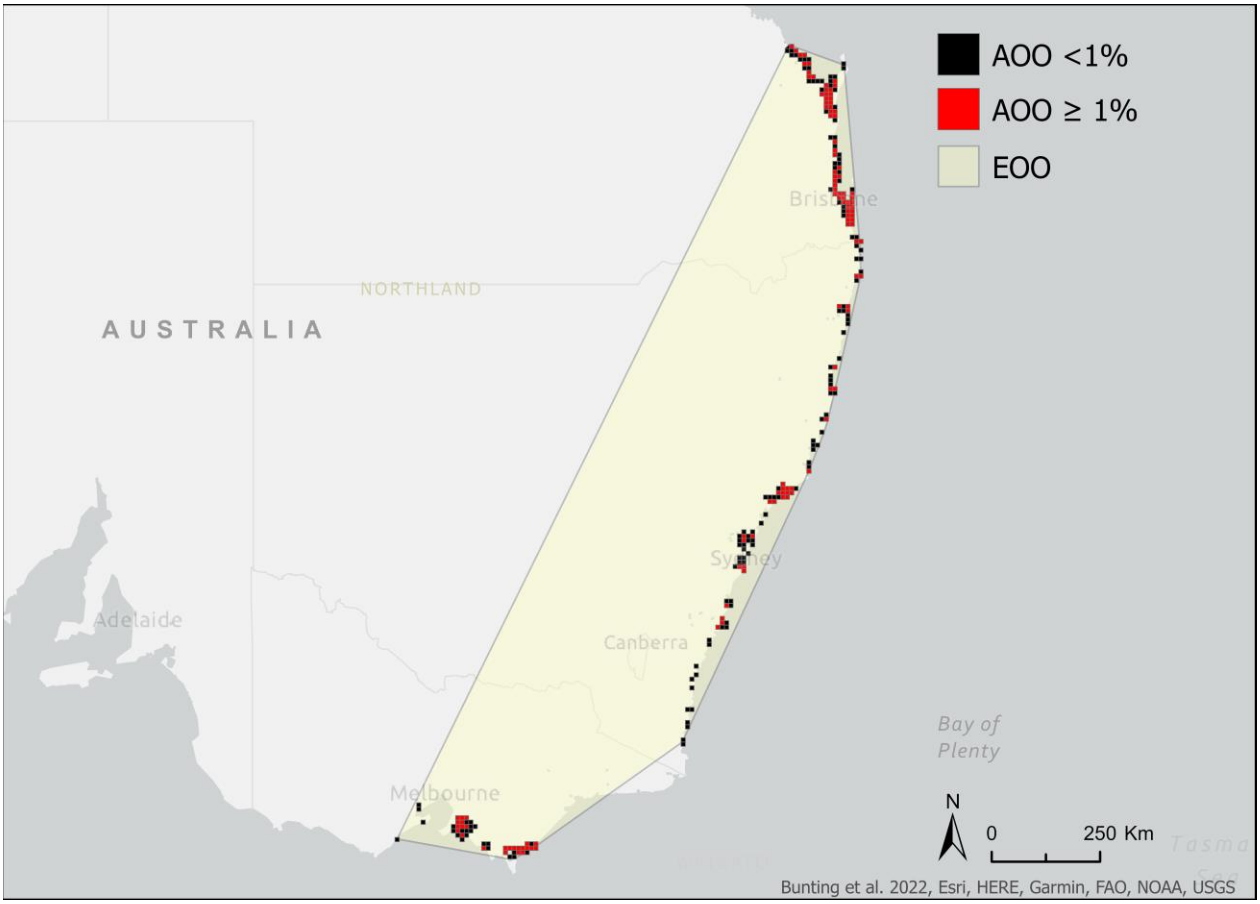


Figure 6. The East Central and Southeast Australian Shelf Mangrove Extent Of Occurrence (EOO) and Area Of Occupancy (AOO) in 2020. Estimates based on 2020 GMW v3.0 spatial layer (Bunting *et al.*, 2022). The red 10 x 10 km grids (n=115.) are more than 1% covered by the ecosystem, and the black grids <1% (n= 139).

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 East Central and Southeast Australian Shelf mangrove ecosystem is classified as **Data Deficient** (**DD**) for sub-criterion C1.

Subcriterion C2 measures environmental degradation in the future, or over any 50-year period, including from the present. In this context, the impact of future sea level rise (SLR) on mangrove ecosystems was assessed by adopting the methodology presented by Schuerch *et al.* (2018). The published model was designed to calculate both absolute and relative change in the extent of wetland ecosystems under various regional SLR scenarios (i.e. medium: RCP 4.5 and high: RCP 8.5), with consideration for sediment accretion. Therefore, Schuerch *et al*. (2018) model was applied to the East Central and Southeast Australian Shelf mangrove ecosystem boundary, using the spatial extent in 2010 (Giri *et al*. (2011) and assuming mangrove landward migration was not possible. Wen *et. al.* (2023) investigated the potential of mangroves in 110 New South Wales estuaries to migrate landward under SLR. They concluded that the state's total lateral accommodation space was confined to a few large riverine estuaries and that saline wetlands were at risk of being lost from most intermittently closed-open lakes and lagoons (ICOLLs) if they cannot vertically accrete at the pace of SLR.

According to the results, under an extreme sea-level rise scenario of a 1.1-meter rise by 2100, the projected submerged area is ~ -33.7% by 2060, which is above 30% but below the 50% risk threshold. Therefore, considering that no mangrove recruitment can occur in a submerged system (100% relative severity), but that -33.7% of the ecosystem extent will be affected by SLR, the East Central and Southeast Australian Shelf mangrove ecosystem is assessed as **Vulnerable** (**VU**) for sub-criterion C2.

Sub-criterion 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 East Central and Southeast Australian Shelf province is classified as **Data Deficient** (**DD**) for this sub-criterion.

Overall, the ecosystem is assessed as **Vulnerable** (**VU**) 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 East Central and Southeast Australian Shelf 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 https://maps.oceanwealth.org/#/mangrove) decay in vegetation indices has been used to identify mangrove degradation and abrupt changes, including mangrove die-back events, clear-cutting, fire damage, and logging; as well as to track mangrove regeneration (Lovelock *et al.,* 2017; Santana, 2019; Murray *et al.,* 2020; Aljahdali *et al.,* 2021; Lee *et al.,* 2021). However, it is important to consider that changes observed in the vegetation indices can also be influenced by data artifacts (Akbar *et al.,* 2020). Therefore, a relative severity level of more than 50%, but less than 80%, was assumed.

The results from this analysis show that over a period of 17 years (~2000 to 2017), approximately 0.7% of the East Central and Southeast Australian Shelf mangrove area is classified as degraded, resulting in an average annual rate of degradation of 0.04%. Assuming this trend remains constant, +2.1% of the East Central and Southeast Australian Shelf mangrove area will 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 East Central and Southeast Australian Shelf mangrove province is assessed as **Least Concern** (**LC**) under sub-criterion D2b.

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

Overall, the East Central and Southeast Australian Shelf ecosystem remains **Least Concern** (**LC**) under criterion D.

Criterion E: Quantitative Risk

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

5. Summary of the Assessment

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

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

Overall, the status of the East Central and Southeast Australian Shelf mangrove ecosystem is assessed as **Vulnerable** (VU).

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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 the unnecessary descriptor in this publication.

7. Appendices

1. List of Key Mangrove Species

List of plant species considered mangroves according to Red List of Threatened Species (RLTS) spatial data (IUCN, 2022). 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	*Avicennia marina*	LC
Magnoliopsida	Malpighiales	Rhizophoraceae	*Bruguiera gymnorhiza*	LC
Magnoliopsida	Malpighiales	Rhizophoraceae	*Rhizophora stylosa*	LC
Magnoliopsida	Ericales	Primulaceae	*Aegiceras corniculatum*	LC
Magnoliopsida	Malpighiales	Euphorbiaceae	*Excoecaria agallocha*	LC
Magnoliopsida	Myrtales	Combretaceae	*Lumnitzera racemosa*	LC
Magnoliopsida	Sapindales	Meliaceae	*Xylocarpus granatum*	LC
Magnoliopsida	Malpighiales	Rhizophoraceae	*Ceriops australis*	LC
Magnoliopsida	Myrtales	Myrtaceae	*Osbornia octodonta*	LC
Magnoliopsida	Caryophyllales	Plumbaginaceae	*Aegialitis annulata*	LC
Polypodiopsida	Polypodiales	Pteridaceae	*Acrostichum speciosum*	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. Two plant associates, *Lagunaria patersonia* and *Schinus terebinthifolia,* are not listed in the Red List but are included here as they are observed in this province's mangrove habitat.

Class	Order	Family	Scientific name	RLTS category	Common name
Magnoliopsida	Ericales	Primulaceae	Aegiceras corniculatum	LC	River Mangrove
Magnoliopsida	Malpighiales	Rhizophoraceae	Bruguiera gymnorhiza	LC	Large-leafed Orange Mangrove
Magnoliopsida	Malpighiales	Rhizophoraceae	Ceriops australis	LC	Smooth-fruited Yellow Mangrove
Magnoliopsida	Lamiales	Acanthaceae	Avicennia marina	LC	Grey Mangrove
Magnoliopsida	Malpighiales	Euphorbiaceae	Excoecaria agallocha	LC	Milky Mangrove
Magnoliopsida	Sapindales	Meliaceae	Xylocarpus granatum	LC	Cannonball Mangrove
Magnoliopsida	Myrtales	Combretaceae	Lumnitzera racemosa	LC	White-flowered Black Mangrove
Magnoliopsida	Myrtales	Myrtaceae	Osbornia octodonta	LC	Myrtle Mangrove
Magnoliopsida	Malpighiales	Rhizophoraceae	Rhizophora stylosa	LC	Stilted-red Mangrove
Magnoliopsida	Caryophyllales	Plumbaginaceae	Aegialitis annulata	LC	Club Mangrove
Polypodiopsida	Polypodiales	Pteridaceae	Acrostichum speciosum	LC	Mangrove Fern
Magnoliopsida	Malvales	Malvaceae	Lagunaria patersonia	NE	Norfolk Island Hibiscus
Magnoliopsida	Sapindales	Anacardiaceae	Schinus terebinthifolia	NE	Broad-leafed Pepper Tree
Magnoliopsida	Malvales	Malvaceae	Thespesia populnea	LC	Portia Tree
Magnoliopsida	Malvales	Malvaceae	Hibiscus tiliaceous	LC	Coast Cottonwood
Holothuroidea	Aspidochirotida	Holothuriidae	Holothuria impatiens	DD	Bottleneck Sea Cucumber

Class	Order	Family	Scientific name	RLTS category	Common name
Holothuroidea	Aspidochirotida	Holothuriidae	Holothuria scabra	EN	Golden Sandfish, Sandfish
Insecta	Lepidoptera	Lycaenidae	Acrodipsas illidgei	EN	Illidgei's Ant-blue Butterfly
Insecta	Lepidoptera	Limacodidae	Doratifera stenosa	LC	Mangrove Moth
Bivalvia	Ostreida	Ostreidae	Saccostrea glomerata	LC	Sydney Rock Oyster
Bivalvia	Ostreida	Ostreidae	Magallana gigas	LC	Pacific Oyster
Gastropoda	Ellobiida	Ellobiidae	Auriculastra subula	LC	NA
Gastropoda	Ellobiida	Ellobiidae	Cassidula aurisfelis	LC	Cat's Ear Cassidula
Gastropoda	Ellobiida	Ellobiidae	Laemodonta bella	LC	NA
Gastropoda	Ellobiida	Ellobiidae	Laemodonta punctigera	LC	NA
Gastropoda	Ellobiida	Ellobiidae	Laemodonta striata	LC	NA
Gastropoda	Ellobiida	Ellobiidae	Ophicardelus sulcatus	LC	NA
Gastropoda	Ellobiida	Ellobiidae	Pleuroloba quoyi	LC	NA
Gastropoda	Littorinimorpha	Littorinidae	Littoraria undulata	LC	NA
Gastropoda	Littorinimorpha	Tateidae	Ascorhis tasmanica	LC	NA
Gastropoda	Neogastropoda	Conidae	Conus frigidus	LC	Frigid Cone
Gastropoda	Neogastropoda	Conidae	Conus varius	LC	NA
Gastropoda	Pylopulmonata	Amphibolidae	Salinator solida	LC	NA
Gastropoda	Sorbeoconcha	Potamididae	Cerithium coralium	LC	Coral Cerith
Gastropoda	Sorbeoconcha	Thiaridae	Sermyla riqueti	LC	NA
Chondrichthyes	Carcharhiniformes	Carcharhinidae	Carcharhinus amblyrhynchoides	VU	Chalarm Nah-moo, Cucut lanjaman, Graceful Shark, Pating, Yu
Chondrichthyes	Carcharhiniformes	Carcharhinidae	Carcharhinus amboinensis	VU	Hiu buas, Java Shark, Javahaj, Merak bulu, Mongiwa, Pigeye Shark
Chondrichthyes	Carcharhiniformes	Carcharhinidae	Carcharhinus cautus	LC	Nervous Shark

Class	Order	Family	Scientific name	RLTS category	Common name
Chondrichthyes	Carcharhiniformes	Carcharhinidae	Negaprion acutidens	EN	Gursh, Sharptooth Lemon Shark
Chondrichthyes	Myliobatiformes	Dasyatidae	Maculabatis toshi	LC	Brown Whipray
Chondrichthyes	Myliobatiformes	Dasyatidae	Pastinachus ater	VU	Amarbirra, Banana-tail Ray, Broad Cowtail Ray, Par, Pari Bendera, Pari Daun, Pari Nyonya, Pari Tanjung, Yimarbirra
Chondrichthyes	Myliobatiformes	Dasyatidae	Taeniura lymma	LC	Bluespotted Fantail Ray, Bluespotted Lagoon Ray, Bluespotted Ribbontail, Bluespotted Ribbontail Ray, Ribbontailed Stingray
Chondrichthyes	Rhinopristiformes	Pristidae	Anoxypristis cuspidata	EN	Knifetooth Sawfish, Narrow Sawfish, Pejepeine, Pez Sierra, Pointed Sawfish, Poisson-scie, Sayyaf, Sayyafah
Chondrichthyes	Rhinopristiformes	Pristidae	Pristis zijsron	CR	Blundo, Green Sawfish, Narrowsnout Sawfish, Olive Sawfish, Pejepeine, Poisson-scie, Sayyaf
Actinopterygii	Albuliformes	Albulidae	Albula glossodonta	VU	Shortjaw Bonefish
Actinopterygii	Anguilliformes	Ophichthidae	Scolecenchelys	LC	Narrow Worm Eel,

Class	Order	Family	Scientific name	RLTS category	Common name
			macroptera		Slender Snake Eel
Actinopterygii	Aulopiformes	Synodontidae	Saurida nebulosa	LC	Anoli Nuageux, Blotched Grinner, Blotched Saury, Clouded Lizardfish, Clouded Saury, Lagarto Nubafero, Nebulous Lizardfish, Poisson-lazard Nabuleux
Actinopterygii	Aulopiformes	Synodontidae	Synodus sageneus	LC	Anoli Poignard, Lagarto Espadachin, Speartoothed Grinner
Actinopterygii	Beloniformes	Zenarchopteridae	Zenarchopterus buffonis	LC	Buffon's River Garfish
Actinopterygii	Beloniformes	Zenarchopteridae	Zenarchopterus dispar	LC	Bigiw, Estuarine Halfbeak, Feathered River-garfish, Hamiramphe Dissemblable, Halfbeak, I'usila, Jolong Kajangan, Jolong-jolong, Kajangan, Kansusuit, Kolaan, Morella, Patlay, Sa-sa, Siriw, Spoon-fin Garfish, Spoonfin River Garfish, Suasid, Sugi, Susay, Viviparous Garfish, Viviparous

Class	Order	Family	Scientific name	RLTS category	Common name
					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	Clupeiformes	Engraulidae	Stolephorus carpentariae	LC	Gulf of Carpenteria Anchovy
Actinopterygii	Clupeiformes	Pristigasteridae	Pellona ditchela	LC	Indian Pellona, Ummusfeta
Actinopterygii	Elopiformes	Elopidae	Elops hawaiensis	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, Guinée Saumon, Hawaiian Giant Herring, Hawaiian Ladyfish, Hawaiian Tarpon, Hawaiian Tenpounder, Karaiwashi, Kara-iwashi, Kugao, Ladyfish, Lulong,

Class	Order	Family	Scientific name	RLTS category	Common name
					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	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 koilomatodon	LC	Bufanlueai, Durmiente, Marblecheek Sleeper, Modder-slaper, Mud Sleeper, Puntang
Actinopterygii	Gobiiformes	Eleotridae	Eleotris acanthopomus	LC	Chichibu-modoki, Spine-cheek Gudgeon
Actinopterygii	Gobiiformes	Eleotridae	Ophiocara porocephala	LC	Bau, Cabot des

Class	Order	Family	Scientific name	RLTS category	Common name
					Seychelles, Flathead Sleeper, Hoshimadarahaze, Matapolo, Northern Mud Gudgeon, Paku, Schlangenkopf-Schläfergrundel, Spangled Gudgeon
Actinopterygii	Gobiiformes	Eleotridae	Prionobutis microps	LC	Small-eyed Sleeper
Actinopterygii	Gobiiformes	Gobiidae	Asterropteryx semipunctata	LC	Bluespotted Goby, Halfspotted Goby, Star-finned Goby, Starry Goby, Starryfin Goby
Actinopterygii	Gobiiformes	Gobiidae	Drombus triangularis	LC	Brown Drombus
Actinopterygii	Gobiiformes	Gobiidae	Glossogobius circumspectus	LC	Circumspect Flat-head Goby, Circumspect Goby, Mangrove Flathead Goby
Actinopterygii	Gobiiformes	Gobiidae	Istigobius ornatus	LC	Ornate Goby
Actinopterygii	Gobiiformes	Gobiidae	Mugilogobius mertoni	LC	Chequered Mangrove Goby, Gobi milet, Merton's Mangrove Goby
Actinopterygii	Gobiiformes	Gobiidae	Mugilogobius notospilus	LC	Freshwater Mangrove Goby, Island Goby, Pacific Mangrove Goby
Actinopterygii	Gobiiformes	Gobiidae	Oxyurichthys ophthalmonema	LC	Eyebrow Goby, Tentacle-goby
Actinopterygii	Gobiiformes	Gobiidae	Parachaeturichthys	LC	Lancet-tail Goby,

Class	Order	Family	Scientific name	RLTS category	Common name
			polynema		Ocellus-tail Goby, Taileyed Goby
Actinopterygii	Gobiiformes	Gobiidae	Paratrypauchen microcephalus	LC	Blind Goby, Comb Goby, Red Eel Goby
Actinopterygii	Gobiiformes	Gobiidae	Taenioides cirratus	DD	Bearded Wormgoby, Whiskered Eel Goby
Actinopterygii	Gobiiformes	Gobiidae	Yongeichthys nebulosus	LC	Hair-finned Goby, Shadow Goby
Actinopterygii	Mugiliformes	Mugilidae	Planiliza subviridis	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	Encheliophis homei	LC	Silver Pearlfish
Actinopterygii	Perciformes	Ambassidae	Ambassis marianus	LC	Estuary Perchlet, Ramsay's Glassfish
Actinopterygii	Perciformes	Apogonidae	Fowleria variegata	LC	Multi-spotted Cardinalfish, Peppered Cardinalfish, Spotted Cardinalfish, Variegated Cardinalfish
Actinopterygii	Perciformes	Blenniidae	Omobranchus verticalis	LC	NA

Class	Order	Family	Scientific name	RLTS category	Common name
Actinopterygii	Perciformes	Caesionidae	Caesio cuning	LC	Caesio à Ventre Rouge, Fusilero Vientre Colorado, Red-bellied Fusilier, Redbelly yellowtail fusilier, Robust Fusilier, Yellow-tail Fusilier
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	Marou Malabare, Malabar Grouper,

Class	Order	Family	Scientific name	RLTS category	Common name
					Mero Malabarico
Actinopterygii	Perciformes	Epinephelidae	Epinephelus tauvina	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	Haemulidae	Diagramma labiosum	LC	Painted Sweetlips
Actinopterygii	Perciformes	Haemulidae	Plectorhinchus gibbosus	LC	Brown Sweetlips
Actinopterygii	Perciformes	Haemulidae	Pomadasys kaakan	LC	Grondeur javelot, Javelin Grunter, Spotted Grunter-bream, Spotted Javelinfish, Yellow-finned Javelin-fish
Actinopterygii	Perciformes	Labridae	Novaculichthys macrolepidotus	LC	ahire-tensumodoki, Green-banner wrasse, Seagrass nurse, Seagrass razorfish, Seagrass wrasse
Actinopterygii	Perciformes	Lethrinidae	Lethrinus genivittatus	LC	Chul-gal-dom, Communard, Ito-fuefuki, Ito-fue-fuki, Ketambak, Kiros,

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					Lancer, Landok, Longspine Emperor, Mempinang, Pelandok, Thread-fin Emperor
Actinopterygii	Perciformes	Lethrinidae	Lethrinus laticaudis	LC	Grass Emperor, Grass Sweetlip
Actinopterygii	Perciformes	Lethrinidae	Lethrinus nebulosus	LC	Bec-de-cane nuageux, Capitaine blanc, Capitaine rouge, Emperador Relámpago, Empereur Moris, Lesser Spangled Emperor, Lethrinus nuageux, Spangled Emperor
Actinopterygii	Perciformes	Lutjanidae	Lutjanus argentimaculatus	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 Dientan, Pargo Rabo Amarillo, Purple Sea Perch, Red Bass, Red Bream, Red Perch,

Class	Order	Family	Scientific name	RLTS category	Common name
					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	Lutjanus fulviflamma	LC	Black-spot Sea Perch, Blackspot Seaperch, Blackspot Snapper, Black-spot Snapper, Carpe, Chemise, Daurade Tache Noire, Dorade 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,

Class	Order	Family	Scientific name	RLTS category	Common name
					Dorade de Palatuvier, 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
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

Class	Order	Family	Scientific name	RLTS category	Common name
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, Red Kelp, Redfish, Seba's Snapper, Vivaneau Bourgeois
Actinopterygii	Perciformes	Microdesmidae	Parioglossus formosus	LC	NA
Actinopterygii	Perciformes	Microdesmidae	Parioglossus taeniatus	LC	Slim Striped Dartfish, Striped Dartfish, Taeniatus Dartfish, Taeniatus Hover Goby
Actinopterygii	Perciformes	Mullidae	Parupeneus barberinus	LC	Barberin, Barbet raya, 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

Class	Order	Family	Scientific name	RLTS category	Common name
Actinopterygii	Perciformes	Pomacentridae	Dascyllus trimaculatus	LC	Demoiselle trois taches, Domino Damselfish, Domino Noir, Three-spot Damsel, Threespot Damselfish, Three-spot Dascyllus, Three-spot Humbug
Actinopterygii	Perciformes	Pomacentridae	Dischistodus pseudochrysopoecilus	LC	Monarch Damsel
Actinopterygii	Perciformes	Pomacentridae	Neopomacentrus azysron	LC	Orange-tailed Damselfish, Yellowtail Damsel, Yellowtail Demoiselle
Actinopterygii	Perciformes	Scatophagidae	Scatophagus argus	LC	Almindelig Argusfisk, Argus, Argus Fish, Argusfisch, Argusfisk, Bushami, Butter Fish, Butterfish, Common Scat, Gemeiner Argusfisch, Graner Argusfisch, Kurohoshimanjadai, Leopard Scat, Pavillon Tacheta, Pingo Manchado, Plettet argusfisk, Scat, Spotted Butt, Spotted Butter Fish, Spotted Butterfish, Spotted Scad, Spotted Scat

Class	Order	Family	Scientific name	RLTS category	Common name
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 Toothed Hammer Croaker, Sharpnose Hammer Croaker, Sharp-toothed Hammer Croaker
Actinopterygii	Perciformes	Sparidae	Acanthopagrus australis	LC	Australian Sea Bream, Australian Seabream, Black Bream, Bream, Common Bream, Eastern Black Bream, Sea Bream, Silver Bream, Surf Bream, Yellowfin Bream
Actinopterygii	Perciformes	Toxotidae	Toxotes jaculatrix	LC	Banded Archerfish
Actinopterygii	Pleuronectiformes	Cynoglossidae	Paraplagusia guttata	DD	NA
Actinopterygii	Pleuronectiformes	Cynoglossidae	Paraplagusia sinerama	LC	Dusky Tongue Sole
Actinopterygii	Pleuronectiformes	Paralichthyidae	Pseudorhombus arsius	LC	False Brill, Largetooth Flounder, Lenguado Dentudo, Rite Dentu, Smooth-scale Brill
Actinopterygii	Pleuronectiformes	Rhombosoleidae	Ammotretis rostratus	DD	Bay Flounder, Long-nosed Flounder, Longsnout Flounder

Class	Order	Family	Scientific name	RLTS category	Common name
Actinopterygii	Pleuronectiformes	Soleidae	Phyllichthys sclerolepis	DD	Hardscale Sole
Actinopterygii	Syngnathiformes	Syngnathidae	Hippichthys cyanospilos	LC	Blouspikkelde-pypvis, Bluespeckled Pipefish, Blue-spotted Pipefish, Dagum-dagum, Hakuten-yaji, 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, Dagum-dagum, Freshwater pipefish, Madura Pipefish, Pipefish, Reticulated Freshwater Pipefish, Short-snouted pipefish, Small-headed 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,

Class	Order	Family	Scientific name	RLTS category	Common name
					Indische Seenadel, Indisk ferskvandsnaylefisk, Kawa-ya´ji, Okaneula, Trey krawpoeu
Actinopterygii	Syngnathiformes	Syngnathidae	Kaupus costatus	LC	Deep-bodied pipefish, Deepbody pipefish
Actinopterygii	Tetraodontiformes	Tetraodontidae	Arothron hispidus	LC	Ballon apaule Noire, Ballon Pintade, Botete Panza Rayada, Botete Pintado, Bourse-du-sable, Broadbarred Toadfish, Compère à Taches Blanches, Poisson-ballona 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

Class	Order	Family	Scientific name	RLTS category	Common name
Actinopterygii	Tetraodontiformes	Tetraodontidae	Arothron manilensis	LC	Narrow-lined Puffer, Narrow-lined Pufferfish, Narrowlined Toadfish, Striped Puffer
Actinopterygii	Tetraodontiformes	Tetraodontidae	Arothron reticularis	LC	Reticulated Blow Fish, Reticulated Blowfish, Reticulated Puffer, Reticulated Pufferfish, Reticulated Toadfish
Actinopterygii	Tetraodontiformes	Tetraodontidae	Arothron stellatus	LC	Ballon Atoila, Ballon Constella, Poisson-ballon, Star Blaasop, Star Puffer, Staring Blow Fish, Starry Pufferfish, Starry Toadfish, Stellate Puffer
Actinopterygii	Tetraodontiformes	Tetraodontidae	Contusus brevicaudus	LC	Prickly Toadfish
Actinopterygii	Tetraodontiformes	Tetraodontidae	Lagocephalus lunaris	LC	Green Rough-backed Puffer, Lunartail Puffer, Moontail Puffer
Actinopterygii	Tetraodontiformes	Tetraodontidae	Marilyna pleurosticta	LC	Banded Toadfish
Actinopterygii	Tetraodontiformes	Tetraodontidae	Takifugu oblongus	LC	Lattice Blaasop, Oblong Blow Fish
Actinopterygii	Tetraodontiformes	Tetraodontidae	Tetractenos glaber	LC	Smooth Toadfish
Actinopterygii	Tetraodontiformes	Tetraodontidae	Tetractenos hamiltoni	LC	Common Toadfish
Amphibia	Anura	Myobatrachidae	Pseudophryne coriacea	LC	Keferstein's Toadlet, Red-backed Toadlet

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Reptilia	Squamata	Colubridae	Boiga irregularis	LC	Brown Catsnake, Brown Tree Snake
Reptilia	Squamata	Colubridae	Dendrelaphis punctulatus	LC	Common Tree Snake, Green Tree Snake
Reptilia	Squamata	Elapidae	Cryptophis nigrescens	LC	Eastern Small-eyed Snake, Short-tailed Snake, Small-eyed Snake
Reptilia	Squamata	Scincidae	Ctenotus robustus	LC	Robust Ctenotus, Striped Skink
Reptilia	Squamata	Scincidae	Lampropholis delicata	LC	Dark-flecked Garden Sunskink, Garden Skink, Grass Skink, Rainbow Skink
Reptilia	Squamata	Varanidae	Varanus panoptes	LC	Hornâ's Monitor, Yellow-spotted Monitor
Reptilia	Testudines	Cheloniidae	Eretmochelys imbricata	CR	Caret, Hawksbill Turtle, Tortue à Écailles, Tortue à Bec Faucon, Tortue Caret, Tortue imbriqua, Tortuga de Carey
Aves	Accipitriformes	Accipitridae	Accipiter cirrocephalus	LC	Collared Sparrowhawk
Aves	Accipitriformes	Accipitridae	Accipiter novaehollandiae	LC	Grey Goshawk
Aves	Accipitriformes	Accipitridae	Aviceda subcristata	LC	Pacific Baza
Aves	Accipitriformes	Accipitridae	Haliastur indus	LC	Brahminy Kite
Aves	Accipitriformes	Pandionidae	Pandion haliaetus	LC	Balbuzard Pacheur, Osprey

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Aves	Anseriformes	Anatidae	Anas castanea	LC	Chestnut Teal
Aves	Anseriformes	Anatidae	Radjah radjah	LC	Radjah Shelduck, Raja Shelduck
Aves	Caprimulgiformes	Aegothelidae	Aegotheles cristatus	LC	Australian Owlet-Nightjar
Aves	Caprimulgiformes	Caprimulgidae	Caprimulgus macrurus	LC	Large-tailed Nightjar
Aves	Caprimulgiformes	Caprimulgidae	Eurostopodus argus	LC	Spotted Eared-Nightjar, Spotted Nightjar
Aves	Charadriiformes	Charadriidae	Charadrius mongolus	LC	Lesser Sandplover, Lesser Sand-Plover, Mongolian Dotterel, Mongolian Plover, Pluvier de Mongolie
Aves	Charadriiformes	Charadriidae	Pluvialis fulva	LC	Pacific Golden Plover, Pacific Golden-Plover, Pluvier Dora Oriental
Aves	Charadriiformes	Scolopacidae	Actitis hypoleucos	LC	Chevalier Guignette, Common Sandpiper
Aves	Charadriiformes	Scolopacidae	Numenius phaeopus	LC	Courlis Corlieu, Whimbrel
Aves	Charadriiformes	Scolopacidae	Tringa nebularia	LC	Chevalier Aboyeur, Common Greenshank, Greenshank
Aves	Charadriiformes	Scolopacidae	Xenus cinereus	LC	Chevalier de Tarek, Terek Sandpiper
Aves	Ciconiiformes	Ciconiidae	Ephippiorhynchus asiaticus	NT	Black-necked Stork, Jabiru Asiatico
Aves	Columbiformes	Columbidae	Chalcophaps longirostris	LC	Brown-capped Emerald Dove

Class	Order	Family	Scientific name	RLTS category	Common name
Aves	Columbiformes	Columbidae	Phaps chalcoptera	LC	Common Bronzewing
Aves	Columbiformes	Columbidae	Ptilinopus regina	LC	Rose-crowned Fruit Dove, Rose-crowned Fruit-Dove
Aves	Columbiformes	Columbidae	Ptilinopus superbus	LC	Eastern Superb Fruit-dove, Superb Fruit Dove, Superb Fruit-dove
Aves	Coraciiformes	Alcedinidae	Ceyx azureus	LC	Azure Kingfisher
Aves	Coraciiformes	Alcedinidae	Dacelo leachii	LC	Blue-winged Kookaburra
Aves	Coraciiformes	Alcedinidae	Todiramphus chloris	LC	Collared Kingfisher, Martin-chasseur Collier Nlanc, White-collared Kingfisher
Aves	Coraciiformes	Alcedinidae	Todiramphus macleayii	LC	Forest Kingfisher
Aves	Coraciiformes	Alcedinidae	Todiramphus sanctus	LC	Sacred Kingfisher
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	Hypotaenidia	LC	Banded Land-Rail,

Class	Order	Family	Scientific name	RLTS category	Common name
			philippensis		Banded Rail, Buff-banded Rail, Racle tiklin, Sharpe's Rail
Aves	Gruiformes	Rallidae	Porzana fluminea	LC	Australian Crake, Australian Spotted Crake
Aves	Passeriformes	Acanthizidae	Acanthiza iredalei	LC	Slender-billed Thornbill
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 mouki	LC	Brown Gerygone
Aves	Passeriformes	Acanthizidae	Sericornis frontalis	LC	White-browed Scrubwren
Aves	Passeriformes	Artamidae	Artamus cinereus	LC	Black-faced Woodswallow
Aves	Passeriformes	Artamidae	Artamus leucoryn	LC	White-breasted Woodswallow
Aves	Passeriformes	Artamidae	Artamus personatus	LC	Masked Woodswallow
Aves	Passeriformes	Campephagidae	Coracina novaehollandiae	LC	Black-faced Cuckooshrike, Black-faced Cuckoo-shrike
Aves	Passeriformes	Campephagidae	Coracina papuensis	LC	White-bellied Cuckooshrike, White-bellied Cuckoo-shrike
Aves	Passeriformes	Campephagidae	Edolisoma tenuirostre	LC	Slender-billed Cicadabird
Aves	Passeriformes	Campephagidae	Lalage leucomela	LC	Varied Triller
Aves	Passeriformes	Dicaeidae	Dicaeum hirundinaceum	LC	Mistletoebird
Aves	Passeriformes	Dicruridae	Dicrurus bracteatus	LC	Spangled Drongo

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Aves	Passeriformes	Estrildidae	Lonchura castaneothorax	LC	Chestnut-breasted Mannikin, Chestnut-breasted Munia
Aves	Passeriformes	Estrildidae	Neochmia temporalis	LC	Red-browed Finch, Red-browed Firetail
Aves	Passeriformes	Locustellidae	Poodytes gramineus	LC	Little Grassbird
Aves	Passeriformes	Meliphagidae	Conopophila rufogularis	LC	Rufous-throated Honeyeater
Aves	Passeriformes	Meliphagidae	Entomyzon cyanotis	LC	Blue-faced Honeyeater
Aves	Passeriformes	Meliphagidae	Epthianura albifrons	LC	White-fronted Chat
Aves	Passeriformes	Meliphagidae	Gavicalis fasciogularis	LC	Mangrove Honeyeater
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	Melithreptus albogularis	LC	White-throated Honeyeater
Aves	Passeriformes	Meliphagidae	Myzomela obscura	LC	Dusky Myzomela
Aves	Passeriformes	Meliphagidae	Myzomela sanguinolenta	LC	Scarlet Honeyeater, Scarlet Myzomela
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	Monarchidae	Carterornis leucotis	LC	White-eared Monarch
Aves	Passeriformes	Monarchidae	Monarcha melanopsis	LC	Black-faced Monarch
Aves	Passeriformes	Monarchidae	Myiagra alecto	LC	Shining Flycatcher
Aves	Passeriformes	Monarchidae	Myiagra rubecula	LC	Leaden Flycatcher
Aves	Passeriformes	Monarchidae	Symposiachrus trivirgatus	LC	Spectacled Monarch

Class	Order	Family	Scientific name	RLTS category	Common name
Aves	Passeriformes	Nectariniidae	Cinnyris jugularis	LC	Olive-backed Sunbird
Aves	Passeriformes	Oriolidae	Sphecotheres vieilloti	LC	Australasian Figbird
Aves	Passeriformes	Pachycephalidae	Colluricincla harmonica	LC	Grey Shrikethrush, Grey Shrike-thrush
Aves	Passeriformes	Pachycephalidae	Colluricincla megarhyncha	LC	Little Shrikethrush, Little Shrike-thrush
Aves	Passeriformes	Pachycephalidae	Pachycephala pectoralis	LC	Golden Whistler
Aves	Passeriformes	Pachycephalidae	Pachycephala rufiventris	LC	Rufous Whistler
Aves	Passeriformes	Pardalotidae	Pardalotus striatus	LC	Striated Pardalote
Aves	Passeriformes	Pittidae	Pitta versicolor	LC	Noisy Pitta
Aves	Passeriformes	Rhipiduridae	Rhipidura albiscapa	LC	Grey Fantail
Aves	Passeriformes	Rhipiduridae	Rhipidura rufifrons	LC	Chuchurika, Rufous Fantail
Aves	Passeriformes	Zosteropidae	Zosterops lateralis	LC	Silvereye
Aves	Pelecaniformes	Ardeidae	Ardea plumifera	LC	Plumed Egret
Aves	Pelecaniformes	Ardeidae	Butorides striata	LC	Green-backed Heron, Striated Heron
Aves	Pelecaniformes	Ardeidae	Egretta garzetta	LC	Little Egret
Aves	Pelecaniformes	Ardeidae	Egretta novaehollandiae	LC	White-faced Heron
Aves	Pelecaniformes	Ardeidae	Egretta sacra	LC	Eastern Reef Egret, Pacific Reef Heron, Pacific Reef-Egret, Reef Heron
Aves	Pelecaniformes	Ardeidae	Ixobrychus dubius	LC	Australian Little Bittern
Aves	Pelecaniformes	Ardeidae	Ixobrychus flavicollis	LC	Black Bittern
Aves	Pelecaniformes	Ardeidae	Nycticorax caledonicus	LC	Nankeen Night Heron, Nankeen Night-Heron, Rufous Night Heron, Rufous Night-Heron

Class	Order	Family	Scientific name	RLTS category	Common name
Aves	Pelecaniformes	Threskiornithidae	Platalea regia	LC	Royal Spoonbill
Aves	Pelecaniformes	Threskiornithidae	Threskiornis moluccus	LC	Australian Ibis, Australian White Ibis, White Ibis
Aves	Psittaciformes	Psittacidae	Aprosmictus erythropterus	LC	Red-winged Parrot
Aves	Psittaciformes	Psittacidae	Neophema chrysostoma	VU	Blue-winged Parrot
Aves	Psittaciformes	Psittacidae	Psephotus haematonotus	LC	Red-rumped Parrot
Aves	Psittaciformes	Psittacidae	Trichoglossus moluccanus	LC	Rainbow Lorikeet
Aves	Strigiformes	Tytonidae	Tyto novaehollandiae	LC	Australian Masked-owl
Aves	Suliformes	Anhingidae	Anhinga novaehollandiae	LC	Australasian Darter
Aves	Suliformes	Fregatidae	Fregata minor	LC	Frigate 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	Megadermatidae	Macroderma gigas	VU	Australian False

Class	Order	Family	Scientific name	RLTS category	Common name
					Vampire Bat, Ghost Bat
Mammalia	Chiroptera	Pteropodidae	Nyctimene robinsoni	LC	Eastern Tube-nosed Bat, Queensland Tube-nosed Bat, Queensland Tube-nosed Fruit Bat
Mammalia	Chiroptera	Pteropodidae	Pteropus poliocephalus	VU	Gray-headed Flying Fox, Grey-headed Flying Fox, Grey-headed Flying-fox, Zorro Volador de Cabeza Gris
Mammalia	Chiroptera	Pteropodidae	Pteropus scapulatus	LC	Little Red Flying Fox, Zorro Volador de Queensland
Mammalia	Chiroptera	Pteropodidae	Syconycteris australis	LC	Common Blossom Bat, Eastern Blossom Bat, Southern Blossom Bat
Mammalia	Dasyuromorphia	Dasyuridae	Planigale maculata	LC	Common Planigale, Planigale Commun, Pygmy Planigale
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

Class	Order	Family	Scientific name	RLTS category	Common name
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