

Mount Jerrabomberra Site-specific Plan of Management



Offices: Council headquarters – 256 Crawford St
Bungendore Office – 10 Majara St
Braidwood Office – 144 Wallace St

Contact: P: 1300 735 025
E: council@qprc.nsw.gov.au
W: www.qprc.nsw.gov.au

This Plan of Management was produced by Eco Logical Australia Pty Ltd on behalf of Queanbeyan-Palerang Regional Council in 2021.

Table of Contents

Executive Summary	1
1. Introduction	2
1.1 Land to which this plan applies	2
1.2 Owner of the Land	6
1.3 Physical environment.....	6
1.4 Key issues	7
2.0 Relevant Legislation, Policies and Procedures	9
2.1 Local Government Act 1993 and Local Government (General) Regulation 2005	9
2.1.1 Community input into PoMs.....	9
2.3 Biodiversity and Conservation Act 2016.....	10
2.4 Rural Fires Act 1997	10
2.5 Bushfire Environmental Assessment Code	10
2.6 District Bush Fire Risk Management Plan	11
2.7 Biosecurity Act 2015.....	11
2.8 Heritage Act 1977	11
2.9 Water Management Act 2000	11
2.10 Environmental Planning and Assessment Act 1979 (EP&A Act)	11
2.11 Local Environmental Plans	12
2.12 Disability Inclusion Act 2014	12
2.13 Commonwealth Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)	12
2.14 State Environmental Planning Policy (Infrastructure) 2007	12
2.15 State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017	13
2.16 Review of this plan.....	13
3.0 Environmental and Culturally Significant Land	14
3.1 Habitat of threatened or endangered species	14
3.2 Locally Significant Species	15
3.3 Significant natural features	18
3.4 Aboriginal cultural significance.....	18
3.5 Non-indigenous cultural significance.....	18
4.0 Development and Use	19
4.1 Overview	19
4.2 Strategic Objectives.....	19
4.3 Purpose and Value of Mount Jerrabomberra	20

4.4	Use of the land and structures at the adoption date of the Plan of Management....	20
5.0	Management of the Land	23
5.1	Bushland Management.....	23
5.1.2	Biodiversity, Conservation and Bushcare Groups.....	23
5.1.3	Weed Management	23
5.1.4	Fauna Management	26
5.1.5	Pest Control.....	26
5.1.6	Erosion Control.....	26
5.1.7	Bushland Connectivity	26
5.2	Cultural Heritage Values.....	27
5.2.1	Aboriginal Cultural Heritage.....	27
5.3	Reserve Management	27
5.3.1	Recreational Use.....	27
5.3.2	Accessibility and Pathways.....	27
5.3.3	Information and Education.....	28
5.3.4	Inclusivity.....	28
5.3.5	Community Engagement	28
5.5	Bushfire Management.....	28
5.5.1	Bushfire Risk Analysis	28
5.5.2	Bushfire Risk Management.....	33
5.5.3	Recommendations.....	40
6.0	Plan of Management Administration and Management	43
6.1	Management Issues	43
6.2	Management Actions	44
6.3	Action Plan	45
References		52
Appendix A – Bushfire Management Zones		53
Appendix B – NatureMapr Records from 2013		56
Appendix C – Community Engagement Report.....		60
Introduction		60
Results		60
Online Survey QPRC Data		63
Table 1 Stakeholder Interview Data.....		71
Appendix D – Land that Applies to the Plan		84

Executive Summary

Mount Jerrabomberra Reserve is highly regarded by Queanbeyan residents and visitors to the City for its significant conservation and recreational value. It was listed under the Register of National Estate for its “Natural Heritage” values. The Commonwealth Register closed in 2007, however does not diminish the significance of the heritage item.

Council has given the mountain the valuable natural area status of requiring its own Site Specific Plan of Management which explicitly addresses the diverse issues and opportunities identified by the community and stakeholders to better manage the site.

This site-specific plan applies to “Community Land” on Mount Jerrabomberra Reserve only. It provides the framework and guidelines by which Mount Jerrabomberra Reserve will be managed both now and in the future. The Plan takes a values-based approach to planning and management, identifying the reserve’s key values, roles, and purpose so that these assets can continue to be protected and enhanced.

The Plan’s actions and directions focus on protecting the values of the reserve, with preservation of the natural bushland and ecological value being of the upmost importance as the land is categorised as **natural area – bushland** under Section 36 (4a/5a) of the *Local Government Act* 1993. Council’s primary management intention for Mount Jerrabomberra is to conserve and restore the natural areas, whilst facilitating the appropriate infrastructure use, recreational activity and community enjoyment of the site.

The land to which this plan of management applies has also been identified as bushfire prone land and must therefore have appropriate protection measures developed. Bushfire risk and hazard analysis seeks to strategically identify environmental, heritage and human assets to develop objectives, strategies and actions that mitigate risk.

Community engagement is an integral aspect in the development of this Plan. The local community is passionate about the preservation and ongoing use of the reserve. They have participated in the engagement process and have helped to identify values and issues which are important. From the engagement a prioritised list of management actions has been developed. A summary of the community engagement is provided in Appendix C.

1. Introduction

This site-specific plan of Management (Plan) will provide clear guidelines for the future management of the Mount Jerrabomberra Reserve land in the care and control of Council. The rationale for this Plan lies jointly in the statutory requirements of the *Local Government Act 1993* (LG Act) and Queanbeyan-Palerang Regional Council's desire to produce consistent and effective guidelines governing the management of community land.

This plan has been created to comply with Section 36 of the LG Act. The Plan is a document that provides direction and continuity for planning, resource management, maintenance and operation of community land. The Plan sets out the values, issues and future management priorities for the land, and builds on the Plan of Management for Mount Jerrabomberra developed in and adopted by Council in 2004.

This site-specific Plan should be read in conjunction with the Plan of Management (PoM) Natural Areas.

1.1 Land to which this plan applies

The land this Plan applies to is shown in Figure 2 and is outlined in Appendix D. The land is Council owned land which is classified as 'community' under the LG Act. The land is categorised as a **natural area** under Section 36 (4a/5a) of the LG Act. The core objectives for management of community land under the above category are to:

- a) conserve biodiversity and maintain ecosystem function in respect of the land, or the feature or habitat in respect of which the land is categorised as a natural area, and
- b) maintain the land, or that feature or habitat, in its natural state and setting
- c) provide for the restoration and regeneration of the land
- d) provide for community use of and access to the land in such a manner as will minimise and mitigate any disturbance caused by human intrusion
- e) assist in and facilitate the implementation of any provisions restricting the use and management of the land that are set out in a recovery plan or threat abatement plan prepared under the *Threatened Species Conservation Act 1995* (now replaced by the *Biodiversity Conservation Act 2016*) or the *Fisheries Management Act 1994*.

Clause 107 of the Local Government (General) Regulations 2005 sets out the circumstances where natural area land should further be categorised as bushland:

1. Land that is categorised as a natural area should be further categorised as bushland under section 36 (5) of the Act if the land contains primarily native vegetation and that vegetation:
 - a) is the natural vegetation or a remainder of the natural vegetation of the land, or
 - b) although not the natural vegetation of the land, is still representative of the structure or floristics, or structure and floristics, of the natural vegetation in the locality.
2. Such land includes:
 - a) bushland that is mostly undisturbed with a good mix of tree ages, and natural regeneration, where the understorey is comprised of native grasses and herbs or native

- shrubs, and that contains a range of habitats for native fauna (such as logs, shrubs, tree hollows and leaf litter), or
- b) moderately disturbed bushland with some regeneration of trees and shrubs, where there may be a regrowth area with trees of even age, where native shrubs and grasses are present in the understorey even though there may be some weed invasion, or
 - c) highly disturbed bushland where the native understorey has been removed, where there may be significant weed invasion and where dead and dying trees are present, where there is no natural regeneration of trees or shrubs, but where the land is still capable of being rehabilitated.

Furthermore, the core objectives for management of community land categorised as bushland are as follows:

- a) to ensure the ongoing ecological viability of the land by protecting the ecological biodiversity and habitat values of the land, the flora and fauna (including invertebrates, fungi and micro-organisms) of the land and other ecological values of the land
- b) to protect the aesthetic, heritage, recreational, educational and scientific values of the land
- c) to promote the management of the land in a manner that protects and enhances the values and quality of the land and facilitates public enjoyment of the land, and to implement measures directed to minimising or mitigating any disturbance caused by human intrusion
- d) to restore degraded bushland
- e) to protect existing landforms such as natural drainage lines, watercourses and foreshores
- f) to retain bushland in parcels of a size and configuration that will enable the existing plant and animal communities to survive in the long term
- g) to protect bushland as a natural stabiliser of the soil surface.





Figure 1: Locality of Reserve



Figure 2 Land Applying to the Plan

1.2 Owner of the Land

The land is owned by Queanbeyan-Palerang Regional Council and is managed by Council under the *LG Act*. There are small pockets of privately-owned land within the reserve that are generally managed as part of the reserve.

1.3 Physical environment

Mount Jerrabomberra Reserve is comprised of 93.5 ha characterised by an elongated hill with three peaks. Broadly, Mount Jerrabomberra forms part of the Kowen Range and is a major feature of the Molonglo Basin. It is part of the Jerrabomberra Creek catchment, which is a tributary of the Molonglo River. There are three drainage lines within the Reserve which are all ephemeral. Two flow west towards Jerrabomberra Creek and one flows east towards the Queanbeyan River.

Mount Jerrabomberra forms part of the Canberra Lowlands and, along with other mountains and ridges in the area, is the eroded remnants of a volcanic block. The mountain is located within the Campbell (ca) soil landscape on the Canberra 1:100,000 Sheet. The geology of the mountain is comprised of silurian volcanics and sediments of the Canberra Block. The complicated lithology includes various tuffs, siltstones, sandstones, rhyolites, dacites and limestones. The upper parts of Mount Jerrabomberra are steep slopes whilst the lower parts are more gently sloped. Soils are generally shallow, relatively infertile and acidic. The soil is classed as sandy loam with high gravel content. The ridgelines and upper slopes more-so. Deeper, more fertile and better drained soil occurs along the flats and at the bottom of the valleys.

The Ecological study conducted by Eco Logical Australia in 2010 (ELA 2010) found that the dominant vegetation type was Dry Forest of Fallding with pine plantation in the south-eastern corner of the reserve. The native vegetation was characterised by a canopy of various combinations of *Eucalyptus rossii* (Inland Scribbly Gum), *Eucalyptus macrorhyncha* (Red Stringybark), *Eucalyptus polyanthemos* (Red Box) and *Eucalyptus goniocalyx* (Bundy), with less frequent occurrences of *Eucalyptus melliodora* (Yellow Box) and *Eucalyptus mannifera* (Brittle Gum). The understorey were sclerophyll scrub species with the most common being *Brachyloma daphnoides* (Daphne Heath), *Melichrus urceolatus* (Urn-heath), *Acacia genistifolia* (Early Wattle), *Styphelia trifloral* (Pink Five-Corners), *Cassinia longifolia* (Shiny Cassinia), *Kunzea ericoides* (Burgan), *Monotoca scoparia*, *Daviesia mimosoides*, *Leucopogon fletcheri*, *Pultenaea retusa* (Blunt Bush-pea), *Dillwynia sericea*, *Pomaderris andromedifolia*, *Cassinia arcuata* (Sifton Bush), *Bursaria spinosa* subsp. *lasiophylla*, *Acacia buxifolia* (Box-leaf Wattle), *Indigofera australis* (Native Indigo) and *Hakea sericea* (Bushy Needlebush). The groundcover was dominated by native grasses, shrubs, graminoids and forbs typically less than 1 m high.

Where native, the vegetation was generally considered to be in excellent condition with only isolated occurrences of significant weeds. There is a pine plantation with nearby wildling pines in the south eastern corner of the reserve. Weed prominence is greater around the edges of the reserve.

There were no endangered ecological communities present during the 2010 Ecological Study (ELA 2010) however, there were five flora species with conservation significance recorded. These included:

- *Leucochrysum albicans* var. *tricolor* (Hoary Sunray),
- *Grevillea ramosissima* (Fan Grevillea),

- *Thysanotus patersonii* (Twining Fringed Lily)
- *Acacia penninervis* (Mountain Hickory)
- *Rutidosia leptorhynchoides* (Button Wrinklewort)

The reserve supports many fauna species, with 58 birds, 21 mammals, three reptiles and three frogs recorded during the 2010 survey. This included three threatened birds and four threatened bat species:

- *Callocephalon fimbriatum* (Gang-gang Cockatoo)
- *Petroica boodang* (Scarlet Robin)
- *Daphoenositta chrysoptera* (Varied Sittella)
- *Miniopterus (schreibersii) orianae oceanensis* (Eastern Bentwing Bat)
- *Falsistrellus tasmaniensis* (Eastern False Pipistrelle)
- *Scoteanax rueppellii* (Greater Broad-nosed Bat)
- *Saccolaimus flaviventris* (Yellow-bellied Sheathtail Bat)

The key fauna habitats were identified as being:

- Intact canopy and understorey foraging resources (seeds, fruit, nectar, pollen, sap, invertebrates) for a range of birds and mammals.
- Open areas of native grasses that provide foraging areas for macropods and birds.
- Surface rocks and logs that provide shelter sites for small reptiles and frogs.
- Patches of dense shrubs providing shelter and foraging areas for smaller birds.
- Gully habitats providing uncommon shelter, foraging and water habitats.
- Ephemeral drainage lines and soaks that retain pools of standing water after heavy rainfall.
- Limited hollow-bearing trees that provide important shelter and breeding habitat for a range of mammals and birds, and potentially some reptiles and amphibians.
- Terrestrial termite mounds that provide foraging resource for Short-beaked Echidnas and a breeding resource for the threatened Rosenberg's Goanna.

The reserve has previously been used for agrarian activities and now currently contains both formal and informal infrastructure. These include:

- Roads (public roads and informal vehicle trails)
- Water tanks and mains
- Dams
- Communication infrastructure
- Walking trails (formal and informal)
- Anecdotal buildings (cubby houses and shanties)

1.4 Key issues

The Plan preparation process included the following steps:

- Background literature review of the previous Plan, literature, existing reports, legislation policy and strategic plans that relate to the subject site and the future needs and demands for the area.
- On-ground site assessment
- Preparation of a community consultation plan
- Community consultation;
 - interviews with stakeholders such as:

- NSW Rural Fire Service
- Jerrabomberra Residents Association
- Queanbeyan Landcare
- Ngambri Local Aboriginal Land Council
- Local Residents
- Canberra Ornithologists Group
- Friends of MJASR Bushcare
- Optus
- Online survey
- Community open day including in person surveys
- Councillor Workshop

Based on this process, the key issues surrounding Mount Jerrabomberra are outlined in detail in Section 6.3 Action Plan and summarised as:

- Environmental preservation
- Recreational use of reserve
- Wayfinding and trail management
- Invasive species
- Aboriginal cultural heritage
- Fire management and burning regimes
- Education
- Funding and management



2.0 Relevant Legislation, Policies and Procedures

2.1 Local Government Act 1993 and Local Government (General) Regulation 2005

The Local Government Act is the primary legislation affecting Mount Jerrabomberra Reserve. Section 36 of the LG Act requires the preparation of Plans of Management for all Council owned community land. It provides for the classification of land as operational and community. Community land must be categorised either a park, sportsground, area of cultural significance, general community use, or natural area, and for natural areas sub-categories including bushland, wetland, watercourse, escarpment.

The LG Act governs the preparation of plans of management for community land. It requires plans of management to set out objectives and performance targets with respect to the land, the means by which council will achieve the objectives and performance targets, and how its performance will be assessed and management with respect to the objectives and performance targets.

The plan of management authorises use, easements, lease and licences and other granting of estates on community land.

2.1.1 Community input into PoMs

The LG Act requires that all Plans of Management be placed on public exhibition for a minimum period of 28 days. It also states that a minimum period of 42 days after the draft is placed on public exhibition is allowed during which written submissions may be made to Council (s. 38). These legislative requirements are undertaken concurrently, whereby the draft is in effect placed on public exhibition for 42 days in total which includes the period for written submissions. By writing a submission, members of the community are given the opportunity to participate in the future direction of management of the Council's Open Space.

Submissions allow the community (including residents, interest groups and Government agencies), to express opinions, provide information and suggest alternatives to the proposed management strategies for community open space within Mount Jerrabomberra Reserve. On closure of the period of public comment, all submissions are considered, and relevant amendments are made to the draft PoM's as required.

After consideration of all submissions received, the elected Council may decide to amend the draft plan of management or adopt it without amendment. If Council decides to amend the draft plan, it must publicly exhibit the amendments, as above, until such time as the draft can be adopted without further amendment (s. 40). If Council considers that the amendments are not substantial, it can adopt the amended draft plan of management without public exhibition, however it must give public notice of the adoption, and of the terms of the amended plan of management, as soon as practicable after the adoption.

Council may adopt the plan after any public hearing, which is required if land categories are changed.

2.3 Biodiversity and Conservation Act 2016

The *Biodiversity Conservation Act 2016* (BC Act) seeks to conserve biological diversity at bioregional and State scales. The purpose of the BC Act is to maintain the diversity and quality of ecosystems and enhance their capacity to adapt to change and provide for the needs of future generations. The BC Act mandates the process for assessing the extinction risk of species and ecological communities and the listing process. Furthermore, the BC Act provides a framework to avoid, minimise and offset the impacts of proposed development and land use change on biodiversity. The BC Act requires that Council consider the impact on threatened species and ecological communities before approving developments under Part 4 of the Environmental Planning & Assessment Act 1979 and activities under Part 5 of that Act if proponents opt-in.

The BC Act applies to management of the reserve due to its bushland nature and presence of species with conservation significance.

2.4 Rural Fires Act 1997

The *Rural Fires Act 1997* (RF Act) provides for:

- i.the prevention, mitigation and suppression of bushfires in rural fire districts;
- ii.co-ordination of bushfire mitigation and suppression across all of NSW;
- iii.the protection of people from injury or death and property from damage arising from fires; and
- iv.the protection of the environment.

Under Section 63(1)(a) of the RF Act, 'local authorities' have a duty of care to take all practicable and notified steps (if any) to prevent fire occurring on land under their care and control and to minimise the risk of a fire spreading on or from their land. Councils establish a Service Level Agreement (SLA) whereby the Rural Fire Service (RFS) undertakes many operational bush fire matters on its land on behalf of council, and council undertakes other tasks on behalf of the RFS.

Section 50 of the RF Act establishes the requirement for Bush Fire Management Committees in each LGA where this contains some portion of a Rural Fire District. Part 3 of the *Rural Fires Regulation 2008* (RF Reg) outlines the constitution, membership and functions of a BFMC including the requirements for larger landholder participation.

2.5 Bushfire Environmental Assessment Code

The Bushfire Environmental Assessment Code (NSW Rural Fire Service (RFS) 2006) provides a streamlined environmental assessment and approvals process for (but limited to) bushfire hazard reduction activities via a Hazard Reduction Certificate. Any proposed hazard reduction works within the subject area, which involve the treatment of native vegetation or prescribed burning, require approval, and a Hazard Reduction Certificate issued by the NSW RFS provides a mechanism for this. The Bushfire Environmental Assessment Code provides prescriptions for threatened ecological communities and species of flora and fauna.

2.6 District Bush Fire Risk Management Plan

A Bush Fire Risk Management Plan (BFRMP) describes the level of bush fire risk across an area. The BFRMP identifies assets within the community at risk from bush fire, assesses the level of risk to those assets and establishes treatment options to deal with the risk and the agency or the entity responsible for carrying out those treatments. The Lake George Bush Fire Risk Management Plan (2018) developed by the Lake George Bush Fire Management Committee currently provides general actions for the land to which this plan applies.

2.7 Biosecurity Act 2015

The *Biosecurity Act 2015* provides a framework for the prevention, elimination and minimisation of biosecurity risks posed by biosecurity matter, dealing with biosecurity matter, carriers and potential carriers, and other activities that involve biosecurity matter, carriers or potential carriers. Council is a local control authority under the Act. Weeds in the Mount Jerrabomberra Reserve are prioritised and managed accordingly.

2.8 Heritage Act 1977

The *Heritage Act 1977* provides protection of the environmental heritage of the state which includes places, buildings, works, relics, movable objects or precincts that are of state or local heritage significance. The Act also protects archaeological sites. In NSW, important items of our environmental heritage are listed on the State Heritage Register (SHR).

2.9 Water Management Act 2000

The *Water Management Act 2000* (WM Act) main objective is to manage NSW water in a sustainable and integrated manner that will benefit current generations without compromising future generations' ability to meet their needs. The WM Act is administered by the Natural Resources Access Regulator (NRAR) and establishes an approval regime for activities within waterfront land, defined as the land 40 m from the highest bank of a river, lake or estuary. Council is considered a public authority under the WM Act and is exempt from a *controlled activity approval* but must still ensure any works are in accordance with guidelines outlined by NRAR. There are seven mapped waterways located in the reserve which are classified as 1st order streams under the Strahler Stream order. Any impacts to these streams will require compliance with the WM Act

2.10 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) is the principal planning legislation for NSW providing a framework for the overall environmental planning and assessment of local development consents (Part 4) by Council and activity approvals (Part 5) on public land by authorities including Council.

The EP&A Act provides for the preparation of Queanbeyan-Palerang Council's Local Environmental Plan(s) and Development Control Plan(s), and includes the principal planning controls that apply to Mount Jerrabomberra Reserve.

2.11 Local Environmental Plans

The Queanbeyan Local Environmental Plan (QLEP) 2012 was developed under Division 5 of the NSW Environmental Planning and Assessment Act 1979 (EP&A Act). This LEP provides the principal environmental planning instrument for the reserve in accordance with the relevant standard environmental planning instrument under Division 3.2 to Division 3.5 of the EP&A Act. The Queanbeyan DCP 2012 provides further guidance to the implementation of the QLEP.

Mount Jerrabomberra is zoned as E2 – Environmental Conservation under the QLEP. The objectives for the E2 zone align with the management objectives outlined in Section 36 of the LGA Act for natural areas. The relevant objectives of the zone are to:

- protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values.
- prevent development that could destroy, damage or otherwise have an adverse effect on those values.
- protect threatened species, rivers, creeks and gully ecosystems in Queanbeyan.
- protect water quality by preventing inappropriate development within catchment areas.

2.12 Disability Inclusion Act 2014

The Disability Inclusion Action Plan 2017-2021 for Queanbeyan-Palerang Regional Council was prepared in accordance with the NSW Disability Inclusion Plan and the *Disability Inclusion Act 2014*. The Action Plan demonstrates Council's commitment to people with a disability on improving access to services, facilities and jobs and is also designed to change perceptions about people with a disability. Council has prepared the Action Plan to link to its Community Strategic Plan, Delivery Program and Operational Plans.

2.13 Commonwealth Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)

The EPBC Act provides the national scheme for environmental protection and biodiversity conservation for Matters of National Environmental Significance (MNES). It lists Endangered Ecological Communities (EECs) and Critically Endangered Ecological Communities (CEECs) such as endangered species, populations and communities including marine and migratory (JAMBA/CAMBA/ROKAMBA) species.

The Act provides environmental impact assessment processes for projects of MNES and where impacts are significant, triggers referral to the Commonwealth for approval. MNES relevant to this study area includes threatened ecological communities, threatened species and migratory species. For these entities which have records or habitat within a 5 km radius of the study area, if any proposed works within Mount Jerrabomberra Reserve is likely to have a significant impact on a MNES, a Referral to the Minister would be required.

2.14 State Environmental Planning Policy (Infrastructure) 2007

The Infrastructure SEPP (ISEPP) simplifies the process for providing essential infrastructure such as schools, hospitals, roads, railways, sewer, water supply and electricity delivery by providing specific planning provisions and development controls. It specifies when development is exempt from further assessment, is permissible without consent, requires consent or is

prohibited. The ISEPP applies to all infrastructure in the reserve, in particular the water supply and telecommunications infrastructure, as well as any visitor infrastructure, signage, roads or trails.

2.15 State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017

The aims of this Policy are: to protect the biodiversity values of trees and other vegetation in non-rural areas of the State, and to preserve the amenity of non-rural areas of the State through the preservation of trees and other vegetation.

The Vegetation SEPP will ensure the biodiversity offset scheme under the (BC Act) will apply to all clearing of native vegetation that exceeds the offset thresholds in urban areas and environmental conservation zones that does not require development consent.

2.16 Review of this plan

Actions contained within this site-specific plan will be assessed on an annual basis for inclusion in Council's four-year Delivery Program and annual Operational Plan. In addition, Council will be able to utilise the information contained within this Plan to seek external grant funding and other funding opportunities to improve the management of Mount Jerrabomberra.

3.0 Environmental and Culturally Significant Land

3.1 Habitat of threatened or endangered species

The ecological study conducted by ELA in 2010 found that Mt Jerrabomberra did not support any endangered ecological communities, as listed under the BC Act and EPBC Act. A BioNet Atlas search of threatened species was undertaken on the 13th of May 2021. The data from this has been combined with observed threatened and locally significant flora during the 2010 ELA survey and is presented in Table 1 and Figure 3. It should be noted that some sensitive species cannot be displayed at this resolution due to licence conditions.

Table 1: Threatened flora species recorded in Mount Jerrabomberra Reserve

Scientific name	Common name	BC Act status	EPBC Act status	Locally significant	Year recorded
<i>Leucochrysum albicans</i> var. <i>tricolor</i>	Hoary Sunray	-	E	Yes	2010
<i>Grevillea ramosissima</i>	Fan Grevillea	-	-	Yes	2010
<i>Thysanotus patersonii</i>	Twining Fringed Lily	-	-	Yes	2010
<i>Pomaderris andromedifolia</i>	Pomaderris			Yes	2010
<i>Coronidium oxylepis</i>	Hill Everlasting	-	-	Yes	2010
<i>Acacia penninervis</i>	Mountain Hickory	-	-	Yes	2010
<i>Acacia pycnantha</i>	Golden Wattle			Yes	2010
<i>Styphelia triflora</i>	Pink Five-Corners			Yes	2010
<i>Rutidosis leptorrhynchoides</i>	Button Wrinklewort	E	E	Yes	1993
<i>Swainsona sericea</i>	Silky Swainson-pea	V	-	Yes	1993
<i>Dillwynia cinerascens</i>	Grey Parrot-pea	-	-	Yes	1993
<i>Bossiaea prostrata</i>	Creeping Bossiaea	-	-	Yes	1993
<i>Callitris endlicheri</i>	Black Cyprus Pine	-	-	Yes	1993
<i>Opercularia hispida</i>	Hairy Stinkweed	-	-	Yes	1993

* 'E' = Endangered; 'V' = Vulnerable

A total of 85 fauna species were recorded during the 2010 ecological survey, including three threatened fauna species. A BioNet Atlas search of threatened species was undertaken on the 13th of May 2021. The data from this search has been combined with observed threatened and locally significant fauna during the 2010 ELA survey and is presented in Table 2 and Figure 4. It should be noted that some sensitive species cannot be displayed at this resolution due to licence conditions.

The key fauna habitats identified in the Mount Jerrabomberra Reserve include:

- Intact canopy and understorey foraging resources (seeds, fruit, nectar, pollen, sap, invertebrates) for a range of birds and mammals.
- Open areas of native grasses that provide foraging areas for macropods and birds.
- Limited surface rocks and logs that provide shelter sites for small reptiles and frogs.
- Patches of dense shrubs providing shelter and foraging areas for smaller birds.
- Gully habitats providing uncommon shelter, foraging and water habitats.

- Ephemeral drainage lines and soaks that retain pools of standing water after heavy rainfall.
- Limited hollow-bearing trees that provide important shelter and breeding habitat for a range of mammals and birds, and potentially some reptiles and amphibians.
- Terrestrial termite mounds that provide foraging resource for Short-beaked Echidnas and a breeding resource for the threatened Rosenberg's Goanna.

Table 2: Threatened fauna species recorded in Mount Jerrabomberra Reserve

Scientific name	Common name	BC Act status	EPBC Act status	Detection methods
<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	V	-	Observed
<i>Petroica boodang</i>	Scarlet Robin	V	-	Observed
<i>Daphoenositta chrysoptera</i>	Varied Sittella	V	-	Observed
<i>Miniopterus (schreibersii) orianae oceanensis</i>	Eastern Bentwing Bat	V	-	Echolocation call (confident identification)
<i>Falsistrellus tasmaniensis</i>	Eastern Falsistrelle	V	-	Echolocation call (confident identification)
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V	-	Echolocation call (confident identification)
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheathtail Bat	V	-	Echolocation call (confident identification)

* 'V' = Vulnerable

3.2 Locally Significant Species

Mount Jerrabomberra provides habitat for a significant number of locally and regionally significant species that contribute to the biodiversity of the region. Furthermore, the diverse range of plants, insect and animals contribute to the ecological function of the reserve.

The NatureMapr app has been utilised by local community groups to capture significant data on the occurrence of species across the reserve. Since 2013, 138 species have been recorded occurring within the reserve using the NatureMapr App. These are shown in Appendix B. In 2013; the ACT Flora and Fauna Committee endorsed a list of 317 plant species in the ACT, and wider region, that it considered warranted special conservation consideration, because of their suspected rare or uncommon occurrence in the region. Although these species do not have the same statutory protections as listed threatened or endangered species their protection is still vital to ecological function of Mount Jerrabomberra.

The Molonglo Basin is renowned for its diversity of rare and locally significant orchid species. Approximately 120 different species of orchids are known to occur in the area. Mount Jerrabomberra, along with other reserves in the area such as Black Mountain and Mount Majura, are areas of importance for these species as they provided optimal habitat comprising of low nutrient soils. There are many records of rare and locally significant orchids throughout the reserve. Due to the seasonal nature of these plants it is very difficult to have a complete understanding of the size and diversity of the orchid population. It is therefore important that ongoing management recognises the significance of the reserve as orchid habitat.



Figure 3 Threatened Flora Records



Figure 4 Threatened Fauna Records

3.3 Significant natural features

The Mount Jerrabomberra Reserve is a major natural feature within the Molonglo Basin, visible from various points in the local area and offering a comprehensive view of the surrounds from its highest lookout. Mount Jerrabomberra is connected to adjacent reserve through bushland on public and private property. This connectivity provides significant mobility for native fauna in the locality and allows recreational opportunities for extended connectivity across the region.

Various respondents during the community consultation noted the scenic significance and aesthetic value to the local area (Appendix C).

3.4 Aboriginal cultural significance

Mount Jerrabomberra – and the wider Queanbeyan area - is part of the traditional lands of the Ngambri people. Descendants of the Ngambri are active in maintaining their culture and history. The Ngambri Local Aboriginal Land Council is the primary organisation that represent the various interests of the Ngambri community. The name Jerrabomberra has an uncertain etymology but is generally considered to mean “boy afraid of lightening” and was first recorded when John Palmer was surveying the area in 1827. It is important to note there is a possibility that name was misinterpreted and/or mispronounced by John Palmer prior to recording (Gillespie, 1984).

A significant amount of information is available on the broad pattern of Aboriginal land use in the Queanbeyan region, drawn from historical sources such as the journals of explorers, observations of early settlers and the records of government officials. There are, however, few direct references in relation to Mount Jerrabomberra itself.

McQuilton (in Walker 1988: 4) suggests that Aboriginal people from the Queanbeyan area and surrounding districts would gather on the banks of the Queanbeyan River opposite the Oaks and that “Jerrabomberra” was of spiritual significance to the local Aboriginal people. No detail is provided on the source of that information or on the nature of the significance.

It is likely that Mount Jerrabomberra was visited regularly by the Aboriginal people who have lived in this region for many thousands of years. The area holds cultural significance to the local aboriginal community as an outward example of past lifeways and Aboriginal presence in the region.

A Cultural Heritage Assessment of the area was completed in 2015. No Aboriginal cultural heritage sites registered with Aboriginal Heritage Information Management System (AHIMS) are located within the Project Area. Several small sites are located in the vicinity of Mt Jerrabomberra, which were identified during development of the surrounding residential developments or road infrastructure assessments. Archaeological investigations associated with impact assessment studies for the development of the urban areas of Jerrabomberra have resulted in the recording of 21 sites - all of these are sites where stone tools were made. Scarred trees have also been noted in surrounding areas (Baker et al, 1993).

Whilst it is likely that additional sites are present within the reserve, further consultation with the Ngambri community and archaeological investigation would be required to determine their type and location.

3.5 Non-indigenous cultural significance

The land that now forms the reserve was once part of the Jerrabomberra property originally owned by John Palmer (Queanbeyan Museum, 2013). Evidence of significant stands of coppiced and re-growth eucalypt stands on Mount Jerrabomberra suggests that the mountain,

or at least considerable parts of it were once selective logged. This may possibly have been done as at Black Mountain, with the timber used for fencing and other purposes on the property and to provide greater acreage for grazing.

Mount Jerrabomberra also represents a remnant historic landscape, providing a link between the pastoral heritage of the region and the more recent urban development of the City of Queanbeyan. Mt Jerrabomberra is listed on the Heritage Commission Register of the National Estate. However, this register has been archived and is non-statutory in its function.

Whilst there are no known NSW State or Local Heritage Register listings for the area encompassed by the Mount Jerrabomberra Reserve, it is still possible that relics and archaeological deposits associated with the past 170 years of European occupation of this region may be present within the reserve. Additionally, it is important to note that the area was used for eucalyptus oil production up until the middle of the 20th century and relics of this industry may be present.

4.0 Development and Use

4.1 Overview

This Plan of Management is aligned to aims of Council's Community Strategic Plan, in particular the strategic pillars of community and character. This plan and the future development of Mount Jerrabomberra Reserve is helping to achieve a vibrant, active and sustainable Queanbeyan-Palerang. This Plan seeks to enhance and protect the natural bushland character of the reserve whilst continuing the facilitation of recreational activities that are valued by the local community.

The actions of the Plan are to be incorporated into the QPRC Integrated Planning and Reporting Framework, in particular future Delivery Programs and Operational Plans. Actions have been prioritised and some actions are subject to funding availability in the future. Council should actively identify grants that may help achieve actions in this Plan. Alternatively, actions in this Plan could be funded through special rate variations such as an environmental levy, if ratified by Council and approved by the Minister for Local Government.

4.2 Strategic Objectives

Key objectives

- Manage the reserve in a manner that protects and enhances the values and quality of the reserve.
- Conserve biodiversity and maintain the ecosystem function of the Reserve.
- Provide for the restoration and regeneration of natural areas within the Reserve.
- Provide a range of recreational opportunities that are managed to encourage public appreciation of the Reserves values, the minimisation of conflict between recreational user groups, and quality experiences for all users.
- Promote and facilitate opportunities for environmental education and research to increase understanding and appreciation of the Reserves values throughout the community.
- Proactive management of bushfire risk through planned hazard reduction and improving community preparedness.
- Provide equity of access as an integral part of the long-term plan for the reserve.

- Ensure sufficient resources to deliver this Plan of Management, enhance management capability and visitor enjoyment.

4.3 Purpose and Value of Mount Jerrabomberra

‘Values’ can be described as elements which make a place important. Mount Jerrabomberra values expressed by the community are:

Recreational	the use of the reserve for recreational pursuits in a unique natural setting
Ecological	the reserve provides an important habitat for native plants and animals and contributes to green corridors. It plays a vital role in conserving regional and local biodiversity.
Nature	the opportunity to experience something wild, as well as the picturesque characters of nature in an urban area, providing aesthetic, health and wellbeing benefits.
Aboriginal Cultural Heritage	an opportunity to share and respect the cultural significance of the reserve and continue cultural practices
Education	the reserve offers significant learning opportunities through education and interaction.
Scenic	the prominent mount is an important feature of the reserve’s topographical character. In its forested state it presents a significant backdrop and skyline of natural form to a large ‘viewshed’ spread over Queanbeyan’s suburban development.
Accessibility	an accessible place for all members of the community, in proximity to the city and with good connections both within and to surrounding areas.
Historical	Mount Jerrabomberra demonstrates a living example, in part, of the original nature of Queanbeyan and the immense time scale that it represents.

4.4 Use of the land and structures at the adoption date of the Plan of Management

Table 3 Existing Land Uses

STRUCTURE	CONDITION	FUTURE USE
Water Reservoirs	Very good. Some evidence of vandalism to gate and fence	Continued access required for service and maintenance purposes; need for signage prohibiting trespassing. Potential expansion of Lower Thornton Reservoir with an additional tank. No additional land external to the reservoir site is likely to be required.
Roads and trails	Variable from very degraded to good. Main access road and formal service trails are generally good condition. Unauthorised and impromptu vehicle, cycle and walking trails are often in very poor condition.	Formal roads and trails required to provide ongoing access to water reservoirs, telecommunication towers, management of reserve and fire management. Unauthorised and impromptu trails should be closed and re-vegetated

		where're appropriate while key trails should be formalised and maintained accordingly.
Telecommunication Towers	Very good. Some evidence of minor vandalism.	Continued and ongoing access required for service and maintenance of these facilities.
Water pipelines	Very good. Some infrastructure subject to occasional vandalism.	Access trails associated with water mains will need to be maintained.



Dedication plaque on transfer of ownership of land to the Community on 5 June 2003.



Figure 5 Existing Roads and Trails (there are also informal trails not recorded on this map)

5.0 Management of the Land

5.1 Bushland Management

Management of the bushland within the reserve should seek to protect and maintain the natural environment, habitats, and biodiversity values. The area's scenic appeal should also be maintained and reinforced. The bushland is to serve as an attractive setting for appropriate nature-based recreation and educational activities.

Although outside of the scope of this Plan it is important to note the significance of Mount Jerrabomberra as a crucial component of the connected bushland reserves across Queanbeyan, in particular Bicentennial Park and the East Jerrabomberra Nature Reserve, which connects to Karabar and the Queanbeyan River. Additionally, there are suburban wildlife corridors that connect small nature reserves and parks to Mount Jerrabomberra and the bushland areas listed above.

5.1.2 Biodiversity, Conservation and Bushcare Groups

There are a number of stakeholder groups associated with the reserve. It is imperative these groups continue to contribute to the site to maintain the bushland values. Programs that seek to enhance and actively manage native flora, vegetation communities and habitat values should be supported. Adequate support and guidance as well as follow up and maintenance of their activities need to be included in provisions and funding.

Council should utilise and record the existing knowledge of these community groups to better understand the ecology of the reserve and the impact of these groups' activities. When funds or other resources are available Council should help facilitate the expansion of the groups.

5.1.3 Weed Management

There are a number of introduced species present at the site which should be assessed and actively managed. External and internal stakeholders should be engaged to limit the introduction of exotic plants through illegal dumping and neighbouring garden escapes. Community groups can also be included in weed management.

Weed control priorities include vegetation communities of high significance, declared priority weeds, habitats/populations of native flora and fauna species of high conservation significance, disturbed sites and existing major weed infestations, access trails and any other priorities recommended by biosecurity experts.

Anecdotally, key invasive species present at the reserve include:

- a pine plantation (Figure 6),
- Cootamundra Wattle,
- St John's Wort,
- African daisy,
- Blackberry - weed of national significance
- English Ivy
- African lovegrass – regional

During the community consultation, concern was raised specifically in relation to African lovegrass and its encroachment from urban areas towards the reserve. It was also discussed the benefit of progressively removing the south-eastern pine plantation for biosecurity and bushfire priorities.

Community engagement can educate on biosecurity concerns, such as backyard escapes of garden plants such as privet and agapanthus. Ongoing monitoring of invasive species must be undertaken to inform the strategic management of invasive species and the prioritisation of weed management activities.





Figure 6 Location of Pine Plantation

5.1.4 Fauna Management

The protection of habitat for native fauna must prioritise existing habitats and maintain and enhance connectivity with neighbouring bushland areas. There is opportunity to install educational signage at key locations dependent on a risk assessment. Additional habitat installation may be deemed necessary, including nesting boxes and sandstone rock piles.

Domestic fauna should be managed to reduce impacts to wildlife, recreational use and aesthetic value. Reinforcing 'on-leash' policy for exercising domestic animals in the reserve should be supported by promotion of responsible pet ownership. Related infrastructure should correspond to support appropriate behaviours such as disposing of pet waste and provision of poo bags.

The impacts of priority pest animals should be monitored and control programs implemented as required.

5.1.5 Pest Control

Pest animal management should be based on risk management. Presence of a pest animal may not cause a reasonable problem. Monitoring for impacts should be undertaken regularly to identify any potential issues posed by pest animals. Control actions must be ecologically and socially responsible with the objective of protecting the environment and the productive capacity of natural resources while minimising impacts on the community. It should balance feasibility, cost-effectiveness, sustainability, humaneness, community perceptions, emergency needs and public safety.

The occurrence and impacts of priority pest species identified in the Regional Strategic Pest Animal Management Plan should be assessed and management action taken as considered appropriate.

5.1.6 Erosion Control

The steep slopes of the reserve require appropriate erosion controls. Improvement and maintenance of walking and bike trails are essential to reducing erosion. Illegal trails are a cause erosion and should be rehabilitated, removed and discouraged.

Erosion should also be considered in vegetation management operations to maintain soil integrity, landscape features and conservation values.

5.1.7 Bushland Connectivity

Mount Jerrabomberra is a key bushland reserve in the greater Queanbeyan Region. Mount Jerrabomberra is connected to adjacent reserves through bushland on public and private property. This connectivity provided significant mobility for native fauna in the locality. Additionally, the reserve provides recreational links to other bushland reserves and other recreational areas. It is important that ongoing management takes into account the interrelationship of Mount Jerrabomberra and the other bushland and recreational areas it is connected to.

5.2 Cultural Heritage Values

5.2.1 Aboriginal Cultural Heritage

The area of Mt Jerrabomberra is noted by Walker (1988), as being a meeting place and the location of a large camp for the Aboriginal people of the Queanbeyan area. This information is also included in the Mt Jerrabomberra Wetlands website. As such it is known to hold cultural importance. During the assessment walk-over in 2015, seven new artefact sites were identified generally located on the gently sloping or level terrain on the southern corner of the mountain. This would indicate use of occasional camp sites but no major centres of occupation occurred on the mountain. This relates to the meeting point prior to moving on through the Ngunnawal country, and only used for brief periods of time.

There is opportunity to better include Indigenous stakeholders in the management of the reserve, including fire related activities. Council will partner with the Ngambri Local Aboriginal Land Council to develop educational signage explaining the Aboriginal Cultural history and significance of the mountain.

Community consultation results were in support of increased engagement with Aboriginal cultural heritage at the site.

5.3 Reserve Management

Management of the Reserve needs to facilitate the protection of bushland, recreational use and the provision of visitor infrastructure.

Of respondents to the survey 63% rated the existing facilities good or better and indicated improving walking trails, improving bushland and fauna habitat, and provision of well-marked and sign posted pathways and trails as the most important improvements.

5.3.1 Recreational Use

The Reserve has high recreational value to the community. Common recreational activities include exercise, nature walking, pet walking, mountain biking, environmental projects and bush play. The community also valued the connectivity of Mount Jerrabomberra to other bushland and recreational reserves. Additionally, the community are concerned with prohibited activities in the park in particular motorbike use.

Surveys carried out indicate the top three activities include nature walks, dog walking and bike riding. It is important that the Reserve continues to facilitate a wide range of recreational activities.

5.3.2 Accessibility and Pathways

There is extensive trail access across the Reserve, comprising of authorised and unauthorised trails. Formalising and improving trails for walking, biking and maintenance access should include consideration of different stakeholders, entry points and traffic management. Closure of redundant trails should be included in this process, supporting restoration of native bushland on these paths. Signage will support traffic management and promote lawful use of trails. Improved signage will also help to legitimise different use of trails. Clear signage indicating shared pathways will help to reduce the conflict between different users, i.e. pedestrians and cyclists.

5.3.3 Information and Education

Establishment of interpretive signage will support opportunities for education within the Reserve. Signage can be used to inform visitors of the natural and cultural values of the area whilst encouraging responsible use. Wayfinding signage can be considered in strategic locations.

Signage should be placed in strategic locations to ensure it reaches the majority of visitors. Important locations include main entrances, trails heads, intersections and areas of importance such as the summit and lookout. Council must ensure that any information that is produced and erected in regard to Aboriginal culture heritage is first approved by the Ngambri Local Aboriginal Land Council.

5.3.4 Inclusivity

In line with the QPRC Disability Inclusion Plan, there is opportunity at the Reserve for improved access for people with disability. Forms of inclusion could be through wheelchair access to the site or collaboration with local disability support community groups to organise vehicular access on specific days.

Community consultation also indicated there is opportunity to grow the Reserve as a space for multicultural inclusion. Collaboration with local organisations could improve multicultural inclusion through community environmental projects at the site.

5.3.5 Community Engagement

Continued consultation with the community will be undertaken to identify changing uses of the park and emerging issues. Information sourced from the community will be utilised for the ongoing management of the Reserve.

5.5 Bushfire Management

Mount Jerrabomberra Reserve is mapped as bushfire prone and is surrounded by residential dwellings. The reserve also contains critical infrastructure, natural and heritage assets at risk from bushfire.

5.5.1 Bushfire Risk Analysis

This section describes factors influencing the bushfire risk analysis and has been assessed from existing background literature, Geographic Information System data, a field inspection of the bushfire hazard, a review of assets at risk and desktop assessment.

5.5.1.1 Bushfire Weather

The greatest potential for bushfire events occurs during October-March, which is generally the bushfire danger period declared by the RFS. Whilst the declared bushfire season generally occurs from 1 October to 31 March annually, lower than average rainfall can extend the bushfire season through summer to early autumn. The bushfire season can also be brought forward when a drier than average winter results in the landscape being more susceptible to fires starting and spreading in late spring and early summer.

Typical weather on days of elevated fire danger, is generally hot and dry with strong winds from the northwest and west. There is also particular risk from bushfires burning during these conditions when they are followed by a gusty southerly change. However, bushfires burning under different weather conditions are possible and can present significant risk of bushfire impacts to at risk assets.

5.5.1.2 Vegetation Formation

DPIE (2011) identifies the predominant vegetation in the reserve as Tablelands Dry Shrub-Tussock Grass Forest. This vegetation is classified as Dry Sclerophyll Forests formation of Keith (2004), see Figure 7. There are also patches of heavily disturbed areas in the north, east and west, and a pine plantation in the south-eastern corner of the reserve. Native grasslands and Box-Gum woodlands are not recorded in large areas within the reserve however occur more extensively in proximity to the reserve (ELA, 2010).

For bushfire assessment purposes, the primary formations of vegetation throughout the reserve are classified as 'Forest' and 'Woodland'.

5.5.1.3 Slope & Topography

Mount Jerrabomberra is a high point in the local landscape at 783 m (ASL). The topography slopes away from the peak towards the outer boundaries of the reserve. The bushfire hazard is therefore upslope from the surrounding human settlement. Conversely, three on-site infrastructure assets are affected by downslope hazard.

The effective slope has been determined from 2 m contour data and revised where required by site assessment. The subject land contains steep slopes in all directions, including slopes of approximately >15 to 20 degrees.

5.5.1.4 Climate Change

Changes in climate have the potential to significantly impact bushfire behaviour, likelihood and extent in Australia. The effect of climate change on bushfire risk is still being realised and in particular; predicting the impacts of climate change in specific regions or at the individual site level is very complex.

The extreme fire season of 2019/20 was generated by climate variability and long-term climate trends. These climatic factors have become unusually frequent and confirms past predictions that climate-driven fire risk would be detectable by 2020 (Abram et al, 2021).

It is not clear what the specific effects of climate change will bring for the subject area, however the window for prescribed burning is likely to reduce and the number of days of higher fire danger are likely to increase. Given this context, the extent of prescribed burning achievable may be limited. Further, the number of fires that start and spread within the study area may increase, including under higher fire intensities more frequently. This Plan has considered future climate change (broadly) when determining bushfire risk.

5.5.1.5 Assets at Risk

Bushfire, bushfire management, and bushfire suppression activities all have the potential to adversely impact built, environmental and heritage assets in and around the subject area. Damage or destruction of these assets may have economic, social, health and environmental consequences.



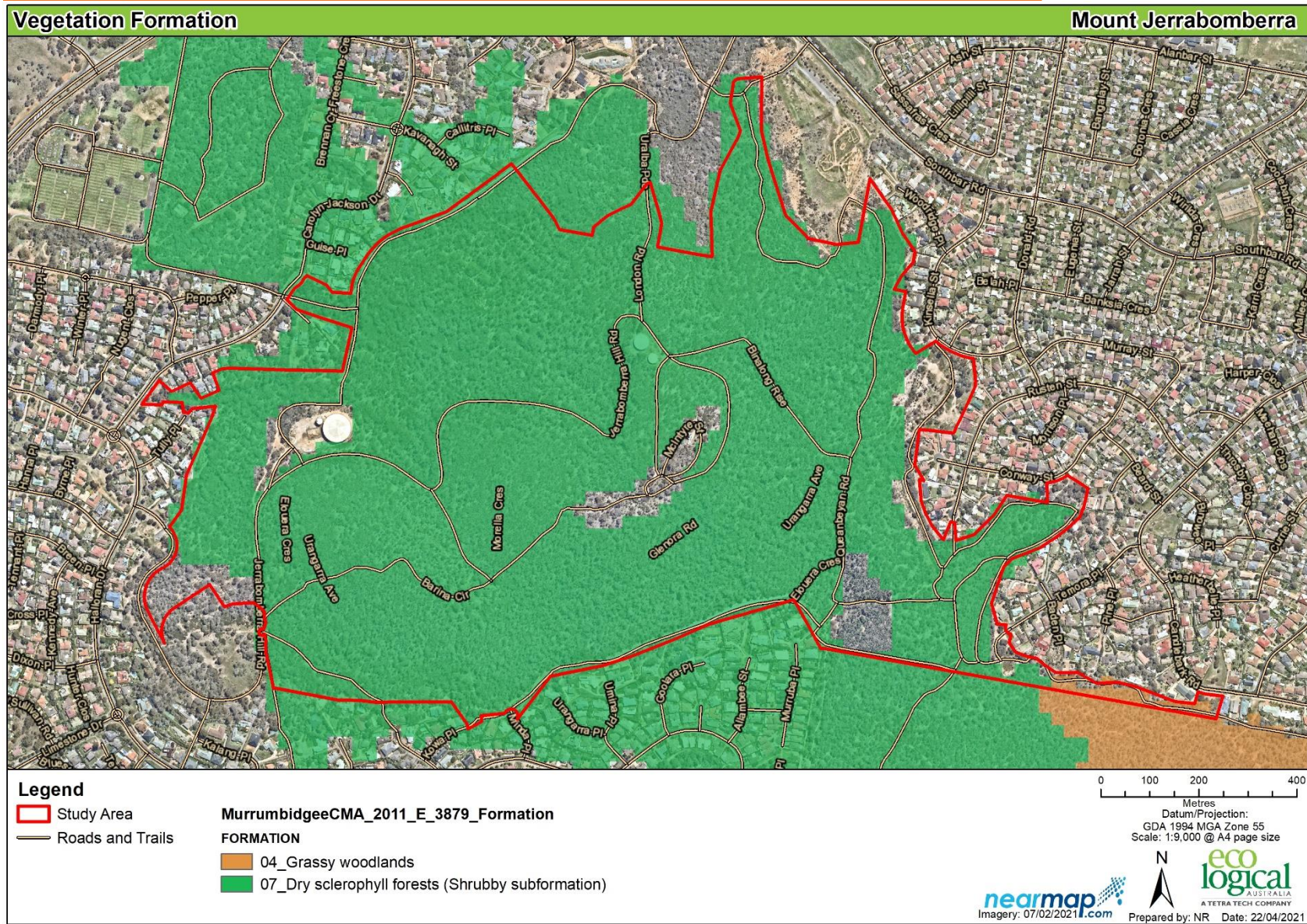


Figure 7 Vegetation Formation

5.5.1.6 Built Assets

Built assets surrounding the subject area predominately include residential dwellings. Built assets within the subject area include telecommunications and water infrastructure, recreational access routes and other reserve related infrastructure such as recreation facilities, gates, fences, and waste bins.

Bushfires will attack built assets through flame contact, wind, radiant heat, smoke and burning debris. Ember attack is responsible for most bushfire related house losses however, with small APZs, flame contact and high radiant heat also pose a significant risk.

Bushfire protection planning aims to prevent flame contact, reduce radiant heat to below the ignition thresholds for various elements of a building, minimise the potential for embers to cause ignition, and reduce the effects of smoke on residents and firefighters. It is noted that the assets on-reserve and adjoining are already existing and may or may not have been constructed to contemporary bushfire protection standards. As such, risk management activities to be undertaken on-reserve cannot, in isolation, remove or even reduce bushfire risk to contemporary policy standards. Risk reduction activities by asset owners warrant consideration, however, are outside the scope of this plan.

5.5.1.7 Environmental Assets

It has been determined that the subject area does not support any listed Threatened Ecological Communities however contains threatened flora species as noted in Section 3.1 of this report.

Threatened flora species present on reserve, such as various orchid populations, are highly vulnerable to inappropriate fire regimes. High frequency fire is listed as a Key Threatening Process on Schedule 4 of the BC Act. Fire management on the reserve must be hypervigilant to not impact these threatened species. It is recommended that QPRC work with community stakeholders to map threatened species on the reserve. Fire Exclusion Zones (FEZ) should correspond with this mapping, where the species is fire sensitive, to limit fire disruption of life cycle processes and ensure ecological values.

Bushfire regimes, bushfire suppression and bushfire management activities also have the potential to exacerbate weed problems. Weed invasion is a threatening process to endangered species and a general management issue for most urban reserves. Weed species that threaten biodiversity in the subject land are African Lovegrass, St John's Wort, Cootamundra Wattle and Pine wildings. These species respond well to exposed, nutrient increased, and competition free conditions following fire. As such, vegetation management activities should be considered in combination with any prescribed burning or following any wildfire.

Fire suppression activities may also damage vegetation and soil through the use of heavy vehicles and the creation of new trails. These trails may erode or become vectors for problems associated with access such as weed and pest invasion, and fire ignition. Appropriate trail management before and after fire may be required to mitigate this risk.

5.5.1.8 Heritage Assets

There are no recorded heritage assets within the subject land however steps to reduce the potential impacts on unidentified cultural sites should be followed. Operational guidelines that

may apply include consultation with the Department of Planning, Industry and Environment during fire management activities and in the event of a site being found, all post-fire reports to consider effects of fire on any identified heritage sites, sites to be protected where known, and utilisation of post-fire conditions to conduct relevant surveys and inspections.

5.5.2 Bushfire Risk Management

Bushfire risk management should aim to reduce both the likelihood and consequences of bushfires. Broad strategies to achieve this aim can be addressed by:

- Ignition management – minimising ignitions and responding rapidly to fire starts;
- Asset protection – fuel management (i.e. mechanical or prescribed burning), community education; and
- Emergency response – suppressing fire starts, minimising fire spread and defence of assets from fire attack.

It is important to note that there can be no guarantee of complete safety from bushfire. Providing an acceptable level of protection and a tolerable residual risk is, to some extent, a compromise between the level of threat, inconvenience, dangers, ability or practicality of implementation, and costs (financial and environmental) involved in providing protection. Typically, the best outcomes are achieved when neighbouring properties, bushfire authorities and Council cooperate to provide bushfire protection measures. Beyond the implementation of this plan, bushfire extension programs are ways that this cooperative approach may be achieved.

5.5.2.1 Bushfire Management Zones

Bushfire management zones are based on the location of assets, topography, land use and potential bushfire hazard and risk (Appendix A). Bushfire management zones are separated into the following four categories, based on the Bushfire Environmental Assessment Code (NSW RFS 2006):

- Asset Protection Zone (APZ);
- Strategic Fire Advantage Zone (SFAZ);
- Fire Exclusion Zone (FEZ); and
- Land Management Zone (LMZ).

Bushfire management zones have been identified and mapped across the subject area to provide a planning framework in which to protect life, property, and the environment. These zones are mapped in Figure 8.

The aim, specifications, and management of each of these management zones is described in Appendix A.



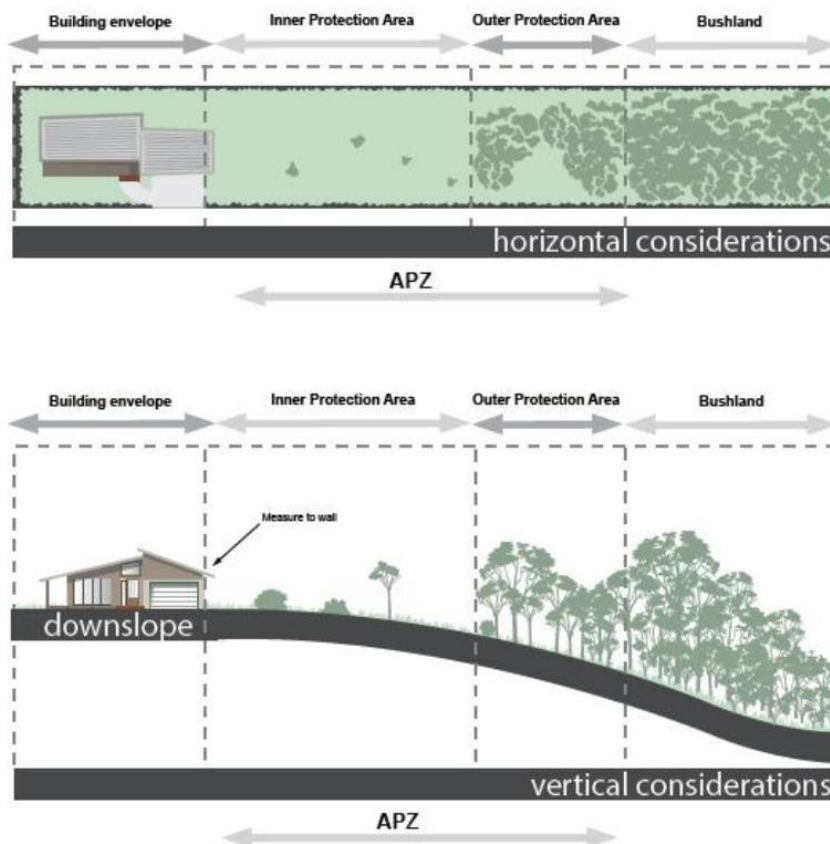
5.5.2.2 Asset protection zones (APZ)

The threat from flame contact and radiant heat to property, assets and thereby persons in and adjacent to the subject area can be significantly reduced by the establishment and maintenance of APZ at the locations displayed within, and Figure 8.

The risk rating in Table 4 has been established considering the vulnerability of the assets during fire season conditions. APZ dimensions have been determined with consideration of: The APZ assessment specifications of Planning for Bush Fire Protection (PBP) (NSW RFS, 2019)

- Existing APZ's
- The Bush Fire Environmental Assessment Code (NSW RFS 2006)
- A field-based assessment of pre-existing conditions (i.e. existing fire breaks, fire trails, managed land, public roads)
- The existing residential setback
- Constraints to management or implementation.

It is noted that PBP APZs are based on potential bushfire exposure of BAL-29. This assumes an AS 3959 BAL-29 construction standard for adjacent buildings. If adjacent buildings are not constructed and maintained to BAL-29, the APZ will not achieve the required standard. Thus, the residual risk to adjoining landholders should also be communicated and encouraged to take measures to reduce their risk.



Inner and Outer Protection Areas (PFBP, 2019)

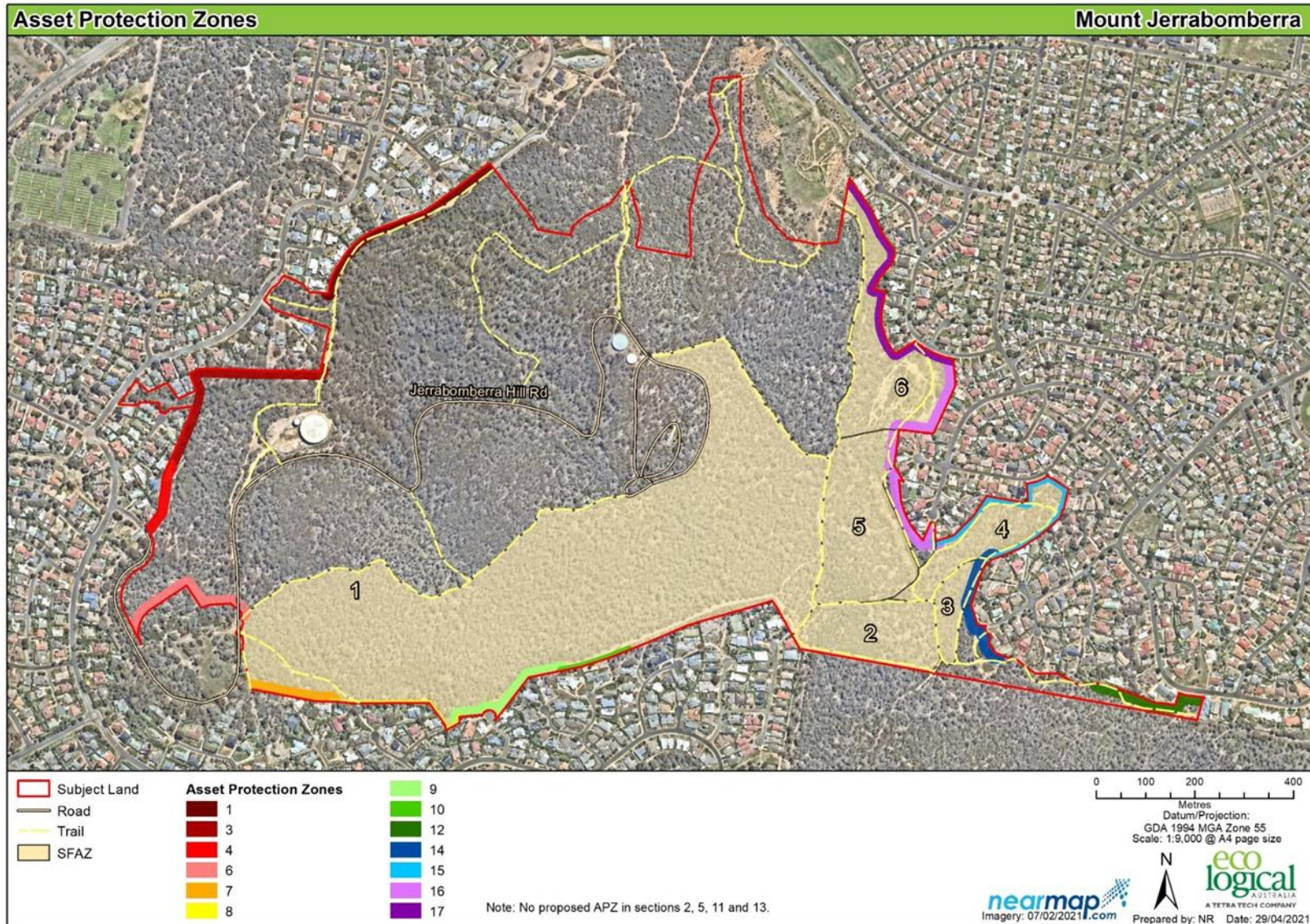


Figure 8 Bushfire Management Zones

Table 4: Bushfire Hazard and APZ assessment for adjoining Residential Assets

APZ #	APZ Location	Slope ¹	Vegetation ²	PBP APZ ³	Private Land Setback	Proposed Reserve APZ	IPA / OPA ⁴ (Reserve) ⁴	Risk Rating	Comment
1	Callitris Place to 42 Carolyn Jackson Drive	All upslope and flat land	Forest	24 m	9 m	15 m	5 m / 10 m	Moderate	Potential for formal vehicle access from Southbar Road. APZ currently fully in place.
2	30 - 38 Carolyn Jackson Drive (and green corridor)	All upslope and flat land	Forest	24 m	≥24 m	NA	NA	Moderate	Area includes a green corridor. APZ currently fully in place.
3	28 Carolyn Jackson Drive to Jerrabomberra Hill Road	All upslope and flat land	Forest	24 m	6 m	18 m	8 m / 10 m	Moderate	Potential for emergency access through green corridor. APZ currently partially in place.
4	29 – 37 Halloran Drive (1)	All upslope and flat land	Forest	24 m	5 m	19 m	9 m / 10 m	Moderate	APZ adjacent to Jerrabomberra Hill Road. Access via Jerrabomberra Hill Road. APZ currently partially in place.
5	39 - 49 Halloran Drive (2)	All upslope and flat land	Forest	24 m	≥24 m	NA	NA	Moderate	APZ adjacent to Jerrabomberra Hill Road. Access via Jerrabomberra Hill Road. APZ currently partially in place.
6	28 – 18 Kalang Place	All upslope	Forest	24 m	5 m	19 m	9 m / 10 m	Moderate	APZ adjacent to Jerrabomberra Hill Road. APZ currently partially in place.

		and flat land							
	16 Euroka Place	All upslope and flat land	Forest	24 m	4 m	20 m	10 m / 10 m	Moderate	APZ currently partially in place.
8	15 - 14 Boree Place	All upslope and flat land	Forest	24 m	18 m	6 m	NA / 6 m	High	Proposed APZ to be managed to existing trail. APZ currently partially in place.
9	Minda Place to Urangarra Place	All upslope and flat land	Forest	24 m	5 m	19 m	9 m / 10 m	High	Proposed APZ to be managed to existing trail. APZ currently partially in place. Potential for vehicle access at Minda Place.
10	Umina Place	All upslope and flat land	Forest	24 m	15 m	9 m	NA / 9 m	High	Proposed APZ to be managed to existing trail. APZ currently fully in place.
11	Goolara Place to Murruba Place	All upslope and flat land	Forest	24 m	≥24 m	NA	NA	High	Potential for vehicle access at Murruba Place and Goolara Place. APZ currently fully in place.
12	76 – 80 Candlebark Road	All upslope and flat land	Forest	24 m	5 m	19 m	9 m / 10 m	Very High	APZ adjacent to unnamed trail. APZ currently partially in place.
13	Pine Place to Baden Place	All upslope and flat land	Forest	24 m	≥24 m	NA	NA	Very High	APZ currently fully in place.
14	Temora Place	All upslope	Forest	24 m	2 m	22 m	12 m / 10 m	Very High	This is a key point of entry to the reserve from the eastern side. Vehicular access

		and flat land							through formal gate at Temora Place, connecting to Murruba Place. APZ currently partially in place.
15	Morgan Place to 61 Rusten Street	All upslope and flat land	Forest	24 m	2m to 24 m	Special Provisions	NA / 10 m	High	Proposed APZ to be managed to existing trail. APZ currently partially in place. APZ has been determined with consideration of the reduced bushfire exposure potential in this area.
16	70 Rusten Street to 9 Kinsella Street	All upslope and flat land	Forest	24 m	4 m	20 m	10 m / 10 m	Very High	APZ adjacent to unnamed trail. APZ currently partially in place.
17	8 Kinsella Street to Southbar Road	All upslope and flat land	Forest	24 m	10 m	14 m	4 m / 10 m	High	Proposed APZ to be managed to existing trail. APZ currently partially in place. Foot traffic access point at Woodridge Place.

¹ Slope most significantly influencing the fire behaviour of the site having regard to vegetation found. Slope classes are according to PBP.

² Predominant vegetation is identified, according to PBP and "Where a mix of vegetation types exist the type providing the greater hazard is said to be predominate".

³ Assessment according to PBP 2019 Table A1.12.2-residential development

⁴ Assessment of Inner Protection Area / Outer Protection Area as per Table A1.12.4 PBP 2019

Table 5: Bushfire Hazard and APZ Assessment for Infrastructure Assets

Asset	Slope¹	Vegetation²	Comment
Lower Thornton Water Supply Reservoir Mt Jerrabomberra Hill Road	>5 to 10 degrees downslope	Forest	Asset manager informed that infrastructure is critical, however has low vulnerability due to its construction and management within the site. Accessible by Jerrabomberra Hill Road and unnamed trail loops around.
Upper Thornton Water Supply Reservoir Mt Jerrabomberra Hill Road	>15 to 20 degrees downslope	Forest	Asset manager informed that infrastructure is critical, however has low vulnerability due to its construction and management within site. Road access on all sides of asset excluding south.
Telecommunications tower and infrastructure	>15 to 20 degrees downslope	Forest	Key pieces of infrastructure are located underground or in concrete shelters. McIntyre Street provides access close to all sides of the asset.

5.5.2.3 Strategic Fire Advantage Zones

The Strategic Fire Advantage Zones (SFAZ) are intended to provide:

- Strategically located fuel reduced areas to reduce the potential for bushfires to spread;
- Areas where fire can more easily be suppressed; and
- Strategically located fuel reduced areas to reduce vulnerability of assets which are susceptible to fire and to support the APZs.

This POM proposes strategically located SFAZs to support those higher risk interfaces of the reserve, particularly where fully sized APZs may not be able to be provided. The proposed SFAZ are shown in 8. Fuel treatment is proposed to be via prescribed burning, supplemented by mechanical means, if required and appropriate.

Prescribed burns have been conducted along parts of the residential boundary by the RFS, between 2009 and 2011. The appropriate fire interval for SFAZ in dry sclerophyll forests (shrub/grass sub formation) is a minimum of 5 years (RFS 2006).

The community has raised concerns of flora species being impacted through fire. Concern has been raised for the preservation of orchid species. In general, it is recommended that prescribed burns avoid being undertaken during spring while orchids are in bloom. Further to this it is recommended that further ecological studies be undertaken of SFAZ to identify flora and fauna species which should be protected from hazard reduction activities.

5.5.2.4 Fire Exclusion Zones

No FEZs are proposed for the reserve at this time. Updates to the mapping of flora and fauna species may warrant FEZs in the future. The community has indicated it is of importance to preserve orchids in the reserve.

5.5.2.5 Land Management Zones

All of the remaining parts of the subject area after APZ, SFAZ and FEZ are excluded, are to be managed as LMZ. These areas are to be maintained towards the upper end of their respective fire intervals (Table 5 in Appendix A) and only burned for ecological purposes in the unlikely event that there is insufficient wildfire in the subject area in the future. No prescribed burning is proposed in the LMZ during the life of this plan. The appropriate fire interval for SFAZ in dry sclerophyll forests (shrub/grass sub formation) is a minimum of 5 years (RFS 2006).

5.5.3 Recommendations

5.5.3.1 Proposed APZs & SFAZs

The proposed APZs must be managed in accordance with Appendix 4 of PBP (summarised in Appendix A). However, a large portion of the area of proposed APZs is already managed through access roads and trails or through Council manual APZ management program. Table 4 and Figure 8 present the location of proposed APZs.

A number of SFAZ have also been proposed to support APZs in strategically important locations. Fuel reduction is proposed in these SFAZs through prescribed burning and/or mechanical means.

Additional measures to support APZs and SFAZ include ignition minimisation, emergency vehicle access and community education. Bollards may be used to limit the outer extent of the APZ on the reserve. It is further recommended that any new dwellings along the residential boundary are built to comply with PBP (RFS 2019) and AS 3959 (SAI Global 2018) or the guidelines and standards in force at the time.

5.5.3.2 Ignition Management

Minimisation of potential ignitions is essential to fire management. It is recommended a fire danger and ignition risk awareness signs be included with educational signage at key access points to the reserve. Bans on smoking, fuel cooking fires, hot works restrictions and other ignition generating works should be introduced. Only electric or gas barbecues are to be provided for recreation if picnic areas are introduced.

5.5.3.3 Proposed Usage Restrictions

Increased unrestricted human access poses a risk to both increased potential for ignitions and human safety. It is recommended QPRC formalise trails for cycling and walking, close redundant trails, and develop safety measures for focussed trails.

5.5.3.4 Emergency Access

Proposed recommendations for improvements in emergency access are indicated in APZ table (Table 4).

5.5.3.5 Education and extension programs

The maintenance of APZs proposed in this plan will provide a significant benefit in the protection of community assets adjoining the area. It should be noted that assets within adjoining lands cannot be totally protected without complimentary bushfire protection activities on private property. Community education/extension programs by Council, NSW RFS, and FRNSW should be conducted to facilitate this process.

The objective of extension programs is to effectively share the fire management responsibility among the neighbouring residents and local community by providing information, raising awareness, and improving their fire management capabilities. Readiness and awareness of the community is vital to ensure the safety of people and the preparation of their dwellings and assets. To achieve this objective, it is recommended that QPRC implement the following initiatives:

- Relevant bushfire management works undertaken within the subject area should be advertised to neighbours and to relevant stakeholder groups
- Support community groups who have an interest in the reserve. Community based groups offer an effective means to raise awareness of fire related issues and encourage public cooperation and participation in fuel management practices

- In conjunction with local fire brigades, undertake advertising and other community-awareness campaigns aimed at reducing the frequency of bushfires, increasing asset protection, and providing safe bushfire response behaviour
- Council works with its Community Engagement Team to encourage residents to prepare dwellings, assets and bushfire survival plans
- Use signs within the subject area, leaflets, displays and other available interpretative media to disseminate fire related messages.

5.5.3.6 Stakeholder Collaboration

Continued collaboration with stakeholders is optimal for achieving appropriate fire management. It is recommended that QPRC continue to collaborate with relevant stakeholders, especially local fire authorities.



6.0 Plan of Management Administration and Management

6.1 Management Issues

The current issues for the reserve have been identified by site analysis, review of previous studies, and community consultation. An understanding of the reserve's issues and threats and the constraints which apply is an essential pre-requisite to the process of determining its future path.

Table 6: Key management issues

TOPIC	ISSUE
Environmental Preservation	<ul style="list-style-type: none"> • Conservation of threatened species • Conservation of orchid species • Erosion control • Connectivity to adjacent bushland • Future impacts of climate change
Recreational Use of Reserve	<ul style="list-style-type: none"> • Variety of recreational uses • Ensuring environmental values • Equitable access for different users • Inclusivity
Wayfinding and trail management	<ul style="list-style-type: none"> • No navigational aids inside the Reserve • Proliferation of trails and lack of a trail hierarchy • Minimal information at entrance points • Steep paths due to topography • Parking demands at access points
Invasive Species	<ul style="list-style-type: none"> • Emergence of invasive species on the Reserve fringes • Difficult and expensive to undertake comprehensive weed management • Wilding pines spreading from pine plantation in south eastern corner of reserve. • Domestic Animal Management • Pest Animal Management
Aboriginal Cultural Heritage	<ul style="list-style-type: none"> • Aboriginal Cultural Heritage of the Reserve not prominent • Opportunities to partner with Ngambri LALC to embrace traditional cultural practices on the Reserve
Bushfire Management	<ul style="list-style-type: none"> • Vulnerability of neighbouring residential properties • Hazard management zones • Access for fire fighting vehicles
Education and research	<ul style="list-style-type: none"> • Educational opportunities are under resourced and under utilised • Lack of interpretative signage • Lack of research and monitoring
Funding and Management	<ul style="list-style-type: none"> • Acquisition of adjacent private property • Land issues associated to existing paper subdivision • Provision of amenities • Delivery of critical infrastructure services – including vehicular access. • Supporting the volunteers

6.2 Management Actions

Management Actions presented in Table 7 outline the range of actions to be undertaken by the Council in conjunction with this PoM. Each action has been allocated a:

- Priority
- Resource Estimation
- Performance Target
- Means of Measurement.

For the action plan:

- Priority actions
 - High to commence within first year of the plan for completion within 5 years
 - Medium to commence within first three years of the plan for completion within 7 years
 - Minor to commence within five years of the plan.
- Resource estimates are broad estimates of capital and operational expenditure
 - High > \$50 000
 - Moderate <\$50 000 and >\$10 000
 - Minor < \$10 000.

6.3 Action Plan

The following site-specific actions are in addition to those listed in the generic plan for all bushland.

Table 7: Management Action Plan

Management action	Description	Priority	Resource estimation	Performance target	Means of measurement
BM1 Bushland Management	Manage the Reserve to protect and enhance the natural environment, habitats and biodiversity values; to maintain and reinforce the area's scenic value/appeal; as an attractive setting for appropriate nature-based passive recreation and educational activities. Ensure the connectivity of the reserve to adjacent bushland areas.	High	Moderate	No reduction in bushland extent or biodiversity value	Observation, mapping and photographic monitoring. Annual review
BM2 Biodiversity, Conservation and Bushcare Groups	Maintain and enhance habitats for threatened species, rare and regionally significant species. Continued support for bush regeneration program and collaboration with community groups. Continue to implement a rolling programme of bush regeneration, revegetation and weed control measures as the major "active" management measures to maintain and enhance the Reserve's native flora, vegetation community and habitat values. Priorities to consider in targeting bush regeneration and weed control measures will include: <ul style="list-style-type: none"> • vegetation communities of high conservation significance • declared priority weeds, and environmental weeds with a high potential for spread 	High	Moderate	Engagement with local community groups for bush regeneration	Extent of collaboration between council and the community groups. Area of completed bush regeneration, monitored annually

Management action	Description	Priority	Resource estimation	Performance target	Means of measurement
	<ul style="list-style-type: none"> habitats/populations of native flora and fauna species of high conservation significance disturbed sites and existing major weed infestations areas vulnerable to weed invasion/spread (such as roadsides, trail sides and major visitor use nodes) bushland that acts as a natural corridor along Reserve's boundary as guided by any vegetation management/rehabilitation plan for the Park (if/when prepared) as guided by any vegetation management/rehabilitation plan for the Park (if/when prepared) 				
BM3. Weed Management	<p>Actively monitor and manage the introduction of invasive species, in particular regionally significant and environmental weeds, as a risk is identified under the <i>Biosecurity Act 2015</i>.</p> <p>Undertake educational activities with neighbouring residents to help reduce instances of weeds entering the reserve from adjoining properties. Issue PINs as required.</p>	High	Minor	<p>Reduction in number of unmanaged exotic plants/weeds.</p> <p>Improved community engagement and education.</p>	<p>Weed surveys.</p> <p>Community feedback.</p> <p>Annual review</p>
BM4 Weed management	<p>Continue to implement programs of weed control measures to be conducted by community groups and biosecurity teams. Regeneration, revegetation and weed control efforts will include provision (and sufficient funding) for adequate follow-up treatments to ensure improvements to bushland quality/integrity are ensured.</p>	Medium	Moderate	<p>Improved bushland condition with reduced weed infestations.</p>	<p>Observations.</p> <p>Bushland condition assessments</p>

Management action	Description	Priority	Resource estimation	Performance target	Means of measurement
BM5 Weed management	<p>Ensure existing pine plantation in south-eastern corner of the property (Figure 6) does not spread further through wildling pines. Explore the cost benefit of progressively removing pine plantation compared to removing entire plantation in one package of works</p> <p>Undertake removal of pine plantation.</p>	Medium	High	Improved bushland condition and reduced bushfire hazard	<p>Record of works undertaken</p> <p>After work conduct annual survey and remove wildling pines</p>
BM6 Fauna management	<p>Continued implementation of 'on-lead' policy for exercising domestic animals in the Reserve.</p> <p>Domestic animal control messaging and advice to be incorporated into a code of conduct for reserve use, promoting owner responsibility. See management action RM4</p>	Medium	Minor	Increased user satisfaction with broader appeal to the wider community.	Community and stakeholder feedback.
BM7 Erosion control	<p>Monitoring of trails to be undertaken, utilise local community for condition reporting. Advise community of what to look for.</p> <p>Identification and assessment of erosion and scouring hot spots. If erosion in the area is having adverse impact on adjacent vegetation install appropriate erosion sediment controls.</p> <p>Consider revegetation of poorly used trails during this process.</p>	Moderate	Medium	Minimise	<p>Annual review of trail condition</p> <p>Observation and reports</p> <p>Record management decisions</p>
AB1 Aboriginal Cultural Heritage Values	<p>Ensure known Aboriginal cultural heritage sites (and any confirmed sites located/recorded in future) – as listed on the Department of Industry Planning and Environment's Aboriginal Heritage Information Management System – are appropriately managed as consistent with the <i>National Parks and Wildlife</i></p>	High	Minor	Aboriginal cultural heritage sites maintained in compliance with legislative obligations.	<p>Engagement with local Aboriginal Land Council's.</p> <p>Incidence of damage to</p>

Management action	Description	Priority	Resource estimation	Performance target	Means of measurement
	<i>Act 1974.</i> Continue the existing approach of not publicly disclosing the location of Aboriginal sites and avoiding siting facilities in close proximity to Aboriginal sites, as the principal management tool and means of protecting such places.				Aboriginal cultural heritage sites.
AB2 Aboriginal Cultural Heritage Values	Partner with the Ngambri LALC to develop educational signage explaining the Aboriginal cultural history and significance of the mountain. Ngambri LALC to give final approval to any signage relevant to Aboriginal cultural history.	High	Minor	Installation of signage and development of a trusted partnership	Completion of works Community feedback
AB3 Aboriginal Cultural Heritage Values	Where appropriate embrace and permit traditional Aboriginal land management and cultural practices. Consult with Ngambri LALC to determine appropriateness.	Medium	Medium	Opportunities to embrace traditional Aboriginal practices are considered and implemented	Community feedback
RM1 Reserve management	Continue to facilitate all appropriate recreational use by the community. Including bushwalking, pet walking, mountain biking and trail running. Develop a Reserve Code of Conduct to inform and promote respectful use of the Reserve. The code should promote shared use of reserve, trail rules, respect for the environment, and prohibited activities. Code of conduct to be included in signage and also published on Council's website and social media platforms. Incorporate action into RM4	High	Medium	Code of conduct developed and installed in various entrance points to the Reserve	Completion of works

Management action	Description	Priority	Resource estimation	Performance target	Means of measurement
RM2 Accessibility and pathways	Consolidate trail network, formalising walking, bike riding and maintenance trails. Map and maintain them for users while closing and regenerating unauthorised trails.	High	Moderate	Formalised trail network recorded and recorded on Council's asset management system Increased level of satisfaction of users of the reserve.	Completion of works. Community feedback.
RM3 Accessibility and pathways	Develop new park entranceways at Mt Jerrabomberra Hill Rd entrance and Temara Place. Incorporate urban design, plant native vegetation for screening from residences and restoration of remnant vegetation. Formalise car parking areas and install signage.	Medium	High	Entrance ways are attractive and provide an obvious point of access to the Reserve. Improve parking availability and reduce use of informal/illegal parking	Completion of works Community feedback
RM4 Information and Education	Develop a map of the existing trail network and install signage to assist navigation of the Reserve. Install signage at reserve entrances, all trailheads, major trail cross roads and forks. Signage can help provide education on the reserve, conservation and sustainability. Incorporate actions AB2, BM6 and RM1 into signage	High	Medium	Improve reserve information on offer to users and facilitate navigation	Completion of works Community feedback
RM5 Reserve Management	Continued engagement with community and stakeholders to understand changes to the reserves and issues that need to be addressed.	High	Minor	Continued high level of satisfaction of visitors to the reserve	Annual online and in-park survey on satisfaction of reserve amenities / environmental values.

Management action	Description	Priority	Resource estimation	Performance target	Means of measurement
RM6 Reserve Management	Work with neighbours to improve understanding of encroachment issues. Monitor and report unauthorised activity, including encroachments and dumping. Promote code of conduct for reserve.	High	Minor / Existing	Decrease in incidences of encroachments and unauthorised activity	Number of incidences and reporting and action time
RM7 Reserve Management	Prioritise improvements according to community and stakeholder consultation. See Appendix C. Community consultation showed a significant level of satisfaction with current facilities, so improvements are not considered urgent.	Medium	Minor	Review of PoM linked to Council's annual strategic planning review	Community and stakeholder feedback
RM8 Reserve Management	Operation of critical infrastructure located in adjacent land must not be impeded by recreational or bushland management activities in the reserve. Consultation must be undertaken prior to bushfire hazard reduction activities. This includes telecommunication devices, water and airport communication devices.	High	Minor	Critical infrastructure continues to serve its purpose unimpeded by recreation use on community land	Stakeholder feedback
RM9 Inclusivity	Collaborate with community organisations to identify potential for accessibility improvements. Understand the appetite, cost and potential environmental impact of upgrading some tracks to allow wheelchair access. Provide vehicular access to people and groups with mobility issues on specific days throughout the year. Work with local community groups to organise these events.	Medium	High	Inclusion through accessibility and community programs.	Community feedback
BF1 Bushfire Management	Collaborate with neighbouring residence and infrastructure stakeholders to ensure bushfire	Medium	Moderate	Maintenance of private APZs.	Community feedback

Management action	Description	Priority	Resource estimation	Performance target	Means of measurement
	management is undertaken on land adjacent to the reserve. Investigate community appetite to develop community liaison groups to lead and disseminate information on bushfire management in the area.				
BF2 Bushfire Management	Undertake bushfire risk management activities listed in section 5.4.3 of this plan.	High	High	Minimise bushfire risk to the local community	Annual maintenance records.
BF3 Bushfire Management	Restricted access reduced potential for ignitions. Maintenance of formal trail networks and APZ to allow appropriate access to firefighting operations. Collaboration with stakeholders to develop community awareness on bushfire risk and safety. Install signage regarding bushfire dangers and ignition management.	High	Moderate	Appropriate access for firefighting operations. Community awareness of bushfire safety.	Annual review.
FM1 Funding and Management	Council should consider acquiring adjacent parcels of land that are currently held as private property as the come available and funding permits. Council should target land that provides connectivity between exiting bushland reserves, has significant biodiversity value and has minimal development potential.	Medium	High	Completed land purchases/acquisitions	Annual reporting and budget process
FM2 Funding and Management	Investigate the appropriate location and type of amenities required to support the ongoing use of the park in a sustainable manner. Amenities may include water fountains, waste receptacles, toilets and outdoor furniture.	Medium	High	The community is satisfied with the amenities of the reserve	Community and stakeholder feedback

References

Abram, N.J., Henley, B.J., Sen Gupta, A. et al.. 2021. Connections of climate change and variability to large and extreme forest fires in southeast Australia. *Commun Earth Environ*, 2(8), <https://doi.org/10.1038/s43247-020-00065-8>.

Baker, T., Clancy, N., Gibbons, P. and Lyons, S. 1993. *A recreation plan for open space and bushland in the city of Queanbeyan*. School of Resource and Environmental Management, The Australian National University.

Department of Planning, Industry and Environment (DPIE). 2011. Forest Ecosystems: Native Vegetation of the Southern Forests: South-east Highlands, Australian Alps, South-west Slopes, and SE Corner bioregions. Pre-1750. VIS ID 3859.

Eco Logical Australia (ELA). 2010. Ecological Study - Findings Report – Mount Jerrabomberra. A report for Queanbeyan City Council. ELA, St Georges Basin.

Fleming, G. 2017. *Bushfire Management Plan – Mount Jerrabomberra*, Jerrabomberra, NSW. Grant Fleming Environmental, Magill SA.

Gillespie, L. L. (1984). *Aborigines of the Canberra Region*. Campbell, ACT: L.L. Gillespie.

Keith, D. 2004. *Ocean Shores to Desert Dunes*. Department of Environment and Conservation, Sydney.

Lake George Bush Fire Management Committee (BFMC). 2018. Bush Fire Risk Management Plan.

NPWS. 2004. Guidelines for Ecologically Sustainable Fire Management. NSW Biodiversity Strategy.

NSW Rural Fire Service (RFS). 2019. Planning for Bush Fire Protection: A Guide for Councils, Planners, Fire Authorities, and Developers. State of New South Wales.

NSW Rural Fire Service (RFS). 2006. Bush Fire Environmental Assessment Code for New South Wales. State of New South Wales.

Queanbeyan Museum. (2013, July 02). Jerrabomberra. Retrieved from <https://queanbeyanmuseum.org.au/jerrabomberra/>

Standards Australia (SA). 2018. Construction of buildings in bushfire-prone areas, AS 3959-2018. SAI Global, Sydney.

Standards Australia (SA). 2018. Risk management – Guidelines, AS ISO 31000. SAI Global, Sydney.

Appendix A – Bushfire Management Zones

The following tables provide an overview of the intended aim, specification and management notes for the bushfire management zones.

Table 1: Asset Protection Zone

Asset Protection Zone Details	
Aim	To provide a fuel managed zone between the asset in question and the nearby bushfire hazard to protect from direct flame attack and facilitate firefighting access
Specifications	Area managed primarily for fuel reduction purposes.
Management	Vegetation within the APZ is managed at a high intensity to minimise the fuel available to a bush fire. As a minimum, APZs are to be treated on an annual basis.

Table 2: Strategic Fire Advantage Zone

Strategic Fire Advantage Zones	
Aim	To provide a strategic area of fire protection advantage in which to reduce speed, intensity, spotting potential of bushfires and aid in bushfire containment.
Specifications	Area managed primarily for fuel reduction purposes.
Management	Provide for a mosaic fuel reduction pattern and reduce fuels below a high hazard level. Can be achieved by prescribed burning or mechanical means (where appropriated).

Table 8: Fire Exclusion Zone

Fire Exclusion Zone Details	
Aim	To maintain biodiversity and aesthetics
Specifications	Fire to be excluded from these zones
Management	Suppress all wildfires Long term weed suppression

Table 4: Land Management Zone

Land Management Zones	
Aim	To manage land primarily for conservation.
Specifications	Area managed primarily for environmental purposes.
Management	Long term weed suppression (minimum annual weed removal). Consider the implementation of ecological burns following fuel hazard assessments where applicable.

Vegetation/Fuel Management Prescription within APZ

The following section details the vegetation management prescriptions for Inner Protection Area (IPA) and Outer Protection Area (OPA) and is taken from PBP (RFS 2019).

When establishing and maintaining an IPA the following requirements apply:

Trees:

- canopy cover should be less than 15% (at maturity) trees (at maturity) should not touch or overhang the building;
- lower limbs should be removed up to a height of 2m above ground;
- canopies should be separated by 2 to 5m;
- preference should be given to smooth barked and evergreen trees.

Shrubs:

- create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings;
- shrubs should not be located under trees;
- shrubs should not form more than 10% ground cover;
- clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.

Grass:

- should be kept mown (as a guide grass should be kept to no more than 100mm in height) leaves and vegetation debris should be removed.

When establishing and maintaining an OPA the following requirements apply:

Trees:

- tree canopy cover should be less than 30%;
- trees should have canopy separation by 2 to 5m

Shrubs:

- shrubs should not form a continuous canopy;
- shrubs should form no more than 20% of ground cover.

Grass:

- should be kept mown (as a guide grass should be kept to no more than 100mm in height) leaf and other debris should be mown, slashed or mulched.

Vegetation Formation (and Chapter in Keith 2004)	Minimum fire interval for SFAZ (years)	Minimum fire interval for LMZ (years)
Rainforests (1)	No burning permitted	No burning permitted
Wet sclerophyll forests (shrubby subformation) (2)	25	30 Low intensity fire only
Wet sclerophyll forests (grassy subformation) (2)	10	15 Low intensity fire only
Grassy woodlands (3)	5	8
Grasslands (4)	2	3
Dry sclerophyll forests (shrub/grass subformation) (5)	5	8
Dry sclerophyll forests (shrubby subformation) (5)	7	10
Heathlands (6)	7	10
Alpine complex (7)	No burning permitted	No burning permitted
Freshwater wetlands (8) excluding classes excluded under 2.4	7	10
Forested wetlands (9)	7	10
Saline wetlands (10)	No burning permitted	No burning permitted
Semi-arid woodlands (grassy subformation) (11)	6	9
Semi-arid woodlands (shrubby subformation) (11)	10	15
Arid shrublands (chenopod subformation) (12)	No burning permitted	No burning permitted
Arid shrublands (acacia subformation) (12)	10	15

Table 5 Fire Interval Table for SFAZs and LMZs (RFS 2006)

Appendix B – NatureMapr Records from 2013

Mount Jerrabomberra NatureMapr App Records from 2013			
138 Species Recorded by App Users			
Those listed as rare/uncommon / threatened are listed below			
Scientific Name	Common Name	Scientific Name	Common Name
<i>Diphucrania duodecimmaculata</i>	12-spot jewel beetle	<i>Ptilotula fuscus</i>	Fuscous Honeyeater
<i>Grevillea ramosissima</i> subsp. <i>ramosissima</i>	Fan Grevillea	<i>Strepera versicolor</i>	Grey Currawong
<i>Hibbertia ericifolia</i> subsp. <i>ericifolia</i>	A guinea flower	<i>Daphoenositta chrysoptera</i>	Varied Sittella
<i>Leucochrysum albicans</i> subsp. <i>tricolor</i>	Hoary Sunray	<i>Petroica boodang</i>	Scarlet Robin
		<i>Rutidosia leptorhynchoides</i>	Button wrinklewort
The rest of the sighted species are alphabetical			
Scientific Name	Common Name	Scientific Name	Common Name
<i>Acacia implexa</i>	Hickory Wattle	<i>Hestiochora furcata</i>	A zygaenid moth
<i>Acacia pycnantha</i>	Golden Wattle	<i>Hovea heterophylla</i>	Common Hovea
<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill	<i>Indigofera australis</i> subsp. <i>australis</i>	Australian Indigo
<i>Acanthiza lineata</i>	Striated Thornbill	<i>Iridomyrmex purpureus</i>	Meat Ant
<i>Acanthiza pusilla</i>	Brown Thornbill	<i>Kunzea parvifolia</i>	Violet kunzea
<i>Acanthiza reguloides</i>	Buff-rumped Thornbill	<i>Lactarius deliciosus</i>	Saffron Milk Cap
<i>Acanthorhynchus tenuirostris</i>	Eastern Spinebill	<i>Lepidosperma laterale</i>	Variable Sword Sedge
<i>Accipiter fasciatus</i>	Brown Goshawk	<i>Leucopogon fletcheri</i> subsp. <i>brevisepalus</i>	Twin Flower Beard-Heath
<i>Alternanthera</i> sp. A Flora of NSW (M. Gray 5187) J. Palmer		<i>Leucopogon</i> sp.	A Beard-heath
<i>Amyema miquelii</i>	Box Mistletoe	<i>Lichenomphalia chromacea</i>	Yellow navel
<i>Anthochaera carunculata</i>	Red Wattlebird	<i>Lomandra filiformis</i>	Wattle Mat-rush
<i>Aquila audax</i>	Wedge-tailed Eagle	<i>Lomandra filiformis</i> subsp. <i>coriacea</i>	Wattle Matrush
<i>Asplenium flabellifolium</i>	Necklace fern	<i>Malurus cyaneus</i>	Superb Fairywren

Scientific Name	Common Name	Scientific Name	Common Name
<i>Astroloma humifusum</i>	Cranberry heath	<i>Maratus chrysomelas</i>	Variable Peacock Spider
<i>Austrocardiophorus</i> sp.	Click beetle	<i>Melobasis propinqua</i>	Propinqua jewel beetle
<i>Austrogomphus guerini</i>	Yellow-striped Hunter	<i>Microseris walteri</i>	Murnong, Yam Daisy
<i>Brachychiton populneus</i> subsp. <i>populneus</i>	Kurrajong	<i>Microtropesa</i> sp.	Tachinid fly
<i>Brachyscome rigidula</i>	Hairy cut-leaf daisy	<i>Morethia boulengeri</i>	Boulenger's Skink
<i>Bursaria spinosa</i>	Native Blackthorn	<i>Myrmecia</i> sp.	Bull ant or Jack Jumper
<i>Cacatua galerita</i>	Sulphur-crested Cockatoo	<i>Neochmia temporalis</i>	Red-browed Finch
<i>Caligavis chrysops</i>	Yellow-faced Honeyeater	<i>Nesoptilotis leucotis</i>	White-eared Honeyeater
<i>Calotis lappulacea</i>	Yellow burr daisy	<i>Obrida fascialis</i>	One banded longicorn
<i>Camponotus claripes</i>	Pale-legged sugar ant	<i>Ocyphaps lophotes</i>	Crested Pigeon
<i>Camponotus intrepidus</i>	Flumed Sugar Ant	<i>Oecophorinae indeterminate species 1</i>	
<i>Cassinia longifolia</i>	Shiny Cassinia, Cauliflower Bush	<i>Oriolus sagittatus</i>	Olive-backed Oriole
<i>Cassinia sifton</i>	Sifton bush, Chinese Shrub	<i>Orthetrum caledonicum</i>	Blue Skimmer
<i>Cassytha pubescens</i>	Devils Twine	<i>Oudemansiella 'radicata group'</i>	Rooting shank
<i>Castiarina crenata</i>	Crenata jewel beetle	<i>Pachycephala pectoralis</i>	Golden Whistler
<i>Castiarina indistincta</i>	Jewel Beetle	<i>Pachycephala rufiventris</i>	Rufous Whistler
<i>Castiarina kerremansi</i>	A jewel beetle	<i>Papilio anactus</i>	Dainty Swallowtail
<i>Castiarina klugii</i>	A Castiarina jewel beetle	<i>Papyrius</i> sp (undescribed)	Hairy Coconut Ant
<i>Castiarina vicina</i>	Vicina jewel beetle	<i>Pardalotus punctatus</i>	Spotted Pardalote
<i>Celibe limbata</i>	Pie-dish beetle	<i>Pardalotus striatus</i>	Striated Pardalote
<i>Cheilanthes austrotenuifolia</i>	Rock fern	<i>Phaps chalcoptera</i>	Common Bronzewing
<i>Cheilanthes sieberi</i>	Rock fern	<i>Pimelea linifolia</i>	Slender Rice Flower
<i>Chenonetta jubata</i>	Australian Wood Duck	<i>Platycercus elegans</i>	Crimson Rosella

Scientific Name	Common Name	Scientific Name	Common Name
<i>Chetogaster violacea/viridis</i> (complex)	Bristle Fly	<i>Platycercus eximius</i>	Eastern Rosella
<i>Colluricincla harmonica</i>	Grey Shrike-thrush	<i>Podargus strigoides</i>	Tawny Frogmouth
<i>Collybia s.l.</i>		<i>Polyrhachis semiaurata</i>	A golden spiny ant
<i>Cormobates leucophaea</i>	White-throated Treecreeper	<i>Pomaderris betulina</i> subsp. <i>betulina</i>	Birch Pomaderris
<i>Coronidium oxylepis</i> subsp. <i>lanatum</i>	Woolly Pointed Everlasting	<i>Pomaderris sp.</i>	
<i>Corvus coronoides</i>	Australian Raven	<i>Psilomorpha tenuipes</i>	Longhorn Beetle
<i>Cracticus torquatus</i>	Grey Butcherbird	<i>Psilota sp. (genus)</i>	Hover fly
<i>Cryptes baccatus</i>	Wattle Tick Scale	<i>Rhipidura fuliginosa</i>	Grey Fantail
<i>Cymbopogon refractus</i>	Barbed-Wire Grass	<i>Russula sp.</i>	An ectomycorrhizal mushroom
<i>Dacelo novaeguineae</i>	Laughing Kookaburra	<i>Sericornis frontalis</i>	White-browed Scrubwren
<i>Drosera auriculata</i>	Tall Sundew	<i>Smicronis brevirostris</i>	Weebill
<i>Drosera sp.</i>	A Sundew	<i>Stackhousia monogyna</i>	Creamy Candles
<i>Ectomocoris patricius</i>	Ground assassin bug	<i>Strepera graculina</i>	Pied Currawong
<i>Ectopis excursaria</i>	Common Bark Moth	<i>Stylidium sp.</i>	Trigger Plant
<i>Einadia hastata</i>	Berry Saltbush	<i>Stypandra glauca</i>	Nodding Blue Lily
<i>Eolophus roseicapillus</i>	Galah	<i>Styphelia triflora</i>	Five-corners
<i>Eopsaltria australis</i>	Eastern Yellow Robin	<i>Thysanotus patersonii</i>	Twining fringe lily
<i>Eumeninae. (subfamily)</i>	Unidentified Potter wasp	<i>Trogodendron fasciculatum</i>	Yellow-horned clerid beetle
<i>Eupoecila australasiae</i>	Fiddler Beetle	<i>Tropis roei</i>	Roe's longhorn beetle
<i>Eurys sp.</i>	Eurys sawfly	<i>Turdus merula</i>	Common Blackbird
<i>Exocarpos cupressiformis</i>	Cherry Ballart	<i>Usnea sp.</i>	Old man's beard
<i>Gastrophora henricaria</i>	Fallen-bark Looper, Beautiful Leaf Moth	<i>Venatrix sp. (genus)</i>	Unidentified Venatrix wolf spider
<i>Gompholobium huegelii</i>	Pale Wedge Pea	<i>Viola betonicifolia</i>	Purple Violet
<i>Gymnorhina tibicen</i>	Australian Magpie	<i>Vittadinia cuneata</i> var. <i>cuneata</i>	Fuzzy New Holland Daisy

Scientific Name	Common Name	Scientific Name	Common Name
<i>Hakea decurrens</i>	Bushy Needlewood	<i>Wallabia bicolor</i>	Swamp Wallaby
<i>Hardenbergia violacea</i>	False Sarsaparilla	<i>Wurmbea dioica</i> <i>subsp. dioica</i>	Early Nancy
<i>Hemicordulia tau</i>	Tau Emerald	<i>Yoyetta timothyi</i>	Brown Firetail Cicada
		<i>Zenithicola</i> sp. (genus)	<i>Zenithicola</i> sp. (genus)
		<i>Zosterops lateralis</i>	Silvereye



Register to 'View Distribution' on this link:

<https://canberra.naturemapr.org/locations/sightings/1532>

Appendix C – Community Engagement Report

Introduction

Consultation for this project was conducted extensively to include the views of the community within the Plan of Management. Consultation was conducted through.

- Targeted interviews with Council identified stakeholders
- Online surveys open to the wider community
- Community Open Day, 10th April 2021
- Public Exhibition of Draft Plan of Management

Targeted Interviews

Interviews sought to identify common use, values, key issues and other perspectives associated with the reserve. Most stakeholders responded to interview, with a total of 12 interviews conducted.

Online Survey

The online survey was provided by QPRC and shared with the wider community. There was a total of 130 submissions to the online survey which followed the questions conducted during targeted interviews and the community open day.

Community Open Day

The community open day on the 10th of April 2021 resulted in less attendance than expected due to windy weather conditions. A small number of regular users completed the online survey and briefly discussed their opinions with consultants and council representatives.

Public Exhibition of Draft Plan of Management

The LG Act requires that all Plans of Management be placed on public exhibition for a minimum period of 28 days. It also states that a minimum period of 42 days after the draft is placed on public exhibition is allowed during which written submissions may be made to Council (s. 38). These legislative requirements are undertaken concurrently, whereby the draft is in effect placed on public exhibition for 42 days in total which includes the period for written submissions.

The draft Plan was presented to Council on the 12th of May 2021. The exhibition period began on the 19th of May 2021. Council received 9 submissions on the draft plan. These are presented in table

Results

Key topics discussed with local community groups, members of the public and council are outlined below.

Attendance to the open day was less than expected. Some community groups may have been underrepresented due to insufficient contact during the initial consultation period.

Current use

Consultation revealed the reserve is used regularly, with 14% using it daily. The reserve is used most regularly by participants multiple times a week, followed by those that visit multiple times a month. It was noted by many respondents the increased visitation during the 2020-21 pandemic. Frequency of visitation is highest by those that use the reserve once to three times a week.

The reserve is used predominantly in the morning to midday. All respondents indicated they used the reserve for as long as 30 minutes to 2 hours per visit, with a smaller proportion visiting longer than 2 hours.

Reserve use is most common by family and single persons, followed by dog walkers, friends and organised social groups.

Activities

The reserve is used predominately for nature walks. Common activities include dog walking, bike riding and trail running. Other activities include meeting with family and friends, partaking in fitness activities and environmental projects.

A stakeholder representing bike use believed the current cycling tracks are sufficient and well graded. Stakeholders affiliated with environmental groups suggested tracks could be improved and consolidated to reduce the impact of walking and cycling activities on sensitive bushland areas.

Associated values

The highest recorded opinion indicated passive recreation as a key value of the site, closely followed by peaceful greenspace, environmental protection and scenic value. The site is also highly valued for its cycling and walking tracks, and Aboriginal heritage conservation. Other recorded values include shared space, dog walking, active recreation, education and research, and place for the local community.

Key issues

During the stakeholder consultation period, a number of issues were discussed. The most commonly discussed issue was the lack of a consolidated, formal track network. This issue stems into other problems such as the development and use of unauthorised trails impacting the natural environment, poor erosion controls, lack of directional signage and contention between stakeholder groups. It was generally agreed closing unauthorised tracks and focussing on improving and maintaining key tracks would benefit both recreational and environmental values. A minority of respondents indicated the benefit of multiple tracks throughout the reserve to better explore the area. Some respondents expressed concern for over development of the site, preferring it did not change from its current state.

Discussions with stakeholders involved with infrastructure assets on the reserve revealed the critical important of the water reservoirs. It was identified that access needs to remain restricted to ensure the integrity and security of the asset. Access for maintenance, increased security and future development within the existing asset site are long term priorities for this site. A stakeholder involved with the telecommunications tower indicated maintaining access

to the asset was their primary concern. Additional recreational assets discussed included the addition of more lookouts, pet litter bags and corresponding bins, educational and interpretive signage, wheelchair access, seats and water facilities, public toilets and picnic areas. A minority of respondents expressed concern for over development of the site, preferring it did not change from its current state.

A number of environmental concerns were raised during the consultation process. Issues were raised regarding the damage of unauthorised trails, disturbance of off-leash dogs to wildlife and people, inappropriate fire regimes of significant and threatened flora species such as orchids, working with adjoining land owners to ensure connectivity and green corridors and weed control.

The issue of domestic fauna was raised, with some stakeholders valuing the reserve for its access to dogs and while others noted associated problems. Off-leash dogs and poor owner responsibility in cleaning pet litter off paths were key points. While a high number of respondents indicated the area is good for walking dogs, the majority argued the reserve should be for dogs on-leash only and off-leash dogs to utilise the neighbouring off-leash area.

The pine wildings to the south-eastern corner were identified as a bushfire hazard. Lack of community awareness among adjoining landowners and APZ maintenance was discussed. Garden waste dumped from backyards into the reserve is a problem.

Issues with access to information regarding the reserve became evident throughout the interviews and surveys. There is currently no clear or easily accessible information centre for updates regarding the reserve.

Future expectations

The reserve is highly valued by the local community. A high number of respondents indicated the importance of the reserve for providing environmental education for the community. Stakeholders discussed the benefit of increased visibility and public access to the reserve as a way to ensure greater attention and funding. The majority of stakeholders were in favour of small infrastructural development at the site, such as consolidation and formalisation of tracks, stabilisation of erosion, installation of signage and additional public facilities. A minority expressed desire to see the reserve as untouched as possible.

The reserve is highly valued for its biodiversity and therefore a number of future expectations relate to the resolution and prioritisation of environmental issues discussed in the paragraphs above.

Discussions during the open day hinted towards the development of community programs to promote inclusivity at the site. Potential collaboration between council and community groups could lead to special vehicular access for disability inclusion, and programs that seek to involve the multicultural community in environmental projects.

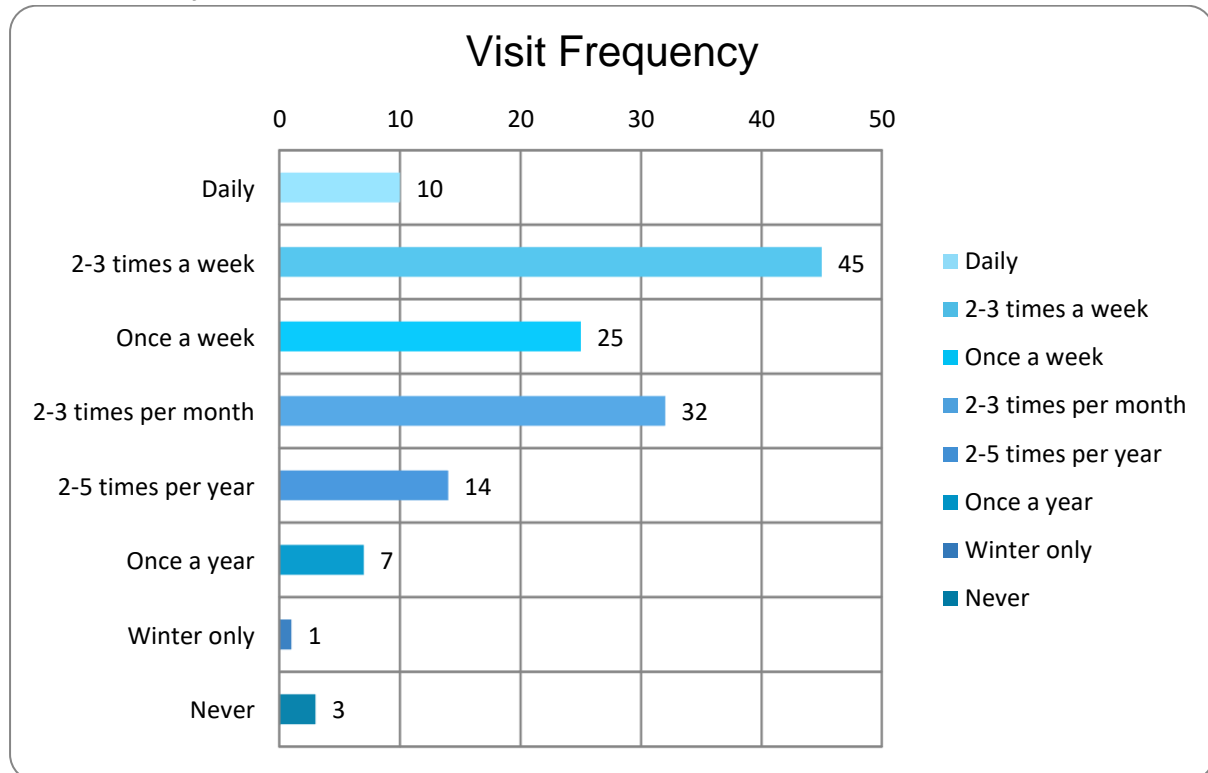
Representatives of the assets on site indicated that any future plans for the site do not disrupt the current operation or access to these assets. There is potential for future development at a reservoir site however this is unlikely to encroach upon reserve land.

It was suggested the gradual removal of the pine plantation and wildings at the site would be a significant future improvement for bushfire safety, biosecurity and biodiversity.

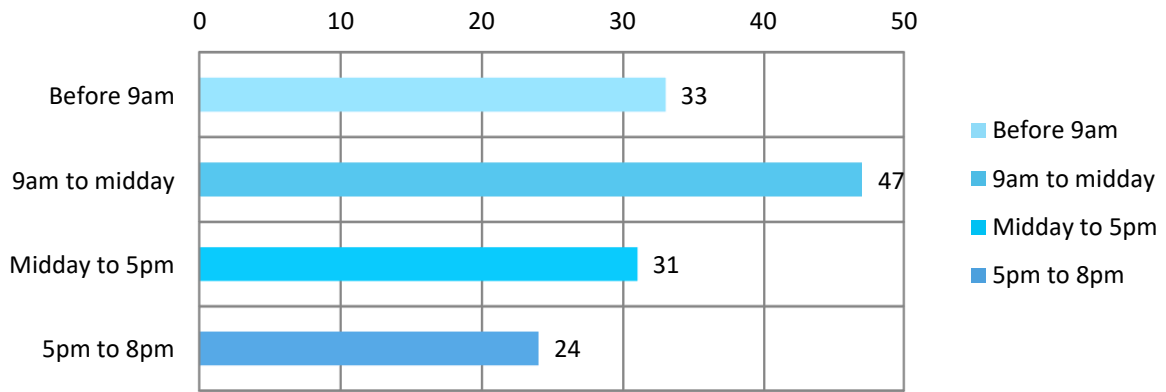
Improved access to information regarding the site would be a desirable outcome, such as an accessible and frequently updated page on the QPRC website.

Data by which these results were summarised is included in the following pages.

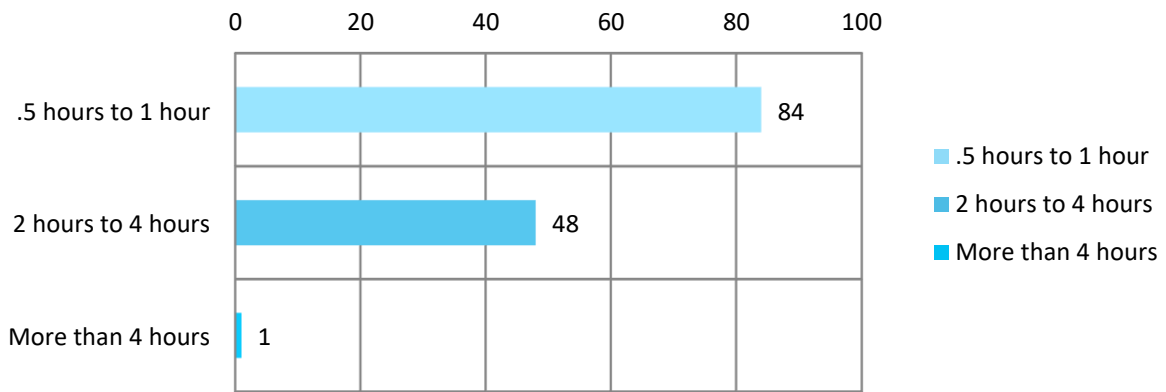
Online Survey QPRC Data



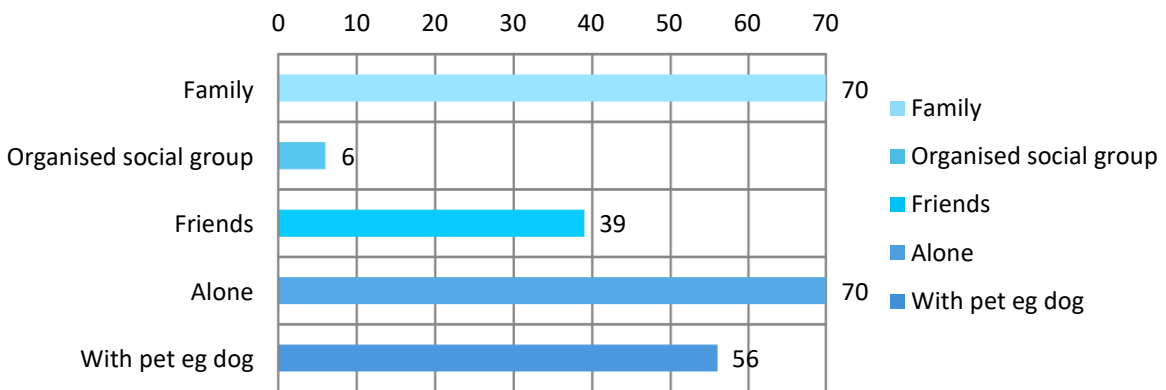
Time of Visit



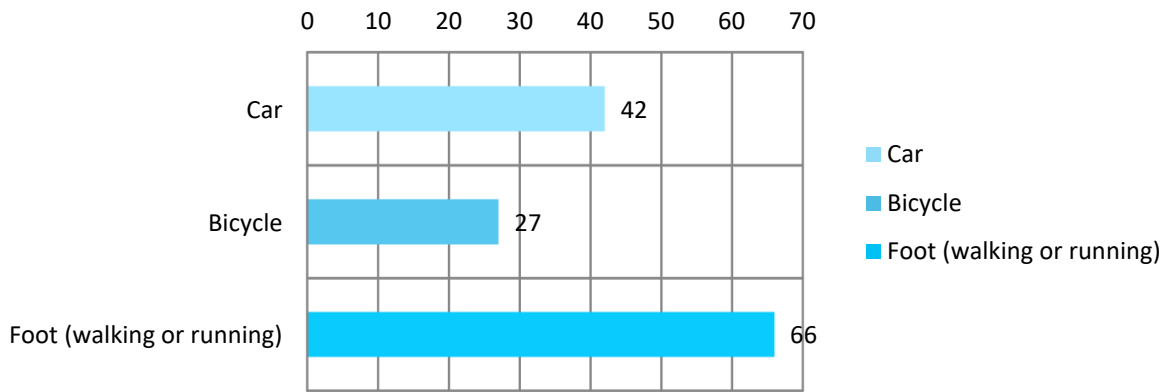
Length of Visit



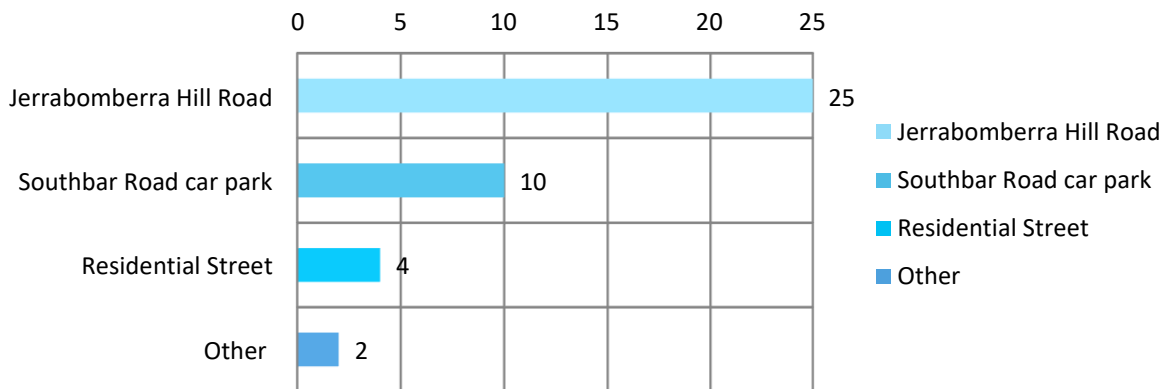
Company when visiting



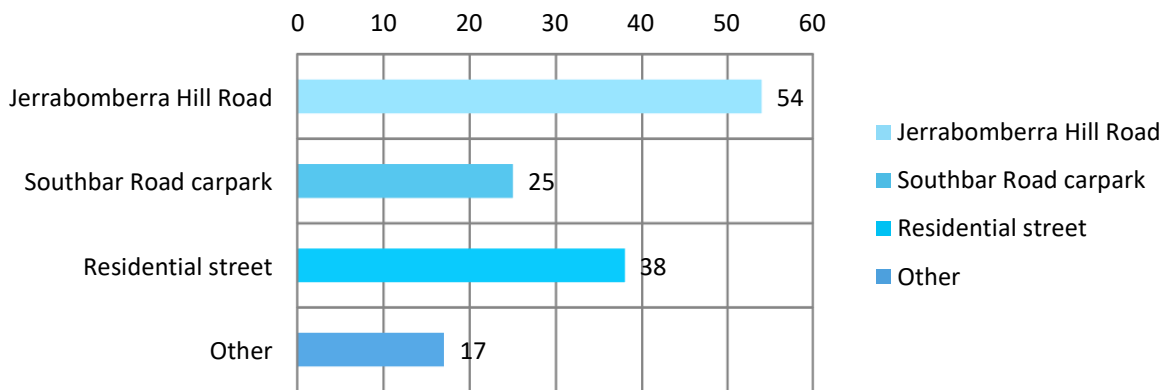
Mode of transport



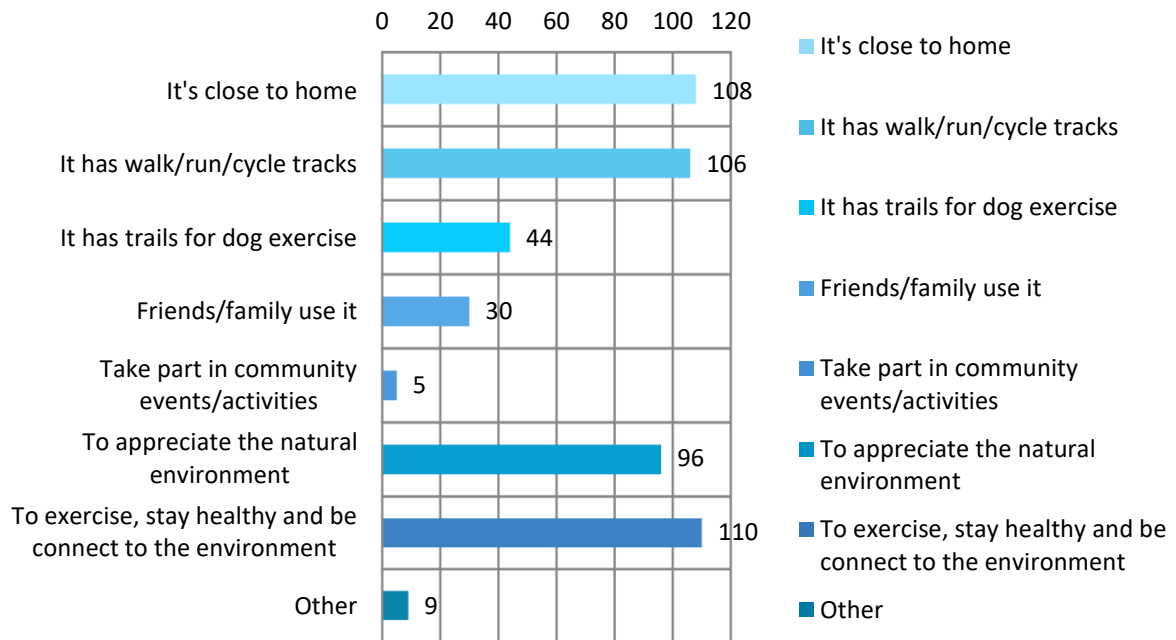
Parking Area



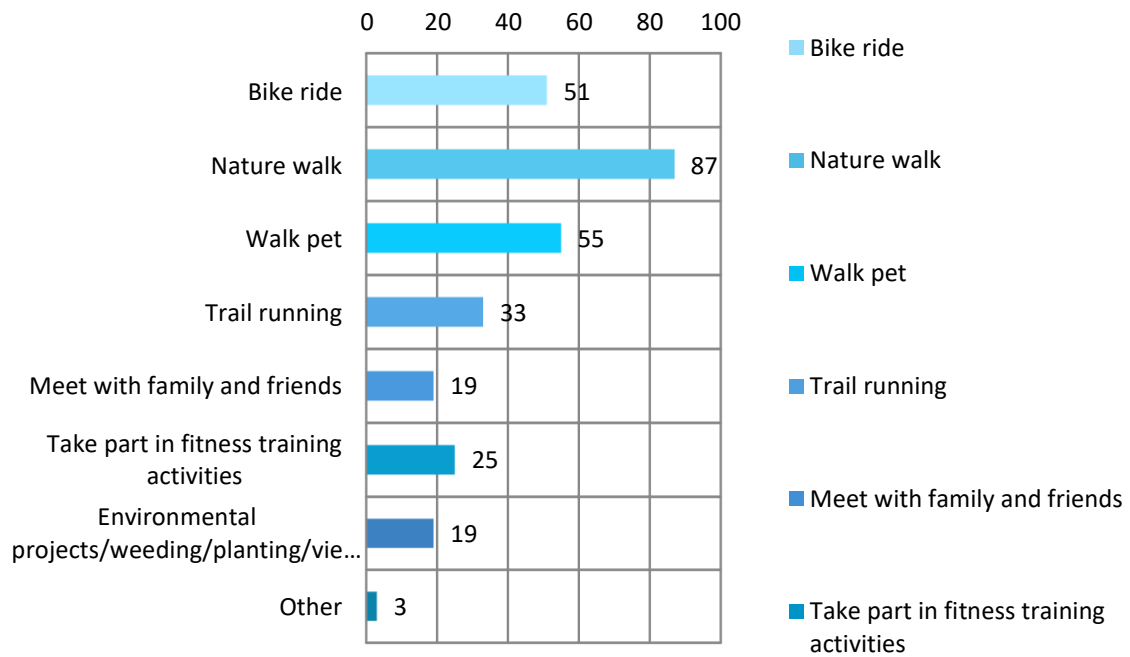
Entry Point



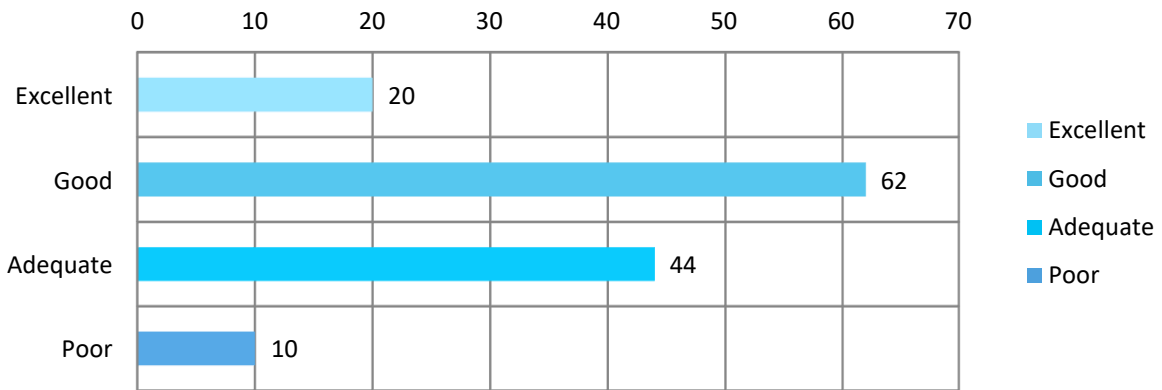
Reasons to use the reserve



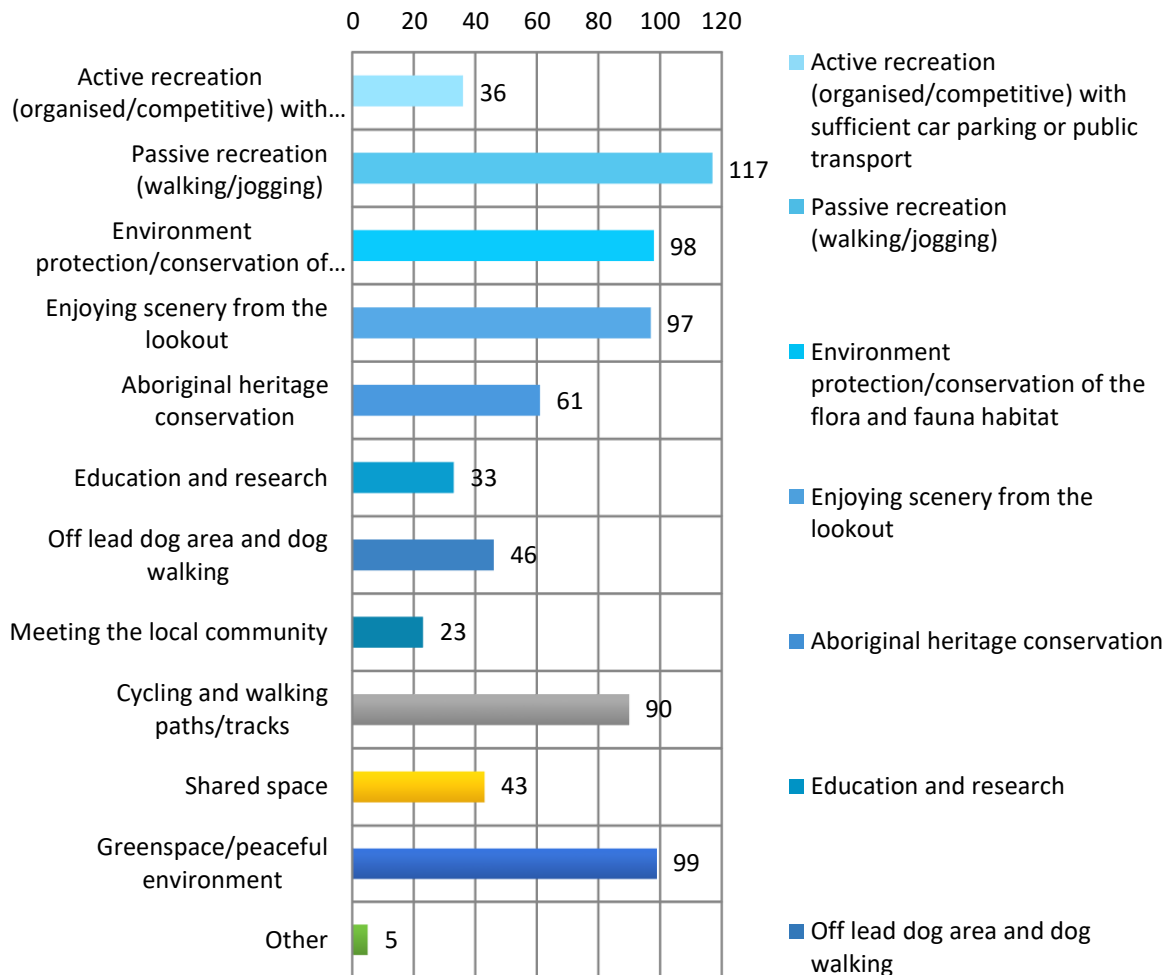
Main activities



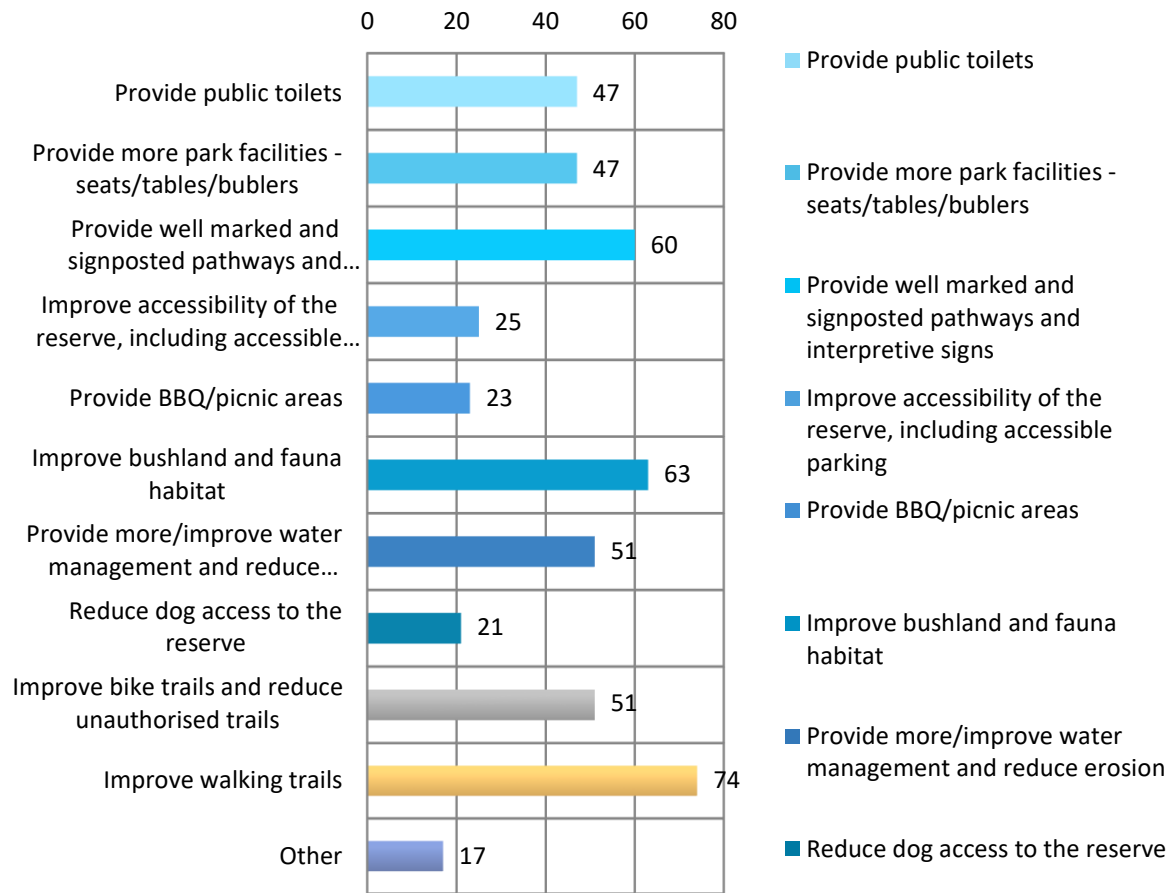
Rating of reserve



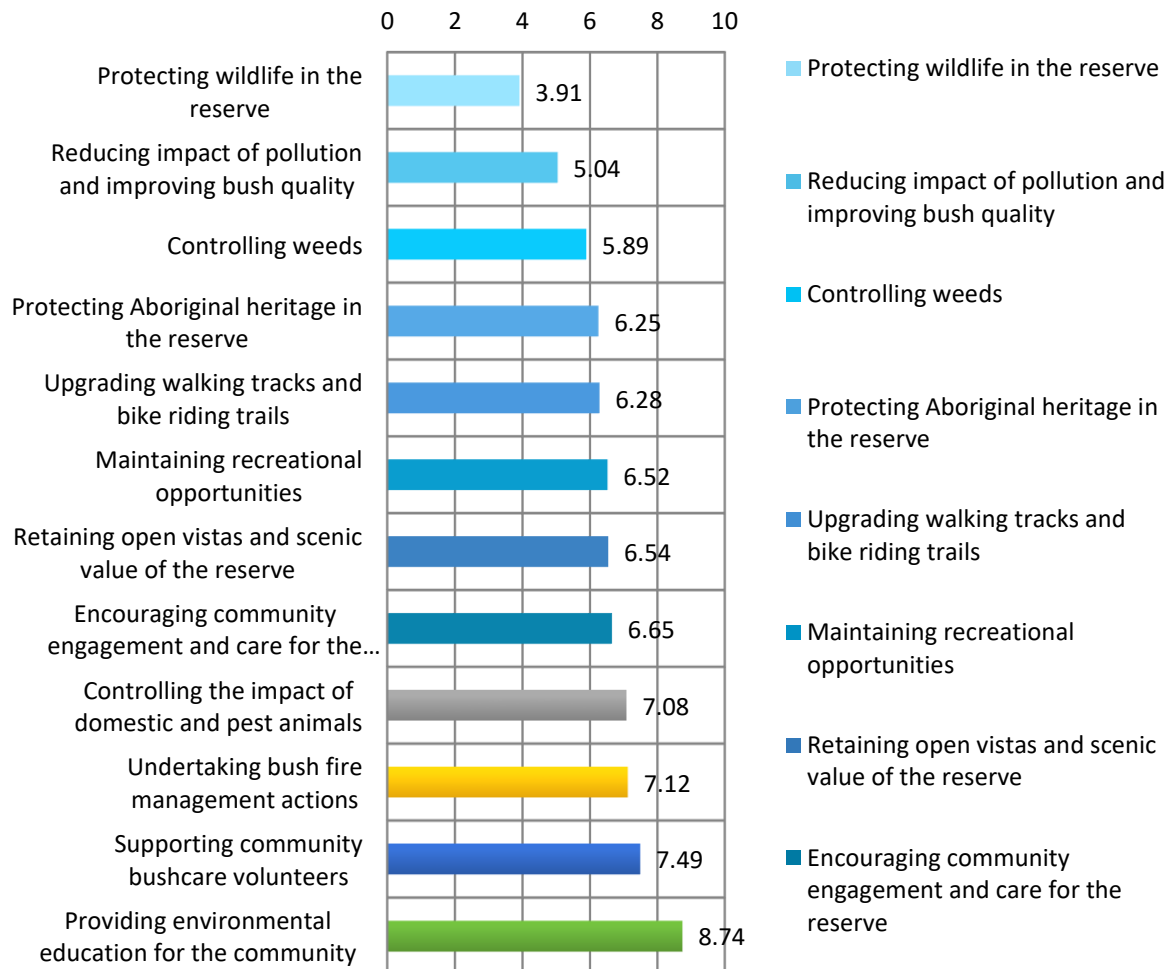
Key Values



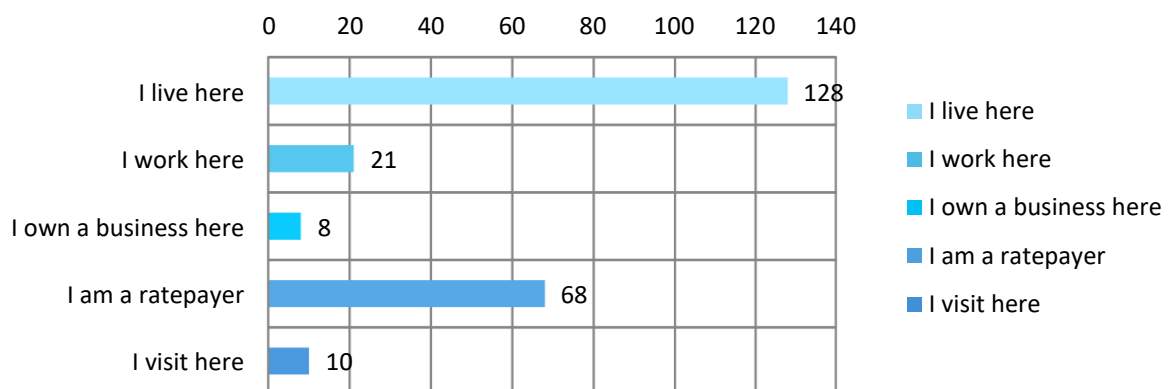
Improvements



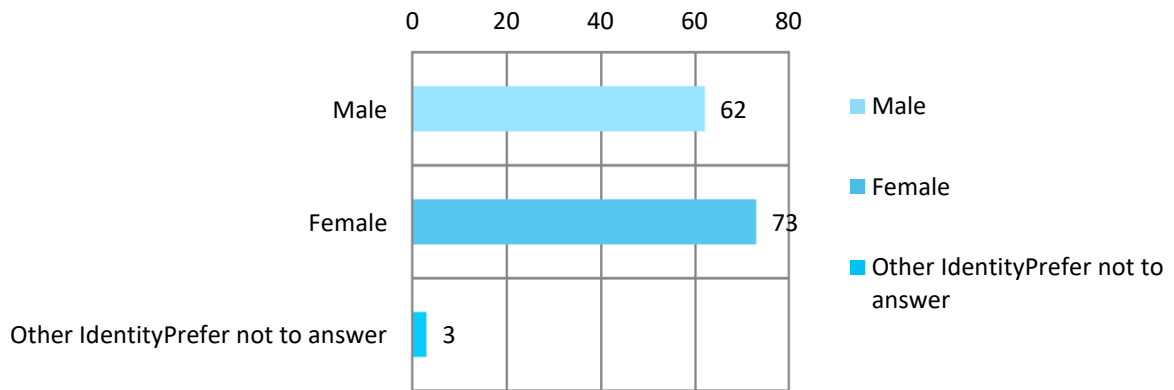
Priorities



Connection to Queanbeyan-Palerang



Gender



Suburb

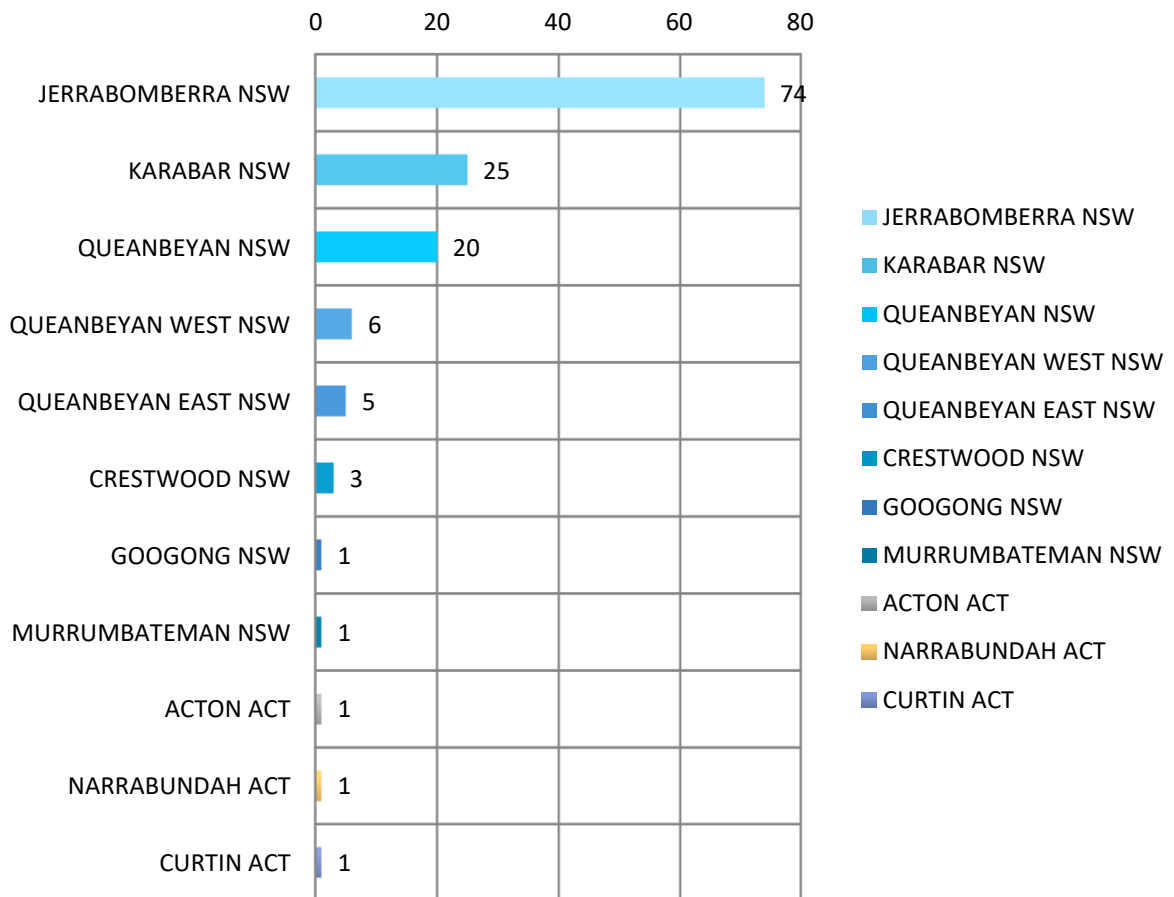


Table 1 Stakeholder Interview Data

		██████████ – Resident
<i>Current use</i>	Takes an hour to walk to the top from his place, uses once a week. Photography depending on subjects (primarily native fauna/ flora). Using the path for 4.5 years.	
<i>Values related to site</i>	Close proximity; fresh air, great view, wildlife, hobby (photography), connection to nature, quiet, an oasis. Not particularly busy with people (1-2 people an hour). "much more pleasant walking through the bush than a street scape."	
<i>Safe and inclusive community space</i>	Safe for community but you need to be an able person to safely navigate. Very limited walking aids/ use for people with walking aids, participant has fallen once and seen others fall before.	
<i>Key issues</i>	Off-leash dogs using the mountain, would prefer they be on leash. Steep paths with loose gravel/rocks, not sign posted at all - found by exploring. Wants to preserve nature and improve access but it needs to be within biodiversity constraints and more active management if greater human flow/access. Underutilised by the local community.	
<i>Information sourced</i>	Doesn't get much information, only a warning sign for snakes. Word of mouth. Wrote to council once. Generally, as a local he enjoys the walk and doesn't look for much information. Isn't aware of anything specific that would warn of bushfire danger, etc.	
<i>Changes in the next 5-10 years</i>	Improved paths and access for more people. Expand use while ensuring the nature value. A dumped car 50-100m from the road. Hasn't noticed great change over the last 4.5 years.	
		██████████ - Queanbeyan Landcare - Friends of Mt Jerrabomberra and Stringybark Ridge (FOMJASR)
<i>Current use</i>	Lives very close and also affiliated with a sub-group of Queanbeyan Landcare - FOMJASR (operates in multiple areas). Uses of the reserve mainly include hiking and looking for native terrestrial orchids and other native flora and fauna. The group has been instrumental in removing infestations of Cootamundra wattles and other invasive species. Received community grants/support to conduct these activities.	
<i>Values related to site</i>	Groups aim is to remove environmental weeds for regeneration as native flora and fauna appreciation. Amazing biodiversity value considering the reserve's isolation and limited connectivity (sighting echidnas, orchids, etc).	

<i>Safe and inclusive community space</i>	Yes, especially during the pandemic lockdowns as a place for community to enjoy a safe and open outdoor space. Trail to the phone tower is quite a common route.
<i>Key issues</i>	<p>Conservationist value rather than recreation - better balance.</p> <p>The orchid species require the upmost protection as a number of species are rare (Flying Duck Orchid - Caleana major amongst others), and community use should be secondary.</p> <p>Maintenance works required along fire and walking trails in the reserve in general, and along a utility and service line where paths are eroding on the western side of the reserve behind houses - water management and redoing of the track. The tracks need to be safer and more user friendly.</p> <p>Vehicle control such as motorbike access. Police don't have the resources/ low priority therefore vehicle access control should be prioritised.</p> <p>Regenerative burning needs to take place - high fuel loads and need for a cool controlled burn to go through for regenerative purposes in a mosaic pattern planned over a number of years.</p> <p>Car wrecks need to be removed (at least 3).</p> <p>Mountain bikers making their own trails which aren't built to standard and are eroding which also damage habitat.</p>
<i>Information sourced</i>	Word of mouth from other members in Queanbeyan Landcare. Sometimes discussed at meetings or the QPRC website (but not used so often). Little information is provided on the QPRC website - bushland and urban reserves are neglected compared to managed park/sports ground areas see greater attention. The assets of orchids, natural value and recreational value are not promoted as much.
<i>Changes in the next 5-10 years</i>	<p>Major maintenance of fire trails to make them safe for use by the community (walkers/runners/mountain bikers).</p> <p>Improved community engagement: the more people that use it, the more valued it will be (and therefore better attention). Preserve the environment to allow people to enjoy but not overuse for generations to come.</p> <p>Accessibility & signage; the main track is not well defined/sign posted, heavily eroded from the SCAR recreational area. The track should be promoted as a nice hiking track but needs interpretive and directional signage, and education/information signage. Lack of defined tracks have resulted in unauthorised tracks/ illegal bike trails which are subject to erosion and impact upon native vegetation.</p>
<i>Current use</i>	<p style="text-align: right;">██████████ – QPRC Water and Sewage</p> <p>Manager of Water, Sewer, Waste and Stormwater. Four reservoirs at Mt Jerrabomberra (one main supply for the city). Main supply runs up the hill. There's a water pump station on the side of the hill. Entire city council's network is through the area.</p> <p>Critical infrastructure. They conduct a weekly inspection of the reservoir however they generally maintain themselves. Pumped from ACT/ Edward Lane parkway, but water becomes Council water on entrance to the site.</p>

	Highest land in the area, utilises the pressure head (not relying on electricity or artificial stands, and ensure constant pressure). There's no other appropriate sites.
<i>Values related to site</i>	"If the water stops, everything stops". Provides the foundation for critical infrastructure. The minute supply stops, everyone wants to know. It's good that people use the site for recreation, however that comes secondary to the critical infrastructure.
<i>Safe and inclusive community space</i>	Problems with vandalism, tanks being tagged and having to be repainted to remove graffiti. Cuts in fences. Worst case scenario, security of the supply could be compromised if people access the water.
<i>Key issues</i>	Huge number of locks on the gate - access is a chain of locks, so may need to determine what access is still relevant. Never had issues or clashes with people - so long as people aren't locked out. Vandalism of the reservoirs, security of the infrastructure that supplies the majority of the city. Fix access/egress, maintaining them. Considering the construction of an additional tank (and resulting constructional traffic). Upper Thornton had too much vegetation within the reservoir compound and has recently been cleared. PoM needs to be considerate of additional infrastructure; cannot restrict installation/upgrades. Tanks are fireproof however ash/debris could enter tanks and cause problems.
<i>Information sourced</i>	NA
<i>Changes in the next 5-10 years</i>	Happy with the way it is, used by quite a lot of people - doesn't have high aspirations aside from its functionality/ providing critical services. Expectation for water utilities to strengthen security in the future, e.g. no climb fencing with razor wires, high restrictions. Addition of another tank in the next ten years, as there is enough room on the reservoir sites (freehold land). It would go with the lower reservoir halfway down the hill, vegetation cleared within the fenced area.
	██████████ – Rural Fire Service
<i>Current use</i>	Respond to any bushfire hazard complaints that residents or nearby raise. Assist with any mitigation works around the assets and hazard reduction works in consultation with F&R. RFS go in and do a hazard inspection, Council may do some works. Local brigades do some burns and mitigation. Main area of concern near the infrastructure as considered an asset under the Bush Fire Risk Management Plan, kept cleared and below 8 tonnes per hectare.
<i>Values related to site</i>	Not particularly relevant. Not used for training as it's difficult to access due to locks and organisation. They do have keys and access but to undertake training they need to contact council regularly. Only access for incidents.

<i>Safe and inclusive community space</i>	Yes, lives near the mountain, goes there for mountain biking and the dog.
<i>Key issues</i>	<p>Area of pine wildings encroaching on native shrub in south western corner that dump lots of pine needles, kids go in in summer to mess about. It would be very costly to remove the pines, it's not feasible but managing that the area so it doesn't encroach further into the native shrub. Possible APZ around the pines but that leaves risk for further weed infestation.</p> <p>Neighbouring landowners throw grass cuttings and stuff into the APZ so therefore they're not clear and compliant.</p> <p>Most significant hazards/risk is the top near the infrastructure. Main concern is keeping fuel loads across the whole mountain below 8 tonnes per hectare – across the mountain is a strategic fire zone (when it gets to 15-20 tonnes per ha, management works are triggered). Fire and Rescue NSW have carriage and RFS assists, as they normally propose the work/plan/etc and RFS assist to conduct works (RFS has the trucks to assist). Council is the land manager, and they contact neighbours when works happen. They can indicate the areas that can be burnt but generally leave it to experts in the field (RFS that go out and monitor fuel load).</p> <p>When it comes to burning RFS take it on, but mechanical clearing is taken on by council (cost). Resident assets along the base. Aboriginal managed land connects to the nature reserve.</p>
<i>Information sourced</i>	Just keep in contact with their contact in the council.
<i>Changes in the next 5-10 years</i>	<p>Doesn't think there needs to be any changes, other than keeping the pines from encroaching into the native scrub. Long term goal, if it is possible to have them removed or chipped away at them it would be worth getting rid of them.</p> <p>Roads are serviceable, upgrading the roads are not a high priority for RFS to undertake their activities. They don't need to be to standard, they're trafficable, no hinderance, they're just not to the standard. The Bushfire Management Committee think it's appropriate.</p>
<i>Current use</i>	<p>Only use it as individuals, small team that does woody weed control on stringy bark hill (south/south west). Cootamundra wattle, briars, pines. Opportunistic control of weeds but focus on woody weeds, including St John's Wort. Once a month, Sunday.</p> <p>South-east is Aboriginal owned land council which is private.</p>
<i>Values related to site</i>	Environmental values, biodiversity and connectivity/ wildlife corridors with Indigenous land. High value it's landscape value, iconic and very prominent. The aesthetic of the bushland.
<i>Safe and inclusive community space</i>	Council has been progressively controlling access points, gate to the top is now locked. Past days people would camp there and make a mess but now reduced by restricted access. High visitation for walking, bike riding. It's much safer than it ever was.

	The land wasn't looked after at all in the early 80s, group formed to stop the 'Jerrabomberra heights' development that went to the land and environment court.
<i>Key issues</i>	<p>It would be good to work with neighbouring land holders such as Ngambri land council to create a more encompassing plan to manage the important wildlife corridors and reserves in the area. The nearby quarry is keen to play a part in protecting the environment. Tom is on the Steering Committee for the operation of the quarry.</p> <p>Woody weeds would be a key issue, grass not so much. A lot more could be done, more resources weed control.</p> <p>Bike land use not always appropriate, lose sense of safeness and isolation value. Dangers.</p> <p>Biggest issue is the bigger picture - theme of the PoM needs to be managed in conjunction with all other areas as a wildlife corridor.</p>
<i>Information sourced</i>	Very personally familiar with the Mount, has extensive personal/historical knowledge. On the environmental advisory committee.
<i>Changes in the next 5-10 years</i>	Continued control of access, closing off possible illegal access points. Roads and old tracks/fire trails need to be rehabilitated/erosion control and allow forest to take over the areas. Condensing/consolidating the tracks to what's necessary.
	██████████ – JRA Residents Association
<i>Current use</i>	<p>Use it more often in Spring and Autumn, doing walks from the entry gate to the lookout. Family recreation.</p> <p>Other tracks throughout the mountain, there's a bike facility there. The side of the mountain is not well maintained (erosion) makes access to the scar challenging, so need to wheel bikes through.</p>
<i>Values related to site</i>	Environmental is the first value, closely followed by recreational.
<i>Safe and inclusive community space</i>	Very much so, no reason to believe it's not. It's accessible to everybody, on Queanbeyan and Jerrabomberra side.
<i>Key issues</i>	<p>More context is required when consulting with the community.</p> <p>Does worry about bushfire, aware fuel load are a high risk. RFS engaged and discussed with the community. Very concerning/high risk for the community - fire management neglected.</p> <p>Burn off on north side conducted on a Saturday, more community awareness on high community use days.</p> <p>It's a significant landmark in the whole area, it doesn't get the attention it deserves when it comes or maintaining weeds, erosion issues.</p> <p>Plan for better recreational use of the area - Edward land parkway in morning, lots of cars parked in that area in Marruba Place. Proposal for better access, including parking and making the SCAR more accessible for the people of Jerrabomberra, allow people to lobby for funding.</p>

<i>Information sourced</i>	Information is not accessible, there's signage at the lookout but doesn't offer much on history. Typically, in the earlier 2000s relied on local newspaper which is no longer in operation/ letter box drops. Council is more proactive but mostly word of mouth, through community groups and Facebook. Still use local paper.
<i>Changes in the next 5-10 years</i>	More defined walking tracks to allow everyone to access the area, the track up the side of Marruba Place is just dirt so people have to climb over the fence to get to it (not accessible to bikes, prams, wheelchairs). Causes problems of people forcing their way others, making their own track. User friendly, multipurpose defined tracks would be a good change. Comprehensive and developed track to the SCAR and dog park. Would like to see a stairway to the top for exercise. Requests to have stair hill as an exercise. Rehabilitation. Very active community so need to provide an opportunity to exercise, or even chance for tourism 'e.g. 5000 stairs to Mt Jerrabomberra'. Repairing as the primary/stabilise erosion, investigate developing further.
<i>Current use</i>	Monitors orchid populations up there (spring, autumn mostly). Walking around exercise. Significant orchid populations that do not occur anywhere else in the region - as biodiverse as black mountain. [REDACTED] – Orchid Society of Canberra
<i>Values related to site</i>	Environmental/botanical, maintain vulnerable plant populations, and other wildlife.
<i>Safe and inclusive community space</i>	Never felt unsafe. Not inclusive for people in wheelchairs. Would welcome more indigenous input/involvement.
<i>Key issues</i>	Maintenance with the orchid populations - balance between education and keeping them safely away from public eye. Vulnerable to burning at the wrong time of year, an incorrect fire could wipe out a whole population. Summer fires occur naturally when orchids underground and protection. Slow and cool burn more appropriate than RFS led fuel reduction burns. Problem with bikes, making multiple tracks and cutting through virgin bush. Unsure how helpful education would be, if people are going to do illegal things they will regardless. Not sure if signs are the way to go. Improving tracks to promote people sticking to the path - but cautious when widening them. Landcare well-meaning plantings that also affect orchids. Consultation with orchid society would help. Concern for increased usage.
<i>Information sourced</i>	Weekly council email. Doesn't use Facebook if there is a group. No clear information sources.

<i>Changes in the next 5-10 years</i>	Traffic management (foot traffic). Keeping number of good paths to a minimum / Improved bike and walking tracks to keep people away from adventuring through the bush and damaging the orchid populations. Less damage in the future. Council recognise the environmental value/ biodiversity value of the site, more care of the environment.
	A. [REDACTED] - Resident
<i>Current use</i>	Training hiking. Sometimes takes friends, can make it as easy or hard as she likes - good access. Will choose tougher trails or easier ones, using mountain bike trails or cutting own.
<i>Values related to site</i>	Pocket of pristine bush right in suburbia. Wind down after work. Lots of native vegetation, sees wildlife. Untouched is a key value therefore its lack of development is a value.
<i>Safe and inclusive community space</i>	Absolutely a safe place, never felt any danger. Community where regular uses say hello. Inclusive with families.
<i>Key issues</i>	Hoping not too much infrastructure goes in, likes the stairs near the upper reservoir.
<i>Information sourced</i>	Dirt bikes access every now and then. Most people using it are happy as it is. Ring Council, local contact.
<i>Changes in the next 5-10 years</i>	None. Leave it as it is.
	[REDACTED] - Optus
<i>Current use</i>	Fibre cable going up the hill to the base station, connect to mobile base station and shared equipment shelter. Need 24/7 access to it, fibre should not require maintenance. Strong shelter and fire resilient, fairly replaceable should a fire go through. The cable is trenched, been in there at least 5 years.
<i>Values related to site</i>	Geography is a good mobile site.
<i>Safe and inclusive</i>	Not aware of any issues of people attending the site.

<i>community space</i>	
<i>Key issues</i>	Need to maintain access is only concern.
<i>Information sourced</i>	Very little requirements so would just contact Council - only seek out information when needed.
<i>Changes in the next 5-10 years</i>	Not particularly, a sealed road up to the hill would be nice. New technologies may come through Optus which may require the replacement of some infrastructure (on-going). Fibre trench should be fine for the next 20 years, but it should be clearly noted in plan of management.
<i>Current use</i>	Doesn't use the reserve personally, advises trail works, recently did a survey for a loop trail on Mt Jerra for a catchment group doing grant funding. He works on any trails that goes up there - walking, designed/built the platform, multi-use trails and mountain biking.
<i>Values related to site</i>	Recreation.
<i>Safe and inclusive community space</i>	Not really, from professional opinion there are some unsafe trails for certain members of the community, these are the unauthorised tracks.
<i>Key issues</i>	Unsafe unauthorised trails. History of 4WDS over the years has degraded some of the trails, so unsafe trails biggest issues. Unsafe trails cross over into unsustainable and environmentally degraded/erosion.
<i>Information sourced</i>	Consult with Council when they ask him to do work, or community groups (Molonglo catchment group) reach out to him when they get funding.
<i>Changes in the next 5-10 years</i>	Improved tracks, formalised trails in a way that is inclusive, that everyone can use and done in a professional way. Council invest serious money in making community what it should be.

<i>Current use</i>	The site is currently not used for any cultural occasions.
<i>Values related to site</i>	There is likely to be heritage sites throughout the area however the participant did not have the cultural knowledge of that area. Consultation with the cultural knowledge holder to be arranged.
<i>Safe and inclusive community space</i>	NA.
<i>Key issues</i>	To be discussed with the cultural knowledge holder.
<i>Information sourced</i>	NA.
<i>Changes in the next 5-10 years</i>	The Ngambri LALC would be open to working with Council to develop educational signage regarding the cultural history and significance of the mountain. Any information proposed would be approved by Ngambri before finalisation and installation.

Summary of Public Exhibition Submissions

Submission #	Summary of Submission	Summary of Submission	Relevant Section of PoM
Submission 1	The forest fuel loads should be sampled regularly and the local Rural Fire Service be allowed to conduct fuel reduction burns all over the mountain during cool Autumn weather to maintain fuel levels below an average 20 tonnes per hectare.	Bushfire management	Section 5.5, Bushfire Management Action BF2
Submission 2	The joy of Mt Jerrabomberra is that it is bush land. The absolute minimum intervention that maintains this is really important to me. Don't over-civilise it.....it will lose its integrity!	Bushland management	Section 4.1
Submission 3	<p>I support the general principles of the draft plan.</p> <p>It is imperative that local MTB riders are included in the process of identifying which informal trails are of most value and should be upgraded to provide ongoing access, and which trails should be closed and revegetated.</p> <p>In particular, the informal ring trail which circumnavigates the base of the mountain is the most important multi-user trail, together with appropriate links to access points and major fire trails.</p> <p>It is also important to maintain some higher ability technical bike hill climbs and rock garden courses to ensure that trails continue to cater for more experienced riders, and not just casual recreational riders. MTB Flow trails should ideally be separated from pedestrian trails.</p> <p>Maintaining links to the natural bushland south of Edwin Land Parkway is also important.</p>	Recreational management	Action Plan RM2

Submission #	Summary of Submission	Summary of Submission	Relevant Section of PoM
	The Bruce Ridge nature reserve in the ACT is a good example of a urban-natural landscape with formal MTB & multi-user trails, which can be emulated.		
Submission 4	yes. I am concerned that none of the many terrestrial orchids are not mentioned recorded in the survey. Many are vulnerable and some threatened. See Canberra Nature Map for a very good record of what is where on the mtn. This is important for any future control burns as some locations should be protected.	Bushland/ flora management	Section 1.3, 3.1 , 5.1.2 and 6.1, BM1/BM2
Submission 5	Pleased with the plan. Tracks and walkways should be improved to provide better access and reduce impact	Recreational management	Action Plan RM2
Submission 6	On the whole it's a serviceable document but has a significant shortfall in the flora species mentioned and the section on geology should be updated as it is too brief. From reading the references used by the POM authors they haven't drawn upon Canberra Nature Map - NatureMapr app nor the Australian Native Plant Society (ANPS) - Canberra and have failed to list rare and regionally significant flora.	Bushland management and background	Section 1.3, 3.1 and 5.1.2, BM1/BM2
Submission 6	The ANPS observed plant list records approximately 136 species yet the draft POM only mentions a handful of significant species. None of the regionally significant orchid species are listed which is a significant oversight. If not listed in the POM it is possible that future management activities may jeopardise orchid populations on the mountain. Section 5.5.1 of the POM mentions orchid species in a general sense, but for public transparency they should be listed in section 1.3 of	Bushland management and background	Section 1.3, 3.1 , 3.2, 6.1 and 5.1.2, BM1/BM2

Submission #	Summary of Submission	Summary of Submission	Relevant Section of PoM
	the POM and managed appropriately for posterity. Not listing these significant species devalues Mt Jerrabomberra within the Queanbeyan/Canberra natural landscape.		
Submission 6	Also of concern is the lack of a wider context of how Mt Jerrabomberra fits within the wider landscape and surrounding nature reserves/public reserves/travelling stock routes/Queanbeyan River corridor and how these reserves can be linked to facilitate fauna movements such as the stepping stone project for small birds that Queanbeyan City Council, Molonglo Conservation Group and other land managers participated in a few years ago.	Background context	Actions BM1 and FM1
Submission 7	Proposes which tracks/trails may benefit from upgrades/closure.	Recreational management	Action RM2
Submission 7	Presents the case for a fire trail to be constructed on the Karabar side	Bushfire management	Section 5.5
Submission 7	notes pine plantation should be left undisturbed as a food source for glossy black cockatoos.	Invasive Species	Action BM5
Submission 7	Trail bike prohibition should be better enforced, survey of illegal entrances taken	Illegal use of park	Section 5.3.1 and 6.0
Submission 7	Mitigation for erosion	Recreational management	Action BM7 and 5.1.5
Submission 7	Better acknowledgement of plant species variety.	Bushland/flora management and background	Action BM1/BM2
Submission 7	invasive species, two privets noted.	Invasive Species	Section 6.1 and Action BM3
Submission 7	Interpretive signage/ use of reserve for schools	Recreational management	Action RM4
Submission 7	Old car wrecks remain in the reserve and treated as heritage	Illegal use of park	Section 6.0
Submission 7	PoM for bicentennial park.	Outside of scope	Outside of scope of PoM
Submission 7	Walking trail connectivity between reserves.	Recreational management	Section 5.1.6
Submission 8	PoM should acknowledge broader context of connectivity/ wildlife corridors.	Bushland management, background/context	Section 1.1, Section 5.1, Action BM1 and FM1
Submission 8	Need to investigate acquisition of land surrounding reserve (4.2)	Recreational management	Section 5.1.6 and Action FM1

Submission #	Summary of Submission	Summary of Submission	Relevant Section of PoM
Submission 8	Include various surveys/studies into the bibliography. Commitment to regular/general surveys as an additional objective (4.2).	Flora and Fauna	Section 1.3, 3.1, 5.1.2 + Action BM2,
Submission 8	Add use of eucalypts for distilling oil in Portion 75 block of bushland near the cemetery to the history of land use + Reserve was listed on Heritage Commission Register of the National Estate for its natural/cultural values(3.4)	Heritage	Section 3.5
Submission 8	Community engagement through pamphlets recommended in letter e.g. Bushwise booklet (5.1.3-4)	Bushfire management	Action BM3, RM1, RM4, RM5, RM6
Submission 8	Bushfire (update Figure to label SFAZ with letters rather than numbers), resourced community bushfire liaison groups established around the perimeter.	Bushfire management	Figure 8 in Section 5.5.2, Action BF1 and BF3
Submission 8	Higher priority placed on community engagement and bushfire management.	Bushfire management	Action BF1
Submission 8	Permanent dedicated trained bushland management team required at reserve/ QPRC designate an officer.	Bushland Management	Not included
Submission 8	Emphasis to remove pines as a high priority.	Invasive Species	Action BM5
Submission 9	Beacon used by aircraft on top of mt. Any future development to not impact this. Section 4.3/ 4.4. Action Plan to consider infrastructure on or adjacent to PoM area.	Infrastructure management	Section 4.3 and 4.4,

Appendix D – Land that Applies to the Plan

Lot number	Deposited Plan Number
1675	DP17205
1262	DP17205
1216	DP17205
1604	DP17205
1186	DP17205
1560	DP17205
1635	DP17205
1692	DP17205
1696	DP17205
1562	DP17205
1559	DP17205
1634	DP17205
1691	DP17205
1758	DP17205
1221	DP17205
1561	DP17205
1636	DP17205
536	DP8708
1573	DP17206
1125	DP17206
1719	DP17206
1566	DP17206
1574	DP17206
4	DP595527
68	DP1067568
1	DP1215591
2	DP1215591
1510	DP17205
1631	DP17205
1454	DP17205
1201	DP17205
1145	DP17205
1232	DP17205
1615	DP17205
1623	DP17205
1647	DP17205
1619	DP17205
1548	DP17205
1224	DP17205
1679	DP17205
1627	DP17205
1258	DP17205
1185	DP17205
1683	DP17205
4	DP727499
1639	DP17205
1749	DP17205

5	DP727499
1458	DP17205
1141	DP17205
186	DP811146
1552	DP17205
1189	DP17205
1212	DP17205
1236	DP17205
1282	DP17205
1193	DP17205
1266	DP17205
1687	DP17205
1544	DP17205
1228	DP17205
1470	DP17205
1653	DP17205
1455	DP17205
1339	DP17204
186	DP17204
1648	DP17205
1740	DP17205
1614	DP17205
67	DP1067568
1503	DP17205
1283	DP17205
1628	DP17205
1194	DP17205
1620	DP17205
1618	DP17205
1626	DP17205
1231	DP17205
1644	DP17205
1554	DP17205
1685	DP17205
1361	DP17204
1543	DP17204
1483	DP17204
144	DP17204
148	DP17204
1684	DP17205
1241	DP17205
1605	DP17205
1199	DP17205
140	DP17204
1205	DP17204
1680	DP17205
1513	DP17205
1487	DP17204
1466	DP17205
1651	DP17205
2	DP40407
1506	DP17205

1181	DP17205
1220	DP17205
1607	DP17205
1745	DP17205
1514	DP17205
1167	DP17205
1643	DP17205
1556	DP17205
1254	DP17205
1611	DP17205
1603	DP17205
1240	DP17205
1741	DP17205
1462	DP17205
1215	DP17205
1198	DP17205
1641	DP17205
1606	DP17205
111	DP17204
1681	DP17205
1677	DP17205
1229	DP17205
1621	DP17205
1656	DP17205
1441	DP17206
139	DP17204
1368	DP17204
1721	DP17206
136	DP17204
1730	DP17206
1672	DP17206
151	DP17204
1661	DP17206
181	DP17204
1348	DP17204
1717	DP17206
1713	DP17206
1596	DP17206
1723	DP17206
183	DP17204
1153	DP17206
128	DP17204
1474	DP17204
1670	DP17206
1664	DP17206
146	DP17204
177	DP832788
179	DP17204
1353	DP17204
1663	DP17206
1540	DP17204
1654	DP17205

1207	DP17204
112	DP17204
105	DP17204
117	DP17204
1524	DP17204
129	DP17204
1522	DP17204
1738	DP17206
1737	DP17206
1442	DP17206
1172	DP17206
116	DP17204
1726	DP17206
1716	DP17206
1498	DP17205
1568	DP17206
187	DP17204
1601	DP17206
1374	DP17204
1151	DP17206
149	DP17204
1535	DP17204
1538	DP17204
1591	DP17206
1126	DP17206
1570	DP17206
1608	DP17205
1255	DP17205
190	DP17204
1182	DP17205
1234	DP17205
1625	DP17205
1673	DP17206
1658	DP17206
1452	DP17206
1206	DP17204
1714	DP17206
1662	DP17206
1523	DP17204
1500	DP17205
137	DP17204
1600	DP17206
1268	DP17204
1527	DP17204
1447	DP17206
123	DP17204
1486	DP17204
1481	DP17204
1564	DP17206
1360	DP17204
1208	DP17204
1528	DP17204

1204	DP17204
1526	DP17204
1659	DP17206
1724	DP17206
1159	DP17206
1565	DP17206
1727	DP17206
1480	DP17204
1671	DP17206
1161	DP17206
1132	DP17206
1597	DP17206
189	DP17204
1704	DP17206
1712	DP17206
1489	DP17204
122	DP17204
1357	DP17204
1150	DP17206
121	DP17204
1449	DP17206
1356	DP17204
7003	DP1027105
1479	DP17204
1133	DP17206
1443	DP17206
145	DP17204
1363	DP17204
1482	DP17204
1355	DP17204
1130	DP17206
1520	DP17204
1531	DP17204
1485	DP17204
138	DP17204
1499	DP17205
1590	DP17206
118	DP17204
1542	DP17204
142	DP17204
1699	DP17206
1728	DP17206
1707	DP17206
1484	DP17204
143	DP17204
1595	DP17206
1450	DP17206
1493	DP17204
1752	DP17206
1660	DP17206
1174	DP17206
1655	DP17205

1755	DP17206
1446	DP17206
1534	DP17204
1669	DP17206
126	DP17204
156	DP17204
1439	DP17206
1178	DP17206
1572	DP17206
1571	DP17206
1155	DP17206
1477	DP17204
1735	DP17206
108	DP17204
1729	DP17206
1698	DP17206
147	DP17204
135	DP17204
1177	DP17206
1171	DP17206
1284	DP17205
1218	DP17205
1505	DP17205
1472	DP17204
1744	DP17205
107	DP17204
1265	DP17205
1195	DP17205
1270	DP17205
1516	DP17205
1200	DP17205
1633	DP17205
1546	DP17205
1551	DP17205
1610	DP17205
1512	DP17205
1222	DP17205
1143	DP17205
1135	DP17205
1747	DP17205
1602	DP17205
131	DP17204
1464	DP17205
1642	DP17205
1476	DP17204
357	DP864750
1242	DP17205
1494	DP17204
1612	DP17205
1138	DP17205
1536	DP17204
1507	DP17205

1264	DP17205
1168	DP17205
1609	DP17205
1676	DP17205
1239	DP17205
1657	DP17205
1227	DP17205
1365	DP17204
1652	DP17205
1188	DP17205
1632	DP17205
1637	DP17205
1467	DP17205
1678	DP17205
1347	DP17204
1682	DP17205
1144	DP17205
1557	DP17205
1521	DP17204
127	DP17204
1746	DP17205
1163	DP17206
113	DP17204
1444	DP17206
1475	DP17204
141	DP17204
1173	DP17206
1732	DP17206
1197	DP17205
120	DP17204
110	DP17204
188	DP17204
1708	DP17206
1367	DP17204
1594	DP17206
1701	DP17206
1175	DP17206
106	DP17204
1725	DP17206
1152	DP17206
1533	DP17204
125	DP17204
1488	DP17204
185	DP17204
1149	DP17206
1440	DP17206
1338	DP17204
177	DP17204
1593	DP17206
1569	DP17206
1160	DP17206
1497	DP17205

1129	DP17206
1501	DP17205
1734	DP17206
1349	DP17204
1366	DP17204
1448	DP17206
1541	DP17204
1364	DP17204
1598	DP17206
1176	DP17206
1496	DP17205
1191	DP17205
1263	DP17205
1134	DP17205
1697	DP17205
1511	DP17205
1750	DP17205
1243	DP17205
1640	DP17205
1622	DP17205
1517	DP17205
1748	DP17205
1558	DP17205
1649	DP17205
1369	DP17204
1260	DP17205
1469	DP17205
1209	DP17204
1183	DP17205
1471	DP17205
178	DP17204
1165	DP17205
1739	DP17205
1350	DP17204
1508	DP17205
1140	DP17205
1638	DP17205
1529	DP17204
872	DP1060706
1509	DP17205
1235	DP17205
1192	DP17205
1223	DP17205
1549	DP17205
1184	DP17205
1170	DP17205
1457	DP17205
1553	DP17205
1674	DP17205
1226	DP17205
1700	DP17206
1492	DP17204

1567	DP17206
1162	DP17206
1158	DP17206
114	DP17204
1592	DP17206
1157	DP17206
1706	DP17206
1137	DP17205
1667	DP17206
1589	DP17206
1154	DP17206
1	DP595527
1372	DP17204
1537	DP17204
1722	DP17206
184	DP17204
1346	DP17204
153	DP17204
1736	DP17206
1371	DP17204
1156	DP17206
1715	DP17206
1733	DP17206
1702	DP17206
133	DP17204
150	DP17204
130	DP17204
152	DP17204
1219	DP17205
1459	DP17205
1461	DP17205
1743	DP17205
1742	DP17205
1267	DP17205
1142	DP17205
1146	DP17205
1624	DP17205
1257	DP17205
1463	DP17205
1166	DP17205
1233	DP17205
1646	DP17205
1213	DP17205
1690	DP17205
1629	DP17205
1230	DP17205
1202	DP17205
1694	DP17205
1456	DP17205
1545	DP17205
1547	DP17205
1187	DP17205

1261	DP17205
1504	DP17205
1214	DP17205
1693	DP17205
182	DP17204
1616	DP17205
1555	DP17205
1210	DP17205
1225	DP17205
1645	DP17205
1217	DP17205
1751	DP17205
1650	DP17205
1490	DP17204
1373	DP17204
1688	DP17205
1630	DP17205
1238	DP17205
1460	DP17205
1190	DP17205
119	DP17204
1237	DP17205
1695	DP17205
115	DP17204
1358	DP17204
1532	DP17204
1256	DP17205
124	DP17204
1617	DP17205
1453	DP17205
1468	DP17205
1686	DP17205
1550	DP17205
1139	DP17205
1613	DP17205
1525	DP17204
1354	DP17204
1515	DP17205
1259	DP17205
1518	DP17204
1465	DP17205
1196	DP17205
1169	DP17205
1179	DP17206
1180	DP17206
1136	DP17205
1269	DP17205
1563	DP17206
1599	DP17206
1127	DP17206
1530	DP17204
1757	DP17206

1731	DP17206
1478	DP17204
1519	DP17204
1131	DP17206
1128	DP17206
1211	DP17205
1445	DP17206
1359	DP17204
1362	DP17204
1495	DP17204
1	DP40407
1451	DP17206
1666	DP17206
109	DP17204
180	DP17204
1705	DP17206
1147	DP17206
1351	DP17204
1164	DP17206
1345	DP17204
1491	DP17204
154	DP17204
1148	DP17206
1539	DP17204
1502	DP17205
1665	DP17206
155	DP17204
104	DP17204
132	DP17204
1473	DP17204
2	DP595527
1703	DP17206
1668	DP17206
134	DP17204
1352	DP17204
1720	DP17206
1203	DP17204
2	DP740251
1585	DP17206
1093	DP17206
1576	DP17206
1092	DP17206
1575	DP17206
1584	DP17206
1	DP791259
1089	DP17206
1111	DP17206
1119	DP17206
1114	DP17206
1086	DP17206
1103	DP17206
1121	DP17206

1427	DP17206
1582	DP17206
1097	DP17206
1431	DP17206
1118	DP17206
1753	DP17206
1115	DP17206
1088	DP17206
1099	DP17206
1577	DP17206
1087	DP17206
1434	DP17206
1122	DP17206
2	DP746027
1113	DP17206
1581	DP17206
1430	DP17206
1709	DP17206
355	DP261045
1112	DP17206
1096	DP17206
1117	DP17206
1120	DP17206
1579	DP17206
1578	DP17206
1429	DP17206
1109	DP17206
1710	DP17206
1587	DP17206
1123	DP17206
1588	DP17206
1100	DP17206
1098	DP17206
1436	DP17206
1102	DP17206
21	DP606818
1718	DP17206
1101	DP17206
1108	DP17206
1090	DP17206
1095	DP17206
1104	DP17206
1106	DP17206
1432	DP17206
1438	DP17206
1583	DP17206
1107	DP17206
1116	DP17206
1428	DP17206
1124	DP17206
1586	DP17206
1437	DP17206

1580	DP17206
1711	DP17206
1435	DP17206
1094	DP17206
1105	DP17206
1110	DP17206
76	DP786344
1091	DP17206
1433	DP17206
77	DP786344
235	DP590742
316	DP588027
166	DP816316
11	DP617901