



NSW National Parks and Wildlife Service

Kosciuszko Offset Project annual biodiversity report 2023–24



Acknowledgement of Country

Department of Climate Change, Energy, the Environment and Water acknowledges the Traditional Custodians of the lands where we work and live.

We pay our respects to Elders past, present and emerging.

This resource may contain images or names of deceased persons in photographs or historical content.

© 2025 State of NSW and Department of Climate Change, Energy, the Environment and Water

With the exception of photographs, the State of NSW and Department of Climate Change, Energy, the Environment and Water (the department) are pleased to allow this material to be reproduced in whole or in part for educational and non-commercial use, provided the meaning is unchanged and its source, publisher and authorship are acknowledged. Specific permission is required to reproduce photographs.

Learn more about our copyright and disclaimer at www.environment.nsw.gov.au/copyright

Artist and designer Nikita Ridgeway from Aboriginal design agency – Boss Lady Creative Designs, created the People and Community symbol.

Cover photo: Tantangara Creek, Kosciuszko National Park. Stephen Irwin/DCCEEW

Published by:

Environment and Heritage
Department of Climate Change,
Energy, the Environment and Water
Locked Bag 5022, Parramatta NSW 2124
Phone: +61 2 9995 5000 (switchboard)
Phone: 1300 361 967 (Environment and Heritage enquiries)
TTY users: phone 133 677, then ask for 1300 361 967
Speak and listen users: phone 1300 555 727, then ask for 1300 361 967

Email: info@environment.nsw.gov.au

Website: www.environment.nsw.gov.au

ISBN 978-1-923357-86-0

EH 2025/0060

March 2025



Find out more about your environment at:

www.environment.nsw.gov.au

Contents

Introduction	1
Kosciuszko Offset Project: biodiversity	1
Report structure	1
Biodiversity summary	2
Kosciuszko Offset Strategy	2
Kosciuszko offset action plans	2
Reporting on biodiversity	3
Biodiversity offset payments	3
Conservation actions to 30 June 2024	4
Adaptive management	4
Progress towards biodiversity objectives	5
Alpine she-oak skink	5
Alpine sphagnum bogs and fens	7
Alpine tree frog	9
Booroolong frog	11
Broad-toothed rat	12
<i>Caladenia montana</i>	14
Clover glycine	14
Eastern pygmy-possum	17
Gang-gang cockatoo	17
Kiandra leek orchid	18
Leafy anchor plant	21
Mauve burr-daisy	23
Masked owl	24
Max Mueller's burr-daisy	25
Raleigh sedge	26
Slender greenhood	28
Smoky mouse	28
Southern myotis	30
White-bellied sea-eagle	31
Yellow-bellied glider	33
Ecosystem: dry sclerophyll forests	33
Ecosystem: wet sclerophyll forests	34
Ecosystem: grassy woodlands	35
Ecosystem: grasslands	37

List of tables

Table 1	Biodiversity offset payments received by NPWS to 30 June 2024	3
Table 2	Biodiversity conservation actions and expenditure for 2023–24 and to 30 June 2024	4

List of figures

Figure 1	Alpine she oak skink captured and identified as part of the Kosciuszko Offset Project surveys (July 2023)	7
Figure 2	An alpine bog and fen identified and assessed in Kosciuszko National Park as part of the Kosciuszko Offset Project (February 2024)	9
Figure 3	Briefing members of the Wolgalu/Wiradjuri community Indigenous Rangers prior to commencing alpine tree frog surveys as part of the Kosciuszko Offset Project (October 2023)	11
Figure 4	Clover glycine identified as part of the Kosciuszko Offset Project surveys (November 2023)	16
Figure 5	Kiandra leek orchid identified as part of the Kosciuszko Offset Project surveys (November 2023)	20
Figure 6	Leafy anchor plant being planted in Kosciuszko National Park as part of the Kosciuszko Offset Project (April 2024)	22
Figure 7	Leafy anchor plant one week after planting in Kosciuszko National Park (April 2024)	23
Figure 8	Raleigh sedge identified as part of the Kosciuszko Offset Project surveys (February 2024)	27
Figure 9	Potential white-bellied sea-eagle nest discovered in Kosciuszko National Park during the Kosciuszko Offset Project surveys (June 2024)	32

Introduction

Kosciuszko Offset Project: biodiversity

This report sets out the biodiversity conservation actions the National Parks and Wildlife Service (NPWS) undertook in the 2023–24 financial year under the Kosciuszko Offset Project.

The biodiversity offset project is a requirement of Snowy 2.0 planning approvals. NPWS must deliver the project and report publicly on its progress.

The project manages funds provided by Snowy Hydro Limited to offset the biodiversity impact of Snowy 2.0 activities (exploratory works, main works and transmission connection) on the park.

Report structure

This report outlines conservation actions and expenditure under the biodiversity offset program.

The program aims to deliver biodiversity gains for 19 threatened species, one threatened ecological community and 4 ecosystems.

The report includes:

- a summary of actions and expenditure for 2023–24 (Table 2)
- total actions and expenditure for the project to 30 June 2024 (Table 2 and the section on progress towards biodiversity objectives)
- details on progress towards achieving Kosciuszko offset action plan objectives for offset species, threatened ecological communities and ecosystems.

A separate annual report on park management outlines actions and expenditure in 2023–24 relating to land management, recreation, heritage and park premium activities.

Interest earned for the entire offset program is reported in the park management report.

Biodiversity summary

Kosciuszko Offset Strategy

To manage the expenditure of biodiversity offsets, NPWS developed the [Kosciuszko Offset Strategy 2023](#).

The strategy establishes a framework to deliver a biodiversity gain in Kosciuszko National Park equivalent to 120% of the biodiversity loss identified in the Snowy 2.0 environmental assessments.

The strategy provides for actions that will generate a benefit exceeding requirements of the New South Wales and Australian Government offset conditions.

Specifically, this means generating a net conservation gain ('nature positive') for identified threatened species, threatened ecological communities and ecosystems.

Kosciuszko offset action plans

To deliver on the Kosciuszko Offset Strategy, NPWS is developing Kosciuszko offset action plans for the 24 impacted threatened species, threatened ecological communities and ecosystems listed in the Kosciuszko Offset Strategy.

To date, NPWS and the Commonwealth Department of Climate Change, Energy, the Environment and Water have approved 3 offset action plans.

These relate to the:

- alpine tree frog
- broad-toothed rat
- smoky mouse.

You can access these plans on the [Kosciuszko Offset Project webpage](#).

Kosciuszko offset action plans provide detail on:

- objectives and targets
- specific actions
- threats being addressed
- locations within the national park where actions will take place, when these actions will occur, and costs associated with each action.

Kosciuszko offset action plans also detail how biodiversity benefits will be measured. This includes:

- attributes to be measured
- metric used
- methodology and monitoring design
- timing and frequency of measurement
- associated costs.

The remainder of this report sets out progress towards action plan objectives.

Reporting on biodiversity

The Kosciuszko Offset Strategy outlines annual reporting requirements for impacted species and communities. These requirements include:

- setting out expenditure from the biodiversity offset fund on agreed actions under the Kosciuszko offset action plans
- outlining any interest earned and reinvested into the offset program
- providing details about the conservation actions carried out for each approved threatened species, threatened ecological community and ecosystem Kosciuszko offset action plan
- specific and measurable details on progress towards each Kosciuszko offset action plan objective that has been delivered (that is, the proportion of the proposed conservation actions achieved and proportion yet to be achieved, if known) and provide a summary of monitoring data on the effectiveness of conservation actions
- documenting where adaptive management principles have been applied to each Kosciuszko offset action plan to improve the effectiveness of the plans.

Biodiversity offset payments

NPWS will receive up to \$92.9 million in biodiversity offsets. As of 30 June 2024, NPWS has received \$78.1 million in biodiversity offsets, including \$25,346,027 in 2023–24 (Table 1).

The planning approval allows the main works biodiversity offset payment to be released in stages, with 80% of the total payment (\$59.04 million) paid over the first 3 years.

The payment of the remaining 20% (\$14.76 million) is conditional on the final disturbance area. The intent of this condition is to create an incentive for Snowy Hydro Limited to reduce the disturbance area and biodiversity impacts of Snowy 2.0 on Kosciuszko National Park.

If Snowy Hydro Limited reduces the disturbance area by the full 20%, biodiversity offset payments will total \$78.1 million rather than \$92.9 million. This will be determined in 2024–25.

Table 1 Biodiversity offset payments received by NPWS to 30 June 2024

Project phase	Offset payment date	Amount
Exploratory works	February 2019	\$5,548,223
Exploratory works modification 1	February 2020	\$2,639,697
Exploratory works modification 2	May 2020	\$304,990
Main works	October 2020, September 2021, October 2022, October 2023	\$59,040,000
Transmission connection	September 2023	\$10,586,027
Total		\$78,118,937

Conservation actions to 30 June 2024

Governance arrangements allow for any time-critical actions to commence before the relevant Kosciuszko offset action plan is completed and approved. This includes actions such as species surveys and intensive weed and feral animal control.

This is why conservation actions have commenced for some species, as shown in Table 2.

In 2023–24, a total of \$315,301 in biodiversity offsets were spent, with the majority of expenditure being on species surveys. Overall biodiversity offset expenditure to 30 June 2024 is \$533,347 (Table 2).

Table 2 Biodiversity conservation actions and expenditure for 2023–24 and to 30 June 2024

Species/threatened ecological community	Conservation actions	Expenditure 2023–24	Total expenditure to 30 June 24
Alpine bogs and fens	Surveys	\$15,379	\$15,379
Alpine she-oak skink	Surveys, purchase predator monitoring cameras	\$30,823	\$30,823
Alpine tree frog	Surveys, chytrid research, engagement of biometrician	\$80,526	\$134,376
Booroolong frog	Surveys, engagement of biometrician	\$17,553	\$17,553
Broad-toothed rat	Surveys (in-house)	\$315	\$315
Ecosystem – grassy woodlands	Fencing to protect bogs and fens and threatened species habitat. Species monitoring	\$0	\$113,299
Ecosystem – grassy woodlands	Orange hawkweed management including spraying and aircraft hire	\$63,030	\$63,030
Ecosystem – grasslands	Ox-eye daisy management	\$0	\$27,652
Kiandra leek orchid	Surveys, flora assessments	\$1,839	\$1,839
Leafy anchor plant	Seed collection, propagation, planting	\$1,466	\$1,466
Smoky mouse	Surveys, purchase predator monitoring cameras	\$95,077	\$118,322
Southern myotis	Surveys, purchase of echo meters	\$4,535	\$4,535
White-bellied sea-eagle	Surveys, purchase of equipment	\$4,758	\$4,758
Total		\$315,301	\$533,347

Adaptive management

Adaptive management is a key principle of the Kosciuszko Offset Strategy and Kosciuszko offset action plans. Adjusting and adapting actions plans as they progress will help to achieve the objectives for each species, threatened ecological community and impacted ecosystem. Annual reports will document the use of adaptive management principles in the Kosciuszko Offset Strategy and Kosciuszko offset action plans.

As only 3 action plans have been approved as of 30 June 2024, and implementation is at an early stage, adaptive management principles have not yet been applied.

Progress towards biodiversity objectives

Each Kosciuszko offset action plan includes a specific and measurable objective.

Action plans also include details on:

- how biodiversity benefits will be measured
- the attributes to be measured
- the metric used
- methodology and monitoring design
- timing and frequency of measurement
- associated costs.

Biodiversity annual reports include details on progress towards each action plan objective. They also summarise monitoring data to demonstrate the effectiveness of conservation actions where possible.

Most action plans are still in development. Actions to date focus on baseline surveys and identifying suitable areas within Kosciuszko National Park for offset actions to be implemented.

Until key threatening processes are addressed (which is likely to commence in 2025–26), it is too early to assess and report on outcomes and progress towards each objective.

The remainder of this section summarises the available survey information or monitoring data to date for each species, threatened ecological community and impacted ecosystem.

Alpine she-oak skink

Kosciuszko offset action plan status

Draft.

Objective

To increase the population of alpine she-oak skinks in Kosciuszko National Park by 256 individuals.

Attribute to be measured

Population (metric = density).

Progress towards objective as of 30 June 2024

Attribute	Progress
Population gain	Too soon to measure (256 remaining)
Percentage gain	0% (100% remaining)

Actions/costs to 30 June 2024

Action	Cost
Surveys	\$0 (in-house)
Cameras – predator monitoring	\$30,823
Total	\$30,823

Results/data/metrics to 30 June 2024

Surveys

Surveys occurred across 9 sites in Kosciuszko National Park during the 2023–24 field survey season. These sites were Cascades, Summit Road, Perisher Valley and Rennix Gap, Valentines, Nungar Plains, Kiandra, Long Plain, Happy Jacks, and Grey Mare.

A total of 50 new and 23 recaptured alpine she-oak skinks were detected in 2023–24. The largest number of individuals detected were at Long Plain for both new and recaptured individuals.

The total number of new and recaptured alpine she-oak skink were less than the 2022–23 season. This reduction can be explained by:

- incomplete surveys due to less-than-ideal weather conditions (the 2023–24 summer season in the alps was hotter and drier than the previous season, and anecdotally, the likelihood of detecting alpine she-oak skinks appears to increase during wetter, cooler air temperatures between 8 and 25 degrees Celsius)
- evidence of impacts from feral animals, including pigs, rabbits and horses.

Predator monitoring

Over the 2023–24 summer season, a feral predator monitoring program was undertaken in northern Kosciuszko National Park. The program aims to determine the density of feral cats and occupancy of European red fox and evaluate the effectiveness of commonly used feral predator control techniques (trapping and baiting).

- 70 white light cameras were set up in a grid arrangement to investigate current cat and fox numbers.
- Data analysis is currently underway for this program. Preliminary results show that across the 70 cameras, 46 contained images of cats and 43 contained images of foxes.

Actions planned for 2024–25

Action	Cost
Surveys	\$0 (in-house)



Figure 1 Alpine she oak skink captured and identified as part of the Kosciuszko Offset Project surveys (July 2023). Photo: Jacinda Dromgold/DCCEEW

Alpine sphagnum bogs and fens

Kosciuszko offset action plan status

Draft.

Objective

To deliver the equivalent restoration of 1.24 hectares of bogs and fens in Kosciuszko National Park.

Attribute to be measured

Bog and fen condition (metric = bog and fen condition score and extent of sphagnum moss cover).

Progress towards objective as of 30 June 2024

Attribute	Progress
Restoration gain	Too soon to measure (1.24 hectares remaining)
Percentage gain	0% (100% remaining)

Actions/costs to 30 June 2024

Action	Cost
Surveys	\$15,379
Total	\$15,379

Results/data/metrics to 30 June 2024

In February 2024, surveys and site identification works within Kosciuszko National Park were undertaken in collaboration with an external expert ecologist. The main objective of this work was to identify priority offset sites and actions to meet the objectives of the Kosciuszko offset action plan for alpine bogs and fens.

The 5 priority bogs and fens sites identified in the action plan (via a desktop assessment – action 1) were surveyed in the field for their suitability as offsets areas. As a result of these field surveys (action 2 in the action plan), all 5 sites were deemed unsuitable by the expert ecologist. This was due to the sites either not containing the threatened community, being burnt or having a low likelihood of improvement due to minimal threatening processes in the area.

An additional 7 sites were field surveyed based on aerial photograph interpretation. Of the 7 additional identified sites, 2 were determined to be high priority and suitable as offset areas. These sites are Blanket Plain and Wild Horse Plain. The habitat containing sphagnum moss in these areas was found to be in a severely degraded condition and when restored, would give the greatest biodiversity gain.

Actions such as fencing and weed control will occur to increase the cover of sphagnum moss and improve the overall condition of the bog and fen community.

It was determined that the protection and restoration of these 2 areas could provide an increase in bog and fen habitat of between 1.2 and 2.4 hectares. This would meet the objectives of the Kosciuszko offset action plan.

Actions planned for 2024–25

Action	Cost
Surveys	\$0 (in-house)
Fencing	\$243,000



Figure 2 An alpine bog and fen identified and assessed in Kosciuszko National Park as part of the Kosciuszko Offset Project (February 2024). Photo: Jacinda Dromgold/DCCEEW

Alpine tree frog

Kosciuszko offset action plan status

Approved April 2024.

Objective

To increase the population of alpine tree frogs in Kosciuszko National Park by 1,620 individuals.

Attribute to be measured

Population (metric = index of relative abundance to generate density estimates).

Progress towards objective as of 30 June 2024

Attribute	Progress
Population gain	Too soon to measure (1,620 remaining)
Percentage gain	0% (100% remaining)

Actions/costs to 30 June 2024

Action	Cost
Surveys	\$23,861
Chytrid research and management	\$110,200
Action plan professional editing	\$315
Total	\$134,376

Results/data/metrics to 30 June 2024

Surveys

This was the first alpine tree frog survey and monitoring season under the Kosciuszko offset action plan. A total of 265 alpine tree frogs were recorded over 14 sites in 2023–24 (an average of 19 frogs per site with 3 surveys conducted per site).

Members of the Wolgalu/Wiradjuri community Indigenous Rangers program were trained in surveying techniques and participated in the surveys for this species.

All surveyors were assessed for their surveying capabilities for alpine tree frogs. An interim report developed by an independent biometrician resulted in a credibility interval of 95%, indicating that the results generated by trainee surveyors were similar to the results generated by experienced surveyors.

Chytrid research

Chytrid research that will assist with future management of threatened frogs in Kosciuszko National Park is being undertaken at the University of Melbourne as part of an Australian Research Council Linkage Project. This work focuses on the southern corroboree frog as there was the opportunity to access large numbers of individuals through the breeding program at Taronga Zoo and Melbourne Zoo. However, the results are applicable to all threatened frogs in Kosciuszko National Park including alpine tree frog.

This research to date has focused on several key areas:

- determining variation in susceptibility to the amphibian chytrid fungus
- whole of genome sequencing of the southern corroboree frog and a non-susceptible species – the common eastern froglet
- potential application of synthetic biology (genetic modification) to achieve resistance to chytrid
- legislation and social licence around the use of genetic modification for conservation.

A major outcome from this work so far is the completion of works examining variation in susceptibility to chytrid fungus in the southern corroboree frog. The genetics underpinning this variation is currently being explored with a view to establishing a program to selectively breed for resistance in this species.

Actions planned for 2024–25

Action	Cost
Surveys	\$30,000
Chytrid research and management	\$39,800



Figure 3 Briefing members of the Wolgalu/Wiradjuri community Indigenous Rangers prior to commencing alpine tree frog surveys as part of the Kosciuszko Offset Project (October 2023). Photo: Jacinda Dromgold/DCCEEW

Booroolong frog

Kosciuszko offset action plan status

Draft.

Objective

To increase the population of Booroolong frogs in Kosciuszko National Park by 428 individuals.

Attribute to be measured

Population (metric = index of relative abundance).

Progress towards objective as of 30 June 2024

Attribute	Progress
Population gain	Too soon to measure (428 remaining)
Percentage gain	0% (100% remaining)

Actions/costs to 30 June 2024

Action	Cost
Surveys including site identification	\$17,533
Total	\$17,553

Results/data/metrics to 30 June 2024

This was the first offset related survey and monitoring season for the Booroolong frog under the Kosciuszko offset action plan. The survey recorded 138 Booroolong frogs over 8 sites in Kosciuszko National Park (an average of 17 frogs per site with one survey conducted per site).

The monitoring differed from previous non-offset program surveys as under the Kosciuszko Offset Project, members of the Wolgalu/Wiradjuri community (Indigenous Rangers) were trained in survey and monitoring techniques for this species (as well as for alpine tree frog surveys).

Assessment by an independent biometrician found that ongoing training is required for trainee surveyors (this will continue in 2024–25), and the use of abundance categories (such as rare, occasional, frequent and common) could increase survey credibility.

Actions planned for 2024–25

Action	Cost
Surveys	\$30,000

Broad-toothed rat

Kosciuszko offset action plan status

Approved April 2024.

Objective

To increase the population of broad-toothed rats in Kosciuszko National Park by 389 individuals.

Attribute to be measured

Population (metric = density).

Progress towards objective as of 30 June 2024

Attribute	Progress
Population gain	Too soon to measure (389 remaining)
Percentage gain	0% (100% remaining)

Actions/costs to 30 June 2024

Action	Cost
Surveys	\$0 (in-house)
Action plan professional editing	\$315
Total	\$315

Results/data/metrics to 30 June 2024

In 2023, a park-wide presence/absence survey was conducted to monitor broad-toothed rats across Kosciuszko National Park. This included collecting scats for the genotyping project to better understand species distribution. This work was completed in May 2024 with 114 surveys completed and 314 scats collected.

Broad-toothed rats were recorded as present at 87 sites and absent at 27 sites. Of the 168 tissue samples collected from across the broad-toothed rat geographic range and sent for genotyping, 107 produced clear and robust genotypes and were used for population genetic analysis.

Additional to tissue samples collected in Kosciuszko National Park, samples were also collected from 3 locations in Victoria (Mt Buller, Mt Baw Baw and Alpine National Park), and in Barrington Tops National Park in New South Wales.

From the single nucleotide polymorphisms developed from the above work, 81 genetic markers were generated for testing on scat deoxyribonucleic acid (DNA). This genetic work is hypothesised to be able to determine the number of individuals within a population.

Results on the testing of these markers on scat DNA are pending.

Actions planned for 2024–25

Action	Cost
Surveys	\$0 (in-house)

Caladenia montana

Kosciuszko offset action plan status

Draft.

Objective

To increase the population of *Caladenia montana* in Kosciuszko National Park by 1,096 individuals.

Attribute to be measured

Number of plants (metric = density).

Progress towards objective

Attribute	Progress
Population gain	Too soon to measure (1,096 remaining)
Percentage gain	0% (100% remaining)

Actions/costs to 30 June 2024

Nil.

Results/data/metrics to 30 June 2024

Nil.

Actions planned for 2024–25

Action	Cost
Surveys	\$2,000

Clover glycine

Kosciuszko offset action plan status

Draft.

Objective

To increase the population of clover glycine in Kosciuszko National Park by 28 individuals.

Attribute to be measured

Number of plants (metric = density).

Progress towards objective

Attribute	Progress
Population gain	Too soon to measure (28 remaining)
Percentage gain	0% (100% remaining)

Actions/costs to 30 June 2024

Action	Cost
Surveys	\$0 (in-house)
Total	\$0

Results/data/metrics to 30 June 2024

In November 2023, a survey of known species locations in Gulf Plain in Kosciuszko National Park was undertaken. These surveys confirmed species presence and provided additional information on the extent of each clover glycine population. Additional plants in a previously unknown site were located on the western and eastern side of Pedens Trail in Kosciuszko National Park.

Future population monitoring will be undertaken in collaboration with the Assets of Intergenerational Significance program.

Monitoring plots will be established (5 metres by 5 metres) to:

- gain a greater understanding of the broader population,
- confirm offset areas, and
- identify threats perceived to be impacting species prevalence.

Actions planned for 2024–25

Action	Cost
Surveys	\$1,000



Figure 4 Clover glycyne identified as part of the Kosciuszko Offset Project surveys (November 2023). Photo: Jacinda Dromgold/DCCEEW

Eastern pygmy-possum

Kosciuszko offset action plan status

Draft.

Objective

To increase the population of eastern pygmy-possums in Kosciuszko National Park by 228 individuals.

Attribute to be measured

Population (metric = density).

Progress towards objective

Attribute	Progress
Population gain	Too soon to measure (228 remaining)
Percentage gain	0% (100% remaining)

Actions/costs to 30 June 2024

Nil.

Results/data/metrics to 30 June 2024

Nil.

Actions planned for 2024–25

Action	Cost
Surveys including purchase of survey equipment	\$5,000

Gang-gang cockatoo

Kosciuszko offset action plan status

Draft.

Objective

To increase the population of gang-gang cockatoos in Kosciuszko National Park by one individual.

Attribute to be measured

Population (metric = density).

Progress towards objective

Attribute	Progress
Population gain	Too soon to measure (1 remaining)
Percentage gain	0% (100% remaining)

Actions/costs to 30 June 2024

Action	Cost
Site visits	\$0 (in-house)
Total	\$0

Results/data/metrics to 30 June 2024

Site visits to known species foraging habitat around Log Bridge in Kosciuszko National Park visually identified the presence of 7 adults with a mixture of females and males.

A potential nest hollow tree was identified, however no proof of use for breeding was able to be determined during the 2023–24 season.

Actions planned for 2024–25

Action	Cost
Surveys – nest searches	\$1,000

Kiandra leek orchid

Kosciuszko offset action plan status

Draft.

Objective

To increase the population of Kiandra leek orchids in Kosciuszko National Park by 195 individuals.

Attribute to be measured

Number of plants (metric = density).

Progress towards objective

Attribute	Progress
Population gain	Too soon to measure (195 remaining)
Percentage gain	0% (100% remaining)

Actions/costs to 30 June 2024

Action	Cost
Flora assessment	\$1,839
Total	\$1,839

Results/data/metrics to 30 June 2024

In November 2023, a survey of Nungar Plain in Kosciuszko National Park was undertaken to confirm the species presence and/or absence.

Following the positive identification of Kiandra leek orchid, populations were surveyed in November 2023 and again in December 2023 to capture any late-flowering individuals and assess the extent of the population. As a result of this work, the location of monitoring plots has been determined. These will be established in 2024–25.

Data will be collected on the timing of flowering and the number of individuals in each population between years.

Threat assessments will also be carried out within the monitoring plots, focussing on weed and feral animal impacts.

Actions planned for 2024–25

Action	Cost
Surveys and threat assessments	\$1,000



Figure 5 Kiandra leek orchid identified as part of the Kosciuszko Offset Project surveys (November 2023). Photo: Jacinda Dromgold/DCCEEW

Leafy anchor plant

Kosciuszko offset action plan status

Draft.

Objective

To increase the population of leafy anchor plants in Kosciuszko National Park by 54 individuals.

Attribute to be measured

Number of plants to reach established maturity (metric = number of plants).

Progress towards objective

Attribute	Progress
Numerical gain	Too soon to measure (54 remaining)
Percentage gain	0% (100% remaining)

Actions/costs to 30 June 2024

Action	Cost
Seed collection, propagation and planting	\$1,466
Total	\$1,466

Results/data/metrics to 30 June 2024

Sixty leafy anchor plants were grown at the Australian Botanic Garden Mount Annan nursery as part of the restoration of the species under the Kosciuszko Offset Project. These plants were grown from seed collected under the Saving Our Species program.

In April 2024, 3 individuals were planted into the lower section of Racecourse Creek in Kosciuszko National Park as an initial trial, as this was the first-time leafy anchor plant had been replanted in the park. Individual guards were placed around each plant for protection against foraging and trampling by wild horses.

Pending the results of this trial, the remaining 57 plants will be planted in Kosciuszko National Park in March 2025. As at the beginning of August 2024, all 3 individual plants appear to have survived to date.

If all 60 plants do grow successfully and are sustainable in the park, this will satisfy the objective of the Kosciuszko offset action plan for leafy anchor plant.

Actions planned for 2024–25

Action	Cost
Seed collection, planting, fencing	\$5,000



Figure 6 Leafy anchor plant being planted in Kosciuszko National Park as part of the Kosciuszko Offset Project (April 2024). Photo: Lewis McPherson/DCCEEW



Figure 7 Leafy anchor plant one week after planting in Kosciuszko National Park (April 2024). Photo: Jacinda Dromgold/DCCEEW

Mauve burr-daisy

Kosciuszko offset action plan status

Draft.

Objective

To increase the population of mauve burr-daisies in Kosciuszko National Park by 5,678 individuals.

Attribute to be measured

Number of plants (metric = density).

Progress towards objective

Attribute	Progress
Numerical gain	Too soon to measure (5,678 remaining)
Percentage gain	0% (100% remaining)

Actions/costs to 30 June 2024

Action	Cost
Site visits	\$0 (in-house)
Total	\$0

Results/data/metrics to 30 June 2024

In November 2023, site visits to Nungar Plain and Gulf Plain in Kosciuszko National Park were undertaken to confirm the species presence.

The site visits confirmed species presence at proposed offset areas.

Records of clusters of mauve burr-daisies were marked with pins and sites recorded were geo-referenced.

Plot monitoring will be established in November 2024.

Actions planned for 2024–25

Action	Cost
Surveys and monitoring	\$0 (in-house)

Masked owl

Kosciuszko offset action plan status

Draft.

Objective

To increase the population of masked owls in Kosciuszko National Park by one individual.

Attribute to be measured

Population (metric = density).

Progress towards objective

Attribute	Progress
Number	Too soon to measure (1 remaining)
Percentage	0% (100% remaining)

Actions/costs to 30 June 2024

Nil.

Results/data/metrics to 30 June 2024

Nil.

Actions planned for 2024–25

Action	Cost
Surveys	\$1,000

Max Mueller’s burr-daisy

Kosciuszko offset action plan status

Draft.

Objective

To increase the population of Max Mueller’s burr-daisies in Kosciuszko National Park by 468 individuals.

Attribute to be measured

Number of plants (metric = density).

Progress towards objective

Attribute	Progress
Numerical gain	Too soon to measure (468 remaining)
Percentage gain	0% (100% remaining)

Actions/costs to 30 June 2024

Action	Cost
Surveys	\$0 (in-house)
Total	\$0

Results/data/metrics to 30 June 2024

In November 2023, a survey of Nungar Plain in Kosciuszko National Park was undertaken to confirm the species distribution and presence. This survey confirmed the presence of Max Mueller’s burr-daisies within the proposed offset area.

The locations of individual plants were marked with pins and the sites recorded were geo-referenced.

Plot monitoring will be established in November/December 2024.

Actions planned for 2024–25

Action	Cost
Surveys and monitoring	\$0 (in-house)

Raleigh sedge

Kosciuszko offset action plan status

Draft.

Objective

To increase the population of raleigh sedges in Kosciuszko National Park by 77 individuals.

Attribute to be measured

Number of plants (metric = density).

Progress towards objective

Attribute	Progress
Numerical gain	Too soon to measure (77 remaining)
Percentage gain	0% (100% remaining)

Actions/costs to 30 June 2024

Action	Cost
Site visits and surveys	\$0 (included in bog and fen assessments)
Total	\$0

Results/data/metrics to 30 June 2024

During the Kosciuszko Offset Project alpine bog and fen assessments that occurred in February 2024, a new population of potential raleigh sedge was discovered by an alpine flora expert.

Kosciuszko Offset Project annual biodiversity report 2023–24

Line-delineation surveys were conducted around plant locations and each site was geo-referenced. This method provided a visual representation of the plant’s distribution at the site. Line surveys extended 3 metres from all locations.

Surveys concluded when either no plants could be detected, or presence of the species significantly declined. This approach was taken to determine the spread of plants locally and to assist in the selection of the most appropriate places to establish as ongoing monitoring sites.

Samples of the species were collected and sent to the New South Wales herbarium for species confirmation. If determined to be raleigh sedge, a monitoring plot will be established for future monitoring.

Actions planned for 2024–25

Action	Cost
Surveys	\$1,000



Figure 8 Raleigh sedge identified as part of the Kosciuszko Offset Project surveys (February 2024). Photo: Jacinda Dromgold/DCCEEW

Slender greenhood

Kosciuszko offset action plan status

Draft.

Objective

To increase the population of slender greenhoods in Kosciuszko National Park by 720 individuals.

Attribute to be measured

Number of plants (metric = density).

Progress towards objective

Attribute	Progress
Numerical gain	Too soon to measure (720 remaining)
Percentage gain	0% (100% remaining)

Actions/costs to 30 June 2024

Nil.

Results/data/metrics to 30 June 2024

Nil.

Actions planned for 2024–25

Action	Cost
Surveys	\$1,000

Smoky mouse

Kosciuszko offset action plan status

Approved September 2023.

Objective

To increase the population of smoky mice in Kosciuszko National Park by 413 individuals.

Attribute to be measured

Population (metric = density).

Progress towards objective

Attribute	Progress
Population gain	Too soon to measure (413 remaining)
Percentage gain	0% (100% remaining)

Actions/costs to 30 June 2024

Action	Cost
Surveys	\$85,353
Cameras – predator monitoring	\$32,594
Action plan professional editing	\$375
Total	\$118,322

Results/data/metrics to 30 June 2024

Surveys

Smoky mouse surveys commenced at 10 locations specifically for the Kosciuszko Offset Project across Kosciuszko National Park.

Surveys across the 10 locations have included 240 grid cells (with most sites containing 25 grid cells with each cell being 200 hectares), covering a total of 48,000 hectares of the park.

Smoky mice have been detected at 5 of the 10 locations with one other site having a possible sighting (to be confirmed).

Predator monitoring

Over the 2023–24 summer season, a feral predator monitoring program was undertaken in northern Kosciuszko National Park. The program aims to determine the density of feral cats and occupancy of European red fox and evaluate the effectiveness of commonly used feral predator control techniques (trapping and baiting).

- 70 white light cameras were set up in a grid arrangement to investigate current cat and fox numbers.
- Data analysis is currently underway for this program. Preliminary results show that across the 70 cameras, 46 contained images of cats and 43 contained images of foxes.

Actions planned for 2024–25

Action	Cost
Surveys	\$96,000

Southern myotis

Kosciuszko offset action plan status

Draft.

Objective

To increase the population of southern myotis' in Kosciuszko National Park by 29 individuals.

Attribute to be measured

Population (metric = density).

Progress towards objective

Attribute	Progress
Number	Too soon to measure (29 remaining)
Percentage	0% (100% remaining)

Actions/costs to 30 June 2024

Action	Cost
Echo meters	\$4,535
Habitat suitability assessments	\$0 (in-house)
Surveys	\$0 (in-house)
Total	\$4,535

Results/data/metrics to 30 June 2024

Southern myotis was an offset credit species identified by an assumed presence. One of the targets of the southern myotis draft Kosciuszko offset action plan is to determine actual presence of the species in Kosciuszko National Park.

In November 2023, habitat suitability assessments were conducted to determine appropriateness of locations to undertake active night auditory surveys. These assessments determined 3 locations within Kosciuszko National Park – Jounama Creek, Three-Mile Dam and Talbingo Reservoir – as having potentially suitable habitat.

In March 2024 surveys determined, with 90% accuracy, the species presence at Jounama Creek and Talbingo Reservoir. Confidence in this identification is additionally supported by the trapping of southern myotis around Geehi in Kosciuszko National Park in 2021, which has similar habitat features, including altitude.

Data collected from the March 2024 southern myotis surveys was sent to the Saving Our Species artificial intelligence project. This project is halfway through its four-year tenure that deploys a Deep-Learning Convolutional Neural Network to identify bat calls down to the species level. As this software is developed, and additional reference calls are added, it is anticipated that the identification accuracy will be enhanced. Surveys for southern myotis will

continue at these locations and any other identified locations to support the development of this software through additional data collection.

Actions planned for 2024–25

Action	Cost
Surveys	\$5,000
Artificial bat bunker purchase and installation	\$28,000

White-bellied sea-eagle

Kosciuszko offset action plan status

Draft.

Objective

To increase the population of white-bellied sea-eagles in Kosciuszko National Park by 12 individuals.

Attribute to be measured

Population (metric = density).

Progress towards objective

Attribute	Progress
Population gain	Too soon to measure (12 remaining)
Percentage	0% (100% remaining)

Actions/costs to 30 June 2024

Action	Cost
Surveys and habitat suitability assessments	\$4,758
Total	\$4,758

Results/data/metrics to 30 June 2024

In November 2023, habitat suitability assessments to identify potential nest locations for white-bellied sea-eagle were conducted. These assessments determined priority areas for repeat behaviour watching surveys.

Over Autumn and Winter 2024, 5 behaviour watching surveys occurred at sites within Kosciuszko National Park including Denison campground (Eucumbene), Talbingo, Blowering Dam wall and Log Bridge, and one nest investigation.

Kosciuszko Offset Project annual biodiversity report 2023–24

What is assumed to be one breeding pair and 2 juveniles were recorded around Blowering Dam wall, one juvenile recorded near Log Bridge, one breeding pair recorded near Talbingo Reservoir, and one breeding pair recorded near Denison campground (Eucumbene).

Four nests were located and were investigated for signs of activity. Upon inspection, 2 nests were either smaller than anticipated and therefore unlikely to be white-bellied sea-eagle nests or had become unusable as a result of the 2019–20 fires. The other 2 nests were large and intact but showed no signs of activity below or nearby to where the nests were found.

All nests were close to the water and were surrounded by vegetation which was impacted by the 2019–20 bushfires.

Actions planned for 2024–25

Action	Cost
Artificial nest build	\$10,000



Figure 9 Potential white-bellied sea-eagle nest discovered in Kosciuszko National Park during the Kosciuszko Offset Project surveys (June 2024). Photo: Jacinda Dromgold/DCCEEW

Yellow-bellied glider

Kosciuszko offset action plan status

Draft.

Objective

To increase the population of yellow-bellied gliders in Kosciuszko National Park by 3 individuals.

Attribute to be measured

Population (metric = density).

Progress towards objective

Attribute	Progress
Population gain	Too soon to measure (13 remaining)
Percentage	0% (100% remaining)

Actions/costs to 30 June 2024

Nil.

Results/data/metrics to 30 June 2024

Nil.

Actions planned for 2024–25

Nil.

Ecosystem: dry sclerophyll forests

Kosciuszko offset action plan status

Draft.

Objective

To deliver the equivalent restoration of 361 hectares of dry sclerophyll forests in Kosciuszko National Park.

Attribute to be measured

Vegetation integrity (metric = condition score based on composition, structure and function).

Progress towards objective

Attribute	Progress
Area gain	Too soon to measure (361 hectares remaining)
Percentage	0% (100% remaining)

Actions/costs to 30 June 2024

Action	Cost
Desktop analysis	\$0 (in-house)
Site assessments	\$0 (in-house)
Total	\$0

Results/data/metrics to 30 June 2024

Nine sites were assessed via a desktop analysis with 7 of those sites including an on-site assessment for suitability as an offset area within Kosciuszko National Park. Preliminary site assessments focused on access, terrain and powerline easements. The 7 sites assessed via an on-site assessment were all considered feasible for works during dry weather only and will be assessed further next year

Actions planned for 2024–25

Action	Cost
Desktop analyses to determine site prioritisation	\$0 (in-house)
Site visits to prioritised locations	\$0 (in-house)
Calculation of offset area to contribute towards the action plan objective	\$0 (in-house)
Scotch broom management surveillance flight	\$16,000

Ecosystem: wet sclerophyll forests

Kosciuszko offset action plan status

Draft.

Objective

To deliver the equivalent restoration of 146 hectares of wet sclerophyll forests in Kosciuszko National Park.

Attribute to be measured

Vegetation integrity (metric = condition score based on composition, structure and function).

Progress towards objective

Attribute	Progress
Area gain	Too soon to measure (146 hectares remaining)
Percentage	0% (100% remaining)

Actions/costs to 30 June 2024

Action	Cost
Desktop analysis	\$0 (in-house)
Site assessments	\$0 (in-house)
Total	\$0

Results/data/metrics to 30 June 2024

Seven sites were assessed via a desktop analysis with 5 of those sites including an on-site assessment for suitability as an offset area within Kosciuszko National Park. Preliminary site assessments focused on access, terrain and weed cover. The 5 sites assessed via an on-site assessment were all considered feasible for works and will be assessed further next year

Actions planned for 2024–25

Action	Cost
Desktop analyses to determine site prioritisation	\$0 (in-house)
Site visits to prioritised locations	\$0 (in-house)
Calculation of offset area to contribute towards the action plan objective	\$0 (in-house)

Ecosystem: grassy woodlands

Kosciuszko offset action plan status

Draft.

Objective

To deliver the equivalent restoration of 629 hectares of grassy woodlands in Kosciuszko National Park.

Attributes to be measured

Vegetation integrity (metric = condition score based on composition, structure and function).

Progress towards objective

Attribute	Progress
Area gain	Too soon to measure (629 hectares remaining)
Percentage	0% (100% remaining)

Actions/costs to 30 June 2024

Action	Cost
Desktop analysis	\$0 (in-house)
Site assessments	\$0 (in-house)
Horse exclosure fencing – pilot wilderness	\$113,299
Orange hawkweed management	\$63,030
Total	\$176,329

Results/data/metrics to 30 June 2024

Desktop and site assessments

Six sites were assessed via a desktop analysis with 3 of those sites including an on-site assessment for suitability as an offset area within Kosciuszko National Park. Preliminary site assessments focussed on access, terrain and weed cover. The 3 sites assessed via an on-site assessment were all considered feasible for works and will be assessed further next year.

Horse exclosure fencing

Four exclosure fences were constructed in the Pilot Wilderness area of Kosciuszko National Park to protect threatened alpine bogs and fens located in grassy woodland ecosystems, with 24.6 hectares enclosed to exclude the impacts from wild horses. This included 3,990 metres of fencing installed. This also aided in the management and conservation of 3 offset threatened species (alpine she-oak skink, broad-toothed rat and Max Mueller’s burr-daisy) found in the ecosystem.

Five broad-toothed rat artificial runways and habitat structures were installed.

Orange hawkweed management

Offset funds were used to support helicopter operations to access remote areas in the Jagungal Wilderness area of Kosciuszko National Park. This program targeted isolated orange hawkweed plants previously detected by drones.

Offset funds were also used to spray other targeted weeds, for bush regeneration, and for the use of orange hawkweed detection dogs.

The use of offset funds contributed to the overall orange hawkweed program. In 2023–24, the program surveyed 535 orange hawkweed grids out of a total of 890 known grids; 67 new orange hawkweed sites were added to the program with 45 grids scheduled for retirement in 2023–24 following treatment (making the total of 124 retired grids to date).

Actions planned for 2024–25

Action	Cost
Desktop analyses to determine site prioritisation	\$0 (in-house)
Site visits to prioritised locations	\$0 (in-house)
Calculation of offset area to contribute towards the action plan objective	\$0 (in-house)
Orange hawkweed management including helicopter operations, contractors and drone works	\$200,000

Ecosystem: grasslands

Kosciuszko offset action plan status

Draft.

Objective

To deliver the equivalent restoration of 284 hectares of grasslands in Kosciuszko National Park.

Attributes to be measured

Vegetation integrity (metric = condition score based on composition, structure and function).

Progress towards objective

Attribute	Progress
Area gain	Too soon to measure (284 hectares remaining)
Percentage	0% (100% remaining)

Actions/costs to 30 June 2024

Action	Cost
Desktop analysis	\$0 (in-house)
Site assessments	\$0 (in-house)
Ox-eye daisy management	\$27,652
Total	\$27,652

Results/data/metrics to 30 June 2024

Five sites were assessed via a desktop analysis with 3 of those sites including an on-site assessment for suitability as an offset area within Kosciuszko National Park. Preliminary site assessments focused on access and weed cover. The 3 sites assessed via an on-site assessment were all considered feasible for works and will be assessed further next year.

Actions planned for 2024–25

Action	Cost
Desktop analyses to determine site prioritisation	\$0 (in-house)
Site visits to prioritised locations	\$0 (in-house)
Calculation of offset area to contribute towards the action plan objective	\$0 (in-house)