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Submission to the NSW Legislative Council Animal Welfare Committee: “Inquiry into dingoes in National Parks in New South Wales”

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1. Executive Summary

The Myall Lakes Dingo/Dapin project (MLDP), ongoing since 2019, is a scientific research group from the University of New South Wales (UNSW) Sydney which investigates dingo ecology, population dynamics, and social behaviour. The project is focused in and around Myall Lakes National Park on Worimi Country on the Mid North Coast. The project team actively publishes on dingo ecology and directly informs dingo management within the Myall Lakes National Park and beyond through providing a scientific evidence base, robust monitoring methodology, and through regular working group meetings with project partners engaged in dingo management. This document provides recommendations for dingo management, policy, and monitoring within NSW National Parks, based on our extensive experience in understanding dingo ecology and human-wildlife conflict more broadly. We recommend a nuanced approach to dingo management which is based on the best available scientific evidence.

The MLDP submits that **dingoes should be recognised and managed within NSW National Parks as an ecologically and culturally significant native apex predator whose presence is fundamental to the health of Country, and whose intrinsic value as a unique wildlife species and component of biodiversity should be recognised without the need to continually demonstrate its value.**

The **MLDP supports future management approaches that integrate contemporary western science and management with Traditional Owner knowledge and practices** and are focused on balancing risk and economic costs against ecological and cultural benefits. Given substantial ethical concerns, welfare costs, and the quantities of public money spent year-on-year on lethal control of dingo populations, all aspects of **dingo management should be conducted under an adaptive management framework**, where the impacts of management are directly assessed so that lessons learned can be applied to ensure that goals are being met, or adjustments made and monitored until they are. Such a data-driven approach requires acknowledgement that dingoes can present a risk to people and costs to their enterprises, but that some risk may be necessary to allow dingoes to remain in sufficient numbers to fulfil their ecological and cultural roles in Australia. The **management of dingoes in National Parks and beyond requires a clear co-designed vision to guide management actions.**

Management frameworks should be co-designed with the appropriate Indigenous groups. Many such groups recognise dingoes as an integral component of healthy ecosystems and thriving cultural landscapes, and express deep spiritual connections with dingoes, often opposing lethal management, particularly when this is conducted at broad scale and is indiscriminate. Contemporary dingo management and the language used to describe dingoes arguably mirrors the traumatic historic treatment of Aboriginal communities by colonial authorities. Aboriginal voices continue to be excluded from dingo management decisions.

Below, we propose several recommendations to improve the management and knowledge of dingo populations within National Parks in New South Wales, which recognise and balance their ecological, economic, and cultural benefits against the risks to public safety and the economic costs to nearby livestock enterprises.

1.1. Recommendations

- **(a) The genetic status of dingoes, the distinction between dingoes and dogs and recent research into the genetic profile of NSW dingoes**

Recommendation A1: Remove focus from genetic purity – especially where this is used to justify control programs. Ensure interventions target relevant individuals involved in negative impacts regardless of their genetic make-up.

Recommendation A2: Standardise genetic testing throughout National Parks control programs to use modern tests.

- **(b) The legislative, regulatory and policy frameworks governing the management of dingoes in New South Wales in national parks**

Recommendation B1: Prioritise ecological and cultural outcomes and public safety above other interests in wildlife management in national parks.

Recommendation B2: Remove the exclusion of the dingo as a specific exception to the NSW Biodiversity Conservation Act.

Recommendation B3: Develop a dingo conservation strategy specific to NSW National Parks (distinct from agricultural landscapes). This should be based on a best practice adaptive management approach, with adequate resourcing for monitoring dingo populations and quantifying management success.

Recommendation B4: Invest in visitor behaviour guides and education campaigns to promote responsible human behaviour in areas with dingoes.

Recommendation B5: Facilitate accessible public reporting of concerning dingo or human behaviour by further investments in clear signage with relevant authority contact information and personnel available and trained to respond before behaviours escalate.

Recommendation B6: Provide and service dingo-proof bins or food storage areas in camp and popular picnic grounds in areas with dingoes.

Recommendation B7: Ensure NPWS participation in tenure-neutral¹ dingo control programs is not mandatory or universal.

Recommendation B8: Instigate mandatory reporting of dingo control effort and success relative to target outcomes (e.g. increases in biodiversity, public safety, and species protection - including livestock) for all dingo control effort on or involving national parks.

Recommendation B9: Implement stronger requirements and standardised protocols, including: (a) recommended minimum frequency of trap checking to minimise traumatic harm; (b) oversight of a veterinarian to safely and responsibly manage the humaneness of the lethal control methods; (c) an obligation to act ethically towards the trapped animal and cause no more harm than absolutely necessary.

¹ "Tenure-neutral" control programs are coordinated and run across a mix of private properties, national parks, state forests, and Crown land.

- **(c) The ecological role of dingoes in national parks**

Recommendation C1: Recognise dingoes as a key ecological and cultural species in national park management.

Recommendation C2: Increase and report ecological monitoring of dingo impacts and the impact of dingo control.

- **(d) The cultural significance of dingoes for First Nations communities**

Recommendation D1: Embed First Nations leadership in dingo management and monitoring, including in management decisions.

Recommendation D2: Recognise dingoes as culturally significant native wildlife within national parks, and ensure that cultural values and practices are explicitly included in management plans, processes and outcomes.

Recommendation D3: Increase investment in culturally appropriate non-lethal management techniques and monitoring.

- **(e) The impact of current government policies and programs for the management of dingoes in national parks**

Recommendation E1: Review the effectiveness of lethal control programs in national parks (or involving NPWS staff) in achieving the stated aims of the program. This requires the collection of data on the scale of the issue before and after control, and ideally programs would have the flexibility to adapt through learning.

Recommendation E2: Establish adaptive management frameworks, with subsequent actions driven by monitoring the outcomes of each action/intervention.

- **(f) dingo management including opportunities for incorporation of Indigenous knowledge and leadership in dingo conservation in national parks**

Recommendation F1: Support long-term applied dingo research and monitoring programs within national parks, including First Nations co-design.

Recommendation F2: Embed First Nations leadership, experience and co-management in all dingo conservation planning and action in national parks.

Recommendation F3: Develop non-lethal coexistence strategies wherever possible.

Recommendation F4: Canvas and facilitate the incorporation of First Nations cultural practice into dingo management practices, including through the incorporation of Traditional Ecological Knowledge into management plans and actions.

1.2. Introduction to the Centre for Ecosystem Science (UNSW Sydney)

The Centre for Ecosystem Science (CES), UNSW Sydney, supports policies and management of government, focused on improving the effectiveness of biodiversity conservation and natural resource management with a firm evidence base. Current rates of biodiversity loss around the world and in Australia are unprecedented. Researchers in CES have established track records in the research and management of Australia's biodiversity, both within and outside protected areas. Our researchers focus on policy and management in the three main realms of biodiversity (freshwater, terrestrial, marine) in the natural world (<https://www.ecosystem.unsw.edu.au/>). We have worked extensively on the genetics (see Dr Kylie Cairns' submission to this inquiry), ecology impacts (see Professor Mike Letnic's submission to this inquiry) and the ecology and management of dingoes, particularly through our Myall Lakes Dingo/Dapin Project established in 2019 (see below). We welcome the opportunity to provide this submission on dingoes in national parks in New South Wales given our direct ongoing experience of working in this area and our understanding of the challenges and diverse views on dingoes and their management.

1.3. Introduction to the Myall Lakes Dingo/Dapin Project (MLDP)

The Myall Lakes Dingo/Dapin Project (MLDP) was established on Worimi Country in coastal NSW in 2019 as an ongoing collaboration between the Centre for Ecosystem Science at UNSW Sydney, Taronga Conservation Society Australia, NSW National Parks and Wildlife Service (Manning Great Lakes area) and MidCoast Council (<https://www.unsw.edu.au/research/ecosystem/our-research/terrestrial-ecosystems/dingo-project>). The project is focused on the eastern portion of Myall Lakes National Park and surrounding area from approximately Hawks Nest/Tea Gardens to the south to Seal Rocks/Smiths Lake in the north, extending into Wallingat NP and some of Booti Booti NP (Figure 1). The MLDP also conducts dingo population surveys and associated research west of Bulahdelah in Myall Lakes NP, Ghin-Doo-Ee NP and surrounding state forest (Figure 1). The MLDP aims to further our understanding of dingo population dynamics, behaviour, and ecology, and to apply this knowledge to developing and implementing effective approaches to manage any undesirable impacts of dingo presence and behaviour in different contexts. Specifically, the MLDP team uses its knowledge of individual dingo behaviour and social standing to develop non-lethal management tools, advise on lethal dingo management, and promote integration of cultural practices, aiming to conserve the ecological and cultural benefits of dingoes. Overall, the MLDP conducts empirical research on dingo ecology to inform evidence-based management, balancing risk of dingo presence with their ecological and cultural importance.

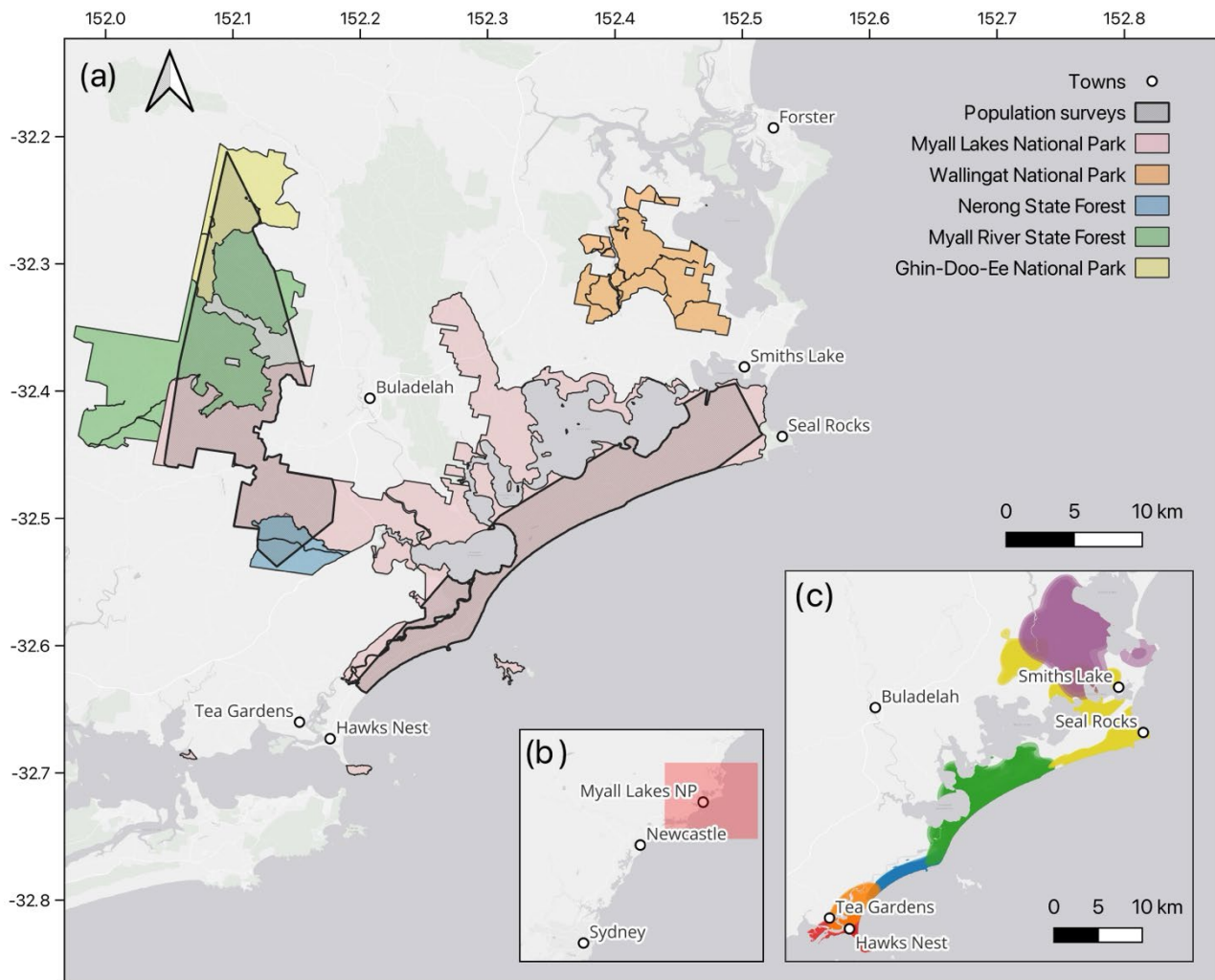


Figure 1: (a) Land tenure of study area including Myall Lakes NP, Wallingat NP, Nerong State Forest, Myall River State Forest, and Ghin-Doo-Ee NP, and showing location of eastern and western population surveys. (b) Inset map showing location of study area relative to Sydney. (c) Inset map showing territories of 6 family groups (packs) of dingoes.

2. Main text

The Inquiry presents an opportunity to establish a new policy framework for dingoes in NSW National Parks that prioritises conservation, ecological function, cultural values and evidence-based management, while reducing reliance on approaches developed primarily for agricultural pest control. Existing management methods involve considerable animal welfare concerns, and monitoring of efficacy is either non-existent or poorly targeted, failing to adopt adaptive management approaches. Adaptive management approaches are the gold standard for conservation management, since they allow ‘learning by doing’, and prevent public funds being wasted through persisting with approaches with unknown success.

2.1. Background: The dingo debate

Following their arrival on mainland Australia at least 3,500 years ago (Balme *et al.*, 2018), dingoes have assumed the role of apex terrestrial predator, meaning they have a role in balancing ecosystems through hunting prey and competing with other predator species (Glen *et al.*, 2007). They are culturally important to

many First Nations peoples, often considered kin and guardians of Country (Dickman et al., 2020; Costello et al., 2021; Koungoulos et al., 2023; Smith et al., 2024). They can have both economic costs and benefits, being a pest in some agricultural sectors while providing measurable benefits to others (Thomson 1992; Allen et al., 2013; Johnson and Wallach 2016; Wallach et al., 2017, Smith & Appleby, 2018). Dingoes can have profound impacts on ecosystems, including reducing overgrazing by native herbivores (Rees et al. 2017), and suppressing populations of some species of smaller predators ('mesopredators') (Nimmo et al. 2015), with varying impacts on native (Morrant et al., 2017) and invasive (Letnic et al., 2012) species.

Left unmanaged, dingoes are socially stable, territorial carnivores, but dingoes are rarely left unmanaged, even in national parks, where they are commonly lethally controlled through baiting, trapping and shooting. Under the Biosecurity Act (NSW Government, 2015) and the NSW Wild Dog Management Strategy (NSW Government, 2022), all dingoes in New South Wales are managed as "wild dogs", regardless of where they are found, and they are classified (as "wild dogs") as a priority pest across the state. The Biosecurity Act places a general biosecurity duty on landholders and public land managers (including in national parks) to minimize the impacts of dingoes on agricultural production on neighbouring lands. Such management is widespread throughout the NSW National Parks network, occurring as part of tenure-neutral control programs. Dingoes in national parks are also controlled for visitor safety and perceived threats to threatened species and biodiversity more broadly. While some management of dingoes within national parks is necessary and an integral part of protected area management – as it is for apex predators internationally – the levels of lethal control, and particularly indiscriminate lethal control, are concerning and likely counterproductive to two key roles of national parks; biodiversity conservation and visitor experience.

Where dingo management is deemed necessary within national parks, its effectiveness must be improved, including through more selective or targeted management, where individual problem animals are identified for management intervention (Swan et al., 2017). This requires monitoring the success of control programs in achieving their stated aims, and monitoring the impacts of this management on dingo populations and biodiversity more broadly. As outcomes are rarely reported, it is unclear how effective current lethal control programs are. Given the substantial public money spent on lethal dingo control across the state, at a minimum **the efficacy of lethal control efforts should be monitored and reported** so that the benefits of control can be assessed.

Current widespread and seemingly indiscriminate baiting, trapping, and shooting programs on national parks targeting dingoes raise serious animal welfare concerns. Current guidelines for dingo trapping in leg hold traps require checking of the trap once every day, meaning that a dingo may be caught in a leg hold trap for up to 24 hours, resulting in anxiety, fear, pain, distress, thirst and hunger (Iossa et al. 2007)). Minimising time spent in traps is important to mitigate these predictable adverse impacts. Further, the consequences of 1080 baiting from an animal suffering perspective are contentious (Warburton et al. 2022). That wild dingoes on public land are subject to control procedures deemed to be unethical in other contexts is noteworthy.

Lethal control is so widespread that it is currently illegal to release ("liberate") dingoes under section 2.6 of the Biodiversity Act (NSW Government, 2016). Unlike other native animals, dingoes that are for example entangled in fishing line or otherwise injured due to anthropogenic causes may not be rescued, treated if deemed feasible and subsequently released. Lethal intervention (e.g. euthanasia) or inaction are the only current legal options for rangers, veterinary and wildlife rescue personnel following the reports of dingo casualties, regardless of context. This can create moral stress and even distress, by severely limiting actions available to directly alleviate poor welfare states.

This Parliamentary Inquiry presents an excellent opportunity to move beyond the 'dingo debate' - the oppositional framing of dingoes/wild dogs as either pests or ecological saviours - to a more modern and nuanced approach that recognises that dingoes are simultaneously a native apex carnivore, a cultural

keystone species with an active role in Caring for Country, and a pest species in agricultural landscapes. Dingo management within national parks should reflect this wider view but focus on the core business of national parks: *a*) biodiversity conservation and *b*) facilitating safe human recreation while immersed in nature. This nature includes dingoes.

2.2. Myall Lakes case study

Our research project in Myall Lakes provides a valuable case study which demonstrates how evidence-based dingo management can contribute to biodiversity outcomes and cultural renewal, while maintaining public safety. Through the MLDP's research, we have learned that the eastern Myall Lakes between the towns of Hawks Nest and Seal Rocks sustains approximately six resident dingo family groups (or packs) (Alting et al. 2025; Figure 1). A large proportion of this area is Myall Lakes National Park, but it also consists of Crown Land, private land, and Mid Coast Council managed land, with dingoes moving freely between them. This means that dingo management by any single landowner affects the population dynamics and viability of dingoes throughout the area.

2.2.1. From indiscriminate culls to targeted individual management

Eastern Myall Lakes National Park provides a case study of successfully moving from an indiscriminate lethal control program to a model of adaptive management which targets individual dingoes with justifiable management interventions. This example could be expanded to other national parks in NSW where dingoes are determined to be of conservation and cultural value.

In 2021, the dingo population in eastern Myall Lakes was subject to an indiscriminate lethal control program around the town of Hawks Nest (Palmer & Johnson 2021). This approach divided public opinion (ABC Newcastle, 2021) and led to a period of intense inter-pack conflict and instability within the dingo populations (Alting et al. submitted). In response, the MidCoast Council (along with key collaborators) developed a dingo management plan (<https://www.midcoast.nsw.gov.au/Community/Our-environment/Protecting-our-vegetation-and-wildlife/Report-dingo-and-wild-dog>), which outlined measurable criteria to assess risks posed by dingoes. An updated iteration of this plan is currently applied across Council and NPWS tenure, and as a result, lethal control in eastern Myall Lakes is now limited to specific individual dingoes exhibiting behaviour deemed to present a heightened risk to the public (Mid Coast Council Dingo Management Plan). The criteria for targeted individual-based lethal management of problem animals are clearly defined in the plan, and include animals approaching to within a short distance and interacting aggressively with people.

2.2.2. Evidence supporting targeted individual management

This approach is supported by population viability modelling, which suggests that targeted management of problem animals is sustainable (Henderson et al., 2025; Figure 2). The targeted approach attempts to balance the risks and benefits of dingo presence in the landscape by only removing (via lethal means) problem animals thereby minimising disruption to intra- and inter-pack dynamics.

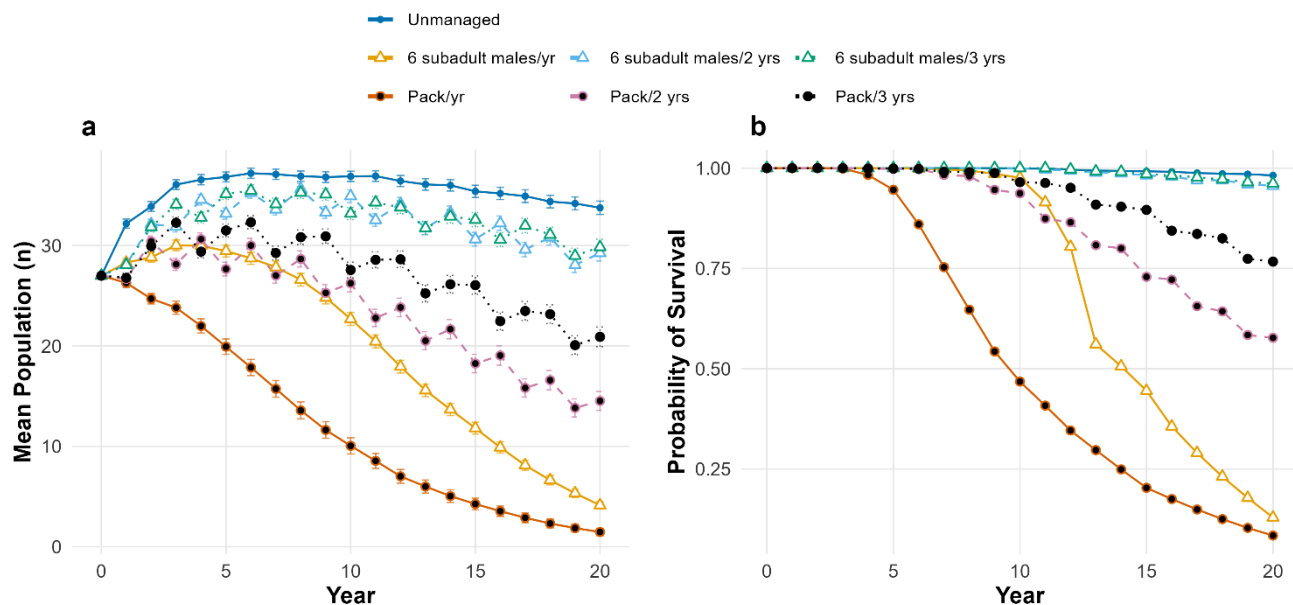


Figure 2. Model prediction outputs adapted from Henderson et al. (2025) of population trajectories over 20 years using Vortex 10.6.0 (Lacy and Pollak 2023). Graphs compare lethal control of problem animals (targeted individual-based control of subadult males – white triangles) or indiscriminate control (pack removal – black circles) at different frequencies. (a) shows mean population size (error bars = 95% CI), (b) shows mean probability of survival. Solid lines indicate control occurs annually, dashed lines indicate control occurs every 2 years, and dotted lines indicate control occurs every 3 years.

Empirical data collected by MidCoast Council also supports the efficacy of targeted problem animal management as a human-dingo conflict mitigation strategy. Figure 3 shows counts of human-dingo encounter reports classified as elevated risk (category 3 and 4; requiring increased monitoring and targeted lethal control respectively). Risky human-dingo encounters were highest after the 2021 indiscriminate cull, and lowered significantly after the move towards targeted removal of specific problem animals. These problem animals were monitored over several days by Indigenous Rangers prior to the decision to remove them, and carcasses were repatriated to Country following sampling.

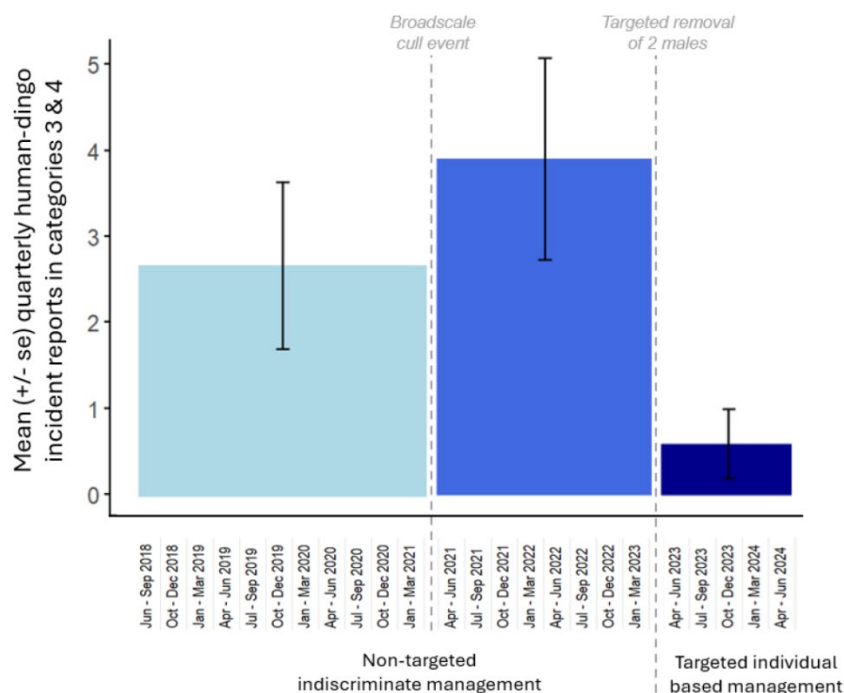


Figure 3: Mean quarterly category 3 and 4 human-dingo incident reports received by MidCoast Council from July 2018 to June 2024 inclusive in relation to different dingo management intervention events and periods. Category 3 and 4 describe incidents requiring increased monitoring and targeted lethal control respectively.

2.2.3. The need for more evidence: understanding the impacts of lethal control

Management actions using substantial public money should be subject to monitoring to ensure they achieve their goals and to understand unintended consequences – especially where those actions have the potential for harm to animal welfare, ecosystem services, and culture. Indeed, the success of almost all dingo/wild dog control that occurs in national parks in NSW is not evaluated at all in terms of its target impact. Currently, this lack of monitoring leaves the organisation’s participation in broadscale dingo control at risk of being perceived as managing the organisation’s reputation with surrounding landowners and reducing potential political risk, rather than managing any problem it is purported to target.

Research can help to understand the impacts of dingo lethal control on ecosystems and on the ecology of dingoes themselves. For example, dingoes are known to kill red foxes (Jordan et al., 2023; Cupples et al., 2011), so the removal of dingoes may release populations of this invasive species from suppression (Letnic et al., 2011; Moseby et al., 2012). Thus, lethal dingo management may contribute to the increased presence of foxes and their predation on threatened species. Our understanding of these types of relationships would benefit from further studies. More research is also needed to understand the impacts of lethal control on dingo social structures, since they are highly complex social animals (Thomson, 1992; Wallach et al., 2009).

2.2.4. Coexistence: non-lethal alternatives to lethal control

The MLDP submits that there is a need for greater **government investment in developing alternative non-lethal management approaches**. In addition to understanding dingo ecology and management, our research also focuses on developing and testing non-lethal management tools. These tools and others

could assist in managing dingoes in certain contexts. For example, through externally funded research grants, we are developing an ultrasonic deterrent that deters dingoes from specific areas (e.g. nest sites of threatened bird species), while retaining dingoes in the broader landscape (Gamage et al., 2025; Dibnah et al., in prep). Further government investment in non-lethal predator deterrents could be part of a broader approach to managing and monitoring dingoes in NSW.

2.3. Specific Responses to Terms of Reference

Below we provide brief discussion and recommendations under each term of reference (TOR).

2.3.1. TOR (a). The genetic status of dingoes, the distinction between dingoes and dogs and recent research into the genetic profile of NSW dingoes

Persistent attention on the genetic purity of dingoes has shifted focus away from the key issue: effective targeted management. The conservation value of apex predators across the world does not lie only in their genetic purity, but also in their ecological and cultural importance – and the dingo has both. As such, we submit that **genetic purity should not be the sole determinant of conservation value**. The First Nations Dingo Declaration states that “If it looks and behaves like a Dingo, it is Australia’s Dingo” (First Nations Dingo Forum, 2023). It is crucial to include First Nations voices when considering how dingoes should be valued in NSW National Parks.

Contemporary research increasingly recognises that wild dingo populations retain substantial dingo ancestry despite some historical hybridisation (Weeks et al., 2025; Cairns et al., 2020). In the context of National Parks in NSW, DNA research conducted at UNSW Sydney by Dr Kylie Cairns has confirmed that the dingoes in eastern Myall Lakes are of high genetic purity. No dingoes sampled in Myall Lakes since 2019 (project onset) showed evidence of recent (several generations) introgression of domestic dog genetics (unpublished data). Given the presence of some of these dingoes in and around the towns of the region (specifically Hawks News, Tea Gardens, Seal Rocks), this strongly indicates that dingoes in Myall Lakes NP have not bred with domestic dogs despite having considerable opportunities to do so.

When dingoes are intentionally killed on National Parks Estate in Myall Lakes, one ear is removed post-mortem and sent to UNSW for analysis by Dr Kylie Cairns, while the other is sent to Local Land Services (LLS) for independent analysis. Methods used by each lab are different, and produce different results, with the method favoured by LLS, an older technique, returning consistently lower levels of genetic purity. The older method has been critiqued in the literature (Cairns et al., 2023), and concerns raised regarding whether such results are shaping perceptions regarding how dingoes in national parks should be managed. Tests returning higher estimated levels of hybridisation with domestic dogs reinforce a “wild dog” rhetoric and may therefore influence public support for “wild dog” (dingo) lethal control programmes (Cairns et al., 2021).

If we accept that (as contemporary genetic work suggests; Cairns et al., 2023) “feral dogs” and recent dingo-domestic dog crosses occur nationally in extremely low numbers compared to dingoes, then we must also acknowledge that negative interactions with wild canids (e.g. livestock losses, human safety threats) do involve dingoes, necessitating active management of dingoes in some circumstances. This is appropriate regardless of their genetic purity. Site-specific ecological monitoring of dingo activity and pack structure is therefore recommended in areas where dingo activity, value, or risks are high as this underpins the decision-making framework for identifying and targeting problem individuals across different national parks.

Relevant recommendations:

Recommendation A1: *Remove focus from genetic purity – especially where this is used to justify control programs. Ensure interventions target relevant individuals involved in negative impacts regardless of their genetic make-up.*

Recommendation A2: *Standardise genetic testing throughout National Parks control programs to use modern tests.*

2.3.2. TOR (b). The legislative, regulatory and policy frameworks governing the management of dingoes in New South Wales in national parks

Visitor/Public Safety Management in National Parks

As per the “Visitor Safety Policy”, National Parks and Wildlife Services NSW (2022) has a “duty of care” to reduce the risk of harm to visitors and provide a safe environment for the public to enjoy recreational activities in natural areas. However, living alongside large and medium sized carnivores has inherent risks for people. While dingoes do not offer the same threat to human life as bears in North America or big cats in Africa and Asia, there have been fatalities, and fear of aggression - particularly towards young children - has been a persistent public safety concern around dingoes in Australia. Campgrounds within national parks can be areas where close contact between people and dingoes occurs. Contemporary risk tolerance and a focus on institutional responsibility for public safety even in remote areas means it is not advisable for dingoes to become accustomed to seeing people as a source of food. Feeding dingoes, either deliberately or inadvertently, risks teaching dingoes to associate people with food, leading to close and potentially dangerous encounters, as occurs in other predators (Gunther et al. 1998). **Prevention of feeding and any association of people with food is a sensible management focus within national parks.**

Biodiversity Act

The NSW Biodiversity Act 2016 defines the legality of the liberation of native (but not Protected) animals after veterinary care. With the specific exception of possums and snakes, which can be captured and released under a “catch and release licence” to facilitate their movement away from residences, the existing Biodiversity Act prevents the legal release of injured/rehabilitated wildlife not listed as Protected in NSW. Dingoes are specifically excluded from the “Schedule 5 Protected animals” designation in the Act, despite the Act stating that “Wild dingoes are protected within lands managed by the National Parks and Wildlife Service (for example, national parks)”. The act in its current form prevents National Parks staff and other land managers from seeking veterinary treatment for anthropogenic, or other injuries and prohibits their release after capture – even in cases where treatment is simple and complete recovery from the injury is likely.

In one instance, our team was contacted about a wild dingo in Myall Lakes National Park that was thoroughly entangled in fishing hooks and line, with hooks embedded in two legs. The researchers hold a Scientific Licence permitting the “[liberation of] *Canis lupus* for research purposes”, for the purpose of catching, anaesthetising (by a qualified veterinarian), radiocollaring, and monitoring dingoes. The injured dingo – a

yearling female – was part of the study population but had not previously been trapped and was not collared. While the preferred option of attending NPWS staff, members of the public, and the research team would have been to call in a veterinarian to sedate the animal and assess whether it could be treated onsite and released or euthanised, the current legislation precluded this. Instead, the relevant permissions and authority was sought and granted for the animal to be humanely destroyed by firearm. According to the professional opinion of the pathologist who conducted a necropsy on the injured dingo, the wounds were treatable and the animal would have been deemed releasable, had this been an option within the legislation – but there are currently no biodiversity conservation licences that cover this scenario.

While it is understood that the Act must also make provision for the control of dingoes, particularly as they pertain to livestock predation and public safety, provision for the liberation of trapped dingoes – an important agent of biodiversity conservation in Australian landscapes – would not undermine this ability and should be possible in certain scenarios. **We submit that a simple rephrasing of Section 2.6 (1) of the Biosecurity Act would allow humane treatment and release of dingoes injured by people and bring the legislation in step with current science, ethical, societal and cultural expectations.** The amendment could read “(1) A person who, without authority, liberates in New South Wales any animal (other than a captured native animal, including a dingo) is guilty of an offence.”

Prevention of Cruelty to Animals Act

In New South Wales, animal welfare is governed by the Prevention of Cruelty to Animals Act 1979 (NSW Government, 2026). This act applies to all animals, without making exception to species considered feral, non-native, introduced, or any other similar qualifier; dingoes are therefore covered under this act. In part 2.5, it states ‘A person shall not commit an act of cruelty upon animal’. Cruelty includes unreasonably, unnecessarily, or unjustifiably exposing an animal to pain or excessive temperatures. However, there is no recognition of an obligation to reduce harm towards ‘controlled’ (i.e. culled) animals. Yet **dingo control programs provide numerous opportunities for cruelty to be unreasonably, unnecessarily, or unjustifiably inflicted upon dingoes.** Live-trapping utilises padded traps to capture and restrain the dingo by their limb until they are killed. The extent of injury will be influenced by, among other factors, the duration of time spent restrained. Welfare guidelines advocate for frequent trap checking to limit harm but there may be motivation to minimise the frequency of trap checking to avoid deterring trappable dingoes. While caught in a trap, dingoes can be exposed to, not only physical tissue damage and pain from the device, but also extreme temperatures, distress, and self-trauma; and they are at elevated risk of being attacked by other individuals, as they are unable to fully defend themselves or escape (Allen and Hampton, 2020). Moreover, traps require careful and considered set-up to avoid catching non-target species, yet this risk cannot be entirely eliminated.

Dingoes are also routinely killed through shooting programs, however **there is a lack of information regarding the frequency of non-fatal wounding** during these events (Nocturnal Wildlife Research PTY LTD, 2008). The prevalence of cruelty (as defined by the Act) towards dingoes during shooting programs is therefore unknown. An additional negative by-product of dingo control methods is the use of lead-based bullets – ubiquitous in Australia despite the well-established harm they cause to wildlife, the environment, and human health through lead exposure (Armeno et al., 2016). The absence of consideration surrounding the welfare of animals under control programs is a noticeable omission in the Prevention of Cruelty to Animals Act 1979, and **we would advise that there are stronger requirements and standardised protocols in place, including: (a) recommended minimum frequency of trap checking to minimise traumatic harm; (b) oversight of a veterinarian to safely and responsibly manage the humaneness of**

the lethal control methods; (c) an obligation to act ethically towards the trapped animal and cause no more harm than absolutely necessary.

Relevant recommendations:

Recommendation B1: *Prioritise ecological and cultural outcomes and public safety above other interests in wildlife management in national parks.*

Recommendation B2: *Remove the exclusion of the dingo as a specific exception to the NSW Biodiversity Conservation Act.*

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Recommendation B5: *Facilitate accessible public reporting of concerning dingo or human behaviour by further investments in clear signage with relevant authority contact information and personnel available and trained to respond before behaviours escalate.*

Recommendation B6: *Provide and service dingo-proof bins or food storage areas in camp and popular picnic grounds in areas with dingoes.*

Recommendation B7: *Ensure NPWS participation in tenure-neutral dingo control programs is not mandatory or universal.*

Recommendation B8: *Instigate mandatory reporting of dingo control effort and success relative to target outcomes (e.g. increases in biodiversity, public safety, and species protection - including livestock) for all dingo control effort on or involving national parks.*

Recommendation B9: *Implement stronger requirements and standardised protocols, including: (a) recommended minimum frequency of trap checking to minimise traumatic harm; (b) oversight of a veterinarian to safely and responsibly manage the humaneness of the lethal control methods; (c) an obligation to act ethically towards the trapped animal and cause no more harm than absolutely necessary.*

2.3.3. TOR (c). The ecological role of dingoes in national parks

As dingoes have resided in Australia for thousands of years, establishing keystone roles in contemporary ecosystems, their removal and suppression since European colonisation impacts the structure and function of these ecosystems. The impacts of dingoes (and their absence) on other wildlife fall into two broad categories. Impacts on: (1) potential prey species; (2) other predators (including invasive feral cats and red foxes, and native quolls).

Impacts on native prey

As mainland Australia's terrestrial apex predator, dingoes perform vital functions in controlling the populations of many large herbivore species such as kangaroos and wallabies (Letnic and Crowther, 2012). Where dingoes are removed or managed to low densities, often to support agricultural enterprises, these

herbivores may breed unchecked, resulting in the need for human intervention (e.g. harvesting or culling programs) to reduce competition and prevent substantial ecological and economic damage from overgrazing. Overgrazing results in greater soil erosion, disruption to vital nutrient cycles and, ultimately, less palatable and diverse plant species for foraging animals, such that agricultural productivity can decline (Mills et al., 2020) and landscapes become degraded. Herbivore movement and activity/behaviour patterns are also tied to the presence and activity of predators, so that dingoes both directly control herbivore populations through predation and indirectly through impacting herbivore movement, foraging and reproduction (Parsons and Blumstein, 2010).

Dingoes – along with domestic dogs - can be implicated in the disturbance and predation of native shorebirds and the predation of koalas. In the case of koalas, despite both species being subject to intense research and public attention, documented incidents of dingo predation of koalas are very rare. In Myall Lakes National Park, where dingoes and koalas co-occur, our ongoing diet work using DNA metabarcoding has so far failed to detect any evidence of koalas in dingo diets. Similarly, stomach and faecal contents of individual dingoes shot due to their home ranges overlapping with threatened shorebird breeding colonies contained no threatened shorebird hard-parts or DNA (Hirani, 2026; unpublished). While dingoes are certainly capable of preying on these threatened species, they rarely feature in dingo diet studies (see Doherty et al. 2019).

Non-lethal approaches that have shown promise in deterring predators from nest sites include barrier fencing around nests, olfactory misinformation – where scents of nests are deployed broadly prior to the breeding season so that predators learn to dissociate the smell with reward (Norbury et al. 2021) – and deterrents that target the hearing of predators but are undetected by the birds and reptiles the program is designed to protect. However, NPWS rely heavily on lethal control of dingoes for nest protection in some areas, with little evidence reported publicly to support its efficacy in this respect.

Dingoes are sometimes also implicated in the predation or suppression of native quolls. In our work in Myall Lakes NP, where dingoes were present at approximately 0.09/km² and relatively self-regulating with minimal management (no lethal control of dingoes or foxes), we estimated spotted-tailed quoll density at 0.36 individuals/km² (Alting et al. in review). This is comparable to healthy quoll population densities in other regions (Henderson et al. 2022). This suggests that spotted-tailed quolls can persist in the absence of lethal predator control (Alting et al. in review).

Impact on invasive predators

Dingoes have ecosystem scale impacts as an apex predator, and their suppression, removal, or conservation within national parks is likely to have broad and wide-ranging impacts of biodiversity conservation. At a continental level, removal of dingoes can ‘release’ populations of other predators that may ultimately be more damaging (Letnic et al. 2011), so approaches that retain the dingo in the broader system may have wider benefits, including – counter-intuitively – reducing predation of species of conservation concern. For example, native small mammals, such as the dusky hopping mouse, may be less abundant where dingoes are controlled. This trend likely results from the impact of red foxes which can exist in higher densities without dingoes (Letnic and Koch, 2010).

Increasing human activity and pressures on native wildlife or their habitats can also tilt the balance of natural predator-prey dynamics. Although nest predation by dingoes can naturally regulate shorebird and turtle populations, when coupled with human impacts even moderate predation can contribute to population declines. Lethal control of dingoes and foxes occurs on national parks in response. A study of shorebird populations showed that when one predator (red foxes) of shorebird nests reduced in population

due to a natural event, another (feral cats) increased in population size (Wails et al. 2025). The initial fox reduction resulted in greater shorebird nest survival, but subsequent cat increases, perhaps due to release from competition with foxes, again reduced nest survival. Given the potential influence of apex predator removal on mesopredator populations in Australia (Letnic and Dworjanyn, 2011), the removal of dingoes in this context may be counterproductive to conservation aims as the red foxes they suppress also pose risk to shorebirds.

It is important, however, to acknowledge that this mesopredator release phenomenon may not apply in all contexts. For example, dingoes are present across the desert landscape in central and western Australia - areas in which mammals such as the bilby and other critical weight range mammals have gone extinct, purportedly due to the impacts of invasive mesopredators (e.g. Greenville et al., 2017). In reintroduction programs with predator proof fencing (which exclude dingoes, foxes and cats), bilbies and other reintroduced species have thrived (Arkinstall et al., 2024). This suggests that in some contexts dingo presence may not be sufficient to suppress mesopredators to a level that can benefit endangered native species. The beneficial presence of dingoes must thus be evaluated on a site-by-site basis, and this requires information on the density of dingo and other carnivore populations at each site. As human management (generally suppression) of dingo populations is widespread and likely reduces their ability to exert a suppressive impact on other species, it is unsurprising that the strength and presence of suppressive effects vary considerably across studies. **We submit that dingoes should be recognised as a key ecological and cultural species in national park management, and that dingo impacts on the broader ecosystem and the effect of dingo control on these impacts requires greater attention.**

Relevant recommendations:

Recommendation C1: *Recognise dingoes as a key ecological and cultural species in national park management.*

Recommendation C2: *Increase and report ecological monitoring of dingo impacts and the impact of dingo control.*

2.3.4. TOR (d). The cultural significance of dingoes for First Nations communities

Associations between First Nations people and dingoes date back thousands of years (Dickman et al., 2020). Dingoes have deep cultural significance for many First Nations peoples (Costello et al., 2021). Prior to colonisation, dingoes were consistently and actively drawn into the social world of First Nations communities, including burial practices, with First Nations peoples likely involved in direct dingo management (Koungoulos et al., 2023).

Many First Nations peoples continue to have enduring connections with dingoes on Country (Smith et al., 2024). Dingoes remain an integral part of contemporary cultural expression, but these deep cultural connections, knowledge and values are rarely integrated into state policy or contemporary dingo management, including in national parks. The inaugural First Nations Dingo Forum in 2023 identified a need for better opportunities for First Nations leadership in dingo management (First Nations Dingo Forum, 2023).

In Myall Lakes, we communicate our research findings with stakeholders on a monthly basis. This working group includes representatives from NPWS, Mid Coast Council and Local Aboriginal Land Council/s. Our

program, in consultation with Traditional Owners, includes repatriation of dingo remains, blending western science with cultural knowledges and heritage. Traditional Owners are consulted on management decisions and involved in monitoring the behaviour of animals falling within the ‘problem animal’ category as per the Mid Coast Council Management Plan.

We submit that efforts should be redoubled to ensure that cultural values and practices are respected and integrated into dingo management within National Parks as a matter of course. Through dingo management, NPWS has an opportunity to support cultural renewal and Indigenous-led biodiversity management.

Relevant recommendations:

Recommendation D1: *Embed First Nations leadership in dingo management and monitoring, including in management decisions.*

Recommendation D2: *Recognise dingoes as culturally significant native wildlife within national parks, and ensure that cultural values and practices are explicitly included in management plans, processes and outcomes.*

Recommendation D3: *Increase investment in culturally appropriate non-lethal management techniques and monitoring.*

2.3.5. TOR (e). The impact of current government policies and programs for the management of dingoes in national parks

Dingo management within NSW National Parks seems primarily focused on participating in tenure-neutral wild dog control programs. With the exception of our project in Myall Lakes and perhaps one other Department of Primary Industries and Regional Development (DPIRD)-run project in the Northern tablelands, few resources appear to be allocated to the active monitoring of dingo populations within NSW National Parks. This means that any management is conducted without underlying data on the population; in turn, the impact of management on the population cannot be quantified. Within MLDP, our annual population survey in the most heavily-visited section of the National Park is supported and resourced, thereby contributing a baseline of understanding upon which management can be informed and evaluated. Individual based monitoring provides countless benefits to management, as the influence of dingo social status on their behaviour can be evaluated. For example, our research, which concurs with other studies (Allen et al., 2015; Appleby et al., 2018), has illustrated that subdominant male dingoes are the primary culprits in conflicts with humans. We have also noted that when dominant individuals die within a pack, a period of territorial instability ensues (Alting et al. In review). These results highlight the benefits of monitoring in management programs, and we suggest that more resources are deployed in this pursuit.

Lethal management of dingoes in NSW National Parks takes the form of coordinated baiting, trapping and shooting programs, with occasional reactive unselective culls in response to negative incidents with the public on Park or on surrounding landowners’ land. Such approaches are not measured, but modelling suggests they have negative impacts on the sustainability of the population (Henderson et al., 2025).

Existing policies or approaches often appear to prioritise livestock protection concerns over ecological and cultural values, even within NSW National Parks. As wildlife does not respect boundaries between public and private land, tenure-neutral approaches to managing dingoes seems logical. However, as part of a series of seminal studies of wild dingo behaviours, Thomson et al. (1992) noted the rapid re-invasion of

dingoes into an area following lethal control. Broad-scale lethal control on public land does not currently stop this process of dispersal into private livestock grazing areas, even when focussed on ‘buffer zones’ at the edges of national parks (Claridge et al., 2009). Therefore, National Parks risk being involved in programs that prioritize agriculture over their own core focus of biodiversity conservation, without appropriately monitoring the effects on either. We submit that **effective monitoring must be applied to evaluate the success of existing dingo management** in terms of achieving its aims (protecting livestock on adjacent land while conserving biodiversity within national parks). We also submit that **novel solutions must be investigated to support graziers to manage the impacts of dingoes without compromising their impacts in adjacent national parks.**

Relevant recommendations:

Recommendation E1: *Review the effectiveness of lethal control programs in national parks (or involving NPWS staff) in achieving the stated aims of the program. This requires the collection of data on the scale of the issue before and after control, and ideally programs would have the flexibility to adapt through learning.*

Recommendation E2: *Establish adaptive management frameworks, with subsequent actions driven by monitoring the outcomes of each action/intervention.*

2.3.6. TOR (f). Dingo management including opportunities for incorporation of Indigenous knowledge and leadership in dingo conservation in national parks

Research conducted by the MLDP focuses on collaborating with local land managers and First Nations representatives to monitor and manage interactions between dingoes and people. Ultimately, the goal is to ensure that local residents and visitors can live alongside dingoes with minimal risk, while the dingoes themselves are allowed to fulfil their role as a culturally and ecologically important predator in the ecosystem.

In practice, we (the research team) share learnings with on-ground managers within NPWS and Mid Coast Council, including First Nations collaborators within these organisations and with Local Aboriginal Land Councils (LALCs) through regular (monthly) working group meetings. First Nations representatives have been nominated by LALCs and have cultural authority to advise on dingo research and management on our project. Information is shared by all representatives in the working group on research updates relevant to management, and on planned dingo management interventions, allowing research to inform targeted, individual-focused and evidence-based management outcomes. This includes having input into local dingo management plans and advising on their implementation.

Within our program, First Nations groups and individuals are consulted before and after lethal control incidents occur. Following scientific sample collection from carcasses (including for DNA and dietary analysis) carcasses are packaged for cultural repatriation to Country, where this is deemed appropriate by the First Nations representatives. This process, organised by the First Nations representatives, is supported by NPWS, and leads to respectful and constructive discussion around dingoes and dingo management with all parties.

While dingo management approaches and considerations will differ considerably between sites according to the prevailing local conditions and context, we believe that the Myall Lakes Dingo/Dapin Project approach to dingo management should be a transferable example of landscape-scale stewardship and coexistence.

We submit that First Nations people should be directly involved in dingo management and decision-making around it on national parks.

Relevant recommendations:

Recommendation F1: *Support long-term applied dingo research and monitoring programs within national parks, including First Nations co-design.*

Recommendation F2: *Embed First Nations leadership, experience and co-management in all dingo conservation planning and action in national parks.*

Recommendation F3: *Develop non-lethal coexistence strategies wherever possible.*

Recommendation F4: *Canvas and facilitate the incorporation of First Nations cultural practice into dingo management practices, including through the incorporation of Traditional Ecological Knowledge into management plans and actions.*

2.3.7. TOR (g). Any other related matters.

We submit that **under circumstances where lethal dingo population management is deemed necessary** (a questionable assertion within the National Parks Estate in particular, as top order territorial predators like dingoes will self-regulate population densities without human intervention), **effective characterisation of the population under management should occur, and the impact of population management on the target outcome and the dingo population should be monitored.** To our knowledge, our work in the eastern section of Myall Lakes National Park is the only example of long-term (annual since 2021) population monitoring of dingoes in any of the >890 National Parks and reserves in New South Wales. If so, this would be an extraordinary state-of-affairs for an apex predator within a National Park system, especially within a developed country. This stands in stark contrast to the two decades of gray wolf monitoring in Yellowstone National Park, United States (Hobbs et al., 2024); 14 years of carnivore monitoring in the Bosques Petrificados de Jaramillo National Park, Argentine Patagonia (Díaz-Ruiz et al., 2020); 10 years of camera trapping in Nagarhole Reserve, India (Gardner et al., 2018); and countless other examples of long-term apex predator monitoring programs. While we have compiled 5-year population trends within MLNP (Jordan et al. in prep), the broader dearth of active monitoring of dingo populations across the state's National Park network highlights an underlying critical issue in dingo management: dingo management occurs in a data vacuum, and the impacts of this management on both the dingo population and the efficacy in managing the target issue (livestock predation, human safety, threatened species populations) are not measured.

2.4. Conclusions

Dingo management in NSW National Parks needs to be more effective, with biodiversity conservation outcomes prioritised through cost-efficient and evidence-based approaches. The success of control programs needs to be better measured, since outcomes are rarely reported despite the high monetary investment into lethal dingo/wild dog control across the state. Adaptive management approaches should be adopted that allow the success of control programs to be assessed, and these require clear goals

relating to the impact (livestock losses, negative visitor interactions, biodiversity) of the intervention to be set and evaluated. Currently, dingo management within NSW National Parks broadly occurs in a data vacuum. Good management on national parks must facilitate the retention of the positive economic, ecological, and cultural roles that dingoes play, while balancing this against reducing negative impacts on threatened species, public safety, and private enterprises neighbouring national parks.

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