Appendix A Land For Wildlife Property Assessment Report 2012

Doc No: I122895
File: RES/36542
Date: 25 SEP 2012

LAND FOR WILDLIFE

Molloy Island Home Owners Association
Molloy Island
Shire of Augusta Margaret River

Registration: Full

Registration Number: 2298
Sign Number: 1895, 1896 and 2 small signs

Department of Environment and Conservation Region: South West
Department of Environment and Conservation District: Blackwood

NRM Region: South West
NRM Sub-region: Lower Blackwood/Cape to Cape Catchments

LAND FOR WILDLIFE

PROPERTY ASSESSMENT REPORT
LFW Reg. No. 2298

Month / year written: 19th September, 2012

1 Property description

Contact details

Name	Joan Hammersley – Molloy Island Homeowners Association
Name	Merryn Delaney – Augusta Margaret River Shire
Company/property name	Molloy Island
Street address of property	Shire Reserves – 4758, 4706, 4766.
Postal address, if different from above	Joan Hammersley – RMB 200, Augusta WA 6290
Phone	(08) 97 584219
Fax	N/a
Mobile	N/a
Email	johamesly@yahoo.com.au
Website	N/a

Property details

Location/Lot Number(s)	Shire Reserves 4758, 4706, 4766.
Latitude S 34° 15' 45.7" (recorded at the southern ferry house)	Longitude E 115° 12' 07.6"
Shire	Augusta Margaret River Shire
Principal landuse or enterprise	Shire Reserves, Conservation
Total area of property (ha)	176ha
Area of remnant vegetation (ha)	176ha
% of whole which contains remnant vegetation	100%
Area of native perennial revegetation (ha)	Nil currently, there will be plantings in areas of weed removal in the near future, funding via SWCC
% of whole which contains native perennial reveg	Nil
Area of specific *LFW* site(s) (ha) (total of sites listed in Section 2)	48.5ha
% of whole which is *LFW* site(s)	27.5%

Landholder interests

Main wildlife interest of landholder/s	Lifestyle
Member of LCDC / CG?	Augusta landcare groups
Member of Conservation Group?	No
Describe the landholder's overall aims for the property	The landowner is actually the Shire of Augusta Margaret River, although the homeowner's association's aims for the reserves is to conserve biodiversity values, carry out weed control and enjoy walking through the reserves

Historical information about the property

The island was first owned by the Clements family who were environmentalists who had a vision to protect the island vegetation, while allowing subdivision for people to live on the island and enjoy the natural environment. The island was subdivided in the 1970's and split into "zones". According to an article in the Nature Walkabout, June, 1978 there were the conservation reserves surrounding the island, residential areas and some "commonage reserve areas" for recreation in amongst the residential areas.

This island sits within the Blackwood River, and is separated from the mainland by the Blackwood River and the Scott River basin areas.

A copy of the Nature Walkabout, June, 1978 is copied and is an addendum attachment with this report to be placed in your LFW folder for future reference and information, this is a very interesting read for the residents and Shire staff.

Historical photos to act as *de facto* monitoring sites

Many landowners would have photos of the reserves to act as historical photos and monitoring photos, it would be a suggestion that these be collected and placed in the LFW folder along with the LFW assessment report and photos for future reference.

Description of the property

The "property" is Molloy Island which is quite a different situation to normal properties.
The island has both residences and shire reserves, the majority of the island consists of natural vegetation which was the intention of the owners in the 1970's – to provide a place where people could live, whilst enjoying the natural surroundings, peace and quiet.
The landowners originally set conditions for the vegetation to remain intact, with at least 15 metres of vegetation to be kept in front of all residences on the residential properties, and for all residents to maintain the remnant vegetation on their individual lots.
There was then the "commonage" reserves which are vested in the Molloy Island Homeowner's Association and managed by the landowners, and the Shire Reserves which are maintained by the Shire in conjunction with the Homeowner's Association members.

Topography of the island: gentle undulating sloping site, sloping downwards to the riverine vegetation on the edges of the island.

Soils: the soils on the island are of sandy, sandy loams and loams. The majority of the reserves are of sandy loam to loam soils due to them being of riverine/wetland fringing vegetation.

Vegetation: Vegetation consists of riverine vegetation, wetland vegetation, coastal heath vegetation and Paperbark woodlands, there are sections of Kingia heath, sedgelands, and Jarrah/Marri forest areas making this a very diverse island.

Salinity

Is any part of the property currently saline?	The Blackwood River has sections that are saline, the Blackwood River surrounds Molloy Island on one side (west) and the Scott River basin is on the east. There are no signs of salinity on the island though.
If not currently saline, is there a perceived salinity risk in the near future (i.e. next 10 years)?	There does not appear to be any signs of salinity on the island, although there is a possibility that salinity may encroach onto the island edges. There is *Melaleuca cuticularis* on the edges of the island, which shows signs of mild salinity.

Maps (attached)

A: Road map for general location and directions to property
B: Dept of Environment and Conservation (DEC) map showing exact cadastral boundaries of property
C: Aerial photograph of property showing location of *LFW* sites

Aerial photograph



Molloy Island.



Reserve 4758 – Recreation Reserve vested in Shire of Augusta Margaret River, Site 1. 11 ha in size.



Reserve 4758 – Recreation reserve vested in Augusta Margaret River Shire, 1.5ha in size. Site 1.



Reserve 4706 – Recreation reserve vested in Shire of Augusta Margaret River, Site 2. 5 ha in size.



Reserve 4706 – vested in Shire of Augusta Margaret River, Site 2. 3ha in size.



Bird Sanctuary reserve, vested in Augusta Margaret River Shire, Site 2.
8ha in size.



Reserve 4706 vested in Augusta Margaret River Shire as a recreation reserve, 1.5ha in size. Site 2.



Reserve 4766 vested as a recreation reserve in the Augusta Margaret River Shire, 19ha in size. Site 3.

Note: Red Dot is location of priority listed species on the island, which is within the Commonage area bushland. This may also exist within the Shire reserves.
***Calothamnus lateralis var. crassus*, Priority 3 listed on the Department's Priority Flora List, February 2012.**

2 *Land for Wildlife* site description

Map -
***LFW* sites** - number of sites: 3. Reserves – (1) 4758, (2) 4706, (3) 4766.

LFW sites are those areas of the property where nature conservation is a primary management aim.

Site No.	Site name	Area (ha)	Geology / Landform / Soil	Vegetation association (Vegetation Community)
1	4758 Recreation reserve	11ha & 1.5ha = 12.5ha	Gently sloping towards the Blackwood River, sandy to sandy loam soils	Riverine vegetation of Paperbark woodlands north of the track, Peppermint/Jarrah/Marri woodlands on south side of track
2	4706	5ha, 3ha, 8ha, 1ha = 17ha	Low lying in the landscape, loamy soils	Wetland vegetation of Melaleuca thickets and Kingia Heathland
3	4766	19ha	Undulating, sandy soils to sandy loams	Paperbark woodlands, Peppermint/Jarrah/Marri forest

Example photos of the three sites:



Site 1 – Reserve 4758.



Site 2 – Reserve 4706.



Site 2, Reserve 476.



Reserve 4706, Site 2.



Burnt section of Site 2, 4706.



Site 3, 4766.

Threatened communities

Are any of the vegetation associations listed as a 'Threatened Community'? Would like the opinion of the DEC Regional Botanist on some of the vegetation communities on the island, there is a possibility that a section of the Kingia heathland may be a Priority Ecological Community, similar to the Scott River area.

Water features

Site No.	Water feature	Vesting	Fresh	Salt	Condition or quality
All	The island is surrounded by the Blackwood River and Scott River basin	Waters and Rivers	√		Slightly saline due to the river meeting the ocean at Augusta, mostly fresh around Molloy Island. Good quality/condition.



Blackwood River, in reserve 4706 at the western end of the island.

Brief description of flora
Vegetation complexes: (Mattiske/Havel RFA Mapping, 1998).

Blackwood Bw, Blackwood B and Blackwood Bwy vegetation complexes.

Blackwood Bw: Woodland to low forest of *Melaleuca rhaphiophylla*, tall shrubland of *Melaleuca incana* and closed heath of *Agonis* spp. On depressions in the perhumid zone.
Blackwood B: Woodland to open forest of *Eucalyptus marginata* subsp. *marginata, Corymbia calophylla, Xylomelum occidentale, Agonis flexuosa* on raised river terrace in the perhumid zone.
Blackwood Bwy: Woodland of *Melaleuca cuticularis* and sedgelands of *Cyperaceaea-Restionaceae* spp. on estuarine flats in the perhumid zone.

Site No.	Tree layer	Shrub layer	Ground layer
1	*Melaleuca pressiana* *Melaleuca rhaphiophylla* *Eucalyptus marginata* *Corymbia calophylla* *Agonis flexuosa*	*Melaleuca cuticularis* *Hibbertia cuneiformis* *Hakea spp* *Taxandria linearifolia* *Taxandria parviceps* *Kunzea ericifolia* *Callystachys lanceolata*	*Lepidosperma gladiatum* *Gahnia trifida*
2	*Melaleuca pressiana* *Melaleuca viminea*	*Kingia australis* *Kunzea spp*	*Mesomelaena tetragona* *Hypocalymma cordifolium* *Hypocalymma robustum* *Hypocalymma angustifolium*
3	*Melaleuca pressiana* *Melaleuca rhaphiophylla* *Melaleuca viminea* *Melaleuca cuticularis* *Eucalyptus marginata* *Agonis flexuosa* *Corymbia calophylla*	*Hibbertia cuneiformis* *Hibbertia cunninghammii* *Eutaxia ssp*	*Leschenaultia biloba* *Scaevola spp*

Blackwood Bw: 16% of this original vegetation remains in formal and informal reserve systems, making this a poorly reserved vegetation complex in the South West. Just over 700 hectares remains in formal and informal reserves.
Blackwood B: 48% of this original vegetation remains in formal and informal reserve systems. 171 hectares remains in the reserve system.
Blackwood Bwy: 13% of this original vegetation remains in formal and informal reserve systems, making it a poorly reserved vegetation complex. Only 8 hectares remains left in formal and informal reserves.

Rare or locally unusual flora

Site No.	Rare or unusual flora present
All	Nil identified on site visit.

List possibilities: *Hypocalymma cordifolium* sp. *minus* (Priority listed) exists on private property within 5kms of this site, there is a *Hypocalymma cordifolium* population on this island which needs further investigation by a Botanist to identify whether it is the Priority listed species.
Photo taken of *Acacia* spp. Possibly *Acacia semitrullata*? Priority listed. Check photo with DEC Botanist.
Calothamnus lateralis var. *crassus* (P3) has been identified within the commonage area of bushland, this is also likely to be in the reserves.

Note: Ann Matei who is a local flora enthusiast from Augusta has carried out a vegetation survey on the island and has provided the island residents with a species list.

Vegetation quality and health

Vegetation quality assessment is based on the combination of a number of factors, including disturbance, plant health and proportion of weeds.

There are four descriptors: excellent - good - moderate - fair

Site No.	Disturbance? (eg grazing, salinity)	Plant health?	Expected diversity?	Weeds?		Therefore QUALITY
				Name of species	%	
1	There is a walk track/firebreak through the reserve.	Good	Very good	Weedy wattles Pittosporum	Few	Very good to excellent
2	There is a walk track/firebreak through a part of the reserve. In one section there are residential boardwalks to the edge of the river which have the potential to impact upon the vegetation, although this appears to be managed effectively. In one section of this reserve there was a fire, possibly due to a hop over from a burn in the Commonage.	Good	Very good	Nil visible		Very good to excellent
3	There is a walk track along the edge of the reserve	Good	Very good	A few weedy wattles		Very good to excellent

Regeneration

Many Western Australian ecosystems regenerate naturally only after a 'trigger' such as a fire or a flood. Without such a trigger, mature ecosystems may show little signs of regeneration. Nevertheless, a healthy ecosystem retains the ability to regenerate if an opportunity occurs.

Site No	Regenerating naturally?	Ways to improve regeneration
All	All reserves are regenerating naturally	The vegetation within the reserves are regenerating naturally with no particular requirement to assist the regeneration. Weed control and management of existing firebreaks and walk tracks within the reserves, management/monitoring of individual pathways, boat jetties and boardwalks from private residences down to the edge of the water need to be ongoing to ensure minimal disturbance occurs to the vegetation.

Edge effects

The edge of an isolated remnant suffers greater stress from outside influences than does the centre. Thus, the greater the 'edge-to-area-ratio' of a remnant, the more management may need to be undertaken.
Many threats to isolated remnants - such as weed seeds, herbicide drift, or wind-blown debris - enter from outside and the remnant can be buffered from their influence.

Site No.	Edge to area ratio - specifically, what % of the site is greater than 100m from an edge?	Action required?
All	These reserves are relatively thin in nature, being bordered by the river on one side and residential properties on the other. There are minimal edge effects though considering there are many residences bordering the reserves. There are some tracks through the vegetation, a few areas where boardwalks have been established, although regrowth has occurred. The most weeds seem to occur in Reserve 4758 which is on the northern side of the island, most are weedy wattles and garden escapees along the edge of the walk track/firebreak.	Weed control of weedy wattles is currently occurring and will be ongoing. The Shire Environmental Officer and Homeowner's Association are discussing possible funding with SWCC for contractors to carry out control methods on the larger and more difficult populations. Pittosporum weed control is occurring and ongoing. Encourage landowners to plant only indigenous native plants that are local to the area, discourage the use of exotic plant species on the island due to possible escapes. See attached "Garden Plants that become weeds in bushland", LFW publication. Encourage landowners to avoid disturbing the vegetation on the edges of the reserves, where disturbances have occurred ensure regular monitoring is undertaken to ensure no further clearing or disturbance occurs.

Current management

Site No.	fencing?	grazing?	timber cutting?	other? (feral control etc)
All	Individual residences are fenced (some) There is no fencing within the reserves	Kangaroos, bandicoots	Not within the reserves	Nil currently

Priority management actions required for maintenance of the site(s):

1. **Weed control.**
2. **Feral animal control.**
3. **Keeping all dogs on the island on leashes and on firebreaks/tracks when walking in the reserves.**
4. **Minimise the disturbance to the vegetation on the reserves by limiting the amount of private access via tracks, boardwalks and boat jetties within the reserves.**
5. **Avoid burning in the reserves, especially in the Kingia heathland and Wetland Paperbark areas – consultation with DEC Regional Botanist prior to burning these areas would be preferred due to these areas being high conservation values.**
6. **Management of Western Ringtail Possums and their habitat.**
7. **Management of Southern Brown Bandicoots/Quendas and their habitat.**
8. **Management of Western Grey Kangaroos and their habitat.**
9. **Possible acid sulphate soils management – the island could possibly be at risk of acid sulphate soils with having peaty/loamy soils within the island and wetland areas. An acid sulphate soils testing would be advisable in some locations within the island that are showing signs e.g. oily/orange staining of water/ponds/puddles. If acid sulphate soils show to be positive, then a ASS management plan should be written for the island. Some of the management options are: No digging on the island to more than a depth of 1m, minimal disturbance of soils.**
10. **Fauna monitoring on the island – encourage landowners to do their own bird surveys and document the number and type of birds on the island and encourage landowners to do their own fauna monitoring on the island, keeping diaries of the animals they see on the island.**

Note: LFW will return to the island sometime in November to carry out some spotlighting, night vision camera setup, and other fauna monitoring techniques with the Homeowner's Association and residents. This should start the monitoring, and provide some techniques for the residents to utilize on a daily basis while on the island.

There are minimal signs of fauna movement on the island, very little disturbance due to Western Grey Kangaroos movement, some signs of southern brown bandicoot movement in a few areas within the reserves. The view of monitoring the wildlife is to ascertain the numbers on the island and whether they are at capacity numbers.

Initial signs on the site visit shows this is not the case currently, although further monitoring needs to occur.

3 Vegetation notes

Notes on the vegetation quality assessment:

- disturbance: Firebreak/walk track through the reserves, Individual property owners tracks through the reserves, small amount of incidental clearing to establish boardwalks and jetties on the river. Signs of rabbit diggings and quenda diggings, possibly echidna diggings at the base of anthills.
- plant health: Very good condition.
- expected diversity: Very good diversity.

Notes on weed management

- Priority weeds: Weedy Wattles, Pittosporum.
- management actions:

Weedy Wattles: Sydney Golden Wattle, Blackwood, Black Wattle and Flinders Range Wattle:
Use a mix of 1L of Access in 60L of diesel applied to the lower 50cm of the trunks, seedlings can be spreayed with a mix of 0.5 grams metsulfuron plus 25ml Pulse in 10L water in spring or autumn. Repeat annually until no more seedlings appear. Glyphosate is relatively ineffective.

Pittosporum populations: Avoid burning where populations of Pittosporum have spread as burning is likely to spread the seedbank. Control by painting the lower 50cm of trunks with a mix of 100ml Access in 6L Diesel, or fell the tree and apply neat glyphosate immediately to the cut stump. Trees should not reshoot from the stump once treated with glyphosate.

Both of these weedy species are garden escapees or have been planted as revegetation trees, encourage landowners on the island to only plant indigenous wattles or species of plants. There is also garden plants that do not become weeds in bushland if exotic plants are attractive to landowners. See attached lists and booklets.

Are there any sites where rare flora translocations could be considered? Possibly, although most areas within the reserves are dense. There may be areas within the recently burnt reserve for possible translocations.

Notes on methods of encouraging regeneration for each vegetation type:
Currently, there would be no purpose to carrying out regeneration methods as most areas within the reserves are thick and dense vegetation.

Notes on revegetation: There is intended revegetation plantings to occur in areas where weedy wattles have been removed. Funding through SWCC is to be obtained for this removal to be carried out and planting of local indigenous species of tubestock occur.

See attached list of local indigenous species of plants at the end of this report, and seed collection notes attached.

There is a landcare nursery in Augusta where plants can be obtained, the landcare co ordinator is keen to carry out some seed collection within the island for this purpose.

Seed can be collected, grown on in the Nursery and replanted on the island.
If minimal species are collected, additional species can be purchased either in seed from local suppliers, or in tubestock from local landcare nurseries, e.g. Geographe Community Nursery.
Geographe Community Nursery personnel will also visit the island and collect seed if necessary.
Land for Widlife Officer is also available to carry out seed collection workshops on the island if necessary.

4 Fauna notes

Fauna	Fauna observed on visit or noted by landholder (including ferals) **Rare or threatened fauna in bold**
mammals	**Western Ringtail Possums, Southern Brown Bandicoots**, Western Grey Kangaroos, bushrats. The male kangaroos will swim over to the island to mate every season and leave the females on the island with the young, the males will then take the young juvenile males back across the river the following year. The island residents have concerns over the number of kangaroos on the island and whether they are impacting the vegetation – there are no signs of overgrazing on the island currently, this will need to be monitored over time.
birds	Wetland birdlife on edges of the island, ducks, ibis, pelicans, western rosellas, blue wrens, scarlet robins, honeyeaters, magpies, crows, wattlers, butcher birds, golden whistlers. No bird surveys carried out as yet. There is a part of the island that is inaccessible to people, this is called the bird sanctuary where wetland birdlife nest.
reptiles	Dugites, tiger snakes, bobtails, skinks, monitors.
amphibians	Quacking frogs, tree frogs, squelching frogs.
other	Rabbits – diggings and droppings seen. The occasional fox has been seen on the island. Some landowners have dogs, there are no cats allowed onto the island.

Rare fauna

If Rare or Threatened fauna have been observed a Fauna Report Form will be completed during this visit and submitted on your behalf to DEC, notifying them of the rare or endangered fauna present on your property.

Note any rare or threatened fauna present or possible: Western Ringtail Possums and Southern Brown Bandicoots are on the island, a report form has been filled in and placed on the DEC database.

Please inform *LFW*/DEC Species & Communities Branch if any of these species are noted in the future – White or Red tailed Black Cockatoos, Phascogales or Wambengers. These are likely to be on the island or visit the island from time to time. Regular monitoring of bushland in the reserves may show these to be on the island, if so – mark sightings in a diary and provide information to your LFW Officer.

Fauna enhancement

Specific notes of methods (not covered above) to improve fauna habitat.

- feral predator control
- rabbit or other feral herbivore control
- feral bee control

- habitat creation
  - Notes on creation and enhancement of mammal habitat
  - Notes on creation and enhancement of bird habitat
  - Notes on creation and enhancement of reptile habitat

All are attached to this report.

Fauna not currently present, which could be encouraged – due to this being an island, it is not likely that other wildlife will swim across the river to the island.

The habitat on the bird sanctuary is pristine and not impacted upon by development or human pressures, providing good habitat for all wetland bird species of the local area.
Using binoculars, this area could be regularly monitored for signs of wetland birdlife, document a list and sightings records in a diary and provide information to your local LFW officer.
If there are any signs of problems occurring within this area, contact your Shire Environmental Officer, or your LFW Officer.



The Bird Sanctuary, which is habitat for a variety of wildlife including wetland birds.

5 Connectivity

Fauna need to be able to move between remnants in order to utilise resources, eg flowers in season, and to find new territories. For many smaller fauna, such as birds, open paddocks are a barrier that they will not cross. To reach all remnants, they need to be connected by 'bush corridors'.

Relationship of *LFW* sites to conservation reserves and other significant remnant vegetation

Recommendations for bush corridor connections

Bush corridor	Suggest sites on property and, if relevant, on adjacent properties or roadsides. Indicate on map
A	There are bushland corridors existing in the reserves, all reserves are linked.
B	The whole island is bushland, there are roads separating the residential bushland areas although the residences, commonage and reserve bushland are all linked.

Could any of these recommendations become the basis for a project by the relevant Catchment Group? SWCC has been contacted to assist with funding some weedy wattle control and plantings in places where the weeds have been removed.

This may be an ongoing project, although there are minimal amounts of weeds on the island, it is good to set up a hygiene procedure for the island and educate landowners in the use of exotic plants in their gardens, it would be preferable if landowners planted only local indigenous species in their gardens, or exotics that are not known to become weeds in bushland. Encourage landowners to plant species of native plants that are attractive for Western Ringtail Possum habitat and food sources e.g. Peppermint trees, there are also smaller Peppermint tree shrubs which grow to a variety of sizes the dwarf version will grow to only 1m tall, there are weeping varieties which will only grow to 2-3m tall, these are still good habitat and food sources for western ringtail possums. A variety of Melaleucas, Kunzeas and Bottlebrushes along with Wattles provide good flowers for western ringtail possums and honey/pygmy possums (if found on the island), these are an excellent food source for these animals as well as birdlife (honey/nectar).
This would also enhance the connectivity throughout the island.

Originally the residences on the island were to have 25m of bushland vegetation in front of their houses ie verge plus frontage, this was to preserve the natural vegetation, provide privacy, peace and quiet and to keep the amenity of the island, as well as preserving the habitats for wildlife.
Where possible, it would be good to keep those connections along the road sides and at the back of residences to keep the connectivity throughout the island so that wildlife can travel and have food sources available to them.

Each residence is to have 5m from the edge wall of the house cleared or parkland cleared for bushfire protection, and raking leaf litter from the understorey. Whilst maintaining these areas, it would be preferable that bushland connections exist on the island for wildlife habitat and travel.
Removal of understorey and tree species may inhibit the wildlife habitat and travel within the island.

Discuss further options with Shire Rangers, Shire Environmental Officers and Fire Control Officers as to how a balance can be achieved to maintain the connectivity throughout the island of tree canopy and understorey habitat protection for wildlife, while preserving life and property.

Also see documents: Planning for Bushfire Protection, WAPC/FESA, Smith, R. 2010, 2nd Ed.
Augusta Margaret River Firebreak Notice, 2011/2012.
Australian Standards for Building in bushfire prone areas, AS3959-2009.
Victorian Planning for Bushfire Protection, 2010.
NSW Planning for Bushfire Protection, 2010.
Burrows, N. 2003. Book – Fire in South West Ecosystems.

6 Fire

Since before humans arrived in Australia, fire has been a significant factor the ecology of the continent. The frequency, intensity and season of fires have a profound effect upon the plant community that regenerates after the fire. A modern complicating factor is the presence of weed species.

Site No.	Fire history	Role of fire in the vegetation community
1	There does not appear to have been a fire in this reserve for quite some time	In the paperbark woodlands, it is likely that a severe wildfire would affect wetland bird and frog habitats. There would be no point to attempting a slow trickle winter burn in some of these areas due to there being no understorey, just ponds/puddles which would not carry a fire. Although these areas are surrounded by water which would hopefully deter any major wildfire event occurring in this section of the reserve. At the back of the residences are Jarrah/Marri/Peppermint woodlands which have low understorey, these could have small rake and burns carried out to reduce the threat of wildfire, although the understorey is quite low already and there are firebreaks and roads on the island to segregate the vegetation for control methods.
2	There does not appear to have been a fire in this area for quite some time.	In the wetlands and heath areas which are perfect habitat for quendas, a severe wildfire would threaten habitats for the quendas, frogs and reptiles as well as the smaller birdlife. There is a firebreak running through this area and the river on one side providing both access and water for control methods if necessary.
3	A section of this reserve has been burnt recently in Autumn, this appeared to be quite a hot burn which is still showing signs of scorch with little regeneration occurring. This was in a section of Jarrah/Marri and Grasstree vegetation.	A severe wildfire would affect paperbark woodlands which are habitat for both wetland birds and quendas, possibly western ringtail possums. As the section that was burnt shows, a Summer/Autumn fire will run up the trees and burn the canopy, as well as the understorey vegetation. A Winter burn where the ground is damp, or a rake and pile burn would be preferable to maintain biodiversity while reducing the leaf litter and encouraging regeneration in the Jarrah/Marri/Peppermint woodlands/forest although the wetland areas and riverine areas on the island would be best managed by keeping fire from entering these areas if possible.

Fire management points discussed: Providing a balance between preserving the vegetation on the island and protection of life and property. There would be no requirement for burning for regeneration purposes on the island, only for protection of life and property.

Advice was given to discuss with Shire Rangers, Shire Environmental Officer and Shire Fire Control Officer. Nothing said here can override a landholder's responsibility under the Bushfires Act, 1954 or the Augusta Margaret River Firebreak Notice, 2011/2012.

Is the site adjacent to DEC-managed land? The site is adjacent to Scott River National Park to the east, although is not adjoining due to the Blackwood River being between this island and the National Park. Any fire management questions should be directed to either the Shire of Augusta Margaret River, or FESA officers.

iscussions have been occurring with FESA officers, Tony Moran and Brendan Jordan and with Shire Rangers regarding fire management of the Shire reserves.

7 Role of sites in Landcare and Natural Resource Management

All natural perennial vegetation will have value in the overall management of the property and the catchment. Some sites, however, will have greater significance in this regard.

Site No.	Value of site to landcare (eg hydrology, erosion control, shelter etc)
All	The island is of value for hydrology as it sits within a riverine system and provides clean runoff into the river, it is important to maintain a "clean" island with minimal rubbish and pollution to preserve the riverine environment. The vegetation on the island provides good erosion control, there were only minimal signs of erosion occurring on the island. The vegetation on the island is providing suitable habitat for wetland birdlife, terrestrial birdlife, frogs, reptiles and mammals.

Any general landcare points? Some weed control has been undertaken and will be continued into the future, there will be some rehabilitation plantings occurring where the weeds have been removed.

8 Overall summary

Is any part of the property subject to a Conservation Covenant?	No. Shire Reserves.
Is the landholder interested in covenanting, now, or at some future date?	No.
Is the landholder involved in other Landcare, Greening or NRM programmes?	Shire of Augusta Margaret River are involved in a number of landcare and NRM programs. The Molloy Island Homeowners Association are involved in Augusta landcare groups.
Have any grants been received?	Not currently, possible SWCC funding will be provided for weed control within the reserves.
Would the landowner like to be kept informed of any grants?	Yes
Is the landholder prepared to allow an organised Field Day to include this property?	Yes
Does the landholder agree to the '*LFW* site' being recorded on a GIS mapping database for Natural Resource Management planning?	Yes
Does the landholder give consent for any photographic images taken during this visit to be used for the purposes of *Land for Wildlife* promotion?	Yes
Any other relevant observations?	There has been some very good weed control occurring within the Shire reserves due to the ongoing efforts of the Homeowners Association, and the Shire Environmental Officers. The reserves are intact and in good to excellent condition/quality with very little signs of impacts.

Signed: Cherie Kemp Date: 19th September, 2012

Position: Off Reserve Conservation Officer

Cherie Kemp
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Department of
Environment and Conservation

***LFW* Assessment Summary**

Name of assessor: Cherie Kemp

Date on request for admission to LFW received: 18/5/12

Date on which property surveyed: 14/9/12

Is *LFW* registration of property recommended? Yes

Type of registration: Full

Registration number: 2298

Specific comments given to landholder in respect to the above recommendation:
The island reserves have been maintained in good to excellent condition and quality over the years, there is very little rubbish, weed invasion or disturbance even though the subdivision of Molloy Island occurred in the 1970's, and there are currently 280 properties, 220 houses and 60 of those are permanent residences.
This is a credit to both the Shire of Augusta Margaret River and the Homeowner's Association.

Date of issue of sign: 14/9/12

Sign number: 1895, 1896 and 2 small signs.

Addenda:

South west reptiles, mammals, frogs and birdlife lists.

LFW notes: Sand pads, Photomonitoring points, Seed collection, Creekline revegetation, Fauna habitat requirements.

Geographe Community Nursery species list.

List/leaflet of local native plants that can be used in gardens.

List of garden plants that become weeds in bushland.

Kangaroo/wildlife feeding notes.

Photo of Acacia semitrullata.

FESA notes on protection of houses in a bushfire prone area.

FESA booklet on how to identify levels of fuel – Visual Fuel Load Guide.

FESA booklet Winter Burning Guide.

AS 3959-2009 booklet.

Living with Phascogales.

Fox/rabbit control leaflets – Dept Agriculture and Food, 2011.

Information given to landholder at time of assessment

LFW folder, Managing your bushland book, Flora/fauna survey booklets.
LFW brochures – possums, bandicoots.
LFW stickers for landowners.

Further reading and references

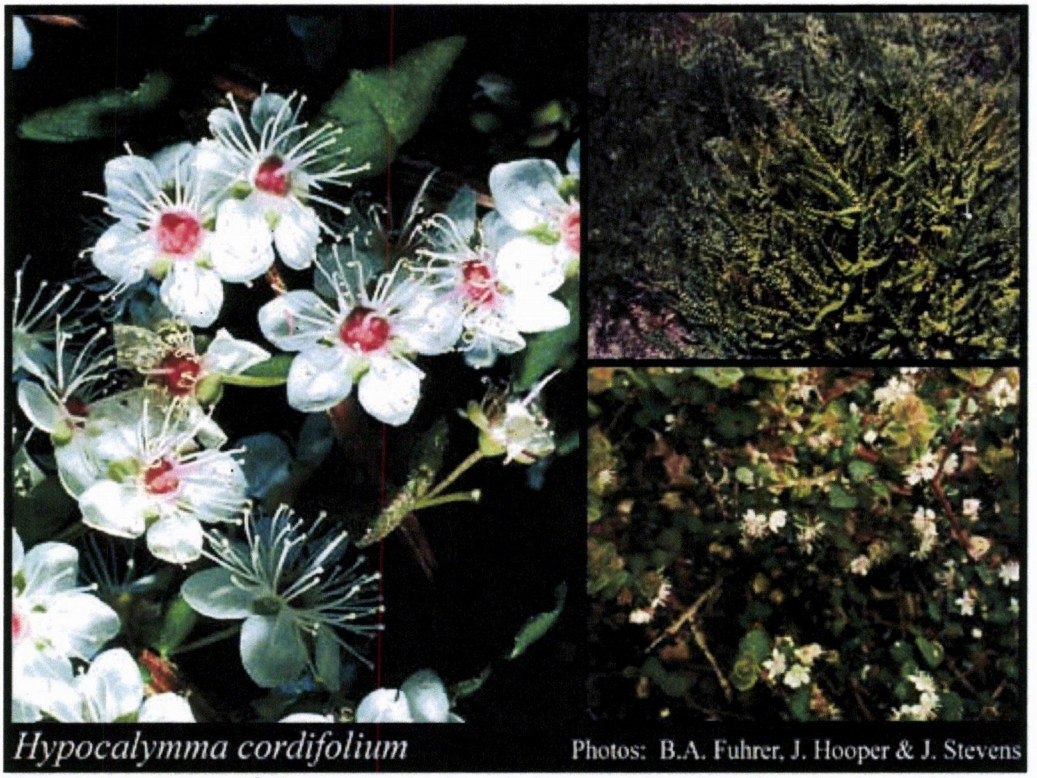
Victorian Bushfires Royal Commission report, 2010.
Bushfire CRC notes, website.
Florabase website.
Book by Burrows, McCall – Fire in the SW Ecosystems, 2003.
Wildflowers of the South West of Australia, Scott/Negus.
Southern weeds and their control, Dept Agriculture and Food.
Bushland Weeds – copy sent via email.
Mammals of the South West, bushbook available from DEC offices/book shops.
Frogs of the South West, bushbook or on WA Museum website.

Species list of plants noted on site visit, this is not an intensive flora survey – it is suggested that a botanist carry out a full flora survey of the island, the reserves and the commonage due to it being of high value conservation.

Eucalyptus marginata – Jarrah
Corymbia calophylla – Marri
Agonis flexuosa – Peppermint
Taxandria linearifolia – Tea tree
Taxandria parviceps – Small tea tree
Kunzea glabrescens – Spearwood
Melaleuca rhaphiophylla – Paperbark
Melaleuca pressiana – Paperbark
Melaleuca incana – Grey Honeymyrtle
Melaleuca viminea
Mirbelia dilitata – Pink Pea
Hibbertia hypericoides – Buttercup
Hardenbergia comptoniana – Native Wisteria
Hovea elliptica – Tree Hovea
Acacia pulchella – Prickly Moses
Xanthorrhoea preissii – Grass tree
Bossiaea linophylla – Weeping Bossiaea
Templetonia retusa – Cockies Tongue
Lepidosperma squamatum – Sedge
Astartea fascicularis – Winter Astartea
Macrozamia reidlei – Zamia
Orthrosanthus spp
Melaleuca cuticularis – Salt paperbark
Drosera species – Sundews
Philotheca spicata – Salt and Pepper
Acacia myrtifolia
Hypocalymma angustifolium – Swan River Myrtle
Callystachys lanceolata – Wonnich
Nuytsia floribunda – WA Christmas Tree
Hakea species – long needles, small white flowers (needs confirmation of species)
Hovea chorizemifolia – Oak leaf Hovea
Leucopogon propinquus
Calothamnus sanguineus – One sided bottlebrush
Pimelea spectabilis – Spectacular Riceflower
Comesperma virgatum – Milkwort
Pteridium esculentum – Bracken
Stylidium species – Triggerplants
Persoonia elliptica – Round leaf Snottygobble
Lomandra nigrans
Acacia semitrullata? (needs checking and confirmation)
Chamaescilla corybosa – Blue Squill
Astroloma pallidum – Kick Bush
Hibbertia cuneiformis – Cut leaf Hibbertia
Dasypogon bromellifolius – Prostrate pineapple bush
Sphaerolobium medium
Lindsaea linearis – Screw Fern
Kingia australis – Kingia
Hypocalymma cordifolium (possibly spp. minus – needs confirmation)
Gahnia trifida – Saw sedge
Mesomelaena tetragona – Semaphore Sedge
Acacia divergens – Shark tooth wattle
Hakea trifurcata – three leaved Hakea
Darwinea citriodora – Lemon scented myrtle
Thomasia triphylla
Viminaria juncea – Swishbush
Acacia extensa – Wiry Wattle

Species list noted on site visit – 14/9/2012 continued:

Persoonia longifolia – Snottygobble
Leucopogon verticillatus – Tassel Flower
Billardiera variifolia – Blue Billardiera
Patersonia occidentalis – Native Flag
Banksia grandis – Bull Banksia
Jacksonia furcellata – Stinkwood
Johnsonia lupulina – Hooded Lily
Eucalyptus diversicolor – Karri
Anigozanthos flavidus – Tall kangaroo paw
Tremandra diffusa
Bossiaea ericifolia
Scaevola species – Fan flowers
Leschenaultia biloba – Blue Leschenaultia
Eutaxia species – Eggs and Bacon
Hibbertia cunninghammii – Buttercup



Hypocalymma cordifolium subsp. minus is low growing, tangling shrub to 5/10cm tall and has whitish/pink flowers in September to December.

You have the normal Hypocalymma cordifolium, but also watch for the smaller spreading version which may be in the reserves as well.

This grows in wetland/damp areas within your region, and there are populations identified within 5kms of your site.



The above photos of plants show plants that may be within the reserves and Priority listed.

Acacia semitrullata will grow in damp areas, sandy soils.

Photos:



Site 2 – 4706 vegetation on the southern side of the firebreak.



Site 2 – 4706, vegetation on the northern side of the firebreak, sloping down towards Blackwood River.



Paperbark woodlands with Gahnia sedges in Site 2 – 4706.



Mixture of paperbark woodlands, Taxandria or Agonis thickets with sedgeland understorey in Site 2, 4706.



Site 2, 4706 vegetation of Kingia heathlands.



Hypocalymma cordifolium found on site in the Kingia heathlands, this may be H. cordifolium subsp. minus which is Priority 4 listed.



Kingia heathland with Semaphore Sedge understorey on orange clay/loam soils.
This area could be possibly susceptible to acid sulphate soils, close monitoring and preferably no digging to occur int his area if possible. Possible Priority listed Ecological Community, needs to be confirmed with botanist.



Population of H. cordifolium in the heathland area.



Orange oily staining in puddles/pools in Site 2, possible signs of acid sulphate soils.
To be closely monitored in future.



Kingia heathland, Site 2 – a high level of biodiversity in this area as well as providing habitat for a variety of wildlife species.



Possible A. semitrullata plants in Kingia Heathland, Site 2.



Melaleuca thickets, Site 2.



Paperbark woodlands with tea tree understorey, Site 2.



Firebreak/walk track traversing areas of Paperbark woodlands on one side, Jarrah/Marri/Peppermint on the other – Site 2.



Paperbark woodlands, rushes/sedges understorey – Site 3.



Site 3 – 4766.



Mixture of Jarrah/Marri/ Peppermint/ Paperbarks and Kingia, Site 3.



Dense thickets of Kunzea, Melaleucas on Site 3.



Bird sanctuary – Site 2.



Jarrah/Marri vegetation – Site 3.



Peppermint woodlands, Site 3.



Paperbark woodlands, Site 3.



Firebreak/walk track through Site 3.



Orange/oily water – possible signs of acid sulphate soils in Site 3.



Vegetation similar to Scott River National Park, Site 3.



Paperbark woodlands, Site 1.



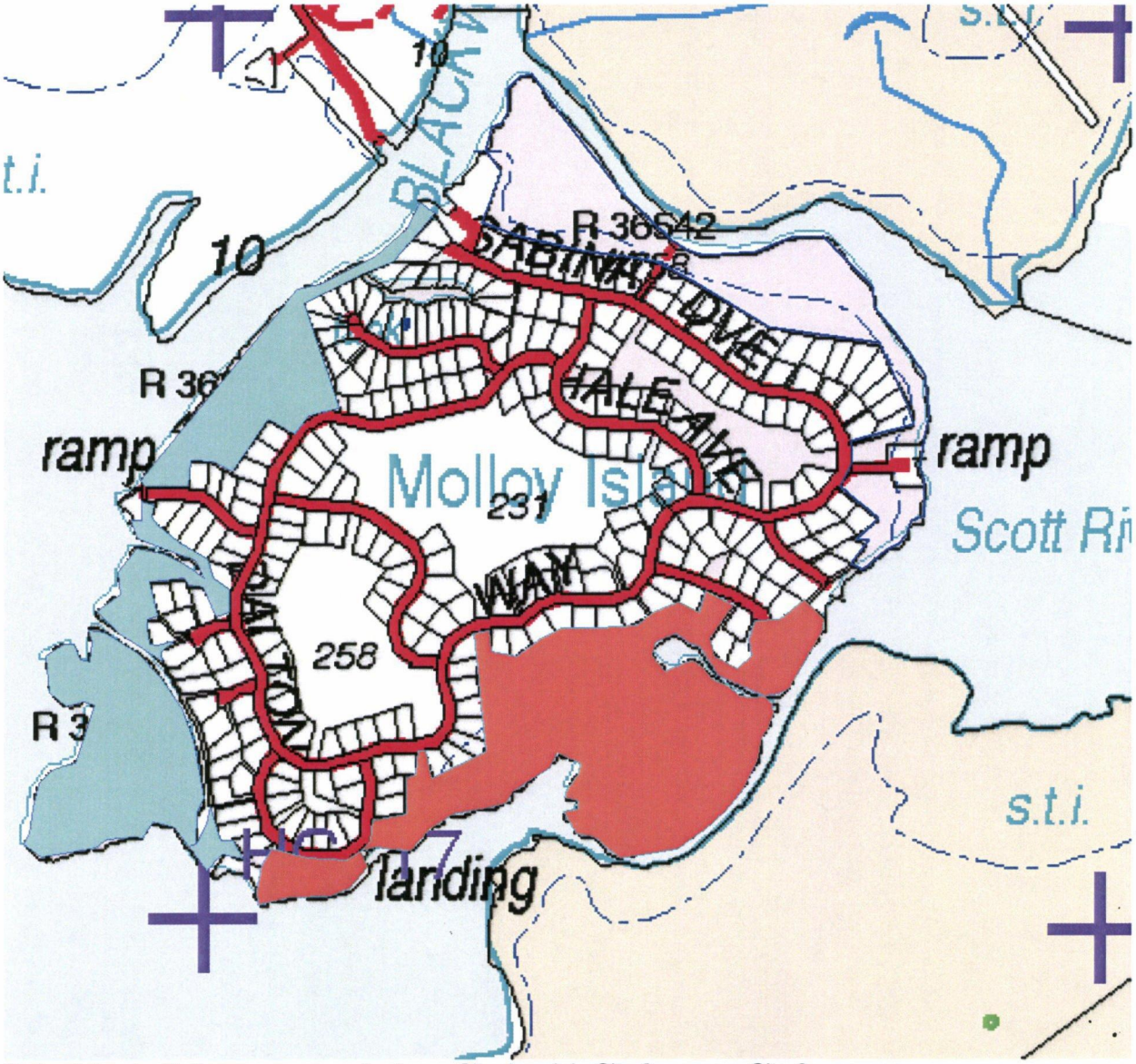
Thickets of Tea trees and Paperbarks, Site 1.



Site 1 vegetation. Thick and dense with very little weed or disturbance.



Site 1 vegetation.



Molloy Island with the reserves marked on – Site 1 – pink, Site 2 – green, Site 3 – orange.



Reserves – Site 1 – Blue, 4758. Site 2 – Purple, 4706. Site 3 – Turquoise, 4766.

Appendix B Land For Wildlife Monitoring Report 2012

Land for Wildlife – monitoring on Molloy Island – November/December 2012.

Southern Brown Bandicoots:



Locations where diggings were found:

34° 15’ 52.6” x 115° 12’ 58.4”. 1 digging.

33° 15’ 53.6” x 115° 13’ 07.1” = 3 diggings.

34° 16’ 02.6” x 115° 13’ 07.3” – 1 digging.

34° 16’ 04.5” x 115° 13’ 07.1” – 3 diggings.

34° 16’ 06.3” x 115° 13’ 05.5” – 5 diggings.

Snake tracks near the above diggings.

34° 16’ 18.0” x 115° 12’ 36.9” – 3 diggings.

34° 16’ 20.2” x 115° 12’ 27.3” – possible Engawaea species chimneys, needs further investigations.

Western ringtail possum droppings - 34° 16’ 22.6” x 115° 12’ 27.3”.

Echidna diggings – needs further monitoring - 34° 16’ 12.9” x 115° 12’ 18.0”.

Ants nests, ant tracks nearby – possible feeding site for echidnas.

Small gecko, Red cap Parrots, Western Rosellas, Wedgetail Eagle – seen near the above site.

Black skink seen/heard in Hall near the ferry depot, another black skink seen in drain near Sabina Rd.

Lots of snake tracks, lots of kangaroo tracks.

Night vision camera placed in Jarrah/Banksia woodlands – old fallen Jarrah log with Kingias and Banksias around the site. 34° 16’ 14.4” x 115° 12’ 41.7”. No success with camera, not working properly. Collected on 5/12/12. Bought back to the office for checking, will reset camera at the same location in January 2013.

Peppermint trees and Western Ringtail Possum droppings on the old fallen Jarrah log on the ground.



Dreys in this locality.



Photo of Western Ringtail Possum taken during night spotlighting on the western side of the island.

Western Ringtail Possums spotlighted – 2 females with 2 juveniles, 1 juvenile on its own = 5 wrp.

WRP heard and scent nearby houses, although not seen. Landowners on the inlet report lots of Western Ringtail Possums and Southern Brown Bandicoots seen regularly.

34° 15’ 50.3” x 115° 12’ 27.2” – Western Ringtail Possum droppings seen under Peppermint trees.

34° 15’ 46.2” x 115° 12’ 37.6” – Western Ringtail Possum droppings next to Manager’s Residence.

Spotlighting:

1 Motorbike frog (seen on track).

1 Squelching frog heard (inlet).

Rosie & Michael report regular sightings in the residential areas of both Western Ringtail Possums and Southern Brown Bandicoots/Quendas. Supported by Bev. Laurie found a Pygmy Possum on the island a few years ago.

1 Water rat sighted in the Blackwood River swimming from the island to the mainland – sighted by a resident.

2 Wedge tail Eagles seen regularly on the island (Joan).

6 White tail Black Cockatoos sighted on 9/11/12 evening, 10/11/12 morning.

Evidence on the island of:

1. Western Ringtail Possums (Threatened).
2. White tail black Cockatoos (Threatened).
3. Forest Red tail black Cockatoos (Threatened).
4. Southern Brown Bandicoots or Quendas (Priority Listed (P5).
5. Possibility of *Engawaea* species – needs further investigations and confirmation. Possibly Threatened.
6. Pygmy Possums (Not Threatened).
7. Water Rats (Not Threatened).
8. Western Grey Kangaroos (Not Threatened).
9. Snakes (Not Threatened).
10. Black Skinks (*Ergenia kingii*) – Not Threatened.
11. Geckoes – Not Threatened.
12. Possibility of Echidnas – Not Threatened.
13. Wedge tail Eagles – Not Threatened.
14. Variety of wetland birdlife – Not Threatened.
15. Variety of frogs – Not Threatened.



Possibly older Engawaea chimneys near wetlands area – Kingia park.



Bandicoot or Quenda diggings.



Snake tracks in the sandy areas.



Hibbertia stellaris flowering, near wetland/Kingia park.







Two Western Ringtail Possums, one female and one juvenile seen in large old Marri tree.



Western Ringtail Possums.

Photos on the mainland near the ferry depot, between the ferry and the caravan park:



Area of bandicoot diggings. Bracken is also Blue Wren habitat/nesting areas.



Dense wetland areas, perfect Bandicoot habitat.



Flora monitoring site visit 5/12/12:



Native bees going into holes in the ground, western side of the island.

Bees identified by WA Museum expert as: *Austrachile resinifera.* There were at least 20-30 bees at one site, and further along the track was another population of approximately the same number, very active.



Andrew Webb, DEC Regional Botanist looking at Leek Orchids in the reserves.



Andrew Webb taking flora samples for identification on the reserve. 5/12/12.



Stylidium species – to be identified by Andrew Webb (report).

Land For Wildlife – dated 10/12/12.
LFW/CK.

Appendix C Native Flora Species List

Species	LFW Reports 2012	Florabase 1998-	Ecosystem Solutions 2024	Status
Acacia browniana var browniana 'W variant'			X	
Acacia divergens	X		X	
Acacia extensa	X		X	
Acacia myrtifolia	X		X	
Acacia pulchella	X		X	
Acacia uligonosa			X	
Agonis flexuosa	X		X	
Amperea simulans			X	
Amphipogon (laguroides)			X	
Anarthria prolifera			X	
Angianthus preissianus		PERTH 00414808 (1975)		
Anigozanthos flavidus	X		X	
Aphelia cyperoides			X	
Apium annuum			X	
Apium prostratum			X	
Astartea fascicularis	X		X	
Astartea scoparia			X	
Atriplex sp.			X	
Austrostipa compressa			X	
Banksia grandis	X		X	
Banksia littoralis			X	
Billardiera (floribunda)			X	
Billardiera fusiformis			X	
Billardiera variifolia	X		X	
Boronia crenulata		PERTH 01194895 (1989)	X	
Boronia juncea subsp. minima			X	
Bossiaea linophylla	X		X	
Bossiaea ornata		PERTH 04403029 (1984)	X	
Bossiaea praetermissa			X	
Burchardia congesta			X	
Burchardia multiflora			X	
Caesia micrantha			X	
Caladenia flava			X	
Caladenia brownii			X	
Caladenia longiclavata			X	
Callistachys lanceolata	X		X	
Calothamnus sanguineus	X			
Cassytha glabella			X	
Cassytha racemosa			X	
Centrolepis aristata			X	
Centrolepis drummondiana			X	
Chamaescilla corymbosa	X	PERTH 04485408 (1984)	X	
Chamaescilla corymbosa var. corymbosa			X	
Chara sp. (Freshwater alage)			X	
Chorizema nanum			X	
Cladonia cervicornis subsp. verticillata		PERTH 02818701 (1975)		
Comesperma virgatum	X	PERTH 04042212 (1975)	X	
Conospermum capitatum subsp. glabratum		PERTH 01785419 (1985)	X	
Conostylis aculeata subsp. aculeata		PERTH 04486269 (1984)	X	
Conostylis setigera			X	
Corymbia calophylla	X		X	
Craspedia variabilis			X	
Cryptostylis ovata			X	
Cyathochaeta avenaceae			X	
Cycnogeton huegelii			X	
Cyrtostylis huegelii			X	
Dampiera trigona			X	
Dampiera hederacea		PERTH 02542366 (unknowr	X	
Darwinia citriodora	X			

Darwinia oederoides			X	
Dasypogon bromeliifolius	X		X	
(Daucus glochidiatus)			X	
Daviesia inflata			X	
Desmocladus fasciculatus			X	
Dodonaea viscosa subsp. angustissima			X	
Drosera erythrorhiza			X	
Drosera glanduligera			X	
Drosera pallida			X	
Drosera pulchella			X	
Drosera spp.	X			
Elythranthera brunonis			X	
Eriochilus helonomos			X	
Eucalyptus diversicolor	X			
Eucalyptus marginata	X		X	
Eucalyptus rudis subsp. cratyantha			X	P4
Eutaxia myrtifolia			X	
Eutaxia obovata			X	
Eutaxia virgata			X	
Gahnia trifida	X		X	
Gompholobium knightianum			X	
Gompholobium marginatum			X	
Gompholobium polymorphum			X	
Goodenia macrophylla		PERTH 02692600 (1975)		
Goodenia pulchella			X	
Gratiola pubescens			X	
Hakea linearis			X	
Hakea oleifolia			X	
Hakea ruscifolia			X	
Hakea sulcata			X	
Hakea trifurcata	X			
Hakea varia			X	
Hardenbergia comptoniana	X		X	
Hemiandra sp. Windy Harbour			X	P3
Hibbertia cuneiformis	X		X	
Hibbertia cunninghammii	X		X	
Hibbertia hypericoides subsp. hypericoides	X	PERTH 04142322 (1984)	X	
Hibbertia racemosa			X	
Hibbertia stellaris	X		X	
Hovea chorizemifolia	X		X	
Hovea elliptica	X		X	
Hovea trisperma			X	
Hyalosperma demissum			X	Range extension
Hydrocotyle alata			X	
Hydrocotyle callicarpa			X	
Hydrocotyle diantha			X	
Hypocalymma angustifolium	X		X	
Hypocalymma cordifolium	X		X	
Hypolaena exsulca			X	
Hypolaena pubescens			X	
Isolepis (cernua var. setiformis)			X	
Isotropis cuneifolia			X	
Jacksonia furcellata	X		X	
Johnsonia lupulina	X		X	
Juncus kraussii			X	
Juncus pauciflorus			X	
Kingia australis	X		X	
Kunzea glabrescens	X		X	
Lagenophora huegelii			X	
Lepidosperma pubisquameum			X	
Lepidosperma squamatum	X		X	

Leptocarpus sp.			X	
Leptomeria scrobiculata			X	
Leschenaultia biloba	X			
Leucopogon hirsutus			X	
Leucopogon parviflorus			X	
Leucopogon propinquus	X			
Leucopogon verticillatus	X		X	
Levenhookia pusilla			X	
Lindsaea linearis	X		X	
Lomandra brittanii			X	
Lomandra caespitosa			X	
Lomandra nigrans	X		X	
Loxocarya cinerea			X	
Luzula meridionalis			X	
Machaerina juncea			X	
Machaerina vaginalis			X	
Macrozamia reidlei	X		X	
Melaleuca (lanceolata)			X	
Melaleuca cuticularis	X		X	
Melaleuca incana	X		X	
Melaleuca incana subsp. incana			X	
Melaleuca pauciflora			X	
Melaleuca pressiana	X		X	
Melaleuca rhaphiophylla	X		X	
Melaleuca viminea	X		X	
Melaleuca lateritia			X	
Mesomelaena tetragona	X		X	
Microlaena stipoides			X	
Mirbelia dilitata	X		X	
Monotaxis occidentalis			X	
Morelotia octandra			X	
Myoporum oppositifolium			X	
Netrostylis sp. Blackwood River			X	P3
Netrostylis sp. Jarrah Forest			X	
Neurachne alopecuroidea			X	
Nuytsia floribunda	X		X	
Opercularia apiciflora			X	
Opercularia echinocephala			X	
Opercularia vaginata			X	
Opercularia hispidula			X	
Orianthera serpyllifolia			X	
Ornduffia parnassifolia			X	
Orthrosanthus laxus			X	
Orthrosanthus spp.	X			
Panus fasciatus		PERTH 00921963 (1986)		
Patersonia juncea			X	
Patersonia occidentalis	X		X	
Pericalymma spongiocaule			X	
Persoonia elliptica	X		X	
Persoonia longifolia	X		X	
Philotheca spicata	X	PERTH 01195328 (1989)	X	
Phyllangium paradoxum			X	
Pimelea hispida			X	
Pimelea rosea			X	
Pimelea spectabilis	X			
Platysace filiformis			X	
Platysace tenuissima			X	
Prasophyllum brownii	X			
Pteridium esculentum	X		X	
Pterostylis vittata			X	
Pyrorchis nigricans			X	

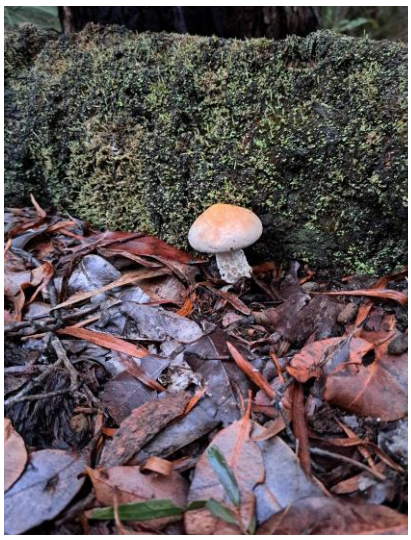
Rhodanthe citrina			X	
Salicornia sp.			X	
Scaevola calliptera			X	
Scaevola spp.	X		X	
Schoenus bifidus			X	
Schoenus efoliatus			X	
Schoenus laevigatus			X	
Senecio sp.			X	
Siloxerus filifolius			X	
Sowerbaea laxiflora			X	
Sphaerolobium (vimineum)			X	
Sphaerolobium medium	X			
Stylidium amoenum			X	
Stylidium rhynchocarpum			X	
Stylidium spathulatum			X	
Stylidium spp.	X			
Stylidium thryonides			X	
Styphelia pallida	X			
Suaeda australis			X	
Taxandria juniperina			X	
Taxandria linearifolia	X		X	
Taxandria parviceps	X		X	
Templetonia retusa	X			
Tetrarrhena laevis			X	
Thomasia pauciflora		PERTH 06270824 (1994)	X	
Thomasia triphylla	X			
Thysanotus tenellus			X	
Trachymene pilosa			X	
Tremandra diffusa	X		X	
Tricoryne elatior			X	
Tripterococcus brunonis			X	
Viminaria juncea	X		X	
Wahlenbergia (gracilenta)			X	
Xanthorrhoea preissii	X		X	
Xanthosia candida		PERTH 04376366 (1984)	X	
Xanthosia huegelii			X	
Xanthosia tasmanica			X	

() = Tentative ID

Appendix D Fungi Report & Species List

Fungi of Molloy Island Reserves – Janean Robinson and the Friends of Molloy Island Reserves

Austroboletus occidentalis (Ridge-Stemmed Bolete) 3.07.22 near Baker's Landing



Ramaria capitata var. *ochraceosalmonicolor* (Salmon Coral Fungus) 22.07.24 Central Reserve



To the best of my knowledge, no specific survey or report has been conducted of the Fungi of Molloy Island. I have, together with the Friends of MI Reserves, been collecting anecdotal data (mainly photographs) that may provide a form of documentation/ baseline for the future. One of the resources used to help identify these species were reports done both in 2007 & 2008 of the '*Fungi of West Bay Bushland, Augusta', WA* written and produced by Neale L. Bougher, Roz Hart, Sarah de Bueger, Joe Froudist and Brett Glossop (Department of Environment and Conservation and the Perth Uban Bushland Fungi Project PUBF, whose website remains as www.fungiperth.org.au).

Below is the cover of one of these reports which I obtained from the Augusta library. Someone from our previous MI wonderful Environmental Group, must have attended the 2008 workshop, because a copy of PUBF Fungi Kit is in our records!



The latest version of Neale L. Bougher's '*Fungi of the Perth Region and Beyond: A Self-Managed Field Book'* (2009/2017) published by Western Australian Naturalists' Club (Inc.) Perth, Western Australia, has also been most helpful in trying to identify our specimens on Molloy Island. I want to declare that we are 'citizen scientists' in this quest to try to preserve the ecological and environmental values of Molloy Island as we compile this research on our Fungi and therefore do not claim to have it all correct! As Bougher et al., (2017) explain, "without fungi many plants and animals in the bushlands would struggle to thrive". That is because their "networks recycle and distribute precious nutrients" in our reserves and our native plants (including orchids) have symbiotic mycorrhizal partnerships with them. Fungi also provide food and sometimes habitat for many of our animals including quendas and important insects. We hope to continue to study them and appreciate more the interdependence between the Flora, Fauna and Fungi of Molloy Island Reserves to help manage and nurture them into the future.

Important information for this report was also gleaned from the work of ecologist Richard Robinson who was a senior research scientist with the then Department of Conservation and Land Management, based at the Manjimup Research Centre.

Fungi can also be weeds!

From Robinson's fact sheet 69 (2013), we have learnt that what we thought were helpful fungi, can in fact be a problem. *Armillaria luteobubalina*, or Australian Honey Fungus, pictured below by our group (first in 2023 and then again in July 2024), we now realise, is an endemic parasitic fungus. This then not only infects the trees (in this case large paperbarks near the lagoon) that have been weakened by other factors (lack of light, water, disturbance etc) but can eventually kill them.

Another invasive fungus which has arrived on our shores are the Orange Ping Pong Bats (*Favolaschia calocera)*, which are spreading rapidly and tend to fruit in colonies on dead wood. We will be monitoring this closely and track distributions so they can be submitted to the Fungimap website at http://fungimap.org.au/. When we walk in the area of the reserves that we know this invasive species exists, we will be very vigilant, because not only does it displace native fungi and produce chemicals that attack other fungi, but its spores can travel on everything including our hats! Source: Problem Fungi - Fungi4Land





But not all is lost, because we still have 'good' fungi on the Island, for example those that provide us with a beautiful green luminescent glow at night! That is the ghost fungus (*Omphalotus nidiformis*) pictured (below left) found close to the public jetty in July 2024. We are also happy to witness the grandchildren of some of our members learn about the rainbow form of fungi (*Trametes versicolour*) as they get up close with their spiderman superhero investigations! Finally, we are pleased to share the first 'leather look' fungi we photographed in 2024, after the rains at last arrived after a very long hiatus of 7 months! This fungus was growing at the base of a jarrah tree and was purely glistening with pride on the last day of May in 2024. The is *Fistulina hepatica* (Beef steak fungi).







References:

Bougher, N. L. (2009, revised 2017). *Fungi of the Perth Region and Beyond: A self-managed field book*. Western Australian Naturalists' Club (Inc.), Perth, Western Australia. [If downloaded add: http://www.wanaturalists.org.au (date accessed)].

Robinson, Richard (2003). *Fungi of the South-West Forest*. Department of Conservation and Land Management, Western Australia.

Molloy Island Fungi Species List

Species	Notes	Photo
Armillaria luteobubalina	Australian Honey Fungus An endemic parasitic fungus. This species can infect trees, especially those that have been weakened by other factors, and eventually kill them.	
Austroboletus occidentalis	Ridge-Stemmed Bolete. 3/7/2022 near Baker's Landing.	
Cortinarius sp.	19/05/2021	
Favolaschia calocera	Orange Pore Fungus. An invasive fungus, which is spreading rapidly on the Island. Caution must be taken to not spread this species further into the bushland.	
Fistulina hepatica	Beefsteak Polypore. At the base of a Jarrah tree, 31 May 2024.	

Fomitopsis sp.	Species of bracket fungi in the family Fomitopsidaceae observed by Ecosystem Solutions. 10/10/2024	
Gymnopilus junonius	Spectacular Rustgill 25/05/2023	
Laetiporus portentosus	White Punk Fungus 16/06/2024 Growing on a large gum near the RU OK shed.	
Lichenomphalia sp.	Species of Hygrophoraceae fungi, a basidiolichen and an agaric genus, observed by Ecosystem Solutions. 9/10/2024	
Mycena sp.	Growing on dead Marri 14/07/2024	

Omphalotus nidiformis	Ghost Fungus Close to the public jetty, July 2024.	
Piptoporus australiensis	Curry Punk 27/02/2022	
Ramaria capitata var. *ochraceosalmonicolor*	Salmon Coral Fungus 22/07/2024 Central Reserve.	
Russula clelandii	19/05/2021	
Trametes versicolor	Turkey-tail	

Appendix E NatureMap Interim Data Search Extract

Naturemap Extract of Flora Recorded within 10km of the Site (DBCA, 2023)

Taxon	Cons. Status	WA Status
Acacia lateriticola var. Glabrous variant (B.R. Maslin 6765)	3	
Adenanthos detmoldii	4	
Adenanthos x pamela	4	
Amanita fibrillopes	3	
Andersonia ferricola	1	
Andersonia sp. Amabile (N. Gibson & M. Lyons 355)	3	
Aotus carinata	4	
Astartea onycis	4	
Banksia meisneri subsp. ascendens	4	
Banksia nivea subsp. uliginosa	T	EN
Blennospora doliiformis	3	
Boronia anceps	3	
Boronia exilis	T	EN
Caladenia abbreviata	3	
Caladenia excelsa	T	
Caladenia lodgeana	T	CR
Caladenia pholcoidea subsp. augustensis	1	
Calothamnus lateralis var. crassus	3	
Chordifex gracilior	3	
Chordifex jacksonii	3	
Conospermum quadripetalum	2	
Cyathochaeta stipoides	3	
Dampiera heteroptera	3	
Darwinia ferricola	T	EN
Darwinia terricola	1	
Diuris drummondii	T	VU
Diuris heberlei	2	
Drosera fimbriata	4	
Franklandia triaristata	4	
Gastrolobium formosum	3	
Gonocarpus pusillus	4	
Grevillea brachystylis subsp. australis	T	EN
Grevillea manglesioides subsp. ferricola	3	
Grevillea papillosa	3	
Hemiandra sp. Windy Harbour (B.J. Conn & J.A. Scott BJC 3344)	3	
Hemigenia obovata	1	

Taxon	Cons. Status	WA Status
Hemigenia sp. Nillup (R.D. Royce 98)	2	
Isopogon formosus subsp. dasylepis	3	
Kennedia lateritia	T	EN
Lambertia orbifolia subsp. Scott River Plains (L.W. Sage 684)	T	EN
Lambertia orbifolia subsp. vespera	T	
Leptomeria dielsiana	X	EX
Leptomeria furtiva	2	
Leucopogon wheelerae	3	
Loxocarya magna	3	
Melaleuca basicephala	4	
Pericalymma megaphyllum	1	
Philydrella pygmaea subsp. minima	1	
Pigea volubilis	2	
Pultenaea skinneri	4	
Schoenus indutus	1	
Schoenus loliaceus	2	
Schoenus sp. Grassy (E. Gude & J. Harvey 250)	2	
Stenanthemum sublineare	2	
Stylidium ireneae	4	
Stylidium leeuwinense	4	
Stylidium sp. Scott River Plain (N.G. Marchant 74/23)	1	
Stylidium trudgenii	3	
Styphelia intricata	2	
Synaphea nexosa	1	
Tripterococcus sp. Brachylobus (A.S. George 14234)	4	
Verticordia lehmannii	4	
Verticordia plumosa var. vassensis	T	EN

Naturemap Extract of Fauna Recorded within 10km of the Site (DBCA, 2023)

Taxon	Common Name	Class	WA Status	EPBC Status
Actitis hypoleucos	Common Sandpiper	Bird	MI	MI
Arctocephalus tropicalis	Subantarctic Fur-Seal	Mammal	VU	EN
Ardenna carneipes	Flesh-Footed Shearwater	Bird	VU	MI
Arenaria interpres	Ruddy Turnstone	Bird	MI	MI
Atrichornis clamosus	Noisy Scrub-Bird, Tjimiluk	Bird	EN	EN
Bettongia penicillata ogilbyi	Woylie, Brush-Tailed Bettong	Mammal	CR	EN
Cacatua pastinator pastinator	Muir's Corella	Bird	CD	
Calidris acuminata	Sharp-Tailed Sandpiper	Bird	MI	MI
Calidris alba	Sanderling	Bird	MI	MI
Calidris canutus	Red Knot	Bird	EN	EN
Calidris ferruginea	Curlew Sandpiper	Bird	CR	MI
Calidris ruficollis	Red-Necked Stint	Bird	MI	MI
Calidris subminuta	Long-Toed Stint	Bird	MI	MI
Calidris tenuirostris	Great Knot	Bird	CR	MI
Calyptorhynchus banksii naso	Forest Red-Tailed Black Cockatoo	Bird	VU	VU
Calyptorhynchus baudinii	Baudin's Cockatoo	Bird	EN	EN
Calyptorhynchus latirostris	Carnaby's Cockatoo	Bird	EN	EN
Calyptorhynchus sp. 'white-tailed black cockatoo'	White-Tailed Black Cockatoo	Bird	EN	EN
Calyptorhynchus sp. 'white-tailed black cockatoo'	White-Tailed Black Cockatoo	Bird	EN	
Caretta caretta	Loggerhead Turtle	Reptile	EN	EN & MI
Charadrius bicinctus	Double-Banded Plover	Bird	MI	MI
Charadrius leschenaultii	Greater Sand Plover, Large Sand Plover	Bird	VU	MI
Charadrius mongolus	Lesser Sand Plover	Bird	EN	MI
Dasyornis longirostris	Western Bristlebird	Bird	EN	EN
Dasyurus geoffroii	Chuditch, Western Quoll	Mammal	VU	VU
Diomedea exulans	Wandering Albatross	Bird	VU	VU
Eubalaena australis	Southern Right Whale	Mammal	VU	EN
Eubalaena australis	Southern Right Whale	Mammal	VU	EN & MI
Falco peregrinus	Peregrine Falcon	Bird	OS	
Falsistrellus mackenziei	Western False Pipistrelle, Western Falsistrelle	Mammal	P4	
Galaxiella munda	Mud Minnow, Western Dwarf Galaxias	Fish	VU	
Galaxiella nigrostriata	Black-Stripe Minnow, Black-Striped Dwarf Galaxias	Fish	EN	EN
Geocrinia alba	White-Bellied Frog	Amphibian	CR	CR

Taxon	Common Name	Class	WA Status	EPBC Status
Geotria australis	Pouched Lamprey	Fish	P3	
Hydromys chrysogaster	Water-Rat, Rakali	Mammal	P4	
Hydroprogne caspia	Caspian Tern	Bird	MI	MI
Isoodon fusciventer	Quenda, Southwestern Brown Bandicoot	Mammal	P4	
Leipoa ocellata	Malleefowl	Bird	VU	VU
Lepidogalaxias salamandroides	Salamanderfish	Fish	EN	
Limicola falcinellus	Broad-Billed Sandpiper	Bird	MI	MI
Limosa lapponica	Bar-Tailed Godwit	Bird	MI	MI
Limosa limosa	Black-Tailed Godwit	Bird	MI	MI
Macronectes giganteus	Southern Giant Petrel	Bird	MI	EN
Megaptera novaeangliae	Humpback Whale	Mammal	CD & MI	VU
Megaptera novaeangliae	Humpback Whale	Mammal	CD & MI	MI
Notamacropus irma	Western Brush Wallaby	Mammal	P4	
Numenius phaeopus	Whimbrel	Bird	MI	MI
Onychoprion anaethetus	Bridled Tern	Bird	MI	MI
Oxyura australis	Blue-Billed Duck	Bird	P4	
Pandion haliaetus	Osprey	Bird	MI	MI
Pezoporus flaviventris	Western Ground Parrot	Bird	CR	CR
Phascogale tapoatafa wambenger	South-Western Brush-Tailed Phascogale, Wambenger	Mammal	CD	
Physeter macrocephalus	Sperm Whale	Mammal	VU	MI
Plegadis falcinellus	Glossy Ibis	Bird	MI	MI
Pluvialis fulva	Pacific Golden Plover	Bird	MI	MI
Pluvialis squatarola	Grey Plover	Bird	MI	MI
Potorous gilbertii	Gilbert's Potoroo	Mammal	CR	CR
Pseudocheirus occidentalis	Western Ringtail Possum, Ngwayir	Mammal	CR	CR
Pseudomys fieldi	Shark Bay Mouse, Djoongari	Mammal	VU	VU
Pseudomys shortridgei	Heath Mouse, Heath Rat, Dayang	Mammal	VU	EN
Setonix brachyurus	Quokka	Mammal	VU	VU
Stercorarius antarcticus lonnbergi	Brown Skua, Subantarctic Skua	Bird	P4	
Stercorarius parasiticus	Arctic Jaeger, Arctic Skua	Bird	MI	MI
Thalassarche carteri	Indian Yellow-Nosed Albatross	Bird	EN	VU & MI
Thalassarche cauta cauta	Shy Albatross	Bird	VU	MI
Thalassarche chlororhynchos	Atlantic Yellow-Nosed Albatross	Bird	VU	MI
Thalassarche melanophris	Black-Browed Albatross	Bird	EN	VU & MI
Thalassarche melanophris	Black-Browed Albatross	Bird	EN	MI

Taxon	Common Name	Class	WA Status	EPBC Status
Thalasseus bergii	Crested Tern	Bird	MI	MI
Thinornis rubricollis	Hooded Plover, Hooded Dotterel	Bird	P4	
Tringa brevipes	Grey-Tailed Tattler	Bird	MI & P4	MI
Tringa nebularia	Common Greenshank	Bird	MI	MI
Tringa stagnatilis	Marsh Sandpiper	Bird	MI	MI
Tyto novaehollandiae novaehollandiae	Masked Owl (Southwest)	Bird	P3	
Westralunio carteri	Carter's Freshwater Mussel	Invertebrate	VU	VU

Appendix F PMST Report

Australian Government

Department of Climate Change, Energy, the Environment and Water

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 16-Aug-2023

Summary

Details

- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat

Acknowledgements

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	1
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	67
Listed Migratory Species:	49

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	3
Commonwealth Heritage Places:	None
Listed Marine Species:	73
Whales and Other Cetaceans:	12
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	1
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	6
Regional Forest Agreements:	1
Nationally Important Wetlands:	1
EPBC Act Referrals:	9
Key Ecological Features (Marine):	None
Biologically Important Areas:	10
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Commonwealth Marine Area [Resource Information]

Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside a Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area.

Feature Name	Buffer Status
EEZ and Territorial Sea	In buffer area only

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Aquatic Root Mat Community 1 in Caves of the Leeuwin Naturaliste Ridge	Endangered	Community known to occur within area	In buffer area only
Scott River Ironstone Association	Endangered	Community likely to occur within area	In buffer area only
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area	In feature area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Species or species habitat known to occur within area	In buffer area only
Calyptorhynchus banksii naso Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area	In feature area
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area	In feature area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In feature area
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit [86432]	Critically Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In feature area
Zanda baudinii listed as Calyptorhynchus baudinii Baudin's Cockatoo, Baudin's Black-Cockatoo, Long-billed Black-cockatoo [87736]	Endangered	Breeding known to occur within area	In feature area
Zanda latirostris listed as Calyptorhynchus latirostris Carnaby's Black Cockatoo, Short-billed Black-cockatoo [87737]	Endangered	Species or species habitat known to occur within area	In feature area
CRUSTACEAN			
Engaewa pseudoreducta Margaret River Burrowing Crayfish [82674]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Engaewa reducta Dunsborough Burrowing Crayfish [82675]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
FISH			
Galaxiella nigrostriata Blackstriped Dwarf Galaxias, Black-stripe Minnow [88677]	Endangered	Species or species habitat known to occur within area	In feature area
Nannatherina balstoni Balston's Pygmy Perch [66698]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thunnus maccoyii Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat likely to occur within area	In feature area
FROG			
Anstisia alba listed as Geocrinia alba White-bellied Frog, Creek Frog [92544]	Critically Endangered	Species or species habitat known to occur within area	In buffer area only
MAMMAL			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat known to occur within area	In feature area
Eubalaena australis Southern Right Whale [40]	Endangered	Breeding known to occur within area	In buffer area only
Myrmecobius fasciatus Numbat [294]	Endangered	Species or species habitat may occur within area	In buffer area only
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat may occur within area	In feature area
Pseudocheirus occidentalis Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Setonix brachyurus Quokka [229]	Vulnerable	Species or species habitat likely to occur within area	In feature area
OTHER			
Westralunio carteri Carter's Freshwater Mussel, Freshwater Mussel [86266]	Vulnerable	Species or species habitat known to occur within area	In feature area
PLANT			
Banksia mimica Summer Honeypot [82765]	Endangered	Species or species habitat may occur within area	In buffer area only
Banksia nivea subsp. uliginosa Swamp Honeypot [82766]	Endangered	Species or species habitat known to occur within area	In feature area
Banksia squarrosa subsp. argillacea Whicher Range Dryandra [82769]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Boronia exilis Scott River Boronia [64844]	Endangered	Species or species habitat known to occur within area	In feature area
Caladenia hoffmanii Hoffman's Spider-orchid [56719]	Endangered	Species or species habitat may occur within area	In buffer area only
Caladenia lodgeana Lodge's Spider-orchid [68664]	Critically Endangered	Species or species habitat known to occur within area	In buffer area only
Calectasia cyanea Blue Tinsel Lily [7669]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Darwinia ferricola Scott River Darwinia [56706]	Endangered	Species or species habitat known to occur within area	In buffer area only
Drakaea micrantha Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Gastrolobium papilio Butterfly-leaved Gastrolobium [78415]	Endangered	Species or species habitat may occur within area	In buffer area only
Grevillea brachystylis subsp. australis [55525]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Kennedia lateritia Augusta Kennedia [45985]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Lambertia echinata subsp. occidentalis Western Prickly Honeysuckle [64528]	Endangered	Species or species habitat may occur within area	In buffer area only
Lambertia orbifolia Roundleaf Honeysuckle [15725]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Leptomeria dielsiana			
Diels' Currant Bush [5146]	Vulnerable	Species or species habitat known to occur within area	In feature area
Reedia spathacea			
Reedia [2995]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Verticordia plumosa var. vassensis			
Vasse Featherflower [55804]	Endangered	Species or species habitat known to occur within area	In feature area
REPTILE			
Caretta caretta			
Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area	In feature area
Chelonia mydas			
Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In feature area
Dermochelys coriacea			
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area	In feature area
Natator depressus			
Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area	In feature area
SHARK			
Carcharias taurus (west coast population)			
Grey Nurse Shark (west coast population) [68752]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Carcharodon carcharias			
White Shark, Great White Shark [64470]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Galeorhinus galeus			
School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark [68453]	Conservation Dependent	Species or species habitat may occur within area	In buffer area only
Rhincodon typus			
Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Listed Migratory Species	[Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Ardenna carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Ardenna grisea Sooty Shearwater [82651]		Species or species habitat may occur within area	In buffer area only
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area	In feature area
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area	In feature area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In feature area
Hydroprogne caspia Caspian Tern [808]		Foraging, feeding or related behaviour known to occur within area	In buffer area only
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Macronectes halli			
Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Onychoprion anaethetus			
Bridled Tern [82845]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Phoebetria fusca			
Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche carteri			
Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta			
Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche impavida			
Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche melanophris			
Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi			
White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In feature area
Migratory Marine Species			
Balaenoptera edeni			
Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
Balaenoptera musculus			
Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Caperea marginata Pygmy Right Whale [39]		Species or species habitat may occur within area	In buffer area only
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area	In buffer area only
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area	In feature area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In feature area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area	In feature area
Eubalaena australis as Balaena glacialis australis Southern Right Whale [40]	Endangered	Breeding known to occur within area	In buffer area only
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area	In buffer area only
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area	In feature area
Megaptera novaeangliae Humpback Whale [38]		Congregation or aggregation known to occur within area	In buffer area only
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat likely to occur within area	In feature area
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Natator depressus Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area	In feature area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area	In buffer area only
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area	In feature area
Calidris alba Sanderling [875]		Species or species habitat known to occur within area	In buffer area only
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area	In buffer area only
Calidris tenuirostris Great Knot [862]	Critically Endangered	Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Charadrius leschenaultii			
Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Limosa lapponica			
Bar-tailed Godwit [844]		Species or species habitat may occur within area	In feature area
Numenius madagascariensis			
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pandion haliaetus			
Osprey [952]		Breeding known to occur within area	In feature area
Pluvialis fulva			
Pacific Golden Plover [25545]		Species or species habitat likely to occur within area	In buffer area only
Tringa nebularia			
Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Unknown		
Commonwealth Land - [50386]	WA	In buffer area only
Commonwealth Land - [52112]	WA	In buffer area only
Commonwealth Land - [51483]	WA	In buffer area only

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Ardenna carneipes as Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Ardenna grisea as Puffinus griseus Sooty Shearwater [82651]		Species or species habitat may occur within area	In buffer area only
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area	In feature area
Calidris alba Sanderling [875]		Species or species habitat known to occur within area	In buffer area only
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Calidris tenuirostris Great Knot [862]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In buffer area only
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Charadrius ruficapillus Red-capped Plover [881]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area	In feature area
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area	In feature area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Hydroprogne caspia as Sterna caspia Caspian Tern [808]		Foraging, feeding or related behaviour known to occur within area	In buffer area only
Larus pacificus Pacific Gull [811]		Foraging, feeding or related behaviour known to occur within area	In buffer area only
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat may occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Onychoprion anaethetus as Sterna anaethetus Bridled Tern [82845]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Pachyptila turtur Fairy Prion [1066]		Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pandion haliaetus Osprey [952]		Breeding known to occur within area	In feature area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Pluvialis fulva Pacific Golden Plover [25545]		Species or species habitat likely to occur within area	In buffer area only
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Puffinus assimilis Little Shearwater [59363]		Foraging, feeding or related behaviour known to occur within area	In buffer area only
Stercorarius antarcticus as Catharacta skua Brown Skua [85039]		Species or species habitat may occur within area	In buffer area only
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thinornis cucullatus as Thinornis rubricollis Hooded Plover, Hooded Dotterel [87735]		Species or species habitat known to occur within area overfly marine area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area overfly marine area	In feature area
Fish			
Acentronura australe Southern Pygmy Pipehorse [66185]		Species or species habitat may occur within area	In buffer area only
Campichthys galei Gale's Pipefish [66191]		Species or species habitat may occur within area	In buffer area only
Heraldia nocturna Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area	In buffer area only
Hippocampus angustus Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area	In buffer area only
Hippocampus breviceps Short-head Seahorse, Short-snouted Seahorse [66235]		Species or species habitat may occur within area	In buffer area only
Hippocampus subelongatus West Australian Seahorse [66722]		Species or species habitat may occur within area	In buffer area only
Histiogamphelus cristatus Rhino Pipefish, Macleay's Crested Pipefish, Ring-back Pipefish [66243]		Species or species habitat may occur within area	In buffer area only
Lissocampus caudalis Australian Smooth Pipefish, Smooth Pipefish [66249]		Species or species habitat may occur within area	In buffer area only
Lissocampus fatiloquus Prophet's Pipefish [66250]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Lissocampus runa Javelin Pipefish [66251]		Species or species habitat may occur within area	In buffer area only
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area	In buffer area only
Mitotichthys meraculus Western Crested Pipefish [66259]		Species or species habitat may occur within area	In buffer area only
Nannocampus subosseus Bonyhead Pipefish, Bony-headed Pipefish [66264]		Species or species habitat may occur within area	In buffer area only
Phycodurus eques Leafy Seadragon [66267]		Species or species habitat may occur within area	In buffer area only
Phyllopteryx taeniolatus Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area	In buffer area only
Pugnaso curtirostris Pugnose Pipefish, Pug-nosed Pipefish [66269]		Species or species habitat may occur within area	In buffer area only
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area	In buffer area only
Stigmatopora argus Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area	In buffer area only
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area	In buffer area only
Urocampus carinirostris Hairy Pipefish [66282]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Vanacampus margaritifer			
Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area	In buffer area only
Vanacampus phillipi			
Port Phillip Pipefish [66284]		Species or species habitat may occur within area	In buffer area only
Vanacampus poecilolaemus			
Longsnout Pipefish, Australian Long-snout Pipefish, Long-snouted Pipefish [66285]		Species or species habitat may occur within area	In buffer area only
Mammal			
Arctocephalus forsteri			
Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat likely to occur within area	In buffer area only
Neophoca cinerea			
Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat may occur within area	In feature area
Reptile			
Caretta caretta			
Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area	In feature area
Chelonia mydas			
Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In feature area
Dermochelys coriacea			
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area	In feature area
Natator depressus			
Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area	In feature area

Whales and Other Cetaceans		[Resource Information]	
Current Scientific Name	Status	Type of Presence	Buffer Status
Mammal			
Balaenoptera acutorostrata			
Minke Whale [33]		Species or species habitat may occur within area	In buffer area only

Current Scientific Name	Status	Type of Presence	Buffer Status
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Caperea marginata Pygmy Right Whale [39]		Species or species habitat may occur within area	In buffer area only
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In buffer area only
Eubalaena australis Southern Right Whale [40]	Endangered	Breeding known to occur within area	In buffer area only
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area	In buffer area only
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area	In buffer area only
Megaptera novaeangliae Humpback Whale [38]		Congregation or aggregation known to occur within area	In buffer area only
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area	In buffer area only
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area	In buffer area only
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area	In buffer area only

Australian Marine Parks [Resource Information]

Park Name	Zone & IUCN Categories	Buffer Status
South-west Corner	Special Purpose Zone (Mining Exclusion) (IUCN VI)	In buffer area only

Extra Information

State and Territory Reserves [Resource Information]

Protected Area Name	Reserve Type	State	Buffer Status
Leeuwin-Naturaliste	National Park	WA	In buffer area only
Ngari Capes	Marine Park	WA	In buffer area only
Scott	National Park	WA	In feature area
Unnamed WA15185	Nature Reserve	WA	In buffer area only
Unnamed WA42377	Nature Reserve	WA	In buffer area only
Unnamed WA42942	Nature Reserve	WA	In buffer area only

Regional Forest Agreements [Resource Information]

Note that all areas with completed RFAs have been included. Please see the associated resource information for specific caveats and use limitations associated with RFA boundary information.

RFA Name	State	Buffer Status
South West WA RFA	Western Australia	In feature area

Nationally Important Wetlands [Resource Information]

Wetland Name	State	Buffer Status
Blackwood River (Lower Reaches) and Tributaries System	WA	In feature area

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Flat Rock boating facility	2008/4506	Controlled Action	Post-Approval	In buffer area only
Not controlled action				
Busselton to Flinders Bay Rails to Trails Project, WA	2013/6835	Not Controlled Action	Completed	In buffer area only
CTBT - Cape Leeuwin Hydroacoustic Station Proposal	2000/27	Not Controlled Action	Completed	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Geo-science Investigations	2005/2069	Not Controlled Action	Completed	In feature area
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area
Residential-Rural Subdivision, Lot 1 Kudardup Rd, Kudardup, WA	2012/6471	Not Controlled Action	Completed	In buffer area only
Vegetation clearing for sand extraction, Lot 268 Leeuwin Road, Augusta	2013/6860	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

Biologically Important Areas			
Scientific Name	Behaviour	Presence	Buffer Status
Seabirds			
Ardenna carneipes Flesh-footed Shearwater [82404]	Foraging (in high numbers)	Known to occur	In buffer area only
Eudyptula minor Little Penguin [1085]	Foraging (provisioning young)	Known to occur	In buffer area only
Hydroprogne caspia Caspian Tern [808]	Foraging (provisioning young)	Known to occur	In buffer area only
Larus pacificus Pacific Gull [811]	Foraging (in high numbers)	Known to occur	In buffer area only
Onychoprion anaethetus Bridled Tern [82845]	Foraging (in high numbers)	Known to occur	In buffer area only
Puffinus assimilis tunneyi Little Shearwater [59363]	Foraging (in high numbers)	Known to occur	In buffer area only

Scientific Name	Behaviour	Presence	Buffer Status
Sternula nereis			
Fairy Tern [82949]	Foraging (in high numbers)	Known to occur	In buffer area only
Sharks			
Carcharodon carcharias			
White Shark [64470]	Foraging	Known to occur	In buffer area only
Whales			
Balaenoptera musculus brevicauda			
Pygmy Blue Whale [81317]	Distribution	Known to occur	In buffer area only
Megaptera novaeangliae			
Humpback Whale [38]	Migration (north)	Known to occur	In buffer area only

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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Appendix G Conservation Codes for Western Australian Fauna, Flora, and Ecological Communities

Western Australian Fauna and Flora

Conservation Code	Description
Threatened species (T)	Listed by order of the Minister as Threatened in the category of critically endangered, endangered, or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the *Biodiversity Conservation Act 2016* (BC Act). ***Threated fauna*** is the species of fauna that are listed as critically endangered, endangered, or vulnerable threatened species. ***Threatened flora*** is the species of flora that are listed as critically endangered, endangered, or vulnerable threatened species. The assessment of the conservation status of threatened species is in accordance with the BC Act listing criteria and the requirements of Ministerial Guideline Number 1 and Ministerial Guideline Number 2 that adopts the use of the International Union for Conservation of Nature (IUCN) Red List of Threatened Species Categories and Criteria and is based on the national distribution of the species.
Critically endangered species (CR)	Threatened species considered to be *"facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines."* Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines.
Endangered species (EN)	Threatened species considered to *be "facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines."* Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines.
Vulnerable species (VU)	Threatened species considered to be *"facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines."* Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines.
Extinct Species	Listed by order of the Minister as extinct under section 23(1) of the BC Act as extinct or extinct in the wild.
Extinct species (EX)	Species where *"there is no reasonable doubt that the last member of the species has died,"* and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).

Conservation Code	Description
Extinct in the wild species (EW)	Species that *"is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form"*, and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act). Currently there are no fauna or flora species listed as extinct in the wild.
Specially protected species (SP)	Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection. Species that are listed as threatened species (critically endangered, endangered, or vulnerable) or extinct species under the BC Act cannot also be listed as specially protected species.
Migratory species (MI)	Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act). Migratory species include birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA)4, China (CAMBA)5 or The Republic of Korea (ROKAMBA)6, and fauna subject to the *Convention on the Conservation of Migratory Species of Wild Animals* (Bonn Convention) 7, an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.
Species of special conservation interest (conservation dependent) (CD)	Species of special conservation need that are dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act). Currently only fauna are listed as species of special conservation interest
Species otherwise in need of special protection (other specially protected) (OS)	Species otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act). Currently only fauna are listed as species otherwise in need of special protection.

Conservation Code	Description
Priority species (P)	Priority is not a listing category under the BC Act. The Priority Flora and Fauna lists are maintained by the department and are published on the department's website. All fauna and flora are protected in WA following the provisions in Part 10 of the BC Act. The protection applies even when a species is not listed as threatened or specially protected, and regardless of land tenure (State managed land (Crown land), private land, or Commonwealth land). Species that may possibly be threatened species that do not meet the criteria for listing under the BC Act because of insufficient survey or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of prioritisation for survey and evaluation of conservation status so that consideration can be given to potential listing as threatened. Species that are adequately known, meet criteria for near threatened, or are rare but not threatened, or that have been recently removed from the threatened species list or conservation dependent or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring. Assessment of priority status is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.
Priority 1: Poorly known species - Known from few locations, none on conservation lands	Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, for example, agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements for threatened listing and appear to be under immediate threat from known threatening processes. These species are in urgent need of further survey.
Priority 2: Poorly known species - Known from few locations, some on conservation lands	Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, for example, national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements for threatened listing and appear to be under threat from known threatening processes. These species are in urgent need of further survey.

Conservation Code	Description
Priority 3: Poorly known species - Known from several locations	Species that are known from several locations and the species does not appear to be under imminent threat or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. These species need further survey.
Priority 4: Rare, Near Threatened and other species in need of monitoring	(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands. (b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as a conservation dependent specially protected species. (c) Species that have been removed from the list of threatened species or lists of conservation dependent or other specially protected species, during the past five years for reasons other than taxonomy. (d) Other species in need of monitoring.

Western Australian Ecological Communities

Conservation Code	Description
Listed Ecological Communities	Assessment of the conservation status of ecological communities is carried out in accordance with the BC Act listing criteria and the requirements of Ministerial Guideline Number 1 and Ministerial Guideline Number 4 that adopt the use of the International Union for Conservation of Nature (IUCN) Red List of Ecosystems Categories and Criteria.
Collapsed ecological communities (CO)	An ecological community listed by order of the Minister as collapsed under section 31(1) of the BC Act. As determined by criteria set out in section 32 of the BC Act, an ecological community is eligible for listing as a collapsed ecological community at a particular time if, at that time — (a) there is no reasonable doubt that the last occurrence of the ecological community has collapsed; or (b) the ecological community has been so extensively modified throughout its range that no occurrence of it is likely to recover — (i) its species composition or structure; or (ii) (ii) its species composition and structure.

Conservation Code	Description
Critically endangered ecological communities (CR)	A threatened ecological community listed in the category of critically endangered under section 27(1)(a) of the BC Act, as determined by criteria set out in section 28 of the BC Act and the ministerial guidelines. A critically endangered ecological community faces an extremely high risk of becoming eligible for listing as a collapsed ecological community in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines.
Endangered ecological communities (EN)	A threatened ecological community listed in the category of endangered ecological community under section 27(1)(b) of the BC Act, as determined by criteria set out in section 29 of the BC Act and the ministerial guidelines. A threatened ecological community faces a very high risk of becoming eligible for listing as a collapsed ecological community in the near future, as determined in accordance with criteria set out in the ministerial guidelines.
Vulnerable ecological communities (VU)	A threatened ecological community listed in the category of vulnerable ecological community under section 27(1)(c) of the BC Act, as determined by criteria set out in section 30 of the BC Act and the ministerial guidelines. A vulnerable ecological community faces a high risk of becoming eligible for listing as a collapsed ecological community in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines.
Priority Listed Ecological Communities	Priority is not a listing category under the BC Act. The Priority Ecological Communities list is maintained by the department and is published on the department's website. All fauna and flora that may be present in an ecological community are protected in WA following the provisions in Part 10 of the BC Act. The protection applies even when these species occur in an ecological community that is not listed as threatened, and regardless of land tenure (State managed land (Crown land), private land, or Commonwealth land). Possible threatened ecological communities that do not meet survey criteria or are not adequately defined to enable listing are added to the department's Priority Ecological Communities for Western Australia list under priority 1, 2 or 3. Ecological communities that are adequately known and not threatened but rare, near threatened, or have recently been removed from the threatened list are placed in priority 4. Conservation dependent ecological communities are placed in priority 5.

Conservation Code	Description
Priority 1: Poorly known ecological communities - very few occurrences, very restricted distribution	Ecological communities that are known from very few occurrences with a very restricted distribution (generally ≤5 occurrences or a total area of ≤100ha). Occurrences are believed to be under threat either due to limited extent, or being on lands under immediate threat (e.g., within agricultural or pastoral lands, urban areas, active mineral leases) or for which current threats exist. May include communities with occurrences on protected lands. Communities may be included if they are comparatively well-known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under immediate threat from known threatening processes across their range.
Priority 2: Poorly known ecological communities - few occurrences, restricted distribution	Communities that are known from few occurrences with a restricted distribution (generally ≤10 occurrences or a total area of ≤200ha). At least some occurrences are not believed to be under immediate threat (within approximately 10 years) of destruction or degradation. Communities may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under threat from known threatening processes.
Priority 3: Poorly known ecological communities - inadequately surveyed or not well defined	Communities may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and/or are not well defined, and known threatening processes exist that could affect them. This category includes three sub-categories: (i) Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation. (ii) Communities known from a few widespread occurrences, which are either large or with significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat (within approximately 10 years). (iii) Communities made up of large, and/or widespread occurrences, that may or may not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing by domestic and/or feral stock, inappropriate fire regimes, clearing, hydrological change, etc.

Conservation Code	Description
Priority 4: Adequately known ecological communities - rare, near threatened, or recently removed from the threatened list	Ecological communities that are adequately known and either rare but not threatened, near threatened, or have recently been removed from the threatened list. These communities require regular monitoring. (i) Rare: ecological communities known from few occurrences that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These communities are usually represented on conservation lands. (ii) Near threatened: ecological communities that are considered to have been adequately surveyed and that do not qualify as conservation dependent, but that are close to qualifying for a higher threat category. (iii) Ecological communities that have been removed from the list of threatened communities during the past five years.
Priority 5: Conservation dependent ecological communities	Ecological communities that are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years.

Appendix H Conservation significant flora species recorded within 10 km of Molloy Island

Species	Conservation Status*	Life Form	Habitat / Known Distribution	Likelihood of occurrence within Molloy Island	Data Source
Caladenia lodgeana	T/CR	Herb	Sandy-clay and clay soils in seasonally damp flats. Found between Augusta and Margaret River.	Possible. Some areas of suitable habitat are present within the Site. Closest record is just over 1 km north.	PMST, Naturemap, TPFL, WAHerb
Calectasia cyanea	T/CR	Herb	White, grey, or yellow sand, gravel.	Unlikely, known population is from Torndirrup National Park, south of Albany and Mt Barker.	PMST
Reedia spathacea	T/CR	Herb	Peaty sand. Swamps.	Unlikely. Preferred habitat is not present within the Site.	PMST
Banksia mimica	T/EN	Shrub	White or grey sand over laterite, sandy loam.	Unlikely. Preferred habitat is not present within the Site; closest population occurs in the Whicher Range.	PMST
Banksia nivea subsp. uliginosa	T/EN	Shrub	Sandy Clay, gravel. Occurs in two areas, near Busselton and Scott River Plain on clay over laterite in thick scrub, in winter wet southern ironstones.	Unlikely. Preferred habitat is not present within the Site.	PMST, Naturemap, WAHerb
Boronia exilis	T/EN	Herb	Seasonally wet heath or sedgelands on grey silty sand, over ironstone.	Unlikely. Preferred habitat is not present within the Site.	PMST, Naturemap, WAHerb
Caladenia excelsa	T/EN	Herb	Sandy soils in forests and woodlands. Found between Dunsborough and Karridale.	Unlikely. Preferred habitat does not occur within the Site. The Augusta record is historical, and location is inaccurate. Southern most extent of current known distribution is Karridale.	WAHerb
Caladenia hoffmanii	T/EN	Herb	Sandy -clay oil in rocky hills and breakaways. Found between Geraldton and Murchinson River.	Unlikely, this species is only known from north of Geraldton.	PMST
Darwinia ferricola	T/EN	Shrub	Red, sandy, shallow loams over ironstone, around winter wet areas near the coast. Occurs from east of Augusta to Walpole.	Unlikely. Preferred habitat is not present within the Site.	PMST, Naturemap, WAHerb
Gastrolobium papilio	T/EN	Shrub	Sandy clay over ironstone and laterite. Flat plains.	Unlikely. Preferred habitat is not present within the Site.	PMST

Species	Conservation Status*	Life Form	Habitat / Known Distribution	Likelihood of occurrence within Molloy Island	Data Source
Kennedia lateritia	T/EN	Climber	Close to the coast in black humus-rich sand, often amongst granite outcrops. Typically, the vegetation is low coastal heath, but sometimes Peppermints or Karris are present. The mean annual rainfall is approximately 1000 mm.	Unlikely. Preferred habitat is not present within the Site.	PMST, Naturemap, TPFL, WAHerb
Lambertia echinata subsp. occidentalis	T/EN	Shrub	White sandy soils over laterite, orange/brown-red clay over ironstone. Flats to foothills, winter-wet sites.	Unlikely. Preferred habitat is not present within the Site.	PMST
Lambertia orbifolia subsp. vespera (syn *Lambertia orbifolia* subsp. Scott River Plains)	T/EN	Shrub	Sand or sandy clay in association with ironstone, around seasonally wet areas near the coast or further inland on riverbanks or more upland plains.	Unlikely. Preferred habitat is not present within the Site.	PMST, Naturemap, WAHerb
Verticordia plumosa var. vassensis	T/EN	Shrub	A variety of sands and swampy clay soils in mostly winter-wet flats and depressions.	Unlikely. Preferred habitat is not present within the Site.	PMST & Naturemap
Banksia squarrosa subsp. argillacea	T/VU	Shrub	White/grey sand, gravelly clay, or loam. Winter-wet flats, clay flats. Ironstone, occasionally lateritic gravel pits, however these populations may have been introduced.	Unlikely. Preferred habitat is not present within the Site.	PMST
Conospermum quadripetalum	T	Shrub	Sandy clay, grey sand. Flats behind coastal hills, swamps, and clay flats.	Unlikely. Only small areas of marginal habitat within the Site.	Naturemap, TPFL, WAHerb
Diuris drummondii	T/VU	Herb	Sandy-clay and clay soils in seasonally wet flats, flowering best in season following a summer fire. Found mainly between Perth and Albany, rare, scattered populations as far north as Northampton.	Unlikely. Only small areas of marginal habitat within the Site.	Naturemap, TPFL
Drakaea micrantha	T/VU	Herb	Sandy soil in forests and woodlands. Found between Perth and Albany.	Possible. Closest records are 17 km to the north of the Site.	PMST
Grevillea brachystylis subsp. australis	T/VU	Shrub	Sand, sandy clay. Swampy situations, stream banks.	Unlikely. Preferred habitat is not present within the Site.	PMST, Naturemap, WAHerb

Species	Conservation Status*	Life Form	Habitat / Known Distribution	Likelihood of occurrence within Molloy Island	Data Source
Leptomeria dielsiana	T/VU/X	Shrub	Locality & description unknown. Only known from one type collection and has not been relocated since the first collection in scrubby heath in the Scott River area. Presumed extinct.	Unlikely. Presumed extinct.	PMST, Naturemap, WAHerb
Andersonia ferricola	P1	Shrub	White sand or red-brown loam over ironstone, seasonally wet flats.	Unlikely. Preferred habitat is not present within the Site.	Naturemap, WAHerb
Caladenia pholcoidea subsp. augustensis	P1	Herb	Clay and sandy-clay soils in seasonally wet flats, flowers only in season following a summer fire. Found near Augusta.	Unlikely. Only small areas of marginal habitat within the Site.	Naturemap, WAHerb
Darwinia terricola	P1	Shrub	Shallow sandy clay over granite, in winter damp flats under a Mallee shrubland dominated by Eucalyptus marginata. Confined to the Black-wood Plateau.	Unlikely. Preferred habitat is not present within the Site.	Naturemap
Pericalymma megaphyllum	P1	Shrub	Red-brown lateritic clayey sand. Elevated washed areas.	Unlikely. Preferred habitat is not present within the Site.	Naturemap, WAHerb
Philydrella pygmaea subsp. minima	P1	Herb	Damp sites.	Unlikely. Some areas of the Site may have suitable habitat, but there is only one record of this species in proximity.	Naturemap, TPFL, WAHerb
Schoenus indutus	P1	Sedge	Gravelly sand, black sand over clay, swamp edges.	Unlikely. Some areas of the Site may have suitable habitat, but there is only one record of this species in proximity.	Naturemap, WAHerb
Stylidium sp. Scott River Plain (N.G. Marchant 74/23)	P1	Herb	No information available. Only known from one collection/location.	Unlikely. Some areas of the Site may have suitable habitat, but there is only one record of this species in proximity.	Naturemap, WAHerb
Synaphea nexosa	P1	Shrub	Clay-loam. Winter-wet flats.	Unlikely. Some areas of the Site may have suitable habitat, but there is only one record of this species in proximity.	Naturemap, TPFL, WAHerb
Diuris heberlei	P2	Herb	Sandy-clay and peaty soils in seasonally damp coastal flats. Found between Augusta and Two Peoples Bay.	Unlikely. Only small areas of marginal habitat within the Site.	Naturemap, TPFL
Hemigenia sp. Nillup (R.D. Royce 98)	P2	Shrub	Grey/brown sand/loam.	Possible. Some areas of the Site may provide suitable habitat for this species.	Naturemap, WAHerb

Species	Conservation Status*	Life Form	Habitat / Known Distribution	Likelihood of occurrence within Molloy Island	Data Source
Leptomeria furtiva	P2	Shrub	Grey or black peaty sand. Winter-wet flats.	Possible. Some areas of the Site may provide suitable habitat for this species.	Naturemap, TPFL, WAHerb
Pigea volubilis	P2	Herb	Clay or sandy clay. Riverbanks.	Unlikely. Preferred habitat is not present within the Site.	Naturemap, TPFL, WAHerb
Schoenus loliaceus	P2	Sedge	Sandy soils. Winter-wet depressions.	Possible. Some areas of the Site may provide suitable habitat for this species.	Naturemap, TPFL, WAHerb
Schoenus sp. Grassy (E. Gude & J. Harvey 250)	P2	Sedge	Black silt. Swamps.	Unlikely. Preferred habitat is not present within the Site.	Naturemap, WAHerb
Stenanthemum sublineare	P2	Shrub	Littered white sand. Coastal plain.	Unlikely. Preferred habitat is not present within the Site.	Naturemap, WAHerb
Styphelia intricata	P2	Shrub	Seasonal wetlands in open woodland or heath.	Possible. Some areas of the Site may provide suitable habitat for this species.	
Acacia lateriticola var. Glabrous variant (B.R. Maslin 6765)	P3	Shrub	Lateritic soils.	Possible. Some areas of the Site may provide suitable habitat for this species.	Naturemap, WAHerb
Amanita fibrillopes	P3	Fungi	Sandy or gravelly soil in dry sclerophyll forest and Banksia woodland, or in humus rich soil in seasonally wet eucalypt and paperbark woodland, often associated with *Eucalyptus marginata, E. jacksonii, Allocasuarina fraseriana, Corymbia calophylla, Melaleuca preissiana* and *Agonis* sp..	Unlikely. Preferred habitat is not present within the Site.	Naturemap, WAHerb
Andersonia sp. Amabile (N. Gibson & M. Lyons 355)	P3	Shrub	Black sand in seasonally wet swamps in heath.	Unlikely. Preferred habitat is not present within the Site.	Naturemap, WAHerb
Blennospora doliiformis	P3	Herb	Grey or red clay soils over ironstone. Seasonally wet flats.	Unlikely. Preferred habitat is not present within the Site.	Naturemap, TPFL, WAHerb
Boronia anceps	P3	Herb	Grey or brown sand or clay. Seasonally swampy heaths.	Possible. Some areas of the Site may provide suitable habitat for this species.	Naturemap, WAHerb

Species	Conservation Status*	Life Form	Habitat / Known Distribution	Likelihood of occurrence within Molloy Island	Data Source
Caladenia abbreviata	P3	Herb	Deep sandy soils in coastal woodlands and shrublands. Abundant in disturbed areas along edges of graded racks and firebreaks. Found between Yallingup and William Bay.	Unlikely. Preferred habitat is not present within the Site.	Naturemap, TPFL, WAHerb
Calothamnus lateralis var. crassus	P3	Shrub	Sand, clay or peat in swamps and winter-wet depressions.	Possible. Some areas of the Site may provide suitable habitat for this species.	Naturemap, WAHerb
Chordifex gracilior	P3	Herb	Peaty sand. Swamps.	Unlikely. Preferred habitat is not present within the Site.	Naturemap, TPFL, WAHerb
Chordifex jacksonii	P3	Herb	Sand, loamy sand. Seasonally inundated swamps.	Possible. Some areas of the Site may provide suitable habitat for this species.	Naturemap, TPFL, WAHerb
Cyathochaeta stipoides	P3	Sedge	Grey or red-brown sand. Seasonally wet flats.	Unlikely. Only small areas of the Site provide marginal habitat for this species.	Naturemap, TPFL, WAHerb
Dampiera heteroptera	P3	Herb or shrub	Sandy soils. Swampy areas.	Unlikely. Only small areas of the Site provide marginal habitat for this species.	Naturemap, WAHerb
Gastrolobium formosum	P3	Shrub	Clay loam. Along riverbanks or in swamps.	Unlikely. Only small areas of the Site provide marginal habitat for this species.	Naturemap, TPFL, WAHerb
Grevillea manglesioides subsp. ferricola	P3	Shrub	Red sandy clay over ironstone. Winter wet flats.	Unlikely. Only small areas of the Site provide marginal habitat for this species.	Naturemap, WAHerb
Grevillea papillosa	P3	Shrub	Brown or peaty sand, sandy clay, loam. Seasonally wet areas, swamps.	Unlikely. Only small areas of the Site provide marginal habitat for this species.	Naturemap, TPFL, WAHerb
Hemiandra sp. Windy Harbour (B.J. Conn & J.A. Scott BJC 3344)	P3	Shrub	Granite outcrops. Poorly known.	Unlikely. Preferred habitat is not present within the Site.	Naturemap, TPFL, WAHerb
Isopogon formosus subsp. dasylepis	P3	Shrub	Sand, sandy clay, gravelly sandy soils over laterite. Often swampy areas.	Unlikely. Preferred habitat is not present within the Site.	Naturemap, TPFL, WAHerb

Species	Conservation Status*	Life Form	Habitat / Known Distribution	Likelihood of occurrence within Molloy Island	Data Source
Leucopogon wheelerae	P3	Shrub	Restricted to heath or woodland edge on seasonally wet flats. Occurs in the far south-west corner of Western Australia between the Hardy Inlet, near Augusta, and the Donnelly River.	Unlikely. Only small areas of the Site provide marginal habitat for this species.	Naturemap, WAHerb
Loxocarya magna	P3	Herb	Sand, loam, clay, ironstone. Seasonally inundated or damp habitats.	Unlikely. Preferred habitat is not present within the Site.	Naturemap, TPFL, WAHerb
Stylidium trudgenii	P3	Herb	Grey sand, dark grey to black sandy peat. Margins of winter-wet swamps, depressions.	Unlikely. Preferred habitat is not present within the Site.	Naturemap, WAHerb
Adenanthos detmoldii	P4	Shrub	Grey or black peaty sand, wet. Swamps, roadsides.	Unlikely. Preferred habitat is not present within the Site.	Naturemap, WAHerb
Adenanthos x pamela	P4	Shrub	Grey sand, laterite. Damp flats, roadsides.	Unlikely. Preferred habitat is not present within the Site.	Naturemap, WAHerb
Aotus carinata	P4	Shrub	Sandy soils. Seasonally wet flats.	Unlikely. Preferred habitat is not present within the Site.	Naturemap, WAHerb
Astartea onycis	P4	Shrub	Seasonally inundated swamps, winter-wet, low-lying, or damp areas, woodlands, sedgelands. Sandy clay, loam, or peat.	Unlikely. Only small areas of the Site provide marginal habitat for this species.	Naturemap, WAHerb
Banksia meisneri subsp. ascendens	P4	Shrub	White or grey sand. Swampy flats.	Unlikely. Preferred habitat is not present within the Site.	Naturemap, TPFL, WAHerb
Drosera fimbriata	P4	Herb	White sand, granite.	Unlikely. Preferred habitat is not present within the Site.	Naturemap, TPFL, WAHerb
Franklandia triaristata	P4	Shrub	White or grey sand.	Unlikely. Only small areas of the Site provide marginal habitat for this species.	Naturemap, WAHerb
Gonocarpus pusillus	P4	Herb	Grey sandy clay. Winter-wet swamps.	Unlikely. Only small areas of the Site provide marginal habitat for this species.	Naturemap, TPFL, WAHerb
Melaleuca basicephala	P4	Shrub	Black peaty sand, clay. Winter-wet flats, swamps.	Unlikely. Only small areas of the Site provide marginal habitat for this species.	Naturemap, WAHerb

Species	Conservation Status*	Life Form	Habitat / Known Distribution	Likelihood of occurrence within Molloy Island	Data Source
Pultenaea skinneri	P4	Shrub	Sandy or clayey soils. Winter-wet depressions.	Unlikely. Only small areas of the Site provide marginal habitat for this species.	Naturemap, WAHerb
Stylidium ireneae	P4	Herb	Sandy loam. Valleys near creek lines, woodland, often with *Agonis*.	Possible. Some areas of the Site may provide suitable habitat for this species.	Naturemap, WAHerb
Tripterococcus sp. Brachylobus (A.S. George 14234)	P4	Herb	Grey sandy loam, Eucalypt woodland. Grey sand, plain, wetland with wet grey clay.	Possible. Some areas of the Site may provide suitable habitat for this species.	Naturemap, TPFL, WAHerb
Verticordia lehmannii	P4	Shrub	Sandy clay. Winter-wet flats.	Unlikely. Only small areas of the Site provide marginal habitat for this species.	Naturemap, WAHerb

* BC Act: T = Threatened, P = Priority / EPBC Act: CR = Critically Endangered, EN = Endangered, VU = Vulnerable

Appendix I Native Fauna Species List

Species	Common Name	LFW Reports 2012	Birdlife Australia 2004-	DBCA Data	Ecosystem Solutions 2024	Status
Acanthiza apicalis	Inland Thornbill		X			
Acanthiza inornata	Western Thornbill		X			
Acanthorhynchus superciliosus	Western Spinebill		X			
Accipiter fasciatus	Brown Goshawk		X			
Accipiter cirrhocephalus	Collared Sparrowhawk		X			
Aegotheles cristatus	Australian Owlet-nightjar		X		X	
Anas castanea	Chestnut Teal		X			
Anas gracilis	Grey Teal		X			
Anas rhynchotis	Australasian Shoveler		X			
Anas superciliosa	Pacific Black Duck		X		X	
Anhinga novaehollandiae	Australasian Darter		X			
Anthochaera carunculata	Red Wattlebird		X		X	
Anthochaera lunulata	Western Wattlebird		X			
Aquila audax	Wedge-tailed Eagle	X				
Ardea alba	Great Egret		X		X	Marine
Artamus cyanopterus	Dusky Woodswallow		X			
Austrachile resinifera	Bee	X				
Aythya australis	Hardhead		X			
Barnardius zonarius	Australian Ringneck		X		X	
Biziura lobata	Musk Duck		X			Marine
Cacomantis flabelliformis	Fan-tailed Cuckoo		X			Marine
Calyptorhynchus banksii naso	Forest Red-tailed Black Cockatoo	X	X	X	X	T
Cercartetus concinnus	Western Pygmy Possum	X				
Chalcites lucidus	Shining Bronze-Cuckoo		X			Marine
Chenonetta jubata	Australian Wood Duck		X		X	
Chlidonias hybrida	Whiskered Tern		X			Marine
Circus approximans	Swamp Harrier		X			
Coracina novaehollandiae	Black-faced Cuckoo-shrike		X		X	Marine
Corvus coronoides	Australian Raven		X		X	
Cracticus torquatus	Grey Butcherbird		X			
Crinia insignifera	Squelching Froglet	X				
Cygnus atratus	Black Swan		X		X	
Dacelo novaeguineae	Laughing Kookaburra		X		X	
Daphoenositta chrysoptera	Varied Sittella		X			
Egretta novaehollandiae	White-faced Heron		X		X	
Eopsaltria georgiana	White-breasted Robin		X			
Ergenia kingii	King's Skink	X			X	
Falco berigora	Brown Falcon		X			
Falco longipennis	Australian Hobby		X			
Falco peregrinus	Perigine Falcon			X		OS
Fulica atra	Eurasian Coot		X			
Gallinula tenebrosa	Dusky Moorhen		X			

Gerygone fusca	Western Gerygone		X		X	
Glossopsitta porphyrocephala	Purple-crowned Lorikeet		X			
Gymnorhina tibicen	Australian Magpie		X		X	
Haliaeetus leucogaster	White-bellied Sea-Eagle		X			Marine
Haliastur sphenurus	Whistling Kite		X			Marine
Heleioporus eyrei	Moaning Frog		X		X	
Hieraaetus morphnoides	Little Eagle		X			
Hirundo neoxena	Welcome Swallow		X			Marine
Hydromys chrysogaster	Rakali			X	X	P4
Hydroprogne caspia	Caspian Tern		X	X		Marine, MI
Isoodon fusciventer	Quenda	X	X	X	X	P4
Larus novaehollandiae	Silver Gull		X			
Larus pacificus	Pacific Gull		X		X	Marine
Leipoa ocellata	Malleefowl			X		T
Lichmera indistincta	Brown Honeyeater		X			
Litoria moorei	Motorbike Frog	X				
Macropus fuliginosus	Western Grey Kangaroo	X	X		X	
Malurus elegans	Red-winged Fairy-wren		X		X	
Malurus splendens	Splendid Fairy-wren		X		X	
Microcarbo melanoleucos	Little Pied Cormorant		X			
Neophema elegans	Elegant Parrot		X			
Ninox boobook	Southern Boobook		X			
Nycticorax caledonicus	Nankeen Night-Heron		X			Marine
Pachycephala fuliginosa	Western Whistler		X		X	
Pandion haliaetus	Eastern Osprey		X	X	X	Marine, MI
Pardalotus striatus	Striated Pardalote		X			
Pelecanus conspicillatus	Australian Pelican		X		X	
Petrochelidon nigricans	Tree Martin		X			
Petroica boodang	Scarlet Robin		X		X	
Phalacrocorax sulcirostris	Little Black Cormorant		X			
Phalacrocorax varius	Australian Pied Cormorant		X		X	
Phalacrocorax carbo	Great Cormorant		X			
Phaps chalcoptera	Common Bronzewing		X		X	
Phylidonyris novaehollandiae	New Holland Honeyeater		X			
Platalea flavipes	Yellow-billed Spoonbill		X			
Platycercus icterotis	Western Corella	X				
Platycercus icterotis	Western Rosella		X			
Podargus strigoides	Tawny Frogmouth		X		X	
Poliocephalus poliocephalus	Hoary-headed Grebe		X			
Porphyrio porphyrio	Purple Swamphen		X			
Porzana fluminea	Australian Spotted Crake		X			
Porzana tabuensis	Spotless Crake		X			Marine
Pseudocheirus occidentalis	Western Ringtail Possum	X	X	X	X	T

Purpureicephalus spurius	Red-capped Parrot	X	X			
Rhipidura albiscapa	Grey Fantail		X		X	
Rhipidura leucophrys	Willie Wagtail		X			
Sericornis maculatus	Spotted Scrubwren		X			
Square-tailed Kite	Square-tailed Kite		X			
Stagonopleura oculata	Red-eared Firetail		X			
Sternula nereis (subsp. nereis?)	Fairy Tern		X			VU if the subsp nereis, Marine
Stipiturus malachurus	Southern Emu-wren		X			
Tachybaptus novaehollandiae	Australasian Grebe		X			
Tadorna tadornoides	Australian Shelduck		X			
Thalasseus bergii	Greater Crested Tern		X	X		Marine, MI
Thinornis cucullatus	Hooded Plover			X		P4, Marine
Threskiornis moluccus	Australian White Ibis		X			Marine
Threskiornis spinicollis	Straw-necked Ibis					
Todiramphus sanctus	Sacred Kingfisher		X			Marine
Tringa nebularia	Common greenshank			X		Marine, MI
Tyto alba	Barn Owl		P		P (Calls)	
Tyto novaehollandiae novaehollandiae	Masked Owl (southwest)		X			P3
Varanus rosenbergi	Heath Monitor				X	
Vespertilionidae / Molossidae (Family)	Microbats				X	
Zanda baudinii	Baudin's Cockatoo		X	X		T
Zanda sp.	White-tailed Black Cockatoo	X	X	X	X	T
Zosterops lateralis	Silvereye		X			Marine

Appendix J Conservation significant fauna species recorded within 10 km of Molloy Island

Species and Common Name	Conservation Status*	Habitat	Likelihood of occurrence within the Site	Data Source
Anstisia alba listed as *Geocrinia alba* White-bellied Frog	T/CR	Broad drainage lines with riparian vegetation.	Unlikely. Known distribution is restricted to an area nearly 10 km to the north of the Survey Area.	Naturemap, PMST & DBCA
Engaewa pseudoreducta Margaret River Burrowing Crayfish	T/CR	Narrow, creek tributaries of the Margaret River and Carbunup River. Heavy grey-yellow clays in areas of narrow, sloping depressions, with a dense shrub stratum, minimal tree strata, at 110-120 m above sea level. Flat with low dendritic channels in coarse white sand with open and low shrub strata, no tree strata, at 40 m above sea level.	Unlikely, marginal habitat available for this species within the Site.	PMST & DBCA
Engaewa reducta Dunsborough Burrowing Crayfish	T/CR	Wide range of habitats, though generally with sandy soils and an accessible water table.	Unlikely. The Survey Area is not located within the known range of this species. The closest known records are nearly 10km to the north.	PMST & DBCA
Pseudocheirus occidentalis Western Ringtail Possum, Ngwayir	T/CR	Woodlands of peppermint (*Agonis flexuosa*), jarrah (*Eucalyptus marginata*), marri (*Corymbia calophylla*) as well as karri (*Eucalyptus diversicolor*) forests, Allocasuarina woodlands and Bullich (*Eucalyptus megacarpa*) dominated riparian zones.	Known to occur. There are multiple records of this species from within the Survey Area.	Naturemap, PMST & DBCA
Botaurus poiciloptilus Australasian Bittern	T/EN	Wetlands with tall, dense vegetation, favours permanent and seasonal freshwater habitats, dominated by sedges rushes and reeds, growing over a muggy or peaty substrate.	Possible, there is some suitable habitat within the Survey Area.	PMST & DBCA
Zanda baudinii listed as *Calyptorhynchus baudinii* Baudin's cockatoo	T/EN	Eucalypt forest, especially Jarrah, Karri, and Marri forests, also woodlands, partly cleared farmland and urban areas. Species nest in tree hollows, with minimum entrance size of 100 mm.	Known to occur. There are multiple records of this species from within the Survey Area.	Naturemap, PMST & DBCA
Zanda latirostris listed as *Calyptorhynchus latirostris* Carnaby's cockatoo	T/EN	Eucalypt woodlands, and in shrubland or Kwongan heathland. Species nest in tree hollows, with minimum entrance size of 100 mm.	Likely. The Survey Area is located within the known range of this species, with multiple recent records within 10 km of the Site.	Naturemap, PMST & DBCA

Austroassiminea letha Cape Leeuwin Freshwater Snail	T/VU	Short range endemic. Wet and humid environments, seepage films and splash zones near small freshwater streams and springs. Requires perennially moist or highly humid conditions. May inhabit rocks, leaves, soil, and litter.	Unlikely, habitat not present.	DBCA
Calyptorhynchus banksii naso Forest red-tailed black cockatoo	T/VU	Eucalypt forests. Species nest in tree hollows, with minimum entrance size of 100 mm.	Known to occur. There are records of this species from within the Survey Area.	Naturemap, PMST & DBCA
Dasyurus geoffroii Chuditch, Western Quoll	T/VU	Variety, most dense in riparian jarrah forests. Require large, unfragmented habitats.	Unlikely, Survey Area does not include habitat that is likely to support this species.	Naturemap, PMST & DBCA
Leipoa ocellata Malleefowl	T/VU	Semi-arid to arid shrublands and low woodlands dominated by mallee and/or acacia.	Unlikely, however there is a record of a bird taken into care from Molloy Island in 2023.	Naturemap & DBCA
Setonix brachyurus Quokka	T/VU	Mainly dense riparian vegetation, other areas with dense vegetated understory with close proximity to freshwater.	Unlikely, Survey Area does not include habitat that is likely to support this species.	Naturemap, PMST & DBCA
Westralunio carteri Carter's Freshwater Mussel	T/VU	Coastal freshwater rivers and lakes of the south-west region. Also occurs in water supply and farm dams. Prefers slower flowing waters where sediments stable. Species has low salinity tolerance.	Unlikely, habitat is not present within the Site.	Naturemap, PMST & DBCA
Elapognathus minor Short-nosed Snake	P2	Heath, swamps, and wet sclerophyll forest.	Possible, there is some suitable habitat within the Survey Area.	DBCA
Tyto novaehollandiae novae-hollandiae Masked Owl (southwest)	P3	Tall forests, woodlands, timbered waterways, and open country on the fringe of these areas.	Known to occur. There are records of this species from within the Survey Area.	Naturemap & DBCA
Falsistrellus mackenziei Western False Pipistrelle	P4	Wet sclerophyll forests of Karri, Jarrah, and Tuart eucalypts. roost in hollows in old trees, branches, and stumps.	Possible, there is some suitable habitat within the Survey Area.	Naturemap & DBCA
Hydromys chrysogaster Water-rat, Rakali	P4	Found Near permanent fresh or brackish waters, Areas of permanent fresh or brackish water, drainage swamps.	Known to occur. There are records of this species from within the Survey Area.	Naturemap & DBCA
Isoodon fusciventer Quenda, Southwestern Brown Bandicoot	P4	Forest, woodland, shrub and heath, usually in sandy soils with dense healthy vegetation in lower stratum.	Known to occur. There are multiple records of this species from within the Survey Area.	Naturemap & DBCA

Notamacropus Irma Western Brush Wallaby	P4	Favours open, seasonal damp areas with low grasses and open scrubby brush.	Unlikely, habitat is not present within the Site.	Naturemap & DBCA
Oxyura australis Blue-billed Duck	P4	Deep freshwater areas with dense vegetation.	Unlikely, habitat is not present within the Site.	Naturemap & DBCA
Platycercus icterotis xanthogenys Western Rosella (inland)	P4	Mainly eucalypt and casuarina woodlands and scrubs, especially of wandoo, flooded gum, salmon gum, tall mallees, and *Allocasuarina huegeliana*. Attracted to seeding *E wandoo, A. huegeliana, Glischrocaryon flavescens* and *Olearia revoluta* and to flowering *Melaleuca acuminata* and *Eucalyptus eremophilrx*.	Unlikely, this species is restricted to the Wheatbelt region, with one possible sighting from 2007 within proximity to the Site.	DBCA
Cacatua pastinator pastinator Muir's corella	CD	Large live or dead eucalypts, particularly *Corymbia calophylla* and *Eucalyptus marginata, rudis, Eucalyptus cornuta* and *Melaleuca preissiana* in forested areas or as lone trees in paddocks and along roadsides.	Unlikely, Survey Area is not within the current known distribution of this species. The most recent record in proximity is from 1978.	Naturemap & DBCA
Phascogale tapoatafa wambenger South-western brush-tailed phascogale, wambenger	CD	Highly arboreal, prefers open forest with sparse groundcover.	Likely. The Survey Area provides substantial areas of suitable habitat.	Naturemap & DBCA
Falco peregrinus Peregrine falcon	OS	Wide variety. Prefers coastal and inland cliffs or open woodlands near water.	Known to occur. There are records of this species from within the Survey Area. Multiple records within 10 km.	Naturemap & DBCA

* BC Act: T = Threatened, P = Priority / EPBC Act: CR = Critically Endangered, EN = Endangered, VU = Vulnerable, CD = Conservation Dependent, OS = Other Specifically Protected

Appendix K Project Team and Licencing

Team Member	Role	Qualifications	Flora Licence Number
Kelly Paterson (KP)	Field surveys (manager / team leader), plant identifications	B.Sc. Hons. Nat Rs Mgmt.	FB62000182 TFL 54-2021
Danae Plowman (DP)	Field surveys (manager / team leader), plant identifications	B.Sc. P.G Dip. Engy & Env	FB62000342 TFL 2223-0162
Hayley Drake (HD)	Field surveys (team member)	B.Sc. Cons & Wildlife Bio and Molecular Bio	FB62000348
Dani Cuthbert (DC)	Field surveys (team member)	Dip Bus & Dip TM	
Barb Black (BB)	Field surveys (team member)	B.Sc.	

Appendix L Survey Limitations

Limitation	Level of Constraint	Comment
Competency & experience of the survey team	Negligible	The flora and fauna field surveys were completed and lead by two Ecologists with over 10 years' experience surveying for flora and fauna in southwest Western Australia. The report has been endorsed by an Ecologist who has more than 20 years' experience in Western Australia.
Survey type, effort, and extent	Low	The Survey Area was traversed in a systematic way, focusing on vegetation adjacent to existing paths and firebreaks, to avoid unnecessary impact to the vegetation. There were 11 relevés conducted and is considered appropriate given the scope of this report. As there is no proposed impact to the remnant vegetation within the Survey Area, it was not deemed of benefit to traverse deeper into vegetation as this would cause trampling.
Survey timing and season	Low	The surveys were conducted across 2024 in Autumn, Winter, and Spring (March, June, October), with the targeted survey and floristic relevés completed in Spring. Spring is the optimal time for flowering and therefore the timing is appropriate. September is the optimum time for bird and mammal surveys in the southwest. Weather conditions did not impact surveys
Availability of contextual information at regional and local scale	Minor	This report is resourced with data from SLIP Data WA, Interim Naturemap, Florabase, DBCA Threatened and Priority Flora and Fauna databases (2024) and data provided by the Shire of Augusta Margaret River. Previous reports and data of the Molloy Island have also been taken into consideration and incorporated (Including BirdLife Australia specifically the Cape to Cape Bird Group data, Land for Wildlife reports and additional data provided by residents and Friends of Molloy Island Reserves).
Access restrictions within the Site	Low	The survey effort has been concentrated along existing tracks and firebreaks, to avoid unnecessary impact to the remnant vegetation. Some areas of vegetation were surveyed off the tracks; however, areas of particularly dense vegetation were not surveyed to avoided unnecessary trampling or other damage, particularly to the Coastal Saltmarsh.
Disturbances (e.g. fire, flood or clearing) that may have affected the results of the survey.	Minor	The Survey Area is moderately disturbed as it is bound by roads and residential houses, with tracks and firebreaks intersecting the Survey Area. Some clearing has recently occurred for fire maintenance activities.

Limitation	Level of Constraint	Comment
Proportion of flora recorded and/or collected, any identification issues	Minor	A focus was placed on identifying any potential conservation significant flora species observed during the time of survey, with these collections all identified to species level. Specimens that were not potentially conservation significant species have been identified to genus level, or species where this can be easily ascertained. To ensure accurate identification some specimens were sent to the Western Australian Herbarium for formal identification.
Proportion of fauna identified, recorded, or collected	Minor	Any potential conservation significant fauna species observed during the surveys have been identified.
Inconsistent flowering habit of some species	Moderate	Some species do not flower every season and may require environmental triggers to promote flowering such as rainfall, fire, presence of suitable pollinators etc.
Scope of the survey, e.g., where faunal groups were excluded from the survey	Minor	This survey focussed on birds, mammals, and other vertebrate species. Aquatic species and Invertebrates were not included in the scope of this survey.
Timing Western Ringtail Possums (WRP) may arise from rest sites & likelihood of rest sites being located outside the Site	Moderate	As WRP use up to 2-7 rest sites at any one time and up to 20 throughout the year there is potential that they are not observed on Site at the time of survey, even though they are utilising the Site. The time WRP arise from a rest Site is also variable and may prevent WRP being observed during survey.
Determination of hollow suitability from the ground	Nil	Factors including entrance size, hollow depth, floor, and orientation of the hollow are important factors to nesting hollow suitability and which are difficult to assess from the ground. Therefore, there is potential for the number of hollows recorded to be an over estimation of those suitable as nesting hollows.

Appendix M Relevé Field Sheets and Photos

STRUCTURAL VEGETATION, FLORA – Relevé 1		SITE_ID: MI01
Date: 09/10/2024	**GPS:** 335032.1465, 6206583.96	**Vegetation Community:** Myrtaceous Scrub
Recorder: KP & HD	**Photos:** 1 -4 (Below)	
Location: Northern half of Lot 258. South of Warrior Way and east of Dalton Way.		
Condition: Good		**Disturbance Factors:** Edge effect from clearing for firebreak, minor weeds, grazing by kangaroos, signs of stress due to presence of dead trees
Aspect: East		**Slope:** Flat
Geology: Unknown		**Rock:** 0
Soil Colour: Grey		**Soil Type:** Clayey sand
Litter (% cover & depth): 2%, approx. 1cm		**Bare Ground (% cover):** 70%
Hydrology: Seasonally wet		**Topographic position:** Drainage depression

Layer	Height (m)	Cover (%)	Plant Species (Dominant 3 first)
Tree (T2)	**10-30**	0	N/A
Tree (T3)	**< 10**	2-10	*Agonis flexuosa*
Shrub (S1)	**> 2**	2-10	*Melaleuca incana subsp. incana, Xanthorrhoea preissii, Agonis flexuosa, Pimelea (spectabilis) - sterile*
Shrub (S2)	**1-2**	2-10	*Melaleuca incana subsp. incana, Pimelea (spectabilis) – sterile, Astartea sp. – sterile, Callistachys lanceolata, Melaleuca lateritia*
Shrub (S3)	**0-1**	30-70	*Boronia juncea subsp. minima, Melaleuca incana subsp. incana, Eutaxia virgata, Leptomeria scrobiculata, Eutaxia myrtifolia, Pimelea (spectabilis) – sterile, Pericalymma spongiocaule, Astartea sp. – sterile, Comesperma virgatum, Hibbertia stellaris*
Sedge/Rush (VR)		2-10	*Machaerina juncea, Aphelia cyperoides, Cyathochaeta avenaceae, Lepidosperma (squamatum group), Leptocarpus sp., Centrolepis aristata, Centrolepis (strigosa), Isolepis sp., Centrolpeis sp.*
Herb (H)		30-70	*Ornduffia parnassifolia, Stylidium sp., Triglochin sp., Gratiola pubescens, Stylidium spathulatum, *Crassula natans subsp. minor, Chara sp., Isolepis cernua var. setiformis, *Callitriche stagnalis, Drosera glanduligera, Cycnogeton huegelii, Levenhookia pusilla, Lagenophora huegelii, Hydrocotyle callicarpa, Monotaxis occidentalis, Tremandra diffusa, Centrolepis sp., Platysace tenuissima, *Hypochaeris sp., Eriochilus sp., Senecio sp. - sterile, Lotus sp., Patersonia occidentalis, Thelymitra sp., Anigozanthos flavidus*
Grass (G)		<2	**Briza minor,* sterile annual grasses
Other (climbers) (C)		0	N/A

* = Introduced, () = Tentativbe ID

Surrounding Plants*: Eucalyptus marginata, Corymbia calophylla, Banksia sp.*



Photo 1 – Relevé 1 (MI01)



Photo 2 – Relevé 1 (MI01)



Photo 3 – Relevé 1 (MI01)



Photo 4 – Relevé 1 (MI01)

STRUCTURAL VEGETATION, FLORA – Relevé 2		**SITE_ID:** MI02
Date: 09/10/2024	**GPS:** 335151.1333, 6206804.158	**Vegetation Community:** Jarrah Marri Peppermint Forest
Recorder: DP & DC	**Photos:** 5 -8 (Below)	
Location: Western half of Lot 231. North of Warrior Way and south of Dalton Way.		
Condition: Excellent		**Disturbance Factors:** Edge effect from nearby firebreak, quenda diggings
Aspect: Northeast		**Slope:** Gentle
Geology: Unknown		**Rock:** 0
Soil Colour: Light brown		**Soil Type:** Sand (Very small amount of loam)
Litter (% cover & depth): 50%		**Bare Ground (% cover):** 30%
Hydrology: Good drainage		**Topographic position:** Middle slope

Layer	**Height (m)**	**Cover (%)**	**Plant Species (Dominant 3 first)**
Tree (T2)	**10-30**	2-10	*Eucalyptus marginata, Corymbia calophylla*
Tree (T3)	**< 10**	2-10	*Banksia grandis, Eucalyptus marginata, Corymbia calophylla, Agonis flexuosa*
Shrub (S1)	**> 2**	2-10	*Agonis flexuosa, Xanthorrhoea preissii, Persoonia longifolia, Corymbia calophylla*
Shrub (S2)	**1-2**	10-30	*Pteridium esculentum, Agonis flexuosa, Xanthorrhoea preissii, Macrozamia riedlei, Acacia divergens, Acacia pulchella, Corymbia calophylla*
Shrub (S3)	**0-1**	30-70	*Hibbertia hypericoides, Agonis flexuosa, Xanthorrhoea preissii, Pteridium esculentum, Hibbertia racemosa, Orianthera serpyllifolia, Hibbertia cunninghamii, Banksia grandis, Isotropis cuneifolia, Macrozamia riedlei, Gompholobium knightianum, Gompholobium marginatum, Acacia pulchella, Leucopogon sp., Comesperma sp., Acacia divergens, Xanthosia sp., Burchardia congesta, Amperea simulans*
Sedge/Rush (VR)		0	N/A
Herb (H)		30-70	*Caladenia flava, Platysace tenuissima, Lagenophora sp. – sterile, Desmocladus fasciculatus, Caladenia sp., (Isolepis/Ficina) sp., Trachymene sp., Chamaescilla corymbosa, Lomandra caespitosa, Opercularia sp., Actinotus sp., Patersonia sp. – sterile, Pyrorchis nigricans, Patersonia occidentalis, Sowerbaea sp., Eriochilus sp., Opercularia echinocephala, Xanthosia candida, Xanthosia huegelii*
Grass (G)		2-10	**Briza maxima, Poaceae sp.*
Other (climbers) (C)		2-10	Thysanotus sp – sterile, Hardenbergia comptoniana, Drosera sp., Billardiera (floribunda), Climbing Gompholobium, Marianthus sp.

* = Introduced, () = Tentativbe ID

Surrounding Plants*: Philotheca spicata, Nuytsia floribunda, Hovea chorizemifolia*



Photo 5 – Relevé 2 (MI02)



Photo 6 – Relevé 2 (MI02)



Photo 7 – Relevé 2 (MI02)



Photo 8 – Relevé 2 (MI02)

STRUCTURAL VEGETATION, FLORA – Relevé 3		SITE_ID: MI03
Date: 09/10/2024	**GPS:** 335195.7944, 6206820.364	**Vegetation Community:** Jarrah Marri Kingia Forest
Recorder: KP & HD	**Photos:** 9 -12 (Below)	
Location: Western half of Lot 231. North of Warrior Way and south of Dalton Way.		
Condition: Excellent		**Disturbance Factors:** Affect from dug drainage channel; signs of stress with dead trees present
Aspect: South		**Slope:** Gentle
Geology: Unknown		**Rock:** 0
Soil Colour: Grey (Lots of organic matter)		**Soil Type:** Loam
Litter (% cover & depth): 95%, approx. 2-3cm		**Bare Ground (% cover):** 2%
Hydrology: Seasonally damp		**Topographic position:** Lower slope. Adjacent to historic drainage line.

Layer	Height (m)	Cover (%)	Plant Species (Dominant 3 first)
Tree (T2)	**10-30**	10-30	*Eucalyptus marginata, Corymbia calophylla*
Tree (T3)	**< 10**	10-30	*Eucalyptus marginata, Corymbia calophylla, Agonis flexuosa*
Shrub (S1)	**> 2**	30-70	*Xanthorrhoea preissii, Tanxandria parviceps*
Shrub (S2)	**1-2**	30-70	*Xanthorrhoea preissii, Tanxandria parviceps, Comesperma (virgatum)*
Shrub (S3)	**0-1**	30-70	*Xanthorrhoea preissii, Tanxandria parviceps, Pimelea sp. – sterile, Acacia (lateriticola) – sterile, Macrozamia riedlei, Comesperma (virgatum), Eutaxia obovata, Hovea trisperma, Leucopogon australis/parviflorus, Acacia divergens, Leucopogon verticillatus*
Sedge/Rush (VR)		10-30	*Cyathochaeta sp. – sterile*
Herb (H)		2-10	*Opercularia hispidula, Tremandra diffusa, Stylidium spathulatum, Xanthosia tasmanica, Amperea simulans, Stylidium sp. pink leafless, Chamaescilla corymbosa, Opercularia apiciflora, Cyrtostylis sp., Thysanotus (multiflorus) – sterile, Lomandra sp., Gompholobium marginatum, Lagenophora sp., Eriochilus sp., Ornduffia sp. – sterile, (Lomandra) sp., , Platysace tenuissima, Thysanotus (tenellus), Senecio sp., Orianthera serpyllifolia*
Grass (G)		2-10	*Tetrarrhena laevis, Neurachne alopecuroidea*
Other (climbers) (C)		<2	*Thysantous (manglesianus/patersonii) – sterile, Billardiera variifolia/Marianthus sp.*

* = Introduced, () = Tentativbe ID

Surrounding Plants*: Pteridium esculentum, Banksia grandis, Persoonia longifolia*



Photo 9 – Relevé 3 (MI03)



Photo 10 – Relevé 3 (MI03)



Photo 11 – Relevé 3 (MI03)



Photo 12 – Relevé 3 (MI03)

STRUCTURAL VEGETATION, FLORA – Relevé 4		SITE_ID: MI04
Date: 10/10/2024	**GPS:** 335011.6289, 6206384.133	**Vegetation Community:** Jarrah Marri Kingia Forest
Recorder: KP & HD	**Photos:** 13 -16 (Below)	
Location: Southern half of Lot 258. North and east of Dalton Way.		
Condition: Excellent		**Disturbance Factors:** Grazing from kangaroos, edge effect for nearby track
Aspect: South		**Slope:** Gentle
Geology: Unknown		**Rock:** <2
Soil Colour: Orange/brown (Lot of organic matter)		**Soil Type:** Loam
Litter (% cover & depth): 95%, approx. 2-3cm		**Bare Ground (% cover):** 2%
Hydrology: Good drainage		**Topographic position:** Lower slope

Layer	Height (m)	Cover (%)	Plant Species (Dominant 3 first)
Tree (T2)	**10-30**	10-30	*Eucalyptus marginata, Corymbia calophylla, Agonis flexuosa*
Tree (T3)	**< 10**	10-30	*Agonis flexuosa, Corymbia calophylla, Eucalyptus marginata*
Shrub (S1)	**> 2**	2-10	*Agonis flexuosa, Banksia grandis, Persoonia longifolia, Bossiaea linophylla, Kingia australis, Xanthorrhoea preissii*
Shrub (S2)	**1-2**	10-30	*Agonis flexuosa, Kingia australis, Xanthorrhoea preissii, Hovea elliptica, Bossiaea linophylla, Leucopogon verticillatus, Banksia grandis*
Shrub (S3)	**0-1**	10-30	*Agonis flexuosa, Kingia australis, Xanthorrhoea preissii, Macrozamia riedlei, Hovea elliptica, Leucopogon verticillatus, Banksia grandis, Bossiaea linophylla, Styphelia (propinqua) - sterile, Nuytsia floribunda, Hibbertia racemosa, Hovea chorizemifolia, Hibbertia cunninghamii, Patersonia occidentalis*
Sedge/Rush (VR)		10-30	*Cyathochaeta sp., Netrostylis sp. Jarrah Forest, Desmocladus fasciculatus, Loxocarya cinerea*
Herb (H)		10-30	*Lindsaea linearis, Tremandra diffusa, Stylidium (spathulatum), Stylidium rhynchocarpum, Orianthera serpyllifolia, Chamaescilla corymbosa, Platysace tenuissima, Stylidium thryonides, Drosera sp., Scaevola calliptera, Stylidium amoenum, Lomandra sp., Lomandra sp., Sowerbaea laxiflora, Opercularia hispidula, Cryptostylis ovata, Thelymitra sp., Opercularia echinocephala, Burchardia multiflora*
Grass (G)		<2	*Tetrarrhena laevis*
Other (climbers) (C)		<2	*Billardiera (variifolia)*

* = Introduced, () = Tentativbe ID



Photo 13 – Relevé 4 (MI04)



Photo 14 – Relevé 4 (MI04)

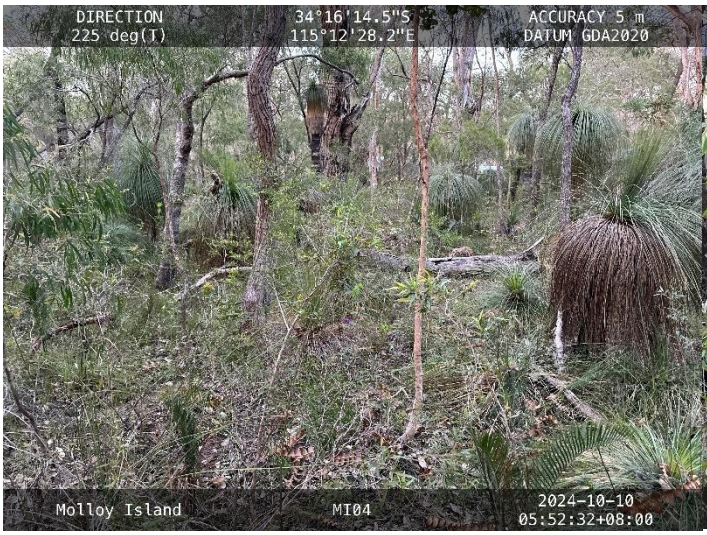


Photo 15 – Relevé 4 (MI04)



Photo 16 – Relevé 4 (MI04)

STRUCTURAL VEGETATION, FLORA – Relevé 5		SITE_ID: MI05
Date: 10/10/2024	**GPS:** 334956.8405, 6206994.987	**Vegetation Community:** Kingia Wetland
Recorder: KP & HD	**Photos:** 17 -20 (Below)	
Location: Around centre of Kingia wetland. Eastern portion of Lot 4706. North of Dalton Way and west of Flora Grove.		
Condition: Very good		**Disturbance Factors:** Some Kingia death (potentially due to changing hydrology, dieback?), minor weeds, potential rabbit scats
Aspect: North		**Slope:** Flat
Geology: Unknown		**Rock:** 0
Soil Colour: Dark grey		**Soil Type:** Sand
Litter (% cover & depth): 40%, approx. <1cm		**Bare Ground (% cover):** 20%
Hydrology: Seasonally wet		**Topographic position:** Wetland

Layer	Height (m)	Cover (%)	Plant Species (Dominant 3 first)
Tree (T2)	**10-30**	0	N/A
Tree (T3)	**< 10**	<2	*Agonis flexuosa*
Shrub (S1)	**> 2**	10-30	*Kingia australis, Taxandria parviceps, Agonis flexuosa*
Shrub (S2)	**1-2**	10-30	*Kingia australis, Taxandria parviceps, Xanthorrhoea preissii, Hakea sulcata, Agonis flexuosa*
Shrub (S3)	**0-1**	10-30	*Hibbertia hypericoides, Pericalymma sp., Xanthorrhoea preissii, Kingia australis, Eutaxia sp., Taxandria parviceps, Dasypogon bromeliifolius, Acacia uliginosa, Hovea chorizemifolia, Acacia pulchella,* ***Hemiandra*** **sp. Windy Harbour (P3)**, *Darwinia oederoides, Hakea sulcata, Hypocalymma cordifolium, Nuytsia floribunda, Hibbertia cunninghamii, Hibbertia cuneiformis*
Sedge/Rush (VR)		10-30	*Desmocladus fasciculatus, Cyathochaeta avenaceae, Mesomelaena tetragona, Aphelia cyperoides, Centrolepis aristata, Hypolaena exsulca, Netrostylis sp. Jarrah Forest, Anarthria prolifera, Morelotia octandra, Schoenus bifidus, Lepidosperma (squamatum group)*
Herb (H)		10-30	*Lindsaea linearis, Chamaescilla corymbosa, Trachymene pilosa, Opercularia apiciflora, Hydrocotyle callicarpa, Centrolepis drummondiana, Isotropis cuneifolia, Elythranthera brunonis, Caladenia flava, Thelymitra (flexuosa), Lagenophora huegelii, Stylidium (spathulatum), *Hypochaeris sp., Selaginella sp., Sowerbaea laxiflora, Levenhookia pusilla, Isolepis/Ficina sp., Wahlenbergia sp., Thelymitra sp. - sterile, Thysanotus tenellus, Patersonia occidentalis, Hydrocotyle alata, Scaevola calliptera, Stylidium (caespitosum), Caladenia sp., Lomandra (caespitosa), Lomandra spp. – sterile, Xanthosia huegelii, Caladenia brownii, *Sherardia arvensis, Drosera sp. small upright, Senecio sp. (sterile), *Lysimachia arvensis, Centrolepis aristata*
Grass (G)		<2	**Briza minor, sterile annual grasses, *Aira (caryophyllea), Tetrarrhena laevis, *Briza maxima*
Other (climbers) (C)		<2	*Drosera sp.*

* = Introduced, () = Tentativbe ID

Surrounding Plants*: Corymbia calophylla, Nuytsia floribunda, Daviesia sp., Conostylis setigera, Schoenus efoliatus*



Photo 17 – Relevé 5 (MI05)



Photo 18 – Relevé 5 (MI05)



Photo 19 – Relevé 5 (MI05)



Photo 20 – Relevé 5 (MI05)

STRUCTURAL VEGETATION, FLORA – Relevé 6		SITE_ID: MI06
Date: 10/10/2024	**GPS:** 335361.9688, 6206363.452	**Vegetation Community:** Melaleuca Scrub
Recorder: KP & HD	**Photos:** 21 -24 (Below)	
Location: Lot 4766, R36542. Between TEC and firebreak. South and east of Dalton Way.		
Condition: Very good		**Disturbance Factors:** Quite a lot of plant death poitentially due to changes to hydrology.
Aspect: South		**Slope:** Gentle
Geology: Unknown		**Rock:** 0
Soil Colour: Dark grey		**Soil Type:** Loamy sand
Litter (% cover & depth): 70%, approx. 1cm (Elevated dead sedges)		**Bare Ground (% cover):** 15%
Hydrology: Seasonally wet (Possibly used to be wet all year round)		**Topographic position:** Wetland

Layer	Height (m)	Cover (%)	Plant Species (Dominant 3 first)
Tree (T2)	**10-30**	0	N/A
Tree (T3)	**< 10**	2-10	*Melaleuca cuticularis, Callistachys lanceolata, Agonis flexuosa*
Shrub (S1)	**> 2**	<2	*Melaleuca cuticularis, Callistachys lanceolata, Banksia littoralis*
Shrub (S2)	**1-2**	2-10	*Melaleuca incarna, Melaleuca cuticularis, Astartea (pulchella) – sterile, Hakea sulcata, Acacia divergens, Hakea (linearis), Melaleuca (viminea)*
Shrub (S3)	**0-1**	10-30	*Melaleuca incarna, Astartea (pulchella), Melaleuca cuticularis, Melaleuca (viminea), Hakea sulcata, Acacia divergens, Hypocalymma cordifolium, Melaleuca pauciflora, Dampiera trigona, Patersonia occidentalis, Hakea linearis, Boronia juncea* subsp. *minima, Callistachys lanceolata, Eutaxia virgata, Sphaerolobium (vimineum), Dasypogon bromeliifolius, Patersonia juncea*
Sedge/Rush (VR)		30-70	*Leptocarpus sp., Machaerina juncea,* ***Netrostylis sp. Blackwood River (P3),*** *Juncus kraussii, Gahnia trifida, Lepidosperma (squamatum group), Machaerina sp.*
Herb (H)		<2	*Stylidium (spathulatum) – sterile, Thelymitra sp.*
Grass (G)		0	*N/A*
Other (climbers) (C)		<2	*Marianthus sp., Cassytha sp.*

* = Introduced, () = Tentativbe ID

Surrounding Plants*: Acacia (uliginosa)*



Photo 21 – Relevé 6 (MI06)



Photo 22 – Relevé 6 (MI06)



Photo 23 – Relevé 6 (MI06)



Photo 24 – Relevé 6 (MI06)

STRUCTURAL VEGETATION, FLORA – Relevé 7		SITE_ID: MI07
Date: 10/10/2024	**GPS:** 335774.2495, 6206864.916	**Vegetation Community:** Jarrah Marri Peppermint Forest
Recorder: DP & DC	**Photos:** 25 -28 (Below)	
Location: Southeast half **of** Lot 4761. South of Sabina Drive and east of Hale Ave.		
Condition: Very good		**Disturbance Factors:** Minor weeds, historical fires and edge effect from nearby tracks
Aspect: South		**Slope:** Gentle
Geology: Unknown		**Rock:** 0
Soil Colour: Grey		**Soil Type:** Sandy loam
Litter (% cover & depth): 80%, approx. 5cm		**Bare Ground (% cover):** 5%
Hydrology: Good drainage		**Topographic position:** Slight depression

Layer	Height (m)	Cover (%)	Plant Species (Dominant 3 first)
Tree (T2)	**10-30**	2-10	*Eucalyptus marginata, Corymbia calophylla, Agonis flexuosa*
Tree (T3)	**< 10**	<2	*Corymbia calophylla, Eucalyptus marginata, Agonis flexuosa, Persoonia longifolia*
Shrub (S1)	**> 2**	2-10	*Kingia australis, Corymbia calophylla*
Shrub (S2)	**1-2**	10-30	*Hovea elliptica, Kingia australis, Agonis flexuosa, Persoonia longifolia, Macrozamia riedlei, Xanthorrhoea preissii*
Shrub (S3)	**0-1**	10-30	*Hovea elliptica, Kingia australis, Xanthorrhoea preissii, Acacia divergens, Persoonia longifolia, Macrozamia riedlei, Corymbia calophylla*
Sedge/Rush (VR)		0	*N/A*
Herb (H)		10-30	*Opercularia sp., Lomandra sp., Patersonia occidentalis, Hypochaeris sp., Sowerbaea sp., Desmocladus fasciculatus, Lagenophora huegelii, (Daucus glochidiatus) – sterile, Eriochilus sp., Chamaescilla corymbosa, Luzula meridionalis, Stylidium rhynchocarpum, Johnsonia lupulina*
Grass (G)		<2	*Annual sterile grasses*
Other (climbers) (C)		<2	*Thysanotus sp., Drosera sp., Hibbertia cunninghamii*

* = Introduced, () = Tentativbe ID

Surrounding Plants*: Ornduffia sp. – sterile, Banksia grandis, Lomandra sp. intergra group, Senecio sp., Craspedia variabilis*



Photo 25 – Relevé 7 (MI07)



Photo 26 – Relevé 7 (MI07)



Photo 27 – Relevé 7 (MI07)



Photo 28 – Relevé 7 (MI07)

STRUCTURAL VEGETATION, FLORA – Relevé 8		SITE_ID: MI08
Date: 10/10/2024	**GPS:** 335035.6918, 6206654.578	**Vegetation Community:** Jarrah Marri Peppermint Forest
Recorder: KP & HD	**Photos:** 29 -32 (Below)	
Location: Northern half of Lot 258. South of Warrior Way and east of Dalton Way.		
Condition: Very good		**Disturbance Factors:** Minor weeds, potential grazing from kangaroos and edge effect from nearby track
Aspect: Southwest		**Slope:** Moderate
Geology: Unknown		**Rock:** 0
Soil Colour: Grey		**Soil Type:** Sand
Litter (% cover & depth): 30%, approx. 2cm		**Bare Ground (% cover):** 50%
Hydrology: Good drainage		**Topographic position:** Upper slope

Layer	Height (m)	Cover (%)	Plant Species (Dominant 3 first)
Tree (T2)	**10-30**	10-30	*Corymbia calophylla, Eucalyptus marginata, Agonis flexuosa*
Tree (T3)	**< 10**	10-30	*Agonis flexuosa, Eucalyptus marginata*
Shrub (S1)	**> 2**	2-10	*Agonis flexuosa, Banksia grandis, Nuytsia floribunda, Hovea elliptica, Pteridium esculentum*
Shrub (S2)	**1-2**	2-10	*Agonis flexuosa, Xanthorrhoea preissii, Nuytsia floribunda, Hovea elliptica, Persoonia longifolia, Bossiaea linophylla, Macrozamia riedlei, Acacia divergens, Pteridium esculentum*
Shrub (S3)	**0-1**	10-30	*Nuytsia floribunda, Pteridium esculentum, Agonis flexuosa, Xanthorrhoea preissii, Macrozamia riedlei, Hovea elliptica, Leucopogon parviflorus, Acacia pulchella, Philotheca spicata, Corymbia calophylla, Hibbertia hypericoides, Acacia divergens, Banksia grandis, Hibbertia racemosa, Leucopogon verticillatus, Persoonia longifolia, Hibbertia cunninghamii*
Sedge/Rush (VR)		<2	*Anarthria prolifera, Morelotia octandra, Netrostylis sp. Jarrah Forest, Luzula meridionalis, Hypolaena pubescens, Isolepis sp., Centrolepis sp.*
Herb (H)		10-30	*Levenhookia pusilla, Trachymene pilosa, Platysace tenuissima, Hydrocotyle callicarpa, Isotropis cuneifolia, Caladenia flava, Lagenophora sp., Opercularia vaginata, Pterostylis sp., Xanthosia candida, Orianthera serpyllifolia, Pyrorchis nigricans, Amperea simulans, Hypochaeris sp., Tremandra diffusa, Rhodanthe sp., *Cerastium glomeratum, Stylidium amoenum, Opercularia hispidula, Stylidium rhynchocarpum, Lomandra caespitosa, Xanthosia huegelii, Sowerbaea laxiflora, Caladenia latifolia, Caladenia sp., *Sherardia arvensis, Chamaescilla corymbosa*
Grass (G)		2-10	**Aira (caryophyllea), *Briza maxima, Austrostipa compressa*
Other (climbers) (C)		<2	*Marianthus sp./Billardiera variifolia, Thysanotus manglesianus/patersonii, Drosera sp.*

* = Introduced, () = Tentativbe ID



Photo 29 – Relevé 8 (MI08)



Photo 30 – Relevé 8 (MI08)



Photo 31 – Relevé 8 (MI08)



Photo 32 – Relevé 8 (MI08)

STRUCTURAL VEGETATION, FLORA – Relevé 9		**SITE_ID:** MI09
Date: 10/10/2024	**GPS**: 336057.7115, 6206871.99	**Vegetation Community:** Coastal Saltmarsh
Recorder: KP & HD	**Photos:** 33 -36 (Below)	
Location: Lot 4758, in TEC area. East of Sabina Drive		
Condition: Very good/good		**Disturbance Factors:** Potential chnages to hydrology, minor weeds
Aspect: East		**Slope:** Flat
Geology: Unknown		**Rock:** 0
Soil Colour: Orange/brown		**Soil Type:** Clayey loam
Litter (% cover & depth): 10%, patchy, up to approx. 2cm		**Bare Ground (% cover):** 65%, variable
Hydrology: Wet all year		**Topographic position:** Riparian bank

Layer	**Height (m)**	**Cover (%)**	**Plant Species (Dominant 3 first)**
Tree (T2)	**10-30**	0	*N/A*
Tree (T3)	**< 10**	30-70	*Melaleuca cuticularis*
Shrub (S1)	**> 2**	<2	*Melaleuca cuticularis*
Shrub (S2)	**1-2**	<2	*Melaleuca cuticularis*
Shrub (S3)	**0-1**	0	*N/A*
Sedge/Rush (VR)		30-70	*Juncus kraussii, Gahnia trifida, Machaerina juncea*
Herb (H)		<2	*Samolus sp., Suaeda australis, Apium prostratum, Rhagodia sp., Salicornia sp. - sterile*
Grass (G)		0	*N/A*
Other (climbers) (C)		0	*N/A*

* = Introduced



Photo 33 – Relevé 9 (MI09)



Photo 34 – Relevé 9 (MI09)



Photo 35 – Relevé 9 (MI09)



Photo 36 – Relevé 9 (MI09)

STRUCTURAL VEGETATION, FLORA – Relevé 10		SITE_ID: MI10
Date: 11/10/2024	**GPS**: 335553.336, 6206484.852	**Vegetation Community:** Melaluca Scrub
Recorder: KP & HD	**Photos:** 37 -40 (Below)	
Location: Lot 4766, R36542. West of lagoon.South of Dalton Way.		
Condition: Very good		**Disturbance Factors:** Kangaroo grazing, potential changes to hydrology
Aspect: Southeast		**Slope:** Gentle
Geology: Unknown		**Rock:** <2
Soil Colour: Dark brown		**Soil Type:** Loamy sand
Litter (% cover & depth): 95%, approx. 2cm (Lots of orgnaic matter, approx. 8cm deep)		**Bare Ground (% cover):** <2%
Hydrology: Seasonally wet		**Topographic position:** Wetland

Layer	Height (m)	Cover (%)	Plant Species (Dominant 3 first)
Tree (T2)	**10-30**	<2	*Taxandria juniperina*
Tree (T3)	**< 10**	10-30	*Melaleuca preissiana, Taxandria juniperina*
Shrub (S1)	**> 2**	10-30	*Callistachys lanceolata, Taxandria juniperina, Taxandria parviceps, Eucalyptus marginata, Melaleuca preissiana, Banksia littoralis*
Shrub (S2)	**1-2**	2-10	*Callistachys lanceolata, Taxandria parviceps, Melaleuca preissiana, Taxandria linearifolia*
Shrub (S3)	**0-1**	2-10	*Taxandria juniperina, Taxandria parviceps, Melaleuca preissiana, Callistachys lanceolata, Patersonia occidentalis*
Sedge/Rush (VR)		30-70	*Machaerina vaginalis, Leptocarpus sp., Opercularia sp. – sterile, Machaerina juncea*
Herb (H)		<2	*Ornduffia sp. – sterile, Pterostylis spp., Thysanotus sp. sterile*
Grass (G)		0	*N/A*
Other (climbers) (C)		<2	*Thysanotus manglesianus/patersonii - sterile*

* = Introduced



Photo 37 – Relevé 10 (MI10)



Photo 38 – Relevé 10 (MI10)



Photo 39 – Relevé 10 (MI10)



Photo 40 – Relevé 10 (MI10)

STRUCTURAL VEGETATION, FLORA – Relevé 11		**SITE_ID:** MI11
Date: 11/10/2024	**GPS:** 335822.7071, 6206428.231	**Vegetation Community:** Coastal Saltmarsh
Recorder: DP & DC	**Photos:** 41 -44 (Below)	
Location: Lot 4766, R36542. In TEC area. East of lagoon.South/southeast of Fairlawn Place.		
Condition: Very good/good		**Disturbance Factors:** Inundation, kangaroo grazing, edge effect
Aspect: East		**Slope:** Flat
Geology: Unknown		**Rock:** 0
Soil Colour: Dark brown		**Soil Type:** Loam
Litter (% cover & depth): 10%, approx. 1cm		**Bare Ground (% cover):** 30%
Hydrology: Daily inundation		**Topographic position:** Creekline

Layer	**Height (m)**	**Cover (%)**	**Plant Species (Dominant 3 first)**
Tree (T2)	**10-30**	0	*N/A*
Tree (T3)	**< 10**	30-70	*Melaleuca cuticularis*
Shrub (S1)	**> 2**	2-10	*Melaleuca cuticularis*
Shrub (S2)	**1-2**	0	*N/A*
Shrub (S3)	**0-1**	0	*N/A*
Sedge/Rush (VR)		70	*Juncus pauciflorus, Gahnia trifida, Juncus sp., (Leptocarpus) sp. - sterile*
Herb (H)		10-30	*Suaeda australis, (Samolus valerandi) – sterile, Atriplex sp., Apium annuum*
Grass (G)		0	*N/A*
Other (climbers) (C)		0	*N/A*

***** = Introduced, () = Tentativbe ID



Photo 41 – Relevé 11 (MI11)



Photo 42 – Relevé 11 (MI11)



Photo 43 – Relevé 11 (MI11)



Photo 44 – Relevé 11 (MI11)

Appendix N Vegetation Photo Point Monitoring

Establishing a Permanent Photo Point

Photographs can rapidly document vegetation changes at a site and give an overall impression of the success or otherwise of a project's activities. They are a simple and effective means of recording a project's progress. Photo point monitoring requires that photographs be taken from the same location at set intervals over time using a standardised method.

To follow are guiding principles for establishing a permanent photo point for vegetation monitoring.

1. Photo points should be located where they can easily be found in future years.

2. Photo point sites should be marked with a painted metal star pickets (which should not be destroyed in a planned burn), and a compass bearing used to give the direction of the shot. The location of the photo point should be noted with a GPS reading and recorded along with an identifying number on a metal tag on the picket. Consider putting two-star pickets in the ground as a reference for the angle of the photograph so that successive photographs will be along the same line each time.

3. Ideally, photos should be taken during the same season, at the same time of day, from the same place with the same view and camera settings. Take care with placing photo points that face east to west. You may have difficulty photographing these in the morning or afternoon.

4. Try to take photos that contain distinguishable features such as background hills, an old and easily recognisable tree, track, buildings, or powerlines.

5. Take additional photographs to document the overall landscape within the burn cell or vegetation complex.

6. Set the camera on top of the star picket to ensure a consistent height.

7. Use the same camera and lens, and settings (ISO, shutter speed and more importantly aperture).

8. Record information in a notebook and include this in a project file where the photographs and details are kept. An example of a record sheet is listed below.

Photo points of the same site over time can be used to determine changes to the vegetation structure and fuel dynamics also when compared to the burn information (timing, intensity, weather details), can be used to analyse impacts and make changes as needed to achieve objectives.

Photo point Record Sheet		
Photo point Location & Number	**Date**	**Time**
Location Details	**Compass Bearing of photo**	**GPS** **S:** **E:**
Direction of Photo	**Direction of Photo**	
Camera details	**Lens Details**	**Settings** **ISO:** **Aperture:** **Shutter Speed:**
Insert Photograph here.		
Notes		

Appendix O Kangaroo Management on Molloy Island

Your Ref:
Our Ref:
Enquires: Dr Peter Mawson
Phone: (08) 9334 0421
Fax: (08) 9334 0278
Email: peterm@calm.wa.gov.au

DEPARTMENT OF
Conservation
AND LAND MANAGEMENT
Conserving the nature of WA

Mrs Janet James
C/- Steven Cunnold
Molloy Island
AUGUSTA WA 6209

Dear Janet

Re: - Kangaroo Management on Molloy Island

Further to our telephone conversation earlier this week I have enclosed a copy of a publication produced by researchers from the CSIRO on habitat use by western grey kangaroos in the southwest of Western Australia. I hope it helps you in your efforts.

I have also gone back through some of my survey records for a number of sites, including Nature Reserves in the southwest and summarized the observed kangaroo density at those sites. This will help you put the Molloy Island population in some context. With the exception of the Lake Karrinyup and Whiteman Park sites, all of the other surveys were conducted by the Department using a helicopter and standard survey techniques.

Site	Area of Dry Land (ha)	Estimated Kangaroo Density	Comments
SW Jarrah Forest		0.0086/ha	Published average
Leda Nature Reserve and adjacent lands	800	0.006/ha	Affected by urban activities
Neerabup National Park	1068	0.018/ha	Surrounded by urban development
Harry Waring Marsupial Reserve	246	0.083/ha	Fully fenced. Population managed kept at this level.
Thomson Lake Nature Reserve	256	0.11/ha	Fully fenced.
Twin Swamps Nature Reserve	155	0.17-0.31/ha	Fully fenced. 1995 and 1995 figures.
Whiteman Park	2600	0.36/ha	Ground survey (2 methods)
Proposed Broadwater Nature Reserve	1030	0.46/ha	Partly cleared farms adjacent.
Lake Karrinyup Golf Course	89.6	1.35/ha	Ground survey

NOTES ON THE BIOLOGY AND ECOLOGY OF THE WESTERN GREY KANGAROO (*Macropus fuliginosus*) IN THE WILD IN WESTERN AUSTRALIA

Distribution

The Western Grey Kangaroo occurs throughout the woodlands and forests of the winter rainfall belt of southern Australia, from just south of Shark Bay on the west coast, southwards and eastwards across the Nullarbor into north-western Victoria, western New South Wales and south-central Queensland.

Diet

The western grey kangaroo is a grazing animal, which feeds mainly on pasture grasses, perennial forbs, sedges (eg *Conostylis setigera*) and shrubs (eg *Acacia* sp., *Eremophila* sp., *Dodenea* sp. and *Maireana* sp.). In Western Australia, sedges have been found to be an important part of the diet, especially during summer, with grasses becoming the major component of the diet when actively growing after winter and spring rains.

Reproductive and Population Biology

Female grey kangaroos can reach sexual maturity as early as 20 months of age (body weight approx. 11 kg), but most do not breed until they are at least three years old (body weight approx 18 kg). Females can continue to breed until they are about 11 years old, but by then the percentage still raising young in the wild is very low.

Male grey kangaroos first reach sexual maturity from about the age of 20 months to between 3 and 5 years, depending on environmental conditions. Most would not mate however, until they were considerably older.

Unlike many other species of kangaroo and wallaby, the western grey kangaroo is a seasonal breeder. In Western Australia most female grey kangaroos give birth to a single young between January and April, although births have been recorded at other times of the year. The joeys remain in the pouch for approximately 310 days, and weigh about 4 kg when they leave the pouch. The joeys continue to suckle while outside the pouch and are not weaned until they are about 540 days old (ie 18 months). This means that under normal conditions a female will have a large joey at-heel and very small joey in the pouch at the same time. Each joey feeds from a different teat and receives a different quality milk.

The birth ratio is roughly 50% male and 50% female. In normal circumstances juvenile grey kangaroos would constitute about 20-30% of the population. In times of drought, females may abandon their joeys in order to survive themselves.

Western grey kangaroos can live for as many as 20 years in the wild, although most probably do not live longer than 12-15 years. Tooth wear can limit the survival of wild kangaroos by reducing their ability to chew and digest herbage and males which have been dominant males can succumb to stress related conditions to die at considerably younger ages than their captive counterparts.

Activity and Movement

Western grey kangaroos are most active during the early morning and evening, with peaks in activity during around sunrise and sunset. They are also active throughout the night, but are not truly nocturnal. The pattern of activity followed by grey kangaroos is referred to as being 'crepuscular'. During the middle parts of the day they usually retire to some form of dense cover, where they rest. The amount of time spent resting each day is greater in the summer months than during the winter months, due to the high temperatures (energy used to stay cool while feeding in the hotter parts of the day would be wasted energy).

On average, grey kangaroos move 1.5-2.0 km per 24-hr period, with those animals in open rangeland (where pastures are generally poorer) tending to move greater distances than those confined to small

remnants of native vegetation which are surrounded by farmland. Males tend to move about more, and to cover greater distances than females.

Social Behaviour

All of the large kangaroo species, including the western greys are social animals, which form loose groupings in situations when the food supply can support such an arrangement.. Group size for greys can range from 1 to 14 or more animals. Published studies have shown that in summer and spring the average group size seen is 2.0, and in autumn and winter it increases to 3.1. The composition of groups can be flexible with published results indicating kangaroos spend less than 40% of their time with the same animals in any particular group. Associations may not persist from one year to the next, and individual kangaroos tend to associate with others of the same sex, although sub-adults more often associate with adult females, normally their mother and her previous daughters.

The normal structure for groupings would be one very large male, several females with their current and recently dependent young, with perhaps one or several other males, either in the "group" or nearby. Within a grouping or area, the majority of the successful matings are due to one or a few very large males, with the remainder of the sub-ordinate males playing no part in each years crop of joeys. The most dominant male in an area will try to ensure that only he mates with each female by staying near to them during their entire period of sexual receptiveness and thereby physically intimidating other males who may also try to mate.

In studies conducted on a related species, the Eastern Grey Kangaroo, the female biased grouping (based on mothers, their female young and one or a few dominant males) can continue for many years and several female generations. In these circumstances, male young normally leave the mother (and the associated group) as they approach sexual maturity and move away into loose groups of young males. Males can move significant distances during the period of sexual development and growth until they reach a stage where they may be able to challenge for the position of dominant male in another grouping or area. In contrast the female offspring may remain with their mother for many years and may stay within the general vicinity of their birth for their entire life

Habitat Requirements and Population Densities

Western Grey kangaroos can be found in open forest, woodland and open scrubland. They require access to both grazing areas and protective vegetation cover, in which to rest during the hotter parts of the day. Access to free water is not critical, except in the very hot periods of mid-summer, in areas where it would be difficult for the kangaroos to obtain sufficient moisture from food or dew.

Population densities vary enormously in relation to the quality of the habitat, from one or fewer kangaroos per square kilometre (100 ha) in the arid central areas to one kangaroo every few hectares in the more nutritious habitat along the west coast.

Population Size and Management

The western grey is one of the most abundant of all kangaroo species. In 1993 the Western Australian rangeland population of western greys was estimated to be in excess of 1 million. The rangeland for this exercise is taken to be the sheep rangelands of the State, excluding the Kimberley, western wheatbelt, central deserts and the southern forests. A commercial harvest of no more than 60,000 western grey kangaroos is provided for under the "Management Program for the Western Grey Kangaroo in Western Australia, 1995 to 1997", prepared by the Department of Conservation and Land Management. Grey kangaroos may be commercially harvested from approved areas by licensed shooters for the purposes of population maintenance, agricultural damage mitigation, and management of the species as a renewable natural resource. Non-commercial harvests are also permitted under this program and pursuant to the open season notice for Western Grey Kangaroos published in the Government Gazette of 15 July 1988.

As you can see from the population estimates for each of those areas that are fenced tend to develop higher densities of kangaroos than unfenced areas. Smaller sites also develop higher densities of animals more quickly. If the kangaroos have access to good grazing pasture or watered lawns (or free food) the populations also become very dense.

The total area of Molloy Island is approximately 145ha. Even if the entire island was available as kangaroo habitat the natural population should be in the order of 3-5 animals, 10 as an absolute maximum. If as you suggest the population is at least 70 animals, then the current density is 0.48/ha, which is comparable to the very high population surveyed at the Broadwater near Busselton. This site had extensive areas of high quality pasture grazing that normally supported cattle herds. The current density of kangaroos on Molloy Island is also higher than that recorded for Whiteman Park. The managers of Whiteman Park have taken active steps to reduce the kangaroo population to prevent the kangaroos overgrazing the site to the detriment of the kangaroos and other native animals (brush wallabies and bandicoots) and the human users of the park.

I hope this assists you in your endeavours.

Yours faithfully

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for Keiran McNamara
ACTING EXECUTIVE DIRECTOR

23 January, 2002

Appendix P Dawn, Dusk and Nocturnal Fauna Survey Times and Observations

Survey Type	Personnel	Date and Time	Sunrise / Sunset Time	Location & Observations
Dusk / Nocturnal 1	Team 1 - KP & HD Team 2 - DC & BB	24 June 2024 4:15 pm to 9:45 pm	Sunset - 5:17 pm Last light - 5:45 pm	Dusk – Lots 258 & 231 • Approximately 23 White-tailed Black Cockatoos. • Four Forest Red-tailed Black Cockatoos. • Lots of Black Cockatoo calls heard. Nocturnal - Lots 4761, 231 & 258 • Two Quendas. • 103 Western Ringtail Possums.
Dawn 1	Team 1 - KP & HD Team 2 - DC & BB	25 June 2024 6:15 am to 8:00 am	Sunrise - 7:25 am First light - 6:30 am	Lots 231 & 4766 • Lots of Black Cockatoo calls. • Three Forest Red-tailed Black Cockatoos observed in a tree.
Dusk / Nocturnal 2	Team 1 - KP & HD Team 2 - DC & BB	25 June 2024 4:25 pm to 9:00 pm	Sunset - 5:18 pm Last light - 5:45 pm	Dusk - Lots 231, 4761 & 4766 • 33 Forest Red-tailed Black Cockatoos. o Two of which were observed roosting in a tree in private property adjacent to Lot 4761. • Lots of Black Cockatoo calls heard. Nocturnal – Lots 4766 & 4706 • 89 Western Ringtail Possums.

Survey Type	Personnel	Date and Time	Sunrise / Sunset Time	Location & Observations
Dawn 2	Team 1 - KP & HD Team 2 - DC & BB	26 June 2024 6:20 am to 7:50 am	Sunrise - 7:25 am First light - 6:58 am	Lots 4761 & 4766 • Lots of Black Cockatoo calls heard. • Four Forest Red-tailed Black Cockatoos foraging on and around the roosting tree from the dusk survey 2.
Dusk / Nocturnal 3	Team 1 - KP & HD Team 2 - DC & DP	9 October 2024 5:30 pm to 10:00 pm	Sunset - 6:28 pm Last light - 6:53 pm	Dusk - Lot 231 & 258 • Black Cockatoo calls heard. Nocturnal – Parts of Lots 258, 4706 & 4758 • One Rakali. • 26 Western Ringtail Possums.
Dawn 3	Team 1 - KP & HD Team 2 - DC & DP	10 October 2024 5:00 am to 6:30 am	Sunrise - 5:43 am First light - 5:17 am	Lots 231, 258 & 4766 • Black Cockatoo calls heard. • Forest Red-tailed Black Cockatoo foraging in private property.
Dusk / Nocturnal 4	Team 1 - KP & HD Team 2 - DC & DP	10 October 2024 5:30 pm to 8:00 pm	Sunset - 6:28 pm Last light - 6:54 pm	Dusk – Lots 4758 & 4761 • Five Forest Red-tailed Black Cockatoos – Three foraging and calling to others in distance and two foraging in private property. • Lots of Black Cockatoo calls heard. Nocturnal – Lots 231, 258, 4706, 4758 & 4766 • 16 Western Ringtail Possums.

Survey Type	Personnel	Date and Time	Sunrise / Sunset Time	Location & Observations
Dawn 4	Team 1 - KP & HD Team 2 - DC & DP	11 October 2024 5:15 am to 6:30 am	Sunrise 5:41 am First light 5:16 am	Lots 231, 4761 & 4766 • Lots of Black Cockatoo calls heard. • Two Black Cockatoos flying over survey area. • Six Forest Red-tailed Black Cockatoos observed foraging in a Marri.

Appendix Q Habitat Trees

WPT#	DBH (cm)	Species	Height (m)	Hollow Observations	Notes	Easting	Northing
2604	100	Eucalyptus marginata	15	Potential hollow/s		335456.402	6207001.115
2605	50	Corymbia calophylla	10	No hollow/s		335459.507	6206997.397
2606	80	Eucalyptus marginata	15	No hollow/s	Dead	335460.757	6206999.638
2607	80	Eucalyptus marginata	15	No hollow/s		335504.095	6206991.635
2608	110	Corymbia calophylla	8	No hollow/s		335514.38	6206993.369
2609	50	Eucalyptus marginata	12	No hollow/s		335574.141	6207036.242
2610	70	Unidentifiable	12	No hollow/s	Dead	335575.882	6207036.716
2611	40	Eucalyptus marginata	10	No hollow/s		335585.657	6207025.572
2612	60	Corymbia calophylla	10	No hollow/s		335591.969	6207022.798
2613	70	Corymbia calophylla	12	No hollow/s		335600.226	6207019.393
2614	80	Corymbia calophylla	16	No hollow/s		335596.906	6207014.343
2615	40	Corymbia calophylla	10	No hollow/s		335605.442	6207016.046
2616	80	Eucalyptus marginata	12	No hollow/s		335608.748	6207006.12
2617	70	Eucalyptus marginata	14	Hollow/s		335614.857	6207009.666
2618	70	Eucalyptus marginata	12	No hollow/s		335617.189	6207002.718
2619	60	Eucalyptus marginata	10	No hollow/s		335625.566	6207002.976
2620	70	Corymbia calophylla	14	No hollow/s		335636.469	6206990.52
2621	70	Eucalyptus marginata	8	Hollow/s		335640.456	6206989.037
2622	80	Eucalyptus marginata	8	No hollow/s		335644.096	6206991.542
2623	50	Corymbia calophylla	12	No hollow/s		335642.015	6206989.397
2624	80	Eucalyptus marginata	10	Hollow/s		335666.736	6206971.526
2625	60	Eucalyptus marginata	12	No hollow/s		335665.774	6206963.411
2626	50	Eucalyptus marginata	12	No hollow/s		335705.813	6206933.384
2627	54	Eucalyptus marginata	12	Hollow/s		335714.224	6206926.432
2628	90	Eucalyptus marginata	14	Hollow/s		335716.197	6206924.248
2629	80	Eucalyptus marginata	16	No hollow/s		335722.017	6206923.24
2630	60	Eucalyptus marginata	12	No hollow/s		335760.001	6206905.38
2631	60	Corymbia calophylla	10	No hollow/s		335775.647	6206900.773
2632	100	Eucalyptus marginata	14	Hollow/s		335787.114	6206892.876
2633	96	Eucalyptus marginata	14	Hollow/s	Dead	335804.646	6206880.537
2634	80	Eucalyptus marginata	12	Hollow/s		335813.487	6206880.581
2635	40	Corymbia calophylla	12	No hollow/s		335814.876	6206880.161
2636	100	Eucalyptus marginata	14	Hollow/s		335820.901	6206872.723
2637	170	Corymbia calophylla	18	Hollow/s		335839.225	6206862.505
2638	120	Corymbia calophylla	18	Hollow/s		335838.032	6206862.263
2640	100	Corymbia calophylla	16	No hollow/s		335853.027	6206857.977
2641	30	Eucalyptus marginata	10	No hollow/s		335856.164	6206857.699
2642	30	Eucalyptus marginata	6	No hollow/s		335858.066	6206859.507
2643	100	Corymbia calophylla	12	No hollow/s		335859.98	6206860.65
2644	100	Corymbia calophylla	20	No hollow/s		335869.609	6206857.824
2645	110	Corymbia calophylla	20	Hollow/s		335872.342	6206859.536
2646	90	Corymbia calophylla	15	No hollow/s		335873.1	6206858.329
2647	110	Corymbia calophylla	18	Hollow/s		335868.275	6206849.813
2648	110	Corymbia calophylla	12	No hollow/s		335862.058	6206852.477
2649	90	Eucalyptus marginata	14	Hollow/s		335863.001	6206845.949
2650	40	Eucalyptus marginata	10	No hollow/s		335873.555	6206848.131
2651	100	Corymbia calophylla	18	Hollow/s		335889.028	6206842.855
2652	60	Eucalyptus marginata	8	No hollow/s		335894.206	6206841.725
2653	70	Eucalyptus marginata	10	No hollow/s		335909.314	6206841.546
2654	50	Corymbia calophylla	12	No hollow/s		335918.128	6206832.604
2655	30	Corymbia calophylla	8	No hollow/s		335923.347	6206834.359
2656	60	Unidentifiable	6	No hollow/s	Dead	335924.807	6206835.161
2657	30	Corymbia calophylla	8	No hollow/s		335923.6	6206835.695
2658	30	Corymbia calophylla	8	No hollow/s		335924.396	6206837.595
2659	30	Corymbia calophylla	8	No hollow/s		335926.798	6206837.193
2660	40	Corymbia calophylla	10	No hollow/s		335933.129	6206838.524
2661	60	Corymbia calophylla	10	No hollow/s		335933.555	6206840.529
2662	30	Corymbia calophylla	8	No hollow/s		335932.652	6206839.515
2663	40	Corymbia calophylla	10	No hollow/s		335929.418	6206845.338
2664	70	Corymbia calophylla	12	No hollow/s		335927.57	6206850.963
2665	100	Corymbia calophylla	18	Hollow/s		335932.882	6206831.642
2666	60	Corymbia calophylla	12	No hollow/s		335934.378	6206830.337
2667	40	Corymbia calophylla	6	No hollow/s		335930.377	6206827.383

2668	60	Eucalyptus marginata	8	No hollow/s		335928.132	6206824.126
2669	80	Unidentifiable	12	Hollow/s	Dead	335926.229	6206822.318
2670	80	Eucalyptus marginata	10	No hollow/s		335925.658	6206823.417
2671	60	Corymbia calophylla	14	No hollow/s		335916.796	6206819.268
2672	50	Eucalyptus marginata	10	No hollow/s		335919.738	6206814.328
2673	70	Eucalyptus marginata	8	No hollow/s		335916.668	6206826.588
2674	80	Eucalyptus marginata	12	No hollow/s		335906.825	6206831.186
2675	70	Eucalyptus marginata	12	No hollow/s		335905.869	6206833.166
2676	70	Eucalyptus marginata	12	No hollow/s		335901.706	6206834.202
2677	40	Corymbia calophylla	8	No hollow/s		335897.204	6206833.569
2678	30	Eucalyptus marginata	8	No hollow/s		335894.587	6206835.741
2679	90	Eucalyptus marginata	10	Hollow/s		335888.042	6206836.07
2680	50	Corymbia calophylla	10	No hollow/s		335887.307	6206835.947
2681	30	Eucalyptus marginata	8	No hollow/s		335881.907	6206839.291
2682	50	Eucalyptus marginata	8	No hollow/s		335883.197	6206833.989
2683	30	Eucalyptus marginata	6	No hollow/s		335878.837	6206835.798
2684	90	Corymbia calophylla	18	Hollow/s		335879.895	6206838.479
2685	70	Eucalyptus marginata	12	Hollow/s		335850.479	6206829.976
2686	60	Corymbia calophylla	10	No hollow/s		335844.57	6206830.76
2687	50	Eucalyptus marginata	14	No hollow/s		335842.631	6206831.059
2688	60	Eucalyptus marginata	16	Hollow/s		335835.613	6206826.831
2689	120	Eucalyptus marginata	10	No hollow/s		335819.022	6206822.325
2691	50	Eucalyptus marginata	10	No hollow/s		335801.051	6206807.144
2692	80	Eucalyptus marginata	16	No hollow/s		335797.517	6206803.865
2693	90	Eucalyptus marginata	14	No hollow/s		335797.602	6206783.232
2696	80	Corymbia calophylla	16	No hollow/s		335799.828	6206766.631
2697	50	Eucalyptus marginata	10	No hollow/s		335800.792	6206758.882
2698	60	Eucalyptus marginata	14	No hollow/s		335801.058	6206754.228
2699	30	Corymbia calophylla	8	No hollow/s		335799.274	6206745.654
2700	70	Eucalyptus marginata	10	Hollow/s		335801.983	6206743.483
2701	80	Corymbia calophylla	14	No hollow/s		335784.01	6206838.795
2702	70	Eucalyptus marginata	10	No hollow/s		335769.432	6206834.99
2703	80	Corymbia calophylla	12	No hollow/s		335732.24	6206865.511
2704	70	Corymbia calophylla	10	No hollow/s		335726.457	6206869.625
2705	50	Corymbia calophylla	10	No hollow/s		335719.564	6206874.052
2706	50	Corymbia calophylla	10	No hollow/s		335703.074	6206879.532
2707	80	Corymbia calophylla	18	No hollow/s		335675.523	6206911.664
2708	90	Corymbia calophylla	18	No hollow/s		335657.72	6206944.743
2709	50	Unidentifiable	12	No hollow/s	Dead	335650.59	6206952.162
2710	50	Eucalyptus marginata	10	No hollow/s		335646.321	6206953.973
2711	70	Eucalyptus marginata	12	No hollow/s	Dead	335620.852	6206956.743
2712	50	Eucalyptus marginata	10	No hollow/s		335611.717	6206962.906
2713	40	Eucalyptus marginata	6	No hollow/s		335611.478	6206960.794
2714	60	Eucalyptus marginata	8	No hollow/s		335603.683	6206964.097
2715	40	Eucalyptus diversicolor	14	No hollow/s		335597.637	6206962.215
2716	50	Eucalyptus diversicolor	16	No hollow/s		335568.583	6206969.804
2717	50	Corymbia calophylla	10	No hollow/s		335558.11	6206968.289
2718	70	Eucalyptus marginata	10	No hollow/s	Dead	335526.353	6206977.715
2719	50	Eucalyptus marginata	10	No hollow/s		335517.513	6206977.56
2720	80	Eucalyptus marginata	12	No hollow/s		335296.977	6207262.564
2721	80	Corymbia calophylla	6	No hollow/s		335149.7	6206189.762
2722	60	Eucalyptus marginata	10	Hollow/s		335152.587	6206193.141
2723	40	Corymbia calophylla	6	No hollow/s		335153.768	6206246.412
2724	70	Eucalyptus marginata	10	No hollow/s		335154.072	6206255.292
2725	70	Corymbia calophylla	14	No hollow/s		335154.852	6206258.08
2730	60	Eucalyptus marginata	14	No hollow/s		335173.929	6206304.454
2731	60	Eucalyptus marginata	12	No hollow/s		335174.288	6206320.658
2732	70	Eucalyptus marginata	10	Hollow/s		335173.451	6206315.873
2734	60	Eucalyptus marginata	12	No hollow/s		335296.646	6206338.675
2735	80	Eucalyptus marginata	8	No hollow/s		335299.15	6206348.148
2736	50	Eucalyptus marginata	10	No hollow/s		335302.342	6206355.193
2737	60	Corymbia calophylla	8	No hollow/s		335294.985	6206359.834
2738	70	Eucalyptus marginata	10	No hollow/s		335302.968	6206366.742
2739	50	Eucalyptus marginata	12	No hollow/s	Dead	335298.373	6206376.645

2740	70	Eucalyptus marginata	16	No hollow/s		335291.929	6206392.174
2741	50	Eucalyptus marginata	12	No hollow/s		335290.827	6206428.653
2742	70	Eucalyptus marginata	15	No hollow/s		335293.021	6206434.793
2744	80	Eucalyptus marginata	18	No hollow/s		335303.898	6206444.747
2745	50	Eucalyptus marginata	10	No hollow/s		335307.564	6206471.991
2746	97	Eucalyptus marginata	20	Hollow/s		335311.559	6206485.707
2747	70	Eucalyptus marginata	10	No hollow/s		335311.383	6206490.474
2748	80	Eucalyptus marginata	18	No hollow/s		335301.486	6206508.605
2749	80	Eucalyptus marginata	14	Hollow/s	Dead	335293.275	6206530.315
2750	80	Eucalyptus marginata	12	Hollow/s		335288.351	6206532.78
2751	60	Eucalyptus marginata	12	No hollow/s		335289.493	6206535.906
2752	50	Corymbia calophylla	10	No hollow/s		335308.29	6206467.345
2753	70	Eucalyptus marginata	14	No hollow/s		335308.508	6206444.495
2754	60	Eucalyptus marginata	8	No hollow/s		335307.185	6206441.144
2755	60	Eucalyptus marginata	8	No hollow/s		335299.269	6206435.68
2756	60	Eucalyptus marginata	6	No hollow/s		335293.867	6206428.596
2757	70	Eucalyptus marginata	16	No hollow/s		335292.419	6206416.7
2758	60	Eucalyptus marginata	14	No hollow/s		335293.786	6206417.501
2759	60	Eucalyptus marginata	14	No hollow/s		335317.012	6206479.368
2760	40	Eucalyptus marginata	10	No hollow/s		335329.875	6206481.148
2761	50	Corymbia calophylla	6	No hollow/s		335328.457	6206483.23
2762	70	Corymbia calophylla	12	No hollow/s		335340.163	6206477.446
2763	50	Eucalyptus marginata	10	No hollow/s		335340.909	6206471.69
2764	40	Corymbia calophylla	14	No hollow/s		335342.116	6206471.157
2765	60	Corymbia calophylla	14	No hollow/s		335346.971	6206477.898
2766	50	Eucalyptus marginata	12	No hollow/s		335350.19	6206483.391
2767	50	Eucalyptus marginata	12	No hollow/s		335366.781	6206498.326
2768	60	Corymbia calophylla	8	No hollow/s		335375.42	6206499.366
2769	70	Eucalyptus marginata	14	No hollow/s		335382.044	6206499.815
2770	60	Unidentifiable	8	No hollow/s	Dead	335386.022	6206498.775
2771	60	Eucalyptus marginata	10	No hollow/s		335388.081	6206496.926
2772	60	Corymbia calophylla	10	No hollow/s		335388.912	6206496.829
2773	60	Corymbia calophylla	10	No hollow/s		335395.223	6206488.842
2774	50	Eucalyptus marginata	12	No hollow/s		335397.765	6206485.669
2775	60	Eucalyptus marginata	12	No hollow/s		335397.221	6206485.216
2776	50	Eucalyptus marginata	10	No hollow/s		335400.005	6206499.687
2777	60	Corymbia calophylla	10	No hollow/s		335408.556	6206500.503
2778	70	Corymbia calophylla	12	No hollow/s		335422.395	6206509.621
2779	90	Eucalyptus marginata	10	No hollow/s		335430.396	6206510.316
2781	90	Eucalyptus marginata	10	No hollow/s		335443.359	6206516.867
2782	80	Eucalyptus marginata	6	No hollow/s		335465.113	6206515.807
2783	70	Unidentifiable	10	No hollow/s	Dead	335469.701	6206516.776
2784	60	Eucalyptus marginata	10	No hollow/s		335479.614	6206518.725
2785	90	Eucalyptus marginata	12	Hollow/s		335493.587	6206520.191
2787	70	Eucalyptus marginata	10	No hollow/s		335589.565	6206540.624
404	80	Eucalyptus marginata	9	Small & potential hollow/s		335457.75	6206997.81
405	80	Corymbia calophylla	12	No hollow/s		335462.64	6206997.341
406	110	Eucalyptus marginata	12	Small & potential hollow/s		335486.791	6206990.999
407	80	Corymbia calophylla	11	No hollow/s		335507.516	6206990.919
408	100	Corymbia calophylla	12	Potential hollow/s		335519.417	6206989.797
409	70	Unidentifiable	11	No hollow/s	Dead	335567.948	6207037.464
410	70	Corymbia calophylla	13	No hollow/s		335586.728	6207022.263
411	90	Corymbia calophylla	14	No hollow/s		335588.596	6207015.528
412	90	Eucalyptus marginata	12	Small hollow/s		335631.009	6206986.764
413	50	Corymbia calophylla	12	No hollow/s		335645.773	6206979.923
414	60	Eucalyptus marginata	10	Potential hollow/s		335661.06	6206959.113
415	50	Corymbia calophylla	12	No hollow/s		335671.03	6206952.521
416	40	Eucalyptus marginata	9	No hollow/s		335673.955	6206953.792
417	50	Corymbia calophylla	10	Potential hollow/s		335676.467	6206952.394
418	70	Eucalyptus marginata	12	No hollow/s		335675.89	6206948.501
419	40	Eucalyptus marginata	11	No hollow/s		335684.342	6206949.759
420	30	Corymbia calophylla	10	No hollow/s		335687	6206950.471
421	50	Eucalyptus marginata	10	No hollow/s		335686.473	6206949.02
422	80	Eucalyptus marginata	12	Potential hollow/s	Dead	335737.348	6206915.633

423	60	Eucalyptus marginata	11	No hollow/s		335742.355	6206913.724
424	120	Eucalyptus marginata	12	Hollow/s	At least one used hollow	335742.355	6206903.185
425	70	Eucalyptus marginata	13	No hollow/s		335764.654	6206897.363
426	70	Eucalyptus marginata	13	No hollow/s		335772.886	6206895.4
427	60	Eucalyptus marginata	11	Small hollow/s		335785.619	6206888.856
428	60	Eucalyptus marginata	11	Small hollow/s		335787.929	6206888.453
429	50	Corymbia calophylla	11	No hollow/s		335796.492	6206878.064
430	100	Eucalyptus marginata	13	Hollow/s		335805.497	6206874.006
431	70	Unidentifiable	9	Hollow/s	Dead	335833.66	6206854.198
432	140	Corymbia calophylla	12	Potential hollow/s		335836.906	6206852.924
433	60	Eucalyptus marginata	12	No hollow/s		335845.345	6206833.88
434	60	Eucalyptus marginata	10	No hollow/s		335844.482	6206830.537
435	50	Eucalyptus marginata	8	No hollow/s	Dead	335828.553	6206830.258
436	30	Eucalyptus marginata	9	No hollow/s		335814.241	6206821.797
437	70	Eucalyptus marginata	12	Potential hollow/s		335800.253	6206815.894
438	60	Eucalyptus marginata	8	Potential hollow/s		335791.423	6206820.51
439	50	Corymbia calophylla	10	No hollow/s		335791.131	6206826.606
440	150	Eucalyptus marginata	14	Potential hollow/s		335795.528	6206828.015
441	50	Corymbia calophylla	10	No hollow/s		335795.711	6206833.343
442	50	Corymbia calophylla	10	No hollow/s		335793.056	6206832.409
443	90	Eucalyptus marginata	11	Hollow/s		335791.362	6206834.487
444	40	Unidentifiable	6	No hollow/s	Dead	335789.96	6206830.357
445	80	Eucalyptus marginata	11	Potential hollow/s	Dead	335784.066	6206819.826
446	90	Eucalyptus marginata	13	No hollow/s		335783.002	6206817.478
447	60	Corymbia calophylla	13	No hollow/s		335789.914	6206806.727
448	60	Eucalyptus marginata	10	No hollow/s		335790.138	6206841.232
449	90	Corymbia calophylla	14	No hollow/s	Birds nest	335784.36	6206845.125
450	70	Eucalyptus marginata	12	Small hollow/s		335772.346	6206842.141
451	60	Eucalyptus marginata	12	Small hollow/s		335736.337	6206857.706
452	90	Eucalyptus marginata	11	No hollow/s		335698.581	6206904.636
453	60	Corymbia calophylla	12	No hollow/s		335697.295	6206904.391
454	30	Eucalyptus marginata	9	No hollow/s		335692.404	6206904.971
455	80	Eucalyptus marginata	10	Potential hollow/s		335651.317	6206957.944
456	70	Eucalyptus marginata	9	Potential hollow/s	Dead	335642.014	6206963.216
457	70	Corymbia calophylla	12	No hollow/s		335633.985	6206958.86
458	60	Eucalyptus marginata	10	No hollow/s		335612.327	6206970.128
459	70	Eucalyptus marginata	10	Potential hollow/s		335612.043	6206970.567
460	70	Eucalyptus marginata	10	No hollow/s		335592.513	6206965.565
461	90	Corymbia calophylla	12	No hollow/s		335559.099	6206969.637
462	40	Eucalyptus marginata	9	No hollow/s		335530.493	6206983.224
471	40	Corymbia calophylla	8	No hollow/s		335188.456	6206216.848
472	50	Corymbia calophylla	9	No hollow/s		335202.569	6206231.296
473	90	Corymbia calophylla	11	No hollow/s		335206.58	6206238.911
474	70	Unidentifiable	10	Small hollow/s	Dead	335203.658	6206247.956
476	40	Corymbia calophylla	8	No hollow/s		335302.797	6206355.534
477	50	Eucalyptus marginata	10	Potential hollow/s		335302.382	6206368.618
478	70	Eucalyptus marginata	11	Small hollow/s		335308.82	6206379.603
479	90	Eucalyptus marginata	10	Small hollow/s		335308.955	6206377.164
480	50	Corymbia calophylla	9	No hollow/s		335311.418	6206383.753
481	80	Eucalyptus marginata	10	Potential hollow/s		335319.861	6206385.455
482	80	Eucalyptus marginata	9	Potential hollow/s		335326.557	6206381.801
483	40	Eucalyptus marginata	11	No hollow/s		335340.789	6206389.484
484	40	Eucalyptus marginata	8	No hollow/s		335345.561	6206390.455
485	90	Corymbia calophylla	10	No hollow/s		335354.294	6206386.171
486	50	Eucalyptus marginata	10	No hollow/s		335355.622	6206394.404
487	60	Eucalyptus marginata	11	No hollow/s		335363.95	6206397.435
488	50	Unidentifiable	9	Potential hollow/s	Dead	335376.924	6206398.106
489	60	Eucalyptus marginata	10	Potential hollow/s		335401.97	6206382.683
490	70	Eucalyptus marginata	8	No hollow/s		335404.42	6206379.509
491	40	Eucalyptus marginata	9	Small hollow/s		335422.065	6206381.705
492	40	Eucalyptus marginata	8	No hollow/s		335426.733	6206378.126
493	40	Corymbia calophylla	12	No hollow/s		334854.137	6206582.709
493	50	Eucalyptus marginata	9	Small hollow/s		335428.87	6206382.268
494	40	Corymbia calophylla	13	No hollow/s		334856.588	6206584.749

494	40	Eucalyptus marginata	9	No hollow/s		335430.741	6206380.637
495	40	Corymbia calophylla	12	No hollow/s		334856.278	6206586.629
495	60	Eucalyptus marginata	9	No hollow/s		335436.04	6206388.274
496	30	Corymbia calophylla	12	No hollow/s		334864.551	6206577.124
496	50	Eucalyptus marginata	9	No hollow/s		335439.803	6206383.791
497	80	Eucalyptus marginata	16	No hollow/s	Multistem	334883.05	6206583.108
497	50	Unidentifiable	10	Potential hollow/s	Dead	335442.252	6206385.942
498	40	Corymbia calophylla	8	No hollow/s		335454.663	6206392.484
498	40	Corymbia calophylla	11	No hollow/s		334884.852	6206580.144
499	40	Eucalyptus marginata	8	No hollow/s		335518.869	6206349.792
499	80	Eucalyptus marginata	11	No hollow/s		334904.673	6206579.051
500	40	Corymbia calophylla	8	No hollow/s		335550.835	6206333.602
500	40	Eucalyptus marginata	12	No hollow/s		334913.369	6206582.089
501	40	Eucalyptus marginata	12	No hollow/s		334974.728	6206575.738
501	50	Eucalyptus marginata	10	No hollow/s		335569.495	6206330.379
502	110	Eucalyptus marginata	14	No hollow/s		334985.814	6206568.611
502	70	Eucalyptus marginata	11	Small hollow/s		335578.142	6206336.189
503	60	Corymbia calophylla	11	Potential hollow/s		335590.754	6206331.307
503	60	Eucalyptus marginata	9	No hollow/s	Dead	334986.037	6206571.61
504	30	Corymbia calophylla	12	No hollow/s		334988.606	6206577.424
504	40	Eucalyptus marginata	9	Potential hollow/s		335605.281	6206332.672
505	50	Corymbia calophylla	14	No hollow/s		334986.59	6206582.048
505	40	Eucalyptus marginata	9	No hollow/s		335613.27	6206334.032
506	50	Eucalyptus marginata	10	No hollow/s		335614.314	6206337.49
506	60	Eucalyptus marginata	12	No hollow/s		334985.758	6206582.255
507	50	Eucalyptus marginata	10	No hollow/s		335620.793	6206340.931
507	50	Eucalyptus marginata	11	No hollow/s		334989.407	6206584.206
508	60	Corymbia calophylla	13	No hollow/s		334996.078	6206587.208
508	40	Eucalyptus marginata	10	No hollow/s		335625.095	6206342.449
509	40	Eucalyptus marginata	12	No hollow/s		335003.083	6206586.887
509	50	Eucalyptus marginata	9	Potential hollow/s		335627.652	6206354.142
510	50	Corymbia calophylla	10	No hollow/s		335630.088	6206362.284
510	40	Eucalyptus marginata	10	No hollow/s		335010.915	6206591.907
511	50	Eucalyptus marginata	10	No hollow/s		335012.618	6206594.599
511	60	Eucalyptus marginata	12	No hollow/s		335632.025	6206372.635
512	90	Corymbia calophylla	11	Potential hollow/s		335636.719	6206378.042
512	100	Eucalyptus marginata	16	Small hollow/s		335012.97	6206590.279
513	90	Corymbia calophylla	11	Potential hollow/s		335651.327	6206374.859
513	90	Eucalyptus marginata	16	No hollow/s		335016.549	6206585.793
514	60	Corymbia calophylla	11	No hollow/s		335657.347	6206378.182
514	50	Eucalyptus marginata	10	No hollow/s		335081.689	6206547.78
515	60	Corymbia calophylla	11	Small hollow/s		335658.14	6206374.979
515	90	Eucalyptus marginata	15	Hollow/s		335077.669	6206540.72
516	50	Corymbia calophylla	11	No hollow/s		335656.4	6206374.394
516	60	Eucalyptus marginata	15	Potential hollow/s		335093.474	6206537.559
517	60	Corymbia calophylla	12	No hollow/s		335650.86	6206375.184
517	50	Eucalyptus marginata	14	No hollow/s	Scenecing	335089.264	6206530.829
518	50	Corymbia calophylla	11	Potential hollow/s		335647.892	6206365.924
518	50	Eucalyptus marginata	16	No hollow/s		335091.587	6206529.65
519	60	Corymbia calophylla	12	Potential hollow/s		335648.559	6206364.605
519	40	Eucalyptus marginata	16	No hollow/s		335104.187	6206530.648
520	40	Eucalyptus marginata	10	No hollow/s	Scenecing	335662.35	6206360.742
520	80	Eucalyptus marginata	16	No hollow/s		335107.169	6206528.704
521	60	Corymbia calophylla	10	No hollow/s		335657.185	6206350.667
521	70	Unidentifiable	17	No hollow/s	Dead	335118.728	6206510.381
522	60	Corymbia calophylla	11	Potential hollow/s		335671.398	6206375.212
522	50	Eucalyptus marginata	14	No hollow/s		335108.723	6206503.215
523	50	Corymbia calophylla	12	No hollow/s		335669.409	6206383.608
523	50	Eucalyptus marginata	14	No hollow/s	Scenecing	335119.06	6206491.527
524	60	Corymbia calophylla	11	No hollow/s		335677.507	6206383.972
524	40	Eucalyptus marginata	14	No hollow/s		335115.998	6206487.59
525	50	Eucalyptus marginata	14	No hollow/s	Scenecing	335128.867	6206478.498
525	40	Unidentifiable	10	No hollow/s	Dead	335672.104	6206387.427
526	30	Corymbia calophylla	13	No hollow/s		335131.976	6206469.345

526	60	Corymbia calophylla	12	No hollow/s		335679.038	6206396.424
527	40	Corymbia calophylla	12	No hollow/s	Scenecing	335136.92	6206423.948
528	40	Corymbia calophylla	12	No hollow/s		335133.481	6206420.448
529	40	Eucalyptus marginata	12	No hollow/s	Dead	335127.324	6206419.674
530	60	Eucalyptus marginata	15	No hollow/s	Scenecing	335123.566	6206408.182
531	90	Eucalyptus marginata	16	Small hollow/s		335118.177	6206400.432
532	60	Eucalyptus marginata	16	No hollow/s		335108.868	6206400.823
533	50	Eucalyptus marginata	16	No hollow/s	Dead	335097.539	6206390.417
534	70	Corymbia calophylla	17	No hollow/s		335091.399	6206383.431
535	50	Eucalyptus marginata	17	No hollow/s	Dead	335080.61	6206389.453
536	30	Unidentifiable	13	No hollow/s	Dead	335074.768	6206381.252
537	170	Corymbia calophylla	16	Hollow/s		335070.515	6206392.604
538	150	Corymbia calophylla	18	Hollow/s		335054.14	6206391.539
539	40	Eucalyptus marginata	10	Small hollow/s		335046.594	6206380.756
540	50	Unidentifiable	13	No hollow/s	Dead	335040.139	6206381.197
541	40	Corymbia calophylla	13	No hollow/s	Dead	335039.7	6206374.755
542	60	Corymbia calophylla	15	No hollow/s		335034.57	6206378.436
543	60	Eucalyptus marginata	15	No hollow/s		335025.639	6206367.851
544	100	Eucalyptus marginata	15	Potential hollow/s		335020.2	6206362.874
545	90	Eucalyptus marginata	16	No hollow/s		335002.082	6206366.659
546	70	Eucalyptus marginata	16	No hollow/s		334994.998	6206340.131
547	70	Eucalyptus marginata	16	No hollow/s		334996.878	6206337.946
548	50	Corymbia calophylla	14	No hollow/s		334990.15	6206322.518
549	60	Eucalyptus marginata	14	No hollow/s	Dead	334993.594	6206320.47
550	50	Eucalyptus marginata	14	No hollow/s		334985.355	6206312.449
551	70	Eucalyptus marginata	15	No hollow/s		334996.176	6206367.332
552	50	Eucalyptus marginata	12	No hollow/s		334993.046	6206382.919
553	60	Corymbia calophylla	14	No hollow/s		334991.301	6206387.88
554	60	Corymbia calophylla	12	No hollow/s		334995.809	6206388.181
555	70	Corymbia calophylla	16	No hollow/s		334986.598	6206393.455
556	50	Eucalyptus marginata	10	No hollow/s	Dead	334984.9	6206395.755
557	70	Eucalyptus marginata	14	No hollow/s		334984.661	6206404.071
558	60	Eucalyptus marginata	13	No hollow/s		334979.07	6206407.744
559	70	Eucalyptus marginata	14	Hollow/s		334975.848	6206412.901
560	50	Eucalyptus marginata	15	No hollow/s		334963.838	6206425.448
561	80	Eucalyptus marginata	15	No hollow/s		334960.947	6206432.718
562	60	Eucalyptus marginata	15	No hollow/s		334959.705	6206440.462
563	50	Eucalyptus marginata	12	No hollow/s		334961.568	6206444.489
564	50	Eucalyptus marginata	13	No hollow/s		334957.292	6206451.957
565	40	Eucalyptus marginata	11	No hollow/s	Dead	334956.434	6206453.606
566	60	Eucalyptus marginata	14	No hollow/s		334955.807	6206478.778
567	50	Corymbia calophylla	12	No hollow/s		334952.459	6206480.605
568	50	Eucalyptus marginata	12	No hollow/s		334951.019	6206478.693
569	50	Corymbia calophylla	10	No hollow/s		334951.587	6206483.03
570	110	Corymbia calophylla	16	No hollow/s		334948.386	6206492.181
571	60	Eucalyptus marginata	16	Potential hollow/s		334947.664	6206491.392
572	60	Corymbia calophylla	14	No hollow/s		334947.933	6206507.483
573	60	Corymbia calophylla	14	No hollow/s		334950.46	6206510.412
574	50	Corymbia calophylla	13	No hollow/s		334939.17	6206518.644
575	40	Eucalyptus marginata	12	No hollow/s	Dead	334934.396	6206517.783
576	60	Eucalyptus marginata	15	No hollow/s	Scenecing	334935.96	6206523.136
577	80	Corymbia calophylla	15	Potential hollow/s		334927.625	6206525.762
578	150	Corymbia calophylla	14	No hollow/s		334929.141	6206528.562
579	40	Corymbia calophylla	12	No hollow/s		334921.777	6206538.75
580	40	Corymbia calophylla	12	No hollow/s		334915.69	6206560.164
581	30	Eucalyptus marginata	13	No hollow/s		334915.149	6206564.703
582	30	Eucalyptus marginata	13	No hollow/s		334915.819	6206568.487
583	40	Eucalyptus marginata	10	No hollow/s	Dead	334916.781	6206576.602
584	70	Corymbia calophylla	20	No hollow/s		334958.844	6206661.767
585	150	Eucalyptus marginata	11	No hollow/s		334953.407	6206672.432
586	40	Eucalyptus marginata	14	No hollow/s		334964.769	6206680.953
587	60	Eucalyptus marginata	13	No hollow/s		334972.621	6206684.863
588	60	Eucalyptus marginata	16	No hollow/s		334976.519	6206683.157
589	70	Corymbia calophylla	12	No hollow/s		334988.577	6206683.591

589	80	Eucalyptus marginata	18	No hollow/s		335247.114	6206421.45
590	40	Eucalyptus marginata	13	No hollow/s	Scenecing	334992.46	6206687.986
590	90	Eucalyptus marginata	20	No hollow/s		335118.681	6206795.488
591	50	Corymbia calophylla	12	No hollow/s	Scenecing	335014.671	6206676.729
591	60	Eucalyptus marginata	20	No hollow/s		335140.759	6206786.558
592	30	Eucalyptus marginata	11	No hollow/s		335017.711	6206676.671
592	60	Eucalyptus marginata	16	No hollow/s		335144.822	6206785.964
593	70	Eucalyptus marginata	14	No hollow/s		335022.538	6206679.752
593	70	Eucalyptus marginata	19	No hollow/s		335149.41	6206786.933
594	50	Eucalyptus marginata	15	No hollow/s		335149.866	6206781.948
594	110	Eucalyptus marginata	16	Potential hollow/s		335029.945	6206672.339
595	60	Eucalyptus marginata	17	No hollow/s		335160.148	6206783.904
595	120	Eucalyptus marginata	16	Potential hollow/s		335038.612	6206671.826
596	70	Eucalyptus marginata	16	No hollow/s		335038.567	6206679.59
596	100	Eucalyptus marginata	19	Small hollow/s		335163.029	6206777.188
597	70	Eucalyptus marginata	12	No hollow/s		335042.242	6206680.099
597	120	Eucalyptus marginata	20	Small hollow/s		335170.799	6206764.789
598	70	Eucalyptus marginata	12	No hollow/s		335039.124	6206700.235
599	80	Eucalyptus marginata	18	No hollow/s		335192.227	6206756.18
599	70	Eucalyptus marginata	12	Potential hollow/s	Dead	335052.977	6206713.791
600	50	Eucalyptus marginata	17	No hollow/s		335191.282	6206747.067
600	70	Eucalyptus marginata	12	Potential hollow/s		335050.597	6206712.973
601	40	Eucalyptus marginata	12	No hollow/s	Dead	335047.975	6206736.334
601	60	Eucalyptus marginata	17	No hollow/s		335209.472	6206733.963
602	70	Eucalyptus marginata	14	No hollow/s		335052.615	6206723.88
602	60	Eucalyptus marginata	16	Potential hollow/s	Scenecing	335215.05	6206731.066
603	80	Corymbia calophylla	10	Potential hollow/s	Scenecing	335052.452	6206717.443
603	100	Eucalyptus marginata	18	No hollow/s		335216.044	6206726.868
604	70	Eucalyptus marginata	17	No hollow/s	Dead	335218.269	6206720.806
604	60	Eucalyptus marginata	14	Potential hollow/s		335051.68	6206698.57
605	50	Corymbia calophylla	18	No hollow/s		335047.933	6206681.198
606	50	Eucalyptus marginata	12	No hollow/s		335053.316	6206673.638
606	60	Eucalyptus marginata	18	No hollow/s		335225.715	6206711.174
607	50	Eucalyptus marginata	14	No hollow/s		335062.85	6206670.921
607	50	Eucalyptus marginata	17	No hollow/s		335226.761	6206709.307
608	70	Eucalyptus marginata	15	Hollow/s		335068.496	6206664.143
608	70	Eucalyptus marginata	17	Potential hollow/s	Dead	335226.788	6206702.54
609	92	Eucalyptus marginata	15	Hollow/s	Dead	335229.914	6206697.603
609	60	Eucalyptus marginata	14	Potential hollow/s	Scenecing	335069.42	6206663.937
610	50	Eucalyptus marginata	12	No hollow/s		335073.652	6206664.233
610	70	Eucalyptus marginata	16	Potential hollow/s	Dead	335232.952	6206692.442
611	40	Corymbia calophylla	14	No hollow/s		335080.8	6206661.031
611	70	Eucalyptus marginata	16	No hollow/s	Scenecing	335231.542	6206688.867
612	50	Corymbia calophylla	15	No hollow/s		335085.126	6206661.218
612	70	Eucalyptus marginata	17	Potential hollow/s	Dead	335236.398	6206685.07
613	40	Eucalyptus marginata	12	No hollow/s		335086.896	6206654.815
613	90	Unidentifiable	16	Hollow/s	Dead	335237.741	6206681.987
614	40	Corymbia calophylla	16	No hollow/s		335239.576	6206640.529
614	80	Eucalyptus marginata	15	No hollow/s		335101.343	6206645.085
615	50	Corymbia calophylla	13	No hollow/s		335098.787	6206643.82
615	90	Eucalyptus marginata	18	Potential hollow/s		335247.776	6206640.341
616	60	Eucalyptus marginata	16	No hollow/s		335247.553	6206637.341
616	80	Eucalyptus marginata	15	Potential hollow/s		335095.515	6206636.108
617	50	Corymbia calophylla	16	No hollow/s		335084.222	6206613.167
617	80	Eucalyptus marginata	18	Potential hollow/s		335248.837	6206632.372
618	50	Corymbia calophylla	14	No hollow/s		335084.377	6206609.619
618	90	Eucalyptus marginata	19	Potential hollow/s		335256.156	6206629.949
619	70	Eucalyptus marginata	15	Hollow/s	Dead	335082.026	6206607.137
619	120	Eucalyptus marginata	20	Potential hollow/s	Dead	335265.287	6206624.008
620	50	Corymbia calophylla	15	No hollow/s		335079.118	6206604.867
620	90	Eucalyptus marginata	19	Potential hollow/s		335259.822	6206615.259
621	50	Corymbia calophylla	16	No hollow/s		335075.618	6206604.917
621	50	Eucalyptus marginata	19	Potential hollow/s	Scenecing	335262.758	6206610.651
622	50	Corymbia calophylla	17	No hollow/s		335269.381	6206605.886

622	60	Corymbia calophylla	16	No hollow/s		335073.247	6206598.33
623	40	Corymbia calophylla	14	No hollow/s		335073.923	6206596.566
623	70	Eucalyptus marginata	17	Potential hollow/s		335271.643	6206597.717
624	50	Corymbia calophylla	17	No hollow/s		335273.158	6206595.414
625	60	Corymbia calophylla	17	No hollow/s		335279.764	6206581.108
626	70	Eucalyptus marginata	17	Potential hollow/s		335282.332	6206576.494
627	80	Eucalyptus marginata	20	Potential hollow/s		335283.489	6206568.305
628	70	Eucalyptus marginata	19	Potential hollow/s		335286.459	6206567.026
629	70	Eucalyptus marginata	18	Potential hollow/s		335287.988	6206558.622
630	50	Corymbia calophylla	17	No hollow/s		335289.04	6206556.421
631	70	Eucalyptus marginata	16	Potential hollow/s		335283.844	6206548.121
632	70	Eucalyptus marginata	16	Potential hollow/s		335270.542	6206644.624
633	50	Eucalyptus marginata	16	No hollow/s		335268.55	6206653.131
634	30	Eucalyptus marginata	16	No hollow/s		335274.586	6206655.567
635	70	Eucalyptus marginata	18	No hollow/s		335284.182	6206659.84
636	60	Eucalyptus marginata	17	Potential hollow/s		335287.46	6206667.22
637	90	Eucalyptus marginata	20	Potential hollow/s		335287.558	6206672.103
638	70	Eucalyptus marginata	17	Potential hollow/s		335303.22	6206692.791
639	100	Eucalyptus marginata	13	Potential hollow/s		335305.614	6206713.8
640	40	Corymbia calophylla	16	No hollow/s		335303.496	6206713.763
641	120	Unidentifiable	17	Hollow/s	Dead	335305.532	6206718.458
642	60	Eucalyptus marginata	16	No hollow/s		335304.282	6206721.431
643	80	Eucalyptus marginata	7	Potential hollow/s		335301.41	6206722.379
644	60	Eucalyptus marginata	17	No hollow/s		335295.577	6206734.59
645	50	Eucalyptus marginata	16	No hollow/s		335295.28	6206746.234
646	50	Corymbia calophylla	17	No hollow/s		335293.429	6206751.97
647	50	Corymbia calophylla	17	No hollow/s		335290.467	6206752.805
648	40	Eucalyptus marginata	16	No hollow/s		335290.688	6206761.24
649	70	Corymbia calophylla	17	No hollow/s		335293.944	6206764.626
650	50	Eucalyptus marginata	12	Hollow/s	Dead	335295.929	6206772.204
651	80	Eucalyptus marginata	19	No hollow/s		335292.27	6206781.237
652	100	Eucalyptus marginata	17	Potential hollow/s		335295.209	6206786.946
653	50	Eucalyptus marginata	15	No hollow/s	Dead	335295.729	6206804.483
654	90	Corymbia calophylla	19	Potential hollow/s		335288.971	6206811.686
655	60	Eucalyptus marginata	17	Potential hollow/s		335286.603	6206810.203
656	30	Eucalyptus marginata	15	No hollow/s		335287.888	6206841.842
657	60	Eucalyptus marginata	15	Potential hollow/s	Dead	335286.939	6206853.918
658	60	Eucalyptus marginata	16	Potential hollow/s		335290.48	6206867.292
659	60	Eucalyptus marginata	18	No hollow/s		335291.178	6206869.524
660	60	Eucalyptus marginata	18	No hollow/s		335294.164	6206872.571
661	70	Eucalyptus marginata	18	No hollow/s		335293.319	6206873.444
662	30	Eucalyptus marginata	16	No hollow/s		335291.935	6206878.856
663	70	Eucalyptus marginata	17	Potential hollow/s		335288.493	6206880.792
664	50	Eucalyptus marginata	17	No hollow/s		335290.549	6206889.592
665	40	Eucalyptus marginata	17	No hollow/s		335289.691	6206891.241
666	50	Eucalyptus marginata	17	No hollow/s		335287.097	6206892.083
667	70	Eucalyptus marginata	18	No hollow/s		335287.45	6206898.191
668	60	Eucalyptus marginata	18	No hollow/s		335287.67	6206901.412
669	80	Eucalyptus marginata	20	No hollow/s		335262.223	6206897.636
670	40	Eucalyptus marginata	16	No hollow/s		335250.862	6206894.219
671	30	Eucalyptus marginata	16	No hollow/s		335239.365	6206898.565
672	50	Corymbia calophylla	16	No hollow/s		335230.467	6206901.737
673	90	Eucalyptus marginata	18	No hollow/s		335225.152	6206900.201
674	150	Corymbia calophylla	18	Hollow/s		335206.482	6206893.438
675	40	Eucalyptus marginata	16	No hollow/s		335209.185	6206891.6
676	60	Eucalyptus marginata	18	No hollow/s		335202.441	6206892.812
677	30	Eucalyptus marginata	17	No hollow/s		335199.069	6206890.756
678	70	Eucalyptus marginata	18	Potential hollow/s		335193.07	6206886.213
679	30	Eucalyptus marginata	17	No hollow/s	Dead	335190.67	6206886.504
680	60	Eucalyptus marginata	18	No hollow/s		335187.512	6206882.787
681	50	Eucalyptus marginata	18	No hollow/s		335182.358	6206882.586
682	90	Corymbia calophylla	19	Potential hollow/s		335165.351	6206885.947
683	70	Eucalyptus marginata	19	No hollow/s		335152.382	6206884.942
684	80	Eucalyptus marginata	19	No hollow/s		335145.824	6206886.047

685	80	Eucalyptus marginata	20	No hollow/s		335141.662	6206881.758
686	50	Eucalyptus marginata	17	No hollow/s		335133.649	6206876.514
687	40	Eucalyptus marginata	16	No hollow/s		335130.313	6206877.676
688	60	Eucalyptus marginata	17	No hollow/s		335121.06	6206874.85
689	60	Eucalyptus marginata	18	No hollow/s		335113.661	6206876.606
690	70	Eucalyptus marginata	17	No hollow/s		335110.854	6206879.108
691	40	Eucalyptus marginata	16	No hollow/s		335103.088	6206875.532
692	60	Eucalyptus marginata	18	Potential hollow/s		335097.154	6206877.758
693	50	Eucalyptus marginata	15	No hollow/s		335095.254	6206875.838
694	70	Eucalyptus marginata	18	Potential hollow/s		335094.733	6206874.054
695	70	Eucalyptus marginata	17	Potential hollow/s		335087.241	6206875.808
696	100	Corymbia calophylla	18	Hollow/s		335082.095	6206875.163
697	100	Corymbia calophylla	19	Hollow/s		335075.993	6206876.498
698	60	Unidentifiable	17	Hollow/s	Dead	335072.852	6206871.783
699	80	Eucalyptus marginata	18	Hollow/s		335072.557	6206878.101
700	40	Eucalyptus marginata	17	No hollow/s		335064.807	6206878.852
701	70	Eucalyptus marginata	17	Potential hollow/s		335064.436	6206873.742
702	60	Eucalyptus marginata	16	Potential hollow/s		335066.44	6206874.998
703	110	Eucalyptus marginata	17	Potential hollow/s		335057.989	6206868.526
704	40	Corymbia calophylla	17	No hollow/s		335060.163	6206865.347
705	90	Corymbia calophylla	19	Potential hollow/s		335050.726	6206857.304
706	120	Unidentifiable	14	Potential hollow/s	Dead	335037.39	6206840.54
707	50	Eucalyptus marginata	17	No hollow/s	Dead	335033.011	6206838.133
708	30	Eucalyptus marginata	16	No hollow/s		335032.282	6206837.676
709	70	Corymbia calophylla	15	No hollow/s		335038.378	6206826.246
710	50	Corymbia calophylla	16	No hollow/s		335038.584	6206825.029
711	30	Eucalyptus marginata	15	No hollow/s		335071.994	6206805.427
712	30	Eucalyptus marginata	16	No hollow/s		335075.938	6206806.384
713	70	Eucalyptus marginata	18	No hollow/s		335081.858	6206804.935
714	50	Eucalyptus marginata	17	No hollow/s		335081.41	6206809.476
715	80	Corymbia calophylla	18	Potential hollow/s		335084.793	6206805.653
716	30	Eucalyptus marginata	15	No hollow/s	Dead	335298.461	6206937.212
717	90	Corymbia calophylla	20	No hollow/s		335305.972	6206955.316
718	70	Eucalyptus marginata	17	No hollow/s		335301.923	6206939.381
719	30	Eucalyptus marginata	15	No hollow/s		335308.047	6206915.859
720	70	Eucalyptus marginata	16	No hollow/s		335311.001	6206915.467
721	40	Eucalyptus marginata	17	No hollow/s		335313.094	6206916.946
722	80	Eucalyptus marginata	19	Hollow/s		335315.658	6206912.554
723	60	Eucalyptus marginata	18	Potential hollow/s		335323.239	6206916.126
724	50	Corymbia calophylla	18	No hollow/s		335324.924	6206914.603
725	50	Corymbia calophylla	17	No hollow/s		335331.063	6206911.161
726	80	Corymbia calophylla	18	No hollow/s		335332.476	6206909.41
727	50	Corymbia calophylla	16	Potential hollow/s		335336.353	6206908.924
728	90	Corymbia calophylla	20	No hollow/s		335339.935	6206904.217
729	50	Eucalyptus marginata	17	Potential hollow/s		335355.147	6206898.161
730	40	Corymbia calophylla	16	No hollow/s		335357.782	6206894.99
731	80	Corymbia calophylla	17	Potential hollow/s		335357.748	6206891.661
732	60	Eucalyptus marginata	18	No hollow/s		335363.816	6206897.537
733	80	Eucalyptus marginata	16	Potential hollow/s		335366.255	6206900.242
734	50	Eucalyptus marginata	17	Potential hollow/s		335369.238	6206898.187
735	70	Corymbia calophylla	18	No hollow/s		335369.858	6206883.887
736	60	Eucalyptus marginata	18	Hollow/s	Dead	335376.3	6206889.436
737	50	Eucalyptus marginata	17	Potential hollow/s	Dead	335377.483	6206890.233
738	120	Corymbia calophylla	21	Potential hollow/s		335384.216	6206884.472
739	70	Unidentifiable	12	Potential hollow/s	Dead	335379.04	6206880.276
740	70	Eucalyptus marginata	20	Potential hollow/s		335393.211	6206875.755
741	40	Unidentifiable	16	Potential hollow/s	Dead	335393.27	6206872.428
742	80	Eucalyptus marginata	18	Potential hollow/s	Dead	335395.826	6206873.693
743	70	Eucalyptus marginata	17	Potential hollow/s		335435.01	6206855.744
744	60	Eucalyptus marginata	17	No hollow/s		335438.769	6206851.484
745	70	Eucalyptus marginata	16	Potential hollow/s		335438.786	6206850.486
746	160	Corymbia calophylla	20	Hollow/s		335440.513	6206841.308
747	60	Eucalyptus marginata	20	No hollow/s		335450.393	6206845.143
749	80	Eucalyptus marginata	17	Hollow/s		335454.751	6206838.23

750	80	Eucalyptus marginata	17	Hollow/s		335474.765	6206826.157
751	80	Eucalyptus marginata	19	Potential hollow/s		335487.186	6206826.93
752	70	Eucalyptus marginata	17	Potential hollow/s		335485.318	6206823.125
753	70	Eucalyptus marginata	18	Potential hollow/s		335500.687	6206818.625
754	60	Corymbia calophylla	16	Potential hollow/s		335505.549	6206819.709
755	40	Eucalyptus marginata	17	No hollow/s		335508.155	6206823.415
756	60	Eucalyptus marginata	17	No hollow/s		335509.395	6206820.996
757	30	Eucalyptus marginata	16	No hollow/s		335511.532	6206819.925
758	50	Eucalyptus marginata	18	No hollow/s		335513.03	6206818.509
759	30	Unidentifiable	10	Potential hollow/s	Dead	335513.252	6206816.405
760	50	Eucalyptus marginata	16	Potential hollow/s	Dead	335523.492	6206820.689
761	60	Corymbia calophylla	18	No hollow/s		335526.137	6206822.178
762	50	Eucalyptus marginata	17	Potential hollow/s	Scenecing	335524.771	6206816.052
763	40	Corymbia calophylla	19	No hollow/s		335525.726	6206814.072
764	30	Eucalyptus marginata	18	No hollow/s		335531.243	6206814.613
765	70	Corymbia calophylla	19	No hollow/s		335532.042	6206811.077
766	70	Corymbia calophylla	20	No hollow/s		335541.839	6206814.355
767	60	Eucalyptus marginata	18	No hollow/s		335557.175	6206811.74
768	80	Corymbia calophylla	21	No hollow/s		335561.417	6206821.91
769	70	Eucalyptus marginata	22	Potential hollow/s		335568.263	6206830.683
770	30	Eucalyptus marginata	17	No hollow/s	Dead	335580.545	6206844.544
771	100	Corymbia calophylla	23	Potential hollow/s		335578.569	6206846.95
772	80	Eucalyptus marginata	23	Potential hollow/s		335576.207	6206850.348
773	70	Corymbia calophylla	22	No hollow/s		335588.91	6206861.221
774	120	Eucalyptus marginata	23	Potential hollow/s		335595.159	6206872.535
775	30	Corymbia calophylla	18	No hollow/s		335593.716	6206876.06
776	110	Eucalyptus marginata	22	Potential hollow/s		335542.917	6206794.96
777	80	Corymbia calophylla	22	No hollow/s		335525.57	6206781.01
778	60	Corymbia calophylla	20	No hollow/s		335514.966	6206776.498
779	70	Corymbia calophylla	18	No hollow/s		335514.652	6206773.386
780	90	Corymbia calophylla	25	Potential hollow/s		335514.896	6206769.951
781	80	Eucalyptus marginata	23	Potential hollow/s		335509.281	6206759.314
782	70	Eucalyptus marginata	21	No hollow/s		335504.13	6206753.676
783	50	Eucalyptus marginata	17	Potential hollow/s		335499.05	6206754.474
784	70	Eucalyptus marginata	17	No hollow/s		335498.182	6206751.464
785	90	Eucalyptus marginata	24	Potential hollow/s		335494.428	6206744.964
786	60	Eucalyptus marginata	17	No hollow/s		335498.755	6206745.04
787	60	Eucalyptus marginata	18	Potential hollow/s		335496.968	6206736.688
788	40	Corymbia calophylla	18	No hollow/s		335501.257	6206728.443
789	70	Corymbia calophylla	20	No hollow/s		335491.365	6206714.846
790	40	Eucalyptus marginata	18	No hollow/s		335487.855	6206715.45
791	70	Corymbia calophylla	20	Potential hollow/s		335485.496	6206713.412
792	100	Eucalyptus marginata	21	Hollow/s		335479.587	6206708.981
793	90	Eucalyptus marginata	19	No hollow/s		335480.049	6206703.664
794	60	Eucalyptus marginata	20	No hollow/s	Dead	335479.389	6206704.54
795	70	Eucalyptus marginata	20	No hollow/s		335472.826	6206700.653
796	40	Corymbia calophylla	19	No hollow/s		335468.876	6206700.029
797	60	Eucalyptus marginata	20	Hollow/s		335465.709	6206702.081
798	60	Corymbia calophylla	20	No hollow/s		335464.972	6206696.854
799	70	Eucalyptus marginata	19	No hollow/s		335456.04	6206696.697
800	50	Corymbia calophylla	18	No hollow/s		335452.455	6206696.301
801	70	Eucalyptus marginata	15	No hollow/s	Dead	335444.455	6206695.606
802	70	Eucalyptus marginata	17	No hollow/s		335418.312	6206694.814
803	120	Eucalyptus marginata	20	Hollow/s		335416.282	6206695
804	60	Eucalyptus marginata	18	Potential hollow/s		335412.356	6206693.045
805	80	Eucalyptus marginata	18	Potential hollow/s		335402.918	6206690.328
806	80	Corymbia calophylla	20	No hollow/s		335398.549	6206692.581
807	80	Corymbia calophylla	20	No hollow/s		335397.23	6206689.008
808	100	Eucalyptus marginata	20	Hollow/s		335384.148	6206684.007
810	50	Eucalyptus marginata	20	Potential hollow/s		335379.593	6206686.368
811	80	Corymbia calophylla	20	No hollow/s		335375.519	6206687.627
812	80	Eucalyptus marginata	20	Hollow/s		335360.822	6206680.158
813	60	Corymbia calophylla	18	No hollow/s		335358.617	6206674.573
814	70	Eucalyptus marginata	18	Potential hollow/s		335341.88	6206662.63

815	50	Eucalyptus marginata	20	No hollow/s		335340.593	6206662.496
816	70	Corymbia calophylla	20	Potential hollow/s		335340.154	6206661.268
817	40	Eucalyptus marginata	18	No hollow/s		335329.777	6206654.319
818	50	Eucalyptus marginata	18	No hollow/s		335322.579	6206649.866
819	60	Corymbia calophylla	19	No hollow/s		335321.792	6206647.522
820	50	Corymbia calophylla	18	No hollow/s		335313.662	6206643.718
821	60	Eucalyptus marginata	19	No hollow/s		335288.664	6206635.402
822	70	Corymbia calophylla	18	Potential hollow/s		335853.627	6206555.796
823	60	Corymbia calophylla	17	No hollow/s		335852.042	6206556.877
824	50	Corymbia calophylla	17	No hollow/s		335844.893	6206549.652
825	70	Corymbia calophylla	17	Potential hollow/s		335850.651	6206541.655
826	60	Corymbia calophylla	17	No hollow/s		335848.705	6206531.858
827	70	Corymbia calophylla	16	No hollow/s		335846.066	6206530.037
828	80	Corymbia calophylla	16	Potential hollow/s		335840.413	6206526.721
829	80	Corymbia calophylla	16	Hollow/s	Dead	335841.855	6206512.768
830	60	Corymbia calophylla	16	No hollow/s		335838.991	6206508.058
831	60	Corymbia calophylla	16	No hollow/s		335803.603	6206456.74
832	80	Corymbia calophylla	15	Hollow/s		335750.852	6206439.729
833	70	Eucalyptus marginata	17	Potential hollow/s		335742.919	6206440.477
834	40	Eucalyptus marginata	15	No hollow/s		335730.871	6206455.242
835	70	Corymbia calophylla	18	Hollow/s	Dead	335726	6206459.927
836	30	Corymbia calophylla	16	No hollow/s		335718.505	6206461.903
837	30	Corymbia calophylla	16	No hollow/s		335679.521	6206526.339
838	80	Eucalyptus marginata	15	Hollow/s		335681.138	6206528.697
839	80	Eucalyptus marginata	16	Hollow/s		335686.254	6206536.331
840	100	Eucalyptus marginata	18	No hollow/s		335722.109	6206587.214
841	70	Eucalyptus marginata	20	Potential hollow/s	Dead	335897.477	6206602.492
842	40	Corymbia calophylla	15	No hollow/s		335902.592	6206615.45
843	120	Corymbia calophylla	16	Potential hollow/s		334929.171	6206145.496
844	50	Eucalyptus marginata	15	No hollow/s	Dead	334925.57	6206135.559
845	50	Eucalyptus marginata	16	Potential hollow/s		334925	6206136.548
846	50	Eucalyptus marginata	15	No hollow/s		334919.634	6206137.895
847	40	Eucalyptus marginata	16	No hollow/s		334921.585	6206131.717
848	50	Eucalyptus marginata	16	No hollow/s		334915.125	6206127.277
849	50	Eucalyptus marginata	15	Hollow/s		334912.38	6206121.016
850	60	Eucalyptus marginata	15	Potential hollow/s		334918.098	6206120.562
851	70	Eucalyptus marginata	16	Potential hollow/s		334800.354	6206185.713
852	50	Eucalyptus marginata	12	Potential hollow/s		334796.965	6206289.047
853	100	Eucalyptus marginata	15	Potential hollow/s		334790.396	6206332.53
854	30	Corymbia calophylla	12	No hollow/s		334782.816	6206360.241
855	60	Corymbia calophylla	15	No hollow/s		334776.188	6206360.013
856	40	Corymbia calophylla	12	No hollow/s		334758.337	6206400.856
857	50	Eucalyptus marginata	12	No hollow/s	Dead	334721.582	6206469.1
858	80	Eucalyptus marginata	15	No hollow/s	Dead	334717.741	6206472.804
859	90	Corymbia calophylla	15	Potential hollow/s		334713.345	6206481.823
860	60	Eucalyptus marginata	15	No hollow/s		334690.212	6206508.816
861	60	Eucalyptus marginata	14	No hollow/s	Dead	334679.949	6206521.504
862	70	Eucalyptus marginata	14	No hollow/s		334676.503	6206534.09
863	50	Corymbia calophylla	14	No hollow/s		334677.009	6206620.187
864	70	Corymbia calophylla	12	No hollow/s		334774.142	6206611.695
865	70	Corymbia calophylla	18	No hollow/s		334779.545	6206608.24
866	80	Corymbia calophylla	18	No hollow/s		334780.067	6206651.737
867	90	Corymbia calophylla	22	Potential hollow/s		334774.817	6206656.969
868	70	Corymbia calophylla	22	No hollow/s		334757.584	6206673.195
869	70	Corymbia calophylla	25	Potential hollow/s		334746.915	6206677.555
870	90	Corymbia calophylla	25	Potential hollow/s		334741.418	6206681.119
871	60	Corymbia calophylla	23	No hollow/s		334729.404	6206688.672
872	80	Corymbia calophylla	23	Potential hollow/s		334721.545	6206695.634
873	60	Corymbia calophylla	22	Potential hollow/s		334798.665	6206615.566
874	90	Eucalyptus marginata	25	Potential hollow/s		334826.052	6206603.291
875	60	Corymbia calophylla	25	No hollow/s		334750.958	6206516.323
876	150	Eucalyptus marginata	25	Hollow/s		334748.397	6206515.279
877	90	Eucalyptus marginata	25	Potential hollow/s		334732.88	6206507.351
878	80	Eucalyptus marginata	24	Potential hollow/s		334772.732	6206420.192

879	100	Corymbia calophylla	15	No hollow/s		335011.881	6206134.64
880	150	Corymbia calophylla	20	Hollow/s		334741.962	6206817.359
881	40	Corymbia calophylla	20	No hollow/s		334744.451	6206811.967
882	70	Corymbia calophylla	18	No hollow/s		334742.093	6206809.929
883	30	Corymbia calophylla	15	No hollow/s		334736.682	6206808.613
884	60	Corymbia calophylla	18	No hollow/s		334738.612	6206814.083
885	70	Unidentifiable	16	No hollow/s	Dead	334796.079	6206850.93
886	80	Corymbia calophylla	20	Potential hollow/s		334812.041	6206849.325
887	50	Corymbia calophylla	18	No hollow/s		334812.895	6206847.898
888	50	Corymbia calophylla	16	No hollow/s		334814.427	6206849.811
889	40	Corymbia calophylla	15	No hollow/s		334944.689	6207104.379
890	80	Corymbia calophylla	15	No hollow/s		334948.325	6207112.32
891	120	Corymbia calophylla	16	Hollow/s		334956.487	6207098.707
892	60	Eucalyptus marginata	17	No hollow/s	Dead	334953.446	6207098.765
893	50	Eucalyptus marginata	16	No hollow/s	Dead	334969.563	6207098.827
894	40	Eucalyptus marginata	18	No hollow/s		334968.36	6207088.71
895	80	Eucalyptus marginata	18	No hollow/s		334972.017	6207074.575
896	120	Corymbia calophylla	18	No hollow/s		334954.294	6207055.847
897	60	Eucalyptus marginata	18	No hollow/s		334952.124	6207053.59
898	40	Corymbia calophylla	16	No hollow/s		334960.7	6207052.965
899	40	Corymbia calophylla	15	No hollow/s		334967.324	6207053.414
900	80	Eucalyptus marginata	18	No hollow/s		334973.879	6207052.531
901	80	Corymbia calophylla	20	No hollow/s		334979.182	6207049.518
902	70	Eucalyptus marginata	20	No hollow/s		334982.332	6207043.251
903	60	Corymbia calophylla	20	Potential hollow/s		334986.807	6207045.437
904	70	Eucalyptus marginata	16	No hollow/s		334987.549	6207045.117
905	80	Eucalyptus marginata	20	No hollow/s		334989.937	6207040.278
906	80	Corymbia calophylla	20	Potential hollow/s		334996.553	6207035.957
907	50	Eucalyptus marginata	17	No hollow/s	Dead	334999.752	6207032.131
908	70	Corymbia calophylla	20	No hollow/s		334995.978	6207026.739
909	70	Eucalyptus marginata	18	No hollow/s		334999.07	6207023.799
910	60	Corymbia calophylla	19	No hollow/s		335004.509	6207007.808
911	50	Corymbia calophylla	18	No hollow/s		335007.154	6207004.083
912	100	Corymbia calophylla	18	No hollow/s		335011.078	6206995.721
913	50	Corymbia calophylla	17	No hollow/s		335018.599	6206976.551
914	50	Corymbia calophylla	17	No hollow/s		335024.204	6206961.673
915	70	Corymbia calophylla	18	No hollow/s		335023.353	6206957.664
916	30	Corymbia calophylla	17	No hollow/s		335016.658	6206935.137
917	40	Eucalyptus marginata	25	No hollow/s	Dead	334947.708	6206912.178
918	150	Corymbia calophylla	27	No hollow/s		334937.602	6206931.636
919	100	Corymbia calophylla	25	Potential hollow/s		334928.77	6206936.251
920	80	Eucalyptus marginata	23	Potential hollow/s		334916.967	6206937.041
921	80	Corymbia calophylla	20	Potential hollow/s		334916.525	6206941.249
922	70	Corymbia calophylla	12	No hollow/s		334911.392	6206945.041

Appendix R Molloy Island Woody Weeds Control 2023 Map


Control of Sydney Golden Wattle, Sweet Pittosporum, Polygala etc on Molloy Island 2023
FRIENDS OF MOLLOY ISLAND RESERVES
Legend
woody weed control 9.2 ha
Public reserved land
Scale: 1:17400
Imagery © 2023 Google

Appendix S Shire of Augusta Margaret River Firebreaks and Access Tracks Map



Appendix T Post Fire Monitoring

Monitoring post a prescribed burn, bushfire and on a regular basis is recommended to ensure fuel loads have been adequately reduced and that the ecosystem is responding well. This monitoring should include information on the presence of weeds, dieback and native flora and fauna species to determine composition and diversity. The results from monitoring should advise the parameters chosen for future prescribed burns, to ensure the optimal outcome can be achieved for flora and fauna species as well as to limit fuel loads to protect nearby assets.

There are many monitoring practices for post burn that are possible on this Site, as outlined in Cawson and Muir (2008), however many of these can be onerous and time consuming. At a minimum, the following data should be recorded.

After a burn, ideally the area should be inspected and records kept of the burn details, including date, burn intensity, weather (at burn and prior to burn), crews in attendance, any issues observed by fire fighters at the burn, burning pattern conducted and any other facts during the implementation of the burn. This would involve discussions with the Incident Control or Fire Control Officer of the burn as soon after the burn as possible.

After this, ideally the area should be inspected to record the severity of the burn and overall impacts across the area burnt to assess the long-term outcomes and inform future burns.

This would include a series of spot assessments within the area, and observations made of a 10 m (approx.) radius of the point.:

- Site/Cell details – GPS Location
- Date of observation and observer details
- Estimates of percentage area burn over Ground Layer, Shrub layer and tree canopy layer (approximate to the nearest 10%
- Estimates of the percentage of the severity of the burn at <2m height and >2 m height

Fire Severity Assessment Page _____ of _____ Assessors: _____		
Area	Assessment Date:	Burn Date(s)

Comments:

1. Have the fuel loads been adequately reduced?
2. Has the burn resulted in a patchy mosaic of burnt and unburnt areas (using the assessment below)?
3. Were the average scorch marks below 4 m high (using the below assessment)?

If the answer to question 1 is no, further fuel reduction measures may be required which can include rake fine fuels and burn piles and/or trim understory.

If the answer to question 2 or 3 is no, then the fire may have been too intense and strategies to reduce the intensity during the next prescribed burn should be considered and noted.

The impact to fauna should also include noting any fauna deaths within or surrounding the burn area which may require communication with community members. If the fauna deaths are high, then consideration should be given to the intensity of the burn and burn pattern, to ensure animals had an escape route from the burn. A pre-burn walk through to alert and encourage animals to move on, particularly from logs and under grass trees, should also be considered and improved.

No. fauna deaths:

Plot	GPS		Ground/Litter Layer % Estimate to 10%			Shrub Layer (<4m) % Estimate to 10%			Tree Layer) (>4m) % Estimate to 10%		
	E	N	Burnt	Scorched	Unburnt	Burnt	Scorched	Unburnt	Burnt	Scorched	Unburnt

Ongoing monitoring to determine the flora and fauna response including mass germination of reseeders, weeds, dieback and impact from feral animals should occur every two years to inform management actions. Ideally this monitoring would include fuel load records as outlined in Hines *et al* (2010) to determine specific changes in the reserves and the time required to undergo fuel reduction actions due to increased fuel loads. A simplified assessment has been provided below.

Any areas where there are limited native species returning, the area could benefit from revegetation following a burn.

At a minimum, a photo point monitoring programme should be established with a fixed-point photo point established in each burn area. This can rapidly document vegetation and fuel load changes at a site and give an overall impression of the changes at the site over time since burning. Photo point monitoring requires that photographs be taken from the same location at set intervals over time using a standardised method. This is detailed in Appendix J.

With the biological and ecological values present and known on Molloy Island and the knowledge that fuel reduction burns will occur on the Island and in the reserves, it provides a good opportunity for potential research into broad pre and post fire impacts issues. These opportunities should be made aware to educational and research facilities.

Reserve		Date	
GPS		Assessor(s)	
Surface Fuel Loads within 10 m radius – select one of the following			
Low - Moderate Thin layer <25 mm, poorly connected or some areas of bare soil/rock.	High Established leaf litter, 20 – 30 mm thick, well connected with some areas of bare soil/rock.	Very High Thick leaf litter 25 – 45 mm with litter completely connected.	Extreme Very thick layer of litter >35 mm and completely connected.
Near Surface Fuel Loads within 10 m radius (>0 to 1 m high) – select one of the following			
Low - Moderate Near-surface fuel is absent or gaps many times the size of fuel patches.	High Gaps between fuel patches are greater than the size of fuel patches. Starting to obscure logs/rocks.	Very High Fuel patches are equal to or larger than the gaps between the fuel patches.	Extreme Very small patches between fuel patches. Logs and rocks obscured.
Elevated Fuel Loads within 10 m radius (>1 to 2 m high) – select one of the following			
Low – Moderate Easy to walk through and choose a path, brush against vegetation occasionally.	High Moderately easy to choose a path through but brush against vegetation most of the time.	Very High Need to carefully select path.	Extreme Very difficult to select a path through. Need to push through vegetation.

1. Are any of the surface, near surface or elevated fuel assessments resulted in Very High or Extreme?
2. If Elevated Fuel Loads are Very High to Extreme is this dominated by one species?
3. Has the minimum fire interval been achieved, 6 to12 years?

If yes to question 1, 2 & 3, then it is recommended to reduce fuel loads through a prescribed burn. If yes to question 1 or 2 & no to question 3, it is recommended to reduce fuel loads through a low impact mechanical method (selectively removing some shrubs or raking leaf litter).

Is there a large amount of weeds?	If yes, conduct weed removal.
Is there evidence of dieback?	If yes, conduct dieback treatment and signage.
Is there evidence of feral animals	If yes, conduct feral animal control.

Appendix U Legislation Tables

Planning Acts, Standards and Policies

Title	Jurisdiction	Scope
AS3959:2018 - Construction of buildings in bushfire prone areas	Federal	Australian Standard that specifies requirements for the construction of buildings in designated bushfire-prone areas to improve resistance to bushfire attack.
Building Act 2011	State	Provides a comprehensive system of building control, sets standards for buildings and demolition work in WA, and deals with building or demolition work that affects other land.
Bush Fires Act 1954	State	The Act is to make better provision for diminishing the dangers resulting from bush fires, for the prevention, control, and extinguishment of bush fires.
Shire of Augusta-Margaret River Local planning Strategy and Scheme Map 22 – Molloy Island Locality	Local	Local government plan for their local communities by that ensures appropriate planning controls exist for land use and development. A local planning scheme sets out the way land is to be used and developed, classify areas for land use and include provisions to coordinate infrastructure and development within the local government area.
State Planning Policy 3.7 - Planning in bushfire prone areas (SPP3.7), and associated guidelines	State	Directs how land use should address bushfire risk management in Western Australia. It applies to all land designated as bushfire prone by the Fire and Emergency Services (FES) Commissioner

Environmental Acts and Guidelines

Title	Jurisdiction	Scope
*Biodiversity Conservation Act 2016 (*WA) ('BC Act')	State	Administrated by the Department of Biodiversity, Conservation and Attractions (DBCA) and is a legislative framework that provides greater protection and limits impacts to biodiversity, particularly listed species, and ecological communities, which have been identified as under threat of extinction or collapse.

Title	Jurisdiction	Scope
Environmental Protection Act 1986 (WA) ('EP Act')	State	The Act provides for "the prevention, control and abatement of pollution and environmental harm, for the conservation, preservation, protection, enhancement and management of the environment and for matters incidental to or connected with the foregoing". Note: Under the EP Act there are Environmental Protection Regulations, such as Environmental Protection (Clearing of Native Vegetation) Regulations 2004.
Environment Protection and Biodiversity Conservation Act 1999 (Cth) ('EPBC Act')	Federal	Australia's main national environmental law. They provide a way to protect and manage nationally and internationally important plants, animals, habitats, and place which are known as 'protected matters.'
Referral Guidelines for 3 WA Threatened Black Cockatoos' Species (2022)	Federal	Provides guidance on considerations, information and what actions are likely and unlikely to require referral to the Minister for the Environment because they could have a significant impact on black cockatoos.
Significant Impact Guidelines for the Vulnerable Western Ringtail Possum (*Pseudocheirus Occidentalis*) in the Southern Swan Coastal Plain, Western Australia (2009)	Federal	Guidelines to assist in determining whether a proposed action is likely to have a significant impact on the western ringtail possum.

Appendix V Shire of AMR and State Government Departments Contact Details Tables

Shire of Augusta-Margaret River Contact Details

Team/Position	Responsibilities	Contact Details
Margaret River and Augusta Shire Office and Customer Service Staff	Assist with general enquires or be directed to the appropriate department or person.	amrshire@amrshire.wa.gov.au Margaret River Office - (08) 9780 5255 Augusta Office – (08) 9780 5660
Shire Rangers	Assist with services and maintain community law and public safety.	(08) 9780 5695
Community Emergency Services Manager (CESM)	Manages the delivery and implementation of preparedness, prevention, response, and recovery services.	amrshire@amrshire.wa.gov.au (08) 9780 5285
Environment and Landcare Team/Officers	Assist with general enquires relating to environment and associated landcare works.	environment@amrshire.wa.gov.au (08) 9780 5221

State Government Department Contact Details

Department	Responsibilities	Contact Details
Department of Biodiversity and Conservation (DBCA)	Promote biodiversity and conservation through sustainable management of Western Australia's species, ecosystems, lands, and the attractions.	www.dbca.wa.gov.au/ Blackwood District Email: blackwood@dbca.wa.gov.au Phone: (08) 9752 5555
Department of Planning, Lands and Heritage (DPLH)	State level land use planning and management, and oversight of Aboriginal cultural heritage and built heritage matters.	www.wa.gov.au/organisation/department-of-planning-lands-and-heritage Perth Office Phone: (08) 6551 8002 Bunbury Office Phone: (08) 9791 0577
Department of Water and Environmental Regulation (DWER)	Manage and regulate the states environment and water resources.	www.wa.gov.au/organisation/department-of-water-and-environmental-regulation Geographe Capes District Office Email: busselton.admin@dwer.wa.gov.au Phone: (08) 9781 0111
Department of Fire and Emergency Services (DFES)	Manage and deliver services to coordinate incident response and control, state hazard and special risk planning.	www.dfes.wa.gov.au Lower South West Region 58-60 Giblett Street, Manjimup WA 6258 Email: vmso.lowersouthwest@dfes.wa.gov.au Phone: 9771 6800