



**NSW National Parks and Wildlife Service**

# **Carcass management plan**

**Kosciuszko National Park  
Wild horse management**



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# Overview

The National Parks and Wildlife Service (NPWS) is under a legal obligation to implement the *Kosciuszko National Park Wild Horse Heritage Management Plan 2021* which requires the number of horses in Kosciuszko National Park (the park) to be reduced to 3,000 horses by 30 June 2027. Horses will be retained within 32% of the park.

Noting the overriding legal obligation to reduce the number of horses, there are compelling reasons for the control of wild horses in the park. These reasons include the need to reduce the environmental impacts of wild horses on biodiversity (including threatened species), catchment health (including the condition of waterways and water quality, and Aboriginal and historic heritage) – and to do so at a rate sufficient to meet the statutory target and prevent ongoing, cumulative environmental degradation associated with the continued presence of wild horses (above the population target of 3,000) in the park.

Leaving feral animal carcasses to decompose in situ is standard practice for feral animal control on public and private land across New South Wales and Australia. Carcasses decompose and are in the landscape temporarily.

In the Australian Alps, for example, kangaroo carcasses decomposed in an average of 9 days (warm season), to over 90 days (winter), while deer carcasses decomposed in 44 to 155 days (67 days average) (Newsome and Barton 2023).

NPWS monitoring of horse carcasses indicates decomposition occurs in approximately 21 days (warm season) to 84 days (cool season). Newsome and Barton (2023) recorded decomposition of a single horse carcass within 30 days in winter.

There is strong recognition within the community of the need to control horses and for feral animal control generally within the park, noting it is done in accordance with best animal welfare practices and in a way that minimises environmental risks as far as reasonably possible.

NPWS acknowledges the need for carcasses from wild horse control programs to be managed carefully and in a considered way, so as to avoid potential impacts to the environment and park visitors.

Issues of risk related to carcasses include: potential impacts on waterways and groundwater (short term and localised); spreading of disease; short term increase in food availability for scavenger feral animals such as wild dogs and pigs; odour; aesthetics, and general enjoyment of park users at major visitor nodes.

It is acknowledged that all land managers have an obligation to consider the potential risks of their activities, to take all reasonable and practicable steps to avoid such risks arising, and then to minimise and mitigate unavoidable risks as far as possible. These obligations arise from both statutory requirements and best practice land management objectives.

Preparation of this plan has specifically taken into account relevant provisions of the *Protection of the Environment Operations Act 1997*<sup>1</sup>.

The measures outlined in this plan will ensure that potential risks associated with the presence of wild horse carcasses will either be avoided, or successfully minimised and mitigated, during the undertaking of wild horse control programs using lethal methods that result in carcasses remaining in the park. This is consistent with the application of the principles of ecologically sustainable development, particularly the precautionary principle, intergenerational equity, and the conservation of biodiversity and ecological integrity.

## Risk management hierarchy

This plan applies a risk management approach that considers all reasonable and feasible steps for the management of risks associated with wild horse carcasses remaining in the landscape as a consequence of lethal control methods (including all forms of shooting). This approach complements and supports statutory obligations to reduce the size of the wild horse population and to ensure wild horse control occurs in accordance with best practice animal welfare requirements.

It also takes account of the risks of not taking action to control wild horses in the park, including the continued degradation and pollution of waterways by a substantial wild horse population.

The key objectives of this carcass management plan are to:

- firstly **avoid** potential disease and pollution impacts and minimise aesthetic and recreational impacts wherever practicable
- **risk assess** the actions required to manage carcasses, based on the location of carcasses in the landscape
- based on this risk assessment, **minimise and mitigate** residual impacts wherever feasible.

This risk management hierarchy is summarised in **Table 1** and discussed in more detail below.

Importantly, this plan articulates and conveys the rationale for, where practicable, the removal of horse carcasses from designated locations within the park, with all other carcasses to be left to decompose in situ.

This is considered a reasonable, practicable, and proportionate response that balances and takes account of the short term, relatively low risks to the environment and park visitors (such as visual and odour impacts) of leaving most carcasses in situ where appropriate; compared to the long-term, ongoing and cumulative risks of not reducing the wild horse population to 3,000 by June 2027 (which would represent a failure to comply with the law).

This approach is unique and unprecedented. As noted above, the standard statewide practice for feral animal control on both private and public lands is to leave carcasses in situ. While the targeted removal of some carcasses is resource intensive, it is considered warranted in this case given the particular landscape and environmental qualities of the park and associated community interest.

**Table 1 Summary of risk management approach to carcass management**

	How will this be achieved?	Expected outcomes
<b>Step 1 Avoid</b>	<p>Where practicable and subject to safety and animal welfare requirements:</p> <ul style="list-style-type: none"> <li>• shooters will avoid taking a primary shot at an animal located within a primary carcass management area (see below)</li> <li>• shooters will avoid taking a primary shot at an animal located in a secondary carcass management area (see below) where the secondary carcass management area is readily identifiable during control operations and the shooter</li> </ul>	<p>Reduced risk of carcasses being left in situ in locations of relatively higher environmental or visitor sensitivity (including identified waterways).</p> <p>Reduced risk of impacts arising in these locations from carcass removal actions.</p>

	How will this be achieved?	Expected outcomes
	<p>believes it may not be possible to remove the carcass from that area</p> <ul style="list-style-type: none"> <li>• this will be included in relevant shooting operational plans, together with other requirements of this plan.</li> </ul>	
<b>Step 2 Assess risk</b>	<p>Identify whether animal carcasses are located within carcass management areas (see below).</p> <p>Consider the practicality and potential risks associated with the removal of carcasses.</p>	<p>Animal carcasses located within carcass management areas (see below) identified.</p> <p>Practicality and potential risks associated with removal of carcasses determined.</p>
<b>Step 3 Minimise and mitigate</b>	<p>To the greatest extent practicable and feasible, remove and relocate carcasses from carcass management areas (see below).</p> <p>Retain carcasses in situ where they cannot feasibly be moved without relatively higher adverse environmental outcomes.</p> <p>Practicality and feasibility considerations will include: access, likelihood of risk/impact if carcasses are not moved, worker safety, and environmental risks arising from removal (including the risk of damage to waterways, stream banks and associated vegetation) and cost.</p> <p>Ongoing monitoring of:</p> <ul style="list-style-type: none"> <li>• the location, density, distribution and persistence of horse carcasses</li> <li>• environmental values via the ecological health performance framework, threatened species monitoring and targeted water quality monitoring.</li> </ul> <p>Where warranted, consult NSW Environment Protection Authority after considering risk assessments and monitoring information.</p>	<p>Removal and relocation of carcasses from locations of relatively higher environmental or visitor sensitivity (including waterways), except in the rare cases where not practicable or feasible.</p> <p>Reduced risk of impacts arising in these locations from carcass removal actions.</p> <p>Ongoing adjustment of wild horse control programs and carcass management arrangements in response to monitoring information, including in consultation with the NSW Environment Protection Authority where necessary.</p>

# Purpose

This plan details the 2 primary methods of carcass disposal to be used in this program and specifies the locations within the park where carcasses will be managed, known as carcass management areas.

This plan also details the carcass removal process and how removed carcasses will be managed.

The plan applies to the management of wild horse carcasses arising from lethal control methods, including all forms of shooting.

## Key considerations

- This project is a groundbreaking conservation initiative designed to protect a globally significant national park. There is strong community support for action and compelling scientific and animal welfare reasons for undertaking the proposed program.
- The safety of all NPWS staff, contractors, advisory panel members, and park visitors is a priority when considering the scope and implementation of the carcass management program.
- Environmental impacts associated with carcass management have been considered via a review of environmental factors. Unacceptable environmental impacts associated with removal of carcasses may negate the removal of all carcasses from some identified locations.
- Scientific research confirms that feral horses are a clear threat to catchment health, including the condition of stream banks, riparian vegetation and water quality (Robertson et al. 2019; Scanes et al. 2021; Giles et al. 2023; and Treby and Grover 2023). This is acknowledged in the report of the Australian Parliament Senate Inquiry into the impacts and management of feral horses in the Australian Alps (Commonwealth of Australia 2023).
- While actions to remove wild horses from the park will directly address the existing significant impacts of wild horses on catchment health, it is recognised that appropriate measures must also be in place to avoid or minimise any possible short-term and local impacts on water quality when undertaking lethal wild horse control programs that result in carcasses in the landscape. In this regard, development of this plan has specifically taken into account relevant requirements of the *Protection of the Environment Operations Act 1997*.

# Methods of carcass disposal

A number of management options for carcasses have been considered. These include:

- leave in situ
- relocation and leave in situ (that is, within the park)
- commercial landfill
- removal to a knackery or rendering facility
- burial
- onsite processing
- composting
- burning
- anaerobic digestion
- refeeding.

The available treatment options have been assessed based on factors including the local environment, commercial demand for meat and by-products, practicality and feasibility, cost-effectiveness, community concern and access, and speed of disposal.

Considering these factors, the following methods will be used to manage carcasses in the park:

- leave in situ
- relocation and leave in situ that is, within the park.

## Leave in situ

In most circumstances, the majority of horse carcasses will be left in situ and not relocated to another area in the park. This reflects consideration of key factors, including:

- existing accepted statewide practices for feral animal control by public and private land managers
- the short term, negligible or low environmental risks, typically localised, of leaving carcasses in most parts of the landscape, compared to the potential environmental impacts associated with carcass removal (or not undertaking any wild horse control)
- likely number, density and distribution of carcasses in the landscape at any given time
- large geographic area, remoteness and terrain across the park, which makes access for removal without environmental impacts challenging
- impracticality of removing carcasses
- the cost of removal and whether this is the most efficient and appropriate use of limited public resources.

This reflects standard, long-term and accepted practice for other vertebrate feral animal species in the park and across New South Wales. Thousands of pigs and deer have been shot in the park in the last 3 years and almost all carcasses have been left to decompose. This is being replicated at scale across a wide range of feral animal programs in the state, on both private and public land, by a range of NSW agencies working in collaboration with landholders, Aboriginal communities, and non-government organisations.

Primary vectors for decomposition in the Australian Alps are microbes, insects and then vertebrate scavengers including corvids (crows and ravens), dogs, raptors, brushtail possums and pigs (Newsome and Barton 2023). The rate of decomposition is greatly



dependent on season, with the highest decomposition rates in warmer months, when microbes, insects and vertebrate scavengers work together (Turner et al. 2017). Other factors impacting decomposition include carcass size, human presence and habitat type (Turner et al. 2017; Newsome and Barton 2023).

Strategic and coordinated supplementary feral animal programs that is, for deer, pigs and wild dogs will occur concurrently with ongoing wild horse control to manage populations of all feral animals on an integrated basis.

European wasps are a known scavenger of carcasses in the park (Spencer et al. 2020). European wasp monitoring and/or baiting/trapping will occur as required.

## Relocation and leave in situ

### Carcass removal approach

As noted above, as a general rule carcasses will be left in situ. However, to the greatest extent practicable, carcasses will be relocated from identified carcass management areas that are mainly associated with waterways and recreational assets.

A decision on whether to remove carcasses from both primary and secondary carcass management areas will be based primarily on risk, feasibility and practicality considerations. These will include site-specific variables such as:

- access
- density of carcasses
- risk to the environment
- worker health and safety obligations
- aesthetic impacts
- likely impact on recreational users
- cost and availability of resources.

### Primary carcass management areas

Primary carcass management areas will be the priority for targeted carcass removal, given their relative environmental and community sensitivities.

Primary carcass management areas include the following locations and the standard distance (buffer area) from which horse carcasses will be removed where practicable:

- major waterways<sup>ii</sup> – 50 metres both sides of the waterway
- mapped minor permanent waterways<sup>i</sup> (flowing) – 10 metres both sides of the waterway
- major public roads – 200 metres both sides of the public road
- picnic and camping grounds – 400 metres from the boundary of the picnic and campground
- huts – 40 metres from the hut perimeter
- major walking tracks – 40 metres both sides of the track.

Carcasses may be left in situ within buffer areas adjacent to major roads and recreational assets where the likelihood of aesthetic impacts is low, for example where vegetation screens carcasses from the asset.

## **Secondary carcass management areas**

Consideration will also be given to relocating carcasses in secondary management areas in the following circumstances:

- areas where significant surface waters may accumulate in the event of heavy, sustained rainfall, such as obvious depressions in the landscape – removal will occur, to the greatest extent practicable, where it is likely that water will accumulate before decomposition occurs threatened species habitat where deemed required to mitigate impact on biodiversity (taking account of the sensitivity and risk to the threatened species), including assets of intergenerational significance
- ecological health monitoring sites
- other visitor areas where, for any other reason, National Parks and Wildlife Service decides it is considered practicable and desirable to reduce carcass numbers.

## **Operational plans will give effect to carcass management requirements and public safety**

The requirements of this carcass management plan will be delivered via operational plans that set out requirements for staff teams when undertaking lethal control programs for wild horses in the park. Operational plans will also include requirements for:

- operational teams to have read and acknowledged the content of this carcass management plan
- record keeping and documentation, including the location of carcasses associated with lethal wild horse control operations, undertaking of risk assessments and decision-making about removal or retention in situ.

Rolling closures of areas of the park will be necessary as part of staff and visitor safety mitigation. The closures will further reduce the aesthetic and recreational impacts of carcasses by permitting time for decomposition to commence.

Based on consideration of risks assessments and monitoring outcomes, the EPA will be consulted and notified as necessary as part of wild horse control programs, in support of ensuring the protection of waterway values and catchment health. This may be warranted, for example, in the event that a high density of carcasses cannot be removed from within the buffer area of a confined reach of a waterway, or cannot be removed from a confined reach in a timely manner (due to access constraints for example).

## **Procedures for carcass removal**

Where practicable, carcasses will be collected from identified carcass management areas via ground and/or helicopter retrieval. The greatest potential for environmental damage is during ground retrieval due to the potential impact of vehicles and/or loading equipment on vegetation, soil structure and riparian and other wet areas such as bogs.

**Ground retrieval** will occur via the following means:

- utilising appropriate vehicles or plant such as 4WD vehicles, posi-tracks or all-terrain vehicles fitted with winches or straps to drag or winch, or lift and carry carcasses to locations outside of the buffer zones, including management trails or roads (or other formal or hard-stand area) if loading and transport is to occur.

**Aerial retrieval** will occur via the following means:

- rotary aircraft to lift the carcass either via a grab, net, sling or other suitable means and relocate it outside of the buffer zones.

## **Transporting carcasses**

In limited circumstances, carcasses may need to be transported via the internal road and trail network to appropriate locations for relocation within the park but outside of the buffer zones. When transporting carcasses the following arrangements will be made:

- suitable machinery will be used to load the carcass into the transport, for example loader
- management of body fluids will occur
- steps will be taken to ensure the carcass can be safely managed at the destination
- all equipment and machinery used to transport carcasses must be thoroughly cleaned after use.

## **Risks to staff**

Risks associated with carcass management will be assessed via a formal risk assessment process. Each risk will be assessed to determine the likelihood and consequence of each risk and a subsequent risk management response prepared where required.

General risk to staff will be captured under a job safety analysis.

# Timeline

The timing of the carcass management program will depend on the undertaking of lethal control programs for wild horses.

To ensure the safety to operators involved in moving carcasses and effectiveness of removal, carcasses are recommended for removal within 5 days of shooting (but in any event, as soon as practicable), noting that decomposition commences within hours of death.

# Review

This plan will remain under active and ongoing review.

It will be updated on an ongoing basis, as necessary, to take account of the outcomes of wild horse control programs, including monitoring of environmental values.

Consultation will continue with the Environment Protection Authority during the implementation of this plan and any proposed updates.

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<sup>i</sup> including the definitions of ‘water’ and ‘water pollution’

<sup>ii</sup> Waterway types will be classified as per the Waterway Classification system which assigns aquatic habitat values to waterways. Major waterways have the characteristics of Class 1 rivers or major creeks (overlaps generally with third order or above in the Strahler stream order classification system) and Minor Permanent Waterways have the characteristics of Class 3 streams, creeks or waterways (overlaps generally with third order in the Strahler stream order classification system). The Class 3 waterways are either named or unnamed. There is overlap between Class and Strahler’s stream ordering system, however the specific waterway characteristics are more useful in delineating carcass management areas and prescriptions.