

# Mangrove Program

PILBARA PORTS

## ENVIRONMENT AND HERITAGE MANGROVE MONITORING, MANAGEMENT, AND EDUCATION



Mangroves are a group of plants that have adapted to live in intertidal zones (between the average sea level and the high tide mark). Mangroves include a wide variety of species including trees, shrubs, palms, ground ferns, climbers, and grasses.

Mangrove forests are one of Australia's most geographically widespread ecosystems. They play a crucial role in the protection of Australia's coastline (e.g. soil formation and stabilisation, minimising erosion) as well as being vital for the biological health and productivity of Australia's coastal waters.

### Pilbara mangroves

The mangroves along the Pilbara coastline are the largest single unit of relatively undisturbed tropical arid zone habitats in the world. Coastal areas of the Pilbara support seven mangrove species and cover an estimated area of 636 km<sup>2</sup>. Pilbara mangroves are characterised by open woodlands and shrublands. They have relatively lower productivity than the mangrove communities in the wet tropics to the north because of the

extreme water and salinity stresses of the Pilbara region. In this region, there is less species diversity, trees are shorter, and the surrounding flora and fauna is less complex when compared to mangrove communities in the wet tropics.

There are seven species of mangrove that occur along the coastline of the Pilbara, including: *Avicennia marina*, *Aegialitis annulata*, *Aegiceras corniculatum*, *Bruguiera exaristata*, *Ceriops australis*, *Osbornia octodonta* and *Rhizophora stylosa*.

The most commonly encountered species in the Pilbara is *Avicennia marina* (the grey or white mangrove). These smooth-barked trees have clusters of small fragrant orange flowers. They often bear the brunt of cyclones but regenerate rapidly afterwards. The grey mangrove can grow

up to five metres high. It has greyish-white bark with flaking patches. The upper side of the leaves are dark green and glossy, while the undersides are grey or silver in colour. The grey mangrove fruits between January and April.

All seven species found in the Pilbara occur in the Port of Port Hedland, while only six of these occur near the ports of Dampier and Ashburton.

Port Hedland mangroves are generally found in large open estuaries and tidal creek systems. Dampier mangroves occur within protected coastal embayment's and creeks, and the Ashburton mangroves occur on narrow fringes adjacent to creek channels and at the mouth of the Ashburton River delta.





## Monitoring mangroves in ports

Pilbara Ports monitors the health of mangrove communities at each of its operational ports using a range of techniques, including aerial and ground surveys and photo monitoring. Some of these programs are regulated by the statutory approvals and permits held by Pilbara Ports, while others have been developed to inform and improve the understanding of the environment in which we operate.

## Pilbara Ports' Mangrove Program

Pilbara Ports' Mangrove Program was established in 2010, and consists of:

### *Mangrove nursery*

Through its mangrove nursery in Port Hedland, Pilbara Ports raises and maintains a viable stock of mangrove seedlings to support Pilbara Ports' community and industry mangrove rehabilitation projects. The nursery houses up to 5,000 thriving mangrove seedlings. These seedlings are established from propagules, which are live seeds or 'plantlets' that form on the mangrove (unlike most flowering plants, mangrove do not produce a dormant seed). The propagules are collected by Pilbara Ports from coastal areas surrounding the ports, planted into pots, and filled with a potting medium and transferred to the nursery where marine water is pumped in during high tides and allowed to drain in low tides to emulate their natural intertidal habitat.

Pilbara Ports has produced a mangrove nursery manual that documents successful propagation techniques for a range of the Pilbara's arid zone mangroves.

### *Rehabilitation*

Pilbara Ports supports and promotes rehabilitation projects across the Pilbara by donating mangrove seedlings from the nursery, as well as leading/assisting in the planting and sharing knowledge and expertise.

Pilbara Ports was pleased to assist Murujuga Aboriginal Corporation's (MAC) mangrove rehabilitation efforts within Murujuga National Park in 2022. This initiative saw around 2,000 seedlings donated from Pilbara Ports' mangrove nursery in Port Hedland and planted in a degraded area within Cowrie Cove.

### *Mangrove Mates*

The Mangrove Mates program is Pilbara Ports' environmental education initiative, developed to educate and promote

environmental awareness of mangrove communities to primary school-aged children. This unique and interactive initiative commenced in 2012 and has been delivered annually since. The program involves an education session run by the Pilbara Ports' Environment and Heritage team followed by an interactive activity of potting a mangrove seedling. The mangrove nursery in Port Hedland is replenished through the Mangrove Mates program each year, holding a source of viable mangrove seedlings that may be used in rehabilitation or offset projects.

Mangrove Mates has reached thousands of primary school aged students from twelve schools across the Pilbara, including in Dampier, Onslow, and Port Hedland.

### About Pilbara Ports

Pilbara Ports is the world's largest bulk export port, encompassing the operating ports of Ashburton, Dampier, Port Hedland and Varanus Island, and five future port sites.

Planning is underway for the development of the future ports of Anketell, Balla Balla and Cape Preston East. The second stage of Western Australian port reforms will also see the progressive transfer of other ports currently administered by the Department of Transport to Pilbara Ports, including Barrow Island, Cape Preston, Onslow, and Port Walcott.

Pilbara Ports adopts an approach of responsible environmental stewardship to port-controlled land, seabed and waters at all port locations.



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