

Hanging Rock Environmental Management Plan 2021 Update

Part 2 – Management Plan





Acknowledgement of Country

This report discusses the unceded lands of Hanging Rock. The Rock is known as a place of gathering and cultural significance to the Dja Dja Wurrung, Taungurung and the Wurundjeri Woi Wurrung people. We would like to acknowledge them as the traditional owners, and pay respects to their Elders, past and present, and the Elders from other communities who may be present on their lands or reading this document.

As an organisation, Practical Ecology acknowledges the Traditional Custodians of the land on which our office is located, the Wurundjeri Woi Wurrung people of the Kulin Nation.

We pay our respects to their Elders, past and present. We also acknowledge the Traditional Custodians of the lands on which we conduct our business throughout Australia and pay our respects to their Elders, past, present and emerging, and the Elders of other communities who may be present on those lands.



Hanging Rock Environmental Management Plan Part 2– Management Plan

2021 Update

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Contents

1.	MANAGEMENT PLAN FRAMEWORK	6
1.1	Introduction	7
1.1.1	Vision for the Hanging Rock Precinct	7
1.2	Management Framework	8
1.2.1	Objectives and Strategies	9
1.2.2	Management Zones and Principles	12
1.2.3	Management Actions	14
1.2.4	Priorities	14
1.2.5	Recommendations	15
1.2.6	Implementation Plan	15
2.	MANAGEMENT PRINCIPLES	16
2.1	Precinct Management Principles	17
2.1.1	General Management	17
2.1.2	Weed control	17
2.1.3	Pest animal control	17
2.1.4	Revegetation	17
2.1.5	Ecological burns	18
2.1.6	Bushfire risk and mitigation	18
3.	ECOLOGICAL MANAGEMENT AND MONITORING	19
3.1	Revegetation and Regeneration	20
3.1.1	Fire for regeneration	23
3.1.2	Tree Conservation Areas	23
3.2	Weed Control	25
3.2.1	Vegetation Monitoring	28
3.3	Dams and Waterways	30
3.3.1	Smokers Creek Riparian Zone	30
3.3.2	Dams	31
3.4	Erosion Issues	31
3.4.1	The Rock	31
3.4.2	Smokers Creek	32
3.5	Fauna Management	32
3.5.1	Management and Monitoring	32
3.5.2	Individual Species Management	34
3.5.3	Pest Animal Management	35
3.5.4	Kangaroo Management	36
3.6	Domestic Animals	37
3.6.2	Dogs	38
3.6.3	Livestock	38
4.	MANAGEMENT OF TRADITIONAL OWNER VALUES	39
4.1	Cultural Heritage Values	40
4.1.1	Documented Threats	40
5.	GENERAL SITE MAINTENANCE	41
5.1	Ongoing Maintenance	42
5.1.1	Mowing	42
5.1.2	Track Maintenance	42
5.1.3	Tree Management	43
5.2	Fencing and Zone Demarcation	45

5.2.1	External/Perimeter Fence	45
5.2.2	Internal barriers and zone demarcation	46
5.3	Fuel Management	47
5.3.1	Fire Management Plan 2015	48
5.3.2	Bushfire Risk Assessment	48
5.4	Bushfire emergency plan	49
5.5	Works Depot and Storage Yard	49
5.5.1	Mulch and stockpiles	49
5.5.2	Machinery Maintenance and Hygiene	50
5.5.3	Communication with adjacent landholders	50
6.	VISITOR EXPERIENCE, TOURISM AND EDUCATION	52
6.1	Education	53
6.1.1	School Programs and Workshops	53
6.1.2	Visitor Education Programs	53
6.1.3	Special events	53
6.2	Tourism and Engagement	54
6.2.1	Wildlife encounters	54
6.2.2	Use of Precinct as Location	55
6.3	Signage and Interpretation	56
6.3.1	Visitor experience and technology	56
6.4	High-use Days and Events	57
6.4.1	Large Music Events	58
6.4.2	Racing Events	58
6.4.3	Car Shows	59
6.4.4	Markets and community events	59
7.	FACILITIES AND REDEVELOPMENT	60
7.1	Future of the Hanging Rock Precinct	61
7.1.1	The East Paddock	61
7.1.2	Picnic Areas	61
7.1.3	Sporting Clubs	62
7.1.4	Parking and Traffic movement	62
7.1.5	Lighting	63
7.2	Limitations of this EMP update	64
8.	IMPLEMENTATION PLAN	65
7.3	Scheduling and Resources	66
APPENDIX 1 – MAPS		80

1.

Management Plan framework



1.1 Introduction

This Report is Part 2 of the Hanging Rock Precinct Environmental Management Plan (EMP) Update 2021. This plan establishes Management Zones for the Precinct along with recommended actions for the next 5–10 years of management, dependant on the completion and implementation of the Hanging Rock Master Plan to be completed in 2022.

As well as prescriptions and targets for day-to-day management, Part 2 also provides recommendations for future management, particularly in relation to the preparation of the Master Plan and responds to the objectives and strategies set out in the 2018 Hanging Rock Strategic Plan prepared by Victorian Government Department of Environment, Land, Water and Planning (DELWP). The Strategic Plan highlights the recognition and prioritisation of the ecological and cultural heritage values of the Precinct to be considered in ongoing management.

With consideration of the above, this document aims to provide an update to the contents of the 2015 EMP through the provision of revised:

- objectives and targets for on ground management
- recommendations for protection and enhancement of flora and fauna values
- acknowledgement and protection of the significant cultural heritage values
- considerations of the future management and use of the Precinct
- identification of opportunities for education and nature-based tourism.

1.1.1 Vision for the Hanging Rock Precinct

A 50 years vision for the Hanging Rock Precinct was created in 2018 as part of the Strategic Plan as a mission statement to guide future management, planning and decision-making for the future use of the Precinct. The vision describes the aesthetic and experiential outcome that is to be achieved through considered management practices. The vision has resulted from evaluation of site values, and consultation with interest groups and community to reflect the multitude of meanings and values to people and groups who interact with the Rock and the surrounding Precinct.

The 50-Year Vision for Hanging Rock, as per the Strategy Plan (2018) is as follows;

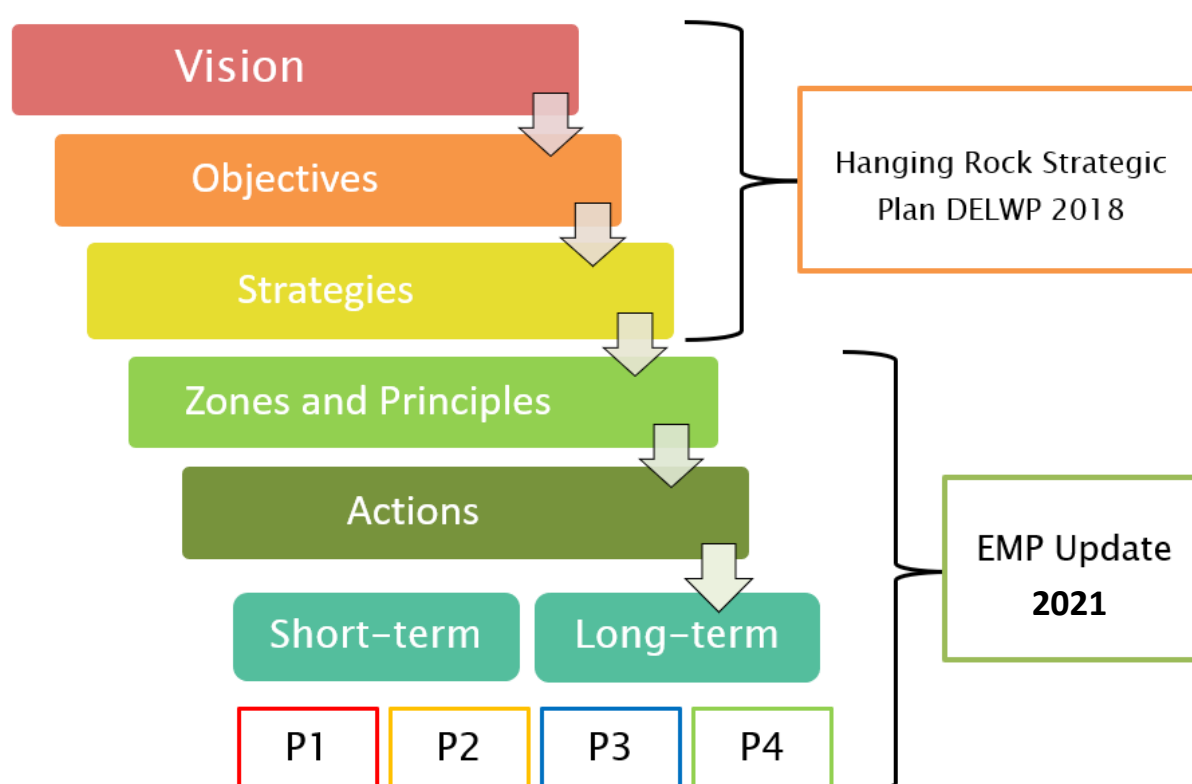
“Hanging Rock will be renowned for its importance to our First Peoples, its dramatic geological form and its wider landscape setting within the Macedon Ranges. The role of the rock throughout history as a place of gathering, reflection and intrigue will be understood and celebrated. The revegetated bushland environment will enhance the secluded ambience and provide a habitat for native wildlife. Activities around the Rock will reflect its historical uses centred on recreation and education, and its State and national significance”

1.2 Management Framework

The diagram below illustrates the relationship between the different stages of the management framework.

The Vision, Objectives and Strategies have been determined through the consultation process in the development of the 2018 Strategic Plan.

Management Zones and Principles, Implementation Actions, Timeframe and Priorities are provided in this Plan.



1.2.1 Objectives and Strategies

The following objectives and strategies were determined through consultation with stakeholders and interest groups as part of preparation for the Hanging Rock Strategic Plan 2018. These objectives and strategies have been incorporated into this document as the basis for the recommendations that are presented throughout its contents, to ensure that they are duly considered as part of ongoing environmental management and preservation of the Precincts' significant ecological and cultural values.

Governance and Management

Implement a detailed plan that ensures the long-term development and management of Hanging Rock is sustainable

- S1. A governance structure is established that is representative of all key stakeholders
- S2. A Master Plan is prepared to action the detailed implementation of the Strategic Plan
- S3. A Business Plan is prepared that identifies funding sources for capital and operational expenses for the longer term.

Environment

Improve and protect the environmental values of the Precinct

- E1. A thorough understanding of the existing ecological values of the precinct is completed
- E2. Protection and enhancement of existing indigenous flora and fauna communities is prioritised
- E3. An holistic and coordinated approach to vegetation management is adopted
- E4. Plans developed to protect the precincts environment are to include consideration of policies, procedures, and documentation to support their effective implementation
- E5. Visitors to the Precinct and Rock are managed to reduce disturbance to the Rock Formation and surrounds
- E6. The importance of protecting visual landscape values associated with Hanging Rock and the Precinct, and the identified culturally significant view lines to the south, southeast and west of the East Paddock is acknowledged in future plan.

Improve and protect the landscape and visual values of the Precinct

- E7. The importance of protecting visual landscape values associated with Hanging Rock and the Precinct, and the identified culturally significant view lines to the south, southeast and west of the East Paddock is acknowledged in future plan

Culture and Heritage

Protect Traditional Custodians heritage and cultural associations

C1. Sites and areas of cultural significance are shown the appropriate level of respect and protection to recognise their ongoing value and eliminate risks of disturbance or alterations, including

- The Hanging Rock Outcrop
- The Natural Spring Site
- Areas of Remnant Vegetation
- The High Point within the East Paddock
- Smokers Creek and its tributaries

C2. Aboriginal rights to Traditional Custodianship are recognised by the State Government of Victoria and Macedon Ranges Shire Council and enshrine this right as an integral foundation principle in future decision making and management. “Joint-management” is to include the Dja Dja Wurrung, Taungurung and Wurundjeri traditional owners, with an established formal role as a genuine partner in managing, decision-making and long-term planning

Build visitors knowledge and awareness about the heritage of the place, and important of the place to Traditional Owners

C3. Information of the heritage values and the importance of the Hanging Rock Precinct to the Aboriginal Traditional Owners is incorporated in all future materials developed for visitor education

Recognise and reflect the national and state role and significance of Hanging Rock in management and legislative arrangements

C4. The heritage and historical association of long-established activities (i.e., over 100 years) are supported

Recognise and reflect the national and state role of significance of Hanging Rock in management and legislative arrangements

C5. Hanging Rock and the Precinct are recognised and nurtured for their potential National Heritage listing

Note that advice and detailed recommendations for the management and conservation of Aboriginal Cultural values are specifically addressed within a separate document (cited below), referred to as the Hanging Rock CMP, which has been used to inform recommendations and brief discussion within this EMP.

For detailed information, refer directly to
‘Eco Logical Australia 2021. Hanging Rock Precinct Aboriginal Cultural Heritage Landscape Conservation Management Plan. Prepared for the Department of Environment, Land Water and Planning, Loddon Mallee Office’

Tourism and Recreation

Manage sporting recreational activities to reflect the role and significance of the Precinct

T1. Recognition of State and National significance for Hanging Rock and the Precincts is carefully balanced with management of activities to support and protect the environmental and cultural heritage values.

T2. The contribution of local sporting activities at the Precinct to the wellbeing of people and communities around the Hanging Rock Precinct is recognised by maintaining these activities in the short term and through engaging with sporting clubs and the community regarding the relocation of sporting activities in the longer term.

T3. The tradition of Horse Racing at Hanging Rock is recognised and supported at its current level. Horse Racing facilities are planned to improve access across and within the precinct to benefit the visitor experience and the Precinct as whole.

T4. The planning of and location of visitor facilities is respectful of and complies with the requirements of the environmentally, visually and culturally sensitive areas of the Precinct.

Support in continuing association of Hanging Rock as place gathering accessible to all visitors.

T5. The interpretive and educational role of the Precinct is improved

T6. Events and concerts have a role at the Precinct, are respectful of the Traditional custodians, local community, environmental values of the Precinct, the natural Landscape setting, and promote the importance of the Rock

T7. Visitor access to the Precinct is improved

Foster the tourism role of the Precinct in the region and state

T8. Local, regional interstate and international tourism is encouraged

1.2.2 Management Zones and Principles

This Management Plan divides the Precinct into a number of Management Zones to effectively manage and prioritise values across the Hanging Rock Precinct, along with enhancing tourism and educational potential. Some of these Management Zones have also been further divided into sub-zones or defined management areas, where particular values associated with ecology, cultural heritage or recreation are to be specifically managed, or a particular threat needs to be addressed.

Each Management Zone established across the Precinct is reflective of the current site conditions, along with the ecological values, cultural heritage or recreational values present or specific management requirements from a safety/maintenance perspective. Each Management Zone therefore has a key set of management objectives and principles to guide ongoing management, with these supported by a series of proposed recommendations to ensure they are achieved.

Note that whilst the Management Zones have primarily been established to conserve the ecological values of the Precinct, they have also, as noted above, been established in a manner that considers cultural heritage and future tourism opportunities.

The objectives and principles established for each Management Zone essentially form the backbone of the EMP, forming the basis for recommendations to protect and enhance the current values of the Precinct in both the short and long term. Note that short-term in the context of this EMP relates to the period between the development of this EMP and implementation of a Master Plan for the Precinct which is to be completed in 2022; long term refers to management of the Precinct as a part of implementation of the Master Plan to ensure ongoing management remains in-line with the broader vision and objectives of the Strategic Plan.

The Management Zones established for the Precinct are shown on Map 12 and discussed throughout this document. The key focus of management for each of these Management Zones is shown in **bold** below with further detail on each Management Zone presented in Table 1 below;

Conservation

- Core Conservation Zones (CCZs)
- Connectivity Zones (CZs)
- Dam Zones (DZ)

Recreation and improvement of tourism facilities

- Recreation Zones (RZ)

Safety and Maintenance

- Fuel Management Zone (FMZ)
- Tree Safety Management Zone (TSMZ)

Table 1. Description of Management Zones

Conservation Zones	
Core Conservation Zones (CCZ)	Represents areas of the Precinct that contain remnant vegetation or intact native vegetation strata, (groundstorey, understory and canopy layers) of varying quality. These areas have the greatest indigenous flora species diversity across the Precinct and provide the key fauna habitat areas
Connectivity Zones (CZ)	Represents areas of the Precinct that contain large canopy trees, many containing hollows, that are currently located throughout managed/mown recreational areas. These Zones represent areas that are potential for development and improvement of understory connectivity across the site. It is proposed that the long-term goal of increased connectivity is achieved gradually, through strategic connection of Tree Conservations Areas that allows for continued use for passive recreational purposes and events, while supporting gradual improvement of understory condition
Dam Zones (DZ)	Represents the areas of the Precinct where five dams/waterbodies occur, inclusive of surrounding aquatic vegetation
Recreation Zones	
Recreation Zone (RZ)	Represents areas of the Precinct where the management of ecological values is to be balanced with ongoing recreational uses for a range of purposes.
Maintenance Zones	
Fuel Management Zones (FMZ)	Represents areas of the Precinct located along boundaries, or adjacent to major internal access roads, that require ongoing maintenance of groundstorey layer including removal of fine fuels to create firebreaks.
Tree Safety Management Zones (TSMZ)	Represents areas within other Management Zone (as above) where the current tree safety management practices (arboricultural inspections and limb lopping as required) will continue. These areas are primarily located along the main walking tracks, Picnic Areas and other high-use areas.

1.2.3 Management Actions

As mentioned above, this EMP has been developed and completed prior to the creation of the Master Plan for the Hanging Rock Precinct, which is expected to be completed by 2022. The purpose of this plan is to provide management advice for the relative short-term; between the time of EMP finalisation and the implementation of the Master Plan, as well as to provide guidance and information in regards to the appropriate management of significant biodiversity values that require consideration as part of the decision-making process of the Master Plan.

While it is therefore possible to develop recommendations to protect and enhance existing values that are unlikely to change regardless of the outcome of this Master Plan, location specific management advice is limited due to the uncertainty associated with the future locations of buildings and amenities, and future development of additional facilities and the future use of the Precinct. As such, in some cases, management actions are considerate of the timing and requirements of the finalised Master Plan. These cases are identified as either issues that will be resolved in the Master Plan process, or topics that will require either review or reconsideration in light of design outcomes of the finalised version of the Master Plan.

Given the current level of detail that is yet to be determined, time-frames have also been considered for the implementation of Actions. Management actions that are in line with a standard 5-year management plan and are described as short term where clear decisions can be made based on the current conditions and the knowledge that high-biodiversity value areas are to be prioritised for conservation.

All recommendations or management actions are made in the context of the objectives and strategies of the Strategic Plan, and aim to build upon the progress and outcomes of the 2015 EMP.

Time-based actions	
	0-1 years
Short Term (ST)	1-3 years
	3- 5 years
Long Term (LT)	6-10 years
	10+ years
Continuous actions	
	ongoing

P1	REQUIRED
P2	HIGH
P3	MODERATE

1.2.4 Priorities

Priorities for management actions are based on their urgency, particularly in addressing known threats, and their impact, which is based on the degree to which the management action can potentially improve or have an effect.

1.2.5 Recommendations

- **Sections 2–7 of this document present recommendations by management topic**, providing a brief summary of management issues or background. Detailed background information can be found in EMP Update Part 1 – Background Report.
- **Each recommendation is presented with a corresponding recommendation number** and, if applicable, relevant management zone, timeframe for completion of implementation, and priority – see example table below.
- For some topics that relate to future management decisions and planning, recommendations are provided that are important considerations for the preparation of the Master Plan. Other recommendations relate to the long-term outcome, and can only be fully considered or realised on completion of the Master Plan.

Table 2. Example of recommendations table

Rec #	Recommendation	Relevant Zones	Implementation timeframe (Years)	Priority
(1)	<i>Specific recommendations of discrete areas, that relate directly to management as determine by Zone</i>	<i>CCZ 1</i>	<i>1–3</i>	<i>P2</i>
(2)	<i>General recommendations for Precinct wide application</i>	<i>All</i>	<i>Ongoing</i>	<i>P2</i>
(3)	<i>Recommendations that do not relate to management zones (x), but rather address management systems or present general principles.</i>	<i>x</i>	<i>Ongoing</i>	<i>P1</i>
For consideration in development of Master Plan				
(4)	<i>For topics relating to future development impacts, where values of future management will need to be carefully considered in future planning</i>	<i>x</i>	<i>x</i>	<i>x</i>
On completion of Master Plan				
(5)	<i>For actions that can only be addressed or fully considered on finalisation of Master Plan</i>	<i>x</i>	<i>x</i>	<i>x</i>

1.2.6 Implementation Plan

Section 8 of this document summarises all recommendations into an Implementation Plan, presenting a schedule for completion of works and indication of resourcing. As supplement to this report, the Implementation Plan is also provided as an excel spreadsheet.

Note that it will likely be necessary for this plan to be updated on completion of the Master Plan along with other processes developed for Implementation of the Strategic Plan

2.

Management Principles



2.1 Precinct Management Principles

2.1.1 General Management

- Implement best practice, and utilise accepted industry standards and guidelines for all management works

2.1.2 Weed control

- Prioritise high-value ecological areas (Core Conservation Zones)
- Eradication Woody Weeds, and new and emerging weeds
- Reduce cover of high threat weeds
- Monitor cover of low threat weeds
- Use integrated management techniques (herbicide/manual removal/burns)
- Implement best practice weed hygiene

2.1.3 Pest animal control

- Prioritise high-value ecological areas (Core Conservation Zones)
- Integrate Pest control with other management activity (burns, revegetation etc)
- Use of baits is prohibited
- Meet legal obligations for CaLP act

2.1.4 Revegetation

- Implement revegetation with appropriate fencing or guards to minimise browsing/grazing by herbivores
- Use local, or future climate-adapted provinces where possible
- Use species from appropriate reference ecosystem

2.1.5 Ecological burns

- Conduct ecological burns in line with optimal fire regimes
- Patches of remnant vegetation to be managed with ecological objectives and cultural fire
- Follow-up and monitoring to be conducted in relation to grazing pressure, weed control etc.

2.1.6 Bushfire risk and mitigation

- Maintain fuel breaks
- Maintain infrastructure that allows control and management of bushfire risk, allowing for use of amenities and site access for bushfire protection
- Update relevant Bushfire and Emergency plans to reflect changes to the use of Hanging Rock Precinct

3.

Ecological Management and Monitoring



3.1 Revegetation and Regeneration

Revegetation works have to date focused on;

- increasing the cover of indigenous species,
- the restoration of Smokers Creek,
- erosion mitigation on the Rock, and
- installation of Tree Conservation Areas (TCAs) in areas managed for recreation. These TCAs represent groups of trees and/or mature single trees managed through the application of mulch to the tree line along with the installation of revegetation using indigenous understorey species.

The approach to revegetation proposed within this current EMP is considerate of the following regarding species selection and the location of ongoing revegetation works within the Precinct:

- The Hanging Rock Precinct includes a variety of ecotones, and vegetation communities that do not line up with EVC benchmarks. While EVC benchmarks are therefore useful for a general understanding of the vegetation communities across the broader landscape, the effect of the Rock formation on the immediate vegetation (in and around the Rock) is unique to this Precinct, and as such has created small-scale floristic diversity and function that needs to be reflected in revegetation works that are proposed.
- The site has been used as a place of gathering for Traditional Owners for thousands of years and as such may have been managed for particular cultural values, including cultivation and management of culturally important plants and other resources,
- European settlement and modern influence have resulted in heavy modification of the site over a relatively short period, including changes to natural or indigenous fire regimes, disturbance from grazing and historic recreation and modification, changes to local waterways resulting from landscape-scale farming practices and damming within the Precinct, current management practices, as well as the ongoing effects of climate change.
- Since 2015, a revegetation plan (Young, 2018) has been developed by a former Hanging Rock Environmental Officer with knowledge and familiarity with the modern conditions of the vegetation on site. This revegetation plan noted the impracticality of using EVC templates for areas that are currently vegetated and where infill planting is required. The Revegetation Plan addressed the issue of revegetation through detailed discussion of present conditions of each management zone, as opposed to by mapped EVCs; which has created opportunity for a more nuanced approach based on existing on-ground conditions.

Future revegetation efforts should continue to be completed in line with the Revegetation Plan (Young, 2018), with the following clarifications in relation to the purpose and aims of revegetation across different Management Zones.

This slowly increases the amount and extent of indigenous vegetation cover over time, and allows for movement to areas with lower infestation levels over time. It is noted that this method is likely to be slow, laborious and can result in trampling of surrounding vegetation.

Table 3. Purpose of revegetation

Ecological Enhancement	Within Core Conservation Zones, includes replacement or recovery of missing or diminishing vegetation types or species to improve overall structure, diversity, and habitat opportunities of the area.	CCZs
Connectivity	Combinations of trees, shrub and groundcover for planting in areas with little-to-no native vegetation cover, particularly at ground storey. Includes the application of mulch, woody debris and large logs to facilitate natural regeneration.	CZs
Remediation	Implemented to mitigate impacts and threats, (e.g., erosion issues, creation of barrier/deterrents, replace damaged vegetation)	All
Cultural Significance and Education	Reintroduction of culturally significant plant species that would have been present within the Hanging Rock Precinct, to be combined with interpretive signage and education as determined by Traditional Owner Groups	All
Aesthetic Improvement	Local and indigenous plants with decorative foliage and flowers to enhance the visual appeal of the site, or, plants showcased for important ecological function, for example; <ul style="list-style-type: none"> • around entries and along paths, in the form of grasses or sedges • Within picnic areas/ high traffic tourist areas. 	RZs CZs
Tree Protection (*TCAs)	Vegetation and woody debris that has been installed to reduce impacts to large trees in high traffic areas. Features low groundcovers, grasses and sedges (shrubs and large trees avoided to reduce stress/competition with large trees)	RZs CZs

Table 4. Recommendations– Revegetation

Rec #	Recommendation	Relevant Zones	(Years)	Priority
1	Develop a restoration strategy for CCZ 1 for systematic regeneration of middle–story and canopy species, to include a combination of; <ul style="list-style-type: none"> – cool/cultural burns – grazing restrictions through exclusion fences – weed control – revegetation works 	CCZ 1	Years 1–3	P1
2	Expand current revegetation efforts around the expanded Smokers Creek Riparian corridor in line with update zone boundary Map 12 <ul style="list-style-type: none"> – Management Zones 	CCZ 3	Year 1	P1
3	Ensure regular maintenance of revegetation work areas– with at least bi–annual follow up works for completed revegetation, including weed control, removal of guards etc.	All	ongoing	P2
4	Ensure that no exotic/ non–native plants are planted within the Precinct.	All	ongoing	P1
5	Investigate strategies to adapt to climate change including, but not limited to: <ul style="list-style-type: none"> –Monitoring of revegetation success –Plant provenance trials –Joint management projects with research institutions 	x	Years 1–3	P1
6	Update the Revegetation Plan (Young, 2018) to <ul style="list-style-type: none"> – reflect changes to Management Zones and objectives – prioritise high–quality areas/CCZs – include a revised species list, based on consultation with Landcare regarding the local and historical knowledge of the site and surrounding area – include tall deterrent shrub species (prickly, thorny), and dense plantings, to reduce visitor access through vegetated areas and enhance woodland bird habitat at/around summit CCZ1 – include species identified as historically occurring in the region, including culturally significant plant species – include discussion of climate change in relation to the ecological and sustainable future of the Precinct in relation to revegetation works – include a strategy for selection of species as a consideration for the future impacts of climate change 	x	Year 1	P2
7	Prioritise revegetation for the purposes of remediation/soil stabilisation/deterrents for locations where erosion has been identified.	CCZ 1 CCZ 3	ongoing	P1

3.1.1 Fire for regeneration

The application of fire is required within the Precinct to facilitate natural regeneration of indigenous plant species. This is of particular relevance to the Racecourse Grassland, but also applies to other areas containing native vegetation, include The Rock Core Conservation Zone 1.

The use of fire as a management tool is particularly relevant to managing;

- the loss of flora biodiversity within CCZ 2
- improper grazing regime by unmanaged kangaroo populations as biomass control, in place of more appropriate management through fire
- biomass accumulation within the CCZ 2
- the poor recruitment of canopy and middle-storey species throughout the Precinct
- the high understory cover of grassy and herbaceous weed species and Austral Bracken in CCZ 1

Table 5. Recommendations– Fire for ecological restoration

Rec #	Recommendations	Zones	Years)	Priority
8	Incorporate restoration strategies in the planning of fire for ecological restoration	All CCZ	ongoing	P1
9	Implement the existing Grassland Management Plan for restoration, including biomass management through considered burning/grazing regimes	CCZ 2	Years 1–3	P1
10	Implement cool burns in CCZ 3– North of Racetrack, to reduce on-ground fuels including woody weed species, and small dead material, while enhancing understory diversity	CCZ 3	Year 1	P1
11	Undertake an experimental burn in CZ 7 – Northern Picnic area with the aim of exploring opportunity for transitioning mown areas to restored indigenous understory	CZ 7	Years 1–3	P2
12	Develop a cultural burning strategy for the Reserve, in line with the Victorian Traditional Owner Cultural Fire Strategy (DELWP, 2020) and the guidelines and actions stated in CMP	x	x	P2

3.1.2 Tree Conservation Areas

Tree Conservation Areas (TCAs) require management directly within the immediate groundstorey area beneath the canopy of large trees, primarily in the recreational picnicking areas of the reserve that are maintained through mowing and irrigation.

TCA's were first introduced in 2015 to protect large mature trees, or groups of trees, from the impacts of regular mowing, regular tree safety management and threats associated with car parking and high-traffic movement within root zones.

The current threats to these trees can be summarised as;

- long-term impacts of compaction caused by maintenance activities and visitors parking in close proximity on high-activity days
- use of these trees for shade requires ongoing maintenance for safety including regular assessment and subsequent lopping for public safety
- isolation and lack of connection to other vegetation, either at the canopy or groundstorey layers which can influence their ability to be used as effectively for their inherent fauna habitat values
- trees are unable to reproduce due to mowing practices at the base of trees, and between trees, resulting in a lack of replacement of these trees long-term.

While new TCA's continue to be proposed for establishment under the current EMP, their ongoing establishment should be based on the following parameters:

- the perimeter of each TCA is to be clearly defined on site with suitable large limbs, sourced from tree lopping for safety, or those that have fallen naturally in recreation areas and require removal from these areas
- the perimeter is to be located at the drip-line of the trees, except for where adjacent to infrastructure such as tracks, gates and other amenities
- once defined, mowing within the TCA's is to cease and the TCA's are to be mulched or planted with native ground cover – refer to 2018 Revegetation Plan, and/or allow for natural regeneration of understory
- fallen and/or lopped limbs that fall within each TCA should be retained in situ or be relocated (from adjacent mown areas) into Core Conservation Zone
- Tree Safety assessment to continue but lopping/removal of limbs should be limited as much as possible, especially in CCZ's

The implementation of TCA's will be a staged process that is dependent on the availability of resources (large limbs to define the perimeter of the TCA's), staff and financial resources and the establishment of alternative car parking and access arrangements for events and high use days where the TCA's will impact car parking availability and vehicle movements.

Table 6. Recommendations– Tree Conservation Areas

Rec #	Recommendation	Zones	(Years)	Priority
13	<p>TCA Installation</p> <ul style="list-style-type: none"> –Continue to implement installation of TCAs through mulch application, where they do not currently occur, with focus on CZ 7 and CZ 2. – Commence mulching and log retention linking TCAs where practicable to create connectivity corridors of groundstorey and opportunity for natural regeneration – Only implement new TCAs in CZ areas where this can be achieved without impacting existing car parking on event or high use days, or when alternative parking and access arrangements have been confirmed with event organisers – Improve existing TCAs – ensure mulching and planting areas reach to the drip line of live trees 	RZs CZs TCAs	Year 1	P2
14	Design and install appropriate signage to highlight TCAs and outline their function for public engagement purposes	TCAs	Years 1–3	P4

3.2 Weed Control

Invasive plant management that is currently implemented in line with the weed categorisation system outlined in the 2015 EMP is to continue and is summarised in Table 7 below. It is noted that the 2015 previous management included separation of weed priorities by area. This EMP update has simplified this approach and assigned Weed Prioritisation Categories for weeds across the Precinct as a whole. Note that all weed species listed in the CALP Act, or listed as Weeds of National Significance (WONS) have been assigned the highest priority categories for control.

Table 7. Weed Prioritisation Categories

Weed Prioritisation Categories	Description of each Category
Keystone (K)	<p>Totally dominate structurally and floristically/old populations that have reached the peak of their invasion potential in a given area. Many species (flora and fauna) may have become dependent on the weed</p> <ul style="list-style-type: none"> • Work slowly and systematically from highest understorey indigenous vegetation quality areas outwards • Remove mature specimens first • Keep in mind buffers/habitat
Small patches (S)	Of variable risk, but easiest to eliminate as they are in small numbers. Small patches or the only observed occurrence of a species in the site
S1	S1: Highest risk and priority for control. Eliminate from the site
S2	S2: Moderate risk and priority for control. Eliminate from the highest quality areas first
Ubiquitous species (U)	Scattered weeds of disturbed areas, hard to eliminate; look at management regimes, eliminate in high quality areas, but of lower priority elsewhere in the site

Table 8. CALP Act/WONS listed species within the Reserve

Scientific Name	Common Name	CaLP Act Control Category	WONS	Site Weed Prioritisation
<i>*Allium triquetrum</i>	Angled Onion	R	–	S2
<i>*Carduus tenuiflorus</i>	Slender Thistle	R	–	S2
<i>*Cirsium vulgare</i>	Spear Thistle	R	–	S2
<i>*Conium maculatum</i>	Hemlock	R	–	S1
<i>*Crataegus monogyna</i>	Hawthorn	R	–	S1
<i>*Cytisus scoparius</i>	English Broom	R	Yes	S1
<i>*Genista monspessulana</i>	Montpellier Broom	R	Yes	S1
<i>*Rosa rubiginosa</i>	Sweet Briar	C	–	S1
<i>*Rubus fruticosus agg.</i>	Blackberry	C	Yes	S1
<i>*Ulex europaeus</i>	Gorse	C	Yes	S1

Woody and Scrambler/Climber Weeds

Small individual woody weed infestations continue to occur throughout the Precinct, with most infestations located in less frequented or hard-to-access areas. All woody weeds have been categorised as high priority for control (S1 or S2).

As there are no large-scale woody or scrambler/climbing weed infestations within the Precinct, elimination of woody weeds for the site is deemed achievable. This is provided however that monitoring efforts are ongoing and such works are prioritised. Recommendations within the 2015 EMP stated that with dedicated weed control works and follow-up monitoring, elimination of woody and scrambler climber weeds could be achieved within 1–2 years. This EMP update still supports this assertion at present, but only if this management is prioritised, and incorporated into the day-to-day maintenance of the site.

Grassy/Herbaceous Weeds

Aside from woody and scrambler/climbing weeds, other key weed issues within the Precinct are centred around keystone weedy grass species (and potentially some keystone weedy herbaceous species) that occur across the Reserve, but are most problematic in the areas with remnant indigenous ground-storey vegetation and within all Core Conservation Zones.

Weed control of keystone grasses is difficult to achieve without an ongoing, dedicated effort that can involve high labour costs (in hours worked) and years of ‘slow’ and patient work. Controlled burns have been used with some degree of success within the Precinct with regard to the management of grassy weeds, however this requires a concerted effort to manage these areas for such weeds post-burn, including exclusion from browsing.

Given the ongoing effort that is required to manage grassy weeds across the Precinct, the “Bradley Method” of bush regeneration should be considered when planning such works. This approach is

based on determining the areas with the highest indigenous vegetation cover and concentrating on hand weeding and spot spraying of small areas within and surrounding these higher-cover areas. Based on the logic of the Bradley Method, the area of highest ecological value and vegetation quality is CCZ1 – The Rock and Surrounds. It is therefore essential to prioritise this area for weed control in at least the short-term to improve indigenous groundstorey vegetation cover, in conjunction with other restoration works such as cool burns and revegetation.

Table 9. Recommendations– General Weed Control

Rec #	Recommendation	Zones	(Years)	Priority
15	Undertake weed control on a quarterly, bi-annual or annual basis.	All	ongoing	P1
16	Eliminate all mature woody weeds across the Precinct within 3 years of implementation of this EMP; ensure woody weed control is implemented continuously across the Precinct to manage regrowth as it occurs over time	All	Years 1-3	P1
17	Continue to manage scrambler/climbing weeds and thistles across the Reserve on an ongoing basis	All	ongoing	P1
18	Incorporate practices of Hanging Rock Rangers to record general observations of weeds identified during daily duties to inform ongoing weed control	All	ongoing	P1
19	Conduct an annual 'weed sweep', detailed monitoring of the entire Precinct in Spring to identify problem areas and schedules for control	All	ongoing	P1

Table 10. Recommendations: Weed Control – Core Conservation Zones

Rec #	Recommendation	Zones	(Years)	Priority
20	Implement the 2020 Grassland Management Plan for restoration, including biomass management through considered burning/grazing regimes, weed control, and revegetation works	CCZ 2	Years 1-3	P1
21	Cease spraying herbicide in drains and channels and for up to 20m from these areas, in consideration of aquatic fauna species, particular amphibians, across the Precinct, unless otherwise approved by Council's Environment Unit	All	ongoing	P2

3.2.1 Vegetation Monitoring

There is currently no Precinct-wide Vegetation / Flora Monitoring Plan in place. Monitoring that has been conducted has been relatively sporadic in its application, or specific to set locations within the Precinct, including;

- Exclusion plots within the Racecourse Grassland {Just, 2018 #11}
- Offset plots CCZ1 – North conducted by Karl Just (2016, 2018)
- Informal/unrecorded observations by former Environmental Officer Daniel Young
- Long-term general observations of local naturalists, including members of Newham and District Landcare Group and Friends of Hanging Rock

Creating a coordinated system that stores the findings of floristic monitoring is important for the collecting of comprehensive data that can be used to inform future management actions. This is especially relevant for topics such as the relationship between kangaroo numbers and grazing pressure vs diversity, or results of planned burns.

3.2.1.1 Floristic diversity

Table 11. Recommendations – Floristic diversity

Rec #	Recommendation	Zones	(Years)	Priority
22	Develop a Flora Monitoring Strategy , incorporating: – existing exclusion plots – monitoring plots for works completed (revegetation, erosion control) – pre- and post- burn monitoring	x	Year 1	P1
23	Consider additional detailed flora monitoring, including – investigation the floristic diversity of the site through completion of detailed flora surveys in hard to access areas – monitoring to determine ecotones within each EVC, resulting from the unique rock formation	x	Years 1–3	P3
24	Ensure all new sightings of rare and threatened flora species are added to the Victorian Biodiversity Atlas	x	Ongoing	P2

3.2.1.2 Large Trees

The senescence and subsequent death of large trees within the precinct has been documented for several years, including:

- Areas within the rock formation which were historically shaded and now are not, either through direct tree loss or through reduction in canopy health (P. Roberts 2015 Pers. Comm.)

- Northern End of CCZ1 – the Rock and Surrounds (D. Young 2020 Pers. Comm.)
- Loss of large rough-barked Eucalypts, specifically Narrow-Leaf Peppermint E, radiata and Messmate *E. obliqua* (D. Young 2020 Pers. Comm.)

The 2015 EMP highlighted possible reasons for large tree decline including drought, increased exposure to wind due to loss of surrounding vegetation, ecosystem changes, insect attack or reduction in birds and arboreal mammals utilising the trees and feeding on insects. To address dieback of large trees across the Precinct, a Large Tree Monitoring Program is recommended. This should focus on:

- collection of data for each tree >50cm DBH within the Precinct including:
 - health of canopy (based on habitat hectare methodology of <30% canopy cover, 30–70% canopy cover and >70% canopy cover),
 - evidence of insect attack, degree of insect attack (percentage of trunk covered in insect bore holes)
 - comments on limb loss and presence of hollows
 - other general observations
- documentation of the location of each tree and photography (that shows canopy) to visually document current health and levels of dieback
- the collection of data for the area surrounding each tree, noting if it is amongst other vegetation, isolated, on edge of rock (exposed to strong winds) or sheltered from wind etc

Such data should be collected every 5–10 years, or after other events resulting in tree loss, to ensure on-going monitoring to collect useful data. Collecting of such baseline data could be a student project undertaken in partnership with a TAFE or University. Considerations for the protection of large trees are also relevant to protection of scarred trees – the CMP notes that both documented and undocumented scarred trees are at risk during tree management works. Known locations of scarred trees should therefore be incorporated into a large tree monitoring program to ensure protection in the long-term.

Table 12. Recommendations – Large Trees

Rec #	Recommendation	Zones	(Years)	Priority
25	Develop and implement a Large Tree Monitoring Program to assess the long-term health and condition of all large trees throughout the precinct, including culturally important scar trees (can be incorporated into arboricultural assessments)	all	Years 1–3	P1
26	Liase with community interest groups to develop further understanding of current and historic issues of tree health, both within the Precinct and throughout the broader landscape	x	Years 1–3	P3
27	Consult with an entomologist concerning the insect attack on the large trees to determine what type of insects they may be, and whether they are responsible/contributing to tree decline	x	Years 1–3	P2

3.3 Dams and Waterways

3.3.1 Smokers Creek Riparian Zone

The 2015 EMP established that a 30-metre-wide riparian corridor is desirable from an ecological perspective for the length of Smokers Creek. In 2015, this 30m wide corridor was applied to approximately three quarters of the length of Smokers Creek (and its' tributaries) within the Precinct. In the remaining areas, adjacent to the main picnic grounds to the south of the Rock, the riparian zone was defined as six metres (6m) wide.

The narrower riparian zone adjacent to the recreation area was at that time in line with objectives to maintain the reserve's recreation functions. Now, at the time of this EMP update in 2021, due to the aims of the Strategic plan to prioritise the ecological and cultural heritage values of the Precinct, additional enhancement and widening of the narrowest sections of the riparian zone along Smokers Creek can occur.

Works for weed control, revegetation, and habitat enhancement within the creek line and riparian corridor are to be implemented as a priority for management as a Core Conservation Area, whilst also providing an aesthetic landscape feature for recreational uses.

Table 13. Recommendations– Smokers Creek

Rec #	Recommendation	Zones	(Years)	Priority
28	Extend the boundaries of Smokers Creek Riparian Zone – CCZ 3 to reflect the changes to managements as shown in Map 12 – Management Zones.	CCZ 3	Year 1	P1
29	Ensure all herbicide that is utilised within the Precinct does not impact negatively on the waterway, including preference for 'waterway friendly' herbicide	x	ongoing	P1
<i>For consideration during the Master Plan</i>				
30	<p>Prepare a Waterway Restoration Plan for</p> <ul style="list-style-type: none"> – existing dams, – Smokers Creek, – low lying, water retention areas – drains and other waterways – Consideration of maintenance aspects of drainage along Racecourse Road if and when it is upgraded – Mitigation and treatment of runoff from any additional hard surfaces proposed in the future Master Plan – ensure runoff from future development in the Precinct is treated prior to discharging into the creek/dams – Review current water storage and water management practices of the Precinct – consider alternatives including recycled water, or other additional water amenities required for future use. 	x	x	x

3.3.2 Dams

The biggest issue in relation to the existing dams is the use of stored non-potable water for irrigation and amenities. This also includes the practice of utilising seasonal flows of Smokers Creek for supplementing the water levels of the Racecourse Dam during high-visitation periods. Similarly, Dam 3 is also used as an additional water storage for the Racecourse Dam. This results in large fluctuations in water levels of the dams outside of the normal tolerance range of wetland or aquatic flora species. These management practices impact on the potential availability of habitat, where the preference is placed on the preservation of irrigation practices for aesthetic maintenance over the opportunity for habitat enhancement.

Given that the current standard maintenance and water use practices rely on the use of DZ5 for water storage, any future changes will require significant infrastructure upgrade. This issue is therefore to be considered and addressed through decisions of the 2022 Master Plan, where the aim should be to reduce all impacts to Smokers Creek and consider the amenities required to support the future vision of the Precinct.

Table 14. Recommendations – Dams

Rec #	Recommendation	Zones	(Years)	Priority
For consideration during Master Plan process				
31	Review water use and amenities within the Precinct, to enable the improvement for wetland habitat	x	x	x
On completion of Master Plan				
32	Cease any and all pumping of water from Smokers Creek	x	x	x

3.4 Erosion Issues

3.4.1 The Rock

Erosion on the Rock can be summarised as:

- Areas where natural water erosion occurs – primarily on the edges of rock formations where runoff flows into surrounding vegetated areas
- Hard surface runoff from built/modified areas, infilled soil, and sealed paths (concrete or asphalt)
- Erosion of rock surface and accumulated soil in upper areas of the rock, particular at the Summit, the Saddle, and Stonehenge
- Areas where trampling and damage to vegetation –resulting from off-track exploration– enables water erosion within vegetated areas

This can result in changes of water flow on the rock itself, with potential to affect the water availability to vegetation on the rock

3.4.2 Smokers Creek

Historic and current erosion activity within the Smokers Creek waterway has occurred through the undercutting of the bank, as a result of:

- Generally poor soil stability from lack of established vegetation on the aquatic margins and through channelling from variable water flows.
- Removal of vegetation upstream, altering water flows on a landscape scale
- Historic modifications to the creek, including installation of dams and the introduction of exotic flora and fauna

Smokers Creek will continue to require ongoing management through revegetation and weed control for the ongoing mitigation of erosion, and the restoration of the riparian corridor for the enhancement of habitat values.

Table 15. Recommendations– Erosion

Rec #	Recommendation	Zones	(Years)	Priority
33	Continue groundstorey revegetation adjacent to paths and walkways., and where possible, utilise low-impact methods, such as coir logs, to slow/reduce runoff and for sediment control	CCZ 1	ongoing	P2
34	Avoid spraying large patches of weedy understory where this may lead to bare ground. Within aquatic margins weedy understory is preferable to bare ground	CCZ 3	ongoing	P1
35	Install instream impediments (rocks, logs) to slow the flow of water, and increase availability for aquatic habitat, in line with appropriate guidelines from DELWP, CMA or other profession/specialist advice	CCZ 3	Year 1	P2

3.5 Fauna Management

3.5.1 Management and Monitoring

Fauna monitoring is currently conducted in line with the Hanging Rock Fauna Monitoring Plan (MRSC, 2018) and the Fauna Monitoring Standard Operating Procedures (SOPs) (MRSC, 2018). The plans were each developed in response to recommendations of the 2015 EMP.

Desktop review and consultation has determined that past fauna monitoring efforts focused on arboreal mammals, birds and pest animals. As such, there are limited records or information available of the presence of some taxa groups, specifically reptiles, fish, amphibians and invertebrates, or for some areas within the Precinct, such as within the Rock formation and within the Racecourse Grassland.

The 2015 EMP highlighted a range of challenges associated with indigenous fauna management, with the following issues requiring ongoing consideration

- The lack of baseline data on the extent and diversity of fauna/individual species particularly for reptiles, amphibians and invertebrates
- The lack of information regarding the presence, or abundance of smaller (ground-dwelling) mammals
- The (possible) lack of a central data collation and management system to store and analysis information collected from previous surveys, and to coordinate future on-going surveys through adaptive management
- The adoption of pest animal management strategies appropriate for high-traffic, or high-quality habitat areas
- The management of threatened species versus managing overall faunal habitat values
- Unknown impacts resulting from the current permitted access of domestic dogs to the Precinct
- Known and unknown impacts resulting from current Kangaroo and Swamp Wallaby numbers in relation to grazing and browsing pressures
- A recorded reduction in Koala numbers
- Unrecorded impacts to fauna resulting from major events, light and noise
- Unknown impacts resulting from the introduction of Trout to the Racecourse Dam

Management of all fauna is best implemented through best practice management of habitat values, and regular monitoring activities to determine responses to management.

Table 16. Recommendations – Fauna monitoring and management

Rec #	Recommendation	Zones	(Years)	Priority
36	<p>Develop Annual Fauna Management Review– To assess the outcomes of the previous year of Precinct management in regard fauna, through review of</p> <ul style="list-style-type: none"> – instances of loss/reduction/injury to fauna, – general observations and results of monitoring activities –any documented incidents with visitors – other recorded instances requiring review of procedures or management approach – review scheduling, timing and resources for annual monitoring activities for the upcoming year, including opportunities for visitor engagement and citizen science – Investigate development of a data management system to facilitate the collection, storage and analysis of data from fauna observations and surveys. This may include maps, GIS layers and other databases 	x	ongoing	P1
37	Develop a policy for wildlife encounters within the Precinct, including consideration of tourist proximity to wildlife, the feeding of wild animals, and other factors for the interaction of people and wildlife	x	Years 1–3	P2
38	Update Fauna Plans and SOPs for the monitoring of reptiles, fish, bats (including maternity sites), amphibians and invertebrates to increase knowledge of their presence in the Precinct.	x	x	P2
39	Consider installing rope bridges and constructed fauna access over areas where planting for habitat cannot be implemented, or requires time to develop	All	Years 1–3	P2
40	Consider creating chainsaw hollows in younger stags which have not yet developed hollows and are likely to take a long time to do so – particularly in areas where there are few hollows already present.	CCZ CZ RZ	Years 1–3	P3

3.5.2 Individual Species Management

A number of fauna species that are known to occur within the Reserve are either listed as significant species or are known to be experiencing decline across the Macedon Ranges in general. It is important that efforts to enhance habitat in general are also considerate of key habitat qualities and resources required for the support listed species where possible. Investigation of habitat conditions and suitable resources should be identified for each species in order to tailor management and ensure management for vulnerable species.

A species profile should be completed as part of the Fauna Management Plan, as a brief, single page summary to present the following information to guide management and habitat enhancement to ensure the long-term and targeted conservation of threatened species.

- Known extent of local habitat range, include recorded regional observations
- Basic lifecycle, breeding season, food resources, key habitat structures/plant types

Any other information that could be useful to consider in ongoing management or enhancement of habitat for threatened or iconic species within the Precinct.

Table 17. Recommendations – threatened and iconic species management

Rec #	Recommendation	Zones	(Years)	Priority
41	Update the Fauna Management Plan to ensure it includes brief and simple species profiles for future management of: <ul style="list-style-type: none"> - Greater Gliders - Brush-tailed Phascogales - Koalas - Wallabies - Powerful Owls - Bats - Kangaroos 	x	Years 1-3	P2

3.5.3 Pest Animal Management

The following pest animals and their impacts are known to occur in the Precinct.

- Foxes – predators of ground-dwelling fauna and pest-plant seed dispersal
- Rabbits – known to be inhabiting warrens, as well as utilising the Bracken as harbour, and sheltering beneath permanent structures and buildings within the Racecourse facilities. Areas of browsing noted in CCZ1
- European Blackbirds – known to displace indigenous birds
- Cats – both feral and domestic, preying upon many small animals and/or causing pathogenic disease or deaths in larger animals
- Black Rats – known to occur in high numbers, possibly due to food availability as rubbish or left by visitors to the site. Possibility out-competing native Bush Rats and Antechinus species for food and habitat, as well as preying upon native birds and small mammals.

It is imperative that any contractors or other personnel undertaking any pest animal control do so in accordance with statutory requirements. This includes any training and permit and record keeping requirements. The delegated land manager has the ultimate responsibility for ensuring that any contracted or voluntary works comply with all statutory and legislative requirements associated with pest animal control.

Table 18. Recommendations – pest animal management

Rec #	Recommendation	Zones	(Years)	Priority
42	<p>Prepare a Pest Management Plan which includes:</p> <ul style="list-style-type: none"> – estimates of baseline pest animal data – methodology, scheduling and resources for control and mitigation works as required – Community engagement to facilitate the participation of surrounding land owners – Ongoing monitoring – where possible, pest animal management to be linked to burning program, for the treatment of areas as vegetation/harbour is reduced 	x	ongoing	P1

3.5.4 Kangaroo Management

As discussed extensively in both the 2015 EMP and in the 2021 EMP update – Part 1, the management issues relating to the resident Kangaroo population are complex. Issues can be summarised as follows:

- current requirement for active management through the corralling of kangaroos during major events or high-traffic days for the safety of visitors and Kangaroos
- known impacts to floristic diversity of Racecourse Grassland by overgrazing
- high impact on Grassy Woodland north of the Rock, with large loss of species diversity & biodiversity values
- unknown carrying capacity of the Reserve, required for determining a sustainable population
- no current plan in place to determine any required management of population numbers
- public concerns in relation to any form of kangaroo management, and particular sensitivities to the concept of the role of culling for population management
- incorporation of Traditional Owner views in the management of Kangaroo populations

As stated previously, this EMP update is partly to inform the decision-making of the Master Plan, which will ultimately determine the future use of the Precinct, and the potential use of areas currently utilised by the resident Kangaroo population. Decisions in relation to the following factors are required in relation to the active management of Kangaroos and the future use of the Precinct;

- potential for development or future use of the Kangaroo Refuge Area
- potential for development or future use of the East Paddock

- options of captive vs non-captive populations, each with different management requirements
- interim measures (before completion of the Master Plan) for management of Kangaroos for the protection of biodiversity values within the Precinct, and for management during major events as well as animal welfare

Table 19. Recommendations – Kangaroo management

Rec #	Recommendation	Zones	(Years)	Priority
43	<p>Prepare and implement a Kangaroo Management Plan that reviews the carrying capacity of the reserve and;</p> <ul style="list-style-type: none"> – includes methodology annual or biannual monitoring of Kangaroos to identify fluctuations in population – identifies appropriate actions to manage population numbers (if required) and kangaroo management during major events – considers any changes or alteration to the use of Precinct that will result in changes to available resources for the resident Kangaroo population – incorporate suggestions for visitor education for matters such as kangaroo conservation vs biodiversity conservation 	x	Years 1-3	P1

3.6 Domestic Animals

3.6.1.1 Free- roaming domestic animals

Issues in relation to feral and domestic animals, primarily cats and dogs, are of concern due to animals entering the reserve, particularly at night. This poses a risk of predation of native fauna species, particularly for ground dwellings mammals that are poorly represented within the Precinct.

Table 20. Recommendations – free-roaming domestic animals

Rec #	Recommendation	Zones	(Years)	Priority
44	Continue to implement localised as well as shire-wide campaigns raising awareness about the importance of securing pets within the confines of private properties, including mail- out to residents advising MRSC local laws on domestic dogs & cats	x	ongoing	P1
45	Monitor the perimeter fence of the Precinct fortnightly and undertake maintenance works as required to prevent access by domestic dogs and cats from adjacent areas	x	ongoing	P2

3.6.2 Dogs

Under the Council Dog and Cat Order 2019, under sections 25 and 26(2) of the *Domestic Animals Act 1994*, Conservation Zones of Hanging Rock are prohibited areas, meaning an area where dogs and cats are prohibited for environmental reasons. Pet dogs are therefore permitted on lead only in Recreation Zones. Pet dogs are not permitted to enter Conservation Zones (companion/service/trained conservation/working dogs exempt). Refer to Dogs on/off leash Maps – Woodend and Hanging Rock Area, available at <https://www.mrsc.vic.gov.au/Live-Work/Cats-Dogs-Pets/Dog-Off-Leash-and-Prohibited-Areas>

Table 21. Recommendations: Pet Dogs

Rec #	Recommendation	Zones	(Years)	Priority
On completion of Master Plan				
46	Consider including entire Precinct as Prohibited Area for dogs	x	x	x
47	Consider designating the Reserve Rangers as “authorised officers” capable of enforcing Council’s local law in relation to dogs etc,	x	x	x

3.6.3 Livestock

The appropriateness of entry of livestock into the Reserve has been highlighted for review given the prioritisation of biodiversity and cultural heritage values of the Strategic Plan. It is well documented that the ongoing presence and impacts of grazing livestock in natural areas is detrimental. Historically, the region, including the area now known as the Hanging Rock Precinct, has experienced the effects associated with domestic livestock, likely including inappropriate grazing regimes, erosion, soil disturbance and compaction, introduction of weeds and increase of nutrient loads. The current operation of Hanging Rock as a recreational reserve and tourist destination does not allow for the grazing of stock, and any livestock entering the Precinct are involved in managed and limited recreational activities, such as the well-known annual horse racing, as well as smaller and/or irregular event.

Hanging Rock Llama Treks operates locally and provides a unique tourist experience which utilises the Precinct as part of the tour route. The tours do not present a major risk provided animals stick to tracks as an agreed route, however conditions may be introduced if risks to biodiversity or cultural heritage values are identified.

Table 22. Recommendations: Livestock

Rec #	Recommendation	Zones	(Years)	Priority
48	Horses are permitted to be brought into the Precinct only for the purpose of participating in the formal annual race meetings held by the Kyneton and Hanging Rock Racing Club	all	ongoing	P1
49	Animals, other than horses (i.e., such as those associated with markets/events) are permitted to be brought into the Precinct with permission from MRSC, and are to be restricted to areas within the RZs.	RZ	ongoing	P1
50	Llama tours are permitted to continue in line with current arrangement with MRSC. Changes to the arrangement may occur in future as a result from further planning, finalisation or implementation of the Master Plan	RZ CZ CCZ	ongoing	x

4.

Management of Traditional Owner Values



4.1 Cultural Heritage Values

The development of the Hanging Rock Master Plan includes the shift that enables greater participation and involvement of the Traditional Owner Groups in the management of the Hanging Rock Precinct through a new governance model. Much of the process to incorporate and acknowledge the Traditional Owners in the management of the Hanging Rock Precinct is occurring outside of the scope of this EMP update. However, investigation and consultation that has occurred parallel and complementary to this project has resulted in the consideration of the knowledge and preferences of the Traditional Owner groups within this EMP update.

The CMP describes the following categories of Aboriginal cultural heritage values that are associated with Hanging Rock, both tangible and intangible;

- Artefact scatters and low-density artefact distributions
- Scarred trees
- Natural resources used for cultural and economic purposes
- Ceremonial locations
- Locations related to Men's stories
- Culturally significant views

4.1.1 Documented Threats

The key threats identified in the Hanging Rock CMP are;

- Soil disturbance as a result of management practices, future development, foot traffic or any other works with potential for disturbance of indigenous artefacts such as stone scatters which are documented on the Rock and throughout the Precinct
- Impacts to Scarred trees through management practices including planned (or unplanned) fire events, weed control/spraying and tree safety management works
- Potential threats to undocumented/unknown cultural values that may be present within the Rock formation, and as such, the suitability of recreational access to the Rock
- Lack of appreciation or awareness of the significance of the site, including ceremonial locations, camp sites and culturally modified aspects of the landscape, as well as the Rock itself
- The ongoing protection of Culturally significant views, in relation to planned future works associated with the Masterplan

All management actions of this EMP are to operate in conjunction with the requirements of the CMP Conservation Polices and Action Plan 2021

5.

General Site Maintenance



5.1 Ongoing Maintenance

5.1.1 Mowing

Mowing is a continuous management practice for maintaining the characteristic parkland aesthetic which is synonymous with the main recreational areas of the precinct. Mowing can however have an impact on ecological values and will need to be restricted in certain locations to protect and enhance these values long term, to allow to improve through natural regeneration where possible, as well as focused revegetation efforts for habitat connectivity.

Table 23. Recommendations– mowing

Rec #	Recommendation	Zones	(Years)	Priority
51	Continue the current practice of mowing, except where additional revegetation, burning or other management practices are implemented, including introduction of <ul style="list-style-type: none"> – New TCAs – Revegetation works in CZ 2, CZ 3 and CZ 7 – Cool/cultural burns in CZ 7 	CZs RZs	ongoing	P2
52	Raking of bark, small branches and leaf litter prior to mowing, if required, to be used as a natural mulch in suitable areas	All	ongoing	P2
53	Stockpile grass clippings within the works depot area, or remove from the Precinct to Council's green waste if weeds are present	MZ	ongoing	P3

5.1.2 Track Maintenance

Tracks throughout the Precinct include the following:

- Sealed bitumen roads – Racecourse Road
- Sealed walking paths – Summit walk
- Graded Gravel Tracks – most management tracks
- Dirt tracks/walking trails – older, or rarely used tracks, mostly south of Smokers Creek

Tracks and trails are currently assessed annually by Macedon Ranges Shire Council contractors, and are maintained as required. Maintenance for tracks and trails also includes mowing or slashing of adjacent vegetation, and sweeping and raking of high traffic areas in preparation for large events.

Table 24. Recommendations – track maintenance

Rec #	Recommendation	Zones	(Years)	Priority
54	No additional works to widen, seal, or develop new tracks or roads are permitted within CCZ1	CCZ 1	x	P1
55	An ecological and cultural impact assessment is required prior to undertaking any works to widen, seal, or develop new tracks or roads within the Precinct	All	ongoing	P1

5.1.3 Tree Management

5.1.3.1 Tree Safety Maintenance Works

Extent of Lopped Limb Removal

Whilst the extent of naturally fallen limbs/trees cannot be controlled, there is scope to reduce the extent of habitat loss and stockpiling of these limbs across the Precinct.

- Tree safety maintenance works is to continue in the Recreation Zones and in the Tree Safety Management Zones adjacent to the walking tracks/internal roads in the Conservation Zones
- Tree safety management works should be reduced for trees with established Tree Conservation areas.
- Tree removal and thinning is to continue to occur within the Grassland to maintain line-of-sight for race events.

Limb/Tree Fauna Inspections

Guidelines and procedures for fauna inspections are in place under the 2015 EMP. Fauna inspections are conducted prior to limb/tree removal works where fauna habitat is identified to address the potential for inadvertent harm to arboreal fauna during any tree maintenance works. This includes the handling and the potential re-location of any displaced fauna species within the Reserve.

These management requirements may vary depending on the species detected (birds, bats and/or arboreal mammals) and use (roosting or breeding).

Guidelines and procedures for fauna assessment prior to tree management works can be combined with other fauna management guidelines in the Fauna Management Plan for the Precinct.

Currently all limb removal work in the Reserve is undertaken by arborists. Procedures for fauna inspections and relocations should be incorporated into contracts, be part of an induction process or put into the Job Safety Analysis (JSA).

Some fauna management guidelines for future limb/tree removal works include:

- Aim to undertake limb removal in warmer months when fauna are more active
- Aim to only undertake urgent limb removal works in the cooler months
- Create noise disturbance prior to limb removal to encourage fauna to waken and leave the affected tree/limb
- If fauna is breeding, postpone limb removal until young have left the nest

5.1.3.2 Natural Tree/Limb Loss

In conjunction with the tree safety maintenance works, other limbs and/or trees also fall following storm events.

It is recommended that across the reserve root balls and tree stumps resulting from lopped or fallen trees should be retained in-situ. These serve useful habitat and ecological functions. If they are considered a safety hazard or need to be removed for any other reason in the Recreation Zones, removal could be considered to the on-site depot or Council's Transfer Station.

The management of fallen trees and limbs is essential given the habitat value they provide to fauna and their longer-term influence on ecosystem health.

Table 25. Recommendations: Tree management

Rec #	Recommendation	Zones	(Years)	Priority
56	<p>Consolidate current practices in a Tree Works Strategy, to include the following directions;</p> <ul style="list-style-type: none"> – the current management practice of safety inspections and tree/limb removal in TSMZ as required – incorporate pre-works fauna inspections into planned limb removal works less than 24 hours prior to removal. Where pre-clearance assessments determine presence or likely impact to fauna, lopping of vegetation to be accompanied by a suitably qualified wildlife handler – tree maintenance amongst the racecourse facilities and racecourse grassland for line of site in accordance with approved planning permits – tree stumps, and trunks resulting from lopped or fallen trees should be retained in-situ. If they are considered a safety hazard, remove large sections and relocate to CCZ, or utilise to define management zones – transportation of limbs or vegetative material to other areas of the Precinct should not be done in a way that disturbs groundstorey vegetation – retention of large fallen branches in-situ in CCZ except if they have fallen across a track – remove to side of track. – Remove fallen/lopped limbs in managed areas of slashing/mowing and move into nearby CCZ – Re-use larger logs as barriers to define perimeters of Management Zones – Crowns and smaller limbs (<10cm diameter) to be used for mulch for spread in RZ or TCAs 	TSMZ	ongoing	P1

5.2 Fencing and Zone Demarcation

5.2.1 External/Perimeter Fence

The purpose of the perimeter fence is as follows:

- To define the perimeter of the Reserve
- Preventing free-movement of vehicles in and out of Reserve
- Deterrent of entry by people after-hours
- To allow free movement of indigenous animals

Table 26. Recommendations– external/perimeter fence

Rec #	Recommendation	Zones	(Years)	Priority
57	Progressively remove all barbed wires from all internal and perimeter fences across the Precinct, to reduce injury to wildlife, and replace with alternative security fencing on the perimeter as required.	All	Year 1-3	P1
58	Prioritise fixing of current holes/access in fences at northern and western boundaries	CCZ1	Year 1	P1
59	Ensure that future fencing is consistent with the consideration of the safety and free – movement of wildlife	x	ongoing	P2
60	Predator– proof type fencing may be considered but should not be installed with a view to creating a contained predator–free area, due to site constraints and pressures of visitor use Conduct a cost–benefit analysis into the use of predator–proof fencing/other fencing types suitable for perimeter.	x	x	P2
On completion of Master Plan				
61	Upgrade perimeter fence in line with Perimeter Fence Plan or decisions of the Master Plan	x	x	x

5.2.2 Internal barriers and zone demarcation

Ongoing demarcation should be clear and functional for the purposes of separating Core Conservation Zones and Connectivity Zones from Recreation Zones, to avoid impacts resulting from site management and visitation to protected areas. Some Management Zones are already well defined such as CCZ1, partially defined such as CCZ 2, or not at all defined. While the Management Zones Map included in this report provides an indicative indication of zone boundaries, these need to be confirmed on site and adjusted as needed depending on existing infrastructure, vegetation and landscape features. The following Zones/Areas require on–ground markers to define their extent:

- The southern end of the Racecourse Grassland (CCZ 2)
- The perimeter of Smokers Creek (CCZ 5)
- The Western End of Northern Woodland (CCZ 3)
- The perimeter of all Trees Conservation Areas,
- The South–West Corner Conservation Zone (CCZ 4)
- The Conservation Zone behind Dam 1
- The northern perimeter of the Conservation Zone in the south–east section of the East Paddock

Table 27. Recommendations– Internal barriers and zone demarcation

Rec #	Recommendation	Zones	(Years)	Priority
62	Visually identify the boundaries of Zones on site if and as required.	All	ongoing	P2
63	Continue to incrementally install markers (bollards, fencing, rocks or fallen/removed large limbs), around the perimeter of all revegetation to deter visitors from trampling vegetation	CZ	ongoing	P2

5.3 Fuel Management

On-going fuel management is required around the perimeter of the Reserve and along the main access network (roads and walking tracks), to ensure fire risk is minimised through maintaining low fuel loads in designated areas of the Reserve.

Within this EMP, Fuel Management Zones have been defined across Hanging Rock (refer to Map 12), according to pre-existing zones and fuel reduced areas. The objective of designating Fuel Management Zones is to define the exact location and extent of these areas and to ensure that other land management uses (such as revegetation) do not overlap with fuel management practices.

The width of the perimeter Fuel Management Zones has been increased along the western and northern perimeters of the Reserve, to extend to the inner edge of the Lower Base Walking Track, for ease of management in an area which has been assessed as having poor quality (<25%) indigenous ground-storey vegetation cover.

This will not have any significant impacts on indigenous vegetation in this area, as this area already has poor indigenous ground storey vegetation cover (less than 25% cover), and the existing shrubs and trees are already managed in a fuel reduced state. Essentially there are no changes in the management practices already undertaken between the Lower Base Walking Track and the perimeter fence.

The main management change is that the area is being officially mapped as a Fuel Management Zone, and that no revegetation is to occur in this Zone.

The guidelines for vegetation management to reduce and retain lower fuel loads are presented in the management principles for the Fuel Management Zones. The location of the Fuel Management Zones in the Reserve, are depicted in Map 12

Table 28. Recommendations: Fuel Management

Rec #	Recommendation	Zones	(Years)	Priority
64	Continue the current practice of slashing FMZs in early spring and mid-late summer, or as required at other times to reduce fuel levels	FMZ	ongoing	P1
65	Revegetation or plantings within the defendable space around existing public buildings must be implemented in line with the Defendable Space Guidelines	ALL	ongoing	P2
66	Continue practice of removing small logs – to be relocated into CCZs	FMZ	ongoing	P1
67	Retain large logs in situ – except in instances where they hinder emergency vehicles or are an OHS risk	FMZ	ongoing	P1
68	No scraping/digging machinery is permitted for removing fine fuels – tractor stick rakes are allowed for raking of fuels in large areas	FMZs	ongoing	P1
69	Where fine fuels, including crowns, are required to be raked and burned, burn piles are to be located on bare earth on roads/tracks to avoid damage to soil crust, seedbank or native groundstorey present.	All Zones	ongoing	P1
On completion of Master Plan				
70	Update Fire Management Plan in line with Zone changes resulting from this EMP update and finalised Master Plan	x	x	x
71	Update Emergency Management Plan to responds to decisions of Master Plan.	x	x	x

5.3.1 Fire Management Plan 2015

Zones are subject to the management requirements set out in the 2015 Hanging Rock Fire Management Plan. As such, the changes in zoning and management provided in this Management Plan, and any changes in site use resulting from the development of the Master Plan will need to be reflected in an updated Fire Management Plan.

5.3.2 Bushfire Risk Assessment

A Bushfire Risk Assessment was undertaken as part of preparation of this EMP. This assessment responds to the management, use and zoning as presented in the 2015 EMP, along with preliminary identification of opportunity for protection and enhancement of ecological values, as options to inform the Master Plan.

Some Zoning names within this section are therefore consistent with the previous 2015 EMP, and recommendations have been used to inform the updated Management Zone layout presented in Map 12. References of superseded Zone names are presented as italicised e.g., **CCZ*, ** RTZ etc* Refer to EMP Update 2021 – Part 1 for further information.

5.4 Bushfire emergency plan

The measures in the Bushfire Risk Assessment cannot guarantee safety during an extreme fire event; buildings are only designed to withstand fire up to a Fire Danger Index (FDI) of 100 (i.e., not designed for Code Red Fire Danger), and even below this threshold building survival cannot be guaranteed.

As previously stated, considering the potentially devastating consequences of a bushfire to a facility of this nature, a response should be developed despite the risk being relatively low. It is difficult to determine whether evacuation is the best option considering the organisation required to move people and animals quickly and the limited options of where to evacuate them to. Staying and defending is a potential option which should be considered as the only threat to the site will be from grassfires. A dedicated Emergency Management Plan is currently in place to address the current site uses and events This response includes the responsibility of event organisers or Precinct Management to consider CFA alerts and bushfire conditions during bushfire season (October–April) and preparation to close and vacate the facility during Extreme and/or Code Red conditions or during a bushfire emergency.

A future update of the Emergency Management Plan for the site with a response to bushfire is therefore essential on completion and implementation of the Master Plan.

5.5 Works Depot and Storage Yard

5.5.1 Mulch and stockpiles

Best practice tree management has resulted in many urban parkland managers mulching around the base of trees. Mulching is undertaken to conserve water by lowering evaporation. Mulch also adds organic matter to the soil. As it breaks down, it gives soil properties to retain nutrients and water. Mulch also suppresses weeds. As grass often does not grow that well under trees, mulch can be more visually appealing than bare earth. Some principles for the use of mulch include:

- Good organic mulch should be used. The mulch needs to be coarse to allow water penetration. Ideal mulch is limbs from indigenous trees that have been chipped and are 2–5mm in size
- Mulch should be approximately 100mm deep
- No noxious weed species should be used as mulch

The application of mulch should be prioritised to continue implementation TCZs, for all large trees within recreation and connectivity areas.

Table 29. Recommendations: Mulch and stockpiles

Rec #	Recommendation	Zones	(Years)	Priority
72	Any unusable/exotic material, such noxious weeds, to be stored at on-site depot or relocated to a Council Transfer Station as appropriate	MZ	ongoing	P2
73	Mulch/stockpiles are to be stored within the depot where possible	MZ	ongoing	P2
74	Continue practice of stockpiling larger logs in the depot area for use elsewhere such as to define the perimeters of TCAs or Management Zones	ALL	ongoing	P2

5.5.2 Machinery Maintenance and Hygiene

Ensuring that all machinery that enters and is used within the Reserve is cleaned (in an appropriate wash or brush down facility), and is soil and weed free, is one of the main management tools for controlling the introduction of any future weed invasions or soil pathogens into the Reserve.

MRSC has vehicle and machinery hygiene processes and procedures in place for Council staff and contractors. These processes and procedures are to be incorporated into relevant weed control and slashing tenders as required. The standard operating procedures and check lists developed should be provided to staff and contractors who bring machinery into the site.

Table 30. Recommendations– Machinery maintenance and hygiene

Rec #	Recommendation	Zones	(Years)	Priority
75	Develop vehicle hygiene protocols for onsite machinery, and introduce requirements of entry for machinery and equipment associated with works at other (external/offsite) locations	x	Years 1	P1
76	Consider the installation of a clean-down area within MZ, or other appropriate location, for machinery entering the site.	x	Year 1-3	P3
77	Ensure Council staff and contractors conducting on-ground works operate within any Council's hygiene program or standards	x	ongoing	P2

5.5.3 Communication with adjacent landholders

Adjacent landholders and their land management practices have an impact upon the Reserve. These impacts have to be accommodated into the on-going ecological management considerations for the Precinct itself, inclusive of:

- Pest plant and animal control programs
- Bushfire risk and fuel loads
- Domestic pets – cats and dogs entering the reserve
- Maintenance of boundary fencing
- Restoration or revegetation strategies as part of the Cobaw Biolink
- Observations of native fauna

A communication pathway should be available for adjacent landholders to discuss their interests or concerns regarding these ‘shared’ management concerns, as their views could provide alternative methods for addressing and managing some of these impacts to the ecological values of the Reserve.

Sections 8.4.9 and 8.4.10 include recommendations to engage surrounding land owners in conducting complementary pest animal control works and in responsible pet ownership.

Table 31. Recommendations– Communication with adjacent landholders

Rec #	Recommendation	Zones	(Years)	Priority
78	Communicate with adjoining land owners in order to coordination management of threats and ecological enhancements if and as required.	x	Years 1-3	P3

6.

Visitor Experience, Tourism and Education



6.1 Education

There exist numerous opportunities for visitor education and engagement that have potential to shift the focus to the significant environmental and cultural values of the site. The development of a new visitor's centre will be considered in the upcoming Master Plan. As a principle – **education and recreational activities should be done in such a way that limits impact to the site.** An option to ensure this in the future is a greater focus of guided tours and programs for Core Conservation Areas, and providing the infrastructure for people to move around the Reserve in a way that limits disturbance.

The following lists are examples of education and recreational opportunities that can be implemented for various visitor groups, to increase awareness of the values of the Rock. Detailed plans for recreational and educational opportunities for the site will be completed in due course, on finalisation of the Master Plan and finalisation of associated business plans.

6.1.1 School Programs and Workshops

- WaterWatch Victoria – including water testing and macroinvertebrate investigations
- Cultural Education Programs
- Biodiversity Bootcamp
- Pollinator Projects

6.1.2 Visitor Education Programs

- Indigenous/ ecological guided tours
- Dreaming, story and dance
- Indigenous Artefact's presentation
- General or special-interest activities

6.1.3 Special events

Hosting special events in support of environmental awareness days, such as ;

- World Environment Day,
- NAIDOC week
- World Wildlife Day
- National Science Week
- Reconciliation Week
- National Threatened Species Day
- Australian Wildlife Week
- Aussie Backyard Bird Count
- National Biodiversity Month
- Landcare Week

Table 32. Recommendations– Education

Rec #	Recommendation	Zones	(Years)	Priority
79	Assess opportunity to increase visitor engagement and education in the short-term	x	Years 1-3	x
80	Consider the use of the current tennis clubhouse as an option to host school groups in the short-term for environmental-based educational activities, or other uses to foster visitor interaction/education	x	x	x
To be considered in development of Master Plan				
81	Consider requirements for relocation of the visitor's centre, in regards to bushfire risk and impact/proximity to site values	x	x	x
82	Consider guided visitation of the Rock, and the development of supporting facilities as an option to reduce impacts to the Rock and surrounding vegetation	x	x	x
On completion of Master Plan				
83	Update/redevelop the visitor information centre, with a spotlight on the biodiversity and traditional owner/cultural values of the site, along with European history and connections.	x	x	x

6.2 Tourism and Engagement

6.2.1 Wildlife encounters

Frequent wildlife encounters are known to include close up interactions with:

- wild parrots, magpies and other birds
- kangaroos

These encounters are generally the result of the animals within the Precent having familiarity with humans, and may have developed as a direct result of visitors actively feeding wildlife, or from scavenging of food.

Birds will often approach the outdoor café or dining areas, landing on nearby furniture and at times reaching for food or landing directly on a person. Similarly, kangaroos have been known to approach visitors while eating within the picnic area and attempt to take food.

This behaviour is likely viewed by tourists as exciting or novel, however these behaviours from wild animals can be cause for concern for public safety first and foremost, especially in regards to kangaroos, and for considerations of animal welfare.

Less frequent interactions include close encounters, or sightings of koalas, swamp wallabies and snakes.

Table 33. Recommendations: Wildlife encounters

Rec #	Recommendation	Zones	(Years)	Priority
84	Develop signage for the main picnic areas/high traffic areas against feeding/touching/approaching local wildlife	RZ	Years 1–3	P2
For consideration in development of Master Plan				
85	Consider the role of wildlife education/interactions and necessary additional facilities in the future planning	x	x	x

6.2.2 Use of Precinct as Location

It is understood that the Precinct is a desirable location for film, and that MRSC are approached periodically to secure permission for use of the Precinct as a location, as well as for other ad hoc activities that cannot be categorised into any of the beforementioned events.

MRSC has developed a *Location Agreement* as part of a framework to assess and determine the appropriateness of various activities associated with the use of the Precinct as a location, and to put in place conditions and limitations of use that can then be enforced through a contract.

Conditions for use of the site include

- Briefing to organiser and participants of the significant values of the Precinct,
- Permitted and non-permitted activities and access to areas
- Any mitigation or protective actions required
- Limitations in terms of timing/noise/ disturbance

Table 34. Recommendations– use of Precinct as a location

Rec #	Recommendation	Zones	(Years)	Priority
86	Continue to assess individual applications for site use on merit through current Location Agreement Framework, taking all possible steps to avoid impacts to the sites ecological and cultural values.	x	ongoing	x

6.3 Signage and Interpretation

The role of interpretive signage is to educate the public about the significant cultural history of the site and the ecological values. Plans for educational and interpretive signage should consider;

- The significance of the site for the local indigenous communities, including local history and story-telling, and incorporation of Traditional Owner language
- General facts relating to ecological values of the site
- Information relating to the purpose of different management or monitoring practices that may be observed by visitors at different times
- The need for appropriate behaviour in some areas such as at the top of the Rock as respect for the cultural significance of the site and to reduce safety risks

6.3.1 Visitor experience and technology

As well as the provision of educational information, signage may be developed to implement creative solutions for controlling movement around the Precinct such as:

- Interpretive “treasure hunts”, using signage to passively direct people to different areas of the Reserve, or to direct people away from locations of significance.
- Interactive signage for smartphone use, including standard QR codes, or augmented reality QR codes for 3D interactions, for information on flora, fauna, or cultural values
- Interactive self-guided walks, such as the “Murmuring Walk” at Mount Macedon
- Development of a Hanging Rock App, including maps, schedule of events, visitor information etc.

Table 35. Recommendations: Signage and Interpretation

Rec #	Recommendation	Zones	(Years)	Priority
87	Install signage at picnic facilities and rubbish bins instructing people not to feed wildlife and not to leave leftover food or rubbish behind	RZ CZ	Year 1	P1
On completion of Master Plan				
88	Develop and implement an Interpretive Signage Plan and Visitor Education Plan, to include – installation of passive and interactive signage throughout the Precinct – engagement with TO groups for topics of cultural values and education	x	x	x

6.4 High-use Days and Events

Hanging Rock Precinct is host to a number of annual events and visitation periods with high numbers of attendees. The larger of these events can host between 5,000 and 20,000 people, and thus require logistical considerations, particularly for the management of site access and parking and the resulting large crowds. Other considerations for these events are;

- safety and emergency management for large crowds
- impacts to fauna resulting from noise, light and vibration
- disturbance to groundstorey vegetation through trampling and compaction by foot-traffic or vehicle use
- considerate organisation and facilitation of events in the interests of visitor experience,

Mitigation for impacts to biodiversity values have to date included the following, and are to continue;

- installation of Tree Conservation Areas (TCAs)
- restrictions on timing and number of large events and concerts (between April to September), to avoid breeding seasons
- ensuring that any lighting used is “low-key” and not of the laser variety around the rock itself, and
- restricting access to foot-traffic only for key areas, including Core Conservation Areas (CCZ), through fencing, bollards etc
- management of movement of Kangaroos to a safe, quiet location away from visitor activities in order to limit disturbance and distress to the animals

Table 36. High-use days and events

Rec #	Recommendation	Zones	(Years)	Priority
89	Large events are considered as those where number of attendees is greater than 5,000. Events of this size should utilise Recreation Zone (RZ)'s and avoid Connectivity Zone (CZ) as much as possible	x	Year 1	P1
90	Review existing event management plans to: – identify alternative car parking and access arrangements that reduce vehicle presence on non-recreation zones. – Identify risk to biodiversity and cultural heritage values, and develop mitigation procedures before event takes place	x	Year 1	P2
To be considered in development of Master Plan				
91	No increase is permitted in the number or frequency of events as they are currently scheduled.	x	x	x

6.4.1 Large Music Events

Large music events are defined as those with attendees ranging between 5,000 to 20,000 attendees, and above.

Table 37. Recommendations: Large music events

Rec #	Recommendation	Zones	(Years)	Priority
92	All large music events are to be restricted to the East Paddock (RZ6, RZ7)	x	ongoing	P1
93	No use of animated lighting is permitted during major events (flashing, strobe or laser lights) outside of the immediate stage area.	all	ongoing	P1
94	No fireworks or pyrotechnics are permitted within the Precinct	all	ongoing	P1
95	Lighting of the Rock for major events should be minimal, and not require any permanent infrastructure development	x	ongoing	P1

6.4.2 Racing Events

Table 38. Recommendations– Horse Racing Events

Rec #	Recommendation	Zones	(Years)	Priority
96	Introduce requirement for post-race clean-up, including removal or treatment of imported feed, bedding, manure, and other organic material associated with race meetings to reduce weed/nutrient loads	x	Year 1	P2
To be considered in development of Master Plan				
97	<ul style="list-style-type: none"> – Review location and standard of current racing facilities– if redevelopment is required, relocate to RZ – Determine alternative locations for loading, and float/truck parking facilities for racing events in consideration for future upgrades of racecourse facilities – Consider alternative locations within RZs, given the proposed recommendations for restoration of current loading area and the recorded roosting sites for Powerful Owl and Greater Glider 	x	x	x

6.4.3 Car Shows

Table 39. Recommendations: Car Shows

Rec #	Recommendation	Zones	(Years)	Priority
98	Cars shows to be restricted to Recreational Areas as much as is feasible. Council to work with event operators to identify and implement alternative car parking and access arrangements that reduce vehicle pressure on non-recreation zones.	RZs	ongoing	P2
To be considered in development of Master Plan				
99	Conduct assessment on noise levels associated with annual car shows and potential impacts to fauna, and determine if appropriate to continue in light of the increased priority of ecological values. Review existing event management plans to identify opportunities to reduce noise levels if and as needed.	x	x	x

6.4.4 Markets and community events

Table 40. Recommendations: Markets and Community Events

Rec #	Recommendation	Zones	(Years)	Priority
100	Markets and associated car parking to be focused to Recreational Areas where feasible. Council to work with event operators to identify and implement alternative car parking and access arrangements that reduce vehicle pressure on non-recreation zones.	RZs CZs	ongoing	P2

7.

Facilities and Redevelopment



7.1 Future of the Hanging Rock Precinct

The point is again made that the upcoming Master Plan will largely influence the future development and infrastructure required to fulfil the visions and objectives of the Strategic Plan (2018). In regard to any future development works within the Precinct, the following items have been raised during consultation and review as key items in this process.

Zoning of this EMP update has been done in such a way as to inform of the preference of suitable activities, including development, in an effort to reduce impacts and preserve high-value areas, with further guidance provided for mitigation and preparatory actions should future development or other works be scheduled to occur.

7.1.1 The East Paddock

MRSC purchased the East Paddock over 25 years ago in order to alleviate the picnicking and event pressure on the Rock and surrounding vegetation. The purchase has also allowed for the expansion of habitat areas particularly for kangaroos.

At this time, little progress has been made to shift visitation pressures away from the rock. This is due to a number of factors.

- Little incentive for general visitors to explore the eastern third of the site, with the exception of concerts or other large events,
- Facilities currently in the East Paddock are limited to access roads, two toilet blocks and barbeque shelters that are available for private bookings,
- The area is not currently desirable for general overflow parking, as there is no shade, and the area is a considerable distance from main tourist facilities, The Rock, visitors centre and main picnic areas,

Zoning of this EMP has indicated that future development opportunities are best placed within the Recreation Zones, particularly RZ 6, and RZ 7 of the East Paddock, as these areas support the least environmental values of the site.

The viewshed and view lines from the East Paddock are both culturally and economically important, and any future development must be carefully considered. This point is also stressed in the Strategic Plan and in the CMP. All three Traditional Owner groups identified the volcanic rise of the East Paddock as a very significant site.

7.1.2 Picnic Areas

For the majority of the year, the main areas of the Reserve that are utilised are the picnic grounds to the south of the Rock. One of the management challenges within the Reserve is the conflict between the habitat values of the trees in the Recreation Zones and the need to manage these trees for public safety. Large areas of the picnic grounds to the south of the

Rock, to the north of the racecourse facilities and along Smokers Creek are maintained for public safety.

The installations of TCAs across the main picnic areas of the Precinct addresses this issue, and is to continue for all recreational areas, allowing opportunity for natural regeneration where possible, and assisted through re-vegetation efforts.

Table 41. Recommendations: Picnic Areas

Rec #	Recommendation	Zones	(Years)	Priority
101	Consider main picnic areas as RZ1, RZ2, CZ2, CZ3, for ongoing passive recreation/picnic facilities, with gradual enhancing of understory connectivity and values within CZs while maintaining access to existing picnic facilities and amenities	RZs CZs	Years 1-3	x

7.1.3 Sporting Clubs

Table 42. Recommendations: Sporting Clubs

Rec #	Recommendation	Zones	(Years)	Priority
102	Continue current arrangements of Sporting Clubs until implementation of the Master Plan	x	Years 1-3	x
To be considered in development of Master Plan				
103	Investigate alternative use of existing buildings/locations if and when the sports clubs relocate outside the Precinct	x	x	x
104	Consider using decommissioned sites for aesthetic/biodiversity enhancement or other visitor amenities not subject to bushfire construction standards	x	x	x

7.1.4 Parking and Traffic movement

Formal car parking is currently limited. Four established parking areas are available. The main carpark closest to the visitors' centre, the main picnic parking area, the tennis courts and a small area south of Smokers creek – refer Map 12. All other vehicles that enter the Reserve on busy days or for events based near the rock are permitted to park anywhere within the Reserve that is accessible with a vehicle, or not otherwise restricted, either directly within the picnic grounds, or any other accessible location. Numerous large old trees and groups of trees are located in the areas used for parking which prompted the introduction of Tree Conservation areas in the 2015 EMP. These should continue to be established in a staged manner where car parking impacts are minimal and / or as alternative car parking and access arrangements are identified and implemented.

Table 43. Recommendations– Parking and traffic movement

Rec #	Recommendation	Zones	(Years)	Priority
105	Investigation options for site entry from Straws Lane to facilitate overflow parking in the East Paddock on high-use/event days	RZ	ongoing	P1
106	Overflow parking is to be restricted to Recreation Areas (RZ) as much as is practical for the function of events and site use	RZ	ongoing	P1
To be considered in development of Master Plan				
107	<p>Considerations for Future Parking</p> <ul style="list-style-type: none"> - Review general parking infrastructure, increase available parking area to accommodate busy weekends and holiday periods - Investigate locations for additional formalised parking where there are few biodiversity values, - Review parking facilities for major events - investigate off-site parking and alternative transport from Woodend etc to minimise impacts to ecological values within the Precinct - Review recommendation for traffic and vehicle movement, as proposed in 1993 Management Plan (Loder and Bayly) as appropriate for achieving the vision and objectives of the strategic plan, and in line with the Zoning and recommendations of this EMP - Investigate Bus-drop-off locations for large groups and bus parking areas on or off site. 	x	x	x

7.1.5 Lighting

7.1.5.1 General lighting infrastructure

Lighting is known to have impacts on numerous nocturnal species in urban areas and rural areas. The 2015 EMP determined that the existing lighting is not likely to have a significant impact on wildlife in the reserve due to its low intensity and infrequent use. Any change to this lighting, or any new lights or infrastructure proposed should consider possible faunal impacts. Comments from a qualified zoologist may also be useful to guide future works, use of lighting and infrastructure installation in some cases.

Table 44. Recommendations: lighting

Rec #	Recommendation	Zones	(Years)	Priority
To be considered in development of Master Plan				
108	Any proposed lighting should be managed in accordance with the guidance measures in Australian Standard AS4282–2019 Control of the Obtrusive Effects of Outdoor Lighting, along with the "Principles of Best Practice Lighting Design" referred to in the National Light Pollution Guidelines for Wildlife (DoEE 2020) to minimise light spill and associated impacts with fauna.	x	x	x
109	Undertake targeted fauna impact assessments of proposed infrastructure works as required.	x	x	x

7.2 Limitations of this EMP update

This EMP update has been completed before the completion of the Hanging Rock Master Plan, mainly for the purpose of updating existing background information and inform of important ecological factors that should be considered in design and planning of the Hanging Rock Master Plan.

The completion of the Master Plan will ultimately determine the future direction of the Hanging Rock Precinct, in terms of new development, re-development and facility upgrades, improvement to utilities, and changes to access and movement within the Precinct.

As such, this report responds primarily to current conditions, and aims to provide some recommendations for the future planning of the Precinct as it relates the management.

The limitations of this report relate to;

- No current knowledge of future development locations
 - o for considerations of bushfire risk, defensible space requirements, building standards, etc
 - Preliminary recommendation for additional building or infrastructure locations have been based on fuel loads – refer to Map 11. Bushfire Hazard Site Assessment – Site Features in EMP Part 1
 - o For recommendations for revegetation, or restoration work within the East Paddock
 - Note that recommendations for revegetation have only been made for areas containing existing significant vegetation or habitat values, such as large trees, or within Core Conservation Zones, that do not allow for future development. Revegetation has also been proposed for some sections of the East Paddock to improve general vegetation connectivity of the eastern side of the Precinct. It is not practical to recommend broad-scale installation of new plantings within the East paddock when decisions of any potential infrastructure improvement or development location have not yet been made
- No current knowledge of future governance arrangement and how this will impact on-ground management

While this report has been specifically written to describe management works that are recommended, without consideration of who or how they will be implemented, it is likely that the type of management authority may have some bearing on the on-ground implementation of some recommendations.

8.

Implementation Plan



7.3 Scheduling and Resources

The timing of all actions will be subject to staff and budget resource availability.

All infrastructure, events, environmental management and maintenance at Hanging Rock Reserve is funded by the Reserve's existing revenue streams such as via entrance fees, events and grants. All actions listed in the Environmental Management Plan will be funded through these existing revenue streams and / or new grants as required. Some actions listed can be undertaken with existing staff resources; others require dedicated funding from the Hanging Rock Reserve budget.

With regard to future development and the Master Plan, no costings have been considered at this point in time, as they are recommendations only relating to investigation and options to inform. Actual detailed costs will be largely considered in the planning and finalisation of the Master Plan process

Many of the actions listed will be implemented in collaboration with local community groups as appropriate.

Timeframe for completion	Rec #	Recommendation	Relevant EMP Zone
Priority 1 Actions			
Year 1	2	Expand current revegetation efforts around the expanded Smokers Creek Riparian corridor in line with update zone boundary Map 12 – Management Zones	CCZ 3
Year 1	10	Implement cool burns in CCZ 3– North of Racetrack, to reduce on-ground fuels including woody weed species, and small dead material, while enhancing understory diversity	CCZ 3
Year 1	22	Develop a Flora Monitoring Strategy , incorporating: – existing exclusion plots – monitoring plots for works completed (revegetation, erosion control) – pre- and post- burn monitoring	x
Year 1	28	Extend the boundaries of Smokers Creek Riparian Zone – CCZ 3 to reflect the changes to managements as shown in Map 12 – Management Zones.	CCZ 3
Year 1	58	Prioritise fixing of current holes/access in fences at northern and western boundaries	CCZ1
Year 1	75	Develop vehicle hygiene protocols for onsite machinery, and introduce requirements of entry for machinery and equipment associated with works at other (external/offsite) locations	x
Year 1	87	Install signage at picnic facilities and rubbish bins instructing people not to feed wildlife and not to leave leftover food or rubbish behind	RZ CZ
Year 1	89	Large events are considered as those where number of attendees is greater than 5,000. Events of this size should utilise Recreation Zone (RZ)'s and avoid Connectivity Zone (CZ) as much as possible	x
Years 1–3	1	Develop a restoration strategy for CCZ 1 for systematic regeneration of middle-story and canopy species, to include a combination of; – cool/cultural burns – grazing restrictions through exclusion fences – weed control – revegetation works	CCZ 1
Years 1–3	5	Investigate strategies to adapt to climate change including, but not limited to: –Monitoring of revegetation success –Plant providence trials –Joint management projects with research institutions	x

Timeframe for completion	Rec #	Recommendation	Relevant EMP Zone
Priority 1 Actions			
Years 1–3	9	Implement the existing Grassland Management Plan for restoration, including biomass management through considered burning/grazing regimes	CCZ 2
Years 1–3	16	Eliminate all mature woody weeds across the Precinct within 3 years of implementation of this EMP; ensure woody weed control is implemented continuously across the Precinct to manage regrowth as it occurs over time	All
Years 1–3	20	Implement the 2020 Grassland Management Plan for restoration, including biomass management through considered burning/grazing regimes, weed control, and revegetation works	CCZ 2
Years 1–3	25	Develop and implement a Large Tree Monitoring Program to assess the long-term health and condition of all large trees throughout the precinct, including culturally important scar trees (can be incorporated into arboricultural assessments)	x
Years 1–3	43	Prepare and implement a Kangaroo Management Plan that reviews the carrying capacity of the reserve and; <ul style="list-style-type: none"> – includes methodology annual or biannual monitoring of Kangaroos to identify fluctuations in population – identifies appropriate actions to manage population numbers (if required) and kangaroo management during major events – considers any changes or alteration to the use of Precinct that will result in changes to available resources for the resident Kangaroo population – incorporate suggestions for visitor education for matters such as kangaroo conservation vs biodiversity conservation 	x
Years 1–3	57	Progressively remove all barbed wires from all internal and perimeter fences across the Precinct, to reduce injury to wildlife, and replace with alternative security fencing on the perimeter as required.	All
ongoing	4	Ensure that no exotic/ non-native plants are planted within the Precinct.	All
ongoing	7	Prioritise revegetation for the purposes of remediation/soil stabilisation/deterrents for locations where erosion has been identified.	CCZ 1 CCZ 3
ongoing	8	Incorporate restoration strategies in the planning of fire for ecological restoration	All CCZ
ongoing	15	Undertake weed control on a quarterly, bi-annual or annual basis.	All
ongoing	17	Continue to manage scrambler/climbing weeds and thistles across the Reserve on an ongoing basis	All
ongoing	18	Incorporate practices of Hanging Rock Rangers to record general observations of weeds identified during daily duties to inform ongoing weed control	All

Timeframe for completion	Rec #	Recommendation	Relevant EMP Zone
Priority 1 Actions			
ongoing	19	Conduct an annual 'weed sweep', detailed monitoring of the entire Precinct in Spring to identify problem areas and schedules for control	All
ongoing	29	Ensure all herbicide that is utilised within the Precinct does not impact negatively on the waterway, including preference for 'waterway friendly' herbicide	x
ongoing	34	Avoid spraying large patches of weedy understory where this may lead to bare ground. Within aquatic margins weedy understory is preferable to bare ground	CCZ 3
ongoing	36	Develop Annual Fauna Management Review– To assess the outcomes of the previous year of Precinct management in regard fauna, through review of – instances of loss/reduction/injury to fauna, – general observations and results of monitoring activities – any documented incidents with visitors – other recorded instances requiring review of procedures or management approach – review scheduling, timing and resources for annual monitoring activities for the upcoming year, including opportunities for visitor engagement and citizen science – Investigate development of a data management system to facilitate the collection, storage and analysis of data from fauna observations and surveys. This may include maps, GIS layers and other databases	x
ongoing	42	Prepare a Pest Management Plan which includes: – estimates of baseline pest animal data – methodology, scheduling and resources for control and mitigation works as required – Community engagement to facilitate the participation of surrounding land owners – Ongoing monitoring – where possible, pest animal management to be linked to burning program, for the treatment of areas as vegetation/harbour is reduced	x
ongoing	44	Continue to implement localised as well as shire-wide campaigns raising awareness about the importance of securing pets within the confines of private properties, including mail- out to residents advising MRSC local laws on domestic dogs & cats	x
ongoing	48	Horses are permitted to be brought into the Precinct only for the purpose of participating in the formal annual race meetings held by the Kyneton and Hanging Rock Racing Club	all

Timeframe for completion	Rec #	Recommendation	Relevant EMP Zone
Priority 1 Actions			
ongoing	49	Animals, other than horses (i.e., such as those associated with markets/events) are permitted to be brought into the Precinct with permission from MRSC, and are to be restricted to areas within the RZs.	RZ
ongoing	55	An ecological and cultural impact assessment is required prior to undertaking any works to widen, seal, or develop new tracks or roads within the Precinct	All
ongoing	56	<p>Consolidate current practices in a Tree Works Strategy, to include the following directions;</p> <ul style="list-style-type: none"> - the current management practice of safety inspections and tree/limb removal in TSMZ as required - incorporate pre-works fauna inspections into planned limb removal works less than 24 hours prior to removal. Where pre-clearance assessments determine presence or likely impact to fauna, lopping of vegetation to be accompanied by a suitably qualified wildlife handler - tree maintenance amongst the racecourse facilities and racecourse grassland for line of site in accordance with approved planning permits - tree stumps, and trunks resulting from lopped or fallen trees should be retained in-situ. If they are considered a safety hazard, remove large sections and relocate to CCZ, or utilise to define management zones - transportation of limbs or vegetative material to other areas of the Precinct should not be done in a way that disturbs groundstorey vegetation - retention of large fallen branches in-situ in CCZ except if they have fallen across a track - remove to side of track. - Remove fallen/lopped limbs in managed areas of slashing/mowing and move into nearby CCZ - Re-use larger logs as barriers to define perimeters of Management Zones - Crowns and smaller limbs (<10cm diameter) to be used for mulch for spread in RZ or TCAs 	TSMZ
ongoing	64	Continue the current practice of slashing FMZs in early spring and mid-late summer, or as required at other times to reduce fuel levels	FMZ
ongoing	66	Continue practice of removing small logs - to be relocated into CCZs	FMZ
ongoing	67	Retain large logs in situ - except in instances where they hinder emergency vehicles or are an OHS risk	FMZ
ongoing	68	No scraping/digging machinery is permitted for removing fine fuels - tractor stick rakes are allowed for raking of fuels in large areas	FMZ
ongoing	69	Where fine fuels, including crowns, are required to be raked and burned, burn piles are to be located on bare earth on roads/tracks to avoid damage to soil crust, seedbank or native groundstorey present.	All Zones

Timeframe for completion	Rec #	Recommendation	Relevant EMP Zone
Priority 1 Actions			
ongoing	92	All large music events are to be restricted to the East Paddock (RZ6, RZ7)	x
ongoing	93	No use of animated lighting is permitted during major events (flashing, strobe or laser lights) outside of the immediate stage area.	all
ongoing	94	No fireworks or pyrotechnics are permitted within the Precinct	all
ongoing	95	Lighting of the Rock for major events should be minimal, and not require any permanent infrastructure development	x
ongoing	105	Investigation options for site entry from Straws Lane to facilitate overflow parking in the East Paddock on high-use/event days	RZ
ongoing	106	Overflow parking is to be restricted to Recreation Areas (RZ) as much as is practical for the function of events and site use	RZ
x	54	No additional works to widen, seal, or develop new tracks or roads are permitted within CCZ1	CCZ 1

Timeframe for completion	Rec #	Recommendation	Relevant EMP Zone
Priority 2 Actions			
Year 1	6	<p>Update the Revegetation Plan (Young, 2018) to</p> <ul style="list-style-type: none"> - reflect changes to Management Zones and objectives - prioritise high-quality areas/CCZs - include a revised species list, based on consultation with Landcare regarding the local and historical knowledge of the site and surrounding area - include tall deterrent shrub species (prickly, thorny), and dense plantings, to reduce visitor access through vegetated areas and enhance woodland bird habitat at/around summit CCZ1 - include species identified as historically occurring in the region, including culturally significant plant species - include discussion of climate change in relation to the ecological and sustainable future of the Precinct in relation to revegetation works - include a strategy for selection of species as a consideration for the future impacts of climate change 	x
Year 1	13	<p>TCA Installation</p> <ul style="list-style-type: none"> - Continue to implement installation of TCA's through mulch application, where they do not currently occur, with focus on CZ 7 and CZ 2. - Commence mulching and log retention linking TCAs where practicable to create connectivity corridors of groundstorey and opportunity for natural regeneration - Only implement new TCAs in CZ areas where this can be achieved without impacting existing car parking on event or high use days, or when alternative parking and access arrangements have been confirmed with event organisers - Improve existing TCAs - ensure mulching and planting areas reach to the drip line of live trees 	RZs CZs TCAs
Year 1	35	Install instream impediments (rocks, logs) to slow the flow of water, and increase availability for aquatic habitat, in line with appropriate guidelines from DELWP, CMA or other profession/specialist advice	CCZ 3
Year 1	90	<p>Review existing event management plans to:</p> <ul style="list-style-type: none"> - identify alternative car parking and access arrangements that reduce vehicle presence on non-recreation zones. - Identify risk to biodiversity and cultural heritage values, and develop mitigation procedures before event takes place 	x
Year 1	96	Introduce requirement for post-race clean-up, including removal or treatment of imported feed, bedding, manure, and other organic material associated with race meetings to reduce weed/nutrient loads	x

Timeframe for completion	Rec #	Recommendation	Relevant EMP Zone
Priority 2 Actions			
Years 1–3	11	Undertake an experimental burn in CZ 7 – Northern Picnic area with the aim of exploring opportunity for transitioning mown areas to restored indigenous understory	CZ 7
Years 1–3	27	Consult with an entomologist concerning the insect attack on the large trees to determine what type of insects they may be, and whether they are responsible/contributing to tree decline	x
Years 1–3	37	Develop a policy for wildlife encounters within the Precinct, including consideration of tourist proximity to wildlife, the feeding of wild animals, and other factors for the interaction of people and wildlife	x
Years 1–3	39	Consider installing rope bridges and constructed fauna access over areas where planting for habitat cannot be implemented, or requires time to develop	All
Years 1–3	41	Update the Fauna Management Plan to ensure it includes brief and simple species profiles for future management of: <ul style="list-style-type: none"> – Greater Gliders – Brush-tailed Phascogales – Koalas – Wallabies – Powerful Owls – Bats – Kangaroos 	x
Years 1–3	84	Develop signage for the main picnic areas/high traffic areas against feeding/touching/approaching local wildlife	RZ
ongoing	3	Ensure regular maintenance of revegetation work areas– with at least bi-annual follow up works for completed revegetation, including weed control, removal of guards etc.	All
ongoing	21	Cease spraying herbicide in drains and channels and for up to 20m from these areas, in consideration of aquatic fauna species, particular amphibians, across the Precinct, unless otherwise approved by Council's Environment Unit	All
ongoing	24	Ensure all new sightings of rare and threatened flora species are added to the Victorian Biodiversity Atlas	x
ongoing	33	Continue groundstorey revegetation adjacent to paths and walkways., and where possible, utilise low-impact methods, such as coir logs, to slow/reduce runoff and for sediment control	CCZ 1
ongoing	45	Monitor the perimeter fence of the Precinct fortnightly and undertake maintenance works as required to prevent access by domestic dogs and cats from adjacent areas	x

Timeframe for completion	Rec #	Recommendation	Relevant EMP Zone
Priority 2 Actions			
ongoing	51	Continue the current practice of mowing, except where additional revegetation, burning or other management practices are implemented, including introduction of <ul style="list-style-type: none"> - New TCAs - Revegetation works in CZ 2, CZ 3 and CZ 7 - Cool/cultural burns in CZ 7 	CZs RZs
ongoing	52	Raking of bark, small branches and leaf litter prior to mowing, if required, to be used as a natural mulch in suitable areas	All
ongoing	59	Ensure that future fencing is consistent with the consideration of the safety and free – movement of wildlife	x
ongoing	62	Visually identify the boundaries of Zones on site if and as required.	All
ongoing	63	Continue to incrementally install markers (bollards, fencing, rocks or fallen/removed large limbs), around the perimeter of all revegetation to deter visitors from trampling vegetation	CZ
ongoing	65	Revegetation or plantings within the defensible space around existing public buildings must be implemented in line with the Defendable Space Guidelines	All
ongoing	72	Any unusable/exotic material, such noxious weeds, to be stored at on-site depot or relocated to a Council Transfer Station as appropriate	MZ
ongoing	73	Mulch/stockpiles are to be stored within the depot where possible	MZ
ongoing	74	Continue practice of stockpiling larger logs in the depot area for use elsewhere such as to define the perimeters of TCAs or Management Zones	MZ
ongoing	77	Ensure Council staff and contractors conducting on-ground works operate within any Council’s hygiene program or standards	x
ongoing	98	Cars shows to be restricted to Recreational Areas as much as is feasible. Council to work with event operators to identify and implement alternative car parking and access arrangements that reduce vehicle pressure on non-recreation zones.	RZ

Timeframe for completion	Rec #	Recommendation	Relevant EMP Zone
Priority 2 Actions			
ongoing	100	Markets and associated car parking to be focused to Recreational Areas where feasible. Council to work with event operators to identify and implement alternative car parking and access arrangements that reduce vehicle pressure on non-recreation zones	RZs CZs
x	12	Develop a cultural burning strategy for the Reserve, in line with the Victorian Traditional Owner Cultural Fire Strategy (DELWP, 2020) and the guidelines and actions stated in CMP	x
x	38	Update Fauna Plans and SOPs for the monitoring of reptiles, fish, bats (including maternity sites), amphibians and invertebrates to increase knowledge of their presence in the Precinct.	x
x	60	Predator- proof type fencing may be considered but should not be installed with a view to creating a contained predator-free area, due to site constraints and pressures of visitor use Conduct a cost-benefit analysis into the use of predator-proof fencing/other fencing types suitable for perimeter.	x
Priority 3 Actions			
Years 1-3	14	Design and install appropriate signage to highlight TCAs and outline their function for public engagement purposes	TCAs
Years 1-3	23	Consider additional detailed flora monitoring, including - investigation the floristic diversity of the site through completion of detailed flora surveys in hard to access areas - monitoring to determine ecotones within each EVC, resulting from the unique rock formation	x
Years 1-3	26	Liaise with community interest groups to develop further understanding of current and historic issues of tree health, both within the Precinct and throughout the broader landscape	x
Years 1-3	40	Consider creating chainsaw hollows in younger stags which have not yet developed hollows and are likely to take a long time to do so - particularly in areas where there are few hollows already present.	CCZ CZ RZ
Years 1-3	76	Consider the installation of a clean-down area within MZ, or other appropriate location, for machinery entering the site.	x
Years 1-3	78	Communicate with adjoining land owners in order to coordination management of threats and ecological enhancements if and as required.	x
ongoing	53	Stockpile grass clippings within the works depot area, or remove from the Precinct to Council's green waste if weeds are present	MZ

Timeframe for completion	Rec #	Recommendation	Relevant EMP Zone
Procedural Actions			
Years 1–3	101	Consider main picnic areas as RZ1, RZ2, CZ2, CZ3, for ongoing passive recreation/picnic facilities, with gradual enhancing of understory connectivity and values within CZs while maintaining access to existing picnic facilities and amenities	RZs CZs
Years 1–3	102	Continue current arrangements of Sporting Clubs until implementation of the Master Plan	x
Years 1–3	79	Assess opportunity to increase visitor engagement and education in the short-term	x
ongoing	50	Llama tours are permitted to continue in line with current arrangement with MRSC. Changes to the arrangement may occur in future as a result from further planning, finalisation or implementation of the Master Plan	RZ CZ CCZ
ongoing	86	Continue to assess individual applications for site use on merit through current Location Agreement Framework, taking all possible steps to avoid impacts to the sites ecological and cultural values.	x
x	80	Consider the use of the current tennis clubhouse as an option to host school groups in the short-term for environmental-based educational activities, or other uses to foster visitor interaction/education	x

Timeframe for completion	Rec #	Recommendation	Relevant EMP Zone
For consideration during development of the Master Plan			
x	30	Prepare a Waterway Restoration Plan for <ul style="list-style-type: none"> - existing dams, - Smokers Creek, - low lying, water retention areas - drains and other waterways - Consideration of maintenance aspects of drainage along Racecourse Road if and when it is upgraded - Mitigation and treatment of runoff from any additional hard surfaces proposed in the future Master Plan – ensure runoff from future development in the Precinct is treated prior to discharging into the creek/dams - Review current water storage and water management practices of the Precinct – consider alternatives including recycled water, or other additional water amenities required for future use. 	x
x	31	Review water use and amenities within the Precinct, to enable the improvement for wetland habitat	x
x	81	Consider requirements for relocation of the visitor's centre, in regards to bushfire risk and impact/proximity to site values	x
x	82	Consider guided visitation of the Rock, and the development of supporting facilities as an option to reduce impacts to the Rock and surrounding vegetation	x
x	85	Consider the role of wildlife education/interactions and necessary additional facilities in the future planning	x
x	91	No increase is permitted in the number or frequency of events as they are currently scheduled.	x
x	97	<ul style="list-style-type: none"> - Review location and standard of current racing facilities– if redevelopment is required, relocate to RZ - Determine alternative locations for loading, and float/truck parking facilities for racing events in consideration for future upgrades of racecourse facilities - Consider alternative locations within RZs, given the proposed recommendations for restoration of current loading area and the recorded roosting sites for Powerful Owl and Greater Glider 	x

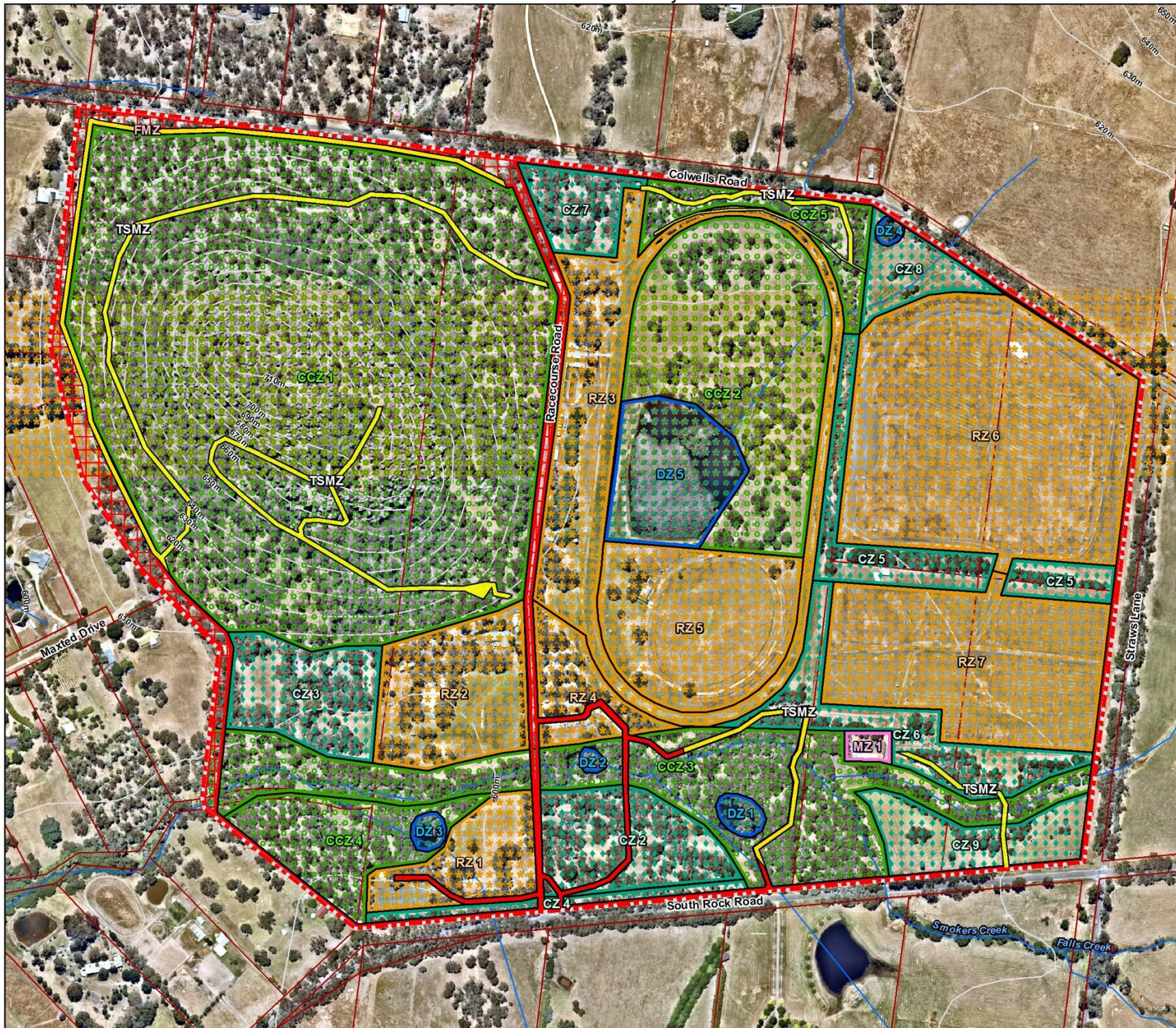
Timeframe for completion	Rec #	Recommendation	Relevant EMP Zone
For consideration during development of the Master Plan			
x	99	Conduct assessment on noise levels associated with annual car shows and potential impacts to fauna, and determine if appropriate to continue in light of the increased priority of ecological values. Review existing event management plans to identify opportunities to reduce noise levels if and as needed.	x
x	103	Investigate alternative use of existing buildings/locations if and when the sports clubs relocate outside the Precinct	x
x	104	Consider using decommissioned sites for aesthetic/biodiversity enhancement or other visitor amenities not subject to bushfire construction standards	x
x	107	<p>Considerations for Future Parking</p> <ul style="list-style-type: none"> - Review general parking infrastructure, increase available parking area to accommodate busy weekends and holiday periods - Investigate locations for additional formalised parking where there are few biodiversity values, - Review parking facilities for major events - investigate off-site parking and alternative transport from Woodend etc to minimise impacts to ecological values within the Precinct - Review recommendation for traffic and vehicle movement, as proposed in 1993 Management Plan (Loder and Bayly) as appropriate for achieving the vision and objectives of the strategic plan, and in line with the Zoning and recommendations of this EMP - Investigate Bus-drop-off locations for large groups and bus parking areas on or off site. 	x
x	108	Any proposed lighting should be managed in accordance with the guidance measures in Australian Standard AS4282-2019 Control of the Obtrusive Effects of Outdoor Lighting, along with the "Principles of Best Practice Lighting Design" referred to in the National Light Pollution Guidelines for Wildlife (DoEE 2020) to minimise light spill and associated impacts with fauna.	x
x	109	Undertake targeted fauna impact assessments of proposed infrastructure works as required.	x

Timeframe for completion	Rec #	Recommendation	Relevant EMP Zone
On completion of Master Plan			
x	32	Cease any and all pumping of water from Smokers Creek	x
x	46	Consider including entire Precinct as Prohibited Area for dogs	x
x	47	Consider designating the Reserve Rangers as “authorised officers” capable of enforcing Council’s local law in relation to dogs etc,	x
x	61	Upgrade perimeter fence in line with Perimeter Fence Plan or decisions of the Master Plan	x
x	70	Update Fire Management Plan in line with Zone changes resulting from this EMP update and finalised Master Plan	x
x	71	Update Emergency Management Plan to responds to decisions of Master Plan.	x
x	83	Update/redevelop the visitor information centre, with a spotlight on the biodiversity and traditional owner/cultural values of the site, along with European history and connections.	x
x	88	Develop and implement an Interpretive Signage Plan and Visitor Education Plan, to include - installation of passive and interactive signage throughout the Precinct - engagement with TO groups for topics of cultural values and education	x

Appendix 1 – Maps

Map 12 – Proposed Management Zones

Map 12. Proposed Management Zones Hanging Rock Reserve



Legend

- Study site
- Parcels
- Contours (10m)
- Natural watercourse

Management Zones

- Core Conservation Zones (CCZ)
- Connectivity Zones (CZ)
- Recreation Zones (RZ)
- Fuel Management Zones (FMZ)
- Dam Zones (DZ)
- Maintenance Zones (MZ)
- Tree Safety Management Zones (TSMZ)

Details

Mapping by: Karen McGregor & Colin Broughton
 Date: 25/06/2021
 Data Source: Aerial photography courtesy of NearMap (Jan 2021).

0 25 50 75 100 125 150 175 200 m

Scale 1:4,200 (Page size A3)

Disclaimer
 Practical Ecology bears no responsibility for the accuracy and completeness of this information and any decisions or actions taken on the basis of the map. While information appears accurate at publication, nature and circumstances are constantly changing.

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