

## **INQUIRY INTO DINGOES IN NATIONAL PARKS IN NEW SOUTH WALES**

**Organisation:** The Dingo Conservancy

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Submission to:  
The inquiry into Dingoes  
in national parks in  
New South Wales



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The Dingo Conservancy

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# 1 Executive Summary

Dingoes are uniquely Australian with three distinct ecotypes of dingo found in national parks in NSW, the alpine dingo, the eastern dingo and the desert dingo. The alpine dingo is found in the Australian alps and surrounding forested regions of eastern Victoria and southeast New South Wales (NSW). The eastern dingo is found in coastal, forested areas from the Blue Mountains up into southeast Queensland. The desert dingo is found in northwest NSW.

Dingoes are as distinct from domestic dogs as they are from wolves. Recent genetic studies confirm that so-called “wild dogs” are almost all, if not entirely, pure dingoes, and that truly wild or feral dogs and hybrids are rare, usually occurring only near human settlements or in captivity.

NSW dingoes are in serious trouble. They now occur in small, isolated populations and remain heavily persecuted. They face an extinction risk from inbreeding, loss of genetic diversity and ongoing, sustained, intensive and landscape-wide lethal control.

Alpine dingoes are undergoing population collapse. Recent high-quality population studies show that as few as 4,500 mature individuals remain in the wild. With a population decline of at least 82% over three generations, ongoing lethal control across most of their range, and severe inbreeding pressures, the alpine dingo meets the criteria for listing as Critically Endangered under Criterion 1 of the national Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), based on a reduction of more than 80% in total numbers. It also meets Criterion 3 for listing as Vulnerable, based on a population of fewer than 10,000 mature individuals and a substantial decline of more than 10% over three generations.

NSW dingoes are ecologically significant as top-down ecosystem regulators. By exerting pressure on herbivores, they help protect vegetation and soil structure. This is particularly relevant in NSW national parks such as Kosciuszko National Park, where dingoes are targeted through widespread poison baiting and herbivore irruptions have been observed. Of particular concern are the potentially devastating impacts of hoofed animals, including wild horses, pigs and deer, on alpine sphagnum bogs and fens. Because culling these animals, especially aerial culling of wild horses, is not well accepted by the community, lethal control of dingoes in NSW national parks, especially Kosciuszko National Park, should cease so that these apex predators can help regulate herbivore populations and behaviour.

Dingoes also support the recovery of EPBC Act-listed threatened species, such as the long-footed potoroo, by suppressing introduced meso-predators including feral cats and foxes. Notably, dingoes have been shown to be more effective than poison baiting at controlling foxes and protecting small, endangered mammals.

The NSW dingo is also of great cultural significance to First Nations people, often described as sacred or family with the impact on dingoes having a very deep personal impact on Traditional Owners. “Country needs dingo”.

Current dingo management under the National Wild Dog Action Plan is misleading, ineffective, outdated and often leaves livestock defenceless. There is an urgent need for this outdated model to be abandoned and replaced by a model that is based on known, effective predator- smart farming and livestock guardian techniques that favour coexistence over the killing of an ecologically and culturally significant species.

A core NSW national parks' objective, under the National Parks and Wildlife Act 1974 is to conserve nature. Specifically, to conserve

- 1) habitats, ecosystems and ecosystem process
- 2) biological diversity at the community, species and genetic levels, and
- 3) significant Aboriginal cultural heritage.

Dingoes in NSW national parks must therefore be managed according to these objectives. Given the high ecological and cultural value of dingoes, dingo conservation must become a specific priority for NSW Parks and Wildlife Service (NPWS). The following recommendations are necessary to achieve the objectives of NSW national parks.

## 2 Recommendations

*The Dingo Conservancy* makes the following recommendations to the Inquiry into Dingoes in national parks in New South Wales:

### *Naming and genetics:*

1. That dingoes are recognised as a distinct native species and referred to by the scientific name; *Canis dingo*.
2. That the term “wild dog” be replaced with accurate terminology, with “dingo” to be used when referring to dingoes, including pure dingoes and animals with limited historic domestic dog ancestry; and “free-roaming domestic dog” to be used for domestic dogs that are not under human supervision. Accurate and consistent terminology will improve the clarity of policy, management actions and public communication.
3. That policing genetic purity be replaced with measures that build dingo genetic resilience. This requires protection of all dingoes, regardless of genetic purity.
4. That genetic recovery be supported by allowing dingoes to move freely between populations currently isolated by habitat fragmentation and lethal control. This requires full protection of dingoes and protection and restoration of landscape-scale connectivity.

### *Regulatory:*

1. That dingoes be classified as native animals under the Biodiversity Conservation Act 2016 and afforded the protections available under that Act
2. That dingoes’ pest and biosecurity status be removed, and that relevant legislation recognises their potential role in mitigating threats from invasive species to both biodiversity and agriculture.
3. That dingoes be fully protected in all national parks, with no internal buffer zones, as interstate trials have shown such buffer zones are ineffective at preventing dingo population declines (See section 6.2).
4. That dingo management comply with NSW’s new animal cruelty laws, including prohibition of 1080 poisons and leg hold traps in known dingo habitat.

### **Policy and management:**

1. That dingo conservation be established as a core priority for the NSW Government (through its Department of Climate Change, Energy, the Environment and Water (DCCEEW) and NSW National Parks and Wildlife Service), both within national parks and at the species level across NSW.
2. That dingo killing within New South Wales National Parks cease immediately to protect the ecological function of dingoes and support biodiversity conservation.
3. That dingoes be categorised under the *NSW Biodiversity Conservation Act 2016* as 'likely threatened', and that a moratorium on dingo killing and associated poison baiting and trapping in known dingo habitat be immediately enacted pending further assessment, including:
  - a. a census to assess NSW dingo numbers, spatial distribution and population dynamics, and
  - b. a threat assessment to determine the conservation status of NSW dingoes (vulnerable, endangered or critically endangered),with this work to be completed and results made available within 2 years.
4. That the NSW Government participation in the NWDAP cease and be replaced by a NSW Dingo Coexistence Plan based on:
  - a. clarity and transparency,
  - b. livestock protection, land productivity and farm viability,
  - c. dingo protection, research, management and conservation,
  - d. humane wildlife management, and
  - e. Indigenous knowledge systems and predator ecology.
5. That financial support and extension services be provided to graziers surrounding National Parks to support implementation of non-lethal coexistence strategies.
6. That poison baiting targeting foxes cease immediately in dingo habitat because it is lethal to dingoes, ineffective, and causes greater ecological harm than benefit.
7. That positive and respectful dingo–human interactions be promoted within National Parks through education, awareness programs, and wildlife experiences that foster appreciation of dingoes while supporting public safety and conservation outcomes, including:
  - a. Delivery of public education initiatives that increase awareness of the ecological and cultural significance of dingoes, including their role in healthy ecosystems and their importance to Aboriginal cultural heritage.
  - b. Implementation of comprehensive dingo safety education programs to improve public understanding of dingo behaviour, reduce human–dingo conflicts, and promote safe and responsible interactions.
  - c. Introduction of strict penalties including substantial fines and, where appropriate, prosecution, for individuals who intentionally or negligently provide food to dingoes.
  - d. Conduct trials of humane hazing techniques for habituated dingoes as a non-lethal management alternative to euthanasia.

### **Cultural custodianship:**

8. That the NSW government ensure greater involvement of Cultural Custodians in decision-making and place-based management regarding dingoes in National Parks to ensure the cultural significance of dingoes is reflected in legislation and management.

### 3 Introduction

This submission is made by The Dingo Conservancy (TDC), a nationwide, not for profit, incorporated association, dedicated to the protection, conservation and recognition of the dingo as a native apex predator and an important regulator of ecosystem processes. TDC has a strong financial membership base and a Facebook community comprising more than 10,000 members. We are actively involved in dingo related research and have submitted a nomination for the federal listing of the alpine dingo as critically endangered. We welcome the opportunity to shape the future management of dingoes and ensure their protection in New South Wales.

Although this inquiry focuses on dingoes in NSW national parks, their status must be understood within a broader ecological and geographic context. Dingo populations extend beyond park boundaries and across state and territory borders. For example, whilst alpine dingoes are found in Kosciusko national park, their range extends across the alpine and forested areas of SE NSW, Victoria and the ACT. Similarly, other NSW dingo populations extend into Queensland and South Australia. Just as dingoes cross these boundaries, our understanding of them must also extend beyond NSW national parks.

Unfortunately, there is no robust data on dingo population dynamics in NSW. This is a serious gap that must be addressed, if dingo populations are to be managed and or conserved. In the absence of NSW data, we have turned to Victorian data, as the best available evidence as to the status of dingoes in NSW national parks. We have focused on alpine dingoes, as we have access to the relevant data on this population.

This submission explores, in depth:

- The distinct characteristics of a dingo and what makes dingoes distinct from other dogs
- Dingo genetics
- The ecological role of the alpine dingo in the alpine ecosystems of NSW
- Population data on the alpine dingo, and their eligibility to be considered for federal listing as critically endangered.

The submission includes:

- A critical assessment of current dingo management and a proposed, alternative framework grounded in coexistence, rather than in outdated and inhumane management approaches.
- A series of recommendations to the inquiry based on these findings.

## 4 Dingo identity and genetic distinctiveness

### 4.1 Species Names

| Hierarchy | Scientific name                                                                                                                                                                                                                                                                                                                                                              | Common Name                                                           |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| Order:    | Carnivora                                                                                                                                                                                                                                                                                                                                                                    | Carnivores                                                            |
| Family:   | Canidae                                                                                                                                                                                                                                                                                                                                                                      | Includes: fox, dog, wild dogs, domestic dog, wolf, dhole, jackal etc. |
| Genus     | Canis                                                                                                                                                                                                                                                                                                                                                                        | Includes: dog, wild dogs, domestic dog, wolf etc.                     |
| Species   | <i>Canis dingo</i><br>(Synonyms: <i>Canis lupus dingo</i> , <i>Canis familiaris</i> , <i>Canis familiaris dingo</i> )<br><br>Previously:<br><i>Canis antarticus</i> , Kerr 1792<br><i>Canis familiaris australasiae</i> , Desmarest, 1821; <i>Canis australiae</i> , Gray 1826<br><i>Canis familiaris novaehollandiae</i> , Voigt 1831<br><i>Canis diago</i> , Temminck 1838 | Includes: dingo, 'wild dog'                                           |

### 4.2 History of international scientific naming for *Canis dingo*:

The dingo was formally named *Canis dingo* by Meyer in 1793. This name was acknowledged in 1957 by the International Commission of Zoological Nomenclature (ICZN, 1957). Since that time, there have been no subsequent rulings by the ICZN. The dingo itself is currently listed with the International Commission of Zoological Nomenclature (ICZN) as *Canis dingo*, Meyer 1793 (ICZN, 1957).

### 4.3 Naming Controversies

While the ICZN has a formal name for the dingo, the taxonomic nomenclature used for dingoes is inconsistent across Australian jurisdictions and the dingo's taxonomic name continues to be contested. In Victoria dingoes are named *Canis lupus dingo* whereas in Queensland they are named *Canis familiaris* (dingo) and in New South Wales the dingo is named *Canis familiaris*. In summary, whilst some scientists argue that dingoes "are distinct from domestic dogs and require recognition as their own species" (Crowther, Fillios, Colman, & Letnic, 2014; Smith et al., 2019), others maintain that these differences are too inconsequential to justify separate species status (Jackson et al., 2021).

Ballard and Wilson (2019) argue that the distinction between the dingo and domestic dogs is important, especially in ecological, behavioural, and conservation contexts (J. W. O. Ballard & Wilson, 2019). For example, while domestic dogs have been bred to live alongside humans,

dingoes are wild animals with different hunting practices, social structures, and survival instincts. They argue that giving the dingo the name *Canis familiaris* reduces its uniqueness as a native/wild species and fails to accurately describe its evolutionary history and ecological role. Instead, the use of *Canis dingo* better reflects its wild nature and separate lineage from domestic dogs. Similarly, Cairns (2021) concludes that dingoes are a wild remnant population of the Asian dog lineage and as such the most appropriate nomenclature should be *Canis dingo*, distinct from the domestic dog *Canis familiaris* (Kylie M Cairns, 2021). Furthermore, the ICZN recommends retaining the different specific names for wild and domesticated animals and naming wild ancestors of domesticates using the first available specific name based on a wild population (ICZN, 2002).

If dingoes are to be protected, they must be recognised through nomenclature as distinct. The naming of the dingo as *Canis dingo* respects both their genetic status as separate from domestic dogs and their unique ecological and cultural role as sacred to traditional owners. Cairns and colleagues highlighted this fact. “The reality is that if a lineage is not considered taxonomically discrete at either the species or subspecies level then legislative protection is difficult. Indeed, the New South Wales (NSW) Threatened Species Scientific Committee decided in May 2024 that due to the Australian Faunal Directory listing dingoes as *Canis familiaris*, ‘the dingo is not eligible for listing under the Act as it is not recognised as a defined subspecies’ (NSW Threatened Species Scientific Committee, pers. Comm” (Kylie M Cairns et al., 2025).

## 4.4 Descriptive hierarchy

The dingo shares many common features with other members of its order, family, genus and species, as outlined below.

### Order: Carnivora

As with other members of Carnivora, the dingo is a placental mammal that is mostly carnivorous and has teeth adapted for flesh eating. It has large, sharp teeth and powerful jaws and mostly preys on other animals as well as consuming carrion. Other carnivora include: lions, wolves, cats, bears, otters, beavers, raccoons and seals (Werdelin & Dehghani, 2011).

### Family: Canidae

The dingo is a member of the family of dog-like carnivorans, generally referred to as canids. Like other canids they have deep chested bodies and a long muzzle. The legs and feet are moderately elongated, and their stance is digitigrade, that is: they walk on their toes. Other examples of Canidae include: wolves, coyotes, foxes, jackals, and many other extinct dog-like mammals. It also includes domestic dogs (Mivart, 1890).

### Genus: *Canis*

With the exception of domestic dogs (where selective breeding has resulted in a wide range of atypical traits), dingoes, like most other members of their genus (wolves, domestic dogs, coyotes, jackals), have long muzzles, upright ears, long legs, bushy tails and teeth adapted to slicing flesh and crushing bones. They are social animals, living in small groups and working cooperatively. Typically, a dominant pair breeds in an underground den, fallen tree log, or similar. They generally communicate via body language, vocalisations and scent (Mivart, 1890).

### Species: *Canis Dingo*

Dingoes are “a wild canid and one that is uniquely Australian” (Smith, 2015).

Smith and colleagues (2019) point out that dingoes are:

- Geographically isolated (allopatric species) from all other Canids, and are genetically, phenotypically, ecologically, and behaviourally distinct, and
- Largely devoid of many of the signs of domestication, including surviving largely as a wild animal in Australia for millennia.

Dingoes are (Smith, 2015), medium sized, free-ranging canids, native to Australia (Australian Government, 1999). They, like all canids are adapted to chase prey, eat meat, have long pointed canine teeth (like fangs), sharp claws, a simple digestive system and a highly developed brain". Smith describes dingoes as walking on their toes, having long tails and four toes on each hind foot.

Smith describes the dingo as a canid that is "elegant in appearance and comes across as alert, intelligent, very hard and lean". He states that it is designed for "speed, agility and stamina". Its body is longer than it is high and is long-legged. It is generally of light build, however there are differences between dingo ecotypes, for example the Alpine Dingo differs from the alpine dingo differs from the desert and eastern ecotypes, being generally more thick set. Its chest is narrow and the forelimbs are pressed into the chest, with elbows turned outward. The ribcage extends along the entire body, offering protection to vital organs. Its jaw is strong and neck flexible. Its skull is broad and longer than it is wide. The cheeks are the widest part of the body. Its ears sit forward and its eyes are slanted and almond shaped with a dark lining.

The dingo's coat is generally short and comes in a number of colours including ginger, black and tan, creamy white, white and grey and sable (Smith, 2015). It usually has white markings on the chest, feet and tail tip. The dingo generally range in size between 10-24kg, stand around 55cm tall, and measure around 125cm from nose to tail tip (Smith, 2015). Differences in size and weight depend partly on prey availability (L. Corbett, 2001) and different dingo sub groups .

#### *Phenotypes: Alpine dingo, eastern dingo and desert Dingo*

In an early account of dingoes from Southeast Australia, Wheelwright (1862) describes them as "the only large wild animal of prey at present known in Australia ... the wild dog appears to resemble the European fox much more than the wolf. Its shape, colour and general appearance, is that of a fox, although it is much thicker and larger, and the colour is generally brighter red... The colour is usually light red, but there is a beautiful variety nearly black".

In 1995 Corbett wrote of the distinct "tropical", "desert" and "alpine variants" or sub-species (Corbett, 1995). The alpine dingo has been noted for quite some time to have different morphological characteristics, with it being larger and thicker than other dingoes (J. W. O. Ballard & Wilson, 2019; Breckwoldt, 1988; Corbett, 1995). Kounoulos (2020) offers a pictorial summary of the differences between these three sub-species (Figure 1: Comparison of Different Dingo Types).

Kounoulos hypothesises that "increases in size probably developed within the eastern and southeastern parts of the continent as an adaptive response to colder environments, including uplands, and possibly a greater abundance of larger prey". This mirrors the conclusions of Corbett (1995) and Radford, Letnic, Fillios, and Crowther (2012). Radford and colleagues specifically noted that dingoes living at higher altitudes (Alpine Dingoes) had larger skull sizes.

The desert dingoes of northwest NSW are part of the desert or western ecotype. Ravishankar and colleagues have recently further divided this ecotype into central, west and northern populations, with the northwest NSW being part of the central ecotype (Ravishankar et al., 2026).



**Figure 1: Comparison of Different Dingo Types**

Comparison of dingoes from different regions of Australia. From left to right, desert, Fraser [eastern] and alpine types (Koungoulos, 2020)

3D geometric analysis of dingo cranial morphology (Koungoulos, 2020) also identified that southeastern dingoes had distinct cranial morphology. Figure 2 and 3 show the distinct difference between alpine and eastern dingoes (shown as “Southeastern”), other dingoes, the New Guinea singing dogs and domestic dogs. They concluded that “the close resemblance of these results to genetic population subdivisions indicates that dingo morphology likely reflects ancient population substructure related to a complex prehistoric introduction” and that dingoes from Southeastern Australia (alpine and Eastern dingoes) were found to be morphologically distinct from conspecifics to their northwest, including both desert, tropical and K’Gari (Fraser Island) dingoes, being intermediate to New Guinea singing dogs.

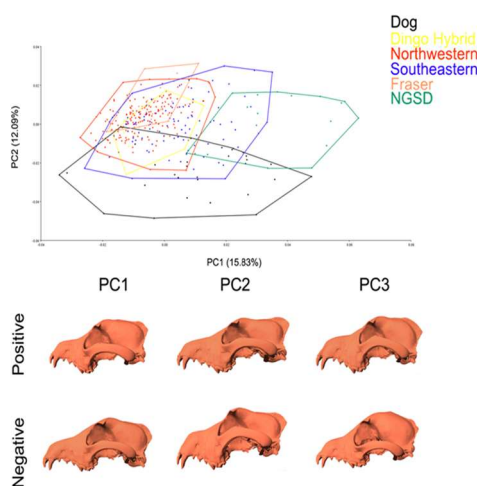
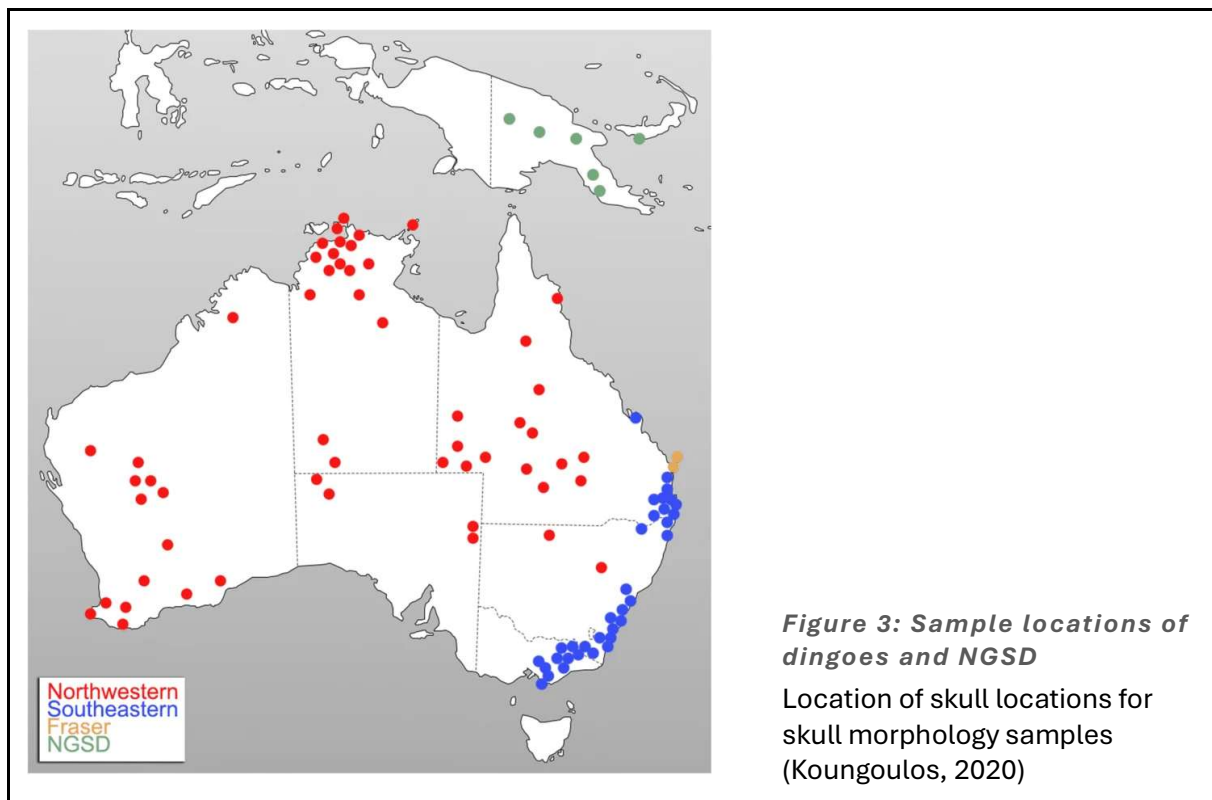


**Figure 2: Skull Morphology of Different Dingo Types**

PCA scatterplot comparing variation in sampled canids with a dingo cranium warped to the proportions of sampled individuals representing the minimum and maximum recorded scores, for PCs1-3 (Koungoulos, 2020)



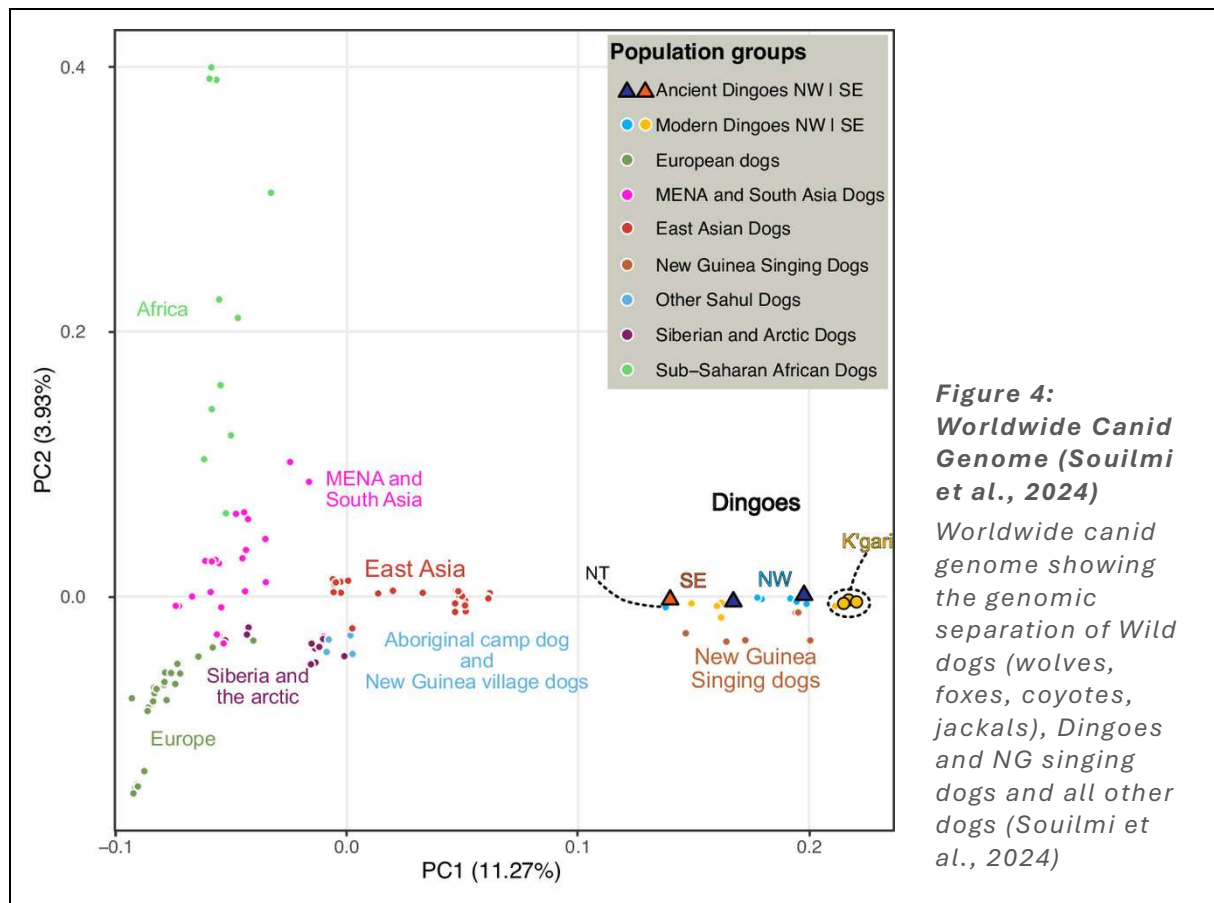
This is consistent with research (Kylie M Cairns & Wilton, 2016) on dingo genetics that shows a divergence between the southeastern dingo, the New Guinea singing dog (NGSD) and northwestern dingoes around 8,300 years ago and a divergence between southeastern dingoes and the NGSD that occurred around 7,800 years ago. This means the southeastern dingoes are a closer relative to the NGSD than to other dingoes and points to the likelihood of a separate immigration events for southeastern dingoes as compared to other dingo types.

## 4.5 Dingo genetics

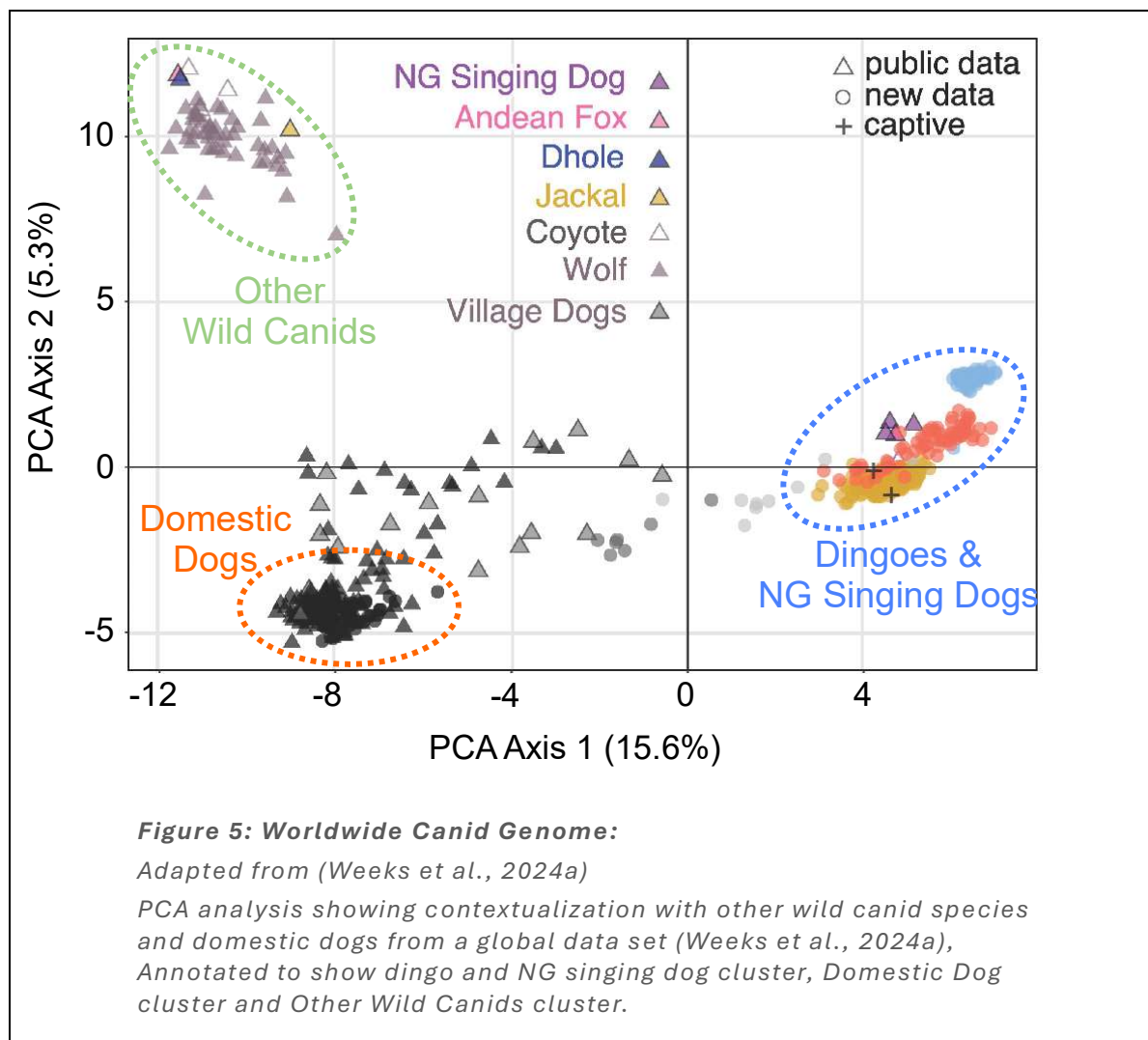
### 4.5.1 Unique Dingo Genetics

Dingoes are a distinct, uniquely Australian, native animal (Smith, 2015). Crowther and colleagues (2014) found that dingoes form a discrete taxon distinguishable from domestic dogs, wolves and other canids while Kylie M Cairns (2021) identifies a discrete evolutionary lineage for dingoes which is distinct and distinguishable from modern domestic dogs and wolves.

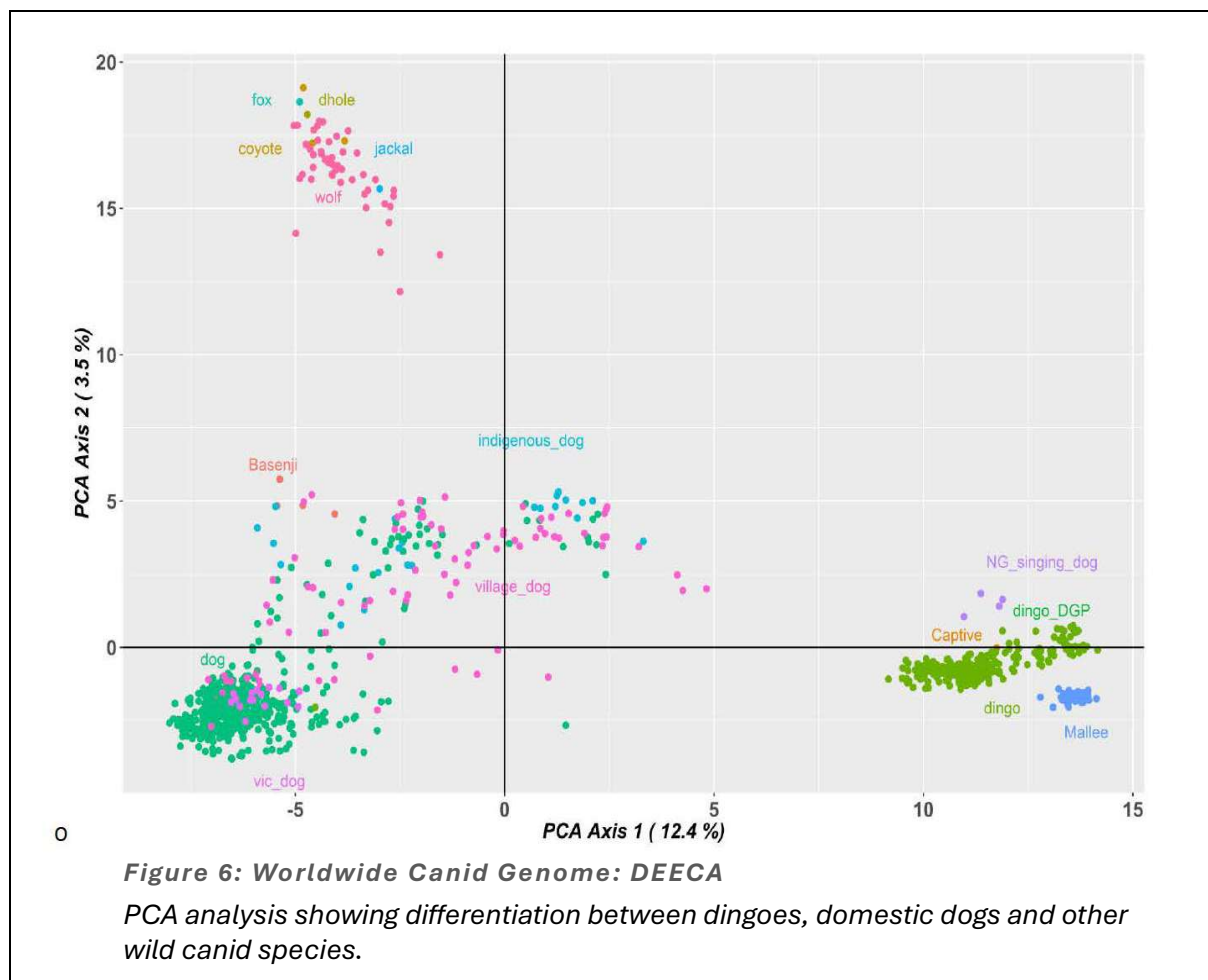
Souilmi and colleagues (2024) analysed worldwide canid genomes and found that dingoes are as distinct from domestic dogs as wolves with the closest relation being the New Guinea singing dog.



Weeks and colleagues (Weeks et al., 2024a) also reported genetic separation from domestic dogs finding that dingoes are as genetically distinct from domestic dogs as they were from wolves (and other canids). Weeks and colleagues found “near perfect separation between domestic dogs, hybrids, back-crosses and dingoes” (Weeks et al., 2024b).



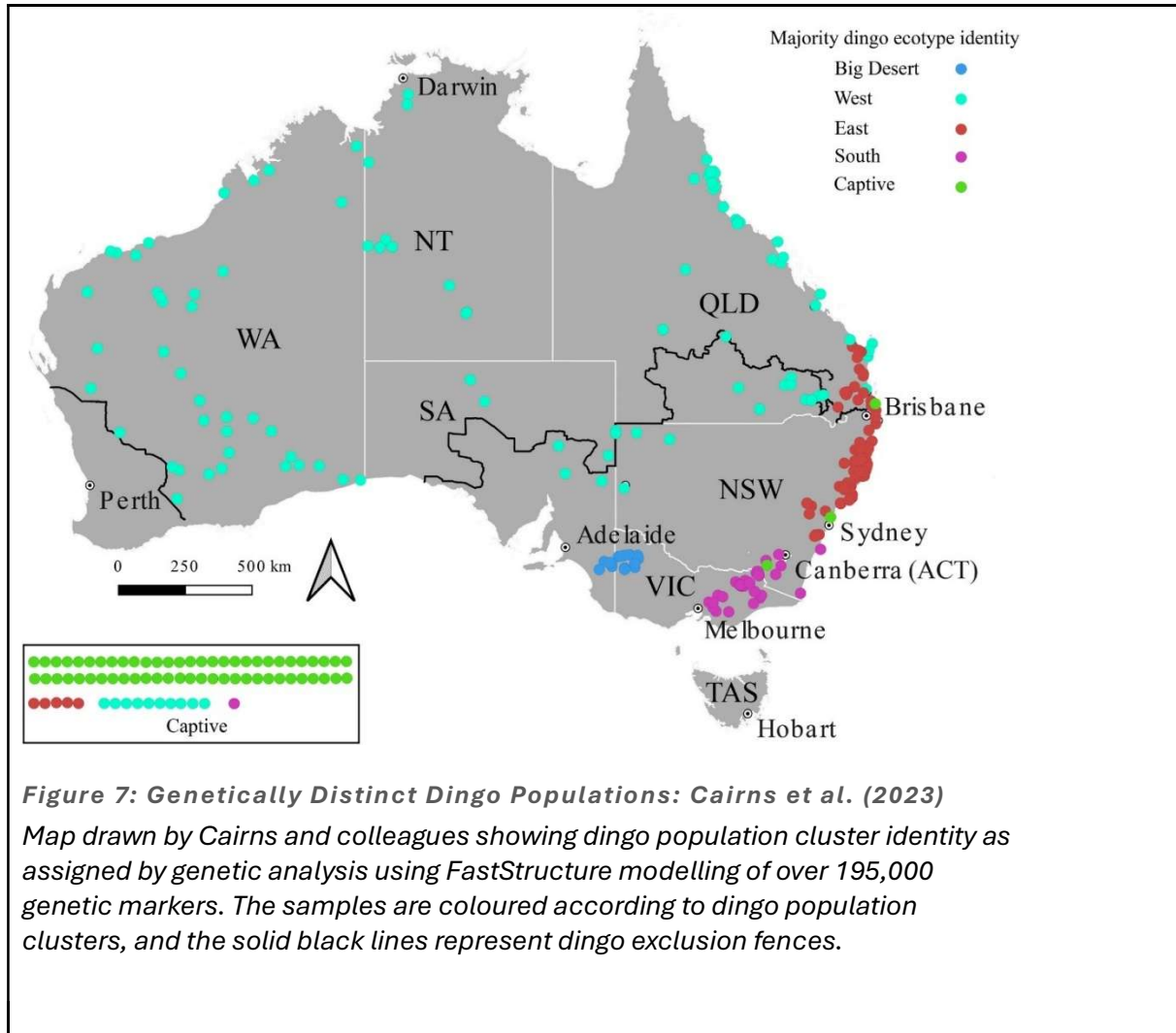
In material obtained under FOI (See Appendix 9.1), DEECA reported a similar genetic separation between alpine dingoes, other dingoes, domestic dogs, and other wild canid species (See Figure 6). DEECA concluded that dingoes represent a distinct lineage within canids (i.e. distinct from domestic dogs) and that there is evidence for very limited gene mixing between dingoes and dogs (domestic dog genetic material in populations of free-ranging dingoes: <4% on average in the eastern Victoria population and 0% in the Mallee population) that may be either introgression (an arbitrary mating event a long time ago) or more likely shared ancestry (wolf ancestry).



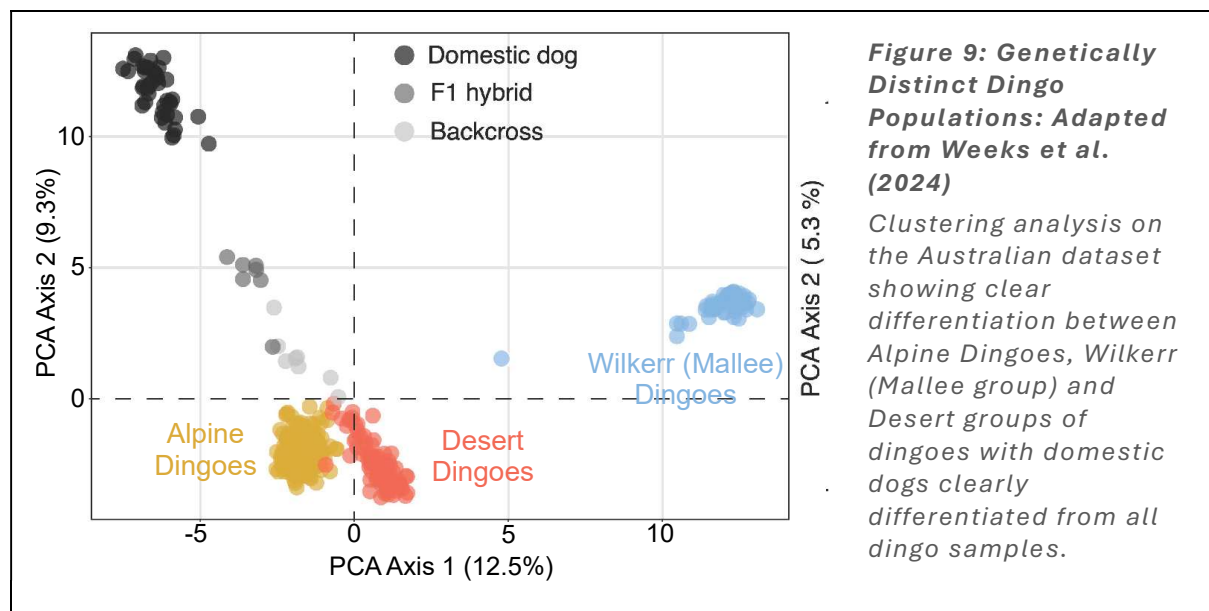
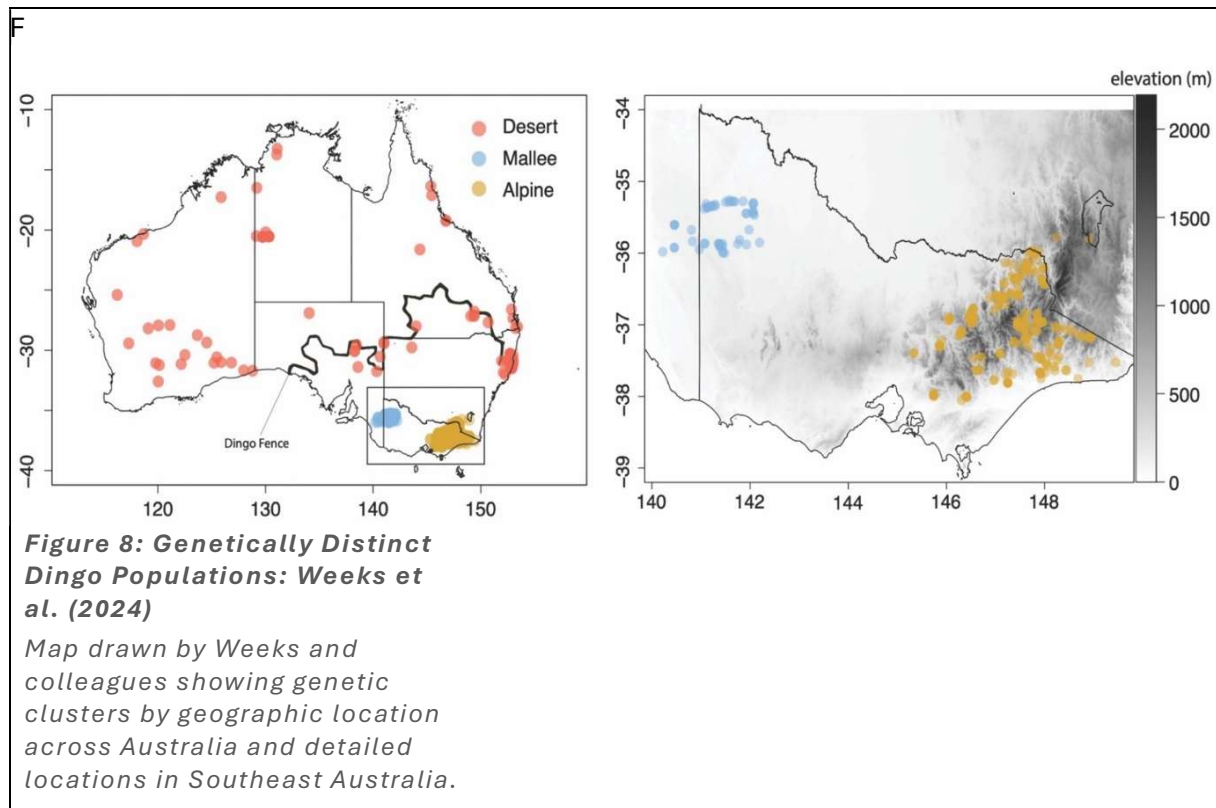
Cairns (2021) concludes that genomic comparisons of dingoes to dogs and wolves from across the world demonstrate that dingoes share a close phylogenetic relationship with, but are a distinct entity from domestic dogs. Souilmi (2024) and Weeks' (2024a) DNA research is consistent with other research referred to below (See 4.9 Distinction between dingoes and dogs ), supporting the dingo being considered a discrete and separate species. In particular, the dingo has a number of key ecological, morphological and behavioural differences that distinguish them from *Canis familiaris*.

## 4.6 Dingo Population Structure

Cairns and colleagues observed significant population structures in dingoes with five distinct dingo populations across Australia, as Cairns names them: Big Desert, east, west, south (or alpine) and captive. They also found that the alpine dingo was a discrete population, genetically distinct from other dingo populations (Cairns, Crowther, Parker, Ostrander, & Letnic, 2023).



Weeks and colleagues made a very similar finding to Cairns, who found three genetically distinct populations of dingoes (Weeks et al., 2024a) . Figures 8 and 9 show the three genetically distinct populations, their distribution, as well as the genetic separation between the three dingo populations. It also shows the genetic separation between dingoes and domestic dogs.



Ravishankar and colleagues' 2026 findings were broadly consistent with Cairns and Weeks' work. They identified eight different groups of dingoes, rather than Weeks' and Cairns' five. This

was due to a further subdivision of the desert dingoes into north, west and central and also the identification of K'gari dingoes as a separate grouping (Ravishankar et al., 2026).

## 4.7 Dingo hybridisation

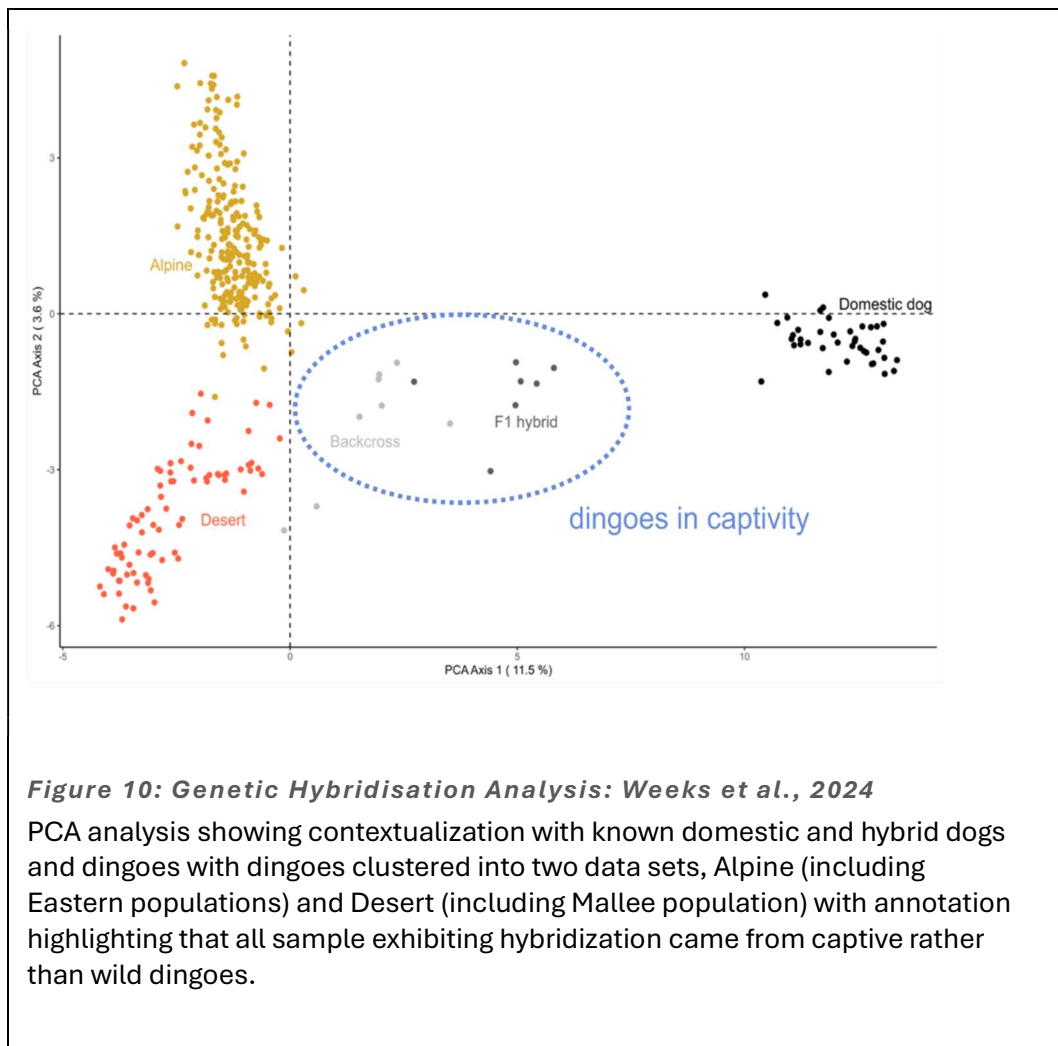
Until recently it was generally accepted that pure dingoes were largely non-existent on the Australian mainland with hybridisation being most widespread and significant in southeast Australia (Stephens, Wilton, Fleming, & Berry, 2015; Wilton, Steward, & Zafiris, 1999).

Recent, genomic research has, however, challenged this perception and led to new understanding of dingo genetics: that most dingoes are pure dingo (Cairns et al., 2023). More recent research has confirmed this and also demonstrates that dingo x dog hybrids are virtually non-existent in the wild (Cairns et al., 2023; Kreplins, Stephens, Laing, & Oskam, 2024; Weeks et al., 2024a).

Older research relied on microsatellite DNA testing, using a small number of genetic markers and restricted reference populations (Cairns et al., 2023). Critical to the older research was the choice of a central Australian dingo as being representative of a “pure” dingo and the assumption that variations from this genotype were indications of hybridisation (Cairns et al., 2023; Weeks et al., 2024a).

Research by Cairns and colleagues (2023) used DNA from 402 wild and captive dingoes (307 wild dingoes and 84 captive dingoes) collected from across Australia (Cairns et al., 2023). They used a DNA analysis that looked at over 195,000 genetic markers. They observed “limited evidence of dog admixture in wild dingoes” (Figure 7 and 11). Cairns and colleagues’ conclusions were confirmed by Weeks and colleagues (2024a). Weeks used 434 Australian canid samples from across Australia (380 wild samples, and 54 domestic or captive samples, including 39 domestic dogs, and 15 known captive dingo x dog hybrids). Weeks and colleagues (2024a) found no evidence of recent hybridisation between dingoes and domestic dogs. Furthermore, they found that the previous microsatellite research that pointed to hybridisation was likely an error due to mistaking genetic variation across dingo populations for hybridisation.

In Weeks’s study (Figures 8,9 and 10), there were no alpine dingo x dog hybrids. Moreover, all of the first-generation dog x dingo hybrids and second-generation dog x dingo backcrosses came exclusively from specimens in captivity.

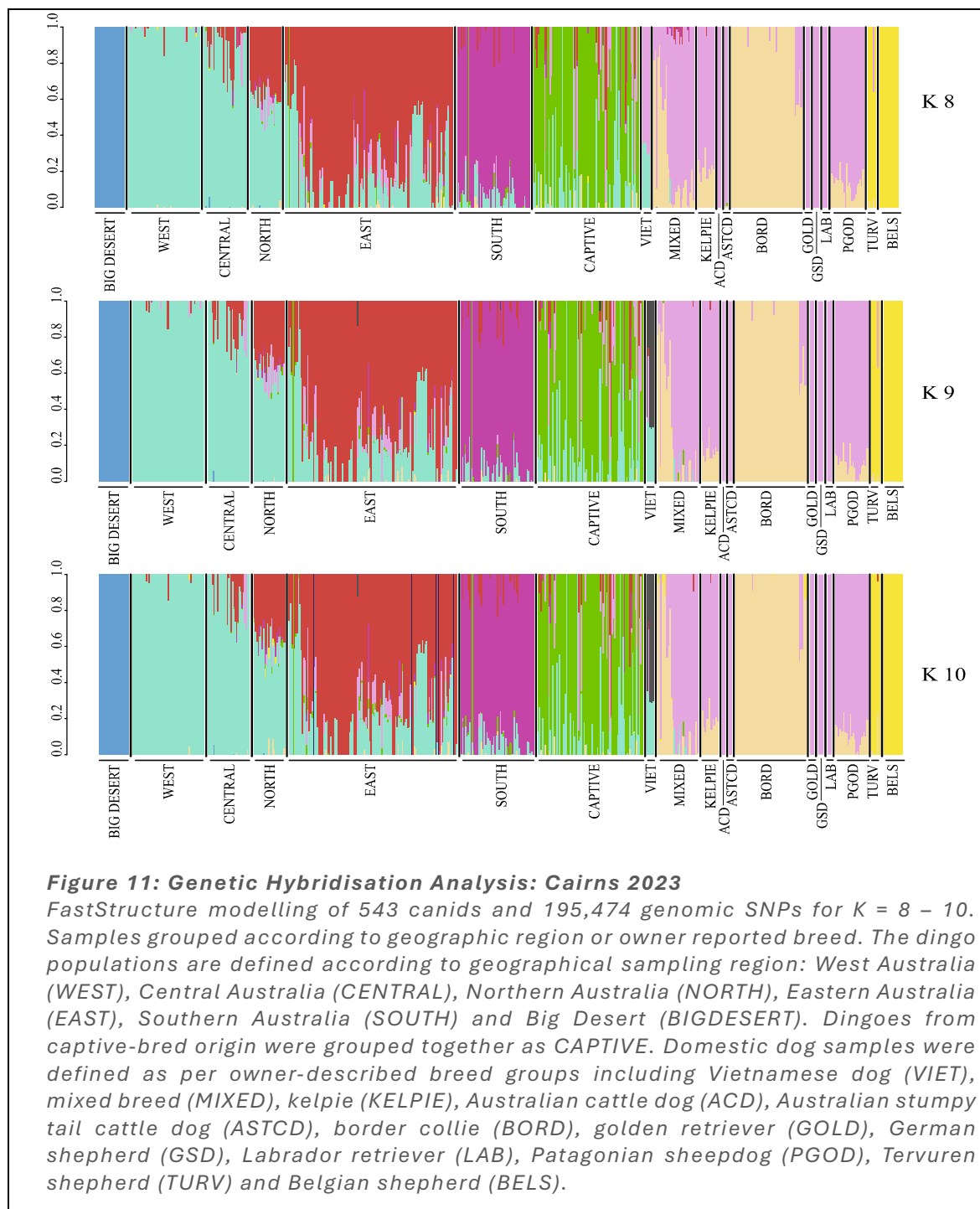


Whilst Weeks and colleagues raised the possibility of hybridisation becoming a threat should lethal control continue unabated, this was raised as a future possible threat, not as a current issue (Weeks et al., 2024a).

Cairns and Weeks and colleagues' work has essentially been confirmed by Ravishankar and colleagues who found that "The vast majority of modern dingoes only carry a small fraction of European dog ancestry, suggesting the usage of the term "wild dog" is unlikely to be appropriate for most free-living canines in Australia" (Ravishankar et al., 2026).

We now have at least three research papers from three independent groups of scientists, from three different states over the last three years, confirming that modern dingoes are pure or almost entirely pure dingo (Cairns et al., 2023; Ravishankar et al., 2026; Weeks et al., 2024a).

Despite this, governments and dingo-killing advocates across Australia continue to refer to dingoes as 'wild dogs' or *Canis familiaris*. This official terminology is misleading and obscures widespread, government and industry-funded dingo killing from public view (Wool Innovation Ltd, 2020).



Dingoes are commonly thought of as being the typical “ginger” colour (K. M. Cairns, Newman, Crowther, & Letnic, 2021) with different colouration thought to be evidence of hybridisation. However current genetically pure dingoes exhibit a wide range of colouration as was observed in early historical accounts (Wheelwright, 1862). Wheelwright’ (1862) noted “there is a beautiful variety nearly black, which is however, rare”.



**Figure 12: Current Perception of Typical Dingo Colouration**

*Photographs of central Australian (left) and K'gari (right) dingoes showing typical colouration.*

## 4.8 Summary of dingo nomenclature and genetics

The summary of dingo nomenclature and genetics is as follows:

- Recent genetic research shows that dingoes represent a distinct lineage, separate from domestic dogs.
- Evidence does not support extensive or ongoing hybridisation between dingoes and domestic dogs.
- Free-ranging dingo populations continue to maintain their overall genetic integrity.

## 4.9 Distinction between dingoes and dogs

Dingoes are as genetically distinct from domestic dogs as they are from wolves (Souilmi et al., 2024; Weeks et al., 2024a), exhibiting distinct morphological, behavioural and ecological differences (Corbett, 1995; L. Corbett, 2001; Crowther et al., 2014; Smith, 2015).

A key distinction between dingoes and domestic dogs is that dingoes retain the traits required to survive, reproduce and function as the largest terrestrial predator on mainland Australia. These traits include high intelligence, problem-solving ability and hunting-related morphological adaptations (Kylie M Cairns, 2021; Walters, 1995).

These features include:

- forward facing, independently motile ears containing hair and large middle and inner ear components, allowing for excellent hearing,
- a relatively large skull, jaws and teeth, well designed for capturing prey (Elledge, Leung, Allen, Firestone, & Wilton, 2006), and
- a strong social structure, allowing cooperative hunting to bring down larger prey animals.

Dingoes also exhibit:

- cooperative breeding, where other members of the pack assist in bringing food to pups (Smith, 2015),
- a single breeding season, timed to coincide with peak prey abundance, improving breeding success,
- a large range of vocalisations that allow for long range communication, facilitating strong social cohesion, breeding, protection from danger and hunting success, and

- a rib cage that protects most vital organs (Smith, 2015) from injury during hunting.

Unsurprisingly, wolves share a number of the same attributes as dingoes and both share a similar ecological role-as terrestrial apex predators (Letnic, Ritchie, & Dickman, 2012; Pollock, Hunter, Hocking, & Evans, 2022).

#### 4.9.1 Comparison of differences between dingoes, wolves and domestic dogs

Bradley Smith (2015) detailed some of the key characteristics of *Canis dingo* compared to both *Canis lupus* and the domestic dog (*Canis familiaris*). Some argue that dingoes and domestic dogs should be treated as the same species (Jackson et al., 2021), so it is important to outline other key differences between them. Newsome, Corbett, & Carpenter (1980) identified differences in dingo skull morphology. Key differences between dingoes, wolves and domestic dogs are summarised below.

**Figure 13: Comparison of distinguishing features of alpine dingo, wolves and domestic dogs**

|                     | Alpine dingo/ <i>Canis dingo</i>                                                                                                                                                                                         | <i>Canis lupus</i>                                                                                                                                            | Domestic dog ( <i>Canis familiaris</i> )                                                                |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Size/Weight         | 12-20kg (up to 24kg in captivity)                                                                                                                                                                                        | 36-45kg                                                                                                                                                       | Variable 1-80kg                                                                                         |
| Social organization | Strong social structure with restricted, generally stable range, cooperative breeding, and stable mating bonds.                                                                                                          | As per dingo                                                                                                                                                  | No strict social structure and no stable mating bonds.                                                  |
| Lifespan            | 5-20 years (up to 10 in the wild, generally 5-7 years and up to 20 in captivity)                                                                                                                                         | 9-17 years (up to 9 in the wild, 17 in captivity)                                                                                                             | Highly variable depending on dog breeds -generally median is 10-13 years                                |
| Coat                | Single or double coated; a variety of colours including ginger, black, black and tan, white, white and grey, white and black, brindle and sable with white on the tips of tail, chest and feet. Hair covers entire body. | A very dense winter coat with a short undercoat. Coat colour ranges from white through to various shades of cream, blonde, ochre to greys, browns and blacks. | Highly variable with a single or double coat and a wide range of coat length and colour variations.     |
| Skull Morphology    | A wide skull, with the cheeks being the widest part of the body. They have a long muzzle and large, long and slender canine                                                                                              | Large skulls (larger than domestic dogs). They have very large canine teeth that are thick and curved. The                                                    | Highly variable. They have smaller skulls, auditory bullae, and brains as well as smaller canine teeth. |

|                 | <i>Alpine dingo/Canis dingo</i>                                                                                                                                                                                                         | <i>Canis lupus</i>                                                                      | Domestic dog ( <i>Canis familiaris</i> )                                                                                      |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
|                 | teeth. They have large auditory bullae (the area within the skull that houses the middle and inner ears) and a flat skull.                                                                                                              | area of bone at the back of the skull, known as the sagittal crest, is more pronounced. |                                                                                                                               |
| Facial features | Slanted, almond shaped eyes with a dark, black eye lining.                                                                                                                                                                              | As per dingo                                                                            | Variable orbital angle with the eyes generally more forward facing.                                                           |
| Ears            | Ears are set forward and erect and have hair within the ears.                                                                                                                                                                           | Ears are smaller, and thicker than domestic dogs with hair within their ears.           | Domestic dogs have a variety of shaped ears including both erect and floppy ears. They lack fur in their ears.                |
| Track size/gait | Walk or trot in fairly straight lines with the hind foot stepping in line with the front foot.                                                                                                                                          | Gait as per dingoes.                                                                    | Placement of hind feet besides rather than in line with the front foot track.                                                 |
| Body and tail   | The chest is narrow, (narrower than the head) the front legs are closer together and the feet are larger, causing the legs to look splayed. The rib cage is longer, covering vital organs. The tail is thick, brushy and bottle shaped. | As per dingo                                                                            | The chest is proportionally wide (generally wider than the head), and the rib cage rarely covers vital organs.                |
| Vocalisation    | A wide range of vocalisations including howls that allow for long range communication and barks, snuff barks specifically used as a warning signal                                                                                      | As per dingo                                                                            | Limited vocalisations, mostly bark, rarely howls but varies depending on the breed.                                           |
| Seasonality     | One breeding season per year and sexual maturity at around 18 months. Females fertile only during breeding season and sometimes exhibiting seasonal fertility.                                                                          | As per dingo, males only fertile during breeding season.                                | Multiple seasons per year, sexual maturity at 6-12 months and female has multiple seasons per year. Male is fertile all year. |

|                                             | <i>Alpine dingo/Canis dingo</i>                                                                                                                                      | <i>Canis lupus</i>                                                                                                    | Domestic dog ( <i>Canis familiaris</i> )                                                                                                     |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Parental Behaviour                          | Alloparental care (other members of the pack, besides the parents assisting with care), with parents and other pack members regurgitating and bringing food to pups. | As per dingoes                                                                                                        | Care falls to the mother, alloparental or paternal care rare. Regurgitation rare.                                                            |
| Hunting ability/prey size diet/intelligence | High intelligence, independent problem solvers. Excellent hunters. Prey size generally small to medium with cooperative hunting needed to kill larger prey.          | Intelligence as per dingoes                                                                                           | Highly variable, while strong in some breed in others problem solving ability has been lost and reliant on humans for problem solving        |
| Diet                                        | Prey size generally small to medium with cooperative hunting needed to kill larger prey. Does not easily digest starch. Other significant metabolic differences.     | Excellent hunters of medium to large prey, that cooperatively hunt to kill prey larger than themselves As per dingoes | Relies on humans for food, which can include meat, vegetables and grains. Able to digest starch and other significant metabolic differences. |
| Reliance on humans                          | Nil, unless born and kept in captivity.                                                                                                                              | Nil, unless born and kept in captivity.                                                                               | Complete-always reside around humans, even if ownerless (e.g. - camp dogs, tip dogs, village dogs).                                          |
| Domestication                               | Suited to living in the wild, aloof and difficult to train and socialise.                                                                                            | Suited to living in the wild and difficult to train and socialise.                                                    | Excellent companion animals, generally highly responsive to humans and human training.                                                       |

Except for some ancient breeds, domestic dogs have been selectively bred for particular traits, including physical appearance, functional attributes such as scenting ability, and specific behaviours such as obedience. Across domestic dog breeds, humans have deliberately selected for reduced flight responses and increased sociability (Arbuckle, Vigne, Helmer, & Peters, 2005), both hallmarks of tameness. Ongoing artificial selection for tameness and other desired traits has produced morphological and physiological changes through genes that shape development and growth patterns (Driscoll, Macdonald, & O'Brien, 2009). In short, many traits that made the proto-dog wild were selected out.

These wild traits enable canids to survive and reproduce independently in natural environments. This is a fundamental difference between dingoes and modern domestic dogs. Although “feral” or “free roaming” dogs exist, they are usually associated with human settlements, such as tips or remote community camps, and have not been shown to sustain themselves independently in the wild.

Tasmania provides a useful example. As the only Australian state without dingoes, Tasmania does not “have a significant problem with wild dogs” (Tasmanian Department of Natural Resources and Environment, 2024), highlighting the difficulty domestic dogs have in establishing self-sustaining wild populations.

The loss of key wild-type behavioural and ecological adaptations in domestic dogs calls into question claims that dingoes are descended from *Canis familiaris*, as argued by some researchers (Jackson et al., 2021).

#### 4.10 Misidentification

For those with strong working knowledge of and experience with dingoes, dingoes are generally unmistakable from other canids.

However, dingoes share many physical characteristics with other canids, so confusion can occur. Misidentification may be innocent, arising from limited knowledge; shaped by preconceived ideas or expectations or deliberate; driven by political, cultural or economic interests.

Some argue that dingoes can only be definitively identified through genetic (DNA) testing and cannot be reliably distinguished from domestic dogs or dingo–dog hybrids. However, this position is inconsistent with established taxonomic practice, which commonly uses morphological characteristics to identify species. It also overlooks the significance of observable physical and behavioural traits that are characteristic of dingoes.

## 5 Current legislative, regulatory and policy frameworks

### 5.1 Current dingo management

Dingoes are the only native animal specifically exempt from protection under the NSW *Biodiversity Conservation Act 2016*, allowing them to be killed in national parks and across other tenures. Despite their ecological and cultural significance, they receive no native-species protection in NSW and are currently classified as “high priority pests”.

In NSW, dingoes are grouped with free-ranging domestic dogs and purported dingo–dog hybrids under the collective term “wild dog”. Current legislation does not distinguish between native dingoes and roaming or stray domestic dogs, treating all as a single management category.

Under the term “wild dog”, dingoes are classified as priority pest animals in Regional Strategic Pest Animal Management Plans developed by Local Land Services. The NSW National Parks and Wildlife Service undertakes dingo (“wild dog”) control on public conservation land to meet its General Biosecurity Duty under the *Biosecurity Act 2015* and comply with the New South Wales Wild Dog Management Strategy. 2022-2027. This lethal control is coordinated, well-funded, intensive, sustained and implemented across entire landscapes. It includes annual or six-monthly aerial 1080 baiting in autumn and spring, supplemented by year-round ground baiting, trapping and shooting (NSW Local Land Services, 2025a, 2025b).

### 5.2 National Parks Wildlife Act 1974

NSW national parks are governed under the National Parks and Wildlife Act 1974. Under this act, the objectives of NSW national parks includes the conservation of nature. Specifically, to conserve:

- 1) habitats, ecosystems and ecosystem process
- 2) biological diversity at the community, species and genetic levels, and
- 3) significant Aboriginal cultural heritage.

Current dingo management in NSW national parks is not consistent with these objectives, nor with the Act. Specifically, dingoes are being killed throughout NSW national parks, and thereby disrupting habitats, ecosystems and biological diversity. Killing dingoes in national parks also risks dingoes as a species and at a genetic level and tramples on Aboriginal cultural heritage and rights.

In order to comply with the Act, dingoes in NSW national parks must be protected and conserved, as a native species of high ecological and cultural value. Furthermore, given their role as apex predator, keystone species and kin to First Nations, dingoes ought to be made a specific priority for NSW Parks and Wildlife Service.

## 6 Current status of the dingo in NSW

### 6.1 Introduction

Exact dingo numbers in NSW are unknown as they have not been counted. This is a serious knowledge gap that needs to be addressed. In the absence of any hard NSW data, a combination of Victorian data and estimations of likely NSW populations have been used to estimate the status of dingoes in NSW, with a particular focus on the alpine dingo.

The Dingo Conservancy has submitted a nomination to the Australian Government seeking listing of the alpine dingo as a critically endangered species. As the alpine dingo's distribution extends into New South Wales, the data contained in this nomination represents some of the most relevant evidence currently available for assessing the status of alpine dingoes within the state.

The evidence indicates that alpine dingo populations are small and declining, meeting the criteria for consideration as critically endangered. This raises significant concerns about the conservation status of alpine dingoes in New South Wales and may have broader implications for the status of dingo populations across the state.

### 6.2 History of alpine dingo management in Victoria - a cautionary tale

In 2013, dingoes were listed as a threatened species in Victoria and afforded legal protection. However, this protection was almost immediately lifted on private land and within a 3 km buffer zone through an Unprotection Order (Order in Council). As a result, publicly funded "wild dog" control programs continued to operate across these unprotected areas for the following decade. The result has been a dramatic decline in dingo numbers over that period. So much so that the Wilkerr of Mallee dingo is now considered to be "on the brink of extinction" and the alpine dingo has suffered a dramatic decline and is being considered for federal listing as endangered or critically endangered.

Data documenting the marked decline in alpine dingo populations is the most relevant evidence currently available to contribute to understand dingo population trends in NSW. Given that lethal control measures in NSW are generally more intensive than those implemented in Victoria, dingo populations in NSW dingoes likely face an even greater level of risk. The Victorian experience also highlights the consequences of sustained lethal control and underscores the importance of avoiding similar management approaches, particularly the continued killing of threatened dingoes within national parks.

### 6.3 Total population estimates of alpine dingoes

Alpine Dingoes are found exclusively in the southeastern region of Australia, primarily in the Alpine National Parks, Canberra, East Gippsland and NSW South Coast Regions and alpine regions. Mt Kosciuszko national park is the most well-known alpine dingo location.

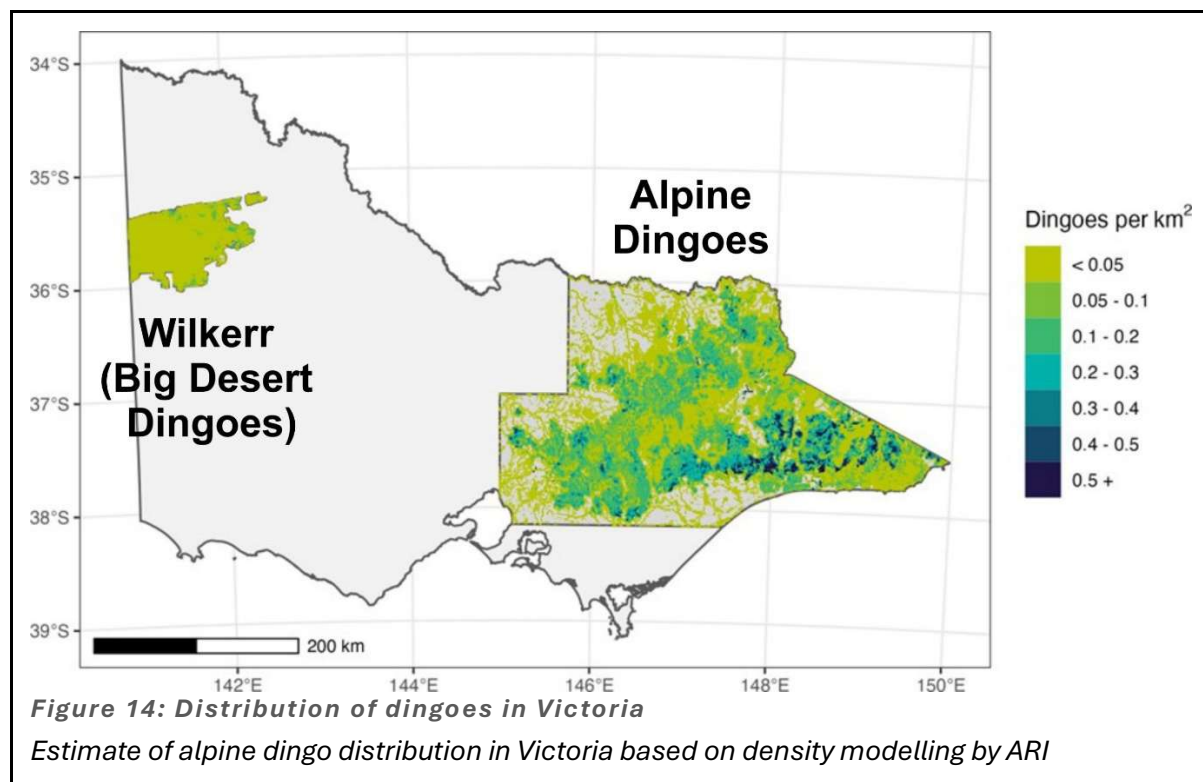
Although alpine dingoes occur in both New South Wales and Victoria, substantially more population data is available for Victoria than for New South Wales. Accordingly, the available Victorian and NSW data are presented to: (1) improve understanding of alpine dingo population dynamics across their range; (2) highlight significant knowledge gaps relating to dingo populations in New South Wales;

and (3) provide context for the population estimates underpinning the alpine dingo's eligibility for listing under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

### Victoria

In Victoria, alpine dingoes are confined to the north-eastern region of the state, a distribution confirmed by extensive camera trap surveys.

In January 2024, the Arthur Rylah Institute (ARI) generated population estimates for Victorian dingoes using data collected from camera traps (Arthur Rylah Institute, 2024). These data, combined with environmental characteristics was used to model distribution. This dataset was compiled by ARI on behalf of the Department of Energy, Environment and Climate Action (DEECA) and is available from the Victorian Government.



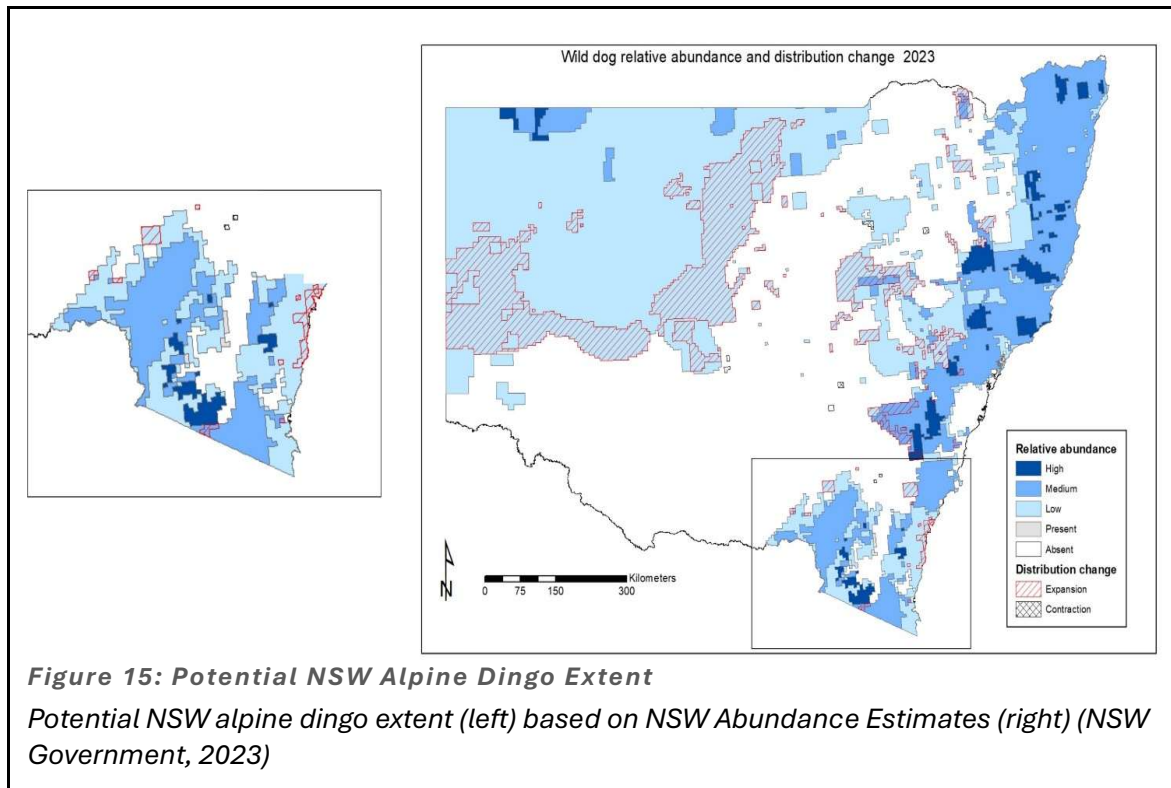
### New South Wales

While no direct estimates of dingo abundance are available for NSW, a population size can be inferred from existing distribution data. The NSW Department of Primary Industries and Regional Development (DPIRD) provides dingo abundance estimates based on expert opinion from land managers and pest animal coordinators (Hart, 2025; NSW Government, 2023). Hart (2025) acknowledged that there “is inevitably some uncertainty” around these estimates, although there is greater confidence in the distribution range of dingoes across the state. It should be noted, however, that this distribution information is derived largely from sighting records rather than systematic population surveys.

Two different models are used to estimate NSW populations.

### Method 1

Method 1 is based on NSW DPIRD estimates of abundance, population densities derived from the Victorian dingo densities, and geographic features. The NSW abundance is generally recorded with a granularity that equates to approximately 5km × 5km.



The SE NSW baiting regimes are much more extensive than in Victoria (see Figure 16), consequently population estimates for NSW are likely overstated and are used here conservatively. As dingoes are almost fully protected in ACT, ACT dingo densities may be slightly higher than Victorian densities, this is accounted for conservatively in the ACT density estimates.

**Figure 16: NSW Dingo Management Regimes**

Relevant NSW Dingo management regimes for the 2 relevant regions

| Regional Management Plan                                                                             | Location                                                                | Lethal control methods used                                                                                                                                         |
|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Murray Regional Strategic Pest Animal Management Plan 2024-2028 (NSW Local Land Services, 2025a)     | Murray LLS region, east of the Hume Highway (includes Mt Kosciuszko NP) | Annual aerial baiting in autumn, supplemented by year-round ground baiting, trapping, shooting and exclusion fencing on all public and private land                 |
| South East Regional Strategic Pest Animal Management Plan 2024-2028 (NSW Local Land Services, 2025b) | Southeast NSW                                                           | Six monthly aerial baiting in autumn and spring, supplemented by year-round ground baiting, trapping, shooting and exclusion fencing on all public and private land |

As the NSW Wild Dog Abundance Estimates are relatively granular, the population estimates will be similarly granular.

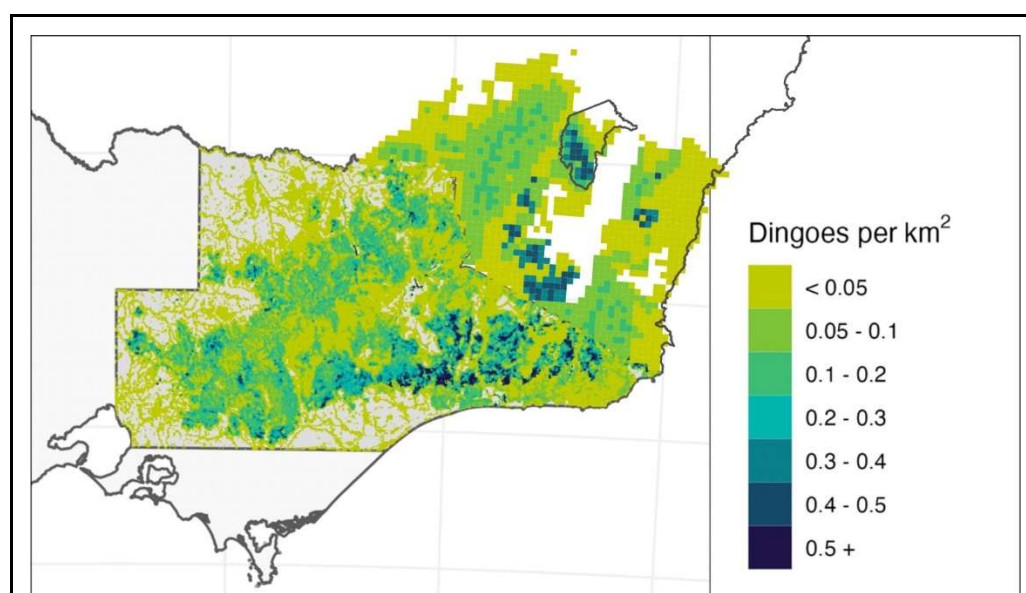


**Figure 17: Estimated NSW Alpine Dingo Densities**

Estimated NSW Alpine Dingo Densities modelled on Victorian dingo densities  
New South Wales Department of Primary Industries and Regional Development (DPI) estimates of abundance.

**Figure 18: Method 1: Total mature alpine dingo population**

Total Alpine Dingo Population based on NSW Abundance Estimates

| Measure                     | Value |
|-----------------------------|-------|
| <b>Victoria</b>             | 2,940 |
| <b>NSW and ACT Estimate</b> | 1,569 |
| <b>Total</b>                | 4,509 |

#### Method 2

Method 2 is based on estimated Extent of Occurrence in NSW and ACT versus Victoria, applying the Victoria estimated alpine dingo densities. Again, this will dramatically overstate the

population due to the much more aggressive control programs undertaken in NSW compared to Victoria, where alpine dingoes are protected on public land except within 3km of private land.

**Figure 19: Method 2: Total Mature Alpine Dingo Population**

*Total alpine Dingo Population based estimated Extent of Occurrence in NSW and ACT*

| Area            | % of Victoria EOO | Population Estimate |
|-----------------|-------------------|---------------------|
| <b>NSW</b>      | 47.4%             | 1,392               |
| <b>ACT</b>      | 2.7%              | 80                  |
| <b>Total</b>    | 50.1%             | 1,472               |
| <b>Victoria</b> |                   | 2,940               |
| <b>Total</b>    | 50.1%             | 4,412               |

For conservatism, the higher of the two population estimates has been adopted.

### 6.3.1 Historical

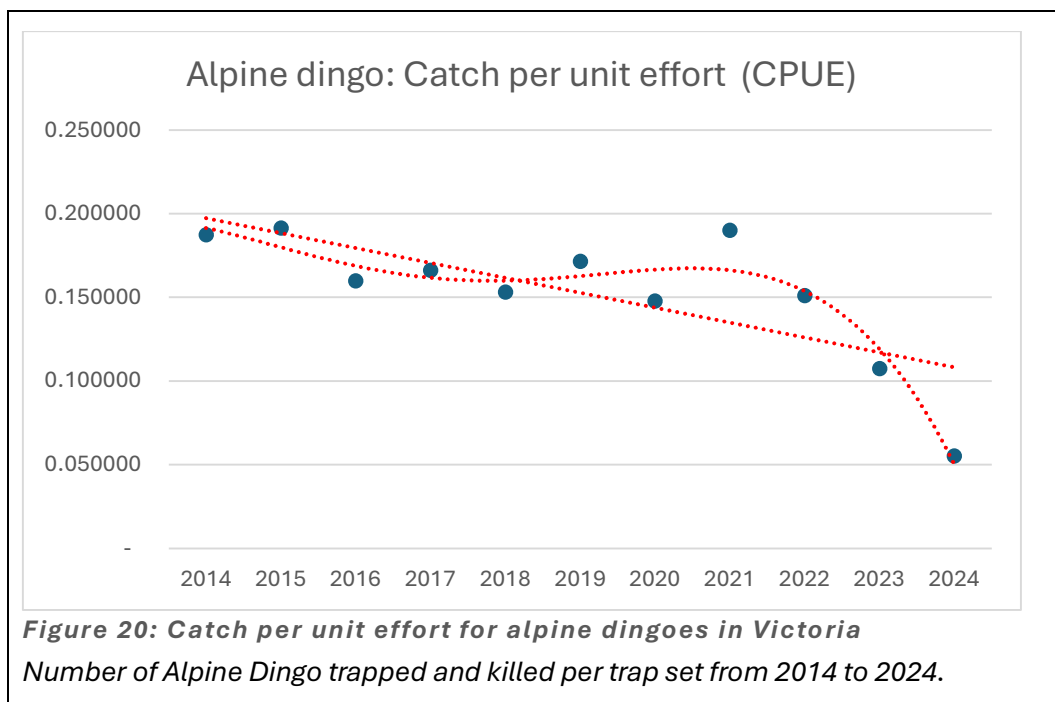
Dingoes were generally, once widespread across the region (Breckwoldt, 1988), therefore it is likely the alpine dingo's range and population was much larger and has since contracted to a fraction of its previous range.

### 6.3.2 Population Decline

#### **CPUE**

There are no direct historical records of alpine dingo numbers in the recent past. The population decline in the number of mature individuals is derived from Catch Per Unit Effort (CPUE) data in accordance with IUCN Guidelines. CPUE was calculated from data provided by DEECA under a Freedom of Information request with the data provided in Appendix 9.3.

DEECA reported a change in the recording methodology for traps set from July 2024 onwards based on traps being checked daily and traps being covered over weekends and reset on the following Monday. DEECA reported that this will overstate the traps set in comparison with prior years. Consequently, the traps set number used in calculating CPUE has been reduced in line with the advice provided in the FOI and all calculations are based on this adjusted, rather than raw, trapping effort.



A linear decline does not model the decline in CPUE very well ( $R^2 = 0.5291$ ), while a polynomial function has a very good correlation with the data ( $R^2 = 0.9227$ ). Based on this, what we see over the ten years is a 74% decline in CPUE, which represents a similar decline in population numbers assuming CPUE and population are linearly correlated. With a dingo generation estimated at 5 years (Zichy-Woinarski, Burbidge, & Harrison, 2014), the 74% decline is over 2 generations.

### Impact of Catch Efficacy

While it is assumed that CPUE and population size are linearly related, trapping effort by doggers is not random but generally is in response to sighting, report, or other known activity.

It may be regarded that such targeted effort would have been similarly targeted over the extent of the period of data collection, and therefore, trapping efficacy remained generally constant. In this instance it could still be considered that CPUE and population are linearly correlated.

Alternately, it could be considered that, over time, trappers will acquire knowledge about where and when to set traps to improve trapping efficacy. Conversely, it is not considered conceivable that traps would be placed to reduce trapping efficacy. In this instance there would be an unknown underlying bias or positive trend in catches and with a constant denominator (traps set) this would result in a similar underlying bias or positive trend in CPUE. Consequently, the population decrease would be even greater than the calculated CPUE indicates. It is not considered meaningful to try an estimate the potential impact of changes in catch efficacy, but simply to acknowledge that the calculated decline is conservative and may be higher.

### Trapping Effort 2009-2014

While Trapping numbers are available before 2014, reliable catch effort is not available. Catch effort invariably would have varied in the years prior to 2014. If, as a starting point, we use catch

effort for 2014 as a zero base and extrapolate back, assuming catch effort was constant for the preceding 5 years, we can get an estimate of CPUE before 2014.

While DEECA have advised they don't have reliable trapping information prior to 2014, an ABARES report into wild dog management prepared for the Australian Wool Innovation (ABARES, 2015) states that "From 2010 to 2014 there was an increase in reporting of usage of all control methods by government, with the highest increase in trapping". This is consistent with the observed change in catch effort post 2014 as shown in Figure 21: Annual Change in Catch Effort. Historical increase in catch effort was 13.1% pa across 10 years ( $R^2 = 0.643$ ) with 2024 catch effort adjusted down as per DEECA advice. Omitting 2024 as an outlier, the historic increase in catch effort was 6.6% ( $R^2=0.712$ ).

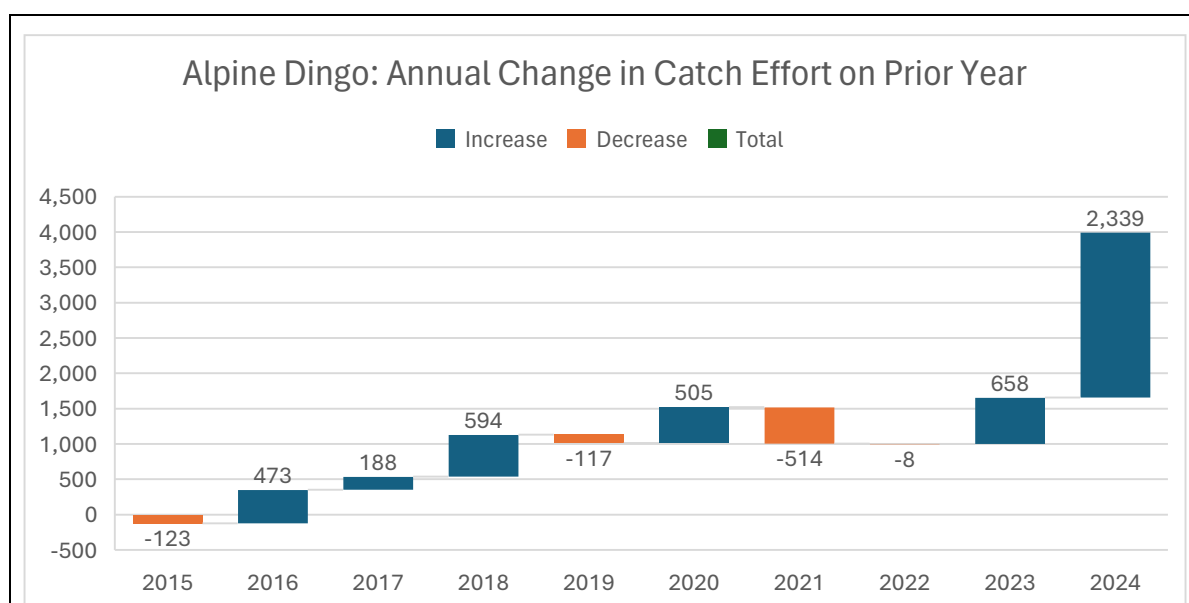


**Figure 21: Annual Change in Catch Effort**

Annual change in catch effort in Victoria on prior year 2015 to 2024. (Note: the increase in trapping effort 2023 – 2024 as reported by DEECA was 3,422, this has been adjusted down to reflect the effective part year change in trapping recording as advised by DEECA)

If trapping increased in this period (2009 – 2014), as the ABARES report states), then the decline would be even greater.

To remain conservative, no change in trapping effort from 2009 to 2014 has been assumed, however, given the reported increase by ABARES, a sensitivity analysis showing the potential impact is shown in Figure 24.

**Figure 22: Population Decline**

Population decline in alpine dingo in Victoria based on CPUE

| Measure                                                                                       | Population Decline |
|-----------------------------------------------------------------------------------------------|--------------------|
| 2 Generations based on CPUE                                                                   | 74%                |
| 3 Generations based on CPUE and estimated CPUE based on no increase in catch effort 2009-2014 | 82%                |

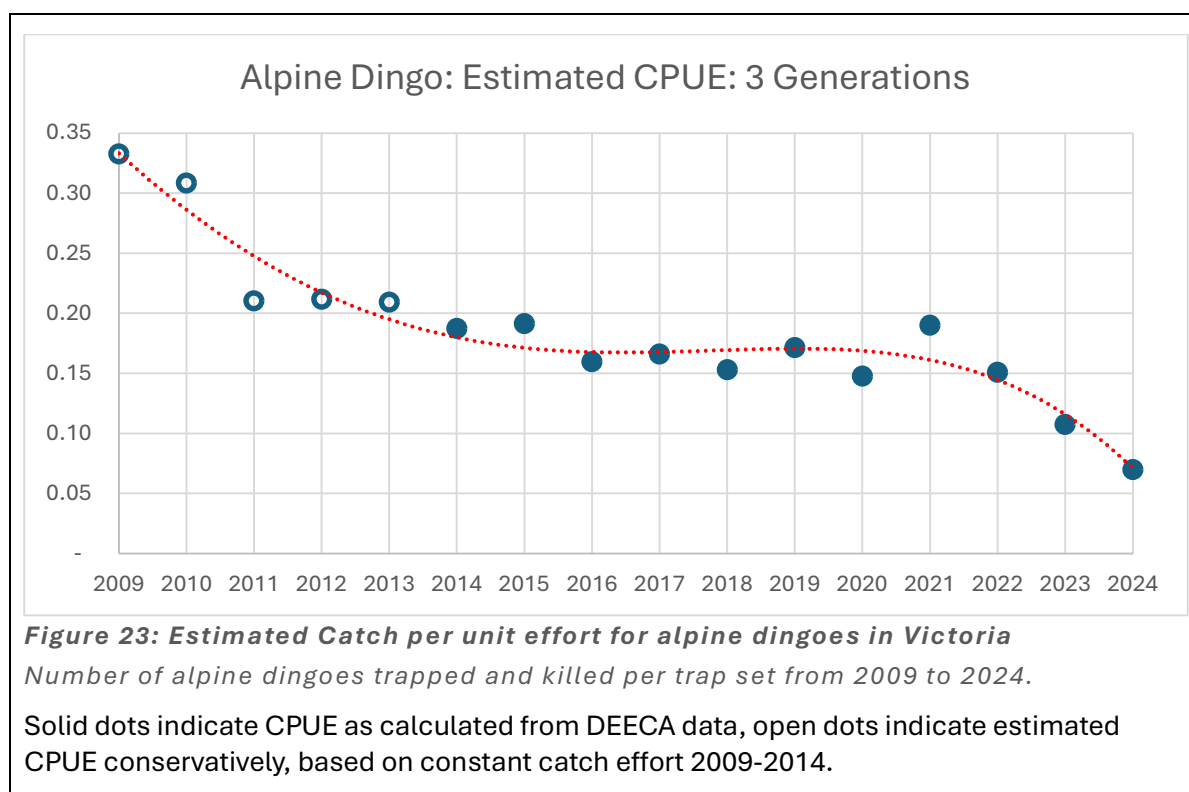


**Figure 24: CPUE Sensitivity Analysis**

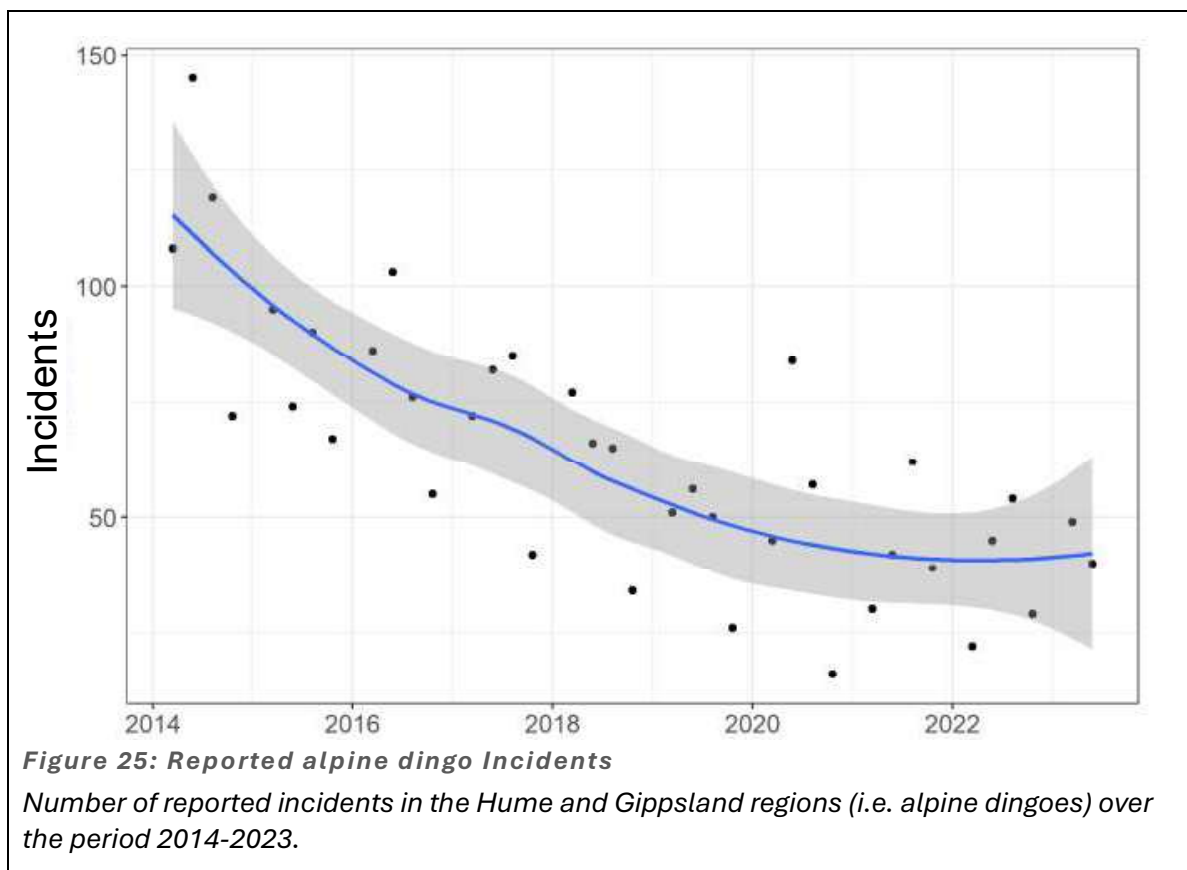
CPUE Sensitivity analysis for alpine dingoes in Victoria

| Change in Trapping Effort<br>2009 - 2014   | Annual Change in<br>Trapping Effort | CPUE Decrease |
|--------------------------------------------|-------------------------------------|---------------|
| Constant                                   | 0%                                  | 82.2%         |
| Increase in trapping effort<br>2009 – 2014 | 2%                                  | 83.9%         |
|                                            | 5%                                  | 86.1%         |
|                                            | 6.6%*                               | 87.2%         |
|                                            | 10%                                 | 90.0%         |

\*6.6% is highlighted as the was the average increase in trapping effort in the subsequent 9 years (excluding 2024 as an outlier)

### Reported Incidents

DEECA also measures ‘incidents’ (Figure 25, Appendix 9.1), defined as either a direct sighting or indirect evidence of an alpine dingo (such as tracks or stock bite marks). Such incidents can reasonably be expected to correlate with dingo abundance. In the period 2014 – 2023 the number of incidents declined by 69% (over 9 years), comparable to the decline in CPUE for a similar period (74% over 10 years) and similarly indicative of a comparable decline in abundance. While incident decline will not be as accurate a measure as CPUE, due to reporting biases and the fact that the sampling is on the periphery of the alpine dingo range, it nonetheless is largely consistent with the CPUE decline for a similar period and adds weight to this measure.



## 6.4 Threats

### 6.4.1 Seriousness of Threat.

With collapsing genetics and significant inbreeding (Weeks et al., 2024a), ongoing and heavily practiced lethal control and ongoing challenges with climate change, drought, fire and land clearing, the NSW dingo is at serious risk of extinction.

Apex predators being hunted to extinction in Australia is not new. The Thylacine (*Thylacine cynocephalus*) was the largest terrestrial marsupial in Australia at the time of European discovery, closely resembling a canid and filling a similar ecological role to the dingo across Australia. By the time Europeans arrived it was only found in Tasmania, where it was considered a threat to livestock and was aggressively targeted for eradication, with a one pound bounty paid for every Thylacine killed. It was rapidly hunted to extinction over a 50-80 year period, with the final animal dying in captivity in 1936. It is considered that limited genetic diversity may have preceded the extinction of the Thylacine, something we are also seeing in dingo populations (Menzies et al., 2012).

### 6.4.2 Threats Specific to Apex Predators

Due to a combination of ecological, biological, and human-related factors dingoes, as apex predators, are particularly vulnerable to threats and more susceptible to population declines, habitat loss, and extinction.

NSW dingoes, like all apex predators, are vulnerable because of their ecological characteristics, e.g. limited distribution, low population densities, large home ranges and dependence on prey availability, increasing pressure from human activities including (but not limited to) lethal control programs, habitat loss and fragmentation, genetic isolation, invasive species and

climate change. Protecting dingoes is crucial not only for their survival but also for maintaining the health and balance of ecosystems.

### 6.4.3 Identification of Known Threats

| Current threat               | Impact of threat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lethal control               | <p>In NSW dingoes are afforded no legal protection and lethal control is funded and coordinated, across all alpine dingo territory, on all public and private land. Lethal control includes annual or six monthly aerial 1080 poison baiting (autumn and spring), supplemented by ground baiting, trapping and shooting all year round (NSW Local Land Services, 2025a, 2025b).</p> <p>1080 baiting has a marked impact on dingo populations. In three trials in 1980 and 1981, baiting was shown to reduce the abundance of dingoes by 100%, 63% and 62%(Thomson, 1992).</p> <p>In a 2014 study of forested and wooded lands in Eastern NSW, dingoes exposed to aerial 1080 baiting at 40 and 10 baits per km were killed at rates of ~90% and ~55%, respectively (G. Ballard, Fleming, Meek, &amp; Doak, 2020). Accordingly, it is likely that aerial baiting is reducing NSW dingo populations by approximately 55%-90%, with every baiting operation, depending on the intensity of baiting.</p> <p>In NSW, 10-40 baits per km are used with a resultant, expected 55%-90% population reduction. This is occurring across the alpine dingo's range in NSW either annually or every six months. 1080 baiting is supplemented by year-round trapping and shooting.</p> <p>Secondary mortality of dingoes includes dingo pup deaths due direct parental mortality, disruption of social structure and impacts on genetic health. Dingoes have distinct features that enable them to survive and breed in the wild (See 4.9 Distinction between dingoes and dogs ). Chief amongst these is a complex social structure dependent on cooperative hunting and parenting. Lethal control disrupts this structure and fractures social groups, with dingo pups often left to fend for themselves and die of starvation or disease (pups are reliant on their parents until around 4 months old). Some find their way, often in a desperate and emaciated state, into dingo sanctuaries (Wallach, Ritchie, Read, &amp; O'Neill, 2009) from which they can never be returned to the wild due to NSW pest animal legislation.</p> <p>Multiple, repeated, sustained, lethal control measures, known to markedly reduce population numbers, across an apex predator's entire range would be expected to lead to population collapse and likely extinction. This is exactly what is being seen in the CPUE figures (see Population section).</p> |
| 1080 baiting for fox control | <p>1080 baiting for foxes is used extensively across NSW dingoes' range. Fox baits are lethal to dingoes. The known lethal dose of 1080 for dingoes is 1.65-1.75mg (McIlroy, 1981; Pestsmart, 2025). A 3mg dose of 1080 is used in all three trade products used for fox control: Defox, Foxoff and Foxshield (Pestsmart, 2025). Fleming(Fleming, 2019) advised that "you can't separate dingo and fox control because the methods that you use, particularly baiting takes out both species [SIC]"</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

| <b>Current threat</b>                       | <b>Impact of threat</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Loss of genetic diversity                   | After lethal control, this is NSW's biggest challenge. Inbreeding was confirmed by Weeks and colleagues: "We found a significant inbreeding co-efficient in all three broadly grouped populations (Weeks et al., 2024a)"                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Drought and dehydration                     | Drought is a common feature of the Australian landscape with dingoes adapted to manage this challenge. However, the impact of drought may be magnified when considered in conjunction with other threats. Furthermore, in a more natural setting they would be able to travel significant distances to find water. There are reports from graziers that dingoes are attracted to their properties because of water availability. This increases the likelihood of dingo-livestock interaction and dingo-grazier conflict.                                                                                                                  |
| Fire -wildfire                              | Dingoes have adapted to the presence of fire in the Australian landscape. It is possible that mosaics created by small fires may increase dingo survival by creating a range of habitats for different prey species. However, large scale fires, combined with small remaining dingo numbers and limited available habitat outside public land, may impact an already fragile dingo population via direct mortality, reduced prey availability and displacement into areas subject to pest control operations and/or other human induced threats.                                                                                          |
| Habitat loss, fragmentation and degradation | The Alpine region is subject to a number of threats that reduce its ecological integrity and capacity to support the alpine dingo and its natural prey, primarily land clearing. Invasive pests such as rabbits, goats, deer, foxes and cats also pose a threat. Whilst the alpine dingo plays a vital role in controlling these pests, the current low numbers of alpine dingo cannot alone manage these pest species. As such, there is a risk that ongoing habitat degradation by invasive pest species may negatively impact alpine dingo survival.                                                                                    |
| Hybridisation                               | Whilst hybridisation was once considered a major threat to dingoes in southeastern Australia, there is now strong evidence that hybridisation is not a current threat (Cairns et al., 2023) with the alpine dingo showing almost no evidence of hybridisation (Weeks et al., 2024a).                                                                                                                                                                                                                                                                                                                                                       |
| Disease                                     | Dingoes are vulnerable to disease. The most immediate threat H5N1 bird flu. Dingoes live in groups around water, are scavengers and will potentially come into contact with infected animals, including their feathers, faeces or infected carcasses resulting in exposure to infection. Dingoes are also susceptible to other diseases including canine distemper and hepatitis, parvovirus and canine ehrlichiosis. A 19th Century naturalist, Horace William Wheelwright, wrote "When the distemper raged so fearfully a few years ago...it extended also to the wild dogs, and scores were found dead in the bush (Wheelwright, 1862). |

## 6.5 The alpine dingo's eligibility for federal listing as Critically Endangered

The Dingo Conservancy has submitted a nomination under the EPBC Act for the alpine dingo to be listed as critically endangered. This nomination is currently before the Threatened Species Scientific Committee. Justification for listing the alpine dingo under both Criterion 1 and Criterion 3 are presented below.

### *Criterion 1*

Eligible under Criterion 1 A2 for listing as Critically Endangered

Basis- more than 80% reduction in mature individuals

The generation length of the alpine dingo is estimated to be approximately 5 years, giving a timeframe of 15 years for this criterion. Catch per unit effort modelling between 2009 and 2024 showed a decrease of 82% (Figures 23 and 24). It is therefore inferred that the population has decreased > 80% over a 15-year period. The primary cause of decline (lethal control and fox baiting) continues in Victoria and ACT despite some protections and continues unabated in NSW. Other threats, namely, loss of genetic diversity, habitat loss, fragmentation and degradation, drought and fire all continue as ongoing and present threats.

### *Criterion 3*

Eligible under Criterion 3 C1 for listing as Vulnerable

Basis-population less than 10,000 and a substantial rate of decline more than 10% in three generations

The adult population size of the alpine dingo is estimated to be 4,410 (Figure 19). There has been an inferred decline based on CPUE of 82% over three generations. It is inferred that the population will undergo continued decline due to inbreeding, lethal control, fox baiting, habitat destruction and fragmentation from agriculture and forestry, increase in fire severity and frequency, lack of protection in NSW and only partial protection in Victoria and the ACT.

## 6.6 Lessons learnt from dingo conservation efforts in Victoria

Victoria's situation is now desperate, particularly for the Mallee Dingo or Wilkerr which the Victorian Government has described as "on the brink of extinction". In Victoria the alpine dingo is also declining rapidly, with numbers collapsing and is currently under consideration for federal listing. This decline has occurred despite over a decade of protection on all public land, except for a 3km buffer zone. NSW's dingoes are likely to be in an even more dire position, given the absence of protection and the use of large scale, intensive, sustained, baiting programs.

Given the Victorian negative population trends, it is reasonable to assume that NSW dingoes are at least endangered, if not critically endangered.

The Victorian example shows that a 3km buffer zone is not a "balanced approach" to dingo conservation. Rather, it has proven to be a pathway to ongoing population decline towards extinction.

## 7 Ecological role of dingoes in NSW national parks

### 7.1 Trophic Regulation

Dingoes play an integral role in maintaining ecological balance within the landscape. As apex predators, they exert a significant influence on the structure and function of ecosystems (Eisenberg, 2013). One of the primary ways they achieve this is through trophic regulation, where they influence populations of herbivores, limiting overgrazing and promoting vegetation regrowth and plant diversity and enhancing soil health by allowing a consistent cycle of growth and decomposition (G. Caughley, Grigg, Caughley, & Hill, 1980; Letnic et al., 2012; Philip, 2022).

Pollock, Hunter and colleagues (2022) examined the hunting behaviours of alpine dingoes using drone technology in Namadgi National Park in the ACT. They found alpine dingoes exhibited behaviours comparable to other apex predators such as wolves: “The varied repertoire of predatory behaviours displayed by dingoes is similar to that documented in wolves and asserts them as a behaviourally complex top predator in the Australian landscape”.

Studies demonstrate that removing dingoes from the ecosystem can cause an irruption of herbivore prey species such as kangaroos and goats. (Hunter, Lagisz, Leo, Nakagawa, & Letnic, 2018; Hunter & Letnic, 2022; C. N. Johnson & VanDerWal, 2009). Deer can cause serious damage to native plants, animals and habitat by trampling and destroying plants, increasing grazing pressure, ring-barking young trees, fouling waterholes, and water course causing soil erosion and spreading weeds (Parks Victoria, 2025). Feral goats overgraze native vegetation, including herbs, grasses, shrubs, and trees, leading to reduced vegetation cover and soil erosion. Goats will often eat plants that are not normally part of a native herbivores diet in Australia. Their hooves and pawing actions further damage the soil, making it more vulnerable to erosion by wind and rain and they can prevent the regeneration of native plants and reduce the overall health of the ecosystem.

Whilst kangaroos have a natural role to play in Australian ecosystems, from time to time there are kangaroo irruptions (Graeme Caughley, Shepherd, & Short, 1987), which can impact vegetation quality, and soil structure (Howland & Driscoll, 2018). Environmental weeds are also known to rapidly invade disturbed and or degraded locations further degrading biodiversity (Groves & Willis, 1999; Williams & West, 2000). Dingoes have a significant role in mediating kangaroo populations and mitigating irruptions (G. Caughley et al., 1980; Hunter et al., 2018; M. Letnic & Crowther, 2013; Morris & Letnic, 2017; Pople, Grigg, Cairns, Beard, & Alexander, 2000).

Dingoes play a significant role in mediating kangaroo populations and mitigating herbivore irruptions (G. Caughley et al., 1980; M. Letnic & Crowther, 2013; Morris & Letnic, 2017; Pople et al., 2000). Mature alpine dingoes have been observed teaching younger ones how to handle larger prey (Pollock et al., 2022). Lethal control often disrupts these pack structures and learning behaviours and severely limits their ability to perform their usual critical ecosystem function of large prey population regulation (Dickman et al., 2014). Where dingoes become scarce, or are removed from an ecosystem, invasive species flourish and native herbivores may become overabundant with resultant devastating impacts to threatened ecological communities and species.

### 7.2 Mesopredator Release

Dingoes are known to have strong effects on the distribution, behaviour and abundance of mesopredator species such as invasive cats and foxes (Colman, Gordon, Crowther, & Letnic,

2014; Cupples, Crowther, Story, & Letnic, 2011; Molsher, Newsome, Newsome, & Dickman, 2017). Dingo suppression of mesopredators can dramatically reduce the intensity of predation on vulnerable prey (C. N. Johnson & VanDerWal, 2009).

Suppression of mesopredators by top predators is a potentially important process in protecting small prey species from unsustainable predation (Hunter & Letnic, 2022). Johnson & VanDerWal found in a meta-analysis that when wild dogs are abundant, foxes are consistently rare. Similarly, Forsyth, Ramsey, and Woodford (2019) studied the relative abundance of alpine dingoes, cats and foxes in Namadgi National Park in the ACT using camera traps. They found that there was a clear negative spatial correlation between alpine dingoes and mesopredators, particularly foxes. Specifically, where dingoes were abundant, foxes were not present. In another meta-analysis, Nimmo and colleagues (2015) found that dingoes suppress mesopredator abundance and activity and that this in turn can enhance populations of native species and flows on to benefit native biodiversity.

Similarly, a study by Indigenous rangers and scientists on the Ngururrpa Indigenous Protected Area in Western Australia's Great Sandy Desert found up to 50 night parrots, the largest known population globally. Camera traps and scat analysis revealed dingoes in this area actively prey on feral cats, with approximately 15% of dingo scats found to contain cat remains. By acting as apex predators, dingoes were found to keep populations of invasive feral cats in check (the primary predators responsible for hunting night parrots and their chicks) and effectively deterring them from night parrot roosting habitats. The authors recommended that any predator-control methods be limited to those that do not harm dingoes (Ngururrpa Protected Area Rangers, 2024).

Predation by feral cats and foxes are considered greatest threat to the extinction or decline of Australian mammal species (Banks, Carthey, & Bytheway, 2018; Johnson, Isaac, & Fisher, 2007; Woinarski, Burbidge, & Harrison, 2015). The severity of this threat is orders of magnitude greater than other threats to mammalian species in Australia.

**Figure 26: Major threat factors for Australian mammal species**

Major threat factors responsible for the extinction or decline of Australian mammal species: Adapted from (Woinarski et al., 2015)

| Threat factor                  | Conservation status  |                                  |                         |                             |                                 | Total    |
|--------------------------------|----------------------|----------------------------------|-------------------------|-----------------------------|---------------------------------|----------|
|                                | Extinct<br>(30 spp.) | Crit.<br>Endangered<br>(10 spp.) | Endangered<br>(10 spp.) | Vulnerabl<br>e<br>(36 spp.) | Near<br>Threatened<br>(52 spp.) |          |
| Predation by feral cats        | 5.4 (22)             | 4.6 (8)                          | 2.9 (9)                 | 2.9 (29)                    | 1.9 (29)                        | 3.2 (97) |
| Predation by red fox           | 3.0 (13)             | 2.4 (4)                          | 1.5 (5)                 | 1.9 (19)                    | 1.1 (17)                        | 1.9 (58) |
| Inappropriate fire regimes     | 0.6 (6)              | 4.4 (7)                          | 2.1 (6)                 | 2.3 (22)                    | 1.4 (22)                        | 1.7 (63) |
| Habitat loss and fragmentation | 1.8 (11)             | 1.0 (2)                          | 1.3 (4)                 | 0.9 (13)                    | 0.8 (15)                        | 1.2 (45) |
| Livestock and feral herbivores | 2.1 (14)             | 0 (0)                            | 0.2 (1)                 | 0.5 (7)                     | 0.5 (8)                         | 0.8 (30) |
| Disease                        | 1.4 (7)              | 1.2 (2)                          | 1.0 (2)                 | 0.4 (7)                     | 0.2 (4)                         | 0.7 (22) |
| Climate change; severe weather | 0.2 (1)              | 0.8 (1)                          | 0.5 (1)                 | 0.9 (9)                     | 0.8 (14)                        | 0.6 (26) |
| Predation by dingoes and dogs  | 0.1 (2)              | 0 (0)                            | 0.2 (1)                 | 0.8 (9)                     | 0.1 (2)                         | 0.3 (15) |
| Hunting                        | 0.6 (3)              | 0 (0)                            | 0 (0)                   | 0.1 (1)                     | 0.1 (2)                         | 0.2 (6)  |
| Predation by black rats        | 0.4 (2)              | 0.4 (1)                          | 0 (0)                   | 0.1 (2)                     | 0.0 (1)                         | 0.2 (6)  |
| Poisoning by cane toads        | 0 (0)                | 0 (0)                            | 0.6 (1)                 | 0.3 (3)                     | 0.0 (1)                         | 0.1 (5)  |
| Timber harvesting              | 0 (0)                | 0.3 (2)                          | 0.2 (1)                 | 0.1 (1)                     | 0.1 (3)                         | 0.1 (8)  |
| Other                          | 0.5 (2)              | 1.4 (4)                          | 2.0 (5)                 | 1.2 (12)                    | 0.3 (6)                         | 0.8 (29) |

Values in body of table are mean threat impact score across species (where 8 indicates that the threat poses an extreme extinction risk; 6, a very high risk; 4, a high risk; and 2, a moderate risk; Methods). The bracketed number indicates the number of species for which the threat factor was considered a risk. The category “other” includes a wide range of factors including disturbance at roost sites, pollution, habitat degradation due to weeds, and hybridization

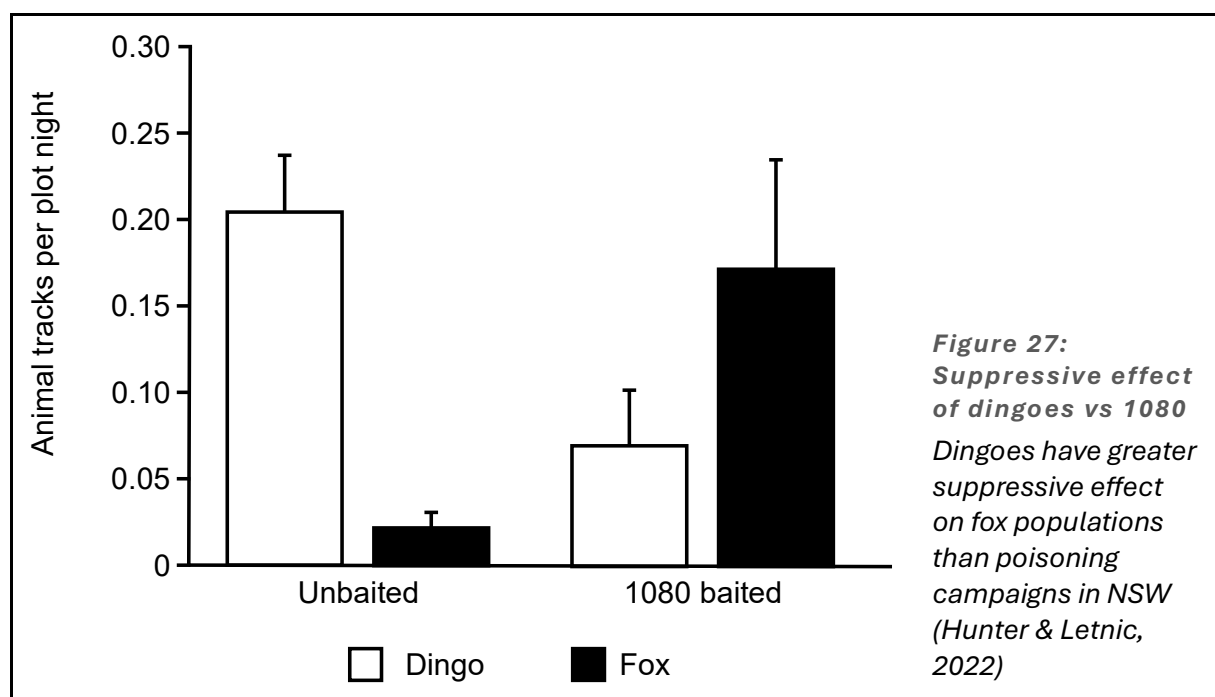
Woinarski and colleagues (2015) and similarly Letnic and colleagues (2012) observe that across extensive areas dingoes have been reduced substantially, primarily by lethal control, and that this reduction has resulted in increases in the abundance of foxes and feral cats with consequent increased predation pressure on native mammals. While dingoes do predate on

some small mammals this is insignificant compared to feral cat and fox predation. Furthermore, the role of dingoes in suppressing feral cats and foxes is crucial to the survival of many threatened species (Cupples et al., 2011; Glen, Dickman, Soule, & Mackey, 2007; Hunter et al., 2018; Hunter & Letnic, 2022; Johnson et al., 2007; C. N. Johnson & VanDerWal, 2009; Letnic, Koch, Gordon, Crowther, & Dickman, 2009; Sunfly et al., 2024).

### 7.2.1 Dingoes versus poison 1080 poison baiting

There is good evidence that dingoes are more effective than 1080 baiting programs at controlling foxes. Dr Daniel Hunter and Professor Mike Letnic undertook research in forested areas of NSW. They found that in areas where there was 1080 baiting there were less dingoes, more foxes and less small, endangered mammals. In areas where there was no 1080 baiting, there were more dingoes, less foxes and more small mammals. They concluded that dingoes, as apex predators, suppress the numbers and activity of smaller predators (mesopredators) such as foxes, and when dingoes are killed, fox numbers will increase and small mammal numbers decline (Hunter & Letnic, 2022).

This research has been ignored. 1080 poison baits continue to be used in dingo territory to control foxes. They are lethal to dingoes and do more harm than good.



### 7.2.2 Keystone Species

Dingoes are considered keystone species (Letnic et al., 2009; Letnic et al., 2012). Keystone species differ from other species, having a disproportionate impact on their ecosystem relative to their abundance. If a keystone species is removed, it can cause major changes in the structure and function of the ecosystem, often leading to cascading effects that alter biodiversity and ecosystem stability. As such, the dingoes' presence or absence can significantly affect the structure and composition of ecosystems (Letnic et al., 2012; Paine, 1995; Wooster et al., 2024).

By regulating prey populations, dingoes help maintain species richness and abundance. Dingo predation on herbivores, such as kangaroos, and smaller predators, such as foxes and feral cats, prevents trophic cascades that can destabilize ecosystems. Without dingoes, these ecosystems can experience unchecked population growth of herbivores, leading to overgrazing and resultant habitat degradation. This, in turn, affects other species dependent on the same habitat, spiralling into a loss of biodiversity and ecosystem functionality.

The ecological balance maintained by dingoes is crucial for the protection of various native species and the overall health of their habitats (Johnson et al., 2007; Letnic et al., 2012; Paine, 1995). With dingoes present, ecosystems contain richer and more diverse habitats for a greater number of species (Johnson et al., 2007; Wooster et al., 2024). The loss of the dingoes tends to result in a simplification of the food web, with loss of biodiversity, loss of threatened species, and degradation of threatened ecological communities (Hunter & Letnic, 2022; Johnson et al., 2007; C. N. Johnson & VanDerWal, 2009; Letnic et al., 2012; Wooster et al., 2024).

### 7.2.3 Ecosystem resilience

The concept of ecosystem resilience was first introduced by Canadian ecologist C.S. Holling in 1973 and is now widely accepted (Holling, 1973). It describes the persistence of natural systems in the face of changes due to both natural and anthropogenic causes. It is best understood in this context as "the capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks" (Walker, Holling, Carpenter, & Kinzig, 2004).

Apex predators such as the dingo play a key role in supporting ecosystem resilience. The ecological communities found within the NSW dingo's range face a number of increasing challenges and disturbances, with invasive species being, perhaps one of the greatest challenges they face. The NSW dingo is uniquely placed to enhance the resilience of these ecosystems and ensure their ability to withstand multiple threats and challenges (M. Letnic, Baker, & Nesbitt, 2013). However, when biodiversity is degraded, when native species are under threat from invasive predators, when overgrazing means weeds outcompete native species, when aquatic species are struggling in fouled waterways, when critically endangered fauna are at risk of being trampled by hard hooved animals, all it takes is one small change for a system to collapse, often irrevocably. Johnson and colleagues found that "rarity of top predators triggers continent wide collapse of mammal prey" (Johnson et al., 2007). This is what we risk if we lose the dingo in NSW national parks.

## 7.2.4 Invasive species management

If invasive species are to be effectively managed, Australia's apex predator is of the utmost importance. This will involve not only formal protection but a review of how we manage invasive species

The invasion of exotic species is considered one of the top five global causes of biodiversity loss (Sala et al., 2000; Wallach, Johnson, Ritchie, & O'Neill, 2010), with mounting evidence that invasive species directly cause extinctions (Vitousek, Mooney, Lubchenco, & Melillo, 1997).

Scheffer and colleagues (2001) propose that ecosystems subjected to changing conditions suggest that a loss of resilience is often the underlying cause of catastrophic shifts to degraded states (Scheffer, Carpenter, Foley, Folke, & Walker, 2001) with evidence that high value biodiverse environments display extraordinary resilience. This highlights the importance of identifying and strengthening the mechanisms that provide for resilience. Invasive species are drivers, not only of decline of individual species, but may also shift ecological systems to alternative states (Croll, Maron, Estes, Danner, & Byrd, 2005).

Unsurprisingly, when ecosystems are invaded by exotic species and native biodiversity declines, human intervention in the form of pest control is often proposed as the solution, but is often little more than a Band-Aid (Scheffer et al., 2001). Wallach and colleagues (2010) argue that extreme measures have been applied in attempts to control or eradicate invasives, with little success overall, and that shifts to invasive dominance are symptomatic of losses in ecosystem resilience due to the suppression of apex predators.

In 2015 The Australian Government announced a plan to cull 5 million feral cats (Australian Government, 2015), while the Victorian Government has programs for feral cat control, fox control, feral deer control and feral goat control (Victorian Government, 2025). Eradication or control attempts are not only difficult and expensive, but they also often cause unforeseen ecological damage. For example, fox (*Vulpes vulpes*) control can lead to increased cat densities (*Felis catus*), which may in turn devastate small mammal populations.

Wallach and colleagues (2010) argue that lethal predator control, which causes dingoes to be scarce or absent, promotes ecosystems that are dominated by invasive species. They found that lethal control of dingoes fractures their social structure and leads to bottom-up driven increases in invasive mesopredators and herbivores. Furthermore, where lethal control is relaxed, dingoes re-establish top-down regulation of ecosystems, allowing the recovery of biodiversity and productivity.

Natural resource managers have an important opportunity right now regarding dingo management. The science demonstrates dingoes effectively mitigate many of the most destructive effects caused by introduced mesopredators and large, grazing herbivores. Ignoring this and further facilitating dingo population decline will make public land managers negligent and complicit in, not only alpine dingo extirpation and negative conservation outcomes for the species which they have been proved to protect (Wallach et al., 2010).

### 7.2.5 The alpine dingo as a case study

We have focused on the alpine dingo as a case study of the ecological importance of dingoes in NSW national parks. The Alpine dingo is found in Mt Kosciuszko national park and surrounding alpine and forested areas of se NSW, ACT and Eastern Victoria.

The alpine dingo, as the sole terrestrial apex predator in the Australian Alps is uniquely placed to support the protection and recovery of species and ecological communities at risk from invasive species. Significant research highlights the role that the alpine dingo and can play in maintaining ecological balance and controlling invasive species.

The alpine dingo is the lone apex predator in a region with 14 protected ecological communities, with 5 of particular relevance to this nomination (see Appendix 9.4). There are 251 protected species that may occur within this region, with 58 of these species entirely or almost entirely found within the alpine dingo region. (See Appendix 9.5). Each protected ecological community's Conservation Advice lists mammalian invasive species as a significant current threat (with cats, foxes, and deer among the leading causes).

### 7.2.6 Ecological Communities at Risk in the alpine region

There are 14 protected ecological communities found within known alpine dingo territory, with the five most relevant to this nomination being:

- The Alpine Sphagnum Bogs and Associated Fens,
- Natural Temperate Grassland of the southeastern Highlands,
- River-Flat Eucalypt Forest on coastal floodplains of southern NSW and eastern Victoria,
- Littoral Rainforest and Coastal Vine Thickets of Eastern Australia and
- Subtropical temperate Coastal Saltmarsh (see Protected Matters Report).

The alpine dingo as a keystone, highly interactive species and apex predator has a profound and widespread protective effect over most, if not all, protected ecological communities (Wooster et al., 2024). The five protected ecological communities found within known alpine dingo territory all have large areas within known Alpine Dingo territory and are subject to threats from invasive species that dingoes are known to manage (see table below).

#### *The Alpine Sphagnum Bogs and Associated Fens - A Case Study*

We have chosen one threatened ecological community, the Alpine Sphagnum Bogs and Associated Fens, as an illustrative example of how the alpine dingo assists in protecting threatened ecological communities against the threats opposed by invasive species. We consider how the dingo, as a top-down predator controls invasive species that threaten Alpine bogs and fens and the protected species they support, with a particular focus on hoofed animals (ungulates), such as feral horses, deer and pigs.

Alpine Sphagnum Bogs and Associated Fens ecological communities (Alpine bogs and fens) occur across much of the Alpine Dingo's territory; namely in alpine, subalpine and mountainous (montane) landscapes of Victoria, New South Wales and the Australian Capital Territory.

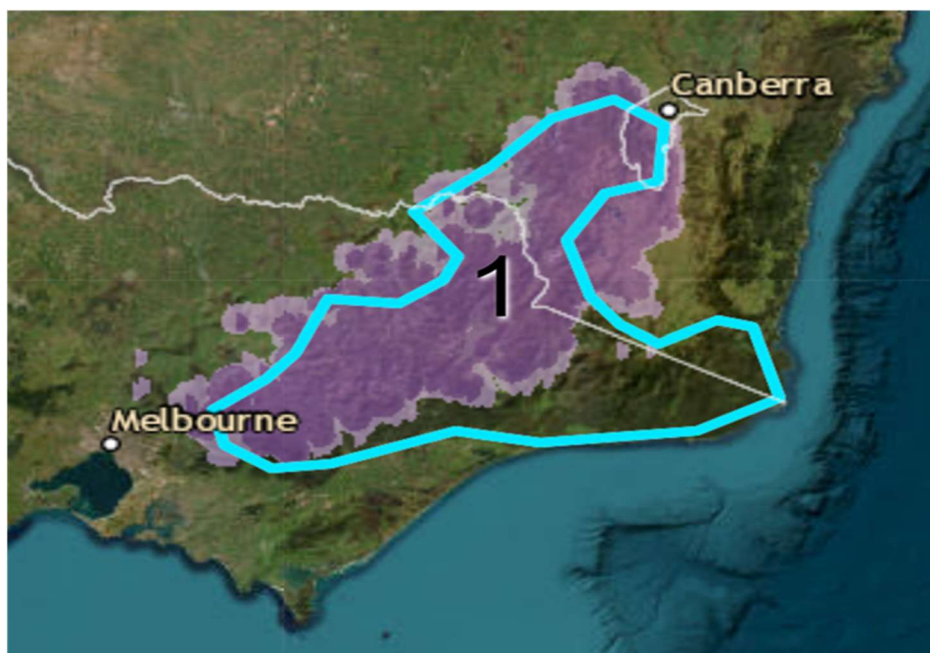


**Figure 28: Overlap between Alpine dingo distribution and Alpine bogs**  
Protected matters report, showing overlap between Alpine dingo distribution and Alpine bogs and fens on mainland Australia

*Threatened species dependent on Alpine Bogs and Fens and alpine dingoes*



**Figure 29: Critically Endangered:**  
**Kelton's leek-orchid**

Alpine bogs and fens support a diverse range of species, many of which are EPBC listed as threatened species. Protected plants found in this community include the Bogong eyebright (*Euphrasia eichleri*), the swamp everlasting (*Xerochrysum palustre*). In addition, there are a number of protected orchids including the Kiandra greenhood (*Pterostylis oreophila*), Bago leek orchid (*Prasophyllum bagoensis*), Brandy Mary's leek orchid (*Prasophyllum innubum*) and Kelton's leek-orchid (*Prasophyllum keltonii*) are orchid species listed as critically endangered and likely to occur in the ecological community (DCCEEW, 2015).

Alpine bogs and fens provide habitat for a large number of endemic and threatened fauna species. This includes frogs, skinks, crayfish and native fish. These fens also act as a water supply for endemic native animals. Alpine dingoes, for example, rely on daily water and utilise fens as an essential water supply.



**Figure 30: Critically Endangered: Southern Corroboree frog**

Frogs that are known to rely on Alpine bogs and fens include the critically endangered southern and northern Corroboree frogs (*Pseudophryne corroboree* and *Pseudophryne pengilley*) as well as the Baw Baw frog (*Philoria frosti*) and the Alpine tree frog (*Litoria verreauxii alpina*), listed as endangered and vulnerable respectively (DCCEEW, 2015).

Several species of skinks are also found in this ecological community, including the alpine she-oak skink (*Cyclodomorphus praealtus*), the alpine water skink (*Eulamprus kosciuskoi*) and the alpine bog skink (*Pseudomoia cryodroma*).

The ecological community also supports the alpine spiny crayfish (*Euastacus crassus*) as well as a number of native galaxiid fish, including the nationally endangered Barred galaxias (*Galaxias fuscus*) (DCCEEW, 2015).

Alpine bogs and fens have two essential components: bogs that have highly absorbent, sphagnum moss as the dominant genus and fens which are shallow, open water pools, with or without emergent aquatic plants, often near to or surrounding the bogs. Sphagnum and underlying peat are highly absorbent and regulate moisture within the ecological community. Alpine bogs and fens are highly susceptible and vulnerable to trampling by invasive hard hoofed animals (ungulates).



**Figure 31: Critically Endangered: Alpine bog skink**

The alpine dingo plays a key role as the only natural predator that can apply top-down pressure on hoofed herbivores to control their numbers and behaviour.

The invasive ungulates that pose a threat to Alpine bogs and fens include feral horses, deer and feral pigs (DCCEEW, 2009). According to the Alpine Sphagnum Bogs and Fens recovery plan: “Feral deer (including sambar, rusa and fallow deer) are threatening biodiversity in the Alpine and subalpine areas of mainland Australia ... Deer populations (and extent) have increased significantly in recent years. They are rated as a ‘high threat’ and it is largely an unabated problem in eastern Australia. There is limited information available on their potential proliferation, but they can cause significant damage to the ecological community through trampling, browsing and wallowing. During the latest feral horse aerial count in Kosciuszko National Park, an estimate of around 1,000 feral deer was observed” (DCCEEW, 2015).



**Figure 32: Critically Endangered: Alpine Bog and Fen**

Alpine Bog and Fen near Nyimba camp, Avon Wilderness Area, Victoria. Fen in the centre, with bog containing *Sphagnum* moss, on the left of the photograph

It is probable that the recent collapse in alpine dingo population will be a contributing factor to the observed irruption of deer (Davis et al., 2015; Forsyth et al., 2018). It may also be a factor in the irruption of feral horse populations. This would be of particular relevance to the Kosciuszko National Park where the deer irruption was observed, and where aerial 1080 baiting for “wild dogs” (alpine dingoes) has been heavily practiced in recent years (Brown, 2024). Similarly, dingoes, as apex predators may well have a role in managing wild horse populations and behaviours. This is an area, worthy of research, particularly given the political sensitivities around wild horse control.

Feral pigs are “a significant problem causing damage to bogs in both the ACT and NSW. Damage generally occurs on the edges of, or within grasslands adjacent to, bogs where pigs wallow in pools and waterways and dig and uproot vegetation over large areas, making pigs an ongoing threat to the structural integrity of the ecological community” (DCCEEW, 2015).

Forsyth and colleagues studied interactions between dingoes and wild ungulates and found that they were able to apply top-down pressure on goats, pigs, small deer and, to an extent, larger deer. They found that the relationships were complex and depended upon “the sex–age classes vulnerable to dingo predation, dingo pack sizes, the availability of escape terrain for ungulates and availability of alternative foods for dingoes. They found that whilst lone dingoes had a bigger impact on smaller ungulates, dingoes with larger pack sizes were able to impact larger ungulates such as wild pigs or sambar deer (Forsyth et al., 2018). Consequently, protecting alpine dingoes from lethal control and maintaining their pack structures will have a direct

impact on larger invasive ungulate species including pigs, sambar deer and possibly wild horses. This will depend on prevention of further collapse of alpine dingo numbers.

Other invasive species known to impact Alpine bogs and fens were rabbits and hares (by excessive herbivory) as well as foxes and cats (by impact on fauna) (DCCEEW, 2015). Dingoes are known to place top down pressure on these populations both by predation (see Diet section) and by invoking an atmosphere of fear (Eisenberg, 2013). Doherty's research showed that if rabbits were abundant dingoes will turn to them as a primary food source in preference to other food (Doherty et al., 2019).

Alpine dingoes as the sole native apex terrestrial predator in the region and the only natural defence against these invasive pests and therefore acritical to protecting this threatened ecological community.

### 7.2.7 Species at Risk

There are 251 protected species, listed within alpine dingo territory. The long-footed potoroo has been chosen to illustrate the role alpine dingoes play in supporting endangered species protection and recovery in the Alpine Region.

#### *The Long-footed Potoroo - A Case Study*

***Dingoes are recognised in the Approved Conservation Advice as supporting the protection and recovery of the long-footed potoroo (DCCEEW, 2022)***

Many studies have shown that dingoes, as apex predators, provide a large net benefit to small prey species by keeping invasive and far more damaging predators (cats and foxes) under control and by maintaining vegetation and soil structure via top-down pressure on herbivores (Hunter & Letnic, 2022; Johnson et al., 2007; C. N. Johnson & VanDerWal, 2009; Letnic et al., 2012; Wallach et al., 2010).

The long-footed potoroo (*Potorous longipes*) provides an illustrative example of the alpine dingo's capacity to protect small threatened species against invasive species.



**Figure 33: Endangered: The Long-footed Potoroo**

The Long-footed potoroo is a small mammal that belongs to the rat-kangaroo family. It is a ground-dwelling, mostly nocturnal marsupial. Its larger size and longer hind-foot in relation to head length gives it its name (Seebeck & Johnston, 1980). It is listed as Endangered under the EPBC Act. It's entire current distribution is entirely within known alpine dingo territory.

The Conservation Advice for the long-footed potoroo relevant to the dingo states:

“Dingoes are recognised as a natural predator with which the long-footed potoroo can coexist (Scotts & Seebeck 1989; Brown & Triggs 1990). Long -footed potoroos are also predated on by

European red foxes and feral cats (*Felis catus*) (Scotts & Seebeck 1989; Brown & Triggs 1990; Jones & Johnson 1997; DSE 2009). It is notable that dingoes may benefit the long-footed potoroo and other small and medium-sized native mammals by suppressing the abundance of European red foxes and feral cats (Johnson & Van Der Wal 2009; Letnic et al. 2011; Brook et al. 2012; Colman et al. 2014). At a continental scale, there is a correlation between the persistence of native rodents and marsupials and the presence of the dingo (Johnson et al. 2007), and European red foxes are consistently rare when dingoes are abundant (Johnson & Van Der Wal 2009). Populations of native animals that are preyed upon heavily by feral cats and European red foxes may be further suppressed in areas where dingoes are controlled (Letnic et al. 2009; Letnic & Dworjanyn 2011; Gordon et al. 2015)”.

### 7.3 National Heritage and World Heritage Areas-significance

#### *National Heritage Places - Australian Alps National Parks and Reserves*

The alpine dingo is the sole native terrestrial apex predator and ecosystem regulator in the Australian Alps, an area that is federally listed as a place of National Heritage Value.

The Australian Alps extend over 1.6 million hectares of public land with eleven national parks and reserves. It is considered a “unique and rare natural environment” and “precious to all Australians” (DCCEEW, 2025). The high-altitude peaks and plateaus, glacial lakes and alpine and sub-alpine ecosystems combine to form a rare gem in otherwise relatively flat country.



**Figure 34:**Alpine dingo in the snow

The Australian Alps are home to a wide variety of unique ecological communities and species, many of which are threatened, ranging from alpine meadows, bogs and fens, and snow gum woodlands, to tall, wet, fern-filled forests. The Alps also contains spectacular landforms created by glaciers and unique, cold-climate adapted plants and animals. At the peak of the alpine food web is the alpine dingo.

The Australian Alps, due to their high peaks and seasonal snow, strongly influence the hydrology of eastern Australia. They are the source of large volumes of water and the bogs and fens play an integral role in regulating water flow and river systems. The alpine dingo, in its role of top-down regulator of herbivores, plays a vital role in protecting these bogs and fens (see Section 7.2.6)

***Blue Mountains dingoes -a hidden gem within the Blue Mountains National Heritage and UNESCO World Heritage Area***

The Blue Mountains dingoes are the sole terrestrial apex predator and ecosystem regulator in the Greater Blue Mountains World Heritage Area. This population is small, isolated and fragile. It is at risk of extinction due to ongoing aerial poison baiting, and decline in survival and reproduction (reproductive fitness), known as inbreeding depression. There is an urgent need to see this small population properly protected and all aerial and ground baiting cease within the Greater Blue Mountains area. This population presents little, if any risk, to farm livestock (Purcell, 2010). It is also close to universities, presenting an ideal opportunity for research and innovation.

## Cultural significance of dingoes to First Nations communities

Dingoes of deep cultural significance to many First Nations people throughout Australia, considered sacred and as ‘family’, with an important role in lore, kinship, Songlines, storytelling and Caring for Country practices. In September 2023, more than 20 Indigenous groups signed the National First Nations Dingo Declaration which recognises the importance of the dingo as an apex predator and in its environmental role: *“Dingoes are Boss of Country. They belong in the landscape. Their presence in the ecosystem ensures natural systems remain in balance. This role is greatly under-appreciated. The direct and indirect effects of the Dingo on native and pest species are clear and apparent.”*

The Declaration states that use of the term ‘wild dog’ is not supported by First Nations people: *“This term diminishes the Dingo. It is a deliberate misrepresentation to justify killing. It disrespects and disregards culture”,* and that *“Lethal control should never be an option. We do not, and have never, approved the killing of dingoes. Killing dingoes is killing family.”* Despite this very strong view, Traditional Owners’ views and advice regarding dingo management have, to date, largely been ignored.



**Figure 35: First Nations depiction of Dingo**

Beau Motlop's depiction of dingo howling recognising traditional significance

## 8 Dingo management in national parks

### 8.1 Introduction

Effective management of dingoes in national parks will require holistic management across the entire NSW landscape. Whilst dingoes in national parks, generally stay within national parks there is a perception that they pose a risk to livestock on private land. This perception, as well as the risk that dingoes living in national parks may impact livestock outside national parks, needs to be addressed. This requires a critical assessment of the current National Wild Dog Action Plan and NSW Wild Dog Management Strategy 2022-2027.

## 8.2 Impact of dingoes in national parks on livestock

The main rationale for killing dingoes within National Parks is the perceived risk that dingoes will leave national parks and predate on livestock. However, dingoes rarely migrate out of protected areas into farmland (Claridge, Mills, Hunt, Jenkins, & Bean, 2009; Purcell, 2010; Robertshaw & Harden, 1985). Established packs have distinct, stable territories (Allen & Byrne, 2008) rarely crossing paths with individuals from different packs (Purcell, 2010). Dingoes within national parks appear to restrict their movements to public land (Claridge et al., 2009; McIlroy, Cooper, Gifford, Green, & Newgrain, 1986). Specifically, this has been demonstrated in NSW where a 2010 study in the Blue Mountains found minimal or no visits to farmland by GPS tracked dingoes (Purcell, 2010). This is consistent with Pollock and Hunter, who directly observed alpine dingoes in Namadgi National Park (ACT) almost exclusively hunting kangaroos within the Namadgi National Park (Pollock et al., 2022).

Lethal control can disrupt dingo pack structures and alter normal feeding behaviour. Several studies have demonstrated higher rates of predation on domestic stock following 1080 baiting campaigns (L. Allen, 2000; Wallach et al., 2009) thought to relate to an increased number of lone dingoes which may turn to livestock when unable to hunt large native prey successfully on their own (Marsack & Campbell, 1990; Thomson, 1992).

### 8.2.1 Livestock predation in context

Dingoes do predate on livestock, particularly sheep. However this predation needs to be seen in context. Dingo predation is by no means the greatest cause of livestock loss and is, in the context of overall livestock mortality, insignificant.

Different sources all estimate lamb losses before marking in Australia in excess of 20% with the vast majority of deaths due to exposure, adverse weather events, starvation and mismothering. Dingo predation accounts for only a minor fraction of those deaths (Australian Wool Innovation, 2003; Meat and Livestock Australia, 2001; Vialoux, 2020).

A focus on livestock predation fails to recognise the potential benefits to graziers (and ecosystems generally) that dingoes provide. Similarly, when dingoes are removed, they leave an ecological vacancy that other species can fill. In NSW, for example, where dingoes have been removed or a rare, feral pig irruptions are already causing serious concern, including predation on live lambs.

### 8.2.2 Efficacy of predator-smart farming techniques

There is no doubt that some farmers are disproportionately affected by dingo predation. For these farmers, there are non-lethal control alternatives. predator-smart farming has been shown to be both effective and cost effective (Boronyak & Jacobs, 2023; Boronyak & Quartermain, 2022; Van Bommel & Johnson, 2012). However there are multiple political, economic, cultural and knowledge barriers to its implementation (L. Boronyak, Jacobs, & Smith, 2023). There is currently no public funding or support dedicated to predator-smart farming techniques, this, as well as the public funding behind lethal dingo control further locks in lethal control and reinforces the economic and cultural barriers to dingo coexistence.

### 8.3 The National Wild Dog Action Plan - A Critique

Current dingo management in NSW national parks (and more widely) occurs under the umbrella of the National Wild Dog Action Plan (NWDAP). This model is based on killing dingoes, not on protecting livestock. It is inherently misleading and based on outdated approaches to land management.

The NWDAP has, as its Vision:

“Stakeholders working together to deliver effective, coordinated and humane management of wild dogs”.

This vision has five fundamental flaws in both wording and implementation:

#### *Dingo killing rather than protection of livestock, land productivity and farm viability*

What farmers really want is for their livestock to be protected, their land to be productive and their farms to be viable. The NWDAP focuses on killing rather than protecting livestock, land productivity or farm viability. Farmers Australia-wide are reporting serious livestock losses from “wild dogs” despite millions of dollars being spent on lethal control of dingoes. Farmers also report being overrun by feral pigs that are increasingly preying on live lambs. The NWDAP does not protect livestock or address the ecological gap created when dingoes are removed.

#### *Dingo killing rather than management*

The NWDAP contains little, if any, genuine non-lethal dingo management. Dingoes can be researched, counted, understood and managed. In many cases, the most effective approach is to cease lethal control, leave stable packs intact and protect livestock through fencing and livestock guardian animals (Boronyak & Jacobs, 2023; Van Bommel & Johnson, 2012). Instead, the plan offers little beyond lethal control.

#### *Misleading language*

The term “wild dog” is inherently misleading because it obscures large-scale dingo killing. Under the NWDAP, it is intended to cover dingoes, hybrids and free-roaming feral or domestic dogs. As a result, the public is largely unaware that dingoes are being killed.

#### *Animal Cruelty*

The two most common methods used to kill dingoes are 1080 baiting and leg-hold traps. 1080 causes a slow, extremely painful death and has been banned in many countries because it is considered inhumane (RSPCA, 2021). Leg-hold traps cause significant suffering by crushing and causing lacerations, fractures, and shock. Dingoes are sentient, intelligent animals known to grieve; killing them causes distress and pack disruption and can leave pups to starve. Some orphaned pups may reach dingo rescue shelters, but many do not, and those that survive cannot legally be returned to the wild.

NSW has recently updated its animal cruelty laws. All wildlife management, including dingo management, needs to comply with these laws.

#### *Outdated thinking*

It's based on an outdated, colonial “trap, shoot, kill” mentality. It fails to incorporate modern predator ecology or Indigenous knowledge systems.

The NWDAP leaves farmers without effective protection because it prioritises killing over prevention. Dingoes and free-roaming domestic dogs continue to kill livestock, while farmers, government staff and contractors continue killing dingoes. Pest species such as goats, deer,

feral pigs, wild horses and rabbits can irrupt, causing ecological damage and competing with livestock for feed. The result is widespread frustration, distress and conflict. Some farmers are so affected that they are leaving the land. The NWDAP is not fit for purpose and should be replaced by a cooperative plan grounded in clear language, science, livestock protection, Indigenous knowledge and predator ecology.

## 8.4 Proposed NSW Dingo Coexistence Plan - An alternative model

The current NWDAP enables large-scale, inhumane dingo killing under misleading terminology. It is outdated and ineffective, leaves livestock poorly protected, and harms both dingo populations and the ecosystems they help sustain. A NSW dingo coexistence plan should be developed to replace the current framework, drawing on best-practice livestock protection measures, dingo conservation objectives, contemporary predator ecology, and Indigenous knowledge systems.

### *Clarity and transparency*

Clarity and transparency are essential. A dingo is a dingo and killing is killing. Dingoes should be recognised as *Canis dingo*, and the term “wild dog” replaced with accurate language that identifies the subject animal. Almost all, if not all, animals killed under “wild dog” programs are dingoes. If this program continues, it should be named honestly as the “NSW dingo killing program”. If that title is unacceptable, the program should be replaced by an alternative model based on clarity, transparency and the protection of both livestock and dingoes. Such a program also needs to acknowledge that dingoes are native, belong in the Australian landscape, are vital to its health, are sacred to Traditional Owners, but can nevertheless cause serious stock losses.

### *Livestock protection, land productivity and farm viability*

The importance of being a “good neighbour” to farmers, whose priorities are protected livestock, productive land and viable farms, is acknowledged. In predator country, this can be best achieved by protecting livestock rather than killing predators. Predator-smart farming is cost-effective with Australian research showing that livestock guardian dogs are particularly suitable for sheep farmers (Van Bommel & Johnson, 2012).

Livestock guardian dogs have been proven to be both effective and cost effective on large sheep holdings in Australia (Van Bommel & Johnson, 2012). There is emerging evidence that livestock guardian dogs not only protect stock against dingo predation, but also protect against other predators including foxes, wild pigs and eagles. Livestock guardian dogs are also known to reduce grazing pressure by keeping unwanted herbivores such as kangaroos and rabbits off farmers’ properties (Van Bommel & Johnson, 2012).

There is a wealth of anecdotal evidence from graziers that livestock guardian donkeys are effective at protecting their stock from dingoes, and that economic barriers are the main obstacle to the more widespread use of donkeys as guardian animals.

For guardian animals to be effective, they must be appropriately bred, trained and supported. Achieving this requires targeted education, resources and ongoing assistance for landholders. Urgent investment is needed to establish a statewide predator-smart farming and livestock guardian dog program that equips farmers with the knowledge and support necessary to successfully integrate livestock guardian animals into their livestock management practices.

Additional funding is also needed to undertake trials of livestock guardian donkeys. If these trials demonstrate positive outcomes; guardian donkeys could be incorporated into the broader predator-smart farming framework as another non-lethal livestock protection option.

Resources currently directed toward dingo control in national parks could be more effectively invested in predator-smart farming and livestock protection initiatives such as these. Such programs have the potential to reduce livestock losses while supporting more sustainable and long-term approaches to managing interactions between predators and agricultural enterprises.

#### *Dingo protection, research, management and conservation*

Dingoes can be protected, researched, monitored and conserved. Their population dynamics can also be studied. NSW urgently needs a dingo census and an assessment of dingoes' eligibility for listing under IUCN criteria. From there, a proactive conservation management plan can be developed. Stable pack structures should be supported by avoiding lethal control, while livestock predation can be reduced through predator-smart farming techniques.

Urgent research priorities include:

- NSW dingo numbers and population dynamics;
- quantifying the financial benefits of dingoes to graziers and the wider community;
- predator-smart farming, particularly livestock guardian donkey trials; and
- alternatives to 1080 baiting for fox control, including the role of dingoes as part of an integrated fox control strategy.

#### *Humane wildlife management*

Future dingo management must comply with new NSW animal cruelty legislation. This rules out 1080 baiting and leg hold traps, which are not humane. These methods can be avoided by shifting from dingo killing to dingo and livestock protection. Given that dingoes are more effective than 1080 poison baits at managing foxes, and that fox baiting is lethal to dingoes, 1080 should cease in known dingo habitat (Hunter & Letnic, 2022).

#### *Indigenous knowledge systems and predator ecology*

Indigenous knowledge systems and science can work together to support evidence based, culturally appropriate ways ecosystem management. Indigenous knowledge recognises dingoes as “Boss of Country”, aligning with contemporary predator ecology, which understands apex predators as ecosystem regulators and keystone species (Eisenberg, 2013). This knowledge should inform future management structures, not only in national parks but also in work with farmers to understand dingoes as an essential, though sometimes challenging, part of Australia's landscape.

## **8.5 Positive human-wildlife experiences in NSW national parks**

Dingoes are naturally elusive and tend to avoid humans. So, in a natural setting, there is little if any risk of dingo/human conflict. This is consistent with recent observations of wolves in Germany living in close proximity to humans which have been found to actively avoid human contact (Reinhardt et al., 2026).

This natural avoidance behaviour can be disrupted when dingoes learn to associated humans with food, become habituated and lose their natural fear, as has occurred on K'gari (Fraser Island), with tragic consequences, both for humans and dingoes.

Dingoes must remain wary of humans and avoid associating humans with food. When this natural caution is lost, overly familiar dingoes are often killed because of perceived risks to human safety. However, emerging approaches to positive human–wildlife interactions offer alternatives we can learn from. Useful international models include Coyote Watch Canada’s coexistence programs and Dr Nikita Ovsyanikov’s work on human–polar bear conflict management in Russia.

Public education and strict prevention of wildlife feeding are central to positive human–wildlife management. Humane hazing may also help by deterring habituated animals without injuring them. Overseas research, particularly with coyotes in the United States, suggests humane hazing can be effective, even when prior feeding can make it more challenging (Young, Hammill, & Breck, 2019). Research and trials are needed to identify appropriate humane hazing methods for habituated dingoes in NSW national parks. Two ideal locations for this research would be the Blue Mountains National Park and Kosciuszko National Parks. Both have high visitor numbers and the Blue Mountains are particularly close to universities.

Wildlife experiences that protect both dingoes and the public can be actively promoted, including:

- Public education about the ecological and cultural importance of dingoes.
- Prevention of dingo feeding through public education, signs and active enforcement of no feeding regulations.
- Dingo safety messaging.

When all else fails, humane hazing trials should be undertaken, in preference to killing habituated dingoes

## 9 Appendices

### 9.1 Extracts from Victorian Government Ministerial Advice on the Dingo Unprotection Order September 2024

To: Minister for Environment



Energy,  
Environment  
and Climate Action

|       |                                                                                                   |
|-------|---------------------------------------------------------------------------------------------------|
| From  | Regions, Environment, Climate Action and First Peoples                                            |
| Title | Dingo Unprotection Order – Governor in Council Papers – September 2024 - Minister for Environment |

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**Key Information**

**Background to Current Order**

- On 13 March 2024, on the recommendation of the Minister for Agriculture and yourself, the GIC made the Current Order, which declares the dingo to be unprotected wildlife under section 7A of the Wildlife Act 1975 on all private land in Victoria, except for the Northwest of the State. Under the Current Order, the dingo was also declared to be unprotected wildlife on all public land in Eastern Victoria within 3 kilometers of a private land boundary (**Attachment 3**).
- The Current Order replaced an earlier **Order in Council and was made with a Premier's Exemption** under section 12G of the SL Act, which exempted the Current Order from the requirements of section 12E of the SL Act to prepare a regulatory impact statement (RIS).
- The Current Order was made as a temporary measure to address the risk of extinction of the dingo population in the Northwest of the State, while continuing to provide for lethal control of dingoes elsewhere in the State to protect against livestock predation, pending completion of a review of existing dingo conservation and management. The Current Order is due to expire on 1 October 2024.
- In August, DEECA briefed you in relation to pathway options for the making of a new Unprotection Order (MBR-240702780), and you approved the commencement of a process to make a new Unprotection Order, while also directing DEECA to progress this on the basis of a Ministerial exemption from a RIS.

**New genetic science and the Victorian Government's commitment to review policy settings for dingo conservation and management**

- In 2023, new scientific research and DNA analysis, published and currently in peer review, has shown that most animals previously thought to be wild dogs or dingo-dog hybrids are actually dingoes and that hybridisation in the wild is rare.
- In October 2023, because of the new scientific evidence, the Victorian Government committed to complete a review by 1 October 2024. This review was to consider the policy and regulatory settings for the management and control of dingoes in Victoria.

**Refining Dingo Population Assessments**

- In January 2024, the Arthur Rylah Institute (ARI) calculated estimates for the dingo population using existing data from camera traps (**Attachment 7**). This work concluded the following dingo population estimates:
  - for Eastern Victoria, the total dingo population was within the range 2,640 to 8,800, and
  - for Northwest Victoria, the total dingo population was within the range between 40 and 230.
- Following receipt of this data, you and the Minister for Agriculture made the Current Order, which excluded the Northwest population from the unprotection regime, as described in paragraph 3, above.
- In April 2024, a series of workshops were held to further refine the dingo population estimates and test the information available against the IUCN criteria for conservation status assessments.
- Prior to these workshops additional field data was collected and further genetic analysis completed which formed an important input into the workshops.
- This assessment methodology differs to the earlier ARI estimates in that it is focused on estimating the 'number of individuals capable of breeding' rather than the total dingo population. The number of individuals capable of breeding is the relevant population for consideration under the IUCN criteria.
- The scientific consensus arising from the workshops using IUCN methodology of individuals capable of breeding was:
  - for Eastern Victoria, the estimated population is 2940 (within the range of 1584-5280)
  - for Northwest Victoria, the estimated population is 16 (within the range of 12-20).

MBR-240901553

OFFICIAL-Sensitive

## Section 3 – Restoring Spirit on Country – December 2023

### Statement of Dingo developed by workshop participants from 19 Victorian Traditional Owner groups

Creating a story for Dingo – past, present and future

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Dingoes are our brothers and sisters in the way they are treated. It is a confronting topic. The story of Dingo and our people is intertwined.

This is our Dingo story:

Dingo comes from our dreaming, from our creators, and from country. Dingo has many stories, some that are written in the stars, some told through ceremony and painting, some held in communities, and some written in country. Dingo keeps balance as the guardian, protecting the health of the environment. They remind us of our role in healthy country. As our kin they have been by our sides, our companions, protectors and enforcers of lore.

Their story and our story are one. As we have been dispossessed of country, so have they. We have been dispossessed of each other. Since invasions they have been criminalised, discriminated against, hunted, poisoned, and forced onto the fringes. The balance of country is off without Dingo. In some ways our dingo knowledge is sleeping as we reawaken our stories and songlines and reclaim and regrow our knowledges. However, we understand the vitality of Dingo as our kin and companion.

We know that the health of Dingo is deeply connected to the health of Country and our peoples. We tell the stories of Dingo, we ache with sadness and burn with anger at the genocidal regimes against our kin.

We advocate for Dingo, and are empowered to protect them. As they are our guardians, so we are theirs. We work together across our different countries. Soon the narrative of Dingo as criminal is no more. Dingo are safe on Country that is healthy for them. They are free to roam, to join us at the campfire and to hunt. We reclaim our stories and cultural practice together. **No more dog acts. Think like a Dingo.**

Restoring Spirit on Country Workshop Statement. December 2023

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Key actions noted in the workshop (other identified actions can be found in the workshop the report)

- Highlight the need to **remove the Unprotection Order** and Wild Dog Bounty - to protect Dingo and to stop killing Dingo and shift to non-lethal control.
- Reconnect mob to Dingo / supporting community to understand and deepen their connection with and understanding of Dingo, Dingo song, dance, and ceremony. Reawaken stories and sleeping knowledge - need to know all about Dingo to rebuild knowledge – this can be both cultural and western (e.g where do they thrive, what do they eat, where do they belong on Country etc).
- Collaborate with mobs, agencies, and other organisations - see how we can utilise all skills and knowledge.
- Investigate mechanisms for protection e/g. cultural heritage, intangible heritage listing, Wildlife Act etc. Establish protection zones for Wilkerr - opposite to wild dog management zones, particularly in the Big Desert where they are most at risk.
- Secure funding specifically for Dingo. This could support implementation of a plan, as well as Spirit or Dingo officers to keep vision and moment and ensure collaboration between mobs
- Develop incentives for farmers to change to non-lethal control methods for Dingoes. e.g fencing, guardian dogs, animal husbandry etc.
- Compensation of stock losses.
- Support Dingo by contributing to the revision of legislation that negatively impact cultural species.
- Investigate ways to disincentivize the use of 1080 - more financially viable for farmers to live with Dingoes.
- Better education in schools - truth telling younger generations.

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### 3 Results

#### 3.1 Summary of incident rates

The number of new cases (properties having their first stock maimed or killed incident) in the Hume and Gippsland regions added to the database decreased from a high of 55 cases in early 2014 to average around 6-8 new cases per quarter since 2020 (Figure 2). The average number of new cases per quarter over the last three years was lower than in the period 2016 – 2018 where the average was 16 (25: irrelevant 2018). The number of incidents occurring over the same period showed a similar trend averaging around 40 incidents per quarter (Figure 2). This was also lower than the average over the 2016 – 2018 period (77) (25: irrelevant 2018). Hence, both the number of new cases and number of reported incidents appear to have further declined since the analysis of 25: irrelevant (2018). Average management activity recorded over the same period appeared to show an increasing trend in ground baiting activity and a decreasing trend in both the number of dogs trapped and the number of traps set (Figure 3). As an additional comparison, an index of trapping success was calculated by dividing the number of dogs trapped each period by the number of traps set during the period (catch-per-unit-effort – CPUE). The trend in CPUE was similar to the number of dogs removed with a slight decrease in average CPUE from around 2019 (Figure 4).

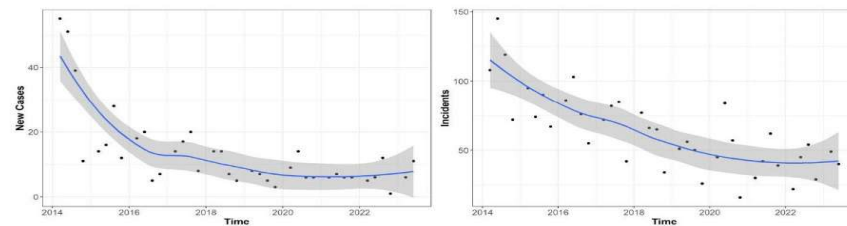
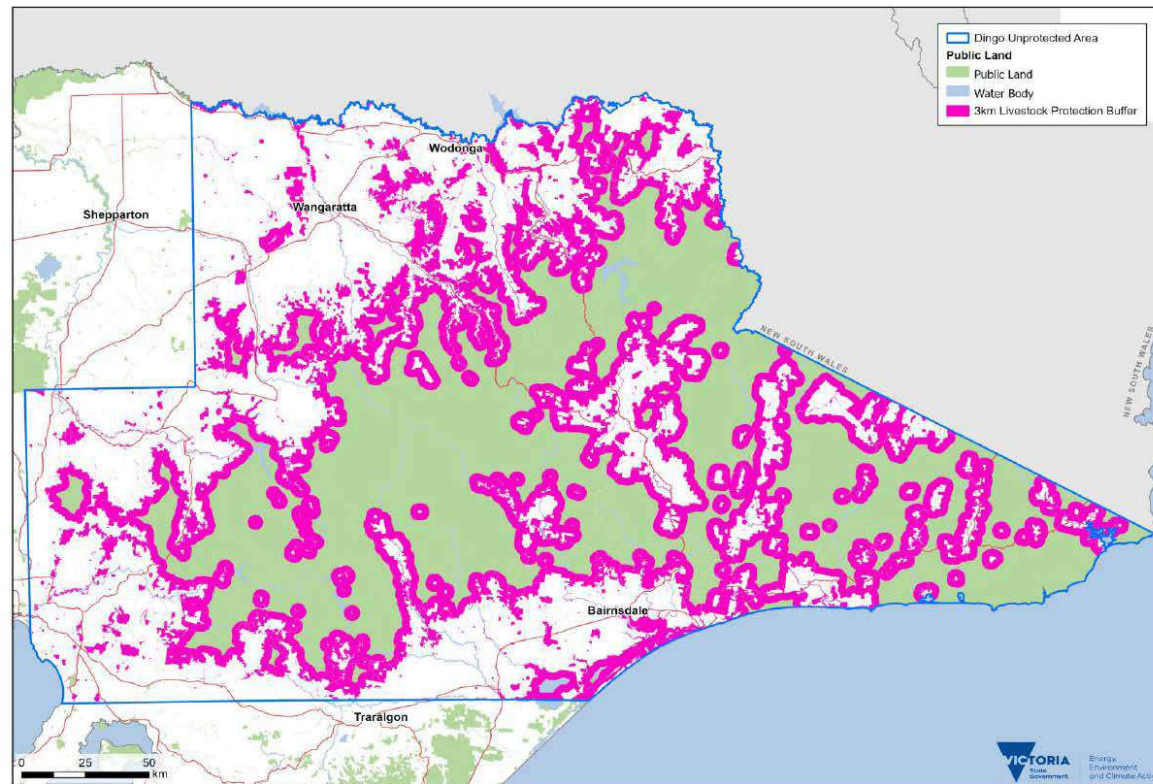


**Figure 2.** The number of new cases (properties with their first incident – left plot) and the number of incidents (right plot) per quarter in the Hume and Gippsland regions over the period 2014-2023.

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# Livestock Protection Buffer

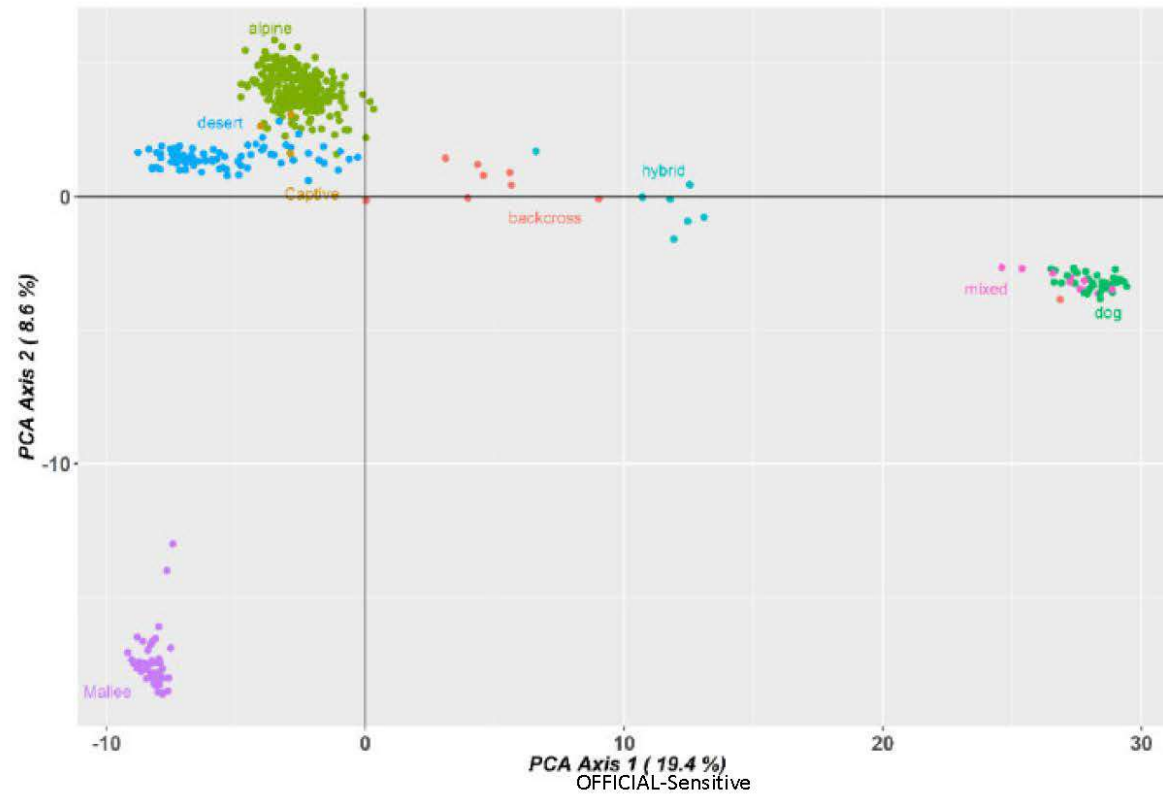
- For Public Land, the Wild Dog Program operates at the interface between private-public land; this is known as the 3km-wide Livestock Protection Buffer (shown here in pink).
- It represents approximately 30% of public land, though less than half of that receives any form of wild dog management.



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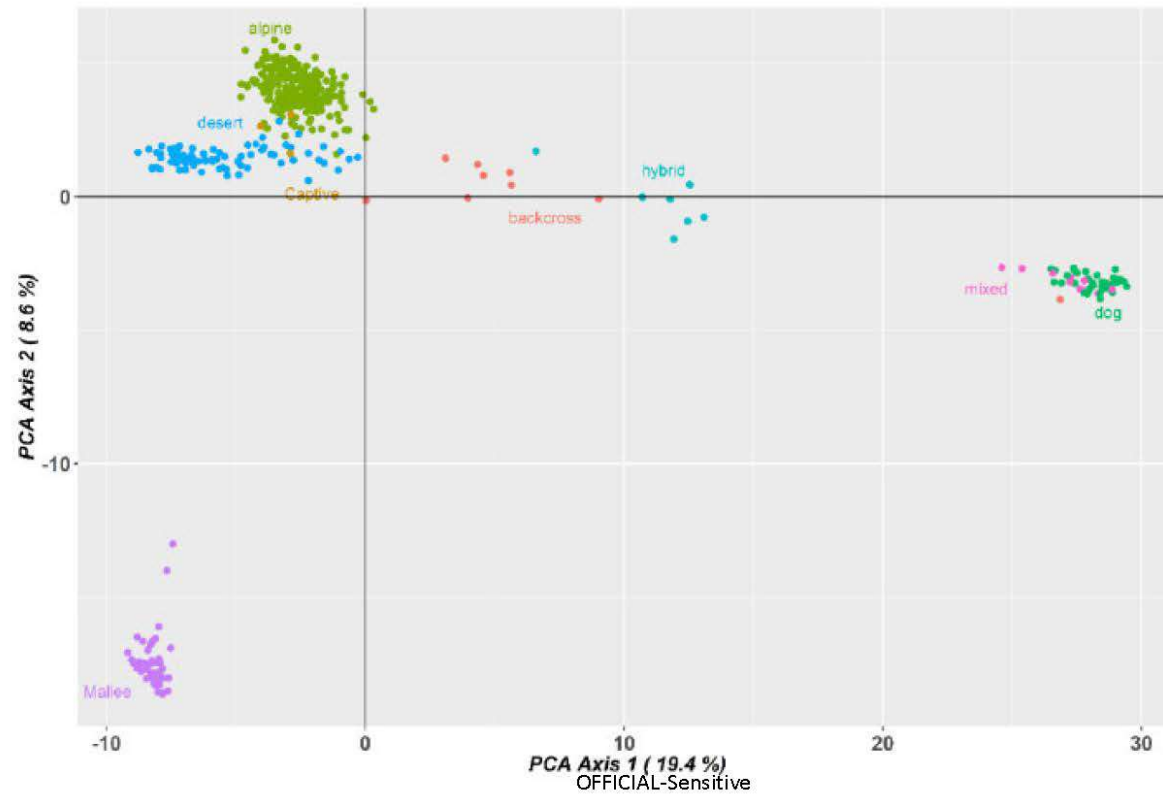
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## Results from genetic sample analysis



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## Results from genetic sample analysis



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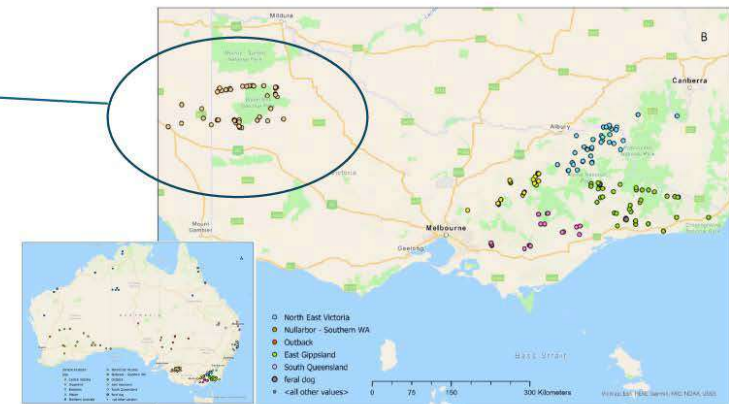
## New evidence - conclusions

### Dingo population structure and hybridisation in Victoria

- Dingoes represent a distinct lineage within canids (i.e. distinct from domestic dogs)
- Evidence for very limited gene mixing btw dingoes and dogs (domestic dog genetic material in populations of free-ranging dingoes: <4% on average in the Eastern Victoria population and 0% in the Mallee population) that may be either intro-gression (an arbitrary mating event a long time ago) or more likely shared ancestry (wolf ancestry)
- Free-ranging Dingo populations appear to be strongly maintaining their overall genetic integrity despite the potential for interactions with domestic dogs
- The findings do not support a hypothesis that there is extensive and ongoing hybridization between domestic dogs and Dingoes in Victoria

### Mallee population of dingoes

- Genetically isolated and inbred (reinforces lack of hybridisation)
- On a trajectory that will likely lead to extinction
- Requires urgent action to reduce the downward pressure on the population and investigate introduction of genes from other dingo populations (gene mixing)



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# Dingo science overview

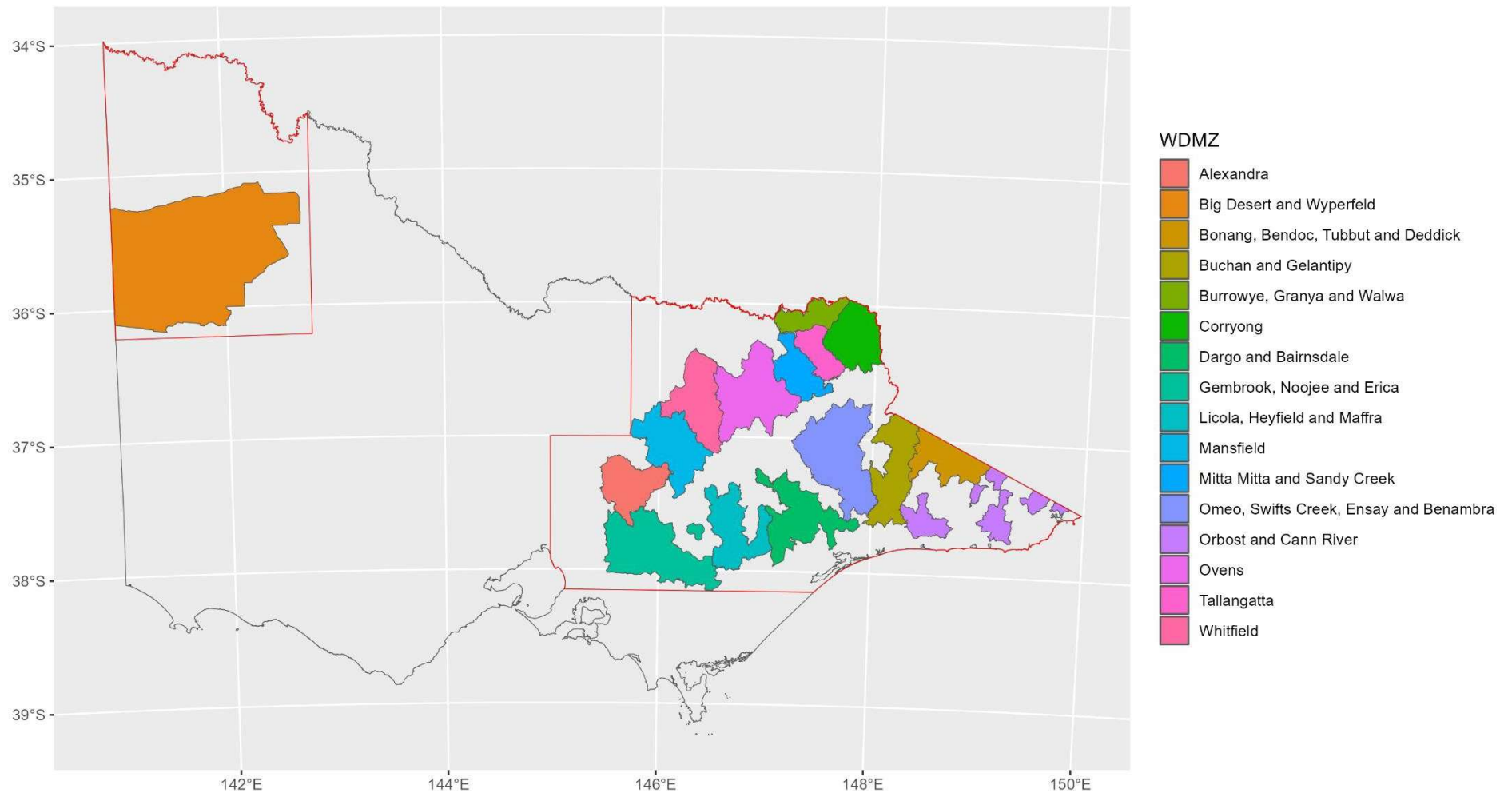
## Genetics

- New genetic science shows that dingoes represent a distinct lineage within canids (i.e. distinct from domestic dogs)
- The science indicates that there is not extensive and ongoing hybridization between domestic dogs and dingoes in Victoria (as was previously thought)
- Evidence for very limited common genetics between dingoes and dogs: <4% on average in the Eastern Victoria population and 0% in the Mallee population
- Free-ranging Dingo populations appear to be strongly maintaining their overall genetic integrity despite the potential for interactions with domestic dogs
- Mallee Dingo sub-population is genetically isolated and inbred and on a trajectory that will likely lead to extinction

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## 9.2 Victorian Government Wild Dog Management Zones (WDMZ)



### 9.3 DEECA Trapping Data

Under Freedom of Information, DEECA provided information on Number of Traps Set and Number of Wild Dogs caught in traps by the Victorian Vertebrate Species Management Program from 2014 to 2024 (FOI Request:6177) and Wild Dogs caught in traps by the Victorian Vertebrate Species Management Program from 2005 to 2023 (FOI Request:5946). Relevant data from these requests is presented on the following pages:

#### FOI request: 6177

**Figure 36: Traps set by Wild Dog Management Zone 2014 – 2024**

| Management Zone | Alexandra | Bonang, Bendoc, Tubbut and Deddick |       | Burrowye, Granya and Walwa | Corryong | Dargo and Bairnsdale | Gembrook, Noojee and Erica | Licola, Heyfield and Maffra | Mansfield | Mitta Mitta and Sandy Creek | No Management Zone | Omeo, Swifts Creek, Ensay and Benambra | Orbost and Cann River | Ovens | Tallangatta | Whitfield | Total  |
|-----------------|-----------|------------------------------------|-------|----------------------------|----------|----------------------|----------------------------|-----------------------------|-----------|-----------------------------|--------------------|----------------------------------------|-----------------------|-------|-------------|-----------|--------|
| Year            |           |                                    |       |                            |          |                      |                            |                             |           |                             |                    |                                        |                       |       |             |           |        |
| 2014            | 34        | 109                                | 102   | 101                        | 298      | 193                  | 193                        | 122                         | 98        | 53                          | 237                | 301                                    | 11                    | 143   | 92          | 53        | 2,140  |
| 2015            | 18        | 121                                | 149   | 135                        | 204      | 24                   | 196                        | 49                          | 149       | 91                          | 106                | 217                                    | 41                    | 399   | 77          | 41        | 2,017  |
| 2016            | 0         | 189                                | 227   | 369                        | 117      | 60                   | 149                        | 159                         | 253       | 131                         | 134                | 171                                    | 46                    | 250   | 104         | 131       | 2,490  |
| 2017            | 136       | 154                                | 174   | 358                        | 125      | 35                   | 200                        | 140                         | 278       | 92                          | 97                 | 167                                    | 55                    | 332   | 224         | 111       | 2,678  |
| 2018            | 126       | 133                                | 211   | 215                        | 207      | 56                   | 250                        | 205                         | 180       | 190                         | 127                | 400                                    | 110                   | 204   | 453         | 205       | 3,272  |
| 2019            | 84        | 209                                | 200   | 110                        | 92       | 81                   | 273                        | 150                         | 152       | 188                         | 297                | 345                                    | 56                    | 196   | 374         | 348       | 3,155  |
| 2020            | 342       | 261                                | 287   | 133                        | 106      | 102                  | 234                        | 234                         | 290       | 180                         | 263                | 185                                    | 36                    | 327   | 305         | 375       | 3,660  |
| 2021            | 274       | 143                                | 254   | 56                         | 125      | 119                  | 171                        | 178                         | 243       | 259                         | 366                | 288                                    | 63                    | 140   | 175         | 292       | 3,146  |
| 2022            | 185       | 115                                | 352   | 69                         | 89       | 115                  | 160                        | 203                         | 151       | 101                         | 476                | 464                                    | 16                    | 231   | 139         | 272       | 3,138  |
| 2023            | 326       | 100                                | 398   | 143                        | 106      | 48                   | 202                        | 225                         | 188       | 189                         | 355                | 648                                    | 95                    | 268   | 204         | 301       | 3,796  |
| 2024*           | 442       | 116                                | 1,359 | 29                         | 190      | 204                  | 239                        | 465                         | 642       | 318                         | 885                | 934                                    | 148                   | 422   | 242         | 583       | *7,218 |
| Total           | 1,967     | 1,650                              | 3,713 | 1,718                      | 1,659    | 1,037                | 2,267                      | 2,130                       | 2,624     | 1,792                       | 3,343              | 4,120                                  | 677                   | 2,912 | 2,389       | 2,712     | 36,710 |

\* Note: DEECA reported a change in trap reporting methodology from July 2024 onwards. The traps set number used in calculating CPUE has been reduced to 6,135 in line with the advice provided in the FOI.

**Figure 37: Dingoes caught in traps by Wild Dog Management Zone 2014 – 2024**

| Management Zone | Alexandra | Bonang, Bendoc, Tubbut and Deddick | Buchan and Gelantipy | Burrowye, Granya and Walwa | Corryong | Dargo and Bairnsdale | Gembrook, Noojee and Erica | Licola, Heyfield and Maffra | Mansfield | Mitta Mitta and Sandy Creek | No Management Zone | Omeo, Swifts Creek, Ensay and Benambra | Orbost and Cann River | Ovens | Tallangatta | Whitfield | Total |
|-----------------|-----------|------------------------------------|----------------------|----------------------------|----------|----------------------|----------------------------|-----------------------------|-----------|-----------------------------|--------------------|----------------------------------------|-----------------------|-------|-------------|-----------|-------|
| Year            |           |                                    |                      |                            |          |                      |                            |                             |           |                             |                    |                                        |                       |       |             |           |       |
| <b>2014</b>     | 8         | 12                                 | 35                   | 10                         | 35       | 27                   | 27                         | 28                          | 15        | 18                          | 51                 | 83                                     | 2                     | 24    | 12          | 14        | 401   |
| <b>2015</b>     | 4         | 24                                 | 39                   | 9                          | 17       | 0                    | 13                         | 24                          | 12        | 12                          | 20                 | 68                                     | 18                    | 78    | 17          | 31        | 386   |
| <b>2016</b>     | 0         | 24                                 | 52                   | 19                         | 10       | 2                    | 20                         | 30                          | 42        | 24                          | 13                 | 43                                     | 8                     | 45    | 19          | 47        | 398   |
| <b>2017</b>     | 21        | 25                                 | 46                   | 24                         | 8        | 6                    | 41                         | 32                          | 50        | 15                          | 16                 | 48                                     | 15                    | 49    | 21          | 28        | 445   |
| <b>2018</b>     | 26        | 38                                 | 38                   | 20                         | 16       | 4                    | 46                         | 44                          | 28        | 16                          | 32                 | 63                                     | 14                    | 28    | 34          | 54        | 501   |
| <b>2019</b>     | 12        | 32                                 | 54                   | 16                         | 17       | 6                    | 51                         | 29                          | 29        | 17                          | 72                 | 66                                     | 27                    | 57    | 19          | 37        | 541   |
| <b>2020</b>     | 43        | 22                                 | 38                   | 11                         | 17       | 16                   | 43                         | 54                          | 36        | 20                          | 38                 | 47                                     | 9                     | 61    | 27          | 59        | 541   |
| <b>2021</b>     | 58        | 9                                  | 41                   | 13                         | 10       | 30                   | 58                         | 37                          | 41        | 29                          | 89                 | 68                                     | 9                     | 46    | 15          | 45        | 598   |
| <b>2022</b>     | 23        | 14                                 | 39                   | 15                         | 12       | 19                   | 27                         | 39                          | 32        | 14                          | 66                 | 52                                     | 3                     | 44    | 13          | 62        | 474   |
| <b>2023</b>     | 36        | 10                                 | 50                   | 9                          | 14       | 11                   | 15                         | 35                          | 17        | 16                          | 29                 | 79                                     | 7                     | 26    | 25          | 29        | 408   |
| <b>2024</b>     | 26        | 9                                  | 40                   | 1                          | 6        | 24                   | 6                          | 16                          | 25        | 21                          | 25                 | 47                                     | 8                     | 27    | 22          | 36        | 339   |
| <b>Total</b>    | 257       | 219                                | 472                  | 147                        | 162      | 145                  | 347                        | 368                         | 327       | 202                         | 451                | 664                                    | 120                   | 485   | 224         | 442       | 5,032 |

Figure 38: Calculated CPUE by Wild Dog Management Zone 2014 – 2024

| Management Zone |           |                                    |                      |                            |          |                      |                            |                             |           |                             |                    |                                        |                       |       |             |           |         |
|-----------------|-----------|------------------------------------|----------------------|----------------------------|----------|----------------------|----------------------------|-----------------------------|-----------|-----------------------------|--------------------|----------------------------------------|-----------------------|-------|-------------|-----------|---------|
| Year            | Alexandra | Bonang, Bendoc, Tubbut and Deddick | Buchan and Gelantipy | Burrowye, Granya and Walwa | Corryong | Dargo and Bairnsdale | Gembrook, Noojee and Erica | Licola, Heyfield and Maffra | Mansfield | Mitta Mitta and Sandy Creek | No Management Zone | Omeo, Swifts Creek, Ensay and Benambra | Orbost and Cann River | Ovens | Tallangatta | Whitfield | Average |
| 2014            | 0.235     | 0.110                              | 0.343                | 0.099                      | 0.117    | 0.140                | 0.140                      | 0.230                       | 0.153     | 0.340                       | 0.215              | 0.276                                  | 0.182                 | 0.168 | 0.130       | 0.264     | 0.187   |
| 2015            | 0.222     | 0.198                              | 0.262                | 0.067                      | 0.083    | 0.000                | 0.066                      | 0.490                       | 0.081     | 0.132                       | 0.189              | 0.313                                  | 0.439                 | 0.195 | 0.221       | 0.756     | 0.191   |
| 2016            | NA        | 0.127                              | 0.229                | 0.051                      | 0.085    | 0.033                | 0.134                      | 0.189                       | 0.166     | 0.183                       | 0.097              | 0.251                                  | 0.174                 | 0.180 | 0.183       | 0.359     | 0.160   |
| 2017            | 0.154     | 0.162                              | 0.264                | 0.067                      | 0.064    | 0.171                | 0.205                      | 0.229                       | 0.180     | 0.163                       | 0.165              | 0.287                                  | 0.273                 | 0.148 | 0.094       | 0.252     | 0.166   |
| 2018            | 0.206     | 0.286                              | 0.180                | 0.093                      | 0.077    | 0.071                | 0.184                      | 0.215                       | 0.156     | 0.084                       | 0.252              | 0.158                                  | 0.127                 | 0.137 | 0.075       | 0.263     | 0.153   |
| 2019            | 0.143     | 0.153                              | 0.270                | 0.145                      | 0.185    | 0.074                | 0.187                      | 0.193                       | 0.191     | 0.090                       | 0.242              | 0.191                                  | 0.482                 | 0.291 | 0.051       | 0.106     | 0.171   |
| 2020            | 0.126     | 0.084                              | 0.132                | 0.083                      | 0.160    | 0.157                | 0.184                      | 0.231                       | 0.124     | 0.111                       | 0.144              | 0.254                                  | 0.250                 | 0.187 | 0.089       | 0.157     | 0.148   |
| 2021            | 0.212     | 0.063                              | 0.161                | 0.232                      | 0.080    | 0.252                | 0.339                      | 0.208                       | 0.169     | 0.112                       | 0.243              | 0.236                                  | 0.143                 | 0.329 | 0.086       | 0.154     | 0.190   |
| 2022            | 0.124     | 0.122                              | 0.111                | 0.217                      | 0.135    | 0.165                | 0.169                      | 0.192                       | 0.212     | 0.139                       | 0.139              | 0.112                                  | 0.188                 | 0.190 | 0.094       | 0.228     | 0.151   |
| 2023            | 0.110     | 0.100                              | 0.126                | 0.063                      | 0.132    | 0.229                | 0.074                      | 0.156                       | 0.090     | 0.085                       | 0.082              | 0.122                                  | 0.074                 | 0.097 | 0.123       | 0.096     | 0.107   |
| 2024*           | 0.069     | 0.091                              | 0.035                | 0.041                      | 0.037    | 0.138                | 0.030                      | 0.040                       | 0.046     | 0.078                       | 0.033              | 0.059                                  | 0.064                 | 0.075 | 0.107       | 0.073     | 0.055   |

\* 2024 adjusted for change in trapping recording

Figure 39: Dingoes caught in traps by Wild Dog Management Zone 2009 – 2013

| Management Zone |           |                                    |                      |                            |          |                      |                            |                             |           |                             |                    |                                        |                       |       |             |           |       |
|-----------------|-----------|------------------------------------|----------------------|----------------------------|----------|----------------------|----------------------------|-----------------------------|-----------|-----------------------------|--------------------|----------------------------------------|-----------------------|-------|-------------|-----------|-------|
| Year            | Alexandra | Bonang, Bendoc, Tubbut and Deddick | Buchan and Gelantipy | Burrowye, Granya and Walwa | Corryong | Dargo and Bairnsdale | Gembrook, Noojee and Erica | Licola, Heyfield and Maffra | Mansfield | Mitta Mitta and Sandy Creek | No Management Zone | Omeo, Swifts Creek, Ensay and Benambra | Orbost and Cann River | Ovens | Tallangatta | Whitfield | Total |
| 2009            | 23        | 44                                 | 39                   | 47                         | 74       | 45                   | 34                         | 13                          | 55        | 30                          |                    | 85                                     | 35                    | 103   | 59          | 26        | 712   |
| 2010            | 30        | 44                                 | 46                   | 15                         | 79       | 40                   | 32                         | 69                          | 28        | 53                          |                    | 57                                     | 51                    | 68    | 23          | 25        | 660   |
| 2011            | 7         | 22                                 | 28                   | 11                         | 48       | 15                   | 20                         | 39                          | 24        | 40                          |                    | 50                                     | 22                    | 77    | 20          | 27        | 450   |
| 2012            |           | 21                                 | 38                   | 8                          | 43       | 21                   | 32                         | 16                          | 35        | 35                          |                    | 77                                     | 11                    | 50    | 26          | 40        | 453   |
| 2013            |           | 27                                 | 62                   | 23                         | 44       | 19                   | 32                         | 35                          | 25        | 23                          | 22                 | 46                                     | 8                     | 25    | 17          | 40        | 448   |
| 2014            | 8         | 12                                 | 35                   | 10                         | 35       | 27                   | 27                         | 28                          | 15        | 18                          | 50*                | 83                                     | 2                     | 24    | 12          | 14        | 400   |
| Total           | 68        | 170                                | 248                  | 114                        | 323      | 167                  | 177                        | 200                         | 182       | 199                         | 72                 | 398                                    | 129                   | 347   | 157         | 172       | 3123  |

Note: Dingoes killed that are not recorded against a WDMZ was reported as 51 under FOR Request 6177, the difference is considered immaterial and the more recently reported number has been used.

**Figure 40: Calculated CPUE by Wild Dog Management Zone 2009 – 2014 Based on Constant Catch Effort**

| Management Zone |           |                                    |                      |                            |          |                      |                            |                             |           |                             |                    |                                        |                       |       |             |           |         |
|-----------------|-----------|------------------------------------|----------------------|----------------------------|----------|----------------------|----------------------------|-----------------------------|-----------|-----------------------------|--------------------|----------------------------------------|-----------------------|-------|-------------|-----------|---------|
| Year            | Alexandra | Bonang, Bendoc, Tubbut and Deddick | Buchan and Gelantipy | Burrowye, Granya and Walwa | Corryong | Dargo and Bairnsdale | Gembrook, Noojee and Erica | Licola, Heyfield and Maffra | Mansfield | Mitta Mitta and Sandy Creek | No Management Zone | Omeo, Swifts Creek, Ensay and Benambra | Orbost and Cann River | Ovens | Tallangatta | Whitfield | Average |
| <b>2009</b>     | 0.011     | 0.021                              | 0.018                | 0.022                      | 0.035    | 0.021                | 0.016                      | 0.006                       | 0.026     | 0.014                       | NA                 | 0.040                                  | 0.016                 | 0.048 | 0.028       | 0.012     | 0.333   |
| <b>2010</b>     | 0.014     | 0.021                              | 0.021                | 0.007                      | 0.037    | 0.019                | 0.015                      | 0.032                       | 0.013     | 0.025                       | NA                 | 0.027                                  | 0.024                 | 0.032 | 0.011       | 0.012     | 0.308   |
| <b>2011</b>     | 0.003     | 0.010                              | 0.013                | 0.005                      | 0.022    | 0.007                | 0.009                      | 0.018                       | 0.011     | 0.019                       | NA                 | 0.023                                  | 0.010                 | 0.036 | 0.009       | 0.013     | 0.210   |
| <b>2012</b>     | NA        | 0.010                              | 0.018                | 0.004                      | 0.020    | 0.010                | 0.015                      | 0.007                       | 0.016     | 0.016                       | NA                 | 0.036                                  | 0.005                 | 0.023 | 0.012       | 0.019     | 0.212   |
| <b>2013</b>     | NA        | 0.013                              | 0.029                | 0.011                      | 0.021    | 0.009                | 0.015                      | 0.016                       | 0.012     | 0.011                       | 0.010              | 0.021                                  | 0.004                 | 0.012 | 0.008       | 0.019     | 0.209   |
| <b>2014</b>     | 0.004     | 0.006                              | 0.016                | 0.005                      | 0.016    | 0.013                | 0.013                      | 0.013                       | 0.007     | 0.008                       | 0.023              | 0.039                                  | 0.001                 | 0.011 | 0.006       | 0.007     | 0.187   |

## 9.4 Protected Ecological Communities

| Protected ecological community               |            | Threat reports from relevant EPBC documents directly related to invasive mammalian pest species:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name                                         | Status     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| The Alpine Sphagnum Bogs and Associated Fens | Endangered | <p>Invasive species listed as a moderate to high level of threat, particularly ungulates (feral horses, deer and pigs) as well as rabbits, hares, foxes and cats.<br/>(<i>Approved Conservation Advice for the Alpine Sphagnum Bogs and Associated Fens ecological community</i>, 2008),</p> <p>In The Alpine Sphagnum Bogs and Fens National Recovery plan, invasive species are a recognised significant threat:</p> <p><b>“Feral horses</b><br/>In alpine, subalpine and montane areas of the Australian mainland, along with domestic stock, feral horses are the largest animals to impact on the ecological community and represent a threat that requires complex management strategies (O’Brien and Wren, 2002). Feral horse populations in NSW and Victoria have been increasing at a rate that has outpaced active management. The number of feral horses in the Australian Alps national parks increased by approximately 20 per cent annually between 2003 and 2009 from an estimated 2,500 to 7,600 (Dawson, 2009). Worboys and Pulsford (2013) observed the direct impacts of a ‘very large number of horses’ and considered the damage to be comparable to the worst historic domestic grazing pressures that triggered the removal of stock from Kosciuszko National Park in the 1940s. Preliminary numbers from the latest aerial count of feral horses in April and May 2014 found that Alpine Sphagnum Bogs and Associated Fens Recovery Plan 19 horse numbers increased in Kosciuszko National Park to 6,000 horses, an almost 50% increase since the last count in 2009 of 4,200 horse (AALC, in prep). Feral horses are not currently present as a threat in Tasmania, nor considered an active threat in the ACT.</p> <p><b>Feral deer</b><br/>Feral deer (including sambar, rusa and fallow deer) are also threatening biodiversity in the Alpine and subalpine areas of mainland Australia and Tasmania. Deer populations (and extent) have increased significantly in recent years. They are rated as a ‘high threat’, and it is largely unabated problem in eastern Australia. There is limited information available on their potential proliferation, but they can cause significant damage to the ecological community through trampling, browsing and wallowing. During the latest feral horse aerial count in Kosciuszko National</p> |

| Protected ecological community                            |                       | Threat reports from relevant EPBC documents directly related to invasive mammalian pest species:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name                                                      | Status                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                                                           |                       | <p>Park, an estimate of around 1,000 feral deer was observed (AALC, in prep).</p> <p><b>Feral Pigs</b><br/>Feral pigs are a significant problem causing damage to bogs in both the ACT and NSW, but are less problematic in Victoria and are not currently present in mainland Tasmania. Damage generally occurs on the edges of, or grasslands adjacent to, bogs where these animals wallow in pools and waterways. They dig and uproot vegetation over large areas, making pigs an ongoing threat to the structural integrity of the ecological community.</p> <p><b>Rabbits</b><br/>Rabbits can reduce cover and diversity of forb species in sub-alpine areas and disturb the soil by digging (Leigh et al., 1987). Greater numbers of rabbits are often prevalent post-fire, which inhibits vegetation resprouting and regeneration (Leigh et al., 1987). Although there is some evidence that rabbits can be active at the margins of some bogs, it appears to be relatively minor.</p> <p><b>Foxes, cats and trout</b><br/>In some high-altitude areas, including in the ecological community, foxes and cats may impact: populations of native frogs (including the critically endangered corroboree frogs - <i>Pseudophryne</i> spp. and the endangered alpine tree frog - <i>Litoria verreauxii alpina</i>); native fish (<i>Galaxias</i> spp.); native reptiles (including the threatened alpine she-oak and alpine water skinks); and, Alpine spiny crays (<i>Eustacus</i> and <i>Engaeus</i> spp.).” (DCCEEW, 2015)</p> |
| Natural Temperate Grassland of the Southeastern Highlands | Critically endangered | <p>Identified threats:<br/>Trampling and overgrazing by hard hoofed invasive species, such as goats, deer and pigs. Land degradation by rabbits<br/>Predation by European red fox and feral cats</p> <p>“Grazing by rabbits has direct impacts on native plant and animal species, through preventing plant regeneration, and by competing directly with native fauna for food and shelter. Their associated indirect impacts include digging, which leads to a loss of vegetation cover and consequent disturbance to soil properties, and supporting populations of introduced cats and foxes, which prey upon native fauna. The burrowing activities of rabbits are a major source of disturbance to grasslands, promoting sites for invasion of weeds and acting as foci for erosion.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| Protected ecological community                                                                     |                       | Threat reports from relevant EPBC documents directly related to invasive mammalian pest species:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------------------------------------------------------------------------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name                                                                                               | Status                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                                                                                    |                       | <p>“There have been serious impacts of feral cat (<i>Felis catus</i>), European red fox (<i>Vulpes vulpes</i>) and rabbits on the viability of populations of fauna species which have already been compromised by habitat loss, with resulting changes in ecosystem processes, including biogeochemical cycling, water repellence and plant recruitment (Dunlop et al., 2012). The dominant predator in NTG–SEH is now likely to be the European red fox. It is posited that this species is responsible for substantial native fauna declines within NTG–SEH.</p> <p>Soil disturbance caused by feral pig (<i>Sus scrofa</i>) is a major problem in areas of NTG–SEH that are close to forested environments (NSW grassy ecosystems database). Such soil disturbance not only physically damages NTG–SEH sites and the associated flora but facilitates weed invasion.</p> <p>(DCCEEW, 2016)</p>                                                                                                                                                                                                                                                                                                                     |
| River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria | Critically endangered | <p>The ecological community is subject to a range of negative impacts from invasive animals, including:</p> <ul style="list-style-type: none"> <li>• predation, habitat destruction through trampling and soil disturbance, competition and disease transmission by feral pigs;</li> <li>• predation, disease transmission and spread of invasive plant species by dogs, foxes, cats, and other feral (or domestic) predators;</li> <li>• grazing and trampling pressures from rabbits, unmanaged goats, deer and other feral herbivores, which can leave the ecological community open to erosion and weed invasion.</li> </ul> <p>Federally listed, threatening processes, listed in the Conservation Advice and relevant to the role of the Alpine Dingo in managing these threats included,</p> <ol style="list-style-type: none"> <li>1) Predation, habitat degradation, competition and disease transmission by feral pigs</li> <li>2) Predation by feral cats</li> <li>3) Predation by European red fox</li> <li>4) Competition and land degradation by rabbits</li> <li>5) Competition and land degradation by unmanaged goats</li> </ol> <p>(D. o. A. Australian Government, Water and Environment, 2020)</p> |
| Littoral Rainforest and Coastal Vine Thickets of Eastern Australia                                 | Vulnerable            | <p>Invasive herbivores, especially hard hoofed herbivores are identified as a threat: “Trampling, Browsing and Grazing</p> <p>Develop a management plan or for the control and, as appropriate, eradication of feral deer, such as Rusa, Sambar and Hog Deer.</p> <p>Control feral animals by appropriate means”.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| Protected ecological community           |                       | Threat reports from relevant EPBC documents directly related to invasive mammalian pest species:                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name                                     | Status                |                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                          |                       | (D. o. A. Australian Government, Water and Environment, 2015)                                                                                                                                                                                                                                                                                                                                                                    |
| Subtropical temperate Coastal Saltmarsh* | Critically endangered | <p>“Feral animals (e.g. goats, pigs, deer, rabbits, etc.) browse and damage native vegetation and may eat or displace native fauna associated with Coastal Saltmarsh (Adam, 2002; Laegdsgaard et al., 2009).</p> <p>Implement control measures to restrict the access of terrestrial invasive animals to the ecological community (e.g. fencing) and to reduce/control existing invasive populations”.</p> <p>(DCCEEW, 2013)</p> |

## 9.5 Protected Listed Threatened Species

### EPBC Protected Matters Report

| Scientific Name                           | Common Name                                                                                       | Class | Simple Presence | Threatened Category   |
|-------------------------------------------|---------------------------------------------------------------------------------------------------|-------|-----------------|-----------------------|
| <i>Lathamus discolor</i>                  | Swift parrot                                                                                      | Bird  | May             | Critically Endangered |
| <i>Calidris ferruginea</i>                | Curlew sandpiper                                                                                  | Bird  | Likely          | Critically Endangered |
| <i>Galaxias rostratus</i>                 | Flathead Galaxias, beaked Minnow, flat-headed Galaxias, flat-headed jollytail, flat-headed minnow | Fish  | May             | Critically Endangered |
| <i>Pedionomus torquatus</i>               | Plains-wanderer                                                                                   | Bird  | May             | Critically Endangered |
| <i>Caladenia colorata</i>                 | Coloured spider-orchid, small western spider-orchid, painted spider-orchid                        | Plant | Likely          | Endangered            |
| <i>Lepidium monoplacoides</i>             | Winged pepper-cress                                                                               | Plant | Likely          | Endangered            |
| <i>Thelymitra epipactoides</i>            | Metallic sun-orchid                                                                               | Plant | May             | Endangered            |
| <i>Calyptorhynchus banksii graptogyne</i> | South-eastern red-tailed black-cockatoo                                                           | Bird  | Likely          | Endangered            |
| <i>Austrostipa wakoolica</i>              | Null                                                                                              | Plant | May             | Endangered            |
| <i>Lophochroa leadbeateri leadbeateri</i> | Major Mitchell's cockatoo (eastern), eastern Major Mitchell's cockatoo, pink cockatoo (eastern)   | Bird  | Known           | Endangered            |
| <i>Psophodes leucogaster leucogaster</i>  | Mallee whipbird                                                                                   | Bird  | Known           | Endangered            |
| <i>Manorina melanotis</i>                 | Black-eared miner                                                                                 | Bird  | Known           | Endangered            |
| <i>Acacia enterocarpa</i>                 | Jumping-jack wattle                                                                               | Plant | May             | Endangered            |
| <i>Melanodryas cucullata cucullata</i>    | South-eastern hooded robin, hooded robin (south-eastern)                                          | Bird  | Known           | Endangered            |
| <i>Stipiturus mallee</i>                  | Mallee emu-wren                                                                                   | Bird  | Known           | Endangered            |
| <i>Amytornis striatus howei</i>           | Murray Mallee striated grasswren, striated grasswren (sandplain)                                  | Bird  | Known           | Endangered            |
| <i>Tringa nebularia</i>                   | Common greenshank, greenshank                                                                     | Bird  | Known           | Endangered            |
| <i>Botaurus poiciloptilus</i>             | Australasian bittern                                                                              | Bird  | May             | Endangered            |
| <i>Caladenia conferta</i>                 | Coast spider-orchid                                                                               | Plant | May             | Endangered            |
| <i>Limosa limosa</i>                      | Black-tailed godwit                                                                               | Bird  | Known           | Endangered            |
| <i>Rostratula australis</i>               | Australian painted snipe                                                                          | Bird  | Likely          | Endangered            |
| <i>Caladenia tensa</i>                    | Greencomb spider-orchid, rigid spider-orchid                                                      | Plant | Known           | Endangered            |
| <i>Pterostylis arenicola</i>              | Sandhill greenhood orchid                                                                         | Plant | Likely          | Vulnerable            |
| <i>Stagonopleura guttata</i>              | Diamond firetail                                                                                  | Bird  | Known           | Vulnerable            |

| Scientific Name                           | Common Name                                                                                        | Class  | Simple Presence | Threatened Category |
|-------------------------------------------|----------------------------------------------------------------------------------------------------|--------|-----------------|---------------------|
| <i>Maireana cheelii</i>                   | Chariot wheels                                                                                     | Plant  | May             | Vulnerable          |
| <i>Pterostylis chlorogramma</i>           | Green-striped greenhood                                                                            | Plant  | May             | Vulnerable          |
| <i>Synemon plana</i>                      | Golden sun moth                                                                                    | Insect | May             | Vulnerable          |
| <i>Pteropus poliocephalus</i>             | Grey-headed flying-fox                                                                             | Mammal | May             | Vulnerable          |
| <i>Aphelocephala leucopsis</i>            | Southern whiteface                                                                                 | Bird   | Known           | Vulnerable          |
| <i>Swainsona pyrophila</i>                | Yellow swainson-pea                                                                                | Plant  | Likely          | Vulnerable          |
| <i>Polytelis anthopeplus monarchoides</i> | Regent parrot (eastern)                                                                            | Bird   | Likely          | Vulnerable          |
| <i>Leipoa ocellata</i>                    | Malleefowl                                                                                         | Bird   | Known           | Vulnerable          |
| <i>Nyctophilus corbeni</i>                | Corben's long-eared bat, south-eastern long-eared bat                                              | Mammal | May             | Vulnerable          |
| <i>Maccullochella peelii</i>              | Murray cod                                                                                         | Fish   | May             | Vulnerable          |
| <i>Senecio macrocarpus</i>                | Large-fruit fireweed, large-fruit groundsel                                                        | Plant  | May             | Vulnerable          |
| <i>Myriophyllum porcatum</i>              | Ridged water-milfoil                                                                               | Plant  | May             | Vulnerable          |
| <i>Calidris acuminata</i>                 | Sharp-tailed sandpiper                                                                             | Bird   | Known           | Vulnerable          |
| <i>Pachycephala rufogularis</i>           | Red-lored whistler                                                                                 | Bird   | Known           | Vulnerable          |
| <i>Acacia glandulicarpa</i>               | Hairy-pod wattle                                                                                   | Plant  | Known           | Vulnerable          |
| <i>Pterostylis xerophila</i>              | Desert greenhood                                                                                   | Plant  | May             | Vulnerable          |
| <i>Grantiella picta</i>                   | Painted honeyeater                                                                                 | Bird   | Known           | Vulnerable          |
| <i>Olearia pannosa subsp. pannosa</i>     | Silver daisy-bush, silver-leaved daisy, velvet daisy-bush                                          | Plant  | Likely          | Vulnerable          |
| <i>Swainsona murrayana</i>                | Slender Darling-pea, slender swainson, Murray swainson-pea                                         | Plant  | May             | Vulnerable          |
| <i>Falco hypoleucos</i>                   | Grey falcon                                                                                        | Bird   | Likely          | Vulnerable          |
| <i>Phebalium lowanense</i>                | Lowan phebalium                                                                                    | Plant  | Known           | Vulnerable          |
| <i>Litoria raniformis</i>                 | Southern bell frog, growling grass frog, green and golden frog, warty swamp frog, golden bell frog | Frog   | May             | Vulnerable          |
| <i>Gallinago hardwickii</i>               | Latham's snipe, Japanese snipe                                                                     | Bird   | Likely          | Vulnerable          |
| <i>Neophema chrysostoma</i>               | Blue-winged Parrot                                                                                 | Bird   | Known           | Vulnerable          |

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