



Environmental Management Plan 2022



Acknowledgement of Country

Falls Creek Alpine Resort Management Board acknowledges Traditional Owners and their continuing connection to Country.



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Acronym register

AIR- Aspect and Impacts Register

Board- Falls Creek Alpine Resort Management Board

CFA- Country Fire Authority

DCS- Director Corporate Services (Falls Creek Resort Management)

DEDLM- Director of Economic Development and Land Management (Falls Creek Resort Management)

DEDJTR- Department of Economic Development, Jobs, Transport and Resources (Victorian Government)

DELWP- Department of Environment, Land, Water and Planning (Victorian Government)

DIMR- Director Infrastructure and Mountain Response (Falls Creek Resort Management)

DMC- Director of Marketing and Communications (Falls Creek Resort Management)

EMP- Environmental Management Plan

EMS- Environmental Management System

FCARMB- Falls Creek Alpine Resort Management Board

MHARMB- Mount Hotham Alpine Resort Management Board

NECMA- North East Catchment Management Authority

SEMP- Site Environmental Management Plan

SV – Sustainability Victoria

EXECUTIVE SUMMARY

Falls Creek Alpine Resort is located within the Victorian alpine region, situated within a unique and ecologically significant ecosystem. The Resort spans over 1,500 ha and is surrounded by the Alpine National Park. The Resort has important ecological values contiguous with the broader Bogong High Plains. The protection and management of these significant values is priority for the Falls Creek Alpine Resort Management Board (**FCARMB**).

FCARMB's Environmental Management System (**EMS**) guides best practice environment management and continuous improvement in environmental outcomes. An important part of the EMS is the Environmental Management Plan (**EMP**) that identifies the environmental aims and objectives for environmental management in the Resort. This EMP (2022) is underpinned by the Technical Supplement document that incorporates an extensive review of the previous EMP (2017-2021), recommendations, along with additional information. The EMP focusses on new activities and key existing activities identified as providing continual improvement in environmental performance. In addition to addressing obligations related to relevant legislation and strategies, the EMP addresses relevant Ministerial Directions related to biodiversity and climate change. The EMS is divided into five broad themes: 1) Biodiversity and Threatened Species, 2) Water and Catchment Management, 3) Waste and Resource Consumption, 4) Land Use and Development, and 5) Energy and Climate Change.

The EMS contains an updated Aspect and Impacts Register (**AIR**) that identifies the Resort's key environmental risks (Appendix 1). The AIR includes risks directly associated with FCARMB activities and broader Resort issues. In addition to managing and improving the environmental management of its own activities, the FCARMB has a wider influence over the environmental impacts of the Resort through its role as a referral authority, a manager of Resort leases, various education services, and leadership as the statutory land manager for the Resort. The register in combination with the Falls Creek Environment Policy provides the direction for the EMP.

Review of the AIR occurs annually as well as part of the three-year EMP review to reflect changes in the risk landscape and direct annual management priorities. An overview of the 2022 AIR is included in this EMP.



OVERVIEW OF THE ENVIRONMENTAL MANAGEMENT SYSTEM

Falls Creek Alpine Resort's unique location places it within an ecologically significant ecosystem. Covering over 1,500 ha, the Resort has important ecological values contiguous with the broader Bogong High Plains.

Falls Creek supports a diverse range of alpine flora and fauna including those protected under legislation. The Resort is situated at the top of the Upper Kiewa river catchment which feeds the Murray River, and the alps have an important role in holding water and regulating its release downstream. FCARMB is responsible for managing Resort activities to minimise potential risks from visitation, waste, events, development, and land use. Climate change presents potential risks to the existing functions of the Resort highlighting the importance of identifying the Resort's vulnerabilities and opportunities.

FCARMB's Environmental Management System (**EMS**) guides best practice environment management and continuous improvement in environmental outcomes. The Environmental Management Standards generally follow international standards (AS/NZS ISO 14001:2015) and aims to support continual improvement in environmental outcomes using the adaptive management framework of plan-do-check-act (Figure 1). The EMS includes an Environmental Management Plan (**EMP**) that identifies the environmental aims and objectives for environmental management in the Resort. The EMP recognises relevant legislation and current strategies, the Resort's environmental policy, and the risks identified for the Resort outlined in the Aspect and Impacts Register (**AIR**). The 2022 EMP is underpinned by the recommendations of the extensive review of the previous EMP (2017) outlined in the Technical Supplement document.

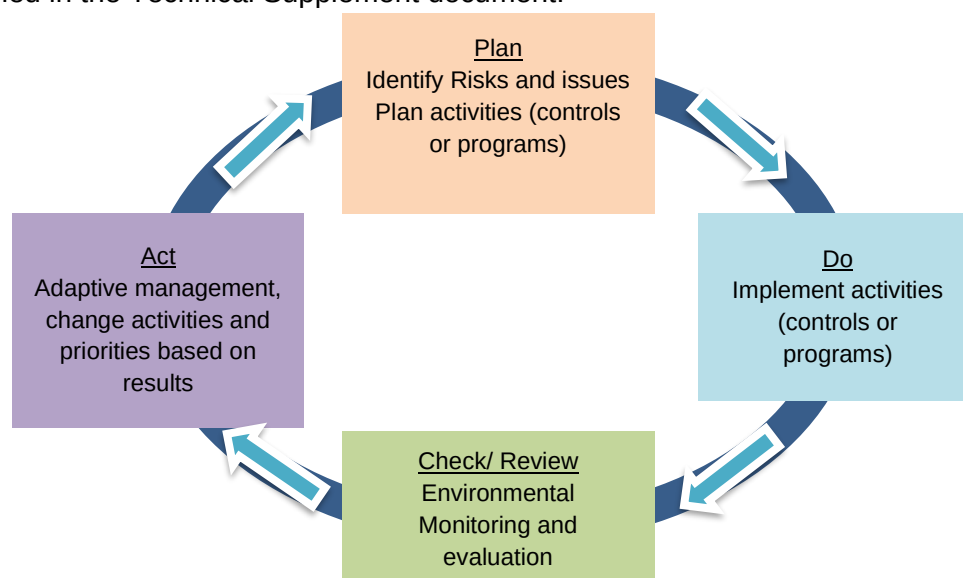


Figure 1. The Adaptive management framework of plan-do-check-act guiding the EMS

The 2022 EMP focusses on new activities and key existing activities identified as providing continual improvement in environmental performance. As part of updating the EMP, the AIR was also updated. The AIR includes risks directly associated with FCARMB activities and broader Resort issues. Those risks of highest priority have been addressed in the 2022 EMP. The 2022 EMP outlines activities for the next 3 years and is scheduled for **review in early 2025**.

LEGISLATIVE CONTEXT AND STRATEGIES

FCARMB is required to adhere to a broad range of legislative Acts and regulations. Many of these relate to the Resort's status as Crown land and its environmental significance. FCARMB is also supported by several regional and state level strategies for environmental management. FCARMB works with partner agencies to deliver regional priorities. A summary of current key legislation and partner agency strategies most relevant to the Resort is listed below.

Legislation

- *Aboriginal Heritage Act 2006*
- *Aboriginal Heritage Regulations 2018*
- *Alpine Resorts (Management) Act 1997 and regulations 2020*
- *Catchment and Land Protection Act 1994*
- *Climate Change Act 2017*
- *Conservation Forests and Lands Act 1987*
- *Crown Land (Reserves) Act 1978*
- *Environment Protection Act 2017 and Environment Reference Standard 2021*
- *Environment Protection and Biodiversity Conservation Act 1999*
- *Flora and Fauna Guarantee Act 1988*
- *Land Act 1958*
- *Planning and Environment Act 1987 and regulations*
- *Prevention of Cruelty to Animals Act 1986 and regulations 2019*
- *Water Act 1989*
- *Wildlife Act 1975 and Wildlife (Regulations) 2002*

Strategies and Plans

- *Alpine Resorts Strategic Plan (Alpine Resorts Coordinating Council 2012)*
- *Falls Creek Alpine Resort Management Board Corporate Plan 2018-2020 (2018)*
- *Greater Alpine National Parks Management Plan (Parks Victoria, 2016)*
- *North East CMA Regional Catchment Strategy (NECMA, 2021-27)*
- *North East Waste and Resource Recovery Implementation Plan (NEWRRG, 2017)*
- *Protecting Victoria's Environment- Biodiversity 2037 (DEWLP, 2017)*



ENVIRONMENTAL POLICY

Falls Creek Alpine Resort Management Board ('the board')

Purpose

- To identify the key objectives to ensure stewardship of the environmental assets of the Falls Creek Alpine Resort; and,
- To identify roles in implementing the Policy statement

Strategic Vision

A vibrant and sustainable village offering memorable alpine experiences underpinned by environmental stewardship and leadership in best-practice environmental management.

Context

Falls Creek Alpine Resort (Resort) is situated on Crown Land surrounded by State Forest and National Park. The Resort supports alpine and sub-alpine ecosystems contiguous with the broader alpine area and provides habitat for a number of rare and threatened flora and fauna species. The Resort is situated at the top of the Upper Kiewa River catchment which provides a significant contribution to flows to the River Murray. The environment is characterised by low winter temperatures, highly erosive soils with low nutrient content and high precipitation falling as rain or snow. Topography consists largely of steep slopes interspersed with high plateaux, including areas of flats and bogs.

The Resort is also a popular year-round recreation and holiday destination. There is a strong interest in a range of snow-based activities and clear indications of a growth in summer visitation and activities. Along with the other alpine Resorts Falls Creek provides a key economic driver for Victoria. The provision of services and land use within the Resort, along with future growth and development must consider the unique alpine environment in which the Resort operates.

Responsibilities

The Falls Creek Alpine Resort Management Board (Board) will:

- Incorporate the Policy statement points into all decision making;
- Lead and promote environmental stewardship in the Falls Creek community; and,
- Ensure that the implementation of the Policy statement is implemented by Management in the corporate Plan and other strategic plans.

Falls Creek Resort Management (FCRM) will:

- Ensure that all operations and activities are in accordance with the Policy;
- Provide environmental leadership throughout the Falls Creek community; and,
- Annually report against Policy KPIs.

Policy Statement

The Board is responsible for the protection and enhancement of the Resort's natural assets. The Board commits to sustainable management practices which achieve compatibility between the development, maintenance and use of the Resort and its natural values with particular focus on the sensitive areas both within and adjacent to the Resort. Protection and management of the environment are a primary concern and the Board will strive for continuous improvement in environmental practices.

In order to achieve this, the Board will:

- Assess, monitor, and work to minimise the environmental risks and impacts of FCRM activities, operations and infrastructure on the environment.
- Monitor compliance and annually report against the Key Performance Indicators in the Environmental Management System and continually strive to improve environmental performance outcomes;
- Ensure compliance with relevant environmental legislation and regulations e.g. Regulations for the Clearing of Native Vegetation;
- Measure our environmental performance and ensure environmental management objectives and actions are reviewed annually, and updated as required;
- Ensure appropriate and ecologically sustainable development is implemented which recognises the need to conserve abiotic and biotic assets, with particular vigilance for endangered and/or rare alpine ecosystems and their components;

- Implement programs to protect and enhance our environmental values, and work with partner agencies such as Parks Victoria to support broad scale environmental priorities;
- Ensure the alpine environment is a primary consideration in the development and use of the Resort;
- Strive to embrace and implement best-practice, low impact and environmentally sensitive technology and advancements in environmental knowledge in Resort development, maintenance and management;
- Ensure Resort operators and stakeholders understand their risks and impacts on the environment and encourage best-practice management options;
- Promote a greater understanding of the environmental significance of the Resort through education, interpretation and support of research and,
- Ensure all Corporate Plans have actions to implement the objectives of *Protecting Victoria's Environment – Biodiversity 2037*.

Key legislation, regulations and standards

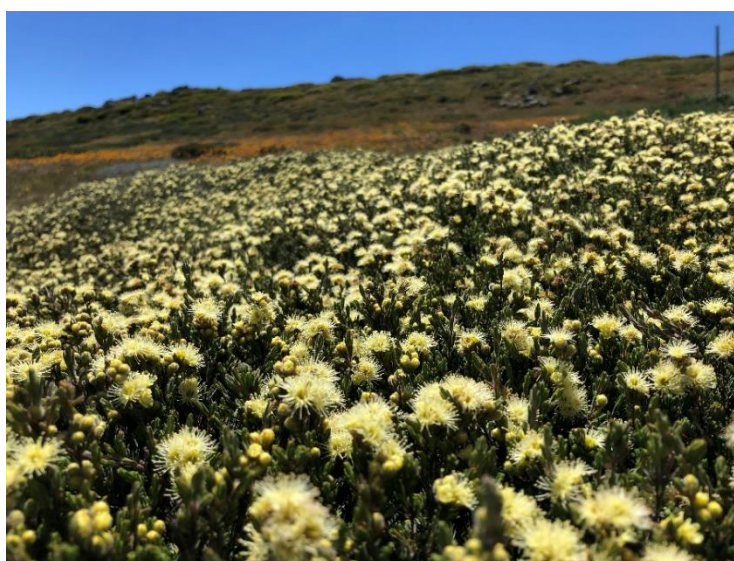
- *Protecting Victoria's Environment – Biodiversity 2037*
- Guidelines for the removal, destruction or lopping of native vegetation (DELWP 2017)
- *Catchment and Land Protection Act 1994*
- *Flora and Fauna Guarantee Act 1988*
- *Environment Protection for Biodiversity Conservation Act 1999*

Other references and related documents

- Falls Creek Environmental Management System

Authorisations and Document Parameters

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Revision No:	2	Replaces:	Environmental Policy (2015)
Amendment summary:	Updated formatting, included related documents		



COMMUNITY ENGAGEMENT

Whilst the EMP is a strategic plan for FCARMB, it acknowledges that the broader community plays an important role in the protection and management of the Falls Creek environment. Partnerships with Traditional Owners, other government organisations, institutions, and the community are essential to meet the aims. FCARMB works with stakeholder groups and the community to provide leadership, information, education, and support for improved environmental outcomes across the Resort. The Falls Creek Environmental Interest Group provides a forum for stakeholders to meet to discuss environmental issues and programs.



EMP AIMS AND OBJECTIVES

The EMS identifies a series of environmental aims that provide the vision and direction for environmental management with the Resort.

The aims are divided into five broad themes:

1. Biodiversity
and Threatened
Species

2. Waste and
Resource
Consumption

3. Water and
Catchment
Management

4. Land Use and
Development

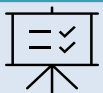
5. Energy and
Climate Change

Within each theme are high level aims and measurable objectives that are measured by a combination of outputs and outcomes. These set the direction for the activities and programs. Below is a definition of the terms used in this EMP:



AIM

The long-term outcome or environmental benefit. The aim provides the vision and direction for environmental management within the resort but in most cases cannot be directly measured.



MEASURABLE OBJECTIVES

Measurable objectives are more detailed statements of intention that when combined contribute to our environmental aims. The objectives will be used to measure and evaluate progress.



ACTIVITIES AND PROGRAMS

Activities and programs that will be implemented to meet our objectives and aims.

MONITORING

Monitoring and reporting against the measurable objectives is to occur on an annual basis. Annual reporting will be used to track progress and guide annual planning processes.

BIODIVERSITY AND THREATEND SPECIES

Biodiversity Values

Falls Creek supports a diverse range of alpine flora and fauna. In total, 19 Ecological Vegetation Classes (EVCs) have been identified in the Resort covering alpine, subalpine, riparian and montane categories. This includes a range of EVCs that contribute to vegetation communities, along with flora and fauna species listed under the *Flora and Fauna Guarantee Act 1988* (FFG) and the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC) (see Appendix 2).

Threats to Biodiversity

There are a broad range of potential threats to the Resort's biodiversity values including those associated with land use activities, climate change and introduced flora and fauna.

Weed monitoring and control is an ongoing issue for the Resort and requires ongoing commitment to be successful. Weed management has focussed on preventing the introduction of any new introduced species, removing any new weeds discovered, eradicating Hawkweed, and the long-term control of many problematic widespread weeds. The large number of people, vehicles and machinery entering the Resort and changes in climate continue to pose a risk of new weed or pathogen species being introduced. High risk focus species include Orange and King Devil Hawkweed (*Hieracium aurantiacum* and *H. praealtum* ssp. *baudinii*), Japanese Knotweed (*Fallopia japonica*), and Willows. FCRM maintains a weed register of known weeds in the Resort and the control actions being undertaken. Controlling weeds in EPBC listed Alpine Bogs and Fens is a priority.

Like weeds, pest animal control requires ongoing commitment from FCRM. Pest fauna species within the Resort include European Red Fox, European Rabbit, European Brown Hare, Feral Cat, and Sambar Deer. Predation by cat and foxes is a considerable threat to many alpine fauna including the Mountain Pygmy Possum and Broad-tooth Rat. Long-term predator ongoing control programs are implemented to reduce pressures on native animals. FCRM monitors the presence of pest animals (and native animals) and uses this information to inform control programs.

Environmental awareness and education

The importance of society valuing biodiversity and its conservation are recognised in National and State level strategies for biodiversity. Victoria's Protecting Victoria's Environment- Biodiversity 2037 includes two goals; that Victoria's natural environment is healthy and that Victorian's value nature. The Resort has implemented numerous activities to promote environmental awareness and encourage citizen science. FCRM environmental staff seek out opportunities to share information about the local environment with the local community, students and visitors. The Falls Creek Arts and Culture Strategy includes the objective of engaging artists to respond to environmental challenges by creating works that reflect the environment and assist audiences to engage with it. The Falls Creek childcare centre also runs a Bushkinda program that focusses on interacting with nature in the outdoors.



Aims and Objectives

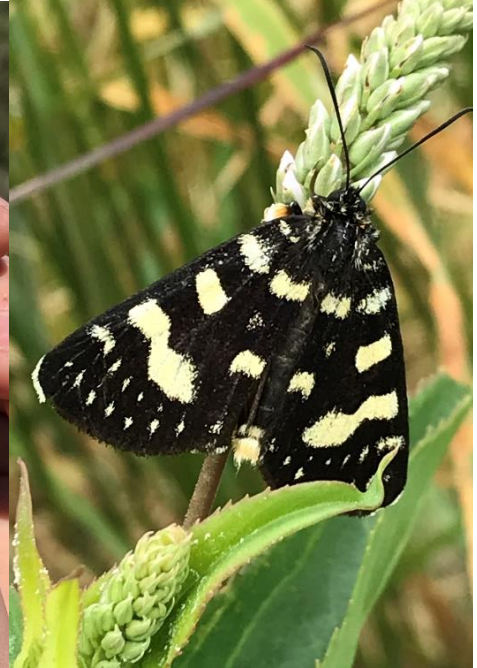
FALLS CREEK'S UNIQUE AND BIODIVERSE ENVIRONMENT IS PROTECTED AND ENHANCED

Aims:

1. The ecological character, extent and condition of ecosystems and vegetation communities is maintained.
2. Healthy viable populations of rare, threatened, and characteristic flora and fauna are maintained.
3. Management decisions and techniques are improved through research and new information and the effectiveness of management programs are monitored and evaluated.
4. Visitors and students are provided with learning opportunities to enhance their appreciation and understanding of the natural alpine environment.
5. The Falls Creek community understands relevant environmental issues and are engaged in their management.

Measurable Objectives:

- Increase knowledge of the distribution and condition of rare and threatened species and ecological communities in the Resort, through mapping of spatial distributions, occurrence data, and research programs.
- Facilitate research projects that contributes findings useful for informing biodiversity management.
- Maintain weed register and prioritise control efforts to address high priority weeds in the Resort, immediately eradicate any new environmental weed species detected in the Resort.
- Update the 2012 Biodiversity Management Plan by 2023 to include all threatened species known or likely to occur in the Resort.
- Increase communication about environmental programs and opportunities for community engagement in the Resort.



Activities and Programs to support biodiversity and threatened species objectives

	Task	Timing	Portfolio	Partner agencies	Monitoring and assessment	AIR item #
1	Weed management ➤ Develop the Falls Creek weed control strategy with consideration of potential climate change impacts. ➤ Continue to implement the Vegetation Management and Weed Control policy through the lease application process and operations. ➤ Continue to implement an annual weed monitoring and control program. ➤ Continue to provide support for the Hawkweed Eradication program, maintaining MOU. Collaborate with other agencies on the control of State Prohibited and other high-risk weeds. ➤ Continue to provide biosecurity education and projects to reduce risk of spread and introduction of weeds and pathogens. ➤ Improve communication resources for stakeholders about managing weeds and native planting within the Village.	2023 O O O O	DEDLM	Parks Victoria DEDJTR NECMA	➤ Strategy Complete ➤ Policy in operation ➤ Program in operation ➤ MOU and weed register maintained ➤ Solutions implemented ➤ Website with information	48, 62, 63, 64 & 65
2	Pest Animal control ➤ Continue to implement the integrated pest animal monitoring and control program. ➤ Continue to explore options for a deer control program and initiate a trial control program.	O 2022	DEDLM	Parks Victoria NECMA	➤ Camera monitoring and control database maintained. ➤ Deer control program trialled	53
3	➤ Maintain the GIS database of biodiversity values and threats within the Resort.	O	DEDLM	Parks Victoria NECMA DELWP	➤ Database maintained	66 & 67
4	➤ Continue to manage and promote alpine peatlands as a priority ecosystem including weed control and restoration.	O	DEDLM	Parks Victoria NECMA DELWP	➤ Annual works	16
5	Threatened species ➤ Review and update the 2012 Biodiversity Management Plan to include all threatened species in the Resort and continue to implement. ➤ Continue to conduct annual Mountain Pygmy-possum surveys. ➤ Establish long-term monitoring of Guthega skink populations in the Resort. ➤ Consider other threatened populations in the Resort needing long-term monitoring ➤ Implement projects that enhance species habitat. ➤ Support surveys and research within the Resort that contributes to our understanding of the distribution and management of biodiversity and threatened species.	2023 O 2022 O O O	DEDLM	Parks Victoria DEWLP Research partners Experts	➤ Plan finalised ➤ Annual surveys ➤ Program established ➤ Projects implemented ➤ Projects supported and used to inform management	66

6	Vegetation management ➤ Manage vegetation grooming/ slashing for fuel risk management in a way that considers biodiversity values and habitat connectedness.	O	DEDLM & DIMR	Vail Resorts CFA DELWP	➤ Corridors or mosaics maintained	58
7	Community education ➤ Encouraging the Falls Creek community and visitors to 'Act for Nature' by spending time in nature, becoming involved in citizen science, inspiring others to explore nature, enjoying nature, and being a responsible pet owner (DELWP, 2020a). ➤ Continue to provide environmental education sessions for students and other opportunities for the public to increase their knowledge and appreciation of alpine landscapes through displays in public areas, signage, information sessions, the Falls Creek website and Arts and Culture projects. ➤ Enhance communication about environmental programs with the public through greater visibility on the website, in the media, and on social media. ➤ Enhance community awareness of native reptiles in the Resort through public presentations and online brochure ➤ Enhance community awareness of native small mammals to prevent use of poison or snap traps.	O O O O O	DEDLM	DELWP Parks Victoria Schools Research partners Artists	➤ Providing regular information to the community ➤ Number of education and information sessions ➤ New environment education/ interpretation projects implemented ➤ Information session and brochure online ➤ Online information and catch and release traps available	66
8	➤ Continue to support the Falls Creek Environmental Interest Group.	O	DEDLM	FCEIG	➤ Group meets regularly	64



WASTE AND RESOURCE CONSUMPTION

Waste Management

FCARMB is responsible for managing the kerbside collection and disposal of the majority of general household and commercial waste generated within the Resort. Waste services are largely managed through a contractor and waste is collected and sorted at a transfer station in the Resort before being transported elsewhere to be processed, recycled, or deposited to landfill. FCARMB has both a leadership role to educate and advocate for improved waste management across the Resort as well as the role of service provider to collect, sort and transport the commercial and domestic waste in the Resort. In February 2020, the Victorian Government announced the plan for Recycling Victoria. This plan involves reforms to household recycling and requires the Resort to implement a four-bin model or equivalent service for: 1) Separate glass collection (by 2027), 2) Comingle recycling for plastic, paper and metals, 3) Collection service for food organics and garden organics (FOGO) (by 2030) and 4) Residual garbage collection. FCARMB plans to transition to the four-bin model.

FCARMB aims to reduce the quantity of potentially reusable or recycled waste being deposited to landfill, improve the quality of waste separation, and increase the efficiency of waste management systems. A large proportion of the waste produced in the Resort is food waste which produces methane when deposited to landfill. The Living Bin program diverts organic waste from landfill and is supported by a Living Bin champion to educate and support new seasonal staff. Waste cooking oil is also collected and reused as a biofuel on a nearby farm. Other bespoke recycling initiatives are also operated by FCRM with a community collection hub in place at the Visitor Information Centre for items such as writing instruments, eye care products, oral care products, and disposable PPE (including face masks).

FCARMB works collaboratively with local councils and alpine Resorts in the North East through involvement in the North East Waste Resource Recovery Group with representation on the Forum and Technical Advisory Committee. FCARMB remains committed continuing to improve recovery rates and efficiencies in waste management.

Resource Procurement, Consumption and Use (excluding energy)

Resource use by FCARMB (aside from energy, fuel and water) is dominated by building and infrastructure materials and office equipment such as uniforms and paper. Purchase of products and services are informed by internal purchasing policies consider the preference of locally sourced, long-life products that use fewer resources to build and use and maintain. In addition to its everyday operations FCARMB hosts a range of summer and winter events that have different resource use and waste disposal considerations.



Aims and Objectives

FALLS CREEK IMPLEMENTS INNOVATIVE AND EFFECTIVE MEASURES TO INCREASE WASTE RESOURCE RECOVERY RATES AND MINIMISE ENVIRONMENTAL IMPACTS ASSOCIATED WITH ITS RESOURCE USE

Aims:

1. Reduce total quantity of landfill waste produced by the Resort.
2. Increase recovery rates of reusable and recyclable materials.
3. Increase efficiencies in waste management systems.
4. Reduce environmental impacts associated with products and services through environmental procurement practices and reduced resource use.

Measurable objectives:

- Increase the percentage of recovered waste (co-mingled, glass, organics, oil, soft plastics) to 50% of all kerbside waste by end of 2024.
- Recycle all accepted recycling and organics collection bags, along with all pallet wrap.
- Increase the percentage of recovered hard waste (e.g. polystyrene, ski equipment, steel, building materials, timber, e-waste) by 2024.



Activities and Programs to support waste and resource consumption objectives

	Activity or Program	Timing	Portfolio	Partner agencies	Monitoring and assessment	AIR item #
1	Waste and Recycling management ➤ Prepare for implementation of the four-bin collection service across the Resort, including at public place bins. ➤ Develop a waste management strategy for Falls Creek. ➤ Continue to implement the Living Bin program including an education and awareness program delivered through a Living Bin champion. ➤ Divert all recyclable plastic bags from the waste collection service (Recycling, Glass, and Organics) from landfill to recycling. ➤ Recycle large polystyrene collected in the Resort.	2024 2024 O 2023 2023	DEDLM DIMR	NEWRRG SV DELWP 4Site	➤ Service ready ➤ Strategy created ➤ Quantities of organics collected ➤ All possible bags sent to recycling ➤ Polystyrene recycled	18
2	Regional partnerships ➤ Continue to work with the NEWRRG (or similar) as an active member of the North East Local Government Waste forum and technical advisory group to collaboratively improve waste recovery and recycling rates and efficiencies and support regionally important projects. ➤ Align reporting of waste and recycling data with regional partners.	O 2022	DEDLM	NEWRRG 4Site	➤ Meetings attended ➤ Data system used	18
3	Purchasing ➤ Review FCARMB Purchasing Policy to further enhance environmental considerations in purchasing (e.g.. energy rating of appliances). ➤ Purchase sustainable brands and those with an environmental plan.	2022 O	DCS		➤ Policy reviewed ➤ Purchases aligns with policy	31
4	Waste reduction ➤ Continue to explore options for the recycling of problematic materials including domestic soft plastic, ski/snow equipment, and textiles. ➤ Support options for diverting coffee cup waste and other single-use items from landfill with stakeholders. ➤ Reduce consumption by developing a paperless policy, encouraging reusable items.	O 2022 2025	DIMR DEDLM		➤ Options found ➤ Strategy in place ➤ Policy developed and actions implemented	30
5	➤ Continue to seek possible efficiency improvements in collaborating waste management transport and processing with regional partners.	O	DEDLM DIMR	NEWRRG Alpine Shire MHRMB	➤ Follow up completed annually	*
6	Waste management of events ➤ Review waste management practices at events and implement strategies for improvement in resource use and waste management (e.g. compostable consumables).	2023	DEDLM DCS	NEWRRG	➤ Regional waste events strategy created ➤ Less waste from events	32

7	➤ Track usage of office supplies, with the objective of reducing consumption, in particular paper.	O	DEDLM		➤ Usage trends	30
8	➤ Continue to recycle additional office products (e.g. printer cartridges, batteries). Continue to recycle bespoke community items (e.g. writing instruments, oral care, eye care, masks).	O	DEDLM	Recycling providers	➤ Quantities recycled through targeted programs	30 & 19
9	➤ Implement an audit program to inspect and assess operating oil tanks.	2025	DEDLM	DELWP	➤ Audit program implemented	28
10	Waste education ➤ Improve public place waste separation practices by exploring solutions to reduce contamination rates. ➤ Continue to educate the community and visitors about e-waste, ensuring all e-waste is diverted from landfill. ➤ Investigate a litter education practice. Investigate options for reduction of smoking related litter.	2024 O 2025	DEDLM	NEWRRG 4Site	➤ Recycling sorted in public bins ➤ E-waste collected ➤ Litter program implemented	19

*- indicates item identified as an ongoing priority, not a specific action in the AIR

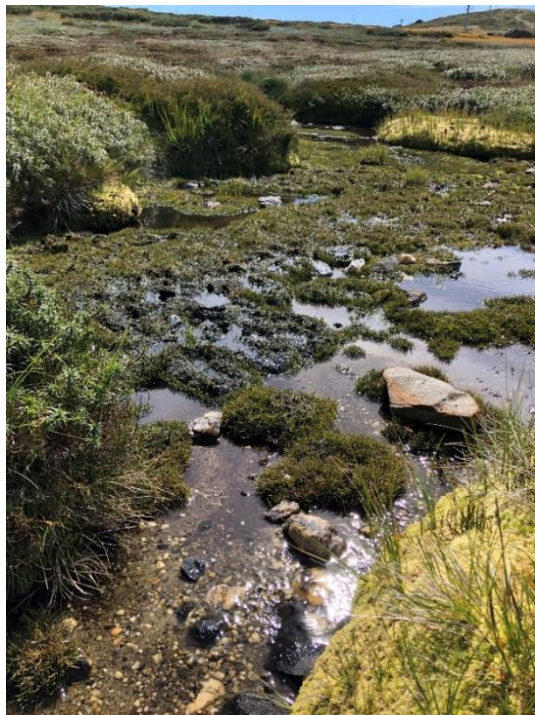


WATER

Falls Creek is situated at the top of the Upper Kiewa river catchment which provides a significant contribution to flows to the Murray River. The combination of porous soils, ground water systems, vegetation that can hold water, and the formation of snow and ice, mean the Alps have an important role in holding water and regulating its release throughout the year. Alpine peatlands and wetlands play an important function in regulating water quality and release to the downstream catchment. Falls Creek's waterways provide habitat for a range of native flora and fauna including two species of stonefly listed under the FFG Act, the Broad Toothed-rat and three species of threatened skinks.

Alpine bogs are distributed throughout the Resort particularly along Frying Pan Spur, the Sun Valley area and within the village. Development of the village has greatly altered the natural surface and subsurface water flows resulting in degraded wetland and bog systems. Stormwater directed into alpine bogs can cause erosion and channelisation, sediment build up that can smother existing mossbed vegetation, allow weed colonisation, and accumulation of pollutants such as hydrocarbons and heavy metals. Stormwater and snowmelt running through the village and from roadsides can also be a source of litter and weed propagules, spreading them downstream. Snow clearing operations within the Resort focus on the Bogong High Plains Road and carparks, as snow is maintained within Falls Creek village for as long as possible to provide safe ski-in ski-out access. Calcium Chloride and grit spreading is used over winter as part of road de-icing operations, with effort made to use the minimum quantity necessary to enable safe road use and potential minimise environmental impacts.

FCARMB is responsible for water supply, treatment, and discharge of wastewater, along with drainage and storm water management within the village area. In 2016 a new ground water bore was established as the main potable water supply for the village. Water from Rocky Valley reservoir continues to act as a back-up potable water supply and is used for snowmaking and a water source for bushfire fighting purposes. Effluent from the wastewater treatment plant is subject to an Environment Protection Authority water discharge license and is tested monthly. Additional biannual biological monitoring is conducted up and downstream of the discharge point to further confirm water discharge is not impacting the health of the Rocky Valley Creek.



Aims and Objectives

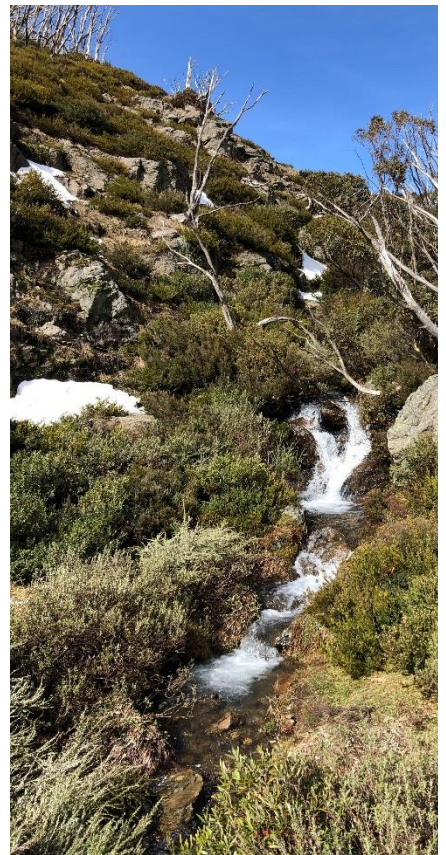
EFFECTIVE WATER AND CATCHMENT MANGEMENT TO SUPPORT HEALTHY WATERWAYS AND ASSOCIATED ECOSYSTEMS

Aims

1. Healthy water-dependent ecosystems. Extraction and use of water within the Resort does not impact environmental values.
2. Healthy waterways downstream of the Resort. Activities within the Resort do not impact the downstream waterway condition.
3. Healthy waterways and wetlands. Maintain and improve condition of waterways within the Resort and their ecosystem services including wetland and bog systems.

Measurable objectives:

- 100 percent compliance with water use, extraction, quality, supply and discharge licences.
- Seasonal aquatic monitoring shows water release from Waste Water Treatment Plant does not impact waterway.
- Long-term vegetation and ground water monitoring program shows no alteration of ecosystem from extraction of water from the bore.
- Targeted weed control in riparian areas and peatlands undertaken annually.



Activities and Programs to support water and catchment management objectives

	Activity and Programs	Timing	Portfolio	Partner agencies	Monitoring and assessment	AIR item #
1	Waste Water Treatment Plant and stormwater ➤ Continue compliance monitoring and reporting for the Waste Water Treatment Plant waste discharge license. ➤ Continue seasonal aquatic monitoring to monitor water quality downstream of Falls Creek village and the water treatment plant. ➤ Undertake review of storm water management capacity including WWTP in terms of plant capacity.	O O 2025	DIMR DEDLM	Parks Victoria NECMA	➤ 100 percent compliance ➤ No impact to downstream condition ➤ Review completed and implemented	4, 5, 7, 9, 10 & 72
3	Water extraction ➤ Continue to monitor and report against water take and use licenses and associated works on a waterway license. ➤ Undertake vegetation and groundwater monitoring program.	O O	DIMR		➤ 100 percent compliance with water use licences (ML of water extracted from Bore) ➤ Monitoring conducted and no impacts identified	1 & 2
4	➤ Increase efforts of annual targeted weed control in waterways and peatlands in the more remote parts of the Resort.	O	DEDLM	NECMA	➤ Areas treated annually. Any new waterway weeds eradicated	62
5	Calcium Chloride pollution ➤ Formalise monitoring the amounts of Calcium Chloride used for de-icing purposes during winter and support research in this area.	O	DIMR DEDLM		➤ Use recorded on a register	39
6	Waterway pollution from Village ➤ Encourage stakeholders to undertake regular seasonal cleaning of grease traps. ➤ Provide information about environmentally friendly practices to stakeholders. ➤ Review all septic tanks and determine long term plan for upgrade or replacement. ➤ Install 2 additional gross pollutant traps to capture majority of litter/seeds.	2022 2023 2025 2025	DEDLM DCS		➤ Information sent out ➤ Information available ➤ Review complete ➤ Traps installed	8, 14, 15 & 22

LAND USE AND DEVELOPMENT

The Falls Creek environment is characterised by low winter temperatures, highly erosive soils with low nutrient content, and high precipitation falling as rain or snow. Topography consists largely of steep slopes interspersed with high plateaus, including areas of flats and plains. The high drainage-storage capacity of healthy sub-alpine soils means they play an important role regulating heavy rainfall events and water release into streams and rivers. However exposed and degraded soils have a high risk of erosion and sediment movement when combined with the intense rainfall, strong winds, severe frost heave, and the steep slopes of the alps. The re-establishment of vegetation on bare ground is made more difficult than average due to severe climates, short growing periods, high soil acidity and low availability of nitrogen. Maintaining soil integrity and vegetation cover as a key management priority for the Resort.

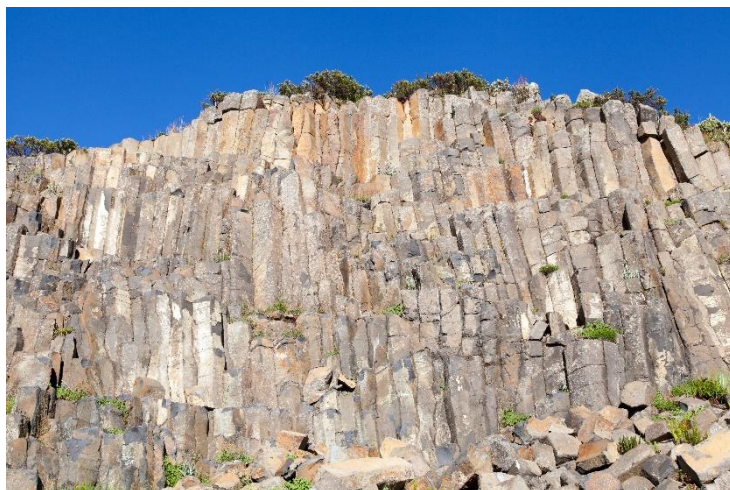
The Resort is covered by an Erosion Management Overlay to ensure these unique conditions are considered and geotechnical risks are managed. FCARMB also conducts a regular geotechnical monitoring program with support from the Department of Environment, Land, Water and Planning Alpine Risk Mitigation Program. The program guides an ongoing capital works program to manage geotechnical risks within the Resort.

Recreation and land use activities

Falls Creek offers a wide range of all-season alpine recreation activities including alpine and cross-country skiing, snowboarding, snowplay, bushwalking, camping, mountain biking, events, arts and culture, and food and entertainment experiences. FCARMB is responsible for a broad range of land use activities including road and transport services, car parking and snow clearing operations, cross-country ski trail grooming, bushfire protection activities, development and maintenance of walking and bike tracks, utility infrastructure development operation and maintenance, and Resort development and construction. Some of the key considerations associated with these activities include vegetation loss and management, soil erosion and movement, and the use and storage of fuels and chemicals.

Infrastructure maintenance and Resort development

The Falls Creek Master Plan 2016 outlines the strategic direction for sustainable development within the Resort. FCARMB is a referral authority for planning permits within the Resort and provides information support to stakeholders on environmental management obligations and considerations within their lease area. This includes developing and reviewing Site Environmental Management Plans (**SEMP**) within the context of the local alpine environment. All new lease applications must be accompanied by a Landscape Management Plan. All operations in the Resort and development must adhere to the Falls Creek Vegetation and Weed Management Policy. Cultural Heritage Management Plans are triggered on a project-by-project basis as required under the *Aboriginal Heritage Act 2006*.



Aims and Objectives

MANAGE LAND USE, DEVELOPMENT AND RECREATIONAL ACTIVITIES IN A MANNER COMPATIBLE WITH FALLS CREEK'S UNIQUE ALPINE ENVIRONMENT.

Aims

1. Falls Creek has healthy and stable alpine soils protected by native vegetation.
2. The impacts of recreational activities in the Resort are managed and minimised through a risk-based approach.
3. Development and works projects consider the alpine environment and are managed to minimise environmental impacts.
4. Falls Creek's cultural heritage is protected and managed appropriately.

Measurable Objectives

- Tracks and Trails Management Plan updated by 2022.
- Tracks and trails are monitored and maintained to minimise erosion.
- Environmental Hazards logged in the hazard register are managed within a timeframe appropriate to the risk.



Activities and Programs to support land management objectives

	Task	Timing	Portfolio	Partner agencies	Monitoring and assessment	AIR item #
1	➤ Review and update the Tracks and Trails Management Plan to reflect current best practice land management. ➤ Continue to monitor and maintain tracks and trails in accordance with the Tracks and Trails Management Plan and encourage use of the bike wash and walking hygiene to reduce risk of weed spread. ➤ Increase capacity of the trail maintenance team. ➤ Review walking track development by implementing a plan for design, construction, and maintenance.	2022 O 2023 2023	DIMR DEDLM	DELWP	➤ Plan updated ➤ Walking hygiene procedures implemented and bike wash bay usage data ➤ Additional trail maintenance crew ➤ Plan developed	50 & 52
2	➤ Identify priority areas and continue to implement revegetation and restoration programs to stabilise soils and ameliorate habitat fragmentation.	O	DEDLM	DELWP	➤ Annual projects focussed on restoration	67
3	➤ Continue to implement the Hawkweed Sites Work Practice, ensuring this is shared with relevant FCRM staff and stakeholders.	O	DEDLM		➤ Hawkweed work practice included in all relevant planning permit and on corporate website.	62
4	➤ Continuously assess the impact of vehicle use (cars/ snow mobiles/ snow clearers) within the Resort and implement policies and work practices to minimise impacts. ➤ Install physical barriers to prevent use of bog area for transfer, until safe to do so. Implement an education program for users of recreational vehicles. ➤ Follow up on breaches of work practices.	O O O	DIMR DEDLM		➤ Issue areas identified and actions taken	16 & 38
5	➤ Work with stakeholders to ensure all works and development within the Resort has a SEMP.	O	DEDLM	DELWP	➤ SEMPs assessed	49
6	➤ Continue to activate the Falls Creek Vegetation and Weed Management Policy through lease renewal and management process.	O	DEDLM		➤ Communication of policy via website	64
7	➤ Continue to encourage Resort stakeholders to submit identified environmental risk and issues through the Management Work Request Portal.	O	DEDLM		➤ Increased promotion and use of Portal	22
8	Road management ➤ Manage roadside weeds by spraying to the road edge. ➤ Ensure graded edges are incorporated back into road surface.	O	DIMR		➤ Annual spraying in Nov/Dec ➤ Edges intact	40 & 61

9	➤ Develop and implement a post event clean up checklist.	2022	DEDLM DIMR DMC		➤ Checklist developed and implemented	60
10	➤ Install interceptor at the over snow terminal.	2025	DIMR		➤ Interceptor installed	33
11	Pest animals in the Village ➤ Develop an integrated rabbit management plan. ➤ Implement the integrated rabbit management plan.	2022 2023	DEDLM		➤ Plan developed ➤ Plan implemented	53
12	➤ Reduce dust and improve air quality by sealing section of Pretty Valley Road.	2025			➤ Road sealed	45



ENERGY AND CLIMATE CHANGE

Climate Change and adaptation

In Victoria the impacts of climate change are predicted to cause year-round increases in temperature, more frequent and intense rainfall events, less rainfall in winter and spring, fewer frosts and harsher longer fire seasons. For the alpine areas this is likely to result in changes in amount and distribution of natural snow fall. Specific impacts from climate change include changes to or loss of rare snowpatch vegetation communities that are influenced by snow dynamics and changes in the duration of snow cover that may reduce insulation and increase exposure to hibernating Mountain Pygmy-possums. Changes in climate may also result in the migration of warmer-climate native species and provide more favourable conditions for a broader range of pest plants and animals.

Climate change presents potential risks to the existing functions of the Resort and identifying the Resort's vulnerabilities and opportunities in the context of climate change is a priority for FCARMB. The ongoing impacts of climate change over the next few decades will continue, with the long-term extent of climate change influenced by global greenhouse emissions (DELWP, 2020b). In winter, climate change risks include impacts to the length and quality of snow seasons and a greater dependency on snowmaking (DELWP, 2020b). In summer, there is a risk of limited green season tourism activities due to bushfires (DELWP, 2020b). FCARMB will continue to facilitate and support the adaptation of the snow industry and further develop Falls Creek as an all-season Resort. Climate change related shifts in storm and rainfall events, and potential changes in fire frequency may put increased pressure on Resort infrastructure. FCARMB will continue to work with its stakeholders and DELWP to understand the vulnerabilities and adaptation opportunities facing Falls Creek with a focus on systems and values that may be vulnerable to climate change or essential to the operation of the Resort.

Energy Use and Emissions

The highest levels of energy usage and associated greenhouse gas emissions by FCARMB include the consumption of electricity, LPG, petrol, and diesel. Since the introduction of the Living Bin program in 2011, emissions associated with waste deposited to landfill have reduced considerably. Increasing the proportion of green waste diverted from landfill remains a focus for FCARMB. The Victorian Government's *Climate Act 2017* legislates a long-term target of net zero greenhouse emissions by 2050, with interim targets identified. FCARMB will adopt the Victorian targets for its own operations and encourage and facilitate emission reductions across the Resort. FCARMB supports the Victoria's Climate Change Strategy by committing to activities that will reduce its emissions. FCARMB is also a Resort partner of the international organisation Protect Our Winters aimed at mobilising the outdoor sports community to take positive action against climate change.

FCARMB continue to explore options to decrease its use of non-renewable energy sources and will work towards the Victorian Government's pathway to achieve net-zero carbon emissions by reducing emissions by 28-33% by 2025. To achieve the best outcomes for the Resort, several aims involve actions that are likely to require external funding. Whilst these high-cost actions are included, this EMP focusses on measurable outcomes that are less heavily reliant on external funding sources to succeed.



Aims and Objectives

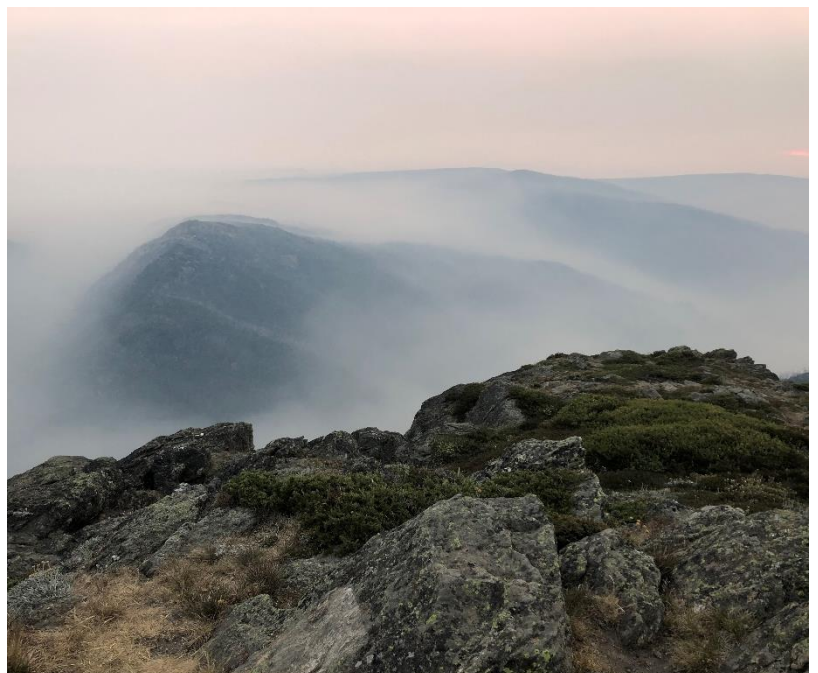
FALLS CREEK IS A LEADER IN EMISSIONS REDUCTION, ENERGY EFFICIENCY AND RENEWABLE ENERGY USAGE.

Aims

1. Reduce FCARMB's and the broader Resort's contribution to global greenhouse gas emissions.
2. FCARMB and the broader community understand their climate change vulnerabilities and adaptation opportunities.
3. Continue to support adaptation within the alpine tourism and recreation industry.
4. Ensure climate related impacts to critical infrastructure are identified and mitigated.
5. Reduce total energy use and increase use of renewable energy sources.
6. Explore and implement innovative solutions to emissions reduction.
7. Alpine species and communities are given the opportunity to adapt to changes in climate by reducing other threats and pressures.
8. Continue to educate stakeholders and visitors on climate change and potential impacts on the Australian Alps environment.

Measurable objectives

- Reduce FCARMB's contribution to global greenhouse gas emissions with a target of no net emissions by 2050; by reducing (2021) emissions by 28-33% by 2025.
- Create a Falls Creek Climate Change Adaptation Planning Strategy by 2023.
- Conduct an energy efficiency and renewable energy assessment by 2023.
- Increase the proportion of FCRM energy (gas, electricity, diesel) from renewable energy sources to 10% by 2024.



Activities and Programs to support energy and climate change objectives

	Task	Timing	Portfolio	Partners	Monitoring and Assessment	AIR item #
1	➤ Continue to monitor energy use, assess energy inefficiencies, and implement strategies to reduce electricity and LPG gas use in FCARMB facilities through changes in practice, regular maintenance, and upgrades to infrastructure.	O	DIMR		➤ Energy usage figures ➤ Asset management service logs updated	69
2	➤ Create a Falls Creek Climate Change Adaptation Planning Strategy including an assessment of energy efficiency and renewable energy for Falls Creek to guide future directions and investment in the Resort. Within this strategy, explore and support opportunities for energy efficiency upgrades and renewable energy uptake, including energy partnerships, community energy projects, etc.	2023	DIMR DEDLM	DELWP	➤ Strategy completed	69
3	➤ Calculate and track greenhouse gas emissions for FCARMB.	O	DIMR		➤ Greenhouse emissions figure estimated	69
4	Improving energy efficiency of infrastructure ➤ All new building developments or upgrades to FCARMB buildings to go beyond minimum energy efficiency and thermal performance requirements. ➤ Review slab heating use at the Plaza, Workshop and Windy Corner to identify where any improvements or efficiencies can be made. ➤ Seek to begin upgrades existing FCRM buildings to improve energy efficiency, including recladding and installing double glazed windows on ATS, administration building and at Windy Corner. ➤ Replacement of existing projects and services with lower emission options.	2023 2024 O O	DEDLM DIMR	DELWP	➤ Energy efficiency inclusions for all developments/ upgrades ➤ Review completed and implemented ➤ Begin to make upgrades to improve energy efficiency ➤ Replacement improves emission outcomes	69
5	➤ Conduct a climate change vulnerability assessment of waste and water infrastructure and ensure climate change considerations are included in new infrastructure development.	2023	DIMR		➤ Infrastructure vulnerabilities identified	72
6	Green energy ➤ Increase energy efficiency by switching to non-fossil fuel energy sources. ➤ Installation of solar at WWTP to get data on effectiveness. If effective, seek to expand roll out of solar to other infrastructure.	2024 2022	DEDLM DIMR DCS		➤ Increase in non-fossil fuel sources ➤ Review of solar implemented	70
7	➤ Continue to facilitate and support climate change adaptation in the snow industry and increase all season visitation to the Resort.	O	EDLM DMC	NE Tourism	➤ Advocating within tourism industry and funding	*

8	Vehicle fleet ➤ Continue to monitor and improve vehicle fuel efficiency and associated CO₂. ➤ Consider Electric tools/equipment where possible. ➤ Maintain updated vehicle and machinery fleet to improve vehicle fuel efficiency and explore electric powered vehicles including EVs for staff shuttles and visitor shuttles.	O O O	DIMR		➤ Fuel usage statistics ➤ Electric vehicles explored	34 & 37
9	➤ Avoid exposing soil to erosion from high rainfall events (if heavy rainfall is predicted cease or protect with covers any newly exposed soil as part of construction or trail maintenance). ➤ Explore use of soil stabilisers on MTB trails/walking trails and minimise areas of exposed soil on trails by using matting/ boardwalks/stones.	O 2025	DIMR	DELWP	➤ Ongoing trail assessments completed, and issues logged and rectified ➤ Soil stabilisers explored and steep high erosion areas minimised	43
10	Sustainable operations ➤ Explore sustainable options for superannuation and financing to use providers that do not support carbon emission industries. ➤ Carbon offset off-mountain staff commutes and all work-related travel (unless in a green vehicle). ➤ Use resources that use lower emissions or recycled materials, such as recycled road base. ➤ Continue to encourage staff to live locally and provide shuttle buses services to transport staff.	O O O O	DCS		➤ Options identified for staff ➤ All travel offset ➤ Updated purchasing policy ➤ Shuttle bus usage statistics.	69
11	➤ Support climate change related research, and monitoring programs for susceptible species and communities or new and emerging threats.	O	DEDLM	DELWP Research partners	➤ Research projects supported	66
12	➤ Continue to educate stakeholders on the risks of climate change on the alpine environment and opportunities to reduce their personal or business impacts.	O	DEDLM		➤ Climate change strategy shared with stakeholders	73
13	➤ Implement projects and programs in waste, consumption and biodiversity that reduce greenhouse gas emissions such as the living bin organics program (see other sections).	O	DEDLM DIMR		➤ See other sections	71
14	➤ Support stakeholders to provide sustainable food options and locally sourced food.	O	DEDLM		➤ Support provided via website	*
15	➤ Provide an option on the Resort Entry payment for visitors to offset their carbon getting to the mountain.	2022	DCS	Offset provider	➤ Option on website	*

16	➤ Review bush fire management policy. ➤ Implement outcomes of the recent bushfire risk assessment.	2023 2024	DEDLM DIMR		➤ Review completed ➤ Outcomes implemented	58 & 73
17	➤ Increased connectivity between fragmented patches of habitat to provide species with the opportunity to adapt to changing climatic conditions, such as through mosaiced patches.	O	DEDLM	DELWP	➤ Annual projects completed	73

*- indicates item identified as an ongoing priority, not a specific action in the AIR



MANAGEMENT INFORMED BY RESEARCH

FCARMB actively collaborates with numerous organisations and tertiary institutions to undertake relevant alpine research to enhance understanding of the unique alpine biodiversity and environment. All research undertaken in the Resort is recorded on the internal FCRM research register. Some research may undertake tasks that requires additional permits from DELWP such as the taking of flora or conducting research on animals. Around a dozen projects are usually active at any one time, with many of these being ongoing projects. The research can address a range of topics including threatened species, climate change, alpine ecology, and the monitoring of animal populations. The findings from research are regularly shared with the Resort and can inform management decisions. FCRMB is seeking to develop the Australian Alpine Research and Education facility at the ANARE shed site within the Resort. The facility hopes to support a range of education initiatives spanning citizen science, secondary and tertiary education, and professional development training and will also provide an interpretive space to showcase the current alpine research being undertaken.

Aims

1. Falls Creek has an active research program that seeks to collaborate with partner organisations and inform management of the Resort and surrounding landscape.
2. Management utilises an experimental approach to assessing and developing land management practices.

Measurable Objectives

- Research register is maintained.
- New opportunities for research to inform management is supported.



Researcher monitoring biomass of grass and wildflowers - Monash University

APPENDIX 1. UPDATED ASPECT AND IMPACTS REGISTER (2021)

The risk category has been determined by considering both the consequence of an impact occurring and its likelihood. These variables are combined in a risk matrix to give a final risk category of Low, Medium, High or Very High.

Consequence considers environmental impacts, risk of legal breaches, financial risk associated with mitigating any impact that did occur and reputation risk/losing public confidence.

Item	Aspect Category	Aspect	Detail	Risk - Describe	Possible outcome	Risk rating before recommended action	Recommended action	Resultant Risk Rating	Aligning EMP item
1	Water	Potable water supply and consumption (bore)	Extraction of water from bore	Natural Resource Use/ over extraction above license amount	Licence breach	Low	Monitor the usage and record and alarm	Low	3
2	Water	Potable water supply and consumption (bore)	Extraction of water from bore	Changes in hydrology - impacts on vegetation and habitat due to alteration to water table by extraction of water	Alteration of ecosystem due to change in water volume	Low	Undertake vegetation and ground water monitoring program	Low	3
3	Water	Potable water supply and consumption (bore)	Treatment of water for consumption	Treatment of potable water. Very small quantities of Sodium Hyper Chloride used to prevent biofilm build up - Overdose may have impact on water quality	Refer to Water Supply RMP				
4	Water	Waste water treatment and discharge	Waste water collection system (before WWTP plant)	Failure in Waste Water collection system, and contamination of waterways (breach of license)	EPA discharge licence breach and contamination of waterways	Low	Continue the current program and ongoing PM on sewer infrastructure	Low	1
5	Water	Waste water treatment and discharge	Waste water treatment	Effluent leaks or spills through accidental damage (e.g. vehicles running into tanks, landslip) and contamination of waterways	Refer to Waste Water System RMP				
6	Water	Waste water treatment and discharge	Waste water treatment	Large storm events requiring storm water to by-pass system into waterway	Overflow of WWTP into creek	Low	Undertake review of storm water management capacity including WWTP in terms of plant capacity. Redesign storm water management at WWTP plant to segregate storm water from WWTP	Low	0

7	Water	Waste water treatment and discharge	Waste water treatment	Fault/ breakdown of part of WWTP system and discharge of untreated or partially treated effluent.	Refer WWTP RMP				
8	Water	Waste water treatment and discharge	Septic tanks	Failure in integrity of septic tanks	Raw sewerage leaking to water table and possibly to creek	Medium	Review all septic tanks and determine long term plan for upgrade or replacement	Low	6
9	Water	Waste water treatment and discharge	Waste water treatment	Odour	Refer WWTP RMP				
10	Water	Waste water treatment and discharge	Waste water treatment	Impacts of discharge on waterway (when WWTP functioning) conditions- alteration of stream conditions through nutrients, sediments, pollutants, temperature.	Impact on downstream ecosystem and population of Bogong village	Low	Continue with monitoring program	Low	1
11	Water	Waste water treatment and discharge	Management of waste product	Biosolids management (risk of contamination of soil/ waterways)	Refer WWTP RMP				
12	Water	Storm water, Snowmelt collection and redistribution	Snow clearing operations	Soil disturbance and erosion, and weed spread and establishment	Damage to flora and possibly native habitat, mostly at road edges	High	Proceed with new blowing machine next season, ensure that surfaces are sound for blowing and monitor the impact of road clearing annually	Low	0
13	Water	Storm water, Snowmelt collection and redistribution	Storm water	Clogged drains, gross pollutant traps, grease traps (contamination, overflow issues/ flooding)	Erosion of embankments, overflow onto vegetation, sedimentation build up	Low	Proceed with current cleaning program and monitoring of erosion and take remedial steps if required. In addition, undertake climate change / storm modelling to identify possible events	Low	0
14	Water	Storm water, Snowmelt collection and redistribution	Storm water	Contamination from village (chemical spills, phosphate cleaners, paints, litter etc.)	Rubbish ends up in waterways	High	Install 2 more gross pollutant traps	Low	6
15	Water	Storm water, Snowmelt collection and redistribution	Storm water	Contamination from village (Weed propagules)	Refer Item 14 above				

16	Water	Storm water, Snowmelt collection and redistribution	Altered hydrology (mainly in village areas)	Altered hydrology of bogs/ wetlands by snowmelt and snow movement	Damage to hydrology due to machinery use in winter.	High	Signage and barriers to be installed and develop a dedicated plan for each bog	Low	biodiversity - 4, land - 4
17	Water	Storm water, Snowmelt collection and redistribution	Altered hydrology	Geotechnical monitoring and risk of landslip	Refer Geotech Management Plan				
18	Waste and consumption	solid waste collection, diversion and transfer station operations	Waste to landfill (overall waste levels and rates of diversion)	Products that can be recycled end up in landfill.	High emissions, cost impact to deposit landfill, will not achieve our diversion targets	High	Implement recommended feasibility study (4 bin transition), review lease contracts to assist in recycling practices, conduct a bin audit, expand current education program	Low	1, 2
19	Waste and consumption	solid waste collection, diversion and transfer station operations	Waste dumping, littering	Contamination of environment - by littering and illegal dumping	Damage to ecosystem, amenity impact, damage to reputation	Medium	Continue current practices. Investigate a litter education practice. Investigate options for reduction of smoking related litter	Low	8, 10
20	Waste and consumption	solid waste collection, diversion and transfer station operations	Odour produced from waste	Odour	Odour pollution due to improper collection, late collection etc...	Low	Waste collection contract to be enforced and managed	Low	0
21	Waste and consumption	solid waste collection, diversion and transfer station operations	Leaking, contamination from collection points or transfer station	Contamination of soils and waterways	Leakage during transfer	Low	Waste collection contract to be enforced and managed	Low	0
22	Waste and consumption	Hard to dispose of waste	Car tyres, old chemicals and poisons, bitumen in unsuitable storage locations	Contamination of soils and waterways,	Foreign matter contaminating waterways and soil due to poor storage e.g. Fuel or spa waste	Medium	Stakeholder comms re: storage of fuel, waste and risk and continue to address issues as they arise	Low	water - 6, land -7
23	Waste and consumption	Chemical storage, transport and use	Contamination due to spills, fire risk, accidents, storage failures.	Contamination of soils and waterways	Chemical storage failure causing spillage	Low	No action		0
24	Waste and consumption	Solid waste collection, diversion and transfer station operations	Collection and transportation system failure, Transfer method	Contamination of soils and waterways	Refer above Item 21				

25	Waste and consumption	Electricity supply	Powerlines	Construction/ maintenance causing veg/soil disturbance	Damage to vegetation	Medium	No action		0
26	Waste and consumption	Gas transfer, storage and use	LPG	Gas leak/ release	Safety hazard, odour, fire hazard, potential impact to village supply caused by vehicular collision, failure of component on the PG storage tank. In addition, risk is present when LPG is transported by tanker to storage facility	High	Closing top section of road on poor weather conditions to provide full road use for trucks. Investigate redundant storage tank to reduce number of deliveries in winter	Low	0
27	Waste and consumption	Fuel use by village	Fuel for locals must be transported up the hill in Jerry cans	Spills- typically small	Spills resulting in contamination and possible fire hazard	Low	No action		0
28	Waste and consumption	Fuel use by village	Heating oil tanks (UPSS underground)	Leaks in tanks	Environmental contamination from existing oil tanks (approx. 50 tanks exist). Some buildings have changed to gas fuel leaving a half full oil tank.	Medium	Seek approval for a board policy for the implementation of a lease conditions for decommissioning of old oil tanks. Implement an audit program to inspect and assess operating oil tanks. Audit program could include provision of certification from reputable contractors/consultants/certifiers	Low	9
29	Waste and consumption	Wood fire emissions	Indoor and outdoor fires	Deterioration in immediate air quality, Greenhouse contributions,	Smoke pollutants / emissions contributing to greenhouse gases	Low	No action		0
30	Waste and consumption	Administration (FCARMB)	Use and disposal of office consumables (Paper, Printer ink etc.)	Depletion of resources and generation of waste	Generation of landfill waste	Low	Develop paperless policy as part of the CCAAP. Encourage coffee mugs rather than disposable. Adopt electronic signing programs. Ensure there is adequate digitisation for storage of all documents	Low	4, 7, 8

31	Waste and consumption	Administration (FCARMB)	Purchasing	Depletion of resources/ energy efficiency in products bought (washing machines etc.), energy to transport (product miles)	Procurement of low energy rated appliances	Low	Ensure that energy rating is included in procurement criteria rather than just cost. Review suppliers for commitment to reducing environmental impact. Suggest adding environmental expectations on supplier selection	Low	3
32	Waste and consumption	Administration (FCARMB)	Events	Resources use and disposal/ waste, recyclable material going to landfill	Production of waste for events such as wrist bands, course bunting, rope etc...	Low	Trial biodegradable or compostable consumables for future events. Investigate waste reduction measures - e.g.: smart app	Low	6
33	Land Use and Development	Unleaded and diesel fuel storage and consumption	Risk of spill during re-fill, leaks.	Contamination of soils and waterways	Leaks causing fire hazard and possible contamination of soils and waterways	Medium	Install interceptor at the over snow terminal Add a spill kt to the over snow bowser	Low	10
34	Land Use and Development	Workshop and transport services, Resort management vehicles and plant	General vehicle use (resource use and emissions)	Non-renewable resource use and greenhouse gas emissions	Increased greenhouse gas emissions from all Resort vehicles. Consumption of fossil fuels high	Medium	Investigate EV's for staff shuttles and resident/visitor use - requires a business case - Refer CCAAP. This extends to tools such as brush cutters, chain saws etc.	Low	climate change energy -8
35	Land Use and Development	Workshop and transport services, Resort management vehicles and plant	Vehicles and machinery exhaust fumes/ gases	Air quality degradation	Refer item 34 above				
36	Land Use and Development	Workshop and transport services, Resort management vehicles and plant	Vehicles and machinery Oil/ fuel spills (cars, groomers, skidoos, refuelling)-	Contamination of soils and waterways	Refer item 33 above				
37	Land Use and Development	Workshop and transport services, Resort management vehicles and plant	Vehicles (Inc. helicopters/ skidoos) and machinery/ Events	Noise	Noise pollution emission exceeding limits	Low	Consider swap over petrol tools to electric tools	Low	climate change energy -8

38	Land Use and Development	Vehicles and Skidoos	Driving/ riding over sensitive areas of vegetation	Vegetation/ habitat disturbance and degradation- in particular wetlands/ bogs	Destruction of ecosystem and protected species and communities	Very High	Develop alternative and dedicated paths of travel for the vehicles, continue monitoring of bogs Install physical barriers to prevent use of bog area for transfer, until safe to do so. Implement an education program for users of recreational vehicles. Follow up on breaches of work practices by penalties in terms of not issuing over snow permits, infringements etc... Investigate over structure on bog to protect bog. Alert board to risk	Low	4
39	Land Use and Development	Road maintenance (construction-covered under general construction)	Use of salts on road as de-icing agents- mainly CaCl	Increase in salts, Na+. Cl-, Ca+ in waterways. Change in stream chemistry	Damage to ecosystem adjacent to roads and downstream due to de-icing salt	Low	Continue monitoring salt levels of adjacent streams - no action		
40	Land Use and Development	Road maintenance (construction-covered under general construction)	Roadside weeds	High weed loads and capacity to spread- particularly into the National Park caused by wind borne weeds (e.g.: blackberry, thistle, hawkweed, St Johns Wort)	Environmental weeds damaging the ecosystem	High	Establish a procedure (as part of current agreement) with VicRoads for road side spraying Internally, continue ongoing weed control program	Low	8
41	Land Use and Development	Use of fire retardants	Use in sensitive areas	e.g. bogs and threatened species habitat	Not under FCRM control as this is a DELWP responsibility	Low	Emergency management involvement with Ovens Incident Control Centre - requiring consideration of sensitive Alpine areas	Low	0
42	Land Use and Development	Development, new infrastructure, buildings, utilities, tracks, roads	Unregulated Vegetation removal	Loss of vegetation and habitat, impact on native flora and fauna, loss of natural amenity	Loss of Biodiversity	Low	No action		9

43	Land Use and Development	Development, new infrastructure, buildings, utilities, tracks, roads	Earth works and moving	Erosion, compaction and sedimentation silt movement	Loss of Biodiversity due to smothering, waterway turbidity and contamination	Low	No action		9
44	Land Use and Development	Development, new infrastructure, buildings, utilities, tracks, roads	Earth works and moving	Risk of weed spread	Loss of Biodiversity due to weed spread	Low	No action		9
45	Land Use and Development	Development, new infrastructure, buildings, utilities, tracks, roads	Earth works and moving	Dust/ reduction in air quality	Reduced air quality for users Smothering of road side plants that may be covered in dust	Medium	Asphalt the road (seal road)	Low	12
46	Land Use and Development	Development, new infrastructure, buildings, utilities, tracks, roads	Material and energy use	Depletion of resources and greenhouse gas emissions	Impact on resources and emissions due to increased development	Low	No action		0
47	Land Use and Development	Development, new infrastructure, buildings, utilities, tracks, roads	Drainage, altered hydrology	Impacts on waterways, vegetation, and habitat	Refer Item 43 above				
48	Land Use and Development	Development, new infrastructure, buildings, utilities, tracks, roads	Landscaping	Introduction of non-indigenous species.	Possible introduction of weeds. Breach of vegetation management policy	High	Further education is required with stakeholders	Low	biodiversity - 1
49	Land Use and Development	Development, new infrastructure, buildings, utilities, tracks, roads	Building construction and maintenance	Waste disposal/ materials encroaching into surrounding natural areas, waste materials left on site	Waste dumped onto surrounding areas causing damage to ecosystem	High	Consider a site inspection program managed by FCRM but funded by DELWP	Low	5

50	Land Use and Development	Bike Tracks, trails other recreation	Poor design, lack of maintenance or trail deterioration through use/ weather	Erosion and sedimentation	Smothering of vegetation, waterway turbidity, impact on ecosystem, root disturbance	Medium	Continue current trail management plan and increase trail team	Low	1
51	Land Use and Development	Walking Tracks, trails other recreation	Poor design, lack of maintenance or trail deterioration through use/ weather	Impact native flora and fauna	Smothering of vegetation, waterway turbidity, impact on ecosystem, root disturbance	Medium	Re examine walking train development plan (strategy, design and construction) and develop appropriate business case. Consider closing frying pan spur walking track (due to current state) until the development plan has been established and implemented	Low	0
52	Land Use and Development	Walking Tracks, trails other recreation	Weed/fungal propagules carried by walkers and bikers	Impact native flora and fauna	Disease spread or weed spread	Medium	Increase education program Request that Parks Vic install boot brushes at trail head prior to National Park entrance Consider boot brushes at high risk areas (higher altitude trails)	Low	1
53	Land Use and Development	Tracks, trails other recreation	Introduced fauna (pests)	Facilitate movement of pest fauna and increased predation / disturbance threat	Increases in pest fauna due to increased access by pests	Medium	Deer control options (e.g.: shooting) Aerial or ground Seek to expand pest predator work Develop integrated rabbit management plan	Low	2, 11
54	Land Use and Development	Tracks, trails other recreation	Bikes off tracks	Disturbance of vegetation and habitat	Damage to ecosystem	Low	No action		0
55	Land Use and Development	Tracks, trails other recreation	Domestic Dogs	Disturbance of native fauna	Damage to ecosystem	High	Include events information package statements re: dogs not permitted Enforce the permit system by authorised officer (ranger) - possibly outsource this resource FCRM to discuss with Alpine Shire	Low	0

56	Land Use and Development	Geotechnical	Land slips and rock falls	Erosion of soil, waterway sedimentation, loss of habitat	Damage to waterways, embankments, flora and habitat	Medium	No action		0
57	Land Use and Development	Soil stability/erosion of bare ground	Risk of erosion near watercourse or catchment area	Contamination of waterways	Waterway sedimentation due to bushfire, weed management or soil erosion	Low	No action		0
58	Land Use and Development	Bushfire protection	Removal of native vegetation	Habitat loss/alteration, Loss of visual amenity	Loss of habitat and flora due to inappropriate or non compliant bushfire protection clearing	Medium	Review of the bushfire management policy (as per AS3959) including a vegetation management plan (for clearing for bushfire protection). Review Fire Protection Plan DELWP to review and endorse	Low	biodiversity - 6, climate change energy -16
59	Land Use and Development	Contract management	Risk of environmentally inappropriate practices	Potential contamination of soils and waterways, damage or loss of native vegetation and habitat, erosion, etc.	Contractors not following Resort Management Work Practices resulting in possible damage to surroundings	Low	No action		0
60	Land Use and Development	Open spaces	Events	Trampling of sensitive native vegetation, disruption of environmental values	Damage caused by populated gatherings, traffic etc... Increased rubbish collected	Medium	Implement post event checklist and inspection Emphasise expectations in briefings	Low	9
61	Land Use and Development	Road maintenance	Grading roads/tracks	Risk of erosion, weed spread and sedimentation if grading disturbs vegetated edges	Edges damaged by grader causing damage to vegetation	Medium	Continue spraying and incorporate back into road surface	Low	8
62	Biodiversity	Introduced flora - High risk weeds such as Hawkweed	Introduction of exotic flora	Threat to biodiversity values, Loss of aesthetics	High risk weed infestations causing damage to native flora	Medium	Continue to support the program with Parks Vic Ongoing monitoring for new and emerging high risk weeds Maintain partnerships with Agriculture Vic and PV managing the program	Low	1, land -3, water - 4
63	Biodiversity	Introduced Pathogens	Spread through natural mechanisms	Impact health of native flora and fauna	Refer Item 53 above				

64	Biodiversity	Inappropriate Revegetation/ landscaping	Risk of improper revegetation of Alpine area, e.g. Alpine bog or fire effected areas	Weed spread, changes in vegetation and habitat, species introduced to areas not suited, bare areas due to unsuccessful plantings	Poor practices resulting in weed infestation and bare ground	Medium	Increased comms with stakeholders about appropriate landscaping and vegetation processes Secure supply chain of plants with local nurseries	Low	1, land - 6, biodiversity - 8
65	Biodiversity	Introduced fauna (pests)	Increase in number and spread of existing pests (trails/ tracks/ food) and new pests	Detrimental impacts on native flora and fauna (habitat destruction, competition, predation) Contribute to weed infestation	Refer Item 53 above				
66	Biodiversity	Climate change	Increased temperatures, changes in rainfall	Changes to habitat or food resources increased competition or predation pressures	Deterioration of habitat and loss of flora and fauna (i.e. significant impact on ecosystem)	Very High	Develop CCADP Support Alpine Research Centre Extend on nature-based tourism Desired outcome is to plant more plants and protect more habitat	Low	3, 5, 7 & climate change energy 12
67	Biodiversity	Loss/ degradation/ fragmentation of habitat	New Developments/ maintenance works	Impact fauna behaviour, increase predation risk reduction in population size	Refer Items 42, 43 and 44 above				
68	Biodiversity	Noise/ light	Public lighting and noise, accommodation lighting, events	Disrupt behaviour, increase predation risk, lights disorientate animals or cause fear resulting in increased risk of being hit on roads, light pollution distracts migrating moths, light pollution damages the aesthetics of the night sky	Habitat can be disrupted by lights and noise increasing the risk of death by collision on roads	Medium	No action		0
69	Energy and Climate Change	Energy Use - FCARMB operations	Lighting - accommodation, offices, streetlights	Depletion of non-renewable resources, and greenhouse emissions	Contribution to climate change, high cost to Resort	Low	Investigate transition to renewable energy and implement energy efficient requirements for building and infrastructure upgrades	Low	1, 2, 3, 4, 10
70	Energy and Climate Change	Energy Use - Broader Resort	lighting, heating, electrical goods	Depletion of non-renewable resources, and greenhouse emissions	Contribution to climate change, high cost to Resort	Low	Implement mandatory energy efficiency limits for new developments such as LED lighting, occupancy sensor lighting etc.	Low	6

71	Energy and Climate Change	Greenhouse gas emissions	From organic waste	Release of methane from organic waste in landfill	Refer Item 18 above				
72	Energy and Climate Change	Changes in climate and larger storms, higher bushfire risk	Climate change altering the weather events impacting infrastructure and the environment	Impact of larger storm events and increased risk on critical infrastructure managed by FCARMB	Major storm damage due to exceeding current storm water system capacity	High	Undertake storm water modelling as per item 13 above	Low	5, water -1
73	Energy and Climate Change	Changes in climate and higher bushfire risk	Climate change altering the weather events and fire risk impacting infrastructure and the environment	Impact of bushfire risk on critical infrastructure managed by FCARMB	Damage to infrastructure an ecosystem and contamination of water supply	Very High	Review bush fire management policy and ensure we are compliant Implement outcomes of the recent bushfire risk assessment Build resilience in current weed and pest control programs	Low	11, 16, 17

APPENDIX 2. THREATENED FLORA AND FAUNA IN THE RESORT

Falls Creek Resort vegetation communities, flora species and fauna species listed under the Flora and Fauna Guarantee Act 1988 (FFG) and the Environment Protection and Biodiversity Conservation Act 1999 (EPBC). Source: Department of Agriculture and the Environment (2021) & Department of Environment, Land, Water and Planning (2021).

	Common and scientific name	EPBC (Federal)	FFG (State)
Vegetation communities	Alpine Sphagnum Bog & Associated Fen	✓ Endangered	
	Alpine Bog community		✓
	Alpine Snowpatch community		✓
	<i>Caltha introloba</i> Herbland Community		✓
	Fen (Bog Pool) Community		✓
4 reptiles known to occur	Alpine She-oak Skink (<i>Cyclodomorphus praealtus</i>)	✓ Endangered	✓
	Alpine Water Skink (<i>Eulamprus kosciuskoi</i>)		✓
	Alpine Bog Skink (<i>Pseudemoia cryodroma</i>)	awaiting assessment due Apr-2022	✓
	Guthega Skink (<i>Liopholis guthega</i>)	✓ Endangered	✓
4 mammals known to occur	Mountain Pygmy-possum (<i>Burramys parvus</i>)	✓ Endangered	✓
	Broad-toothed Rat (<i>Mastacomys fuscus</i>)	✓ Vulnerable	✓
	Spot-tailed Quoll (<i>Dasyurus maculatus</i>)	✓ Endangered	✓
	Dingo (<i>Canis lupus dingo</i>)		✓
	Alpine Tree Frog (<i>Litoria verreauxii alpina</i>)	✓ Vulnerable	✓
2 invertebrates known to occur	<i>Riekoperla intermedia</i>		✓
	<i>Thaumatoperla alpina</i>	✓ Endangered	✓
3 flora known to occur	Shining cudweed (<i>Argyrotegium nitidulum</i>)	✓ Vulnerable	
	Mountain Daisy (<i>Brachyscome foliosa</i>)		✓
	Silky Snow Daisy (<i>Celmisia sericophylla</i>)		✓
Other possibly likely occurring species	White-throated Needletail (<i>Hirundapus caudacutus</i>)	✓ Vulnerable	✓
	Flathead Galaxias (<i>Galaxias rostratus</i>)	✓ Critically Endangered	✓
	Growling Grass Frog (<i>Litoria raniformis</i>)	✓ Vulnerable	✓
	Spotted Tree Frog (<i>Litoria spenceri</i>)	✓ Endangered	✓
	Greater Glider (<i>Petauroides Volans</i>)	✓ Vulnerable	✓
	Smoky Mouse (<i>Pseudomys fumeus</i>)	✓ Endangered	✓
	Curtis' Colobanth (<i>Colobanthus curtisiae</i>)	✓ Vulnerable	✓
	Thick Eyebright (<i>Euphrasia crassiuscula</i> subsp. <i>glandulifera</i>)	✓ Vulnerable	✓
	Bogong Eyebright (<i>Euphrasia eichleri</i>)	✓ Vulnerable	✓
	Fork-tailed Swift (<i>Apus pacificus</i>)		
Other migratory species likely to occur	Satin Flycatcher (<i>Myiagra cyanoleuca</i>)		
	Rufous Fantail (<i>Rhipidura rufifrons</i>)		
	Latham's Snipe (<i>Gallinago hardwickii</i>)		

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