



ACT
Government

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Dear Bren

The Dingo – genetic and science based advice

The Scientific Committee (Committee) has been briefed on the legal status and management of the Dingo in the ACT at the last two meetings of the Committee, in June and September 2023. In June, Mr Sweeny and Mr Schofield from Resilient Landscapes briefed the Committee on Dingo management in the ACT. In September, the Committee discussed recent published research on Dingo genetics and the briefing provided at the June meeting. The Committee agreed on the need to apply a scientific approach to Dingo management and agreed to notify the Minister for Environment that it is investigating the status of the Dingo in the ACT and the resulting management options from a scientific perspective.

The Committee supplies the following responses to potential questions that may be raised.

(a) Is the Dingo a feral version of the domesticated dog?

The Committee considered this to be unlikely. To begin with, the Dingo has several traits that distinguish it from domesticated dogs, including, but not limited to, distinct cranial morphology (Parr et al. 2016), differences in oestrus (Cursino et al. 2017) and complex bark-howl vocalisations (Déaux et al. 2016). Similarly, the ‘feral domestic dog’ positioning is not supported by recent genomics work showing that the Dingo represents a basal lineage of wild dog that branched off early from the wolf, quite independently of the domesticated dog which then underwent further genomic selection by humans (Field et al. 2022). The Dingo lineage is not embedded in the domestic dog clade, but rather is closely related to the New Guinea singing dog at the base of the canid phylogeny (“family tree”), with its ancestry lying in the wild dogs of Asia (Zhang et al. 2020; Ballard et al. 2023). Further, the lack of proliferation of the amylase gene (up to six copies in domesticated dogs, interpreted as a signature of domestication) in the Dingo is an indication that the Dingo has not undergone substantial domestication (Ballard et al. 2023).

(b) Has the Dingo's genetic identity been washed out by cross-breeding and introgression with the domestic dog?

Previous considerations have proliferated a view that “Pure” Dingo populations have been restricted to a few remnant localities (e.g., Fraser Island and the central deserts), by widespread admixture with feral domesticated dogs. However, recent work based on modern genetic technologies have shown this not to be the case and that Australia-wide the Dingo has maintained its genetic integrity despite opportunity and evidence of cross-breeding (Cairns et

al. 2023). As members of one of the 5 genetically distinct population groups identified by Cairns et al. (2023), it is likely the Dingoes of Namadgi National Park could be considered substantially pure and as such, ecologically valuable. For this reason, it is the Committee's opinion that the conventional current view (genetic integrity compromised by interbreeding) appears to have been overstated and should be reconsidered as reasoning for the current legal and policy status of the Dingo.

(c) Is the Dingo a full species, or a sub-species of domesticated dog *Canis familiaris*?

The Scientific Committee regarded this as an impossible question to answer, but also considered that the answer to this question has little bearing on the question of whether or not to regard the Dingo as a native species. This is because there is debate among scientists on the criteria for defining species. Some would assign species status to any substantive lineage in the canid phylogeny ("family tree"), in which case the Dingo might be considered a separate species. Others consider that the criterion of demarcation should be reproductive isolation. This latter concept admits the possibility of substantial lineages within species. Extensive hybridization between two taxa in the wild (say between the Dingo and the domesticated dog) would be taken as evidence that they are not separate species under either view of what constitutes a species. However, it is also acknowledged that a low level of hybridization can occur even between otherwise well-defined species. Therefore, in the end, it comes down to a judgement call as to taxonomic level. However, there can be little doubt on the basis of recent evidence that the Dingo is separate from the domesticated dog as two deeply divergent lineages with surprisingly low levels of contemporary hybridization despite the opportunity to do so.

The Committee, however, at its last meeting agreed that, whether or not the Dingo is a species or a subspecies, it is a distinct lineage, on a completely independent evolutionary trajectory from that of the domesticated dog. As such the Dingo should be considered a separate entity from the domesticated dog.

(d) Should the Dingo be referred to collectively with feral domesticated dogs as "wild dogs"?

Following on from point (c), the Committee believes that a distinction should be made between Dingoes and feral domesticated dogs in any legislation and/or regulations. A suitable distinction would be (i) Dingoes, (ii) feral domesticated dogs (iii) free ranging domestic dogs.

(e) When and how did the Dingo disperse to Australia?

While routes and exact timelines remain unknown, the Australian Dingo and its closest relative the New Guinea singing dog, both now occupying the Austral plate, appear to have dispersed out of Asia between 4,600–18,300 years BP (Oskarsson et al. 2012). It would seem likely that their dispersal was assisted by humans.

(f) Should the Dingo be managed as a native species?

The Committee is of the view that the Dingo should be managed as a controlled native species in a similar way to the Eastern Grey Kangaroo – controlled to manage impacts, not as a pest species excluded from the protections of the Nature Conservation Act. The reason for this view is that the Dingo has some protection within Namadgi National Park, but this protection arises from the individual action of officers within the Directorate and has no policy underpinning. Without clear policy underpinning to fall back on, the continuation of the current practices is

vulnerable to staff changes and puts pressure on staff in interactions with adjacent landholders.

The Committee understands that for a native species to be declared a controlled native species, the Minister must be satisfied that the species is having, or is likely to have, an unacceptable environmental, social or economic impact. The Committee is of the view that affording protection to an apex predator in a natural ecosystem is likely to have positive environmental impacts (e.g. Johnson et al., 2007). However, its current declaration as a pest species has been made on the basis of a decision that the species has unacceptable social and economic impacts, so the criteria for declaration of a controlled native species are met.

The Committee is aware of the sensitivities surrounding these issues, and the possible negative impact a decision might have on relationships with adjacent landholders to Namadgi National Park, which may influence outcomes of discussions on matters that extend beyond the Dingo issue. However, declaring the Dingo a controlled native species need not result in substantive changes to current practices for the control of Dingoes and feral domesticated dogs on the boundary of Namadgi National Park. Such control practices have been effective and can continue under its classification as a controlled native species. The difference would be that the Dingo would be accorded some protection in areas within the park (and other protected areas) that are not adjacent to rural land holdings, protection that is not currently afforded by the *Nature Conservation Act 2014* because of the pest species exemption. Protection of the Dingo in Namadgi National Park would be in line with policy in other state jurisdictions.

In the view of the Committee, the one issue that will require addressing is the very public baiting of Dingoes along the Mount Franklin Road deep within the park. The park authorities should consider discontinuing this practice as it does not appear consistent with the practice of managing the impact of Dingoes at the border of the park and rural properties. This activity can be better considered with the Dingo reclassified as a controlled native species.

(g) Other considerations

The Committee did not consider the science of animal welfare in the baiting of Dingoes and wild domesticated dogs with 1080. The Committee notes the recent Dingo Declaration made at the National Inaugural First Nations Dingo Forum that was held in September 2023 but has not consulted with local Indigenous communities, notwithstanding that this will be necessary for the Government to undertake.

References

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Yours sincerely



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