

COASTAL SALTMARSH IN THE NORTHERN AG REGION

A nationally recognised Threatened Ecological Community (TEC),
Subtropical & Temperate Coastal Saltmarsh thrives in estuaries in our own backyard.

At home in the Northern Agricultural Region (NAR) From Kalbarri to Guilderton

Coastal saltmarsh is recognised as a TEC under the Federal Government's Environment Protection & Biodiversity Conservation Act and is currently listed as 'vulnerable'. Here in WA, State Government recognises coastal saltmarsh as a priority ecological community (PEC).

Coastal saltmarsh occurs along Australia's coastline (from Shark Bay, WA to southern QLD, including TAS) in estuaries and low-lying coastal lagoons with a tidal connection (surface or groundwater), including those on islands.

In the NAR, areas of the TEC can be found at Murchison, Chapman, Greenough, Irwin, Hill and Moore estuaries, and low-lying lagoons at Hutt, Leeman Lakes and Green Head.

Poorly mapped and understood in the NAR, bringing attention to this important ecological community will help guide vital restoration efforts, ensuring protection and conservation efforts for years to come.



Threats to Coastal Saltmarsh Within the Northern Ag Region

Invasive weed species can spread rapidly through coastal saltmarsh vegetation, increasing the risk of TEC classification being removed if weeds dominate >50% of the area.

Pollution, of both water quality and landscapes, can cause damage to saltmarsh vegetation and create unsuitable growing conditions.

Altered hydrology also affects growing conditions, with changes to the flow of water in to or out of an estuary impacting the flora and fauna supported by areas of coastal saltmarsh. A common example can be seen in sand bars across river mouths being interfered with by community members, creating man-made openings to the ocean. This can artificially alter the salinity and water levels in an estuary quite suddenly, potentially harming saltmarsh species.

Perhaps the greatest threat is pedestrian access and 4WD use, with beach goers mostly unaware of the importance of coastal saltmarsh. Walking trails and 4WD tracks fragment areas of vegetation, allowing weeds to populate on newly-bare ground.

The condition and size of saltmarsh patches can be altered significantly by environmental factors, putting the area at risk of failing to meet TEC size requirements.

Thankfully, coastal saltmarsh flora is resilient and fast-growing, able to regrow over pedestrian and 4WD tracks, if given the chance.

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Identifying the TEC

An area of coastal saltmarsh needs to meet certain criteria to be considered part of the EPBC-listed TEC. It must:

- Be located south of Shark Bay, WA (26° latitude) and central Mackay coast, QLD (23° 37' S), including TAS and islands in this region.
- Have a tidal connection, either via surface or groundwater. Can be regular or intermittent. Eg. opening of bar at river mouth.
- Occur on sandy or muddy substrates.
- Contain characteristic vegetation species in an area >0.1ha (this can include patches as long as they are <30m apart and their total area >0.1ha).
- Have proportional tree cover (from Mangroves, Melaleucas or Casuarinas) or ground cover (from seagrass or weed species) that is <50%.

Protecting Coastal Saltmarsh

Actions to protect the TEC in the NAR include:

- Identifying and eradicating weeds.
- Litter clean ups.
- Restricting 4WD and pedestrian access to certain areas.
- Interpretative signage and education campaigns.

We can all work together to take simple steps towards protecting coastal saltmarsh TEC.

DRONE MAPPING A DIFFERENT PERSPECTIVE

Introducing the TEC (Threatened Ecological Community) of Subtropical and Temperate Coastal Saltmarsh like you've never seen it before!

Eye in the Sky

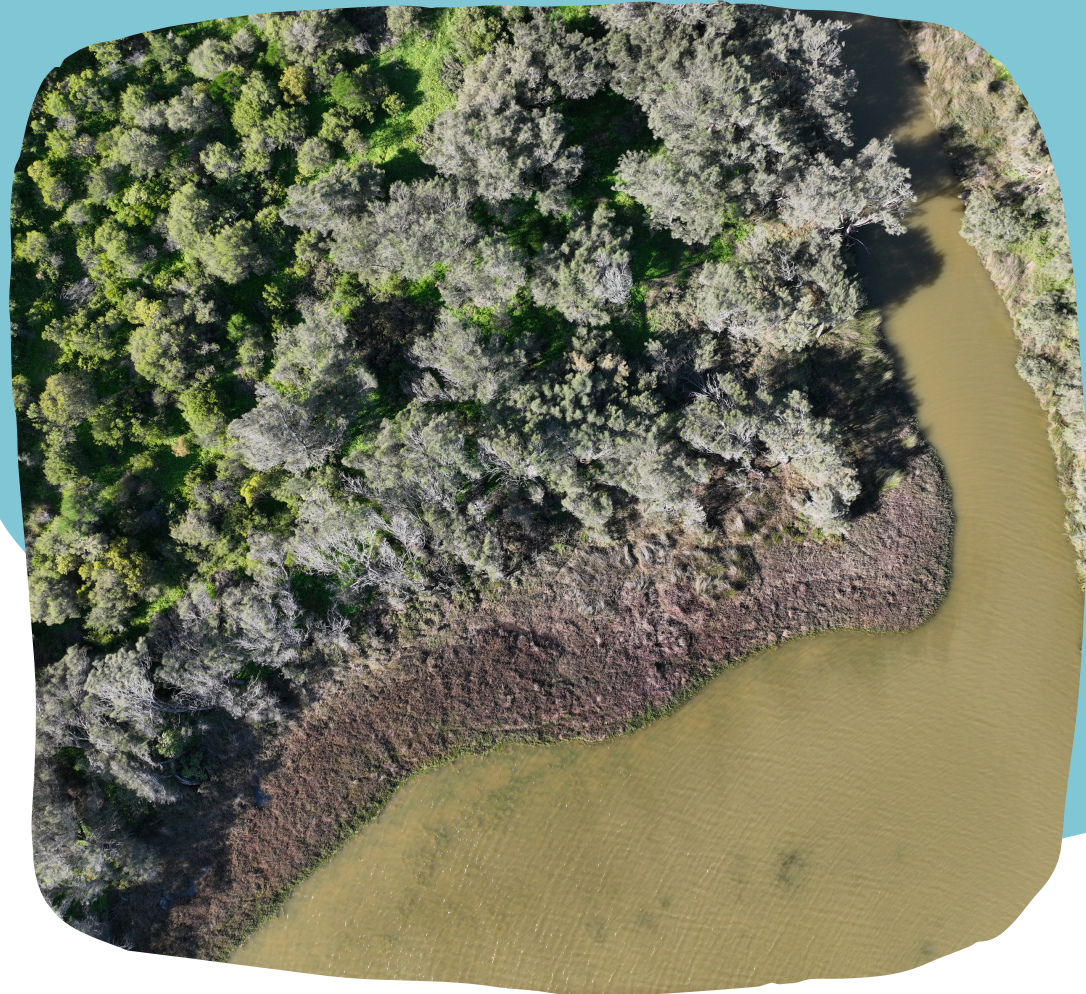
Drone mapping technologies have come a long way in the last decade across the construction, agriculture and environmental industries, with demand for the high-definition, geo-referenced images mapping drones can provide.

Allowing easy access to areas that may be too difficult to reach on foot, drones are a practical and economical solution to quickly capturing aerial imagery of an area of interest.

Some drones are designed specifically for mapping, with built-in software that allows operators to input a pre-determined flight plan of the area that they wish to capture. With the press of a button, the drone will automatically complete the route, taking images as it goes!

Post-processing is as easy as uploading images to one of many photo-stitching programs, which create what is called an 'orthomosaic'; one large, composite image of an area comprised of many individual images.

Images are geo-referenced, meaning that the orthomosaic can be used for further GIS (Geographic Information System) analysis. This also means that accurate area or distance measurements can be made on top of the crisp, clear orthomosaic, opening up a world of new possibilities for spatial data collection!



The Value of Drone Mapping

Mapping coastal saltmarsh with drones is a fast, cost-effective way to assess saltmarsh extent and condition. Given most areas of coastal saltmarsh TEC in the NAR remain unrecorded, drone mapping presents a perfect opportunity to put this TEC on the map!

Drone imagery can provide incredible resolution, usually ~2cm per pixel, meaning researchers are able to identify coastal saltmarsh in areas that are inaccessible on foot. It also saves time in the field, with a 15-minute flight able to capture ~20ha and a battery lasting ~45 minutes!

Drone mapping analysis programs allow for shapes and lines to be added to a map, allowing confirmation that areas of saltmarsh vegetation meet the TEC size requirements of >0.1ha.

Viewed from above, the impact and extent of pedestrian and 4WD access becomes clear, making way for the prioritisation of heavily degraded areas.

This perspective can also show the impact of weeds or litter, and helps to better determine saltmarsh extent, especially when canopy cover from trees comes into consideration (canopy cover must be <50% to be classified as the TEC).

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The Deal on Drones

Drones can be a valuable tool for capturing environmental data from new and exciting perspectives, however, there are strict rules about collecting these images. For example:

- Drones must fly ≤120m and kept ≥30m away from people.
- Drones must be kept within visual line-of-sight and landed immediately if found to be a danger to interested birds (eg. birds of prey).
- Drones must be flown away from populous areas such as beaches, parks and events.
- Drones can only be flown during daylight hours (unless you possess a special licence).
- In Australia, drone operation is regulated by the Civil Aviation Safety Authority (CASA)