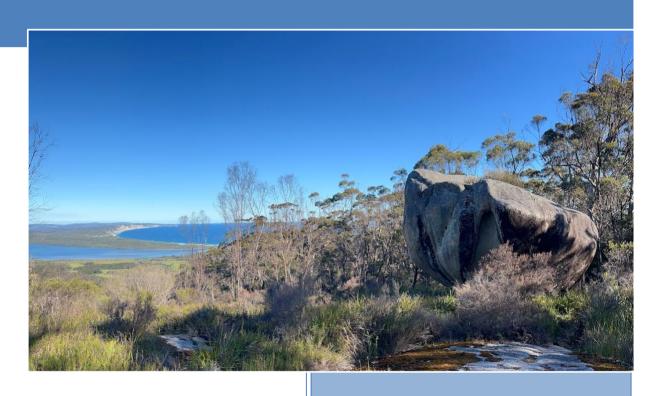


Kooryunderup / Mount Hallowell Management Plan 2025 - 2035, Shire of Denmark, WA



Shire of Denmark

953 South Coast Highway, DENMARK,

WA 6333

Adopted by Council 30 September 202

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LIST OF ABBREVIATIONS

BC Act	Biodiversity Conservation Act 2016
DBCA	Department of Biodiversity, Conservation and Attractions
DP	Deposited Plan
DPIRD	Department of Primary Industries and Regional Development
DPLH	Department of Planning, Lands and Heritage
DWER	Department of Water and Environmental Regulation
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
km	Kilometres
MAF	Mitigation Activities Fund
M AHD	metres Australian Height Datum
mm	millimetres
PEC	Priority Ecological Community
SWALSC	South West Aboriginal Land and Sea Council
TEC	Threatened Ecological Community

ACKNOWLEDGEMENTS

We wish to acknowledge the traditional custodians of the land that supports Kooryunderup / Mount Hallowell and its surrounding landscape. The people of the Noongar Nation were the first to protect and manage this rich area. We respect their continuing culture and their contribution to the care of this land.

Thanks to the Shire of Denmark staff, community stakeholder organisations, groups and individuals who have provided advice, expertise, diverse perspectives and local insights in developing this management plan.

EXECUTIVE SUMMARY

Kooryunderup / Mount Hallowell is an iconic reserve located between the town of Denmark and the Southern Ocean in Western Australia. With sweeping views, natural bushland and majestic granite domes and tors, the reserve is much loved and visited by locals and tourists in increasing numbers. It can be accessed from Ocean Beach Road to the east and Lights Road to the south and is traversed by the Sheila Hill Memorial Trail, which forms a section of the Bibbulmun Track.

The purpose of this management plan is to guide sustainable use and management of the Reserve where conservation, culture and heritage are the key goals. Where recreation is compatible with these goals, low key activities such as walking, hiking, running and nature appreciation are supported.

Management goals include:

- 1. Conservation: The primary goal of managing the reserve is to protect natural biodiversity through sound management of threatening processes.
- Recreation and infrastructure: Low-key passive recreation activities (such as walking, running and hiking, birdwatching) will be encouraged where they will not impact the conservation values of the Reserve. This includes low key cycling and retention of an existing mountain bike trail in the south east portion of the reserve. Dogs can be walked off leash in designated areas, with dogs on leashes permitted on the Bibbulmun Track.
- 3. Fire management: The goal is to protect the Reserve's environmental values and the lives and property of surrounding landowners through best-practice fire management and active wildfire suppression.
- 4. Culture and Heritage: Kooryunderup / Mount Hallowell is a significant cultural and heritage site for Traditional Custodians, and it will be managed to protect these values.
- 5. Community engagement, research and education: As an area rich in biodiversity, the goal is to raise awareness of the Reserve's intrinsic and educational value while promoting ongoing citizen science and other research initiatives.
- 6. Land use planning and compliance: With threats such as fire, the introduction and spread of dieback, user safety, and management of neighbouring properties, land use planning and compliance outcomes must be achieved.

Consultation and site assessment during the management plan review process indicates that:

Conservation

• Kooryunderup / Mount Hallowell is highly valued by the community, with conservation and biodiversity values perceived as the most significant management consideration for the Reserve.

Recreation and Infrastructure

- The community supports low-key and passive pursuits, including walking dogs, hiking and running (Bibbulmun Track and Sheila Hill Trail), nature appreciation and birdwatching.
- There have been differing views on the inclusion of biking in the Reserve. Potentially high impact
 mountain biking requiring jumps, speed and aerial moves was generally not supported due to
 potential environmental damage, safety and user conflict. However, there was support for low key

cycling and the retention of an existing mountain bike track in the south east portion of the Reserve (Figures 10 and 11). Cycling on the Bibbulmun Track is not permitted other than a small section at the eastern end which doubles as an emergency access track.

- The Shire has stated that a formal mountain biking facility in the Reserve, proposed in 2022 is no longer supported.
- Off leash and on leash dog walking areas are shown in Figures 8 and 9.
- The Sheila Hill Memorial Trail is poorly delineated and signposted. Wayfinding signage for the Sheila Hill Memorial trail is missing or in poor condition. Part of the trail shares the alignment of the Bibbulmun Track.
- Some existing assets supporting low-impact recreational activities need formalising and/or upgrading, including signage and car parks (Lights Beach Road and Sheila Hill Trail Head).
- Signage is generally outdated and in poor condition. New signage should reflect a standard approach across the Shire.
- All trailhead signage needs to be updated. Safety information is currently absent from trailheads. Maps of the Reserve should be included in trailhead information.
- Bibbulmun track wayfinding signage is present and mostly in good condition.
- Access control to the Reserve is effective and well supported.

Fire Management

- Firebreak and emergency access tracks within the reserve are crucial for quick access should a fire threaten the reserve or another emergency affect users.
- The northern emergency access track is in good condition with turning and passing areas.
- Emergency access to Monkey Rock and behind Heather Road is highly eroded and unsafe. Drainage and gravel re-sheeting are required to bring these tracks to a serviceable standard.

Culture and Heritage

• Kooryunderup / Mount Hallowell is a significant cultural and heritage site for Traditional Custodians. Wagyl Kaip, in partnership with the Shire of Denmark and the local community, proposes to undertake a cultural heritage survey of the area.

Community Engagement, Research And Education

• There are opportunities to incorporate themed signage with interpretation at key points such as car parks/trailheads, Monkey Rock and the summit of Mount Hallowell (e.g. Cultural heritage, biodiversity, fire and Sheila Hill).

Land Use Planning and Compliance

- Neighbouring landowners are using the Reserve adjacent to Heather Road. Private use of the
 reserve is less than ideal, with potential weed introduction and other risks associated with the
 personal use of a public space. However, the use has been long-term, and the Shire will need to
 work with landowners to develop an acceptable solution.
- The Local Law regarding dogs may need to be updated for Mount Hallowell so that dogs are allowed on the Bibbulmun Track (on leashes) but may be let off leashes in the southeast portion of the Reserve. Refer to Figures 8 and 9 for areas where dogs are permitted.

1 CONTEXT

1.1 LOCATION, NAME AND TENURE

Mount Hallowell is an iconic reserve located 5 kilometres (km) southwest of the town of Denmark, 1.5 km from the coastline and 500 metres (m) from Wilson Inlet (Figure 1). With sweeping views, natural bushland, and majestic granite features, the reserve is much loved and visited by locals and tourists in increasing numbers. It can be accessed from the bordering Ocean Beach Road to the east and Lights Road to the south and is traversed by the Sheila Hill Memorial Trail, which forms a section of the Bibbulmun Track.

Kooryunderup / Mount Hallowell is designated under the *Land Administration Act 1997* and comprises various land parcels, with the largest being Reserve 46618 (Figure 2; Table 1). It is classified as an A Class Reserve, the highest level of protection. To enable amendments, proposals must be advertised and potentially tabled in both Houses of Parliament. The Class A classification is solely intended to safeguard areas of high conservation or significant community value.

Kooryunderup / Mount Hallowell comprises 532.2409 hectares (ha) and has management orders in favour of the Shire of Denmark with the designated purpose of 'Conservation & Recreation'. The management orders state that the reserve is to be managed in accordance with its Management Plan and used only for the designated purposes. This plan will guide the management of the reserve for the next 10 years.

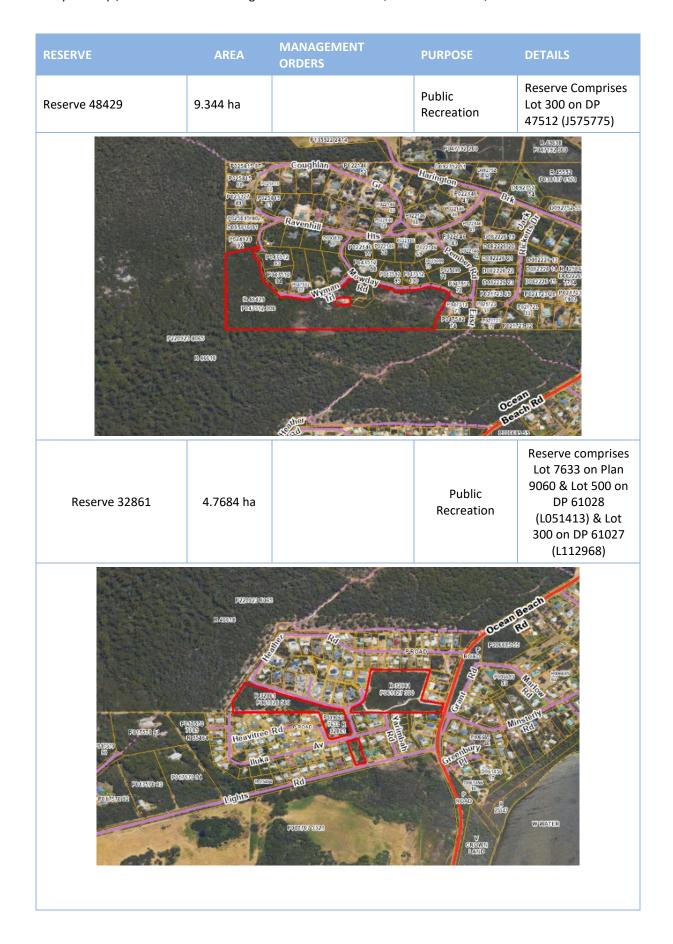
The summit of Mount Hallowell is contained within Reserve 14239 (Lot 7572 on Deposited Plan (DP) 187145) with an area of 4.0470 ha and a purpose of 'trigonometrical station'. Use of Reserve 14239 should be integrated with should be consistent with the rest of Kooryunderup / Mount Hallowell, in consultation with the Department of Planning, Lands and Heritage (DPLH).

In 2024, the Shire of Denmark, with advice and support from the South West Aboriginal Land and Sea Council (SWALSC), the Wagyl Kaip Southern Noongar Aboriginal Corporation and the Wagyl Kaip Cultural Advice Committee, introduced dual naming of the Reserve as 'Kooryunderup / Mount Hallowell'. Kooryunderup means 'the place of many bush kangaroos'.

TABLE 1: KOORYUNDERUP / MOUNT HALLOWELL DETAILS				
RESERVE	AREA	MANAGEMENT ORDERS	PURPOSE	DETAILS
Kooryunderup / Mount Hallowell Reserve 46618	532.2409 ha	Shire of Denmark	Conservation & Recreation	Volume 3083/3118 Folio 97/34.
20033310 (200 337) 337) 337) 33727 F0043	22507217 P.25007217 403 403 G Stroom P.165125 2451 P.165125 2451 P.165125 2451 P.165125 2451 P.165125 2451 P.165125 2451	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	72531 72531	P22174 (3.50019)
The following land parcels are not included in this Management Plan, but management should be consistent to complement the goals of the Kooryunderup / Mount Hallowell reserve.				
Mount Hallowell Reserve 14239	4.0470 ha	Western Australian Land Information Authority	Trigonometrical Station	Lot 7572 on DP 187145

Authority







1.2 BACKGROUND AND RESERVE HISTORY

A portion of the Mount Hallowell Reserve was originally gazetted as a Timber Reserve in 1913 and later as a Timber and National Park Reserve in 1927. Other areas were vested in the Shire of Denmark for recreational purposes and 27 ha were allocated for sand and gravel extraction.

On 14 May 2002, Reserves Numbers 12182, 14959, 18077, 30080, and 38844, along with vacant crown land south of Location 2897, were amalgamated into one A Class Reserve Number 46618, encompassing Plantagenet Locations 7560 and 8065 for conservation and recreation.

The summit of Mount Hallowell remains designated as Crown Land Reserve No. 14239 (Location 7572) for a trigonometrical station. A trigonometrical station, triangulation pillar, or trig point serves as a fixed surveying station for geodetic surveying and other surveying projects in nearby areas.

When the Reserve was amalgamated in 2002, it was named Mount Hallowell Nature Reserve. The Department of Land Information formally approved the technical conversion to Mount Hallowell Reserve for Reserve Number 46618 on 23 January 2008. According to the *Conservation and Land Management Act 1984*, the term 'Nature Reserve' is now exclusively used for reserves vested with the Department of Biodiversity, Conservation and Attractions (DBCA) for the conservation of flora and/or fauna.

1.3 PREVIOUS MANAGEMENT PLANS

In 1993, the Mount Hallowell Management Committee, composed of Shire Councillors and local residents, prepared a Draft Management Plan which:

• Aimed to manage the Reserve as a conservation priority area.

- Provided for bushwalking with scenic views while maintaining conservation priorities.
- Included a Fire Management Plan created by the Mount Hallowell Fire Management Group.

Following community consultation, the Plan was finalised and adopted by Council in 1995. The three key management goals in the 1993 draft were reiterated, and strategies were devised to meet these goals, with a revision of the Plan set to occur after five years.

In 2003, the Shire formed a community-based committee to review the Plan. Between 2003 and 2004, the Denmark Environment Centre conducted the Mount Hallowell Reserve Survey and Research Project, specifically aimed at providing information to support the goals of the 1995 Management Plan and contribute to its review.

The reviewed Plan was completed in 2006 and adopted by Council as the Mount Hallowell Reserve Management Plan in March 2006. The Plan incorporated information from the Mount Hallowell Reserve Survey and Research Project 2004 and updated other sections.

The flora, fungi, and fauna database developed from the Mount Hallowell Reserve Survey and Research Project 2004 aimed to facilitate measures for protecting and maintaining viable populations of existing flora and fauna species, particularly those with special status.

Some recommendations from these documents have been implemented, some have become redundant and outstanding matters are prioritised in this Plan of 2025.

1.4 PROJECT SCOPE AND OBJECTIVES

The objectives of the management plan review are:

- To review and audit the management actions of the 2008 plan.
- To assess the background information and conduct a literature review.
- To map all existing tracks and trails across the Reserve and identify their uses.
- To redefine the management goals in alignment with the Reserve's purpose of 'Conservation and Recreation'.
- To update management actions relevant to the management goals, opportunities, and constraints for conservation and recreation.

The scope of the management plan review includes:

- The preparation and implementation of a stakeholder engagement strategy.
- Meetings with key stakeholders to gather input on the future management of Kooryunderup / Mount Hallowell.
- The release of a survey to gather broader community input.
- Site visits to the Reserve for assessment, mapping, and planning for future management.
- The preparation of a stakeholder summary report, audit outcomes report, and a draft management plan report for consideration by the Denmark Shire Council.
- The draft management plan will be released for public comment and submissions.

- A final document will be presented to the Denmark Shire Council for adoption.
- The final document will be presented to the State Government for adoption in accordance with the Reserve's A Class status.

1.5 LAND USE AND INFRASTRUCTURE

Current recreational use of the Reserve includes walking, dog walking, nature appreciation, running and hiking. The Bibbulmun Track traverses the Reserve in an east-west direction (Figure 4) and the Sheila Hill Memorial Trail head is located in the east. There are unsanctioned informal mountain bike trails, primarily situated on the lower slopes in the south-eastern section of the Reserve (Figure 5).

Infrastructure in the Reserve includes:

- Emergency and fire access tracks;
- the Bibbulmun Track and the Sheila Hill Memorial Trail;
- Monkey Rock and Mount Hallowell Lookouts; and
- Car parks at Ocean Beach and Lights Beach Roads.

Kooryunderup / Mount Hallowell is reserved for 'Parks and Recreation' under the Shire of Denmark Local Planning Scheme No. 3 (Figure A).

Surrounding land uses and zones (Figure A) include:

- Residential land to the north, east and southeast (Zoned: Residential).
- Special Residential land to the north (Zoned: Special Residential 1).
- Rural small holdings and bush blocks to the south (Zoned: Special Rural 3 and Rural).
- Rural land to the north and west (Zoned: Rural).
- Wilson Inlet is less than 500 m to the east.

1.6 FIRE HISTORY

Apart from its high biodiversity and conservation values, the Reserve represents long-unburnt vegetation (Christensen and Abbott, 1989). The last reported significant fire over the majority of the Reserve was in 1937¹, making it one of the longest unburnt areas in the south west of Western Australia.

Over the past thirty years, residential development has occurred on the eastern and southern boundaries of the Reserve, leading to a program of fuel reduction burns on the north side of the Reserve. Since 1995, two small management burns have taken place on the north and south-east edges of the Reserve.

The Shire's bushfire planning is undertaken through the State Government's Mitigation Activity Fund (MAF), which currently includes a planned burn in the northern section of Mount Hallowell. All planned burns go through the Mitigation Working Group, made up of key environmental stakeholders, Shire of Denmark Staff and Brigade captains. All MAF locations, once confirmed, can be found on the Shires' website.

¹ The area was fire bombed in 1985 (DBCA pers comm.) but the area burnt was limited (local resident pers comm.).

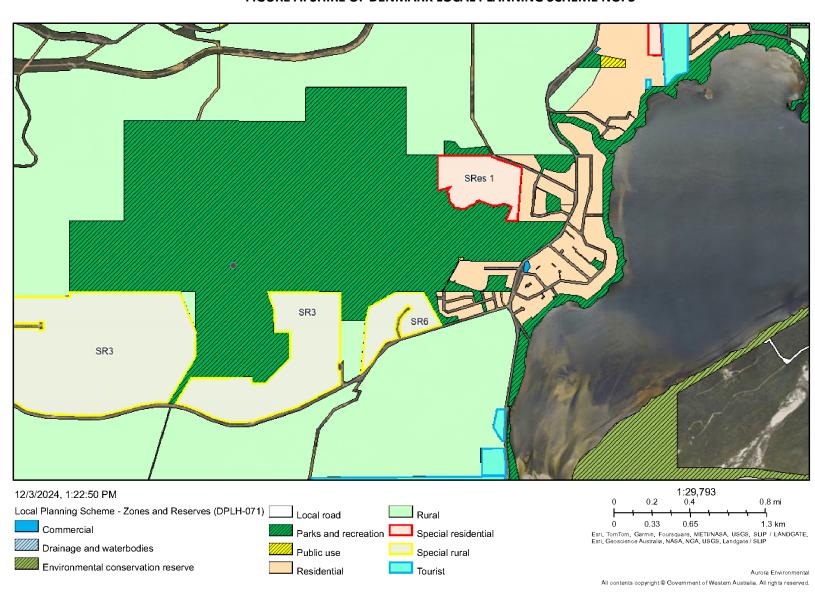


FIGURE A: SHIRE OF DENMARK LOCAL PLANNING SCHEME NO. 3

1.7 ASSESSMENTS AND STUDIES

A range of assessments and studies have been undertaken in the Reserve, including:

- Report on Aboriginal Heritage Survey and Dieback on Ocean Beach and Mount Hallowell Mountain Bike Trail Network (2022).
- BioDiverse Solutions (2022) Vertebrate Fauna Assessment of Mount Hallowell. Prepared for the Shire of Denmark.
- Mount Hallowell Reserve 46618 Dieback Occurrence Survey (Great Southern Bio Logic, January 2021).
- Mount Hallowell Trails Concept Plan (June 2021).
- Flora and Vegetation Survey Report Part Reserve 46618 Mount Hallowell (2020).
- Vertebrate Fauna Assessment of Mount Hallowell (2020).
- Mount Hallowell Proposed Trail Development public consultation report (2019).
- Structural Plant Community Survey, Mt Hallowell and Wilson Inlet Foreshore Reserves (McQuoid, 2012).
- A Guide to Macrofungi in the Shire of Denmark Mount Hallowell Reserves (2011).
- Wilson Inlet Foreshore & Mount Hallowell Reserves Fauna Survey (2011).
- Shire of Denmark Mount Hallowell Reserve Management Plan (2008).
- Patrick Gillespie (2011) Wilson Inlet Foreshore & Mount Hallowell Reserves Fauna Survey. Prepared for the Shire of Denmark.
- Denmark Environment Centre (2004) Mount Hallowell Survey and Research Project.

1.8 SHIRE OF DENMARK STRATEGIES AND MANAGEMENT FRAMEWORK

This Management Plan considers the Shire of Denmark Governance framework and incorporates concepts, policies, and strategies developed in consultation with the Denmark community. The framework includes:

Shire of Denmark Community Strategic Plan: Our Future 2033 (Shire of Denmark, 2023)

The review and update of the revised Mount Hallowell Reserve Management Plan is consistent with the Shire's Community Strategic Plan: Our Future (2033) which identifies environmental conservation and protection as one of three primary Shire service deliveries and lists the Mount Hallowell Reserve Management Plan as a key existing plan to turn our vision into action by operating as environmental custodians for the future.

Shire of Denmark Corporate Business Plan 2024 – 2028 (Shire of Denmark, 2024)

The Shire of Denmark Corporate Business Plan 2024 – 2028 identifies the review of the Mount Hallowell Management Plan for 2024/25.

Shire of Denmark Sustainability Strategy 2021 – 2031 (Shire of Denmark, 2021)

The Shire's Sustainability Strategy (2021-2031) supports protecting and enhancing natural systems with a Key Land and Nature objective to "Implement responsible and sustainable practices through policy development and land-use planning."

The Sustainability Strategy states:

We will protect and enhance our natural systems vital to our local community's sustainability. Strategies include:

- Implementation of responsible and sustainable practices through policy development and landuse planning.
- Prioritising protection of natural bushland habitats and ecosystems, including protection of waterways for nutrient control in agriculture, salinity control and riparian vegetation.
- Revegetation and rehabilitation of degraded environments.
- Supporting education of the broader community regarding protection of the natural environment.

2 EXISTING ENVIRONMENT

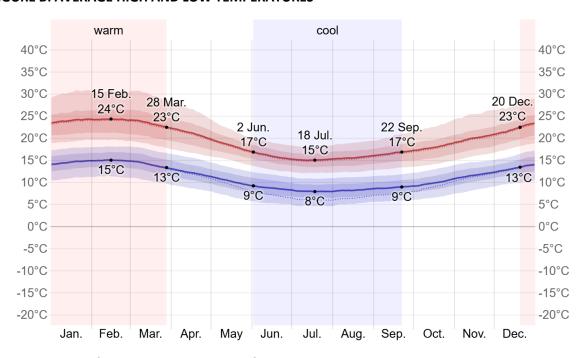
2.1 CLIMATE

The climate in the Denmark area is characterised as Mediterranean, with cool, wet winters and warm, dry summers (Figure B). The long-term average rainfall recorded at the Denmark Research Station from 1951 to 1984 is 1,000.1 mm (Figure C). However, slightly higher amounts can be expected on Mount Hallowell due to localised effects.

The southwest region of Western Australia is already experiencing the impacts of climate change, including declining annual rainfall, reduced wet season (winter and spring) rainfall, increased intensity of rainfall events, and a higher incidence of drought. These changes result in lower soil moisture, decreased runoff, and reduced groundwater recharge (DWER, 2021).

The decline in rainfall and runoff is likely to affect species that thrive in wet environments. Additionally, decreased rainfall heightens the risk of fire. Effective management of the Reserve in response to a changing climate must focus on building resilience by mitigating threats such as weeds, dieback, and other controllable stressors.

FIGURE B: AVERAGE HIGH AND LOW TEMPERATURES



 Average
 Jan.
 Feb.
 Mar.
 Apr.
 May
 Jun.
 Jul.
 Aug.
 Sep.
 Oct.
 Nov.
 Dec.

 High
 24°C
 24°C
 23°C
 21°C
 18°C
 16°C
 15°C
 16°C
 17°C
 18°C
 20°C
 22°C

 Temp.
 19°C
 19°C
 18°C
 14°C
 12°C
 11°C
 12°C
 12°C
 12°C
 12°C
 12°C
 12°C
 10°C
 9°C
 8°C
 8°C
 9°C
 10°C
 12°C
 13°C

Source: Weatherspark (2024)

150 mm 150 mm 6 Jul. 103 mm 100 mm 100 mm 50 mm 50 mm 4 Jan. 16 mm 0 mm 0 mm Jan. Oct. Dec. Feb. Mar. Apr. May Jun. Jul. Aug. Sep. Nov.

FIGURE C: AVERAGE MONTHLY RAINFALL IN DENMARK

Note: The average rainfall (solid line) accumulated over the course of a sliding 31-day period centred on the day in question, with 25th to 75th and 10th to 90th percentile bands. Source: Weatherspark (2024).

The six Noongar seasons – Birak, Bunuru, Djeran, Makuru, Djilba, and Kambarang – represent the annual seasonal changes observed across the southwest of Western Australia, indicated by weather patterns, food availability and shifts in the activity or presence of flora and fauna. These seasons reflect the weather experience in Denmark and serve as a valuable tool for planning management activities.



Source: Australia's South West: Six Seasons of the South West. https://australiassouthwest.com/six-seasons-of-the-south-west/

2.2 LANDFORM, GEOLOGY AND SOILS

Stretching from north to south, the Kooryunderup / Mount Hallowell Reserve rises from the Little River valley at 20 metres above sea level (metres Australian Height Datum - m AHD) and features sandy soils up to 75 m AHD. These sandy soils comprise moist and peaty flats along with creek valleys. Above

75 m AHD, the Reserve ascends rapidly through loamy gravel soils, which sustain tall forests (Figure 3; Table 2).

On the higher slopes, lateritic gravel soils with numerous granite outcrops are present. The most notable massive outcrops are Monkey Rock and the summit of Mount Hallowell, which ascends to nearly 300 m AHD. Smaller granite outcrops and surface granite are predominantly concealed by vegetation.

Laterite is an igneous rock that forms through the solidification of cooled magma (molten rock), weathering to a red-brown gravelly sandy soil. The granite bedrock in this area is approximately 2,700 million years old. The large granite batholiths (the significant granite outcrops, formed by extensive volumes of molten granite) intruded beneath the surface millions of years ago and have since been exposed due to the erosion of overlying soils.

The immense age of the landscape, the underlying geology, and its aspect have given rise to varied soils and microclimates in the Reserve, which in turn have resulted in diverse floral associations.

TABLE 2: SOIL LANDSCAPE DESCRIPTIONS

CODE	NAME	DESCRIPTION
254WhHA	Hazelvale subsystem	Narrow sandy plains; slight stream incision. Humus podzols on crests of spurs; Teatree scrub. Yellow duplex soils on valley flanks; Jarrah-Marri low forest. Peaty podzols on minor valley floors; sedges and reeds.
254WhKYs	Keystone podzols phase	Podzols (typical sequence of organic topsoil with leached grey-white subsoil with iron-rich horizon below); Teatree heath and Jarrah woodland.
254WhKYb	Keystone brown duplex phase	Brown gravelly duplex soils and red or yellow earths; much laterite. Marri-Karri-Red Tingle-Yellow Tingle forest.
254WhKYg	Keystone granite phase	Granite outcrop.
254NkMRp	Meerup podzols over calcareous sand phase	Podzols over calcareous sand; Banksia-Bulich-Yate woodland.
254NkMRf	Meerup podzols on interdune plains phase	Podzols on interdune plains; Banksia-Bulich-Yate woodland.
254BrOW	Owingup subsystem	Plains with swamps, lunettes and dunes. Yellow solonetzic soils, organic loams and diatomaceous earth; Wattle-Paperbark thickets, Teatree heath and reeds. Podzols on dunes; Banksia-Sheoak woodland.

Source: Landgate, 2025 (DPIRD-027 - South Coast and hinterland landforms and soils)

2.3 HYDROLOGY

The Reserve lies within the Denmark Coast Catchment area and the Warren-Denmark Hydrological Zone (HZ19_WD), which is described as "Rises in a series of broad benches from the Southern Ocean north to the Blackwood Valley. Deeply weathered granite and gneiss overlain by Tertiary and Quaternary sediments in the south. Swampy in places" (DPIRD, 2020a).

The Reserve is not within a Public Drinking Water Source Area (Landgate, 2025).

Several first-order creeks flow northwards towards Little River from the northern slopes of Mount Hallowell (Figure 4). These creeks provide important habitat and are sensitive to disturbance. No permanent standing water bodies occur within the Reserve.

2.4 VEGETATION

Kooryunderup / Mount Hallowell lies within the Warren Bioregion and Warren (WAR01) subregion. Hearn *et al.* (2002) describes the Warren Bioregion as 'dissected undulating country of the Leeuwin Complex, Southern Perth Basin (Blackwood Plateau), South-West intrusions of the Yilgarn Craton and western parts of the Albany Orogen with loamy soils supporting Karri forest, laterites supporting Jarrah-Marri forest, leached sandy soils in depressions and plains supporting low Jarrah woodlands and paperbark/sedge swamps, and Holocene marine dunes with *Agonis flexuosa* and Banksia woodlands and heaths'.

The vegetation was mapped on a broad scale by J.S. Beard (Shepherd *et al.* 2002) in the 1970s, when a system was devised for state-wide mapping and vegetation classification based on geographic, geological, soil, climate structure, life form and vegetation characteristics (Sandiford and Barrett, 2010). Vegetation units were regarded as associations and were grouped into Vegetation Systems, representing a particular pattern of association distribution within a given area. A GIS search of J.S. Beard's vegetation classification (Beard *et al.* 2013) places the Reserve within two Systems and Vegetation Associations (Landgate, 2025).

- 1. System Association Name: Denmark.
- Vegetation Association Number: 1.
- **Vegetation Description:** Tall forest or Tall woodland.
- Floristic Description: Mainly karri Eucalyptus diversicolor or Tuart E. gomphocephala.
- Remnant Vegetation by Beard Association Rarity in LGA: 48.06% remaining (Government of WA, 2019).
- Remnant Vegetation by Beard Association Rarity in IBRA Region: 77.91% remaining (Government of WA, 2019).
- 2. System Association Name: Denmark.
- Vegetation Association Number: 14.
- Vegetation Description: Low forest, woodland or low woodland with scattered trees.
- Floristic Description: Jarrah, Banksia or Casuarina Eucalyptus marginata, Banksia spp., Allocasuarina spp.
- Remnant Vegetation by Beard Association Rarity in LGA: 90.32% remaining (Government of WA, 2019).
- Remnant Vegetation by Beard Association Rarity in IBRA Region: 63.35% remaining (Government of WA, 2019).

The Mount Hallowell Survey and Research Project (Denmark Environment Centre, 2004) indicated that the Reserve comprises a variety of vegetation types, including tall open forest of *Eucalyptus*

diversicolor (karri) and Allocasuarina decussata (sheoak); closed forest of E. guilfoylei (yellow tingle) and E. jacksonii (red tingle); woodland of Eucalyptus marginata (jarrah), E. patens (blackbutt), Allocasuarina fraseriana (sheoak), and Banksia grandis; Corymbia calophylla (marri), E. megacarpa (bullich), and Agonis flexuosa (Peppermint) on the lower slopes at the base of granite outcrops; and closed heath of Myrtaceae and Proteaceae species.

The sandy soils in the north of the Reserve with elevations below 75 m include moist and peaty flats and creek valleys. The vegetation on these lower slopes is a mosaic of tall Marri/Jarrah forest, low Jarrah/Casuarina and Banksia Woodlands, moist shrublands and sedgelands. The creeks are first-order with Yarri (*Eucalyptus patens*), and taller Marri, Jarrah and Karri trees growing in the small moist fertile valleys. Above 75 m, the Reserve rises rapidly through loamy gravel soils, which support tall forest. Jarrah and Marri dominate the lower part of this section while Karri and Karri/Marri forest dominate the higher reaches of the northern and southern slopes. Granite outcrops are numerous on the higher slopes, some being visible from surrounding vantage points while smaller granite outcrops and surface granite are often hidden by vegetation. On the southern boundary of the Reserve, Jarrah, Marri and Casuarina dominate the vegetation in a narrow belt of transition from Karri forest. The sandy dune country south of Lights Road is dominated by Peppermint (*Agonis flexuosa*).

The granite batholiths and outcrops, with elevations of nearly 300 m, create special niches for vegetation on the rock and in the surrounding fringes. These niches around the granite outcrops on the Hallowell Reserve are created by areas of shallow soil, pockets of deep soil, water drainage, nutrient from rock catchments, and microclimates caused by aspect and shelter. These soil conditions and microclimates differ from one outcrop to another, resulting in unique floral associations. Arnica (*Taxandria marginata*) is present on many outcrops but absent on others. Blind Grass (*Stypandra glauca*) is similarly common but not omnipresent on the granite outcrops. Surrounding Yate trees are a feature of the granite summit and some other outcrops but absent from others where *Agonis flexuosa* or *Allocasuarina decussata* (Karri Oak) is a dominant fringing component of the vegetation.

The Mount Hallowell Survey and Research Project (Denmark Environment Centre, 2004) collected detailed flora information that is still relevant today. This list was combined with other flora assessments, including a citizen science Bioblitz in 2023 (Appendix 1). The vegetation types identified during the 2004 survey are listed in Table 3.

The vegetation in Kooryunderup / Mount Hallowell is classified as being in 'Excellent' condition, with small areas in 'Degraded' condition. There is evidence of human impact through walk and bike trails, particularly within the *Eucalyptus diversicolor* Open Forest, in the eastern portion and the *Eucalyptus marginata*/ *Corymbia calophylla* Open Forest in the southeastern area. Some of these areas are part of the existing signposted walk trails. There are unauthorised mountain bike trails (jumps, banks where bikes turn at speed).

No vegetation types within the Reserve are classified as Threatened or Priority ecological communities (TEC or PEC).

TABLE 3: VEGETATION TYPES

VEGETATION DESCRIPTION	KEY SPECIES
Tall Forest (Forest > 20 m tall)	
Pure Karri Pure stands of Karri exists in large areas of the reserve. Within this forest type are small areas dominated by Sheoak (Allocasuarina decussata), Peppermint (Agonis flexuosa), and Karri Hazel (Trymalium floribundum).	Indicative species: Acacia pentadenia, Dampiera linearis, Scaevola striata, Agonis flexuosa, Hardenbergia comptoniana, Sollya heterophylla, Allocasuarina decussata, Hibbertia furfuraceae, Stylidium sp., Billardiera floribunda, Lasiopetalum floribundum, Thomasia heterophylla, Boronia gracilipes, Leucopogon propinquus, Tremandra stelligera, Cassytha glabella, Leucopogon verticillatus, Trymalium floribundum, Chorilaena quercifolia, Ozothamnus ramosus, Clematis pubescens, Paraserianthes lopantha
Karri/Marri Typically, a very tall forest with a very similar understorey to the pure Karri forest. Marri is a significant component of the upper canopy.	Corymbia calophylla, Acacia pentadenia, Dampiera linearis, Scaevola striata, Agonis flexuosa, Hardenbergia comptoniana, Sollya heterophylla, Allocasuarina decussata, Hibbertia furfuraceae, Stylidium sp., Billardiera floribunda, Lasiopetalum floribundum, Thomasia heterophylla, Boronia gracilipes, Leucopogon propinquus, Tremandra stelligera, Cassytha glabella, Leucopogon verticillatus, Trymalium floribundum, Chorilaena quercifolia, Ozothamnus ramosus, Clematis pubescens, Paraserianthes lopantha
Jarrah/Marri/Karri Some mixed tree areas are typically found in belts between the Karri and Marri/Jarrah forest. Understorey plants are also mixed between those typical of the forest types, but tend more to the Karri understorey.	
Jarrah/Marri Located primarily on the mid-slope of the northern and eastern slope aspect. These forests have a diverse understorey.	Acacia browniana var. obscura, Dampiera hederaceae, Persoonia longifolia, Acacia myrtifolia, Banksia serra, Petrophile diversifolia, Agonis theiformis, Eucalyptus marginata, Podocarpus drouynianus, Allocasuarina fraseriana, Hakea amplexicaulis, Taxandria parviceps, Banksia grandis, Hibbertia furfuraceae, Xanthosia rotundifolia, Bossiaea linophylla, Macrozamia riedlei, Chorizema retrorsum, Hypocalymma strictum, Corymbia calophylla, Monotoca tamariscina
Medium Forest	
Jarrah/Marri - these medium forests occupy the gravelly soils above the sands and winter wet flats. The understory is varied. <i>Allocasuarina fraseriana</i> and <i>Banksia grandis</i> are typical lower canopy plants in this plant community type.	Acacia myrtifolia, Acacia pentadenia, Agonis parviceps, Agonis theiformis, Anarthria prolifera, Hakea amplexicaulis, Macrozamia riedlei, Mesomelaena tetragon, Thomasia integrifolia, Xanthorrhoea preissii
Medium Forest (Forest between 10 m and 20 m tall)	
Jarrah	Acacia myrtifolia, Eucalyptus marginata, Banksia Ilicifolia, Lepidosperma sp., Corymbia calophylla, Taxandria parviceps

Kooryunderup / Mount Hallowell Management Plan 2025 - 2035, Shire of Denmark, WA

VEGETATION DESCRIPTION	KEY SPECIES
The Jarrah woodlands exist as moderately thick stands and as sparse woodland with sedge and <i>Agonis</i> understory. Where Jarrah is less than 5% of the total canopy, the vegetation type is a shrubland with scattered tree occurrence.	
Jarrah/Marri Often existing adjacent to the Jarrah/Marri forest types these woodlands indicated the change from gravel soils to poorer sandy soils.	Acacia pentadenia, Astartea sp. (aff. fascicularis), Adenanthos cuneatus, Banksia grandis, Agonis theiformis, Johnsonia lupulina, Allocasuarina fraseriana, Taxandria parviceps
Medium/Low forest (Forest between 5 & 10 m tall)	
Jarrah/Marri	Acacia pentadenia, Astartea sp. (aff. fascicularis), Adenanthos cuneatus, Banksia grandis, Agonis theiformis, Johnsonia lupulina, Allocasuarina fraseriana, Taxandria parviceps
Allocasuarina/Jarrah	Acacia myrtifolia, Taxandria parviceps, Dasypogon bromeliifolius, Xanthorrhoea preissii, Persoonia longifolia
Low Forest (< 5 m)	
Allocasuarina/Jarrah Sedge and rush spp. are dominant understorey in these areas of woodland.	Acacia myrtifolia, Taxandria parviceps, Dasypogon bromeliifolius, Xanthorrhoea preissii, Persoonia longifolia
Allocasuarina/Banksia These woodlands exist on the nutrient poor sandy soils. The tree species are all Dieback susceptible and are found within these moist sandy flats where Dieback incursions are the most common.	Allocasuarina fraseriana, Banksia quercifolia, Banksia grandis, Hypocalymma strictum, Banksia ilicifolia
Woodland (As for Low Forest but < 30 % tree cover)	
	 Allocasuarina Jarrah Jarrah/Marri/Banksia
Shrubland (< 5% tree cover)	
The shrublands have a similar composition but varied dominant species mixes with different habitat niches. Dominant species:	Other species: Acacia myrtifolia, Adenanthos cuneatus, Agonis theiformis, Andersonia caerulea, Astartea fascicularis, Beaufortia sparsa, Boronia molloyae, Callistemon glauca, Cassytha glabella,

VEGETATION DESCRIPTION	KEY SPECIES
 Agonis/Beaufortia Agonis/Astartea Agonis/Callistemon Agonis/Jarrah/Marri Agonis/Kunzea Agonis/Xanthorrhoea 	Hypocalymma strictum, Kunzea sulphurea, Stackhousia monogyna, Taxandria parviceps, Thelymitra antennifera, Thelymitra flexuosa
Sedgeland	
Occupying the moist flats, sedgelands are typically present as an understorey in shrublands and woodland areas. One exception was notable and in this area the sedges formed a thick low carpet	Anarthria prolifera, Lepidosperma angustatum, Anarthria scabra, Lepidosperma effusum, Dasypogon bromeliifolius, Lepidosperma gladiatum, Evandra aristata, Mesomelaena tetragona
Monadnocks and granite outcrops	
The granite outcrops are a dominant feature of the Mount Hallowell Reserve. The typical monadnock is a large protuberance visible from surrounding vantage points. These are impressive features when viewed proximately. The smaller granite outcrops are widespread throughout the Reserve and vary from exposed sheets to large boulders the height of medium trees. The granite outcrops create special niches for vegetation, both on the rock and in the surrounding fringes. These niches around the granite outcrops on the Mount Hallowell Reserve are created by: • areas of shallow soil • pockets of deep soil • water drainage • nutrient from rock catchments • microclimates caused by aspect and shelter These soil conditions and micro-climates differ from one outcrop to another and result in unique floral associations. Agonis marginata is present on many outcrops but absent on others. Stypandra glauca is similarly common but not omnipresent on the granite outcrops. Surrounding Yate (Eucalyptus cornuta) trees are a feature of the granite summit and some other outcrops but absent from others where Agonis flexuosa or Allocasuarina decussata is a dominant fringing component of the vegetation.	Agonis flexuosa, Allocasuarina decussata, Andersonia sprengelioides, Bossiaea linophylla, Corymbia calophylla, Eucalyptus cornuta, Eucalyptus diversicolor, Eucalyptus megacarpa, Eutaxia obovate, Hibbertia furfuraceae, Lepidosperma sp., Leucopogon revolutus, Stypandra glauca, Taxandria marginata, Taxandria parviceps Monkey Rock and surrounds: Agonis flexuosa, Allocasuarina decussata, Bossiaea linophylla, Corymbia calophylla, Eucalyptus cornuta, Eucalyptus marginata, Eutaxia obovate, Lepidosperma sp., Leucopogon revolutus, Stypandra glauca, Taxandria linearifolia, Taxandria marginata, Taxandria parviceps Kooryunderup / Mount Hallowell and surrounds: Agonis flexuosa, Allocasuarina decussata, Bossiaea linophylla,a Corymbia calophylla, Eucalyptus cornuta, Eucalyptus marginata, Eutaxia obovate, Lepidosperma sp., Leucopogon revolutus, Stypandra glauca, Taxandria linearifolia, Taxandria marginata, Taxandria parviceps

Kooryunderup / Mount Hallowell Management Plan 2025 - 2035, Shire of Denmark, WA

VEGETATION DESCRIPTION	KEY SPECIES
The smaller outcrops have a less significant effect on the surrounding vegetation composition which reflects soil type and landscape position. These outcrops are predominantly in the areas designated in this report as Karri and Karri/Marri Tall Forest areas.	

2.5 FLORA

2.5.1 Flora Databases

Information provided by the DBCA (NatureMap, 2024) indicates there are 1,007 records of flora species within 10 km of Kooryunderup / Mount Hallowell as indicated in Table 4.

TABLE 4: NUMBER OF PLANT SPECIES WITHIN 10 KM

GROUP	NUMBER OF SPECIES
Alga	3
Dicot	643
Fern	7
Gymno	2
Liverwort	22
Monocot	277
Moss	53

Source: NatureMap, 2024

2.5.2 Surveys

Biodiverse Solutions (2020) undertook a reconnaissance flora and vegetation survey for Mount Hallowell, comprising 21.27 ha in the southeastern portion of the Reserve, and identified 101 native flora species.

A Bioblitz citizen science event was held at Kooryunderup / Mount Hallowell in 2023 (Denmark Environment Centre, 2023), which recorded 467 flora species (Appendix 1), including species identified in the 2004 survey.

To date, 467 flora species have been documented within the Reserve. Of these, 347 were listed in the 2008 Mount Hallowell Reserve Management Plan, and 120 additional flora species have been documented subsequently as part of the Bioblitz and the Mount Hallowell (Kooryunderup) Reserve species observations on iNaturalist.

2.5.3 Conservation Significant Species

NatureMaps indicates that there are six threatened flora species listed under the *Biodiversity Conservation Act 2016* within 10 km of Kooryunderup / Mount Hallowell (Table 5). In addition, there are:

Priority 1 species: 2;

Priority 2 species: 7;

• Priority 3 species: 12; and

• Priority 4 species: 22.

The southeastern portion of the Reserve was identified with a Priority 4 species, *Banksia serra* (Biodiverse Solutions, 2020).

In 2023, the citizen science Bioblitz recorded seven Priority species within the Reserve:

- Priority 2 flora species: Lepyrodia extensa;
- Priority 3 flora species: Anthocercis sylvicola (Tailflower);
- Priority 3 flora species: Goodenia sp. South Coast;
- Priority 3 flora species: Leucopogon alternifolius;
- Priority 4 flora species: Banksia serra (Serrate-leaved Dryandra);
- Priority 4 flora species: Drosera fimbriata (Manypeaks Sundew); and
- Priority 4 flora species: Pleurophascum occidentale (Western Giant-leaved Moss).

No Threatened species have been recorded in the Reserve.

Definitions for Threatened and Priority species are included in Appendix 2.

TABLE 5: CONSERVATION SIGNIFICANT FLORA WITHIN 10 KM

SPECIES	CONSER	VATION STATUS	WA RANK
Goodenia radicans	Priority	1	
Stylidium sp. Kordabup (A.R. Annels 1660)	Priority	1	
Caladenia applanata subsp. erubescens	Priority	2	
Diuris heberlei	Priority	2	
Drepanocladus aduncus	Priority	2	
Amanita walpolei	Priority	2	
Rytidosperma racemosum var. racemosum	Priority	2	
Andersonia sp. Virolens (G.J. Keighery 12000)	Priority	3	
Anthocercis sylvicola	Priority	3	
Borya longiscapa	Priority	3	
Lasiopetalum sp. Denmark (B.G. Hammersley 2012)	Priority	3	
Amanita drummondii	Priority	3	
Amanita fibrillopes	Priority	3	
Andersonia sp. Amabile (N. Gibson & M. Lyons 355)	Priority	3	
Netrostylis sp. Blackwood River (A.R. Annels 3043)	Priority	3	
Synaphea incurve	Priority	3	
Banksia sessilis var. cordata	Priority	4	
Boronia virgata	Priority	4	
Corysanthes limpida	Priority	4	
Drosera fimbriata	Priority	4	

SPECIES	CONSERVATION STATUS WA		WA RANK
Eucalyptus virginea	Priority	4	
Gahnia sclerioides	Priority	4	
Microtis pulchella	Priority	4	
Pleurophascum occidentale	Priority	4	
Thomasia quercifolia	Priority	4	
Banksia serra	Priority	4	
Lepidium pseudotasmanicum	Priority	4	
Thomasia solanacea	Priority	4	
Xanthosia eichleri	Priority	4	
Kennedia glabrata		Threatened	Vulnerable
Microtis globula		Threatened	Endangered
Commersonia apella		Threatened	
Grevillea fuscolutea		Threatened	
Isopogon buxifolius		Threatened	

Source: NatureMap, 2025

2.6 FAUNA

2.6.1 Fauna Databases

The Mount Hallowell Reserves represent a variety of fauna habitats influenced by topography and soil types (granitic outcrops through clay slopes to deep sand and peat swamps). The higher slopes, particularly on the eastern and southern sides, are dominated by Karri (*Eucalyptus diversicolor*) with pockets of Sheoak (*Casuarina* spp.), while the lower slopes and northern slopes are more typically Jarrah (*Eucalyptus marginata*), Marri (*Corymbia calophylla*), *Banksia grandis*, *Banksia ilicifolia* and Sheoak (Gillespie, 2011).

Information provided by the DBCA (NatureMap, 2024) indicates there are 444 records of fauna species within 10 km of Kooryunderup / Mount Hallowell, as grouped in Table 6.

TABLE 6: NUMBER OF FAUNA SPECIES WITHIN 10 KM

GROUP	NUMBER OF SPECIES
Amphibians (frogs)	8
Invertebrates (insects, spiders, molluscs, worms, crayfish)	111
Reptiles	23
Birds	218
Fish (includes Wilson Inlet, adjacent waterways and Southern Ocean)	55
Mammals	29

Source: NatureMap, 2024

2.6.2 Surveys

To date, 270 fauna species have been documented within the Reserve. Many were listed in the 2008 Management Plan. However, additional fauna species have been documented subsequently as part of the Mount Hallowell Bioblitz and the Kooryunderup / Mount Hallowell Reserve species observations on iNaturalist.

A Bioblitz citizen science event was held at Kooryunderup / Mount Hallowell in 2023 (Denmark Environment Centre, 2023). The event recorded 106 insects, 34 spiders, five frogs, 12 reptiles, 82 birds, 14 native mammal species, and 12 'other vertebrate' species.

A list of species is provided in Appendix 3.

2.6.3 Conservation Significant Species

The Commonwealth's Environment Protection and Biodiversity Conservation (EPBC) Act 1999 and WA's Biodiversity Conservation (BC) Act 2016 (Department of Biodiversity, Conservation and Attractions DBCA, 2023) provide a listing of threatened fauna species. Fauna species that are poorly known, rare, near threatened, or others in need of monitoring are listed under the DBCA Priority List.

NatureMap indicates that there are 42 records of Threatened or Migratory species listed under the *Biodiversity Conservation Act 2016* within 10 km of Kooryunderup / Mount Hallowell (Table 7). In addition, there are:

Priority 1 species: 0

Priority 2 species: 2

Priority 3 species: 1

Priority 4 species: 5

Definitions for Threatened and Priority species are described in Appendix 2.

TABLE 7: CONSERVATION SIGNIFICANT FAUNA WITHIN 10 KM

TAXON	COMMON NAME	CLASS	WA STATUS	EPBC STATU
Thalassarche chlororhynchos	Atlantic yellow-nosed albatross	Bird	VU	MI
Limosa lapponica	bar-tailed godwit	Bird	MI	MI
Zanda baudinii	Baudin's cockatoo	Bird	EN	EN
Ixobrychus flavicollis australis (southwest subpopulation)	black bittern (southwest subpopulation)	Bird	P2	
Thalassarche melanophris	black-browed albatross	Bird	EN	VU & MI
Oxyura australis	blue-billed duck	Bird	P4	
Zanda latirostris	Carnaby's cockatoo	Bird	EN	EN
Hydroprogne caspia	Caspian tern	Bird	MI	MI
Dasyurus geoffroii	chuditch, western quoll	Mammal	VU	VU
Tringa nebularia	common greenshank	Bird	MI	MI

TAXON	COMMON NAME	CLASS	WA STATUS	EPBC STATU
Actitis hypoleucos	common sandpiper	Bird	MI	MI
Sterna hirundo	common tern	Bird	MI	MI
Thalasseus bergii	crested tern	Bird	MI	MI
Calidris ferruginea	curlew sandpiper	Bird	CR	CR & MI
Sternula nereis nereis	fairy tern	Bird	VU	VU
Ardenna carneipes	flesh-footed shearwater	Bird	VU	MI
Calyptorhynchus banksii naso	forest red-tailed black cockatoo	Bird	VU	VU
Calidris tenuirostris	great knot	Bird	CR	CR & MI
Charadrius leschenaultii	greater sand plover, large sand plover	Bird	VU	VU & MI
Pluvialis squatarola	grey plover	Bird	MI	MI
Tringa brevipes	grey-tailed tattler	Bird	MI & P4	MI
Thinornis cucullatus	hooded plover, hooded dotterel	Bird	P4	
Puffinus huttoni	Hutton's shearwater	Bird	EN	
Calidris subminuta	long-toed stint	Bird	МІ	MI
Zephyrarchaea mainae	Main's assassin spider	Invertebrate	VU	
Leipoa ocellata	malleefowl	Bird	VU	VU
Pandion haliaetus	osprey	Bird	MI	MI
Pluvialis fulva	Pacific golden plover	Bird	MI	MI
Falco peregrinus	peregrine falcon	Bird	OS	
Geotria australis	pouched lamprey	Fish	Р3	
Isoodon fusciventer	quenda, southwestern brown bandicoot	Mammal	P4	
Setonix brachyurus	quokka	Mammal	VU	VU
Calidris canutus	red knot	Bird	EN	EN & MI
Calidris ruficollis	red-necked stint	Bird	MI	MI
Arenaria interpres	ruddy turnstone	Bird	MI	MI
Calidris alba	sanderling	Bird	MI	MI
Calidris acuminata	sharp-tailed sandpiper	Bird	MI	MI
Elapognathus minor	short-nosed snake	Reptile	P2	
Ardenna tenuirostris	short-tailed shearwater	Bird	MI	MI
Phascogale tapoatafa wambenger	south-western brush-tailed phascogale, wambenger	Mammal	CD	
Physeter macrocephalus	sperm whale	Mammal	VU	MI

TAXON	COMMON NAME	CLASS	WA STATUS	EPBC STATU
Zephyrarchaea melindae	Toolbrunup assassin spider	Invertebrate	VU	
Hydromys chrysogaster	water-rat, rakali	Mammal	P4	
Cynotelopus notabilis	Western Australian pill millipede	Invertebrate	EN	
Dasyornis longirostris	western bristlebird	Bird	EN	EN
Notamacropus irma	western brush wallaby	Mammal	P4	
Pezoporus flaviventris	western ground parrot	Bird	CR	CR
Pseudocheirus occidentalis	western ringtail possum, ngwayir	Mammal	CR	CR
Zanda sp. 'white-tailed black cockatoo'	white-tailed black cockatoo	Bird	EN	EN
Chlidonias leucopterus	white-winged black tern	Bird	MI	MI

Source: NatureMap, 2024. Note: Marine species such as whales and seals have been removed.

Sanders (2020) prepared a Vertebrate Fauna Assessment of Mount Hallowell Reserve for the southeastern portion of the Reserve. The survey indicated that the following conservation significant species were present:

- Baudin's black cockatoo (Threatened);
- Forest Red-tailed black cockatoo (Threatened); and
- Osprey (not threatened but considered significant).

The habitat assessment confirmed the potential presence of habitat for quokka and western ringtail possum, although no signs were found owing to the dense vegetation.

Several fauna species listed under the EPBC Act, BC Act, and Priority list are known to occur in the Kooryunderup / Mount Hallowell Reserve (Department of Climate Change, Environment, Energy and Water (DCCEEW), 2025; DBCA, 2025).

There are six threatened fauna species documented within the Kooryunderup / Mount Hallowell Reserve. These include:

- Baudin's Cockatoo (Zanda baudinii) Njoolark (Endangered, WA and Nationally);
- Carnaby's Cockatoo (Zanda latirostris) Njoolark (Endangered, WA and Nationally);
- WA Pill Millipede (Cynotelopus notabilis) (Endangered, WA);
- Forest Red-tailed Black-cockatoo (Calyptorhynchus banksii naso) Karrak (Vulnerable, WA);
- Main's Assassin Spider (Zephyrarchaea mainae) (Vulnerable, WA); and
- South-western Brush-tailed Phascogale (*Phascogale tapoatafa wambenger*) (Conservation dependent, WA).

Birdlife Australia and the Denmark Bird Group have advised that Black Cockatoos, including the Critically Endangered Carnaby's Black Cockatoo have been recorded nesting in the Reserve.

The Southwestern Brown Bandicoot (*Isoodon fusciventer*) and Western False Pipistrelle (*Falsistrellus mackenziei*) are listed as Priority 4 species and present within the Reserve.

The Reserve is also home to numerous endemic fauna species with limited distributions and specific habitat requirements that occur only in the southwest of Western Australia.

2.7 FUNGI AND OTHER LIFE FORMS

Lifeforms such as slime mould, fungi and lichen are poorly known and understood compared to other species. However, they play a very important role in the recycling of nutrients and soil production.

Some fungi have symbiotic relationships with plants, benefiting both. Some native animals, such as the Southwestern Brown Bandicoot (*Isoodon fusciventer*) and the Bush Rat (*Rattus fuscipes*), depend on fungi as part of their diet. They are also important vectors for fungal spore dispersal.

Lichens can help produce soil by breaking down rocks into smaller particles. They get their nutrients from the air and serve as excellent indicators of air quality.

Slime moulds exhibit complex behaviours like problem-solving and learning, even without a brain or nervous system, and are crucial for nutrient recycling in ecosystems.

2.7.1 Other Life Forms Databases

Information provided by the DBCA (NatureMap, 2024) indicates there are 425 records of slime mould, fungi and lichen species that have been identified within 10 km of Kooryunderup / Mount Hallowell as summarised in Table 8.

TABLE 8: NUMBER OF OTHER SPECIES WITHIN 10 KM

GROUP	NUMBER OF SPECIES
Slime mould	8
Fungi	316
Lichen	101

Source: NatureMap, 2024

2.7.2 Surveys

A total of 251 macrofungi and lichen species were documented in the 2008 Management Plan.

A Guide to Macrofungi in the Shire of Denmark, Mount Hallowell and Wilson Inlet Foreshore was prepared in 2011 (Syme, 2011) and included identification of 100 named species, 115 recognisable unnamed taxa and 12 species of truffle-like fungi.

iNaturalist lists 87 fungi present at Kooryunderup / Mount Hallowell. Seventy-seven fungi and lichen species were identified as part of the citizen science Bioblitz in 2023 (Appendix 4).

2.8 DIEBACK

A dieback assessment of the Reserve was undertaken in 2014 (Great Southern Biologic, 2014). The disease distribution is shown in Appendix 5. Disease expression was confirmed in the creek line to the west of Iluka Avenue on the southern boundary, on a granite peak on the Bibbulmun Track and extending north from the infestations west of Harrington Break. As a result, the disease distribution map shows the infested area spreading from the creek to the west of Iluka Avenue, heading east and north to include the vegetation adjacent to the Heather Road development, west along the Bibbulmun Track, north to the northern management access track and then west to the western boundary.

The disease boundary has not been operationally mapped in areas excluding access points such as management access tracks and the Bibbulmun Track. It is possible that the infested area may contain some small areas of vegetation yet to show visible signs of infestation. Likewise, the full extent of the areas depicted as uninterpretable may also contain some infested soils that do not express due to the lack of susceptible species in the vegetation.

Recommendations from the 2014 dieback assessment include:

1. Town Planning Scheme Policy No. 1 for Dieback Disease Management

All works within and around Kooryunderup / Mount Hallowell, to strictly adhere to Town Planning Scheme Policy No. 1 for Dieback Disease Management (Shire of Denmark, 1997) hygiene controls.

2. Phosphite

Treatment with Phosphite is not recommended within the Reserve due to the size of the infested area and the requirement for treatment of disease boundaries, which cannot be accurately determined due to the uninterpretable nature of much of the Reserve's vegetation.

3. Operational Hygiene

All operational activities, including firebreak maintenance, are to be undertaken in dry soil conditions. Undertaking operational activities in dry soil will significantly reduce the risk of transporting infested soil from currently infested areas to uninfested areas in the Mount Hallowell Reserve and other Shire reserves.

All vehicles, machinery, equipment, and footwear must be effectively cleaned down prior to accessing protectable areas within the Reserve. Clean-down locations for people on foot and vehicles are shown in Appendix 5.

All earthworks, road verge works, and street sweeping conducted in any residential area adjoining the reserve must be undertaken in accordance with Town Planning Scheme Policy No. 1 for Dieback Disease Management (Shire of Denmark, 1997) hygiene guidelines. These areas are also considered to be infested through the mechanisms of autonomous spread.

The movement of soil and vegetable matter from these residential areas presents a potential risk of disease vectoring. Private residents and contractors undertaking private works should also be urged to comply with this standard.

If soil moving activities are proposed in areas away from existing access tracks and trails, then an operational survey must be undertaken prior to commencing the proposed works. The

information in this survey provides operational disease distribution information for existing tracks and trails.

4. Track Rationalisation

The reserve has interconnected vehicle access tracks, originating from the Heather Road and Iluka Avenue residential areas. These tracks are contained within the infested hygiene category and do not present an immediate threat to the protectable areas of the reserve. They do present a source of infested soil that can be transported to other Shire reserves following moist soil access by four-wheel drive vehicles. Closure of all non-essential tracks will reduce this risk and should be considered. Closure of tracks crossing moisture-gaining sites (e.g. creeks) and clayey soils should be the highest priority.

5. Bimbimbi Way Management Access Hygiene

The management access and fire break to the north of Bimbimbi Way is classified as uninterpretable due to insufficient indicator species to enable detection of the disease. As the eastern end of this access adjoins an infested creek line, it is likely that there is dieback along this management access track, which cannot be identified and demarcated. It is a recommendation that this section of management access be managed as a stand-alone area.

Effective clean-down should be undertaken when entering and leaving this management access track, and all operational activities in this area should be undertaken in dry soil conditions. If required, clean-down is to be performed on Shire land at the gate where the management access track enters private property, as shown in Appendix 5.

6. Project Dieback Signage

Existing Project Dieback disease category demarcation signage posts should be monitored and reviewed along walk trails and management access tracks as they mark the disease hygiene categories as shown in Appendix 5.

General disease information signage has been installed at reserve entry points in residential areas (e.g., Heather Road). The signage highlights the issues associated with dieback and the management actions required to minimise the spread. Signage assists with communicating these messages but should not be relied on as a stand-alone communication strategy.

7. Boot cleaning stations

There are three boot cleaning stations (Figure 4).

Boot cleaning stations are located on the disease boundary lines identified in Appendix 5. The locations of the stations should be reviewed when the dieback status is reviewed.

The boot cleaning station positioned at the western end of the Bibbulmun Track can be bypassed by walkers using the management access track which parallels the walk trail in this area. However, this is considered to be a low risk in terms of reducing the spread of dieback.

8. Community Awareness and Education

The 2014 mapping of dieback includes the surrounding residential developments on Harrington Break and Heather Road. Movement of infested soil from these areas poses a significant threat of

disease vectoring to other areas within the Shire of Denmark. Consistent with the solutions to address the threat identified in 'A Study into the Risk of Phytophthora Dieback in Ten Peri-Urban Reserves within the Shire of Denmark, Section 8, Limited Education and Awareness in the Community (Green Skills, 2008)', a public communication strategy is recommended for the immediate local community.

9. Re-Survey

It is recommended that the 2014 assessment be updated in 2026 and then considered for review in 2035.

2.9 WEEDS

In 2024, Green Skills Inc. and South Coast Bushcare Services prepared a Bushland Reserve Weeds Strategy 2024 – 2034 for the Shire of Denmark. The following criteria were used for determining High Conservation Value reserves such as Kooryunderup / Mount Hallowell:

- The bushland is in excellent condition;
- The use of the reserve includes public use, recreation and enjoyment. The facilities available include walk trails, views, landscape values (e.g. entrance to Denmark);
- The reserve is actively managed with a history of weed control, track maintenance and fuel management;
- Protection of waterways;
- Connectivity with other bushland areas; and
- Presence of weed/s of limited distribution that are highly invasive and have severe environmental impacts.

The weed works at Kooryunderup / Mount Hallowell were assigned a 'High' priority. It was also noted that *Dipogon lignosus* (Dolichos) and *Leptospermum laevigatum* (Victorian Tea Tree) had not been marked on the weeds map at the time of survey and that further survey work needed to be undertaken.

Kooryunderup / Mount Hallowell (Reserve 46618) priority weeds to control and monitor are listed in Table 9. A map of weed affected areas is shown in Figure D.

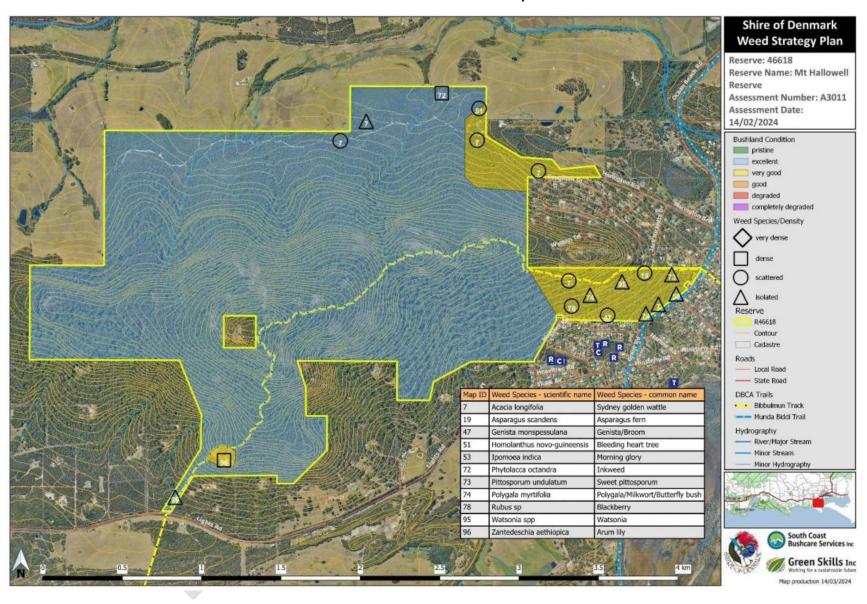
It is recommended that the Friends of Kooryunderup / Mount Hallowell and Bibbulmun Track hold regular weeding sessions in consultation with the Shire and South Coast Bushcare Services Inc.

TABLE 9: WEED SPECIES CONTROLLED AND MONITORED

SPECIES	COMMON NAME	STATUS
Acacia longifolia	Sydney Golden Wattle	Monitored
Agapanthus praecox	Agapanthus	Actively Managed
Asparagus declinatus	Bridal veil	Actively Managed
Asparagus scandens	Asparagus scandens	Actively Managed
Asparagus scandens	Asparagus fern	Actively Managed
Chamaecytisus palmensis	Tagasaste	Monitored
Dipogon lignosus	Dolichos pea	Actively Managed
Genista monspessulana	Montpellier broom	Actively Managed
Gladiolus undulatum	Wavy gladiolus	Actively Managed
Ipomea indica	Morning glory	Actively Managed
Leptospermum laevegatum	Victorian Tea Tree	Monitored
Pandorea pandorana	Wonga-wonga vine	Actively Managed
Polygala myrtifolia	Myrtleleaf milkwort	Actively Managed
Senecio angulatus	Canary creeper	Actively Managed
Watsonia spp	Watsonia	Actively Managed

Source: South Coast Bushcare Services Inc.

FIGURE D: WEED MAPPING FOR KOORYUNDERUP / MOUNT HALLOWELL



Source: Green Skills and South Coast Bushcare Services Inc (2024) Bushland Reserves Weeds Strategy 2024 – 2034

2.10 ACCESS

Pedestrians access the Reserve via the Bibbulmun Track and Sheila Hill Memorial Trail from Ocean Beach Road (Figures 4 and 5) and from Lights Road towards Monkey Rock (Figure 4). Various emergency access tracks and low fuel zones also provide access for pedestrians.

Parking is available at Lights Road (Trailhead for Bibbulmun Track) and Ocean Beach Road (Sheila Hill Memorial Trailhead). The gravel parking spaces are not delineated and can accommodate 7 - 10 cars each.

There is emergency vehicle access at five points (Figures 4 and 5), including:

- At the southeast corner of the Reserve (behind Heather Road) (not gated). Heather Street residents utilise this track for access to the rear of their properties.
- Emergency access track from the Lights Road car park to Monkey Rock (gated).
- Emergency access track from Mooney Valley Place to Lights Road (gated).
- Along the northern boundary of the Reserve from Goughlan Grove (gated).
- Emergency access to the north of the Reserve is by agreement with farm owners to the Denmark Heritage Rail Trail alignment (gated).

Parts of the Reserve have been slashed to provide low fuel zones of approximately 25 - 30 m width (Figures 4 and 5). The low fuel zones are assessed annually, and slashing is undertaken when fuel loads are high.

Signage indicates that the Sheila Hill Memorial Trail starts at the car park and trail head on Ocean Beach Road and then joins the Bibbulmun Track, extends to the Mount Hallowell summit and lookout before descending to Monkey Rock and terminating at the Lights Road car park. However, wayfinding signage for the trail is either missing or in poor condition.

3 STAKEHOLDER ENGAGEMENT

3.1 STAKEHOLDER ENGAGEMENT PROCESS

Due to the significant community interest in the Reserve, the Shire prepared a Community Engagement Plan in 2024, which was adopted by Council for implementation (October 2024). The framework of the engagement plan is shown in Table 10.

TABLE 10: KOORYUNDERUP / MOUNT HALLOWELL ENGAGEMENT FRAMEWORK

DELIVERABLE	TIMING	TARGET GROUP	METHOD	LEVEL	RESPONSIBILITY			
Preparation Work								
Engagement plan endorsement	October 2024	Council	Present Community Engagement Plan for endorsement by Council at the October Ordinary Council meeting.	Empower	Shire of Denmark Council			
Your Denmark page	October 2024	Community	Launch project webpage 'Mount Hallowell Reserve Management Plan Review' to host community consultation information.	Inform	Shire of Denmark			
Engagement plan and project awareness	October 2024	Community	Share the Community Engagement Plan with the broader community to increase awareness of the review process's key objectives. • Advert in Bulletin • Media release • Social media post • Your Denmark page	Inform	Shire of Denmark and Aurora Environmental			
Delivery and Ir	nplementation	1						
One-on-one engagement	December 2024	Key Stakeholder Groups	Invitations were sent to each key stakeholder group for specific one-on-one meetings with a consultant, with an option for an on-site visit. Letters Email Phone	Involve	Shire of Denmark and Aurora Environmental			
Community Survey	Finish 17 January 2025	Community	Gather community feedback about what is important about the Reserve and any concerns, hosted via Your Denmark page. Promote: Advert in Bulletin Media release Social media post Your Denmark page Posters E-newsletter	Consult	Created by Shire of Denmark and Aurora Environmental			

DELIVERABLE	TIMING	TARGET GROUP	METHOD	LEVEL	RESPONSIBILITY			
Analysis, Writing and Completion								
Draft Plan presented to Council	April 2025	Council	Aurora Environmental briefed the council on the engagement and research process and outcomes as presented in the Draft plan.	Inform	Aurora Environmental			
Draft Plan released for Public Comment	June - July 2025	Community	Incorporating community feedback from engagement and on-ground research conducted by Aurora Environmental, with a draft plan released on the 'Your Denmark' page and an online public comment portal to receive feedback in the form of a survey. Hard copies were available at the front counter (Shire Administration Building). Other feedback was also received by the Shire. Shire staff provided comments on the draft document.	Consult	Shire of Denmark			
Final Plan	September/ October 2025	Council	Final plan to be presented at Ordinary Council Meeting for adoption.	Empower	Shire of Denmark			
	November 2025	Minister	Seek Ministerial approval following Council adoption.	Empower	Shire of Denmark			
		Community	 Make final document available to community: Media release Your Denmark website Facebook E-news 	Inform	Shire of Denmark			

3.2 IDENTIFICATION OF KEY STAKEHOLDERS

The Shire of Denmark initially identified key stakeholder groups, and the list was expanded during the engagement process (Table 11). The list comprises organisations, groups and individuals interested in the management of the Reserve, or that have a legislative interest. Other groups and individuals were included in the engagement process if they expressed an interest.

TABLE 11: STAKEHOLDERS

KEY STAKEHOLDERS
Bibbulmun Track Foundation
Bibbulmun Track Foundation Maintenance Volunteers (Mount Hallowell section)
Denmark Dog Owners Group
Denmark Bird Group
Denmark Environment Centre
Denmark Equestrian Management Group

KEY STAKEHOLDERS

Denmark Mountain Bike Club

Denmark Running Club

Department of Biodiversity Conservation and Attractions (DBCA) Warren Region (Manjimup & Frankland District Walpole Office)

DBCA Parks and Wildlife Recreation & Trails Unit

Department of Planning Lands and Heritage (DPLH) - Indigenous Heritage South Coast Region

Department of Water and Environmental Regulation (DWER)

Friends of Bibbulmun Track (Mount Hallowell sections)

Friends of Kooryunderup / Mount Hallowell Reserve

Green Skills

Kwoorabup Barefoot Walking Group

Ocean Beach Bushfire Brigade

Private Property owners with a shared boundary with the Reserve

Shire of Denmark (relevant staff)

South Coast Bushcare Services

Ocean Beach residents and ratepayers

Wagyl Kaip

Wider Shire of Denmark community

Water Corporation

3.3 SUMMARY OF STAKEHOLDER INTERVIEWS

Eight groups met with Aurora Environmental, including:

- Friends of Kooryunderup / Mount Hallowell Inc. (PowerPoint presentation provided).
- South Coast Bushcare Services Inc.
- Wagyl Kaip.
- Denmark Environment Centre.
- Bibbulmun Track Foundation.
- Denmark Bird Group.
- Denmark Mountain Bike Club Inc.
- Department of Biodiversity Conservation and Attractions (Frankland and Kensington Offices).

Eighteen individuals were interviewed, including residents.

Internal (Shire of Denmark) stakeholders included:

• Executive Officers.

- Denmark Sustainability Officer.
- Denmark Fire Control Officer.
- Manager Waste and Reserves.

Other stakeholders included:

- Nathan McQuoid, Ecologist.
- Elizabeth (Lizzie) Hill, daughter of Sheila Hill.

Submissions were also received from:

- Birdlife WA.
- Ocean Beach Bush Fire Brigade.

3.4 COMMUNITY SURVEY

The Shire of Denmark released a survey on Wednesday, 20 November 2024, which closed on Friday, 17 January 2025. The survey questions focused on feedback regarding the management of Kooryunderup / Mount Hallowell and are summarised in Appendix 6. Key themes and concerns are also summarised in Appendix 6. A report was prepared for the Shire of Denmark to summarise stakeholder input (Aurora Environmental, 2025a).

Key insights and analysis including quantifiable measures based on the survey responses include:

Demographics and Participation

- **Total Responses**: 216 responses. The survey received a significant number of responses from various participants, including residents, visitors, and stakeholders.
- **Age Groups**: Respondents were from diverse age groups, with a notable representation from the 50-64 and 65+ age brackets.
 - 17 years or younger: 2 (0.9%)
 - 18-29 years: 3 (1.4%)
 - 30-49 years: 52 (24.2%)
 - 50-64 years: 93 (43.3%)
 - 65+ years: 65 (30.2%)

• Gender:

- Female: 137 (63.7%)
- Male: 73 (34.0%)
- Prefer Not to Say: 4 (1.9%)
- Other: 1 (0.5%)

The survey responses reflected a community deeply connected to Mount Hallowell, valuing its natural beauty, biodiversity, and the peace it offers. There was support for existing passive uses such as walking and hiking. However, there was little support for activities such as mountain biking.

The community's concerns about fire risk, illegal activities, and the need for better infrastructure and education also highlight areas that need attention in this Management Plan.

3.5 COMMUNITY FEEDBACK - DRAFT MANAGEMENT PLAN

The draft Kooryunderup / Mount Hallowell Management Plan was released for stakeholder input on 18 June to 18 July 2025 (Aurora Environmental, 2025c). A survey was made available via the 'Your Denmark' webpage to seek feedback. Other forms of submissions were also received. A report was prepared for the Shire to summarise the submissions (Aurora Environmental, 2025d).

Two hundred and twenty six surveys were received by Aurora Environmental with 15 written submissions.

Key insights are included in Appendix 6.

3.6 COMMUNITY EXPECTATIONS

The stakeholder engagement process indicated that the community is very invested in the long-term health and management of Kooryunderup / Mount Hallowell. Summarising stakeholder input by management issues, indicates the following:

Conservation

Conservation of biodiversity, including threatened species, is seen as the most important management focus for the Reserve. All other uses were seen as ancillary and only acceptable if they were compatible with preservation of natural values.

Pest, Weed and Disease Management

Consistent pest, weed, and disease management was identified as the key to preserving biodiversity within the Reserve, either through active management (e.g., activities by South Coast Bushcare Services Inc. and Friends of Kooryunderup / Mount Hallowell).

Recreation

Recreation is generally viewed as a way to interact with nature without disturbing the area's conservation values. Passive recreation activities such as hiking, bird watching, running and dog walking were broadly supported. There was a very marked split in community sentiment regarding activities such as mountain bike riding.

Infrastructure

Upgrading of the car parks, including interpretive signage at the Sheila Hill and Bibbulmun track trail heads, was supported.

Resurfacing and drainage works associated with emergency access ways (Heather Road and Monkey Rock) were supported.

Monitoring and upgrades of infrastructure such as Sheila Hill Trail signage, dieback boot cleaning stations, bollards and gates were requested.

Installation of drainage and re-sheeting with gravel of eroded emergency access ways behind Heather Road and track up to Monkey Rock was identified as a high priority.

Fire Management

Stakeholders recognised that fire was an imminent risk in the area. However, the vast majority respondents valued the Reserve's conservation values more than the fire risk. People also recognised the significance of long unburnt areas, including old trees containing nesting hollows that could be lost in fuel reduction burns. Many nearby residents have evacuation plans and do not want to see the Reserve's conservation values diminished by widespread fuel reduction burns.

The presence of low fuel zones adjacent to Heather Road was supported.

Notably, the Ocean Beach Bushfire Brigade submission states that the volunteers are well placed to rapidly respond to fires on the lower slopes of the Reserve, if access is maintained at current levels.

Culture And Heritage

Stakeholder input strongly supported the recognition of cultural heritage in the area, including carrying out a Cultural Heritage Survey (i.e. partnership with Wagyl Kaip).

Some activities such as abseiling on Monkey Rock was questioned by some as possibly inappropriate.

Community Engagement

Groups such as the Friends of Kooryunderup / Mount Hallowell, South Coast Bushcare Services, Denmark Bird Group and Denmark Environment Centre are already actively involved in the care and management of the Reserve. These groups will benefit from more formal interaction with the Shire of Denmark regarding management of the area.

Respondents were supportive of educational activities and programs to increase awareness of the value of Kooryunderup / Mount Hallowell (and other natural areas).

Land Use Planning

Stakeholders supported the management of Reserves 14239, 48429, 32861 and 35464 consistent with values of Kooryunderup / Mount Hallowell.

Residents recognised the importance of fire planning and conditions placed on development with respect to access and fire management.

Compliance

Respondents were generally supportive of compliance efforts to prevent unlawful or unauthorised activities (e.g. construction of mountain bike trails, rubbish dumping, low fuel areas and emergency access).

Access and use of the Reserve by landowners that back onto the Reserve from Heather Road was questioned as it comprises private use of public land. This requires further discussion with landowners.

4 VALUES

4.1 BIODIVERSITY VALUES

Biodiversity underpins all life on Earth. Without the complex interactions between plants, animals, and their environment, there would be no air to breathe, no food to eat, and no water to drink. Many discoveries are yet to be made about the web that makes up our lives, livelihoods, medicine, culture, and natural beauty.

Humans depend on nature for various ecosystem services (clean air and water, pollination and food). Generally, the more biodiverse an ecosystem is, the greater its stability, productivity, and resilience, including in the face of threats such as climate change, pests and diseases (Barraclough *et al.*, 2023). In addition, animal, plant and microbial diversity are essential sources of medicinal compounds and nutritious food.

Scientific research supports the benefits of investing in environmental protection, including improved community health and wellbeing, protection of cultural identity, economic benefits, moderating climate impacts, reducing diseases and enhanced resilience. It will also allow for future research opportunities.

Growing evidence shows that accessible and diverse green spaces offer higher restorative benefits to human health and wellbeing than those that can be realised in simplified natural environments, such as landscaped parks with limited numbers of plant species.

Kooryunderup / Mount Hallowell, with its varied geology and vegetation assemblages, provide a refuge for a diverse range of species, including Threatened species. The Reserve is an important biodiversity resource for Denmark and the southwest of Western Australia.

The Reserve is part of the Macro Corridor along the South Coast (Wilkens *et al.*, 2006). It is also part of 'Gondwana Link', an area which is the subject of reconnection between the forest areas of the southwest of Western Australia and the Western Woodlands of the Goldfields (Gondwana Link, 2025).

4.2 CULTURAL AND HERITAGE VALUES

The Kooryunderup / Mount Hallowell reserve is not currently listed as a site under the *Aboriginal Heritage Act 1972*. However, this is most likely because the area has not been adequately surveyed. Important cultural sites exist in the area, and their significance is only starting to be realised and rediscovered. Lizard traps 'karda mia', water trees 'boorna gnamma', hollowbutt trees and red ochre 'wilgi' or 'mirda' have been found on Kooryunderup / Mount Hallowell indicating a rich Aboriginal cultural history within the area.

The WA Heritage Council has listed Mount Hallowell (Reserves 46618 and 14239) as a 'Registered Heritage Place that does not warrant assessment' (26 July 2020, INHERIT, 2025).

Mount Hallowell is listed in the Shire of Denmark Municipal Heritage Inventory (Municipal Heritage Inventory Review Working Group (2011 as amended 2014) due to its considerable significance as outlined below. Shire of Denmark Municipal Heritage Inventory. Council Resolution 120814.

- Description: Very important to the heritage of the locality. High degree of integrity/ authenticity.
- **Desired Outcome:** Conservation of the place is highly desirable. Any alterations or extensions should reinforce the significance of the place.
- The area is significant for the maintenance of faunal processes as it contains undisturbed remnant forest communities of karri (Eucalyptus diversicolor); karri/marri (Eucalyptus diversicolor/Eucalyptus calophylla); karri/yate (Eucalyptus diversicolor/Eucalyptus cornuta); jarrah (Eucalyptus marginata); jarrah/blackbutt/bullich (Eucalyptus marginata/ Eucalyptus patens/Eucalyptus megacarpa); jarrah/marri (Eucalyptus marginata/Corymbia calophylla); marri (Corymbia calophylla); and woodlands of mixed jarrah (Eucalyptus marginata), blackbutt (Eucalyptus patens) and paperbark (Melaleuca sp.); shrublands and heathlands with vegetation associated with granite outcrops also being prominent. The Reserve provides habitats for >70 documented species of birds (see Mount Hallowell Reserve Management Plan, Shire of Denmark, November 1995) including the red capped parrot, (Purpureicephalus spurius) and the red-eared firetail finch (Emblema oculatum). It contains a range of landforms, soils and vegetation communities characteristic of the eastern extremity of karri forest occurrence. It consists mainly of virgin (unlogged) forest with little disturbance and all the Reserve is old growth vegetation. It has extremely high landscape values and visual amenity and has important values for tourism.
- It an important benchmark area. The Reserve is one of a small number of forested areas managed to exclude all fire i.e. no planned burn (Christensen & Abbott, 1989).
- The Mount Hallowell Reserve includes habitat for a number of endemic fauna species, including: Red Capped Parrot (*Purpureicephalus spurius*); Red Winged Fairy Wren (*Malurus elegans*); Peregrine Falcon (*Falco peregrinus*); Quokka (*Setonix brachyurus*); Honey Possum (*Tarsipes rostratus*); Western Brush Wallaby (*Macropus irma*); Woylie (*Bettongia penicillata*); Common Brushtail Possum (*Trichosurus vulpecula*); Common Ringtail Possum (*Pseudocheirus peregrinus*); Western Pygmy Possum (*Cercartetus concinnus*); Southern Brown Bandicoot (*Isoodon obesulus*); Western Quoll or Chuditch (*Dasyurus geoffroii*); Brush-tailed Phascogale (*Phascogale tapoatafa*); Yellow-footed Antechinus (*Antechinus flavipes*); Bush Rat (*Rattus fuscipes*); Water Rat (*Hydromys chrysogaster*); Echidna (*Tachyglossus aculeatus*); Square Nosed Snake (*Rhinoplocephalus bicolor*); Dugite (*Pseudonaja affinis affinis*); Black Tiger Snake (*Notechis ater occidentalis*); Marbled Gecko (*Phyllodactylus marmoratus*); Smith's Skink (*Egernia napoleonis*); Burrowing Skink (*Hemiegis peronii peronii*) and New Holland Skink (*Leiolopisma trilineatum*).
- The Reserve contains known populations of endemic flora species, including: *Eucalyptus cornuta* and *Banksia serra*. The area is also important for maintaining forest and woodland processes.
- The topographic diversity of this area contributes to high aesthetic values and scenic grandeur. The area contains uncommon geomorphic features of rock outcrops and monadnocks which are significant reasons for abundance and diversity of flora and fauna taxa and habitats. Despite its small size, the Reserve provides wilderness values for many visitors.
- Mount Hallowell was named by Dr TB Wilson after Admiral (Sir) Benjamin Hallowell of The Royal Navy. The Mount Hallowell Reserve is located 3.5 km NNW of the mouth of Wilson Inlet on the south coast of Western Australia. It consists of an extremely diverse landscape with hills and ridges generally with a 50 m to 100 m of local relief but rising to >300 m at the summit of Mount Hallowell. Granite outcrops on the upper and mid slopes occur as prominent domes and pinnacles. Soils are dominated by Keystone (K) units (Churchward et. al.). The area contains a significant diversity of vegetation comprising forests of karri; karri/marri; karri/yate; jarrah/blackbutt/bullich; jarrah/marri; marri; and woodlands of mixed jarrah, blackbutt and paperbark; shrublands and heathlands. Vegetation associated with granite outcrops is also prominent.
- Most of the area is undisturbed (>96%). A small part on the northern boundary was used for sand extraction in the 1980s. Some timber was selectively extracted from a discrete area on the northern slopes during the 1950s. The Sheila Hill Memorial Walk Trail (which doubles as part of the Perth to Albany Bibbulmun Walk Track) passes through the Reserve. It is bordered to the west and north by grazing farmland, to the south by rural subdivisions and by urban residential to the east. The Reserve has good condition and integrity with the majority carrying very old fire age (>70 years) vegetation.
- There is oral history to indicate that a WW2 Voluntary Defence Corps lookout post was situated on the top of Mount Hallowell.

4.3 RECREATIONAL VALUES

The Kooryunderup - Mount Hallowell Reserve affords spectacular views of the Southern Ocean, coastal areas and Wilson Inlet from the Bibbulmun Track / Sheila Hill Memorial Trail. Visitors enjoy the magnificent towering stands of old karri, jarrah and marri and unparalleled vistas from the granite-strewn ridgeline towards the summit. Views to the north encompass Mount Shadforth, Mount Lindsay, and the Denmark hinterland. South Coast Bushcare Services Inc. have developed a brochure to inform trail users about the values of Kooryunderup – Mount Hallowell (Appendix 7).

The Bibbulmun Track / Sheila Hill Memorial Trail and other trails (and emergency access tracks) allow Denmark residents and visitors to enjoy passive recreational pursuits without contributing to the decline of the conservation values of the Reserve.

The Reserve has attributes that make it attractive for a suite of recreational activities, including walking, dog walking, hiking, running, bird watching, nature appreciation, cycling, mountain biking, and rock climbing / abseiling. While there is general support for more passive uses, community views have been polarised about the extent of certain recreational activities that should be permitted in the Reserve, such as cycling, dog walking and rock climbing / abseiling, because of the potential for these to have negative environmental impacts (as well a cultural sensitivities in the case of rock climbing / abseiling).

Mountain biking in particular has been a highly contentious issue within the community, largely because of the considerable level of past debate around proposals to develop mountain bike facilities in the southeastern portion of the Reserve. These earlier proposals are no longer being pursued. Instead, mountain bike facilities are currently being progressed and will be provided at Turner Road and McLean Park.

More detail on the arrangements that apply for specific recreational activities (namely cycling, dog walking and rock climbing / abseiling) are outlined below. These arrangements must be adhered to for the future management of the Reserve, and are based on:

- the requirement to balance the Conservation and Recreation purpose of the Reserve;
- the feedback received during the extensive community engagement and consultation that's been undertaken in developing this Management Plan; and
- the Shire's responsibility to meet the valid expectations of different recreational user groups, without comprising the overarching management goals for the Reserve.

It should be noted that any expansion of existing cycling / walking trails or construction of any new trails in the Reserve is prohibited.

4.3.1 Cycling

Figures 10 and 11 show where cycling is allowed or prohibited in the Reserve.

Low-key recreational cycling is permitted on designated existing emergency access tracks. Riding on these tracks must be limited to an appropriate speed that ensures the safety and is respectful of other users. While the designated emergency access tracks where cycling is allowed have sufficient width and lines of sight to accommodate non-technical riding at limited speed with other activities such as walking or trail running, signage will be installed to communicate shared use and reinforce the need for safe and respectful behaviour between different user groups.

Recreational cycling is also allowed on one existing cleared trail alignment connecting the upper and lower emergency access tracks in the southeastern portion of the Reserve. This will be a one-way cycling only trail (north to south one-way direction and exclusively for cycling – i.e. no walking / dog walking / running allowed).

Utilising an existing trail alignment designated exclusively for cycling and separate to any walking trails will ensure a clear separation of user groups, which is expected to enhance safety for all Reserve visitors, reducing the potential for collisions and conflicts between cyclists and walkers.

Formalising the existing trail alignment also provides an opportunity to partner with all users on rehabilitation efforts and provide education on conservation of the Reserve. The Shire will combine targeted rehabilitation of unused or duplicate tracks with improvements to the designated cycling-only trail, leveraging local knowledge and enthusiasm to achieve better ecological outcomes alongside managed recreation.

Cycling is prohibited on the Sheila Hill Memorial Trail and the Bibbulmun Track, other than a small section at the eastern end which doubles as an emergency access track.

Competitive high-risk technical cycling is prohibited anywhere in the Reserve.

'Share the Trail' signage will be installed at relevant entry points, along with the location and other information about alternative mountain bike facilities (Turner Road, McLean Park, etc). This will assist towards highlighting the low-key nature of cycling in the Reserve, reinforce the need for safe and respectful behaviour between different user groups, and promote greater awareness about the availability of other (technical) mountain bike facilities nearby.

4.3.2 Dog Walking

Figures 8 and 9 show where dog walking is allowed off-lead or on-lead in the Reserve.

Irrespective of the requirement for leads or otherwise, dogs must be under control at all times within the Reserve.

Dog walking is allowed off-lead along designated tracks / trails and low fuel zone areas in the southeastern portion of the Reserve.

Dogs are allowed but must be on-lead along the section of the Bibbulmun Track from Lights Road carpark to near the start of the residential area to the west of Ocean Beach Road. Dog walking must also be on-lead along the emergency access track from Lights Road to Monkey Rock (which runs parallel to the Bibbulmun Track).

The requirement for dogs to be on-lead in certain parts of the Reserve will require an update to the relevant Local Law.

4.3.3 Rock Climbing / Abseiling

In the past, rock climbing and abseiling have generally been unrestricted throughout the Reserve. These activities have historically been undertaken by school groups and outdoor education tour operators utilising an area near Monkey Rock.

As part of implementing this Management Plan, in the future each event or group will be required to obtain permission from the Shire CEO before proceeding.

This requirement aims to balance adventure recreation with the protection of sensitive habitats and cultural values. By requiring prior approval, the Shire can assess potential environmental and cultural impacts and ensure that activities are conducted safely and respectfully, minimising risks to both the natural landscape and cultural heritage.

5 ASSESSMENT AND AUDIT

5.1 STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS

The development of this management plan has considered management strengths, weaknesses, opportunities and threats (SWOT analysis). Input from key stakeholders has also informed this analysis. Strengths, weaknesses, opportunities and threats are shown in Table 12.

TABLE 12: STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS

STRENGTHS	WEAKNESSES
Iconic Reserve is valued by the community for its environmental values and recreational opportunities. High Biodiversity. Presence of Threatened species such as Black Cockatoos.	Resource availability from Shire (e.g. funding for infrastructure such as car park upgrades, signage, emergency access track rehabilitation, ranger services and educational investment).
OPPORTUNITIES	THREATS
To increase engagement with the community for active management in the Reserve. Cultural Heritage Survey proposed by Wagyl Kaip. Research long-unburnt vegetation (fuel and community assemblages).	Loss of biodiversity and ecological values from dieback, weeds, climate change and inadequate management practices. Fire risk is high. Safety of all users.
Further citizen science initiatives, such as Bioblitz	Balancing the needs of different competing user

5.2 AUDIT OF CAR PARKS, TRACKS, TRAILS AND DIEBACK INFRASTRUCTURE

An audit of existing infrastructure has been undertaken as part of this management plan review (Aurora Environmental, 2025b). Figures 4 and 5 show the locations of existing car parks, trailheads, tracks, trails, gates, and dieback infrastructure. Photographs are shown in Appendix 8.

In summary, the audit indicates the following:

- 1. Sheila Hill Memorial Trail car park: The gravel parking area is in fair condition. Delineating the space with bollards between the edge of the parking area and bushland would improve it. Drainage improvements are recommended.
- 2. Lights Road car park: Gravel parking area in fair condition. Delineation with bollards between the edge of the parking area and the bushland would improve the space. Drainage improvements using the Shire of Denmark depot resources are recommended.
- 3. Increasing the number of car parking bays at both car parks would require clearing of existing native bushland and is not recommended at this stage.
- 4. Emergency access tracks to Monkey Rock from Lights Road and behind Heather Road are in poor condition and seriously eroded in places. Drainage needs to be installed to capture and divert water (pipes and/or rollover drains) and re-sheet gravel to fill eroded areas.

- 5. The northern track meets emergency access requirements—no action is required other than annual or seasonal maintenance.
- 6. The Bibbulmun Track is in good condition and well supported by the Bibbulmun Track Foundation, DBCA, and local volunteers. However, some signage needs renewal.
- 7. The Sheila Hill Memorial Trail is poorly delineated and requires formalisation (wayfinding signage and information at the trail head).
- 8. The low fuel zones adjacent to Heather Road and Forest Road function well.
- 9. A low fuel zone needs to be installed behind residences on Pember Way and Ravenhill Heights in Harrington Break.
- 10. The Shire can provide permission for landowners to take a strategic approach to emergency access where topography and obstacles make boundary access impractical. For lots adjacent to the southwest portion of the Reserve where topography and obstacles make boundary access impractical, the Shire currently grants periodic exemptions to landowners for strategic emergency access in lieu of boundary fire breaks. The Shire and these effected landowners can investigate amending individual property titles to formalise and make such exemptions permanent, noting this only applies to specific lots and would be achieved through liaison with the Shire to approve alternatives to the existing defined Strategic Access and Subdivision Access plans (Figure 6). This will give more certainty to landowners in the area.
- 11. Three dieback boot cleaning stations are located as shown in Figure 4. The stations are located according to the status of dieback in the Reserve, mapped by Great Southern Bio Logic in 2014 (Appendix 5). Until the dieback status is reviewed, the boot cleaning stations are in the most appropriate locations. However, the stations must be maintained (brushes and cleaning out of sand from trays). It is suggested that the Shire work with Friends of Kooryunderup / Mount Hallowell to service the boot cleaning stations.

5.3 AUDIT OF TRAIL HEADS, SIGNS AND WAYFINDING MARKERS

The goal of signage is to provide direction, identification, succinct information, and/or interpretation to inform visitors about the use of the area. Signs should be integrated so that there are no more signs than needed. All signs should match the style the Shire has across the municipality.

Signs should comprise positive messages, noting that regulatory information can be presented positively. When reminding visitors of their obligations, the signs can inform them of positive aspects of their environment, such as recreational or nature appreciation opportunities.

The status of signs in the Reserve is as follows:

- The trailhead signage at Lights Road and Sheila Hill Memorial Trail car parks is in poor condition (Figures F and H) and needs to be upgraded.
- Signage directing walkers from the Lights Road car park to the Sheila Hill Memorial Trail car park is needed
- Sheila Hill Memorial Trail signage is missing or in poor condition.

 Dieback signage is appropriately located and in line with the dieback assessment carried out by Great Southern Biologic in 2014. However, some signs need to be replaced as they are in poor condition.

New trailhead signage should be developed and erected at locations shown in Figures 6 and 7. Figure I illustrates the proposed signage style and includes the Shire's logo and relevant symbols for recreational uses and safety warnings. Trailhead signage should include a map of the Reserve, including the possibility of people walking from the Lights Road carpark to the Sheila Hill Memorial Trail carpark. Interpretive signage can be mounted on a separate structure.

Symbols for 'permissible', regulatory or information should follow the National Aquatic and Recreational Signage Style Manual format (Aquatic Signage Steering Committee, 2006). Symbols which should be included:

Regulatory:

- No cycling except in designated areas (no cycling on the Bibbulmun Track).
- Dog use (RS,41).
- No open fires.

Permissible:

- Cycling on designated tracks only.
- Walking/ hiking (Use DBCA symbol).
- Observe/ Conserve (Use DBCA symbol).
- Lookout (Use DBCA symbol).

FIGURE E: EXISTING LIGHTS ROAD CAR PARK SIGNAGE



FIGURE F: EXISTING TRAILHEAD SIGNAGE SHEILA HILL MEMORIAL TRAIL



FIGURE G: TRAILHEAD SIGNAGE - PROPOSED SIGN STYLE



6 MANAGEMENT GOALS

Consultation with stakeholders indicated that the management goals for the Reserve should include:

- 1. **Conservation Goal:** The primary goal of managing the Reserve is to protect natural biodiversity including vegetation communities, flora, fungi, fauna, and ecological processes that contribute to the Reserve's well-being through sound management of threatening processes.
- **2. Recreation and Infrastructure Goals:** Support low-key passive recreation activities such as walking, hiking, running, and low-key cycling with appropriate infrastructure installed and maintained to ensure a safe and enjoyable experience for visitors.
- 3. **Fire Management Goal:** The goal is to protect the Reserve's biodiversity values and also life and property adjacent, through best-practice fire management and active suppression of wildfires.
- 4. **Culture and Heritage Goal:** Kooryunderup / Mount Hallowell is a significant cultural and heritage site for Traditional Custodians, and it will be managed to protect these values.
- 5. **Community Engagement, Research and Education Goal:** As an area rich in biodiversity, the goal is to raise awareness of the Reserve's intrinsic and educational value while promoting ongoing citizen science and other research initiatives.
- 6. **Land Use Planning and Compliance Goals:** Protect the values of Kooryunderup / Mount Hallowell from threats such as fire, introduction and spread of dieback though consistent application of land use planning and compliance.

7 MANAGEMENT ACTIONS

Actions are listed against each identified goal/value category, site, responsibility, priority, and resourcing requirements.

The actions outlined in the 2008 management plan have been reviewed. Stakeholders, including Shire staff, provided information about whether the 2008 actions had been completed, were ongoing, not commenced, or were redundant.

Categories for action priorities, status, resourcing, responsibility and management are included in Table 13.

Some actions are still current and were updated for inclusion in this Management Plan. Other actions have been developed based on stakeholder engagement and visits to the Reserve. All proposed actions are included in Table 14. Site specific actions are shown in Figures 6 and 7, dependent on community feedback and Council resources.

TABLE 13: CATEGORIES FOR ACTION PRIORITY, TIMING, STATUS, RESOURCING, RESPONSIBILITY AND MANAGEMENT

PRIORITY AND TIMING	RESOURCING	RESPONSIBILITY (SHIRE OF DENMARK)	MANAGEMENT CATEGORY
HighMediumLow	ExistingPlannedNew	 Rangers Emergency Services / Bushfire Mitigation Parks and Reserves Sustainability Planning Infrastructure Technical Services 	 Conservation Recreation and Infrastructure Fire Management Culture and Heritage Community Engagement, Research and Education Land Use Planning and Compliance

TABLE 14: RECOMMENDED ACTIONS BY MANAGEMENT CATEGORY

MANAGEMENT CATEGORY	ACTION ID	2025 ACTIONS (SPECIFIC AND MEASURABLE)	RESPONSIBILITY (SHIRE OF DENMARK)	PRIORITY	RESOURCING REQUIRED	COMMENT EXTERNAL PARTNERS
	C1	Refer to Shire of Denmark Code of Practice for Works and Reserve management.	Infrastructure / Parks and Reserves	Medium	Planned	Review Shire of Denmark Code of Practice and include information on standards for walk trail widths and surface materials. Use DBCA guidelines as a guide: https://www.dbca.wa.gov.au/parks-and-wildlife-service/trails
	C2	Ensure Code of Practice is implemented for any operational disturbance/ works undertaken by Shire staff and contractors.	Infrastructure	High	Existing	Inform/train Shire staff and contractors as part of Code of Practice.
	С3	Follow the requirements of the 'Shire of Denmark Policy No. 1 Dieback Management' for dieback management within the Reserve.	Infrastructure	High	Existing	Ensure staff and contractors implement the requirements of the dieback management policy. Policy at: https://www.denmark.wa.gov.au/documents/198/policy-no-1-dieback-diseasemanagement
	C4	Undertake Environmental Impact Assessments (EIA) for any new operational disturbance activity proposed.	Infrastructure / Parks and Reserves	High	New	Shire undertakes EIA for any new operational disturbance activity proposed (e.g. new infrastructure, trails, etc).
	C5	Consider environmental sensitivities such as granite outcrops, black cockatoo nesting, etc., when reviewing and approving events (e.g. abseiling and adventure races on Mount Hallowell / Monkey Rock).	Parks and Reserves	High	Existing	
	C6	Implement weed control activities according to Bushland Reserves Weeds Strategy 2024 – 2034.	Infrastructure / Parks and Reserves	High	Planned	Bushland Reserves Weeds Strategy 2024 - 2034
	C7	Implement track rehabilitation and maintenance program as identified in this plan.	Parks and Reserves	High	New	Modify trail in south east portion of Reserve (Figure 7) to create a one way bike only trail (north to south) and retain other portion as walk trail, with both trails on existing cleared alignment and connecting to upper and lower firebreaks.
CONSERVATION	C8	Continue to monitor areas that have been upgraded, rehabilitated and/or revegetated (quarterly for three years and then annually).	Parks and Reserves	Medium	New	Involve volunteers for these activities.
	C9	 Implement recommendations from Dieback Study and Great Southern Bio Logic (2014) as described in Section 2.8: Operate in compliance with Town Planning Scheme Policy No.1 Dieback. Practice operational hygiene (clean down vehicles). Rationalise tracks. Bimbimbi Way management access hygiene. Project dieback signage installation to be monitored. Maintain boot cleaning stations. Continue community awareness and education. 	Infrastructure / Parks and Reserves / Sustainability	Medium	New	Details are in Kooryunderup / Mount Hallowell Management Plan
	C10	Update dieback distribution mapping in 2026 and re-evaluate in 2035.	Sustainability	Medium	New	
	C11	Implement a regular program to control feral animals across the Reserve.	Parks and Reserves	Medium	New	Control domestic and feral cats through a program of trapping and education in collaboration with relevant community organisations which targets residents within cat roaming distance of the Reserve and encourages actions such as (but not limited to) the construction of cat runs, trapping of cats within and adjoining the reserve and the distribution of information about responsible cat ownership and the damage roaming cats can do to native fauna.
	C12	The Shire of Denmark will consider Climate Change advice and initiate actions to increase the resilience of the Reserve.	Sustainability	High	Planned	Refer to Sustainability Strategy - Land & Nature pillar.

MANAGEMENT CATEGORY	ACTION ID	2025 ACTIONS (SPECIFIC AND MEASURABLE)	RESPONSIBILITY (SHIRE OF DENMARK)	PRIORITY	RESOURCING REQUIRED	COMMENT EXTERNAL PARTNERS
	C13	Train Shire of Denmark Reserves and Sustainability staff in environmental practices and weed management.	Parks and Reserves	High	Planned	Protection of environmental values workshop planned for Shire staff and contractors.
	IR1	Signage to reflect use / sharing of trails.	Parks and Reserves	High	New	Retain a one-way mountain bike trail and separate walk trail in the south east portion of the Reserve (Figures 9 and 11). Emergency access tracks will be multiple use for walkers, dog walking and cycling.
	IR2	Trailhead signage will be developed and installed at Lights Beach car park, Sheila Hill Memorial Track car park, and the Bibbulmun Track entry point on Ocean Beach Road.	Parks and Reserves	High	New	Shire to consult with and seek input from Denmark Environment Centre and Friends of Kooryunderup / Mount Hallowell for trailhead and interpretative signage.
	IR3	Replace wayfinding signage for Sheila Hill Memorial Trail.	Parks and Reserves	High	New	
	IR4	Keep paths and trails well-defined, marked and maintained.	Parks and Reserves	High	New	
INFRASTRUCTURE	IR5	Install a map of the Reserve at carparks with safety instructions (including how to walk from Lights Road car park to Sheila Hill Memorial Trail car park).	Parks and Reserves	High	New	Place a map of the reserve at each of the carparks (including Monkey Rock, Sheila Hill carpark and Ocean Beach/ Bibbulmun Track junction).
AND RECREATION	IR6	Interpretive information to be developed for the Reserve (subjects could include Aboriginal heritage, fire regimes, Sheila Hill and biodiversity).	Parks and Reserves	Low	New	Interpretive information to be developed for key locations in Reserve e.g. car parks, trail heads and Mount Hallowell summit. Subjects include biodiversity, long unburnt vegetation, Sheila Hill, Traditional Custodian heritage and culture, fauna, flora, fungi.
	IR7	Maintain Boot Cleaning Stations and review locations when dieback status is updated.	Parks and Reserves	High	Planned	Work with partners such as Friends of Kooryunderup / Mount Hallowell to regularly maintain the Boot Cleaning Stations.
	IR8	Upgrade Sheila Hill Memorial Trail and Lights Road carparks - formalise drainage, delineate parking areas and boundaries	Technical Services	Medium	New	Will require engineering design and significant capital outlay. Deep roadside drain at Sheila Hill Memorial Trail carpark needs barrier fencing.
	IR9	Record numbers of cars parking in peak periods (school holidays).	Technical Services	Medium	Planned	Formalise car park layout and drainage to maximise use of existing space. Consider expansion of car park only if there is a safety risk associated with existing parking.
CULTURE AND	H1	Support Wagyl Kaip in undertaking a Cultural Heritage Survey and respectful consideration of culturally significant places.	Sustainability	Medium	New	A Heritage Survey was undertaken for south east portion of the Reserve by Deep Woods and Menang Peoples Working Group in 2021. A more complete heritage survey will require forming a partnership with Wagyl Kaip and other stakeholders.
HERITAGE	Н2	Consider cultural and heritage sensitivities such as granite outcrops when reviewing and approving events (E.g. abseiling and adventure races on Mount Hallowell / Monkey Rock.)	Parks and Reserves	High	Existing	Depends on outcome of Cultural Heritage Survey.
FIRE MANAGEMENT	F1	 Ensure the Fire Management Plan incorporates: Assessment of fire hazard levels and biomass in both the Reserve and adjoining properties. Fire Prevention Plan with medium to long term mitigation strategies. Fire Response Plan outlining predetermined fire suppression responses. Revised Strategic Fire Access Route System. New or proposed developments to consider: Building Protection Zones. Hazard Reduction Zones. Current Water Supplies. Current maps. 	Emergency Services / Bushfire Mitigation / Integrated Approach by Shire	High	Planned	Liaise with Mitigation Activities Fund (MAF) personnel. Fire management plan to allow for dynamic changes outside of plan with MAF program and fire management for the reserve considered as broader Shire fire priorities

MANAGEMENT CATEGORY	ACTION ID	2025 ACTIONS (SPECIFIC AND MEASURABLE)	RESPONSIBILITY (SHIRE OF DENMARK)	PRIORITY	RESOURCING REQUIRED	COMMENT EXTERNAL PARTNERS
		Ensure implementation of the Fire Management Plan, particularly for adjoining developments.				
	F2	Rehabilitate emergency access tracks - Lights Road carpark to Monkey Rock to formalise drainage (rollover drains) and resheet with gravel to ensure safe access.	Infrastructure / Parks and Reserves	High	Planned	Monkey Rock and Heather Road emergency access requires drainage works and resheeting with gravel to ensure safe access. Consideration to sourcing dieback free material. Will require engineering design and capital outlay.
	F3	Erect and maintain appropriate barriers to fire access ways.	Infrastructure / Parks and Reserves	High	New	Select standardised gates that serve entry requirements.
	F4	Review Heather Road southern boundary access track - consider installation of gates (in consultation with neighbouring landowners). Prevent erosion by addressing drainage issue in southern portion of emergency access track.	Infrastructure / Parks and Reserves	High	New	Review Heather Road southern boundary access track - consider installation of gates (in consultation with neighbouring landowners). Erosion has made the area unsuitable for emergency access and resurfacing/ drainage works are needed. Will require engineering design and capital outlay.
	F5	Ensure maps are current and readily accessible to fire fighters and show contours, the location of all dwellings, access, strategic emergency access tracks and water supply, as well as buffer areas. A grid and a legend should be included for easy reference.		High	Existing	Seek advice from MAF personnel and Community Emergency Services Manager (CESM).
	F6	 Continue implementation of a Fire Management public education program aimed at residents, visitors and tourists, incorporating the following: Notification of High Fire Risk Days via EmergencyWA webpage and local radio stations. "No open fires" incorporated into signage at entries. Shire of Denmark to forward fire related information to new residents adjacent to Mount Hallowell Reserve to increase their fire awareness and advise them of their obligations in terms of fire protection responsibilities. Develop and implement a process for ensuring that tenants of rental properties and holiday homes are informed of fire protection requirements. Before and during each fire season conduct a public fire awareness campaign that particularly targets residents in the area. This may be in the form of general publicity, seminars or a door knock. Shire to seek assistance from Ocean Beach Bush Fire Brigade and William Bay Bush Fire Brigade. Emphasis on the benchmark status of the Reserve as a 'no planned burn area' to adjacent landowners. Focus on quick fire suppression. 	Emergency Services / Bushfire Mitigation / Integrated Approach by Shire	High	Existing	Will require coordination with partners. Details of actions for tracks shown in Figures 6 and 7.

MANAGEMENT CATEGORY	ACTION ID	2025 ACTIONS (SPECIFIC AND MEASURABLE)	RESPONSIBILITY (SHIRE OF DENMARK)	PRIORITY	RESOURCING REQUIRED	COMMENT EXTERNAL PARTNERS
	F7	Construct low fuel zone behind residences on Pember Way and Ravenhill Heights in Harrington Break.		High	Planned	Will require communication and coordination with stakeholders. The existing access is partly on private property, due to historic conditions of subdivision. This was due to the presence of granite. Existing alignment to be maintained.
	F8	Work with adjacent landowners to the southwest of the Reserve to allow a strategic approach to emergency access where topography and obstacles make boundary access impractical.		High	Existing	Will require liaison between landowners and Shire.
	F9	Access tracks to be inspected annually.		High	Existing	Shire in cooperation with Brigade Volunteers and local Bushfire Ready Groups
	CE1	Continue educating the public and community, including nearby residents and landowners, about native flora, fauna, and fungi and the identification and control of invasive species in the Reserve.	Sustainability	Medium	Existing	Consider a partnership with Birdlife Australia (Denmark Bird Group),
COMMUNITY ENGAGEMENT, RESEARCH AND	CE2	Support the Friends of K-MH and other community partners in the management of Mount Hallowell Reserve.	Sustainability	High	Existing	Regular meetings, development of a partnership/ work program, administrative support, recognition, celebrations.
EDUCATION	CE3	Support building conservation (flora, fauna, fungi) knowledge of K-MH via opportunities such as citizen science initiatives.	Sustainability	Low	New	Obtain funding to conduct Citizen Science projects such as Bioblitz.
	CE4	Seek partnership with educational and natural resource organisations to further knowledge about K-MH, particularly long unburnt vegetation.	Sustainability	Low	New	Potential partnership with educational institutions such as Centre for Excellence - Natural Resource Management, South Coast Natural Resource Management, UWA, Birds Australia.
	CO1	Bibbulmun Track is for walking / hiking / running only. Allow low key cycling activities on emergency access tracks only (Figures 10 and 11). Close unsanctioned mountain bike trails (Figure 7) and monitor. Signage at trail entrances to show permitted areas.	Rangers	High	New	The community was divided about cycling activities in the Reserve. Due to the low risk associated with low key cycling use this activity will be supported on emergency access tracks with good lines of sight. The unsanctioned mountain bike trails will be closed and rehabilitated (Figure 7). No cycling will be permitted on the Bibbulmun Track (other than a small section at the eastern end which doubles as an emergency access track).
LAND USE PLANNING AND	CO2	Identify and install appropriate signage to indicate where dogs must be kept on leashes (Bibbulmun Track and Monkey Rock). Dogs can be off leashes in the south east portion of the Reserve but must be under control at all times (Figure 9).	Rangers	Medium	Existing	Currently, dogs are permitted off-lead as the Reserve is outside the Denmark town gazetted area (Local Dog Law). A change to the local law is likely to be required to require dogs to be on leashes in some portions of the Reserve. Signage to be installed regarding dogs being permitted off leashes in eastern area, on leashes at Monkey Rock and the Bibbulmun Track. Refer figures 8 and 9.
COMPLIANCE	соз	Ensure compliance with domestic animal control requirements by following up on complaints.	Rangers	Medium	Existing	
	CO4	Identify property owners who do not comply with the requirements of the Fire Break Notice and issue infringements where appropriate.	Rangers	High	Existing	Inspections are carried out throughout the Shire of Denmark for fire management compliance. The requirements for property owners are stated in the annual Firebreak and Fuel Management Notice and infringements are issued for non-compliance.
	CO5	Shire to investigate neighbouring landowners' use of the Reserve adjacent to Heather Road.	Planning	High	New	Neighbouring landowners are using the Reserve adjacent to Heather Road. Private use of the reserve is less than ideal, with potential weed introduction and other risks associated with the personal use of a public space. However, the use has been long-term, and the Shire will need to work with landowners to develop an acceptable solution.

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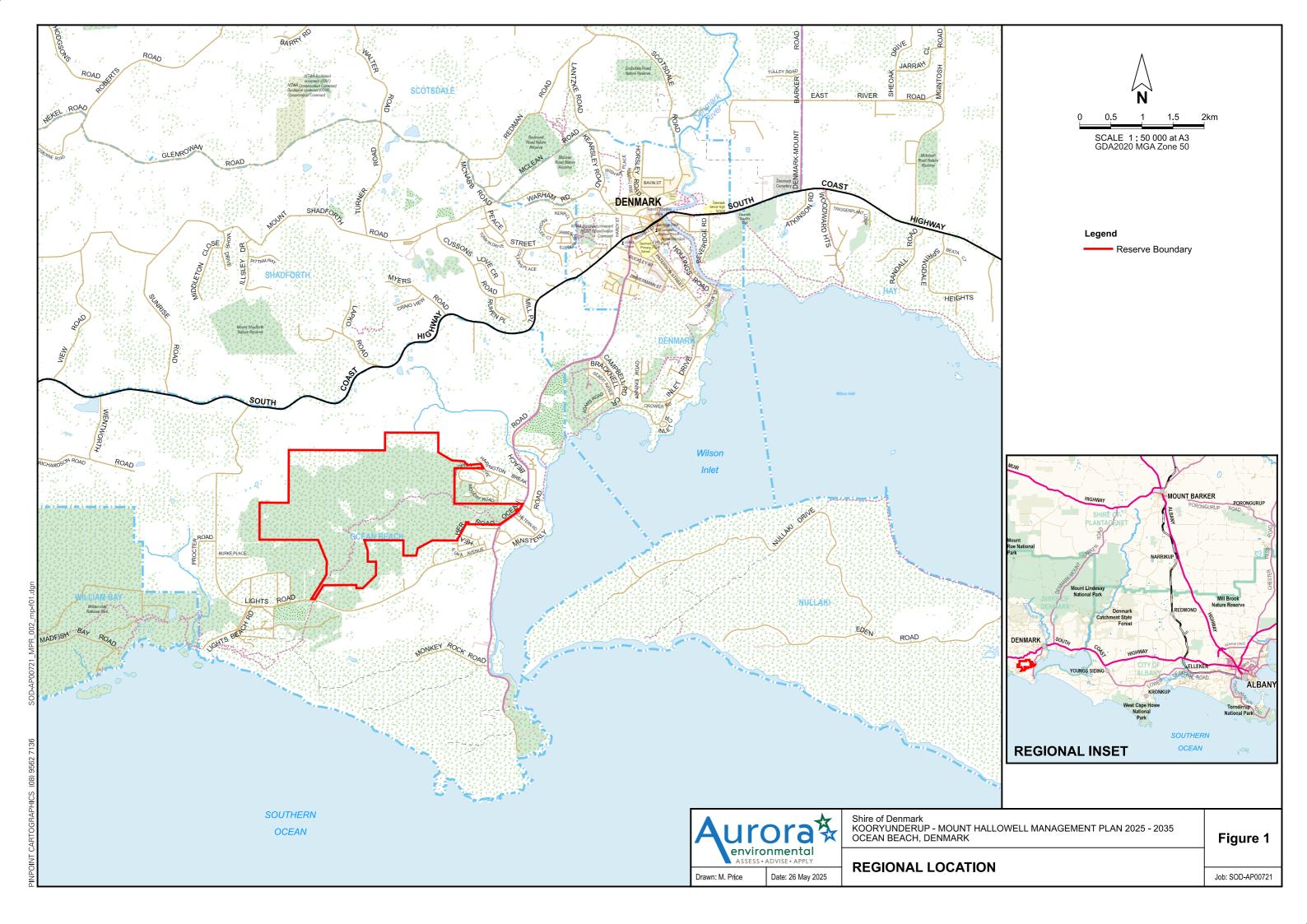
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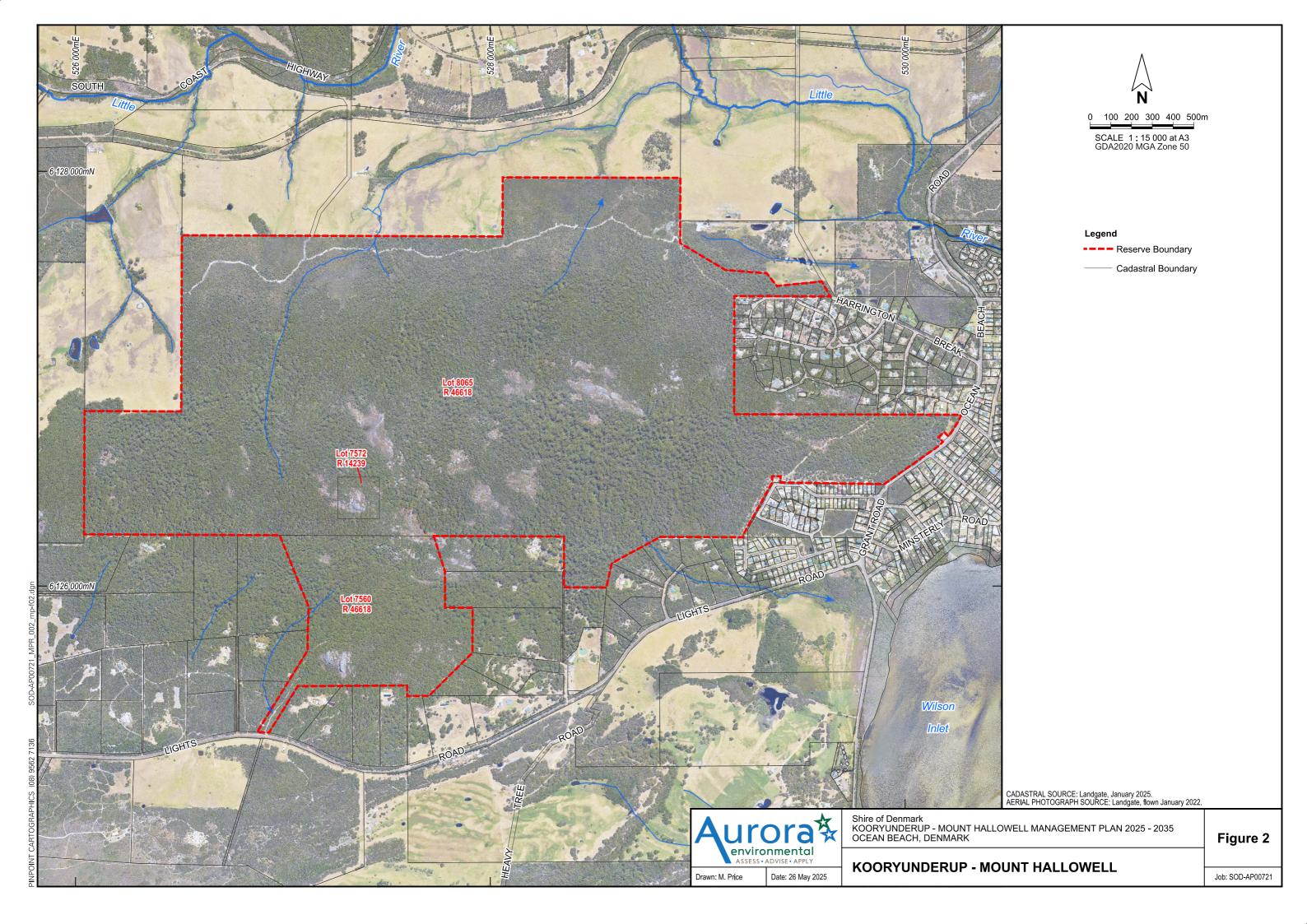
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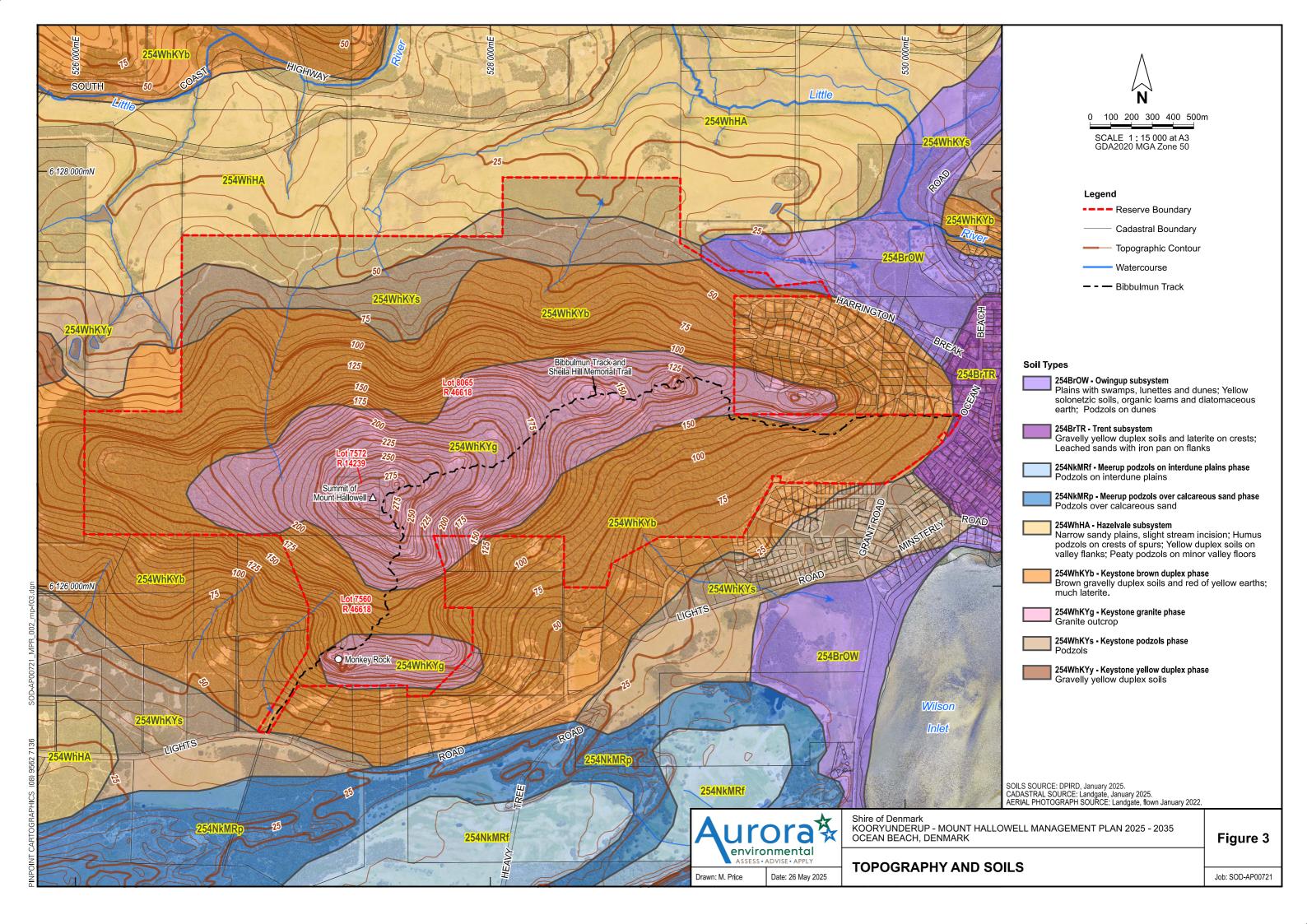
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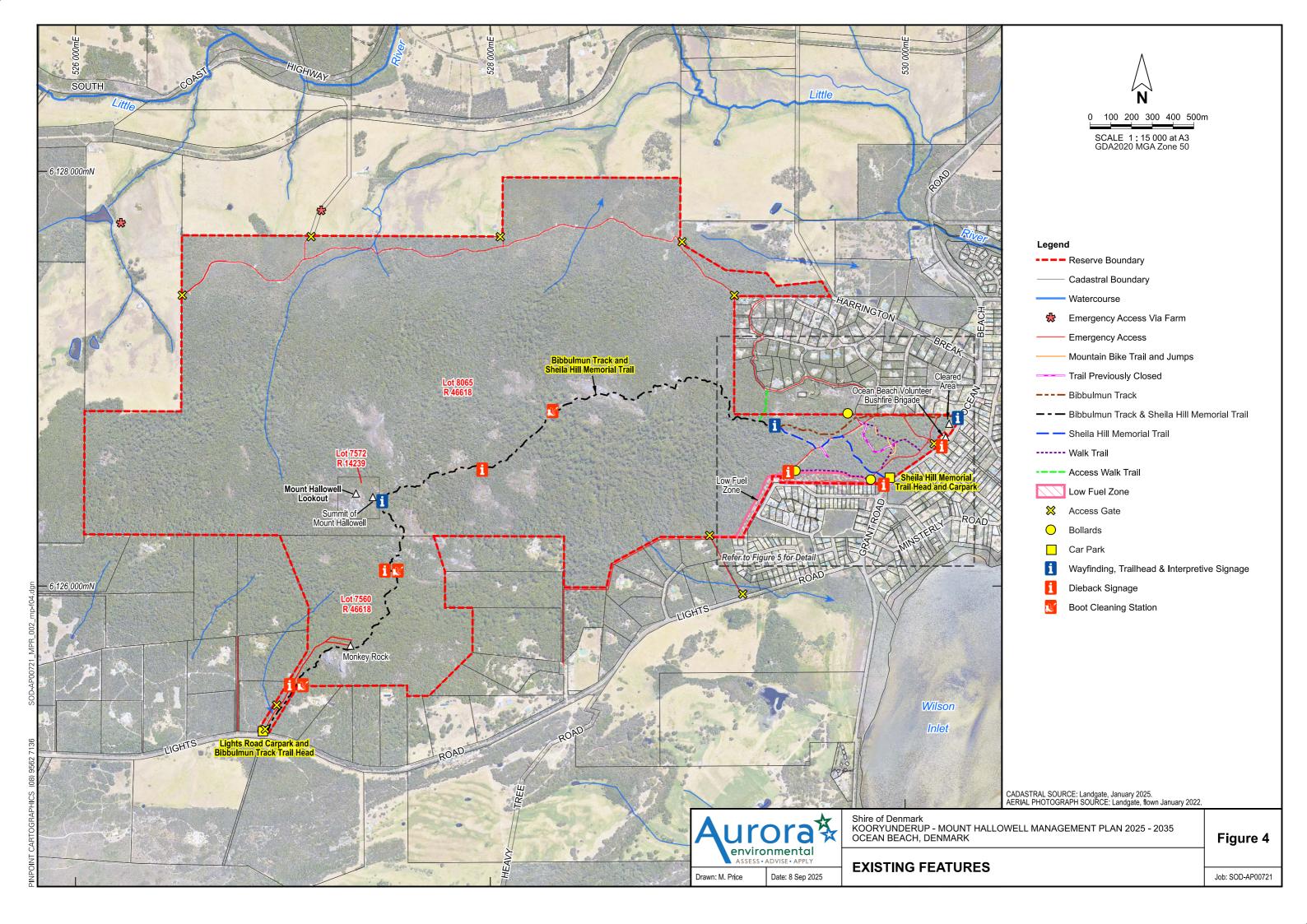
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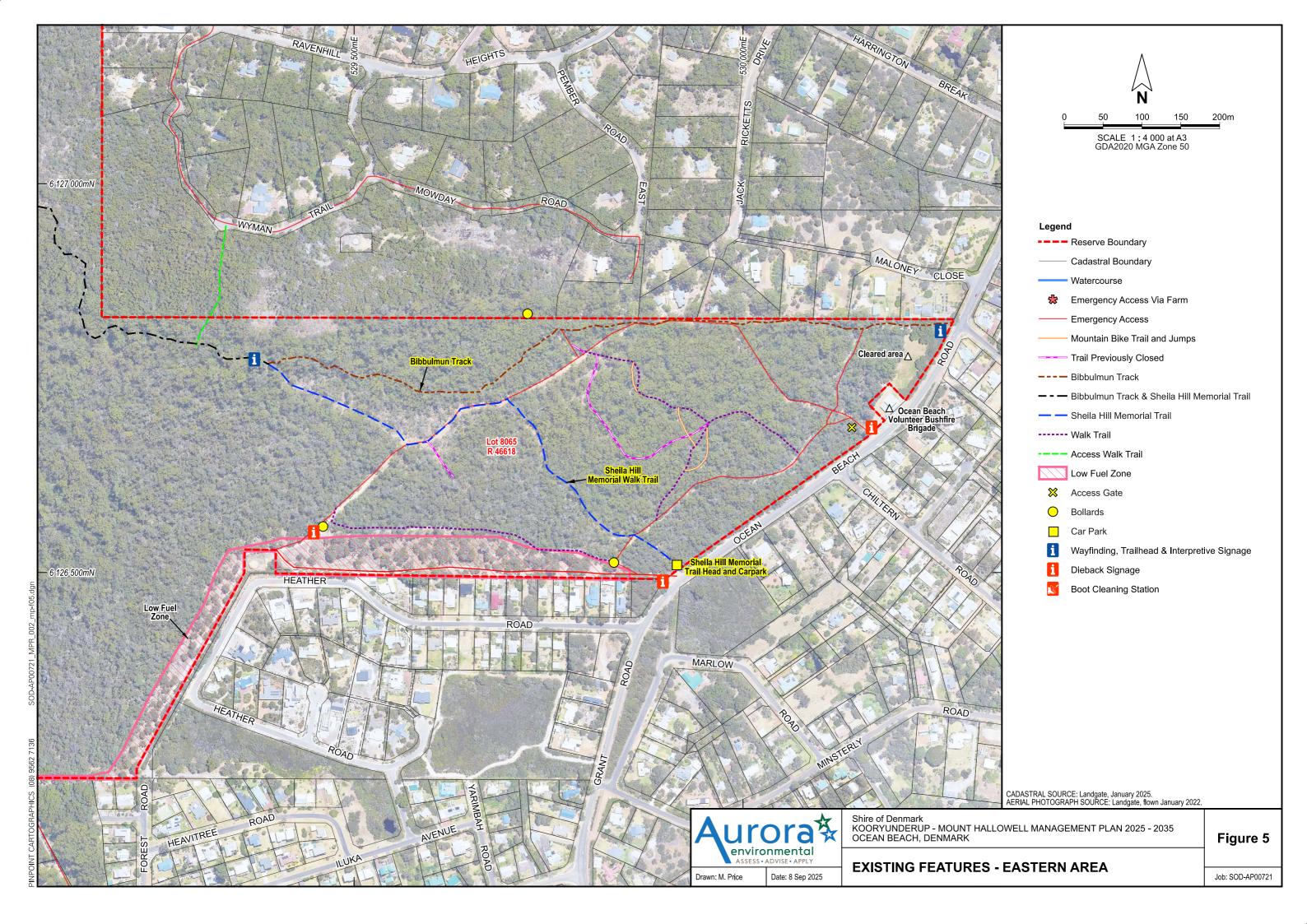
FIGURES

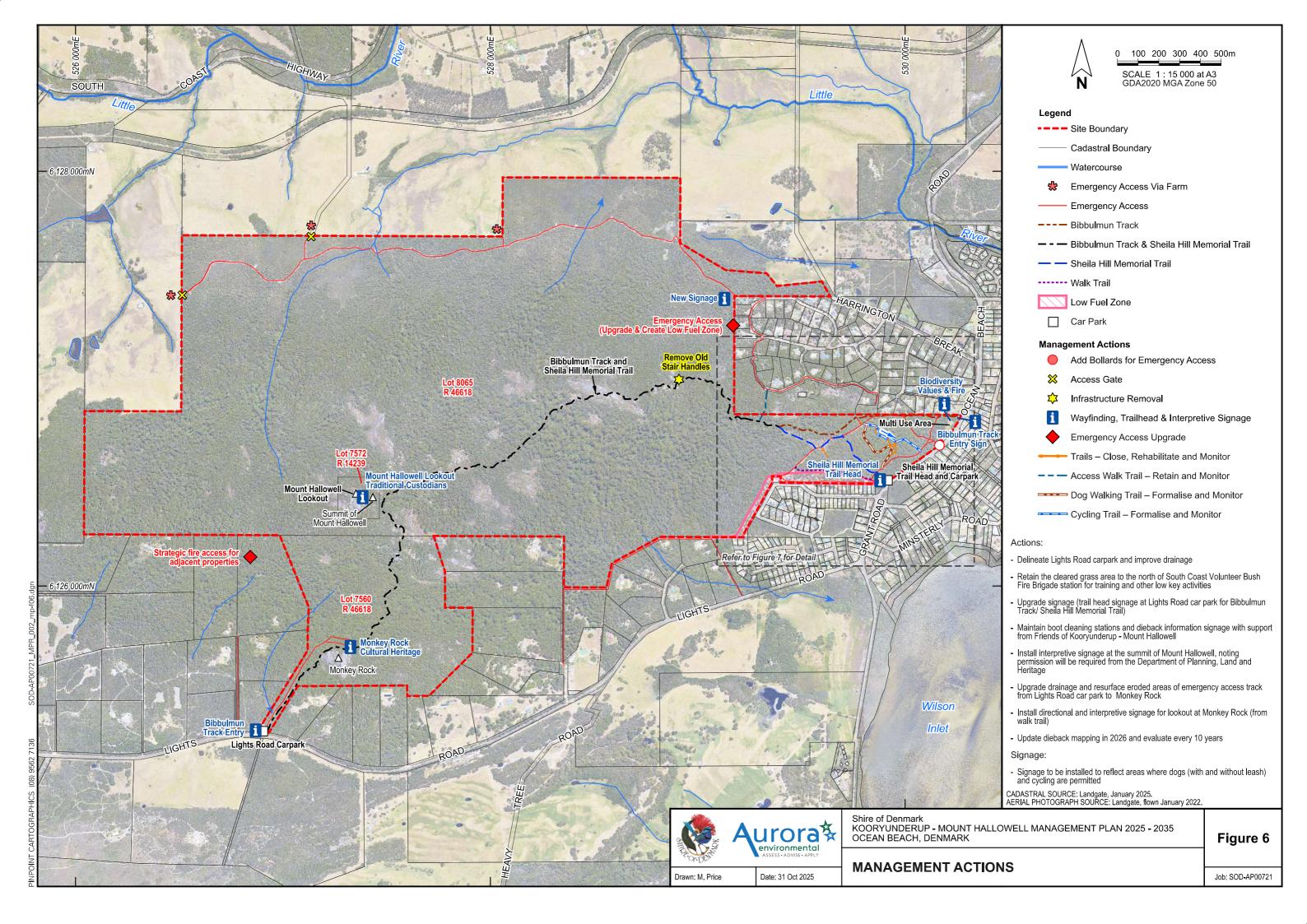


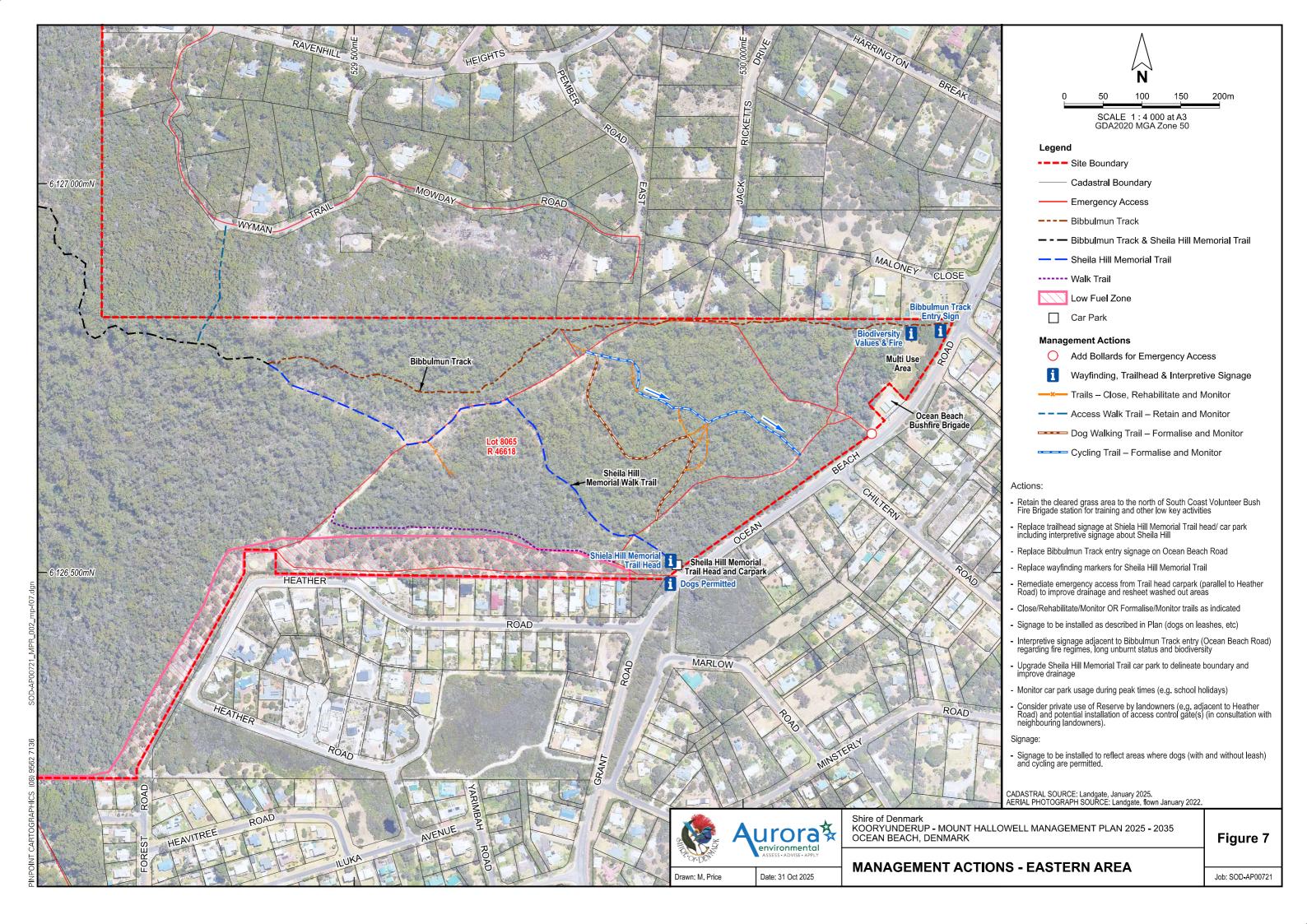


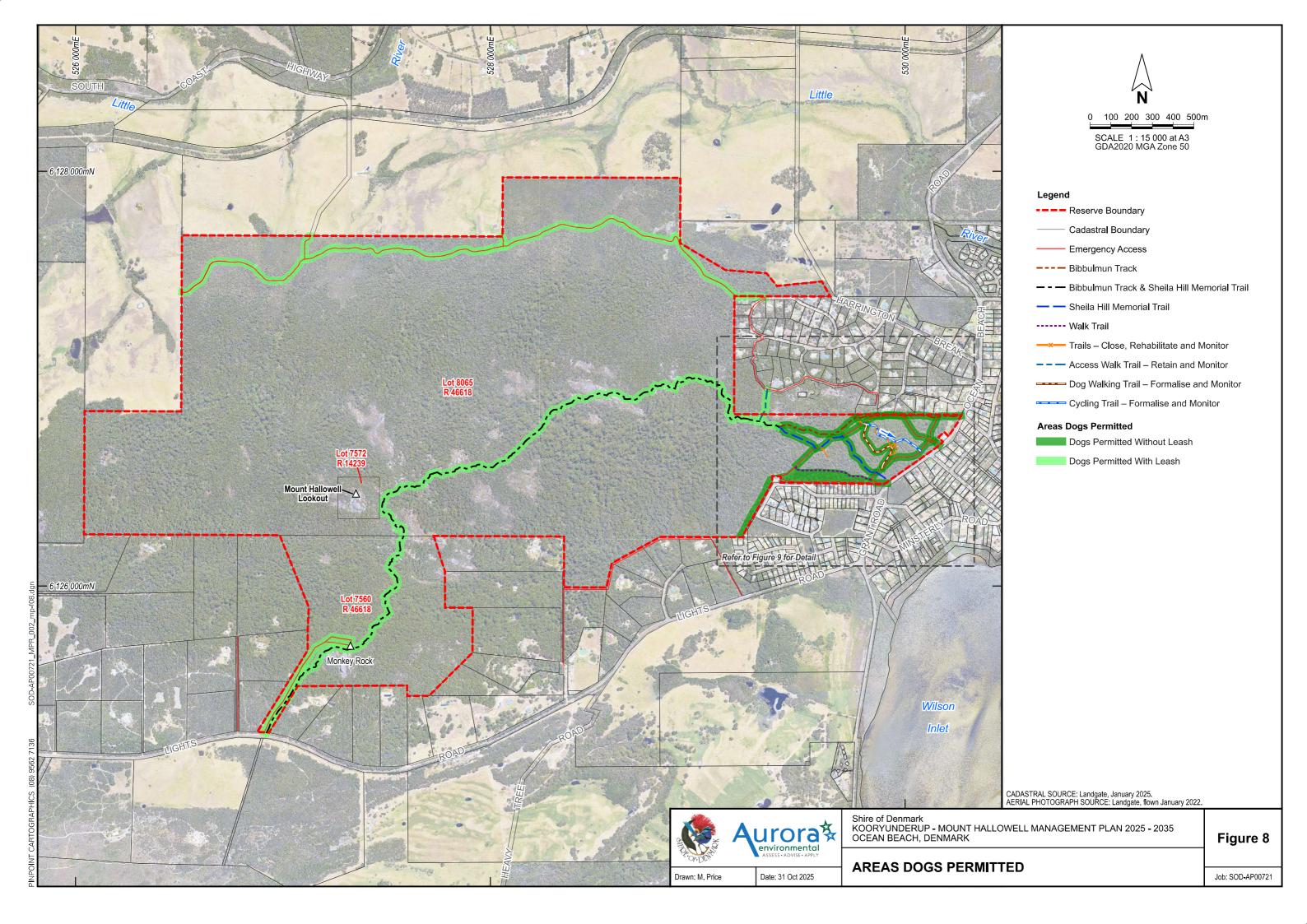


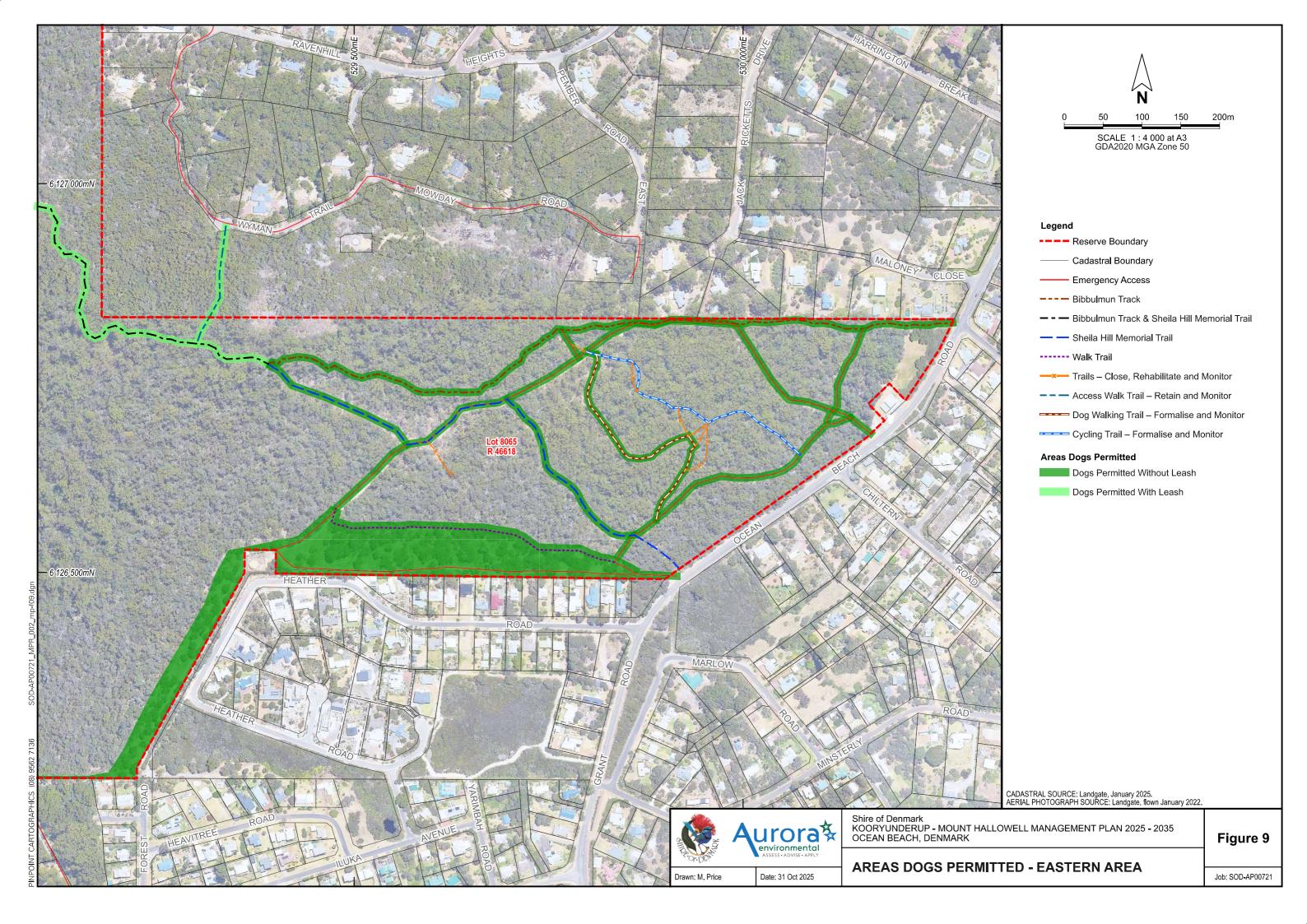


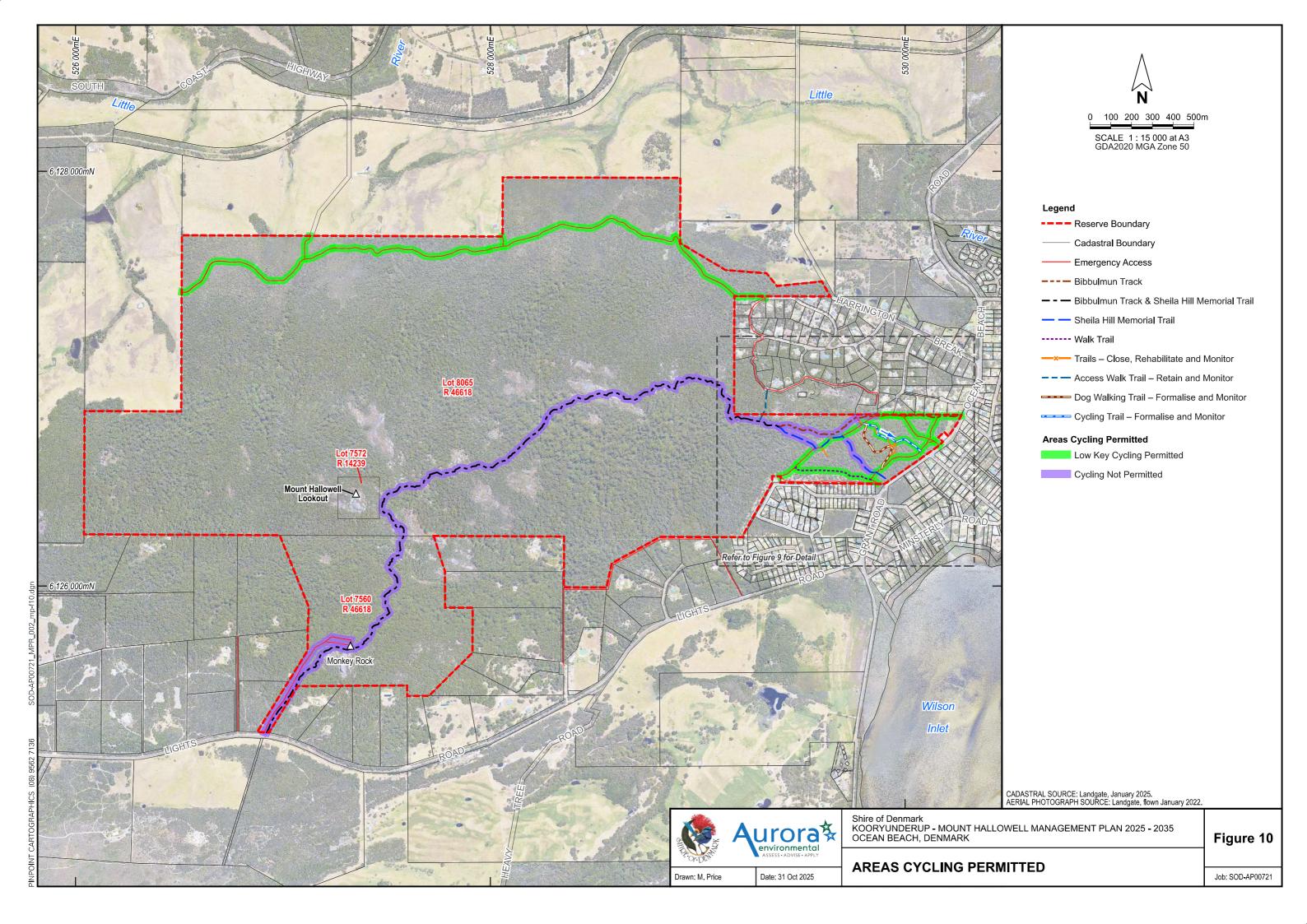


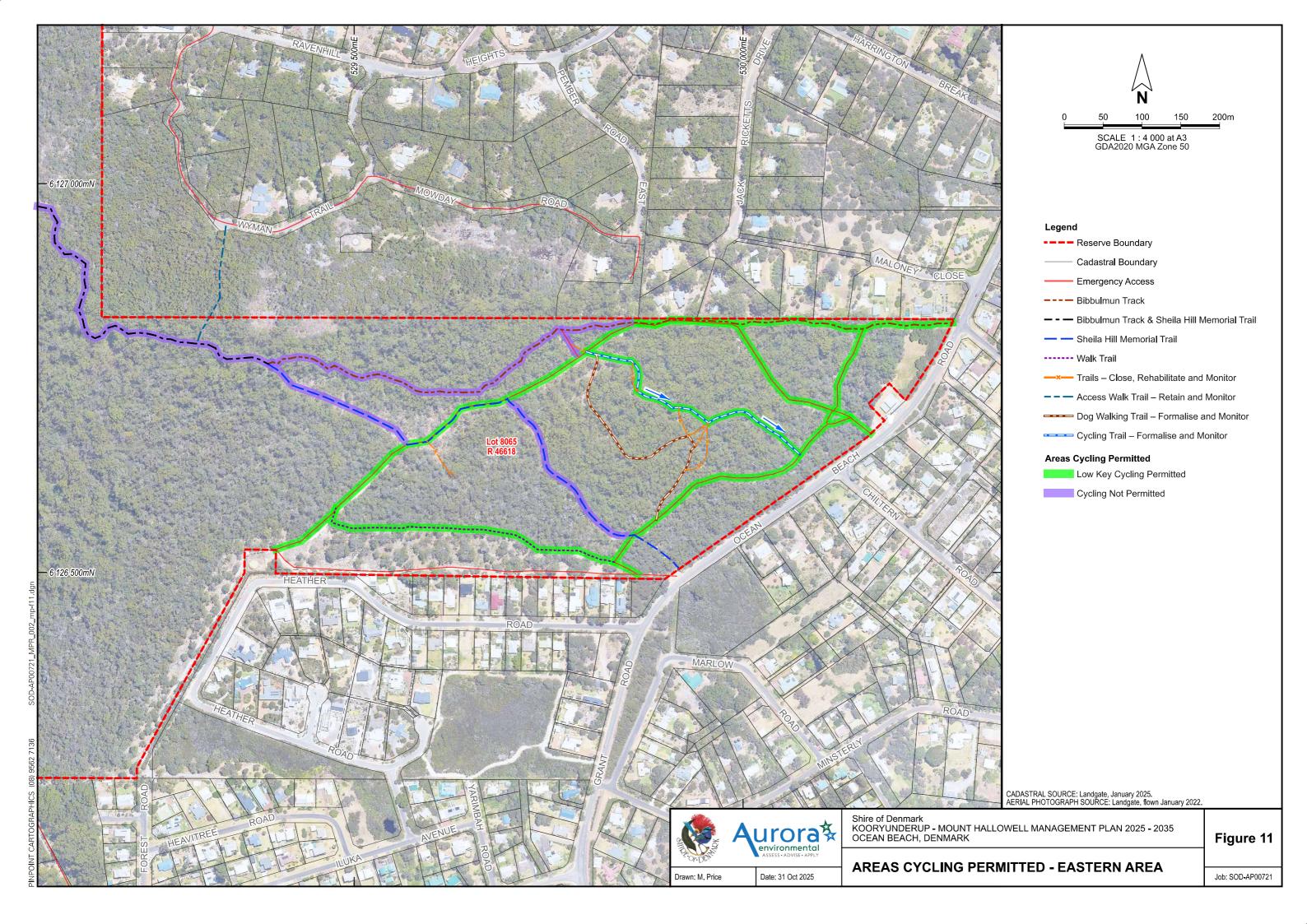












APPENDICES

APPENDIX 1

Flora List

FLORA			
NO.	SCIENTIFIC NAME COMMON NAME		
1	Acacia browniana	Brown's Wattle	
2	Acacia browniana var.obscura	Brown's Wattle	
3	Acacia cyclops	Western Coastal Wattle	
4	Acacia divergens	Sail-boat Wattle	
5	Acacia drummondi	Drummond's Wattle	
6	Acacia hastulata	Prickly Swamp Wattle	
7	Acacia littorea	Shark Tooth Wattle	
8	Acacia longifolia	Longleaf Wattle	
9	Acacia myrtifolia	Myrtle Wattle	
10	Acacia pentadenia	Karri Wattle	
11	Acacia pulchella	Prickly Moses	
12	Acacia pulchella var.pulchella	Prickly Moses	
13	Acacia urophylla	Net-veined Wattle	
14	Acacia varia		
15	Actinotus glomeratus		
16	Actinotus omnifertilis		
17	Adenanthos cuneatus	Coastal Jugflower	
18	Adenanthos obovatus	Jugflower	
19	Agonis flexuosa	Western Australian Peppermint	
20	Agonis flexuosa var. flexuosa	Peppermint	
21	Agonis flexuosa var. latifolia	Peppermint	
22	Agonis theiformis		
23	Agrostocrinum scabrum	Blue Grass Lily	
24	Allocasuarina decussata	Karri Sheoak	
25	Allocasuarina fraseriana	Western Sheoak	
26	Allocasuarina humilis	Dwarf Sheoak	
27	Amperea simulans		
28	Amphipogon species		
29	Anarthria gracilis		
30	Anarthria prolifera		
31	Anarthria scabra		
32	Andersonia caerulea	Foxtails	
33	Andersonia caerulea subsp. Diminuta		
34	Andersonia sprengelioides		
35	Andersonia virolens		
36	Anigozanthos flavidus	Tall Kangaroo Paw	
37	Anigozanthos preissii	Albany Catspaw	
38	Anthocercis sylvicola PRIORITY 3		
39	Aotus intermedia		
40	Aphella cyperoides		
41	Asplenium aethiopicum	Ethiopian spleenwort	
42	Asplenium flabellifolium	Necklace Fern	

FLORA		
	COLEMETERS MANAGE	COMMON NAME
NO.	SCIENTIFIC NAME	COMMON NAME
45	Asteridea pulverulenta Banksia dallanneyi	
45	Banksia grandis	Giant Banksia
46	Banksia ilicifolia	Holly-Leaved Banksia
47	Banksia littoralis	Swamp Banksia
48	Banksia quercifolia	Oak-leaved Banksia
49	Banksia serra PRIORITY 4	Serrate-leaved Dryandra
50	Barbula calycina	Scrute leaved Dryallara
51	Beaufortia decussataiMelaleuca transversa	Gravel Bottlebrush
52	Beaufortia sparsa	Swamp Bottlebrush
53	Beaufortia sparsa/ Melaleuca sparsa	Swamp Bottlebrush
54	Billardiera floribunda	White-flowered Billardiera
55	Billardiera heterophylla	Australian Bluebell
56	Billardiera variifolia	
57	Boronia alata	Winged Boronia
58	Boronia crenulata	Aniseed Boronia
59	Boronia gracilipes	Karri Boronia
60	Boronia molloyae	Tall Boronia
61	Boronia spathulata	
62	Boronia stricta	
63	Borya sphaerocephala	Pincushions
64	Bossiaea linophylla	
65	Bossiaea praetermissa	
66	Brachyloma baxteri	
67	Brachythecium albicans	Whitish Feather-moss
68	Braunia imberbis	
69	Bryum argenteum	
70	Bryum caespiticium	
71	Bryum dichotomum	
72	Burchardia congesta	Milkmaids
73	Caesia occidentalis	Pale Grass Lily
74	Caladenia attingens	Forest Mantis-orchid
75	Caladenia browni	Karri Spider Orchid
76	Caladenia cairnsiana	Zebra Orchid
77	Caladenia flava	Cowslip Orchid
78	Caladenia flava subsp. flava	Cowslip Orchid
79	Caladenia flava subsp. sylvestris	Cowslip Orchid
80	Caladenia latifolia	Pink Fairies
81	Caladenia longicauda	Common White Spider Orchid
82	Caladenia macrostylis	Leaping Spider Orchid
83	Caladenia nana	Pink Fan Orchid
84	Caladenia pectinata	King Spider Orchid

85	Caladenia reptans	Little Pink Fairy Orchid
86	Caladenia reptans subsp. reptans	Little Pink Fairy Orchid
87	Calandrinia species	Little Filler all y Greina
88	Caleana nigrita	Flying Duck Orchid
89	Callistachys lanceolata	Native Willow/Wonnich
90	Callistemon glaucus/Melaleuca glauca	Albany Bottlebrush
91	Campylopus australis	Auduly Bottlebiusii
92	Campylopus bicolor	
93	Campylopus clavatus	
94	Campylopus introflexus	Heath Star-moss
95	Cassytha glabella	Slender Devil's Twine
96	Centaurium erythraea	Common Centaury
97	Cephaloziella arctica subsp.subantarctica	common centeary
98	Ceramanus clatritexta	
99	Chaetophyllopsis whiteleggi	
100	Chamaescilla corymbosa	Blue Stars
101	Chamaescilla corymbosa var.paradoxa	Blue Squill
102	Cheilanthes austrotenuifolia	Rock Fern
103	Chiloscyphus semiteres	
104	Chiloscyphus species	Leafy Liverworts
105	Choretrum lateriflorum	
106	Chorilaena quercifolia	Karri Oak
107	Chorizema diversifolium	
108	Chorizema ilicifolium	Holly flame pea
109	Chorizema reticulatum	Showy Flame Pea
110	Chorizema retrorsum	Holly Flame Pea
111	Clematis pubescens	Old Man's Beard
112	Codonoblepharon menziesii	
113	Comesperma calymega	Blue Spike Milkwort
114	Comesperma confertum	
115	Comesperma flavum	
116	Comesperma virgatum	Milkwort
117	Comesperma volubile	Climbing Milkwort
118	Commersonia corniculata	
119	Commersonia corylifolia	Hazel-leaved Rulingia
120	Conostylis setigera	Bristly Cottonhead
121	Corymbia calophylla	Marri
122	Corymbia ficifolia	Red-flowering gum (planted)
123	Crassula decumbens	Rufous Stonecrop
124	Crowea angustifolia var. platyphylla	Crowea
125	Cryptostylis ovata	Slipper Orchid
126	Cyanicula sericea	Silky Blue Orchid
127	Cyrtostylis huegeli	Midge Orchid
128	Cyrtostylis robusta	Mosquito Orchid

129	Dampiera alata	Winged-stem Dampiera
130	Dampiera diversifolia	Winged Stelli Bullipiera
131	Dampiera hederacea	Karri Dampiera
132	Dampiera leptoclada	Karri Barripiera
133	Dampiera linearis	Common Dampiera
134	Darwinia vestita	Pom-pom Darwinia
135	Dasypogon bromelifolius	Drumsticks
136	Daviesia cordata	Bookleaf
137	Daviesia inflata	Doorieal
138	Desmocladus fasciculatus	
139	Desmocladus flexuosus	
140	Dicranoloma diaphanoneuron	
141	Didymodon subtorquatus	
142	Dielsiodoxa lycopodioides	
143	Diplasiolejeuna plicatiloba	Tiny Leafy Liverwort
145`	Disa bracteata*	Bract Disa
146	Ditrichum cylindricarpum	Dract Disa
147	Ditrichum difficile	
148	Diuris jonesi	Dunsborough Donkey Orchid
149	Diuris longifolia	Purple Pansy Orchid
150	Drakaea glyptodon	King-in-his-carriage
151	Drakaea livida	Warty Hammer Orchid
152	Drakaea thynniphila	Narrow-lipped Hammer Orchid
153	Drosera collina	
154	Drosera erythrogyne	
155	Drosera erythroryiza	Red Ink Sundew
156	Drosera fimbriata PRIORITY 4	Manypeaks Sundew
157	Drosera glanduligera	Pimpernel Sundew
158	Drosera huegeli	Bold Sundew
159	Drosera macrantha	Bridal Rainbow
160	Drosera microphylla	Golden Rainbow
161	Drosera modesta	
162	Drosera pulchella	Pretty Sundew
163	Elythranthera brunonis	Purple Enamel Orchid
164	Eriochilus dilatatus	White Bunny Orchid
165	Eucalyptus cornuta	Yate
166	Eucalyptus cornuta	River Yate
167	Eucalyptus diversicolor	Karri
168	Eucalyptus marginata	Jarrah
169	Eucalyptus megacarpa	Bullich
170	Eucalyptus patens	Common Blackbutt
171	Euchiton collinus	
172	Eutaxia myrtifolia	
173	Eutaxia parvifolia	

174	Evandra aristata		
175	Fissidens curvatus		
176	Fissidens species		
177	Fissidens taylori		
178	Fissidens tenellus		
179	Fossombronia species		
180	Frullania falciloba		
181	Frullania pentapleura		
182	Frullania probosciphora		
183	Gastrodia lacista	Po	otato Orchid
184	Gastrolobium browni		State Greinia
185	Glischrocaryon racemosum	Sł	nrubby Raspwort
186	Gompholobium confertum	J.	in abby haspitalit
187	Gompholobium knightianum	H	andsome Wedge Pea
188	Gompholobium ovatum		
189	Gompholobium polymorphum	T	wining Gompholobium
190	Gompholobium shuttleworthii		,
191	Gompholobium tomentosum	H	airy Yellow Pea
192	Gonocarpus benthami		
193	Gonocarpus diffusus		
194	Goodenia eatoniana		
195	Goodenia macrophylla	La	arge-leaved Velleia
196	Goodenia pusilla		
197	Goodenia sp. South Coast PRIORITY 3		
198	Goodenia trinervis	Co	ommon Velleia
199	Grevillea quercifolia	0	ak-leaf Grevillea
200	Grevillea trifida		
201	Gymnostomum calcareum	BI	unt-leaf Tufa-Moss
202	Haemodorum paniculatum	M	lardja/Born
203	Haemodorum simplex		
204	Haemodorum spicatum	Bl	oodroot/Mean
205	Hakea amplexicaulis	Pr	rickly Hakea
206	Hakea florida		
207	Hakea linearis		
208	Hakea ruscifolia	Ca	andle Hakea
209	Hakea varia	Va	ariable-leaved Hakea
210	Haloragodedron racemosum/Glischrocaryon racemosum	Sł	nrubby Raspwort
211	Hardenbergia comptoniana	N	ative Wisteria
212	Hedwigia ciliata	Ci	liate Hoarmoss
213	Hemigenia humilis		
214	Hemigenia podalyrina		
215	Hibbertia amplexicaulis		
216	Hibbertia cuneiformis		Cutleaf Hibbertia
217	Hibbertia cunninghami		

218	Hibbertia furfuracea	
219	Hibbertia pilosa	
220	Hovea chorizemifolia	Holly-Leaved Hovea
221	Hovea elliptica	Tree Hovea
222	Hovea trisperma	Common Hovea
223	Hydrocotyle alata	
224	Hypnum cupressiforme	
225	Hypocalymma strictum	Pink Myrtle
226	Hypolaena fastigiata	Tassel Rope-rush
227	Ischyrodon lepturus	Feather Mosses
228	Isopogon longifolius	Long-leaved Isopogon
229	Isopogon sphaerocephalus	Drumstick Isopogon
230	Isotropis cuneifolia	Granny Bonnets
231	Jacksonia horrida	
232	Johnsonia lupulina	Hooded Lily
233	Kennedia coccinea	Coral Vine
234	Kingia australis	bullanock
235	Kunzea ericifolia	Spearwood
236	Kunzea ericifolia subsp.ericifolia	Spearwood
237	Kunzea sulphurea	Spearwood
238	Kurzia compacta	
239	Lasiopetalum floribundum	
240	Lavandula stoechas*	Topped Lavender
241	Laxmannia grandiflora	
242	Laxmannia minor	
243	Lepidosperma effusum	Riverside Sword Sedge
244	Lepidosperma gladiatum	Coastal Sword Sedge
245	Lepidosperma gracile	
246	Lepidosperma squamatum	
247	Lepidozia species	Leafy Liverworts
248	Leporella fimbriata	Hare Orchid
249	Leptobryum pyriforme	
250	Leptocarpus elegans	
251	Leptocarpus scoparius	Velvet Rush
252	Leptocarpus tenax	
253	Leptoceras menziesi	Rabbit Orchid
254	Leptomeria scrobiculata	
255	Leptomeria squarrulosa	
256	Lepyrodia extensa PRIORITY 2	
257	Lethocolea pansa	
258	Lethocolea squamata	
259	Leucobryum subchlorophyllosum	
260	Leucopogon alternifolius PRIORITY 3	
261	Leucopogon australis	Spiked Beard-heath

262	Leucopogon capitellatus	
263	Leucopogon distans	
264	Leucopogon glabellus	
265	Leucopogon obovatus subsp. revolutus	
266	Leucopogon parviflorus	Coastal Beard-heath
267	Leucopogon unilateralis	- Code (1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
268	Leucopogon verticillatus	Tassel Bush/Njorr-lee
269	Levenhookia pusilla	Tiny Stylewort
270	Lindsaea linearis	Screw Fern
271	Lobelia anceps	Punakuru
272	Lobelia gibbosa	Tall Lobelia
273	Lobelia rhombifolia	
274	Logania vaginalis	White Spray
275	Lomandra drummondii	
276	Lomandra nigricans	
277	Lomandra pauciflora	
278	Lomandra purpurea	
279	Lomandra sericea	Silky Mat Rush
280	Lophocolea semiteres	Southern Crestwort
281	Lotus species*	Bird's-foot Trefoils and Deervetches
282	Lyperanthus serratus	Rattle Beaks
283	Macrocoma tenuis	Joint-toothed Mosses
284	Macrozamia riedlei	Zamia Palm
285	Marianthus drummondianus	
286	Marianthus sylvaticus	
287	Marianthus tenuis	
288	Melaleuca microphylla	
289	Melaleuca thymoides	
290	Mesomelaena tetragona	Semaphore Sedge
291	Microtis media	Tall Mignonette Orchid
292	Microtis media subsp. media	Common Mignonette Orchid
293	Mirbelia dilatata	Holly-leaved Mirbelia
294	Mittenia plumula	Southern Goblin's Gold
295	Monotaxis occidentalis	
296	Myoporum insulare	Blueberry Tree
297	Olax phyllanthi	
298	Olearia muricata	Rough-leaved Daisy
299	Olearia paucidentata	Autumn Scrub Daisy
300	Opercularia hispidula	Hispid Stinkweed
301	Opercularia volubilis	Climbing Stinkweed
302	Orianthera serpyllifolia	
303	Ornduffia parnassifolia	
304	Ornithopus compressus	Yellow Serradella
305	Orobanche minor	Common Broomrape

306	Orthodontium lineare	Cape Thread-moss
307	Paracaleana disjuncta	cupe illicuu illoss
308	Paracaleana nigrita	Flying Duck Orchid
309	Paraserianthes lophantha	Plume Albizia
310	Paraserianthes lophantha	Plume Albizia/False Wattle
311	Patersonia occidentalis	Purple Flag Iris
312	Patersonia umbrosa var. umbrosa	Purple flag
313	Pelargonium australe	Austral Stork's-bill/Wild Geranium
314	Pelargonium drummondi	Geraniums and storksbills
315	Pelargonium littorale	Native Geranium
316	Pentapeltis silvatica	Southern Pentapeltis
317	Persoonia elliptica	Spreading Snottygobble
	Persoonia longifolia	Snottygobble
318		
319	Petrophile diversifolia	Pixie Mops
320	Petrorhagia dubia*	Hairypink
321	Pheladenia deformis	Native Vielet
322	Pigea debilissima Pimelea clavata	Native Violet
323 324		Bristly Pimelea
	Pimelea hispida	bristiy Pilifeled
325	Pimelea longiflora	Daniel Diagram
326	Pimelea rosea	Rosy Rice Flower
327	Pimelea spectabilis	Bunjong
328	Pithocarpa ramosa	
329	Platysace filiformis	
330	Platysace pendula	
331	Platytheca juniperina Playsophassym assidantala PRIORITY 4	Western Cient leaved Mass
332	Pleurophascum occidentale PRIORITY 4	Western Giant-leaved Moss
333	Podocarpus drouynianus	Emu Plum/Emu Berry
334	Polygala myrtifolia*	Butterfly Bush/Sweet Pea Shrub
335	Poranthera huegeli	Autumn Look Orghid
	Prasophyllum aff. parvifolium	Autumn Leek Orchid
337	Prasophyllum browni Prasophyllum cucullatum	Christmas Leek Orchid Hooded Leek Orchid
		Tall Leek Orchid
339 340	Prasophyllum elatum Prasophyllum fimbria	Fringed Leek Orchid
		King Leek Orchid
341	Prasophyllum regium Dravidium assulantum	
342	Pteridium esculentum Ptersetulis off turfoss	Bracken Fern
343	Pterostylis aff. turfosa Pterostylis harbets	Bearded Bird Orchid
344	Pterostylis alabasa	Bird Orchid
345	Pterostylis glebosa Pterostylis pyramidalis	Clubbed Snail Orchid
346	Pterostylis pyramidalis Pterostylis rosung	Snail Orchid
347	Pterostylis recurva Pterostylis sanguinas	Jug Orchid
348	Pterostylis sanguinea Dterostylis typicas	Red-banded Greenhood
349	Pterostylis turfosa	Bearded Bird Orchid

350	Pterostylis vittata	Banded Greenhood
351	Ptychostomum capillare	Capillary Thread-moss
352	Pultenaea reticulata	Capitally Till Cau Tilo33
353	Pyrorchis nigricans	Redbeaks
353	Racopilum cuspidigerum	Neubeaks
355	Radula buccinifera	
356	Rhacocarpus purpurascens	Royal Rock Moss
357	Rhacopilum convolutaceum	ROYAL ROCK IVIOSS
358	Rhapidorrhynchium amoenum	
359	Rhodanthe citrina	
360	Rhynchostegium tenuifolium	Loose Straw Moss
361	Riccardia aequicellularis	Loose Straw Moss
362	Riccardia bipinnatifida	
	Riccardia cochleata	
363 364	Riccardia cocnieata Riccardia wattsiana	
365	Ricinocarpos glaucus	Wedding Bush
366	Rinzia schollerifolia	Cranberry Rinzia
367	Romulea rosea*	Guildford Grass/Rosy sandcrocus
368	Rosulabryum albolimbatum	dullulolu diass/Nosy sanuciocus
369	Rosulabryum billardierei	
370	Rosulabryum campylothecium	
371	Rosulabryum subtomentosum	
371	Rosulabryum torquescens	
372	Rytidosperma caespitosum	Common Wallaby-grass
373	Sauloma tenella	Joint-toothed Mosses
375	Scaevola microphylla	Small-leaved Scaevola
376	Scaevola striata	Royal Robe
377	Sematophyllum homomallum	Bronze Moss
378	Solanum laciniatum	Kangaroo-apple
379	Sphaerolobium alatum	Kangaroo appic
380	Sphaerolobium drummondi	
381	Sphaerolobium grandiflorum	
382	Sphaerolobium medium	
383	Sphaerolobium vimineum	Leafless Globe-pea
384	Sphenotoma capitata	Leaness Glose pea
385	Sphenotoma gracilis	Swamp Paper-heath
386	Stackhousia monogyna	Creamy Candles
387	Stylidium adnatum	Common Beaked Triggerplant
388	Stylidium amoenum	Lovely Triggerplant
389	Stylidium assimile	Bronze-leaved Triggerplant
390	Stylidium calcaratum	Book Triggerplant
391	Stylidium crassifolium	Thick-leaved Triggerplant
392	Stylidium fasciculatum	Pale Beaked Triggerplant
393	Stylidium guttatum	Dotted Triggerplant
	ory gattatann	2 october Marie

394	Stylidium inundatum	Hundreds and Thousands
395	Stylidium junceum	Little Reed Triggerplant
396	Stylidium nymphaeum	Ettie Reed Higger plant
397	Stylidium piliferum	Common Butterfly Triggerplant
398	Stylidium planirosula	Common Butterny Trigger plant
399	Stylidium pritzelianum	Royal Triggerplant
400	Stylidium repens	Matted Triggerplant
401		Black-beaked Triggerplant
401	Stylidium rhynchocarpum Stylidium scandens	Climbing Triggerplant
402	Stylidium schoenoides	Cow Kicks
		COW NICKS
404	Stylidium acuminatum subsp. meridionale	Casana, Triansunlant
405	Stylidium spathulatum	Creamy Triggerplant
406	Stylidium squamosotuberosum	Rhizomatous Reed Triggerplant
407	Stypandra glauca	Blind Grass/Nodding Blue Lily
408	Styphelia erubescens	
409	Styphelia madida	
410	Styphelia pallida	Kick Bush
411	Styphelia pendula	
412	Styphelia propinqua	
413	Styphelia racemulosa	
414	Symphyogyna podophylla	
415	Taxandria conspicua	
416	Taxandria juniperina	Wattie/Warren River Cedar
417	Taxandria linearifolia	
418	Taxandria marginata	
419	Taxandria parviceps	Fine Teatree
420	Tayloria octoblepharis	
421	Tayloria octoblepharum	Austral Poop Moss
422	Tetrarrhena laevis	Forest Rice Grass
423	Tetratheca affinis	
424	Tetratheca hispidissima	
425	Tetratheca setigera	
426	Thelymitra antennifera	Vanilla Orchid/Lemon-scented Sun Orchid
427	Thelymitra benthamiana	Leopard Orchid/Blotched Sun-orchid
428	Thelymitra crinita	Blue Lady Orchid
429	Thelymitra cucullata	Swamp Sun Orchid
430	Thelymitra flexuosa	Twisted Sun Orchid
431	Thelymitra fuscolutea	Chestnut sun orchid
432	Thelymitra graminea	Shy Sun Orchid
433	Thelymitra macrophylla	Scented Sun Orchid
434	Thelymitra paludosa	Plain Sun Orchid
435	Thelymitra sp. Denmark	
436	Thelymitra tigrina	Tiger Orchid
437	Thomasia heterophylla	

438	Thomasia paniculata	
439	Thomasia purpurea	
440	Thomasia sp. Vasse	Thomasias
441	Thuidiopsis sparsa (syn. Thuidium sparsum)	Sparse Fern Moss
442	Thuidium sparsum var. hastatum	Sparse Fern Moss
443	Thysanotus multiflorus	Many-flowered Fringe Lily
444	Thysanotus patersoni	Twining Fringe-lily
445	Thysanotus tenellus	
446	Thysanotus thyrsoideus	
447	Tortula antarctica	
448	Trachymene grandis	
449	Tremandra stelligera	
450	Tribonanthes australis	Southern Tiurndin
451	Tricoryne elatior	Yellow rush-lily
452	Tricoryne humilis	
453	Triquetrella papillata	
454	Trymalium ledifolium var.rosmarinifolium	
455	Trymalium odoatissimum	Karri Hazel
456	Trymalium venustum	
457	Utricularia menziesi	Redcoats
458	Utricularia multifida	Pink Petticoats
459	Weissia controversa	
460	Wurmbea dioica subsp.alba	Early Nancy
461	Xanthorrhoea gracilis	Graceful Grass Tree/Mimidi
462	Xanthorrhoea preissii	Balga
463	Xanthosia huegeli	Heath Xanthosia
464	Xanthosia rotundifolia	Southern Cross Flower
465	Xanthosia tasmanica	
466	Xyris lanata	Yellow-eyed Grasses
467	Zygodon species	Yoke Mosses

APPENDIX 2

Definitions and Categories for Western Australian Conservation Categories

CONSERVATION CATEGORY DEFINITIONS

For Western Australian Fauna and Flora

Threatened, Extinct and Specially Protected fauna or flora¹ are species² which have been adequately searched for and are deemed to be, in the wild, threatened, extinct or in need of special protection, and have been gazetted as such.

Categories of Threatened, Extinct and Specially Protected fauna and flora are:

T Threatened species

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).

Threatened 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 Criteria³, and is based on the national distribution of the species.

CR Critically endangered species

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.

Examples of use:

- The western ringtail possum (*Pseudocheirus occidentalis*) is listed as a critically endangered threatened species under the *Biodiversity Conservation Act 2016*.
- Western ringtail possum is listed as critically endangered under the Biodiversity Conservation Act 2016.
- Listing reference in a table: column heading: BC Act, row text: CR.

EN Endangered species

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.

- Caladenia hopperiana is listed as an endangered threatened species under the Biodiversity Conservation Act 2016.
- Caladenia hopperiana is listed as endangered under the Biodiversity Conservation Act 2016.
- Listing reference in a table: column heading: BC Act, row text: EN.

VU Vulnerable species

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.

Examples of use:

- The forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*) is listed as a vulnerable threatened species under the *Biodiversity Conservation Act 2016*.
- Forest red-tailed black cockatoo is listed as vulnerable under the Biodiversity Conservation Act 2016.
- Listing reference in a table: column heading: BC Act, row text: VU.

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.

EX Extinct species

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).

Examples of use:

- Acacia kingiana is listed as an extinct species under the Biodiversity Conservation Act 2016.
- Acacia kingiana is listed as extinct under the Biodiversity Conservation Act 2016.
- Listing reference in a table: column heading: BC Act, row text: EX.

EW Extinct in the wild species

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.

SP Specially protected species

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.

MI Migratory species

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.

- The wedge-tailed shearwater (*Ardenna pacifica*) is listed as a specially protected migratory species under the *Biodiversity Conservation Act 2016*.
- Wedge-tailed shearwater is listed as migratory under the Biodiversity Conservation Act 2016.
- Listing reference in a table: column heading: BC Act, row text: MI.

CD Species of special conservation interest (conservation dependent)

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.

Examples of use:

- The wambenger, south-western brush-tailed phascogale (*Phascogale tapoatafa wambenger*) is listed as a specially protected species of special conservation interest under the *Biodiversity Conservation Act 2016*.
- Wambenger, south-western brush-tailed phascogale, is listed as conservation dependent under the *Biodiversity Conservation Act 2016.*
- Listing reference in a table: column heading: BC Act, row text: CD.

OS Species otherwise in need of special protection (other specially protected)

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.

Examples of use:

- The dugong (*Dugong dugon*) is listed as a specially protected species otherwise in need of special protection under the *Biodiversity Conservation Act 2016*.
- Dugon is listed as other specially protected fauna under the Biodiversity Conservation Act 2016.
- Listing reference in a table: column heading: BC Act, row text: OS.

Priority species

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.

1 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.

- Borya stenophylla is listed as a Priority 1 species by the Department of Biodiversity, Conservation and Attractions.
- Borya stenophylla is listed as Priority 1 on the DBCA Priority Flora List.
- Listing reference in a table: column heading: DBCA, row text: P1.

2 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.

Examples of use:

- Caladenia nivalis is listed as a Priority 2 species by the Department of Biodiversity, Conservation and Attractions.
- Caladenia nivalis is listed as Priority 2 on the DBCA Priority Flora List.
- Listing reference in a table: column heading: DBCA, row text: P2.

3 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.

Examples of use:

- Acacia nitidula is listed as a Priority 3 species by the Department of Biodiversity, Conservation and Attractions.
- Acacia nitidula is listed as Priority 3 on the DBCA Priority Flora List.
- Listing reference in a table: column heading: DBCA, row text: P3.

4 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.

- Banksia aculeata is listed as a Priority 4 species by the Department of Biodiversity, Conservation and Attractions.
- Banksia aculeata is listed as Priority 4 on the DBCA Priority Flora List.
- Listing reference in a table: column heading: DBCA, row text: P4.

¹ The definition of flora includes algae, fungi, and lichens.

² Species includes all taxa (plural of taxon - a classificatory group of any taxonomic rank, e.g. a family, genus, species or any infraspecific category i.e. subspecies or variety, or a distinct population).

³ Western Australia has assigned species to threat categories using the *IUCN Red List of Threatened Species Categories and Criteria* since 1996 (referencing all criteria).

⁴ JAMBA - first included in the WA migratory species list in 1980.

⁵ CAMBA - first included in the WA migratory species list in 2010.

⁶ ROKAMBA - first included in the WA migratory species list in 2010.

⁷Bonn Convention (Birds) - first included in the WA migratory species list in 2015.

APPENDIX 3

Fauna Species List

SPIDERS		
NO.	SCIENTIFIC NAME CON	MMON NAME
1	Aldabrinus species	Pseudoscorpion
2	Arachnura higginsi	Scorpion-tailed Spider
3	Araneus cyphoxis	Western Bush Orbweaver
4	Araneus senicaudatus	Tailed Orbweaver
5	Arkys walckenaeri	Walckenaer's Studded Triangular Spider
6	Austracantha minax	Christmas Jewel Spider
7	Australomimetus (Genus)	Australasian Pirate Spiders
8	Australomisidia pilula	Lozenge-shaped Crab Spider
9	Austrarchaea `sp.`	Pelican Spiders
10	Bomis (Genus)	Crab Spiders
11	Cheiracanthium (Genus)	Longlegged Sac Spiders
12	Chelifer cancroides	House Pseudoscorpion
13	Chenistonia `paludigena`	Wishbone Spiders
14	Chenistonia `sp. indet.`	Wishbone Spiders
15	Clubionidae (Family)	Sac Spiders
16	Euophryini (Tribe)	Typical Jumping Spiders
17	Habronestes (Genus)	Zodariid Spiders
18	Leucauge dromedaria	Silver Orb Spider
19	Linyphiidae (Family)	Sheetweb and Dwarf Weavers
20	Lycosidae (Family)	Wolf Spiders
21	Maratus pavonis	Common Peacock Spider
22	Megalopsalis minima	Megalopsalis minima-species group
23	Neosparassus (Genus)	Badge Huntsman Spiders
24	Nicodamus peregrinus	Red-and-black Spider
25	Opisthoncus (Genus)	Garden Jumping Spiders
26	Salticinae (Family)	Typical Jumping Spiders
27	Sidymella (Genus)	Square-ended Crab Spiders
28	Socca pustulosa	Knobbled Orbweaver
29	Storosa tetrica	Zodariid Spiders
30	Theridiidae (Family)	Cobweb Spiders
31	Trachycosmus (Genus)	Scorpion Flat Spiders
32	Triaenonychidae (Family)	Triaenonychid Harvestmen
33	Trombidia (Infraorder)	Velvet Mites, Chiggers, and Relatives
34	Zephyrarchaea mainae VULNERABLE	Main's Assassin Spider
35	Zygometis xanthogaster	Milky Flower Spider

INSECTS		
NO.	SCIENTIFIC NAME COM	MON NAME
1	Acanthomimini (Tribe)	Stick Insects
2	Acanthosomatidae (Family)	Shield Bugs
3	Acrida conica	Giant Green Slantface

NSECTS			
NO.			
5	Adversaeschna brevistyla	Blue-spotted Hawker	
6	Amblyopone (Genus)	Vampire Ants	
7	Anax papuensis	Australian Emperor	
8	Anophelepis telesphorus	Short-winged Stick Insect	
10	Aphidinae (Subfamily)	Aphids	
11	Apioninae (Subfamily)	Pear-shaped Weevils	
12	Archaeosynthemis leachi	Twinspot Tigertail	
13	Archaeosynthemis occidentalis	Western Brown Tigertail	
14	Archimantis sobrina	Mallee Grass Mantis	
15	Assilinae (Subfamily)	Robber Flies	
16	Austroaeschna anacantha	Western Darner	
17	Bethylinae (Subfamily)	Flat Wasps	
18	Bibio imitator	March Flies	
19	Callibracon (Genus)	Braconid Wasps	
20	Calyptratae	Calyptrate Flies	
21	Catasarcus impressipennis	Broad-nosed Weevils	
22	Cecidomyiidae (Family)	Gall and Forest Midges	
23	Cerambycidae (Family)	Longhorn Beetles	
24	Chironomus (Genus)	Non-biting Midges	
25	Choerocoris variegatus	Variable Shield Bug	
26	Cicadellidae (Family)	Typical Leafhoppers	
27	Circopetes obtusata	Broken Leaf Moth	
29	Coccidae (Family)	Soft scales	
30	Coccoidea (Superfamily)	Scale Insects	
31	Cochylimorpha (Genus)	Tortricine Leafroller Moths	
32	Complex Chrysopasta elegans	Bristle Flies	
34	Corticariinae (Subfamily)	Minute Brown Scavenger Beetles	
35	Coryphistes ruricola	Bark-mimicking Grasshopper	
36	Cryptocheilus bicolor	Two-colored Orange Spider Wasp	
37	Cryptodus (Genus)	Rhinoceros Beetles	
39	Diphucephala (Genus)	June Beetles	
40	Ecnolagria aeneoviolacea	Long-jointed Beetles	
41	Ectropis excursaria	Twig Looper	
43	Endoxyla lituratus	Leopard Moths	
45	Eriopterini (Tribe)	Limoniid Crane Flies	
46	Euchaetis metallota	Concealer Moths	
47	Exoneura (Genus)	Allodapine Bees	
48	Gastrimargus musicus	Australian Yellow-winged Locust	
49	Geitoneura klugi	Klug's Xenica	
51	Geron (Genus)	Bee Flies	
52	Gryllotalpa (Genus)	Mole Crickets	
53	Hemicordulia tau	Tau Emerald	

INSECTS		
NO.	SCIENTIFIC NAME COM	MON NAME
54	Hemisaga denticulata	Common Sluggish Katydid
55	Heteromastix (Genus)	Soldier Beetles
56	Heteronympha merope duboulayi	Western Brown
57	Heteropsilopus (Genus)	Long-legged Flies
58	Iridomyrmex (Genus)	Rainbow, Tyrant, and Meat Ants
59	Iridomyrmex conifer	Rainbow Ants
60	Lamprima aurata	Golden Stag Beetle
61	Lasioglossum (Genus)	Sweat and Furrow Bees
63	Laxta rieki	Giant Cockroaches
64	Leptotarsus costalis	Common Brown Crane Fly
66	Membracidae (Family)	Typical Treehoppers
67	Micromus tasmaniae	Tasmanian Brown Lacewing
68	Monophlebulus (Genus)	Giant Scale Insects
69	Mygalopsis pauperculus	Coneheads
70	Myrmecia imai	Bull and Dinosaur Ants

OTHER INVERTEBRATES			
NO.	SCIENTIFIC NAME COMM	MON NAME	
1	Armadillidae (Family)	Tropical Pill Woodlice	
2	Atelomastix (Genus)	Forest Millipedes	
3	Atelomastix ellenae	Millipede	
4	Cormocephalus (Genus)	Common Centipedes	
6	Cynotelopus notabilis ENDANGERED	WA Pill Millipede	
7	Entomobryidae (Family)	Slender Springtails	
8	Fletchamia sugdeni	Canary Worm	
9	Geophilomorpha (Order)	Soil Centipedes	
10	Hesperisiphon diversus	Millipede	
11	Megalosiphon flavomarginatus	Millipede	
12	Siphonotidae (Family)	Camphor Millipedes	

FROGS		
NO.	NO. SCIENTIFIC NAME COMMON NAME	
1	Ranoidea moorei	Motorbike Frog
2	Metacrinia nichollsi	Nichollas Toadlet
3	Crinia georgiana	Quacking Frog
4	Litoria adelaidensis	Slender Tree Frog
5	Heleioporus (Genus)	Foam-nesting Ground Frogs

REPTILES			
NO.	COMMON NAME	SCIENTIFIC NAME	FAMILY
1	Black Tiger Snake	Notechis ater occidentalis	Elapidae
2	Bobtail	Tiliqua rugosa	Scincidae
3	Burrowing Skink	Hemiegis peroni peroni	Scincidae
4	Common South-west Ctenotus	Ctenotus labillardieri	Scincidae
5	Crowned Snake	Drysdalia coronata	Elapidae
6	Dugite	Pseudonaja affinis affinis	Elapidae
7	Karda	Varanus rosenbergi	Scincidae
8	King's Skink	Egermia kingi	Scincidae
9	Marbled Gecko	Phylladaclylus marmoratus	Gekkonidae
10	New Holland Skink	Leiolopisma trilineatum	Scincidae
11	Smith's Skink	Egernia napoleonis	Scincidae
12	Square-nosed Snake	Rhinoplocephalus bicolor	Elapidae

BIRDS		
NO.	COMMON NAME SCIENT	TIFIC NAME
1	Australian Hobby	Falco longipennis
2	Australian Kestrel	Falco cenchroides
3	Australian Magpie	Gymnorhina tibicen
4	Australian Magpie-lark	Grallina cyanoleuca
5	Australian Raven	Corvus coronoides
6	Australian Ringneck	Barnardius zonarius
7	Australian Shelduck	Tadorna tadornoides
8	Baudin's Cockatoo ENDANGERED	Zanda baudini
9	Black-faced Cuckoo-shrike	Coracina novaehollandiae
10	Brown Falcon	Falco berigora
11	Brown Goshawk	Accipiter fasciatus
12	Brown Honeyeater	Lichmera indistincta
13	Brush Bronzewing	Phaps elegans
14	Carnaby's Cockatoo ENDANGERED	Zanda latirostris
15	Collared Sparrowhawk	Accipiter cirrocephalus
16	Common Bronzewing	Phaps chalcoptera
17	Crested Shrike-tit	Falcunculus frontatus
18	Dusky Woodswallow	Artamus cyanopterus
19	Elegant Parrot	Neophema elegans
20	Fan-tailed Cuckoo	Cacomantis flabelliformis
21	Forest Red-tailed Black-cockatoo VULNERABLE	Calyptorhynchus banksii naso
22	Galah*	Eolophus roseicapilla
23	Gilbert's Honeyeater	Melithreptus chloropsis
24	Grey Butcherbird	Cracticus torquatus
25	Grey Currawong	Strepera versicolor

NO.	COMMON NAME SCIENT	TIFIC NAME	
26	Grey Fantail	Rhipidura albiscapa	
27	Grey Shrike-thrush	Colluricincla harmonica	
28	Grey Teal	Anas gibberifrons	
29	Horsfield's Bronze-Cuckoo	Chrysococcyx basalis	
30	Inland Thornbill	Acanthiza apicalis	
31	Laughing Kookaburra*	Dacelo novaeguineae	
32	Little Eagle	Hieraaetus morphnoides	
33	Little Wattlebird	Anthochaera chrysoptera	
34	Maned Duck	Chenonetta jubata	
35	Marsh Harrier	Circus aeruginosus	
36	Nankeen Kestrel	Falco cenchroides	
37	New Holland Honeyeater	Phylidonyris novaehollandiae	
38	Osprey	Pandion haliaetus	
39	Pacific Black Duck	Anas superciliosa	
40	Painted Button-quail	Turnix varia	
41	Pallid Cuckoo	Cacomantis pallidus	
42	Port Lincoln Ringneck	Barnardius zonarius	
43	Purple-crowned Lorikeet	Parvipsitta porphyrocephala	
44	Rainbow Bee-eater	Merops ornatus	
45	Red Wattlebird	Anthochaera carunculata	
46	Red-capped Parrot	Purpureicephalus spurius	
47	Red-eared Firetail	Stagonopleura oculata	
48	Red-winged Fairy-wren	Malurus elegans	
49	Restless Flycatcher	Myiagra inquieta	
50	Rufous Treecreeper	Climacteris rufa	
51	Sacred Kingfisher	Todiramphus sanctus	
52	Scarlet Robin	Petroica multicolor	
53	Shining Bronze-Cuckoo	Chrysococcyx lucidus	
54	Silvereye	Zosterops lateralis	
55	Southern Boobook	Ninox boobook	
56	South-western Spotted Scrubwren	Sericornis maculatus maculatus	
57	Splendid Fairywren	Malurus splendens	
58	Spotted Pardalote	Pardalotus punctatus	
59	Square-tailed Kite	Lophoictinia isura	
60	Striated Pardalote	Pardalotus striatus	
61	Tawny Frogmouth	Podargus strigoides	
62	Tawny-crowned Honeyeater	Gliciphila melanops	
63	Tree Martin	Petrochelidon nigricans	
64	Twenty-eight Parrot	Barnardius zonarius semitorquatus	
65	Varied Sittella	Daphoenositta chrysoptera	
66	Wedge-tailed Eagle	Aquila audax	

BIRDS		
NO.	COMMON NAME	SCIENTIFIC NAME
67	Welcome Swallow	Hirunclo neoxena
68	Western Gerygone	Gerygone fusca
69	Western Rosella	Platycercus icterotis
70	Western Shrike-tit	Falcunculus leucogaster
71	Western Spinebill	Acanthorhynchus superciliosus
72	Western Thornbill	Acanthiza inornata
73	Western Whistler	Pachycephala fuliginosa
74	Western Yellow Robin	Eopsaltria griseogularis
75	Whistling Kite	Haliastur sphenurus
76	White-bellied Sea-Eagle	Haliaeetus leucogaster
77	White-breasted Robin	Eopsaltria georgiana
78	White-browed Babbler	Pomatostomus superciliosus
79	White-browed Scrubwren	Sericornis frontalis
80	White-faced Heron	Ardea novaehollandiae
81	Willie Wagtail	Rhipidura leucophrys
82	Yellow-rumped Thornbill	Acanthiza chrysorrhoa
*Introduced	(non-native) species	

MAMMALS			
NO.	COMMON NAME	SCIENTIFIC NAME F	AMILY
1	Australian Bush Rat	Rattus fuscipes	Muridae
2	Black Rat*	Rattus rattus	Muridae
3	Cat*	Feline catus	Felidae
4	Common Brushtail Possum	Trichosurus vulpecula	Phalangeridae
5	Dog*	Canine familiarus	Canidae
6	House Mouse*	Mus musculus	Muridae
7	Rat	Rattus species	Muridae
8	Red Fox*	Vulpes vulpes	Canidae
9	South-western Brown Bandicoot PRIORITY 4	Isoodon fusciventer	Perameledae
10	South-western Brush-tailed Phascogale	Phascogale tapoatafa	Dasyuridae
	CONSERVATION DEPENDENT	wambenger	
11	Western Grey Kangaroo	Macropus fuliginosus	Macropodidae
12	Yellow-footed Antechinus	Antechinus flavipes	Dasyuridae
13	White-striped Free-tailed Bat	Austronomus australis	Molossidae
14	Gould's Wattled Bat	Chalinolobus gouldii	Vespertilionidae
15	Chocolate Wattled Bat	Chalinolobus morio	Vespertilionidae
16	Western False Pipistrelle PRIORITY 4	Falsistrellus mackenziei	Vespertilionidae
17	Lesser Long-eared Bat	Nyctophilus geoffroyi	Vespertilionidae
18	Southern Forest Bat	Vespadelus regulus	Vespertilionidae
*Introduced (non-native) species			

APPENDIX 4

Fungi Species List

Source: Sourced from 2023 Citizen Science Bioblitz and iNaturalist (Denmark Environment Centre, 2023)

Denmark Environment Centre Mt Hallowell Reserve Survey & Research Project 2004, updated July 2008 by Katrina Syme.

Background

The majority of plant species in the Mount Hallowell Reserve are known, with around 300 species listed (R. Gretton, pers. comm. 2004), but accurate numbers of fungi cannot be given, because despite being one of the most diverse groups of organisms, this Kingdom has never been adequately surveyed. Around 80% of the State's vascular plants have been named, in contrast to half the estimated 10,000 species of macrofungi and 2% of fungi overall (Syme, 2008). It is currently estimated that there are seven times more fungi (including microfungi) than vascular plants.

Fungi play a vital role in the environment, as decomposers and recyclers of organic matter (including large fallen trees) and as partners in mycorrhizal relationships with 90% of plants, including native orchids. Many native animals and invertebrates rely on fungi – especially an enormous variety of truffle-like species - as food.

Methodology

It has been possible to compile a species list from lists assembled through volunteer efforts such as:

- Opportunistic collecting resulting in vouchered collections held in the Western Australian Herbarium.
- Lists made during field trips held as part of the 2001 Inaugural National Fungimap Conference.
- Lists made during field trips held as part of the 2003 International Fungi and Fibre Symposium.
- Observations in the field.
- Lists and collections of fungi from similar vegetation types in the Denmark Shire.

In 2006, data was collected on a one-day foray as part of the *Survey of Fungi of the South Coast Natural Resource Management Region*. This was produced as part of the Department of Environment and Conservation's Biodiversity Inventory Program, funded through South Coast Natural Resource Management Inc., the regional group for NRM on the South Coast of Western Australia, funded by the Australian and Western Australian Governments through the joint National Action Plan for Salinity and Water Quality Program and the Natural Heritage Trust. (Ref.: *Biodiversity Inventory; Survey of fungi in the South Coast Natural Resource Management Region 2006-2007* Katrina Syme, 2008)

All the data was combined and sorted and a list of named and un-named distinguishable species extracted. With the data collected in 2006, some fungi could not be identified to genera, while others required microscopy to aid identification, therefore these species were excluded.

FUNGI		
NO.	SCIENTIFIC NAME	COMMON NAME
1	Abortiporus biennis	Blushing Rosette
2	Aecidium eburneum	
3	Agaricus aff. xanthodermus	
4	Agaricus bitorquis	
5	Agaricus sp. 'small with red-brown fibrils' sp. 240	
6	Agaricus species	Field and Button Mushrooms
7	Aleuria aurantia	
8	Aleuria rhenana	
9	Aleurina ferruginea	
10	Amanita aff. preissii	
11	Amanita ananiceps	Australian Pineapple Lepidella
12	Amanita basiorubra	
13	Amanita brunneibulbosa	
14	Amanita brunneistriatula	
15	Amanita eucalypti	
16	Amanita flaviphylla	

FUNGI		
NO.	SCIENTIFIC NAME	COMMON NAME
17	Amanita luteivolvata	
18	Amanita ochrophylloides	
19	Amanita punctata sp.405	
20	Amanita sp. 'salmon-pink margin' sp. 588	
21	Amanita umbrinella	
22	Amanita walpolei	
23	Amanita xanthocephala	Vermilion Amanita
24	Anthracobia muelleri	
25	Anthracophyllum archeri	Orange Fan
26	Arcangeliella daucina	Milkcaps, Brittlegills and Allies
27	Armillaria luteobubalina	Australian Honey Fungus
28	Ascocoryne sarcoides	
29	Austroboletus lacunosus	
30	Austroboletus occidentalis	Boletes
31	Austrocortinarius australiensis	Common Gilled Mushrooms and Allies
32	Austrogautieria manjimupana	
33	Austropaxillus infundibuliformis	Boletes and Allies
34	Austropaxillus sp. 'pale yellow' sp. 179	
35	Bankeraceae	Mushrooms, Bracket Fungi, Puffballs
36	Beauveria bassiana sp. 436	
37	Bolbitius vitellinus	
38	Boletellus ananiceps	
39	Boletellus obscurecoccineus Rhubarb Bolete	
40	Boletellus sp. 'brown & maroon'	
41	Boletus sp.'peach' sp.253	
42	Boletus species	Porcini and Allies
43	Calocera guepinioides	Higher Basidiomycetes
44	Calostoma fuhreri	
45	Calostoma fuscum	
46	Camarophyllopsis sp. 'yellow naphthalene' sp. 557	
47	Cantharellus concinnus	Australian Chanterelle
48	Castoreum radicatum	
49	Chlorociboria aerugenascens	
50	Cladia species	Cladias
51	Cladonia rigida	Spindles and Structured Lichens
52	Clavaria alboglobospora	
53	Clavicorona piperata	
54	Clavulina amethystina	
55	Clavulina sp. 'yellow tiny' sp. 1566K	
56	Clavulinopsis aff. aurantia	

FUNGI		
NO.	SCIENTIFIC NAME	COMMON NAME
57	Clavulinopsis amoena	Antler and Spindle Fungi
58	Clavulinopsis miniata	
59	Clavulinopsis sulcata	Flame Fungus
60	Clitocybe semiocculta	
61	Coltricia cinnamomea	
62	Coltricia species	Mushrooms, Bracket Fungi, Puffballs
63	Coltriciella dependens	
64	Colus pusillus	
65	Coprinellus disseminatus	Trooping Crumble Cap
66	Coprinellus micaceus	
67	Coprinus comatus	Shaggy Mane
68	Cordyceps militaris	
69	Cortinarius abnormis	
70	Cortinarius alboviolaceus	
71	Cortinarius archeri	
72	Cortinarius australiensis	
73	Cortinarius austroviolaceus	
74	Cortinarius basipurpureus	
75	Cortinarius basirubescens	
76	Cortinarius fibrillosus	
77	Cortinarius lavendulensis	
78	Cortinarius luteirufescens	
79	Cortinarius microarcheri	
80	Cortinarius ochraceus	
81	Cortinarius phalarus	
82	Cortinarius radicatus	
83	Cortinarius rotundisporus	Elegant Blue Webcap
84	Cortinarius sinapicolor	Common Gilled Mushrooms and Allies
85	Cortinarius sp. 'orange brown viscid cap' sp. 146	
86	Cortinarius sp. 'pointy cap' sp. 98	
87	Cortinarius sp. 'small purple umbonate' sp. 609	
88	Cortinarius sp. 'vinaceous lilac' sp. 171b	
89	Cortinarius sp. 'yellow with orange brown fibrils' sp. 237	
90	Cortinarius symeae	
91	Crepidotus variabilis	Variable Oysterling
92	Cuphophyllus aurantiopallens	Waxcaps and Allies
93	Favolaschia claudopus*	Orange Pore Fungus
94	Fistulinella mollis	Marshmallow Bolete
95	Fistulinella prunicolor	Boletes
96	Fuscoporia gilva	Mustard Yellow Polypore

FUNGI SPECIES LIST - KOORYUNDERUP - MOUNT HALLOWELL

FUNGI		
NO.	SCIENTIFIC NAME	COMMON NAME
97	Galerina	Moss Bells
98	Graphidaceae	Script Lichens and Allies
99	Gymnopilus allantopus	Common Gilled Mushrooms and Allies
100	Gymnopilus eucalyptorum	Common Gilled Mushrooms and Allies
101	Gymnopilus junonius	Spectacular Rustgill
102	Gymnopilus purpuratus	Common Gilled Mushrooms and Allies
103	Helotiales	Higher Ascomycetes
104	Hemimycena species	Half Bonnets
105	Hydnoplicata convoluta	Pezizas, Desert Truffles, and Allies
106	Hydnum species	Hedgehog Mushrooms
107	Hygrocybe species	Waxcaps
108	Hygrophoropsis aurantiaca	False Chanterelle
109	Hypholoma fasciculare	Sulphur Tuft
110	Hypomyces chrysospermus	Bolete Mould
111	Laccaria species	Laccarias
112	Lactarius eucalypti	Milkcaps, Brittlegills and Allies
113	Lecidella species	Disc Lichens
114	Lepiota species	Common Gilled Mushrooms and Allies
115	Leucopaxillus lilacinus	Common Gilled Mushrooms and Allies
116	Lichenomphalia chromacea	Yellow Navel
117	Lobaria species	Lung Lichens
118	Melanelia species	Camouflage Lichens
119	Mucronella pendula	Icicle Spine
120	Mycena species	Bonnets
121	Ochrolechia species	Crabseye Lichens
122	Omphalotus nidiformis	Ghost Fungus
123	Peltigera dolichorhiza	Longroot Pelt Lichen
124	Peltigera polydactylon	Many-fruited Pelt Lichen
125	Piptoporus australiensis	Curry Punk
126	Pisolithus arhizus	Dyeball
127	Pluteus species	Deer Mushrooms
128	Podoserpula pusio	Pagoda Fungus
129	Pseudocyphellaria neglecta	Common Gilled Mushrooms and Allies
130	Ramaria capitata	Mushrooms, Bracket Fungi, Puffballs,
131	Rhodofomitopsis lilacinogilva	Gum Bracket
132	Rickenella fibula	Orange Moss Navel
133	Russula adusta	Blackening Russula
134	Russula clelandii	Milkcaps, Brittlegills and Allies
135	Russula persanguinea	Milkcaps, Brittlegills and Allies
136	Russula purpureoflava	Milkcaps, Brittlegills and Allies

FUNGI SPECIES LIST - KOORYUNDERUP - MOUNT HALLOWELL

FUNGI		
NO.	SCIENTIFIC NAME	COMMON NAME
137	Scleroderma	Earthballs
138	Stereum hirsutum	Hairy Curtain Crust
139	Trametes coccinea	Southern Cinnabar Polypore
140	Trametes versicolor	Turkey-tail
141	Tubaria rufofulva	Burgundy Wood Tubaria
142	Usnea species	Beard Lichens
143	Xylaria hypoxylon	Candlesnuff Fungus

APPENDIX 5

Dieback Mapping

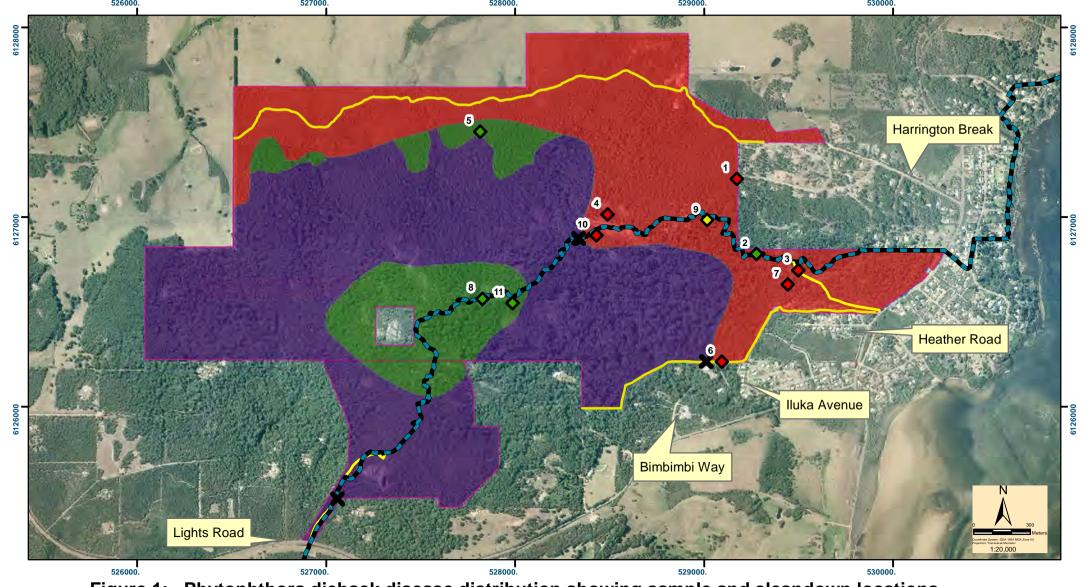


Figure 1: Phytophthora dieback disease distribution showing sample and cleandown locations



disclaims all liability for any errors, loss or other consequence which may arise from relying on any information depicted

Ref: GSBL133 Date: 26/06/2014 Image supplied by Shire of Denmark

Broadscale survey of Phytophthora Dieback Distribution across the Mount Hallowell Reserve, Denmark and Reserve Hygiene Management Plan

Legend

Disease Status Infested

Uninfested

Uninterpretable ■ MtHallowellReserve

-Access tracks ■ Bibbulmun Track (Sheila Hill Memorial Trail) X Cleandown locations

Sample Locations

Result

♦ Negative

Positive

Unresolved at 16 June 2014



APPENDIX 6

Community Survey

A survey was released by the Shire of Denmark on Wednesday 20 November 2024 and closed on Friday 17 January 2025.

Questions in the survey focused on feedback regarding management of Kooryunderup – Mount Hallowell and are summarised below.

SURVEY QUESTIONS

·
SURVEY DATA
1) Full Name
2) Age
17 years or younger
18 - 29 years
30 - 49 years
50 - 64 years
65+ years
3) Gender
Female
Male
Prefer Not To Say
Other
4) Place of Residence
Denmark
Hay
Ocean Beach
Scotsdale/Shadforth
Parryville/Kordabup
Peaceful Bay/Bow Bridge/Hazelvale/Kentdale/Nornalup
William Bay
Do not live in the Shire of Denmark
5) What is your primary connection to the Shire of Denmark?
I live in the Shire of Denmark
I have a commercial interest in the Shire of Denmark
I am a visitor to the Shire of Denmark
Other (please specify)
6) Tell us more about you. Are you a?(Please select all that are applicable to you.)
Denmark community member
Bibbulmun Track Foundation member
Bibbulmun Track Maintenance volunteer (Mt Hallowell section)
Denmark Bird Group member
South Coast Bushcare Services member or volunteer
Denmark Dog Owners Group member
Green Skills Denmark employee or volunteer
Friends of Mount Hallowell Kooryunderup member
Denmark Environment Centre employee, member or volunteer

Denmark Equestrian Club member
Denmark Mountain Biking Club member
Denmark Running Club member
Denmark Dog Owners Group member
Denmark Mountain Biking Club member
Denmark Bird Group member
Department of Biodiversity Conservation and Attractions representative
Kwoorabup Barefoot Walking Group member
Department of Planning, Lands and Heritage Indigenous Heritage South Coast Region representative
Bibbulmun Track Foundation member or volunteer
Bibbulmun Track Maintenance Volunteer (Mt Hallowell section)
Denmark Running Club member
Denmark Environment Centre employee or volunteer
Green Skills Denmark employee or volunteer
Denmark Equestrian Management Group representative or member
Department of Biodiversity, Conservation and Attractions representative
Department of Water and Environmental Regulation representative
Department of Water and Environmental Regulation SC Region representative
Department of Planning, Lands and Heritage Indigenous Heritage South Coast Region representative
Friend of Kooryunderup / Mount Hallowell member
Option 20
Denmark Equestrian Management Group member
Kwoorabup Barefoot Walking Group member
Private property with a shared boundary with the Mt Hallowell Reserve
Option 22
Ocean Beach Bushfire Brigade member
Ocean Beach resident or ratepayer
Private property owner with a shared boundary with the Mt Hallowell reserve
South Coast Bushcare Services member or volunteer
Water Corporation SC Region representative
None of the above
7) How often do you visit Mount Hallowell Reserve?
Daily
Weekly
Fortnightly
Monthly
Seasonally
Rarely
Never
8) How do you get to the Reserve?
Drive
Walk
Cycle
Other (please specify)
other (preded opposity)

Drive Walk Cycle Other (please specify) 10) Which are your favourite areas to visit in the Reserve?(Select all applicable)) Monkey Rock Shiela Hill Memorial Trail Mount Hallowell summit Bibbulmun Track Ocean Beach Bushfire Brigade Other (please specify) Hiking Dog walking Mountain bike riding Bird watching Picnicking Enjoying nature Guided tours (tourism) **Educational activities** Citizen science Organised maintenance activities (i.e. weed control, Bibbulmun Track Foundation activities etc) Other (please specify) The biodiversity values of the Reserve The ability for me to enjoy being in nature The hiking trails Having a lovely place to walk my dog Mountain biking on the trails The cultural heritage of the Reserve (including the Indigenous heritage) Easy access to nature The natural beauty of the Reserve in the landscape Scientific value Other (please specify) 14) Before we move on to asking about any concerns you may have, is there anything else you would 15) What issues do you think the new Management Plan for the Mount Hallowell reserve should Vehicle access Signage and trail way-finding Multi-use of the Reserve Dogs

Weeds, ferals and disease Illegal clearing Walkers Mountain Bike use Illegal camping Bushfire risk Provision of infrastructure (e.g. carparking, bins, toilets, picnic tables etc) All abilities access Safety Littering Not sure Emergency response Education Other (please specify) Vehicle access Signage and trail way-finding Multi-use of the Reserve Walkers Mountain Bike use Dogs Weeds, ferals and disease Illegal clearing Illegal camping Littering Bushfire risk Provision of infrastructure (e.g. carparking, bins, toilets, picnic tables etc) All abilities access Safety Emergency response Education Not sure Other (please specify)

17) Please rate the following concerns by level of importance to you.(1 being most important, 12 being least important)

18) Is there any more detail you would like to provide about your concerns about the future of the Mount Hallowell reserve? (Question type: Essay)

Survey outcomes

Key insights and analysis including quantifiable measures based on the survey responses include:

Demographics and Participation

- **Total Responses**: 216 responses. The survey received a significant number of responses from various participants, including residents, visitors, and stakeholders.
- Age Groups: Respondents were from diverse age groups, with a notable representation from the 50-64 and 65+ age brackets.
 - 17 years or younger: 2 (0.9%)
 - 18-29 years: 3 (1.4%)
 - 30-49 years: 52 (24.2%)
 - 50-64 years: 93 (43.3%)
 - 65+ years: 65 (30.2%)

Gender:

- Female: 137 (63.7%)
- Male: 73 (34.0%)
- Prefer Not To Say: 4 (1.9%)
- Other: 1 (0.5%)

Key Themes and Concerns

1. Biodiversity and Conservation

Positive Mentions: 184 mentions (91.09%)

Many respondents highlighted the importance of preserving the biodiversity and natural beauty of Mount Hallowell. They emphasised the need to protect endangered species like the Black Cockatoos and maintain the area's ecological integrity.

Negative Mentions: (8.91%) Concerns were raised about the potential threats to biodiversity
from activities such as mountain biking, which could lead to erosion, spread of dieback, and
disturbance to wildlife.

2. Recreational Use

- Positive Mentions: 195 mentions (96.53%). There is support for recreational activities such as walking, bird watching, and enjoying nature. Very few respondents support the inclusion of designated mountain bike trails.
- **Negative Mentions**: (10.40%) Significant opposition to mountain biking, with concerns about environmental damage, safety risks to other users, and increased vehicle traffic.

3. Natural Beauty and Peace

- Positive Mentions: 199 mentions (98.51%) The natural beauty, peace, and tranquility of the
 reserve were frequently mentioned. Respondents value the opportunity to connect with nature
 and enjoy the scenic views.
- **Negative Mentions**: (1.49%) Minimal negative mentions, mostly related to potential disturbances from increased human activity.

4. Environmental Protection

- **Positive Mentions**: 127 mentions (62.87%) Respondents emphasised the need for strong environmental protection measures, including better enforcement of rules and regulations to prevent illegal activities.
- **Negative Mentions**: (37.13%) Concerns about the Shire's lack of enforcement and potential for environmental degradation.

5. Fire Risk Management

- **Positive Mentions**: 112 mentions (55.45%) The need for effective fire risk management, including controlled burns and other mitigation strategies, was mentioned.
- **Negative Mentions**: (44.55%) Concerns about the buildup of dead matter and associated bushfire risk.

6. Infrastructure and Education

- **Positive Mentions**: 101 mentions (50%) Some respondents suggested improvements in infrastructure, such as educational signage, car parks, and trail heads, to manage visitor impact and promote conservation.
- **Negative Mentions**: (4.95%) Minimal negative mentions, mostly related to the need for better infrastructure and educational signage.

7. Community and Social Well-being

- **Positive Mentions**: 68 mentions (33.66%) The Reserve is seen as an important space for community interaction and social well-being. It is valued for its accessibility and the role it plays in the lives of local residents.
- **Negative Mentions**: (2.48%) Minimal negative mentions, mostly related to potential exclusion of certain user groups.

Quantified Mentions of Mountain Biking

- Total Mentions: 21 mentions (10.4%)
 - **Positive Mentions**: (0.99%) 2 responses were positive, supporting the inclusion of designated mountain bike trails.
 - **Negative Mentions**: (3.96%) 8 responses were negative, expressing concerns about environmental damage, safety risks, and the impact on other users.

FEEDBACK ON DRAFT MANAGEMENT PLAN

The draft management plan and survey was released by the Shire of Denmark on Wednesday 18 June 2024 and the public submission period closed on Friday 18 July 2025.

Invitations and supporting materials were prepared, including:

- Survey (electronic submissions via Shire of Denmark webpage and paper copies at Shire of Denmark Office);
- Electronic and paper copies of draft document;
- Media release by Shire of Denmark (see Appendix 1);
- Material on 'Your Denmark' webpage; and

Questions in the survey focused on feedback on the Draft Management Plan for Kooryunderup – Mount Hallowell and are summarised below.

SURVEY QUESTIONS

Full Name/ email address
1) Age
17 years or younger
18 - 29 years
30 - 49 years
50 - 64 years
65+ years
2) Gender
Female
Male
Prefer Not To Say
Other
3) Place of Residence
Denmark
Нау
Ocean Beach
Scotsdale/Shadforth
Parryville/Kordabup
Peaceful Bay/Bow Bridge/Hazelvale/Kentdale/Nornalup
William Bay
Do not live in the Shire of Denmark
4) Which stakeholder interests do you represent?
(Please select all that are applicable to you)

Denmark community member

Bibbulmun Track Foundation member

Bibbulmun Track Maintenance volunteer (Mt Hallowell section)

Individual

- Denmark Bird Group member
- Denmark Dog Owners Group member
- Denmark Environment Centre employee, member or volunteer
- Denmark Equestrian Club member
- Denmark Mountain Bike Club member
- Department of Biodiversity Conservation and Attractions representative
- Department of Planning, Lands and Heritage Indigenous Heritage South Coast Region representative
- Denmark Running Club member
- Green Skills Denmark employee or volunteer
- Department of Water and Environmental Regulation SC Region representative
- Friend of Kooryunderup / Mount Hallowell member
- Denmark Equestrian Management Group member
- Kwoorabup Barefoot Walking Group member
- Ocean Beach Bushfire Brigade member
- Ocean Beach resident or ratepayer
- Private property owner with a shared boundary with the Mt Hallowell reserve
- South Coast Bushcare Services member or volunteer
- Water Corporation SC Region representative
- None of the above

5) Do you agree that each of these six goals addresses the concerns raised by survey participants, and forms an effective management plan?

- 1. Conservation: The primary goal of managing the Reserve is to protect the natural environment.
- **2. Recreation and Infrastructure**: The goal is to encourage low-key recreation activities (such as walking and hiking) where these don't have a negative impact on the environment.
- **3. Fire Management**: The goal is to protect the environment and the lives/property of surrounding landowners through best-practice fire management and wildfire suppression.
- **4. Culture and Heritage**: As a significant cultural and heritage site for Traditional Custodians, the goal is to protect these values.
- **5. Community Engagement, Research and Education**: The goal is to raise awareness of the Reserve's intrinsic and educational values while promoting ongoing citizen science and other research initiatives.
- **6. Land Use Planning and Compliance**: The goal is to manage threats such as fire and the spread of dieback, as well as user safety, and the interface with neighbouring properties.

Do you agree that each of these six goals form an effective Draft Management Plan?

Strongly agree

Somewhat agree

Neither agree nor disagree

Somewhat disagree

Strongly disagree

6) Please provide any feedback you have regarding your responses to Question 5.

Essay response

7) The Draft Management Plan proposes that the construction of additional or expanded trails for biking not be permitted. Do you agree or disagree?

Strongly agree

Somewhat agree

Neither agree nor disagree

Somewhat disagree

Strongly disagree

8) The Draft Management Plan proposes that the current unauthorised bike trails and jumps should be closed and rehabilitated. Do you agree or disagree?

Strongly agree

Somewhat agree

Neither agree nor disagree

Somewhat disagree

Strongly disagree

9) The Draft Management Plan proposes that biking of all types be excluded from the Reserve, including on the existing emergency access tracks (firebreaks). Do you agree or disagree?

Strongly agree

Somewhat agree

Neither agree nor disagree

Somewhat disagree

Strongly disagree

10) Please provide any feedback you have regarding the Draft Management plan's proposals on biking in Kooryunderup/Mt Hallowell)

Essay response

11) The Draft Management Plan proposes that dogs are to be prohibited on the Bibbulmun Track. Do you agree or disagree?

Strongly agree

Somewhat agree

Neither agree nor disagree

Somewhat disagree

Strongly disagree

12) The Draft Management Plan proposes dogs be allowed on leashes along the emergency access track from Lights Road to Monkey Rock and on the eastern and northern tracks (excluding the Bibbulmun Track). Do you agree or disagree?

Strongly agree

Somewhat agree

Neither agree nor disagree

Somewhat disagree

Strongly disagree

13) Please provide any feedback you have regarding the Draft Management Plan's proposals on dogs in Kooryunderup/Mt Hallowell.

Essay response

14) Are there any other comments that you would like to make about the management of Kooryunderup/Mount Hallowell and/or the Draft Management Plan?

Essay response

Survey Outcomes

Total Survey Responses: 226 received by Aurora Environmental.

Demographics and Participation

The demographic data indicate that the survey reached a broad cross-section of the community. A significant proportion of respondents were aged 45 and above, suggesting the results may reflect the

views of more mature residents. Female participation slightly outnumbered male, and the majority of respondents reside within the Denmark local government area, reflecting strong local engagement.

1) Age

The following responses were received regarding age:

Age Group	Count	Percentage
50 to 64 years	75	33.2%
30 to 49 years	66	29.2%
65+ years	64	28.3%
17 years or younger	13	5.8%
18 to 29 years	8	3.5%

The majority of respondents (over 90%) were 30 years and older, with particularly strong representation from the 50–64 age group. Younger voices (under 30) were less represented, which may bias results toward perspectives of long-term residents and older community members.

Trends by Age Group

Notably, younger respondents (under 25) strongly opposed restrictions on biking, while older respondents tended to support access controls and conservation measures. This generational divide underscores the need to balance recreational use with ecological preservation in a way that respects all age groups.

- Younger respondents (17 or younger): 100% disagreed with biking restrictions
- Older respondents (55+): largely agreed with environmental and dog proposals
- Indicates divide between recreation vs protection priorities

2) Gender

The following responses were received regarding gender:

• Female: 122 (53.9%)

• Male: 92 (40.7%)

• Other / Prefer not to say: 12 (5.3%)

More females than males provided comments on the Draft plan.

3) Place of Residence

The following responses were received regarding place of residence

Denmark LGA: 190 (84.1%)

• Outside Denmark: 36 (15.9%)

• Most people providing comments were from within the Shire of Denmark (noting that some external submissions from people who live outside the Shire were excluded from analysis).

4) Which stakeholder interests do you represent?

Most participants identified with multiple roles, such as local residents, bushwalkers, and conservationists. This diversity highlights a community with layered interests in Kooryunderup / Mt Hallowell—spanning recreation, environmental values, and cultural heritage.

Local resident: 171Bushwalker: 11Conservationist: 96

Visitor: 66

• Recreational user: 53

• Environmental professional: 41

• Other (e.g. mountain biker, educator): < 40 each

5) Do you agree that each of these six goals addresses the concerns raised by survey participants, and forms an effective management plan?

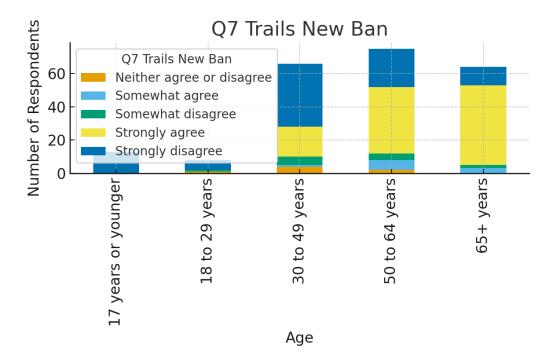
Overall agreement with the six proposed goals was high, with around 73% of respondents either strongly or somewhat agreeing. This suggests general alignment with the vision presented in the Draft Management Plan, particularly in areas related to conservation and cultural heritage.

7) The Draft Management Plan proposes that the construction of additional or expanded trails for biking not be permitted. Do you agree or disagree?

Strongly agree: 106 (46%)
Strongly disagree: 91 (40%)
Somewhat disagree: 12 (5%)
Somewhat agree: 10 (4%)

• Neither agree or disagree: 7 (3%)

Q7 Trails New Ban

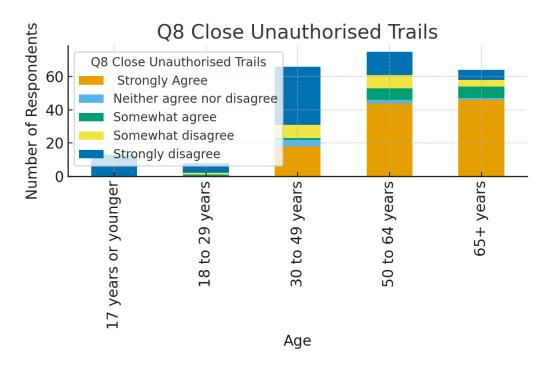


8) The Draft Management Plan proposes that the current unauthorised bike trails and jumps should be closed and rehabilitated. Do you agree or disagree?

Strongly Agree: 108 (47%)
Strongly disagree: 74 (32%)
Somewhat disagree: 21 (9%)
Somewhat agree: 16 (7%)

• Neither agree nor disagree: 7 (3%)

Q8 Close Unauthorised Trails

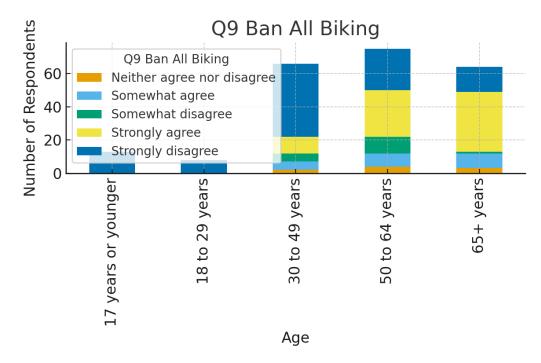


9) The Draft Management Plan proposes that biking of all types be excluded from the Reserve, including on the existing emergency access tracks (firebreaks). Do you agree or disagree?

Strongly disagree: 105 (46%)
Strongly agree: 74 (33%)
Somewhat agree: 22 (10%)
Somewhat disagree: 16 (7%)

Neither agree nor disagree: 9 (4%)

Q9 Ban All Biking



Supporters of mountain biking argue:

- Biking promotes youth engagement, health, and nature connection.
- Trails have been used for decades with minimal impact.
- Shared-use models work in other towns (e.g., Nannup, Walpole).
- Firebreaks and SE corner are suitable for low-impact biking.

Supporters of mountain bike exclusion argue:

- Mt Hallowell is an A-Class Reserve with high conservation value.
- Biking contributes to erosion, dieback spread, and habitat fragmentation.
- Illegal trail building and vandalism are ongoing issues.
- Enforcement is impractical with current Shire resources.

11) The Draft Management Plan proposes that dogs are to be prohibited on the Bibbulmun Track. Do you agree or disagree?

Strongly Disagree: 101 (45%)

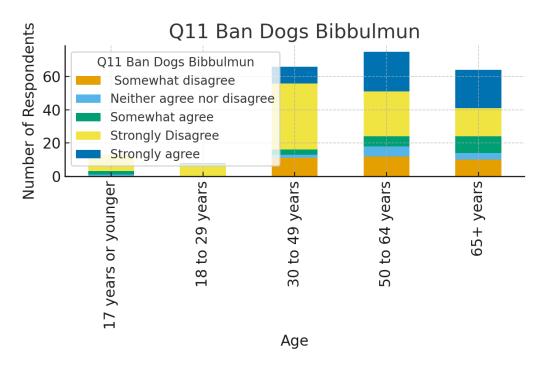
• Strongly agree: 58 (26%)

• Somewhat disagree: 33 (15%)

• Somewhat agree: 21 (9%)

Neither agree nor disagree: 13 (6%)

Q11 Ban Dogs Bibbulmun



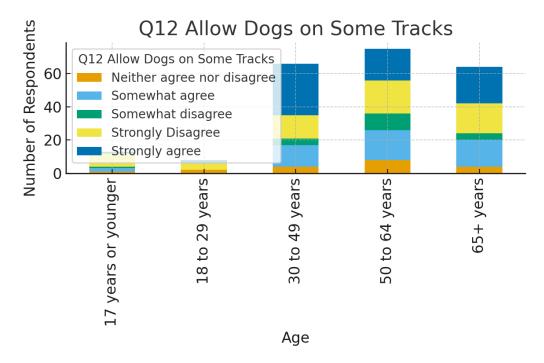
12) The Draft Management Plan proposes dogs be allowed on leashes along the emergency access track from Lights Road to Monkey Rock and on the eastern and northern tracks (excluding the Bibbulmun Track). Do you agree or disagree?

Strongly agree: 75 (33%)Strongly Disagree: 64 (28%)Somewhat agree: 49 (22%)

• Neither agree nor disagree: 19 (8%)

• Somewhat disagree: 19 (8%)

Q12 Allow Dogs on Some Tracks



These charts show distinct generational divides. Younger respondents are generally opposed to restrictions, favouring recreation access, while older respondents lean more toward conservation and restrictions. Middle-aged groups (30–49 years) tend to be more balanced but still support controlled access.

Supporters for dogs off leashes argue:

- SE corner is a vital off-leash area used daily by locals.
- Off-leash walking supports mental health, social interaction, and elderly mobility.
- Few alternative off-leash areas exist in Denmark.
- Responsible ownership and signage can mitigate risks.

Opponents of dogs off leashes or dogs in the Reserve argue:

- Dogs disturb wildlife and leave waste.
- Leash rules are often ignored.
- Conservation zones require strict protection.

Most submissions (226) were via the survey. However, 15 groups and individuals provided more detailed submissions, which were summarised in Aurora Environmental, 20251.

¹ **Aurora Environmental (2025)** Kooryunderup – Mount Hallowell – Management Plan Community Feedback on Draft Plan – Shire of Denmark, WA. Prepared for the Shire of Denmark. AA2025/195. V2.

APPENDIX 7

Walk Trail Brochure

Caring For Country

Granite Outcrops

The granite outcrops are a dominant feature of the Mount Hallowell Reserve. They create special niches for vegetation, both on the rock and in the surrounding fringes. They are sensitive areas and can be culturally significant.

Please tread carefully and refrain from moving rocks which in the past may have been placed purposefully by Noongar people for cultural purposes.

Invasive Weeds

Many invasive weeds species in the reserve are "garden escapees" from adjacent subdivisions. Weeds have also colonised disturbed areas. South Coast Bushcare Services Inc. (formally Denmark Weed Action Group Inc.) continue to control invasive weed species within the reserve, supporting natural regeneration of the bush. We can be contacted for advice on how to identify and control weeds.



Contact

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Email: scbs@westnet.com.au

Mobile: 0448 388720

Sheila Hill Memorial Walk Trail and Bibbulmun Track

Mount Hallowell and Monkey Rock

Bibbulmun Track

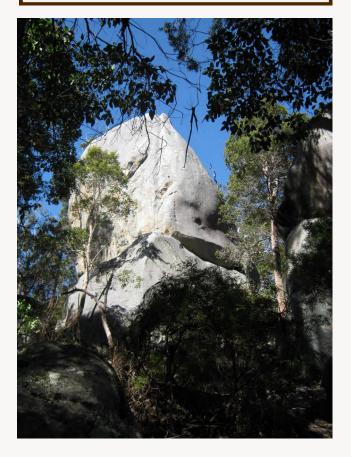


Mount Hallowell Reserve is located approximately 5km south-west of Denmark. It can be accessed by pedestrians via the Bibbulmun Track/Sheila Hill Memorial Trail. The Bibbulmun Track runs between Ocean Beach Road and Lights Road via the summit of Mount Hallowell and Monkey Rock.

The trails passes up through marri/jarrah and karri forest and over expansive granite outcrops. There are spectacular views of the coast and inlet at the summit.

A shorter return walk to Monkey Rock can be accessed from Lights Road.

Kooryunderup Mount Hallowell Reserve



"The Jewel in the Crown"
Kooryunderup means 'place of many bush
Kangaroo'

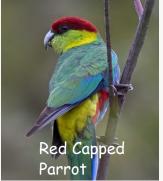
Supported by the Shire of Denmark Community
Environmental Education Program



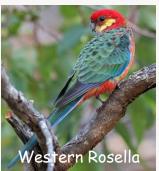
Birdlife in the Forest

White-browed babblers can be seen in the reserve foraging mostly on the ground in noisy flocks. They build communal roosting nests of twigs and sticks, usually in dead or partly living trees.











A Place for Conservation

Mount Hallowell Reserve consists of mostly virgin (unlogged) old growth forest. It is a conservation priority area for the maintenance of the flora, fungi and fauna and is recognized as a significant scientific reference site. It is one of the few remnant long-unburnt areas in the South West , the last recorded fire was in 1937.

Dieback in the Reserve

Dieback (*Phytophthora cin-namomi*) is a deadly plant disease that effects over 40% of native WA plant species. Many of these susceptible plants are only found in the South-west,



these include jarrah, banksias, grasstrees (*Xanthorrhoea*) and zamia palms.

Dieback is present in the northern area of the reserve. It can spread through the movement of soil. Look for signage and clean footwear before moving into Dieback-free areas. Stick to designated trails.



References: Mount Hallowell Management Plan 2008

Plants of Denmark Walk Trails: Traditional Noongar Uses

A Study into the Risk of Phytophthora Dieback in Ten Peri-urban Reserves within the Shire of Denmark

Common Plants



Common name: Tassel Flower

Scientific name: Leucopogon

verticillatus

Uses: the berries are edible



Common name: Karri Oak

Scientific name: Allocasuarina

decussata



Noongar name: Kulli, Gulli

Uses: Soft needles were used

for bedding

Fungi

In late autumn fungi emerge around Mount Hallowell. In WA about 500 species of fungi have been recorded most found in the South-west. There are more yet to be discovered. Fungi are vital for the health of vegetation and food for small mammals.

For more information refer to the Guide to Macrofungi in Mount Hallowell and Wilson Inlet Foreshore Reserves.



Boletus fungi (see photo) have a sponge-like surface under the cap rather than gills. The flesh turns blue/black when disturbed.

APPENDIX 8

Photographs



Wayfinding markers for Sheila Hill Memorial Trail are in poor condition or missing.



Photograph 2

Emergency access barrier gate – Effective gate when excluding vehicles





The car park on Lights Road is in fair condition and would benefit from formalisation of car bays, boundary, surfacing and drainage. Trailhead signs are in poor condition. Signage directing walkers back to Sheila Hill Memorial Trail car park are needed.



Photograph 4

Emergency access along residences' boundary (Heather Road) is in eroded condition and not safe for emergency access. The area needs to be properly drained and re-sheeted with gravel.





Entry to Bibbulmun Track from Ocean Beach Road would benefit from rationalisation of signs and new trail head signage



Photograph 6

Emergency access gate suitable for low traffic areas. Dieback signage present.





The existing emergency access behind residences on Pember Way and Ravenhill Heights in Harrington Break impinges on private property and needs to be realigned along the Reserve boundary. Construction of a low fuel zone is planned.



Photograph 8

Northern access track is suitable for emergency access.





The Sheila Hill Memorial Trail car park is in fair condition. A deep drain is shielded with boulders and needs barrier fencing. Trailhead signage needs to be upgraded. The carpark would benefit from being formalised with delineation of car parking bays, drainage works and resheeting.



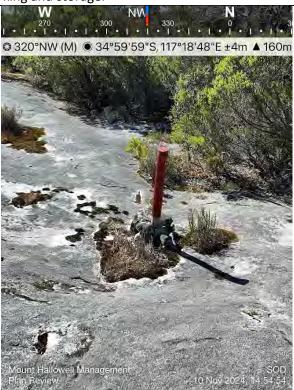
Photograph 10

A section of the Sheila Hill Memorial Trail.





Low fuel zone on the left and walk trail/ emergency access in the centre. Residents on the left are using the Reserve for parking and storage.



Photograph 12

Use of granite rocks to hold up signs should be avoided (cultural heritage and habitat disturbance).





The Boot Cleaning Stations are well located (based on previous dieback survey). However, the stations need to be maintained (brushes replaced and removal of soil build up).



Photograph 14

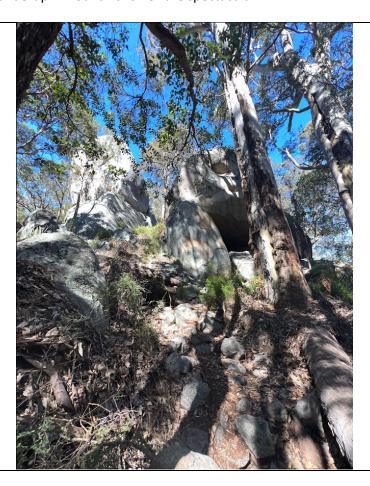
A section of the Sheila Hill Memorial Trail also serves as an emergency access track





Photograph 15

Views from Kooryunderup – Mount Hallowell are spectacular.



Photograph 16

Many aspects of Kooryunderup – Mount Hallowell are likely to hold cultural and heritage significance for Traditional Custodians. Completion of a cultural heritage survey is recommended.

