

**Submission**

***National  
National Feral Deer Action Plan***

***March 2023***





## Animal Justice Party

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### *The Animal Justice Party 2023*

#### Images

Front cover: a hunted deer (*Source: Gettu Images*)

This Page: Dingoes act as apex predator (*Source: Stock Adobe.com*)

*The Animal Justice Party acknowledges the First Nations peoples as the custodians of the land on which we live and work.*



## About the Animal Justice Party

The Animal Justice Party (the AJP) is a political party established in 2009 to secure the interests of animals and nature through Australia's democratic institutions of government. Our vision is a planet on which animals and nature have the right to live and thrive free from negative human interference and a human society which functions with kindness and compassion within its ecological limits as a responsible member of the Earth community. The AJP seeks to foster respect, kindness, and compassion towards all species particularly in the way governments design and deliver initiatives, and the manner in which these initiatives function.

In New South Wales the AJP has two elected representatives in the Legislative Council of NSW, Mark Pearson MLC and Emma Hurst MLC and one Councillor in local government, Matt Stellino. In Victoria, the AJP has an elected representative in the Legislative Council, Georgie Purcell MLC, and a Councillor in local government, Councillor Julie Sloan.

This submission was prepared by the National Submissions Working Group within the AJP. The working group makes this submission on behalf of the AJP with the approval and the endorsement of the Board of Directors.

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## Introduction

The AJP welcomes this opportunity to discuss the National Feral Deer Action Plan 2022-27 prepared by the Government of South Australia.

Australians expect that animal suffering associated with 'pest' management will be minimised. Therefore, the most humane methods to achieve the control program's aims must be used. Animal suffering should always be considered, regardless of the status given to a particular species or the extent of the damage or impact created by that species.

Since 1770, over 3,000 non-native species of plants and animals, including at least 73 species of vertebrates have been introduced to Australia. Introduced animal species have been imported for a variety of exploitative reasons including animal agriculture (*e.g.*, sheep, cows, pigs, goats, buffaloes, European honey bees), hunting and fishing (*e.g.*, rabbits, foxes, deer, European carp), labour and transport (*e.g.*, horses, donkeys, camels), companionship and ornamental use (*e.g.* dogs, cats, birds, turtles, snakes, fish) and attempts at biocontrol (*e.g.*, ferrets, sparrows, myna birds, cane toads). Other species were introduced accidentally (*e.g.*, rats and mice).

Once in Australia, many of these animals were deliberately, negligently or accidentally released,

and some have established free-living populations in a variety of environments. In most cases, introductions and releases were made in utter ignorance of the impact they may have on Australia's biodiversity and environment.

Deer were introduced into Australia from Europe in the 19th Century as game animals.<sup>1</sup> The first species of deer introduced into Australia were the chital in the early 1800s by Dr. John Harris, surgeon to the New South Wales Corps who had about 400 of these animals on his property by 1813.<sup>2</sup> There are now 6 species found in Australia; fallow, red, chital, hog, rusa and sambar. Deer are indigenous to all continents except Australia and Antarctica.<sup>3</sup>

Some species are impacting their local environment through predation on native species, competition for food or shelter, soil compaction or erosion, water turbidity, and generally contribute to biodiversity loss and ecosystem decline. Industry bodies argue that some introduced species also have an economic impact, especially when they prey upon, compete with, or spread diseases to other introduced animals who are exploited for agriculture. However, in most cases where the needs of different species conflict with each other, adjustments can be made using crop and animal protection measures, making cruel, lethal methods an unacceptable "solution".

Ironically, the control of introduced species is often justified in order to allow other introduced species such as sheep and cows, to graze pasture on fragile soils or to protect introduced crops – activities which are also detrimental to the environment. In addition, control actions may impact non-target species, both domestic and native, through indiscriminate poisoning and trapping and contribute to biodiversity loss and ecosystem decline. Yet, Australia continues to deliberately import and release non-native species.

The AJP recognises that there is no simple solution to controlling the impact of introduced species, however, we believe that only non-lethal, humane, effective and species-specific methods are acceptable. Too many of the current methods used are not only cruel but also ineffective and non-targeted, inadvertently harming native animals and the local environment.

Our submission will address the need to consider all the possible ways to manage introduced species and the pros and cons of each, in presenting long term management solutions.

Recommendations are provided throughout our submission.

The AJP has policies on animals, environment and human issues<sup>4</sup>; in particular our policies on

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<sup>1</sup> <https://www.dcceew.gov.au/environment/invasive-species/publications/factsheet-feral-deer>

<sup>2</sup> <https://adrf.com.au/content/view/35/79/>

<sup>3</sup> <https://www.agriculture.gov.au/sites/default/files/documents/fs-feral-deer.pdf>

<sup>4</sup> [https://www.animaljusticeparty.org/our\\_policies](https://www.animaljusticeparty.org/our_policies)

1080<sup>5</sup>, Introduced animals<sup>6</sup> and Dingoes<sup>7</sup> are relevant to this proposed deer management plan.

Thank you for the opportunity to contribute to this consultation.

## **1. Control of Deer: The Code of Practice and Standard Operating Procedures**

While the ecological and economic rationales for the control of 'pests' such as deer are frequently documented, little attention has been paid to the development of an ethical framework in which they are controlled. An ethical approach to 'pest' control includes recognition of, and attention to, the welfare of all animals affected directly or indirectly by control programs. Ensuring such approaches are uniformly applied as management practices requires the development of agreed Standard Operating Procedures (SOPs) that detail each method of 'pest' animal control. Each SOP includes animal welfare issues applicable to each method. The overriding document is the Code of Practice (COP), which brings together these procedures in a document which also specifies humane control strategies and their implementation. COPs encompass all aspects of controlling a 'pest' animal species. This includes aspects of best practice principles, relevant biological information, guidance on choosing the most humane and appropriate control techniques and how to most effectively implement management programs.

There is currently a Code of Practice for farmed deer and a Code of Practice for the welfare of animals in hunting and a Victorian Deer Control Strategy.<sup>8</sup> What is needed is a clear, consistent, humane and forward thinking code of practice that encompasses all deer.

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### **Recommendations:**

1. Employ only humane methods of managing deer numbers.  
Commit to investigating and conducting studies on non lethal methods of population control.
2. Learn from the experience of other countries already successfully employing non lethal methods of population control. Explore the application of these learnings to Australian conditions.
3. Ensure legislation, standards and codes of practice pertaining to deer are consistent and unambiguous.

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<sup>5</sup> <https://assets.nationbuilder.com/ajp/pages/782/attachments/original/1646621376/1080.pdf?1646621376>

<sup>6</sup> [https://assets.nationbuilder.com/ajp/pages/778/attachments/original/1646623512/Introduced\\_Animals.pdf?1646623512](https://assets.nationbuilder.com/ajp/pages/778/attachments/original/1646623512/Introduced_Animals.pdf?1646623512)

<sup>7</sup> <https://www.animaljusticeparty.org/dingoes>

<sup>8</sup> <https://www.environment.vic.gov.au/invasive-plants-and-animals/deer-control-program/deer-control-strategy>

## 2. Proposed Control Methods

### **Baiting**

There are a number of priority actions listed in the current plan to control deer numbers, one of which is *“Develop lethal baits and other tools”*.

The usual chemical used to kill deer is sodium monofluoroacetate, commonly called 1080. 1080 is a cruel and inhumane poison which kills non-target species by both primary and secondary poisoning. It is not selective and cannot discriminate between species although some are more susceptible to poisoning than others especially those of the canine family, namely dingoes and domestic and working dogs. This can alter ecosystem balance.

The Australian Pesticides and Veterinary Medicines Authority (APVMA) recommends that 1080 not be used in urban or residential areas as it poses risks to humans and companion animals. They acknowledge that baited areas cannot be controlled or guaranteed as baits and poisoned carcasses may be cached or moved several kilometres by animals.

The other currently available toxin is PAPP which causes a quicker death and so is regarded as slightly more humane than 1080.

**There is a huge issue regarding secondary poisoning when toxins are used. Australia has vowed to halt the loss of any more species and end its status as *“the mammal extinction capital of the world”*.<sup>9</sup> Poisons are not congruent with this goal.**

Destruction of the natural world is now widely regarded as “ecocide” – the deliberate or negligent destruction of the natural world, which threatens the health and survival of all species and ecosystems, including humans. The AJP argues that the use of 1080 poison is tantamount to ecocide, as 1080 is toxic to all living species, including microbes, plants, insects, birds, and humans. The AJP asserts that destruction of the natural world is an existential threat and that ecocide should be a crime.

Some agencies such as the *Invasive Animals Cooperative Research Centre* have misleading, dangerous and scientifically incorrect information on their websites, which should be urgently amended, for example:

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<sup>9</sup> <https://www.bloomberg.com/news/articles/2022-10-04/australia-to-stop-being-a-world-leader-for-mammal-extinction>



- ***“1080 occurs naturally in over 30 species of Australian plants”<sup>10</sup>***

Fact:

- **Potassium** fluoroacetate is found in some Gastrolobium plants in a small corner of Western Australia.
- There is no natural form of 1080 (sodium fluoroacetate). It is synthetically produced and classed as a “super toxic” according to the World Health Organisation<sup>11</sup>

- ***“ Being a natural toxin, 1080 biodegrades quickly and is broken down into harmless compounds”<sup>12</sup>.***

Fact:

- *“1080 can be very slow to decompose and poses serious environmental risks. “*
- *“In contrast to living animals, residues tend to be persistent in carcasses”*  
APVMA review 2008 Page 48<sup>13</sup>

- ***“Poison 1080 is the most environmentally sensitive and target-specific poison available to protect Australia’s vulnerable wildlife”<sup>14</sup>.***

Fact:

- 1080 blocks a critical energy-producing and metabolic process in all air-breathing organisms (The Tricarboxylic Acid Cycle) and is therefore non-selective and indiscriminate<sup>15</sup>
- *“This material has been described as super toxic.”, “Acute Toxic”, “**Environmental Hazard**”<sup>16</sup>*
- 1080 is a Schedule S7 (Dangerous Poison) in Australia.<sup>17</sup>
- 1080 is classified as a Class 1a pesticide (Extremely Hazardous) by the World Health Organisation.<sup>18</sup>

<sup>10</sup>Mifsud G (2017) Natural Australian toxin protecting plants and wildlife from predators. Landcare Australia. Feb 2017. <https://landcareaustralia.org.au/project/natural-australian-toxin-protecting-plants-wildlife-predators/>

<sup>11</sup> Whiting-O’Keefe, QE (2012) Testimony on 1080. 1080 Science. 24 Nov 2012. <https://1080science.co.nz/testimony-on-1080/>

<sup>12</sup> PetSmart (2021) An environmentally responsible option for invasive species control. An environmentally responsible option for invasive species control

<sup>13</sup> <https://apvma.gov.au/sites/default/files/publication/15061-sodium-fluoroacetate-1080-final-review-report.pdf>

<sup>14</sup>Mifsud G (2017) Natural Australian toxin protecting plants and wildlife from predators. Landcare Australia. Feb 2017. <https://landcareaustralia.org.au/project/natural-australian-toxin-protecting-plants-wildlife-predators/>

<sup>15</sup> Proudfoot AT, Bradberry SM, Vale JA. Sodium fluoroacetate poisoning. Toxicol Rev. 2006;25(4):213-9. doi: 10.2165/00139709-200625040-00002. PMID: 17288493.

<sup>16</sup> PubChem Compound Summary for CID 16212360, Sodium fluoroacetate. Retrieved August 30, 2021 from <https://pubchem.ncbi.nlm.nih.gov/compound/Sodium-fluoroacetate>.

<sup>17</sup> Australian Government (2021) Scheduling basics. Department of Health, Therapeutic Goods Administration. <https://www.tga.gov.au/scheduling-basics>

<sup>18</sup> WHO (2020) WHO recommended classification of pesticides by hazard and guidelines to classification, 2019 edition. Geneva: World Health Organization; 2020. Licence: CC BY-NC-SA 3.0 IGO. <https://www.who.int/publications/i/item/9789240005662>

- *"If anyone tells you that 1080 can discriminate between pests and native animals, they are talking complete and utter rubbish."* - Ian Shaw, Toxicologist<sup>19</sup>

- ***1080 is tightly controlled***

Fact:

- The APVMA recommendations are often ignored, for example, "1080 should not be used in urban areas". *APVMA review of 1080 in 2008*
- There have been news reports that 1080 is used illegally and maliciously.<sup>20</sup>
- There is no central register of use.
- It is sometimes disposed of inappropriately.<sup>21</sup>

Many years of poisoning and other lethal control strategies have failed to decrease numbers of deer. The number of wild deer populations has been expanding in recent years. In 1995, only four populations of red deer were known in Australia but by 2007, 65 red deer populations had been identified. Similar increases are occurring in other deer species populations. Deer populations now exist in many regions across Australia.<sup>22</sup>

So current pest control techniques are simply not effective. This is also illustrated in the PhD research of Sally Hall with regards to non surgical sterilisation at the University of Newcastle.<sup>23</sup>

## **Shooting**

Shooting deer is a method of population control that has been employed for many years, yet many sources discuss a recent 'explosion' of deer, and ever increasing population numbers.<sup>24</sup> Clearly current methods are not successful. This National Feral Deer Action Plan presents an opportunity to move away from a culture of 'find new ways to kill deer' and towards a recognition that whilst population control may be necessary to negate damage to our environment and ecosystems, population control doesn't have to be synonymous with lethal measures.

Shooting deer in particular, as a method of population control, has been shown to have the opposite effect (unless the majority are killed in a short space of time and pressure is applied to

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<sup>19</sup> <https://www.stuff.co.nz/the-press/opinion/67315048/how-toxic-is-1080-toxicologist-explains>

<sup>20</sup>

[https://www.facebook.com/abcballaratandsouthwestvic/photos/a.191072579817/10156156321434818/?type=3&eid=ARBvY6Z34r1sEuQtmcbVDRSItwA3iOLtjUJ98scknk8LQ0S\\_jWkQujdvd9o-tg46rEj-8-SAm05CilalC&paipv=0&eav=AfYsfhbHvaqJKq9HUSL0AtfK8lgJgEDD436KIL2oS9wxDnaFxnFc2NOa-ROpSrD7M5A&\\_rdr](https://www.facebook.com/abcballaratandsouthwestvic/photos/a.191072579817/10156156321434818/?type=3&eid=ARBvY6Z34r1sEuQtmcbVDRSItwA3iOLtjUJ98scknk8LQ0S_jWkQujdvd9o-tg46rEj-8-SAm05CilalC&paipv=0&eav=AfYsfhbHvaqJKq9HUSL0AtfK8lgJgEDD436KIL2oS9wxDnaFxnFc2NOa-ROpSrD7M5A&_rdr)

<sup>21</sup> <https://www.epa.nsw.gov.au/news/media-releases/2015/epamedia15033102>

<sup>22</sup> <https://www.agriculture.gov.au/sites/default/files/documents/fs-feral-deer.pdf>

<sup>23</sup> <https://www.abc.net.au/radionational/programs/scienceshow/beating-the-ferals-with-sterilisation/5095618>

<sup>24</sup>

<https://invasives.org.au/blog/feral-deer-victoria-spread-map/#:~:text=Victoria%20now%20hosts%20an%20ever,nearly%2040%25%20of%20the%20state.>



maintain this, a logistically impossible feat)<sup>25</sup>. Deer reproduction correlates to environmental conditions. Overcrowding and competition for resources slows reproduction and delays sexual maturity in young deer and increases deaths due to poorer health. Conversely, killing enough deer to ‘thin’ a population results in an increase in birth rates, earlier onset of sexual maturity and increased survival rates due to increased resources.<sup>26</sup>

Despite claims by the hunting lobby, recreational hunting is a particular problem. Their status as a ‘game’ animal to be protected for hunting has led to populations exploding in certain areas while various hunting groups, including the now-abolished Game Council of NSW, and the Shooters and Fishers Party<sup>27</sup> have championed recreational hunting as an effective method of pest control.<sup>28</sup>

A Senate Inquiry into the Effect of Feral Deer, Pigs and Goats in Australia found recreational hunting to be an ineffective method of controlling populations, with landowners testifying that despite the efforts of hunters and shooters, populations around them were increasing.<sup>29</sup> The Inquiry also found that shooting and hunting were not appropriate in peri-urban areas, such as Wollongong in NSW, where deer populations have exploded. This was due to the danger of using high-calibre firearms in areas with a substantial human population.

According to the Invasive Species Council of Australia, hunting has been shown to be, at best, a way to ‘supplement more effective methods of feral animal control or provide control in small, accessible areas’. It also states that, ‘Funding recreational hunting as a primary method of control is a waste of taxpayers’ money. There is also the risk that opening up public lands to hunting creates an incentive for maverick hunters to shift feral animals into new areas – as has occurred particularly with pigs and deer.’<sup>30</sup>

As a result, the Invasive Species Council has been working with various environment groups to oppose legislation that would allow hunting activity to expand into NSW National Parks, including private hunting reserves. These groups are also working to reduce the threat of hunting in Victoria and Tasmania.

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### **Recommendations:**

4. Cease the use of 1080 and other poisons which are inhumane and cause secondary poisoning to other wildlife.

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<sup>25</sup> <https://www.humanesociety.org/resources/why-deer-killing-programs-dont-solve-conflicts-deer>

<sup>26</sup> <https://deerassociation.com/taking-can-actually-increase-fawn-production>

<sup>27</sup> [chrome-extension://bdfcnmeidppjeaggnmidamkiddifkdb/viewer.html?file=https://d3n8a8pro7vhmx.cloudfront.net/sfp2015/pages/488/attachments/original/1623991648/POLICY\\_Federal\\_Protecting\\_our\\_environment.pdf?1623991648](chrome-extension://bdfcnmeidppjeaggnmidamkiddifkdb/viewer.html?file=https://d3n8a8pro7vhmx.cloudfront.net/sfp2015/pages/488/attachments/original/1623991648/POLICY_Federal_Protecting_our_environment.pdf?1623991648)

<sup>28</sup> <https://invasives.org.au/media-releases/opportunity-lost-game-council-goes-deer-still-protected-hunters/>

<sup>29</sup> [https://www.aph.gov.au/Parliamentary\\_Business/Committees/Senate/Environment\\_and\\_Communications/FeralDeerPigGoat2019/Report/section?id=committees%2freportsen%2f024322%2f27645](https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Environment_and_Communications/FeralDeerPigGoat2019/Report/section?id=committees%2freportsen%2f024322%2f27645)

<sup>30</sup> <https://invasives.org.au/our-work/feral-animals/hunting-conservation/>

5. Conduct studies into the effectiveness of previous baiting exercises and the cost vs benefit ratio, considering the cost to wildlife, and the environment as well as the financial cost.
6. Conduct studies into the impact of diverting these funds into exploring non lethal methods of population control in the future.
7. Consider review of these investigations by an independent body to inform decision making.
8. Follow the advice of the Invasive Species Council on restricting the use of recreational hunting as a method of deer population control.
9. Study the impact of deer shooting as a mainstay of previous deer management plans on current population numbers. Investigate the possibilities of other non-lethal measures for the future.

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### 3. Humane alternatives for managing deer populations

#### Immunocontraception

Immunocontraception is a better way of population control in the long term. It has been widely recognised that one of the big problems with controlling deer numbers is that they are prolific breeders. Immunocontraception addresses this directly by rendering them infertile, thereby preventing more young being born so that numbers will be vastly reduced, and the species will most probably eventually die out. This is opposed to shooting and baiting, which, as discussed earlier, often results in **more** breeding so numbers do not decline over an extended period.

The form of contraception most widely promoted for wild animals is immuno-contraception (IC) by vaccination. It works by taking a substance from the complicated process of ovarian function, ovulation or conception, altering it slightly and injecting it into the animal. The immune system will produce antibodies to this and block fertility.

There are two current candidates for IC antigens. The first is the zona pellucida (ZP), a matrix of protein jelly that surrounds the egg after ovulation. In mammals, Zona pellucida forms around the oocyte (cell in ovary that may divide to become an ovum) at the primary follicle stage and the thickness increases during follicle/oocyte growth. After ovulation, ZP functions as a sperm barrier.<sup>31</sup> By taking pig zona pellucida (PZP) and manipulating it a bit, an antigen is manufactured that stimulates the production of antibodies to the genuine, healthy ZP of the vaccinated female. When she ovulates, these antibodies attack the ZP of her own eggs and

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<sup>31</sup><https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2528931/#:~:text=Zona%20pellucida%20glycoproteins%20are%20responsible,from%20binding%20to%20fertilized%20eggs.>

prevent any sperm from successfully binding to the egg. She cycles, is mated, ovulates, but does not conceive.<sup>32</sup>

The second candidate as an IC antigen is gonadotropin releasing hormone (GnRH), which is a small peptide molecule produced by the hypothalamus of the brain. GnRH is one of the peptides that controls the pituitary gland, which in turn secretes hormones like luteinising and follicle stimulating hormones that control the ovaries. When an animal is injected with a synthetic GnRH analogue, antibodies are produced to the animal's own GnRH and fertility is blocked.<sup>33</sup>

There are commercial IC products of both PZP and GnRH that have been produced and widely used in one form or another since the mid 1990s. Both initially needed two injections with a short interval then regular boosters, but long-acting forms of both types of IC vaccine have been developed.

There are dozens of excellent, peer reviewed reports proving that IC can stop female animals from conceiving. With both PZP and GnRH vaccines, a single injection can render some female mammals infertile for several years.

What is needed is more funding into research and development into methods of deployment to diffuse populations. Currently (Gonadotrophin-releasing Hormone (GnRH) vaccines are restricted to an injectable form that require hand or dart administration; a scalable solution would be an aerosolised or enteric-coated form that could be released or dispensed at feeding stations strategically placed in areas of known deer populations and activated by the approach of the target species.

Hundreds of feral horses in several isolated populations in the USA have been subject to IC vaccination for more than 20 years and populations have been reduced and stabilised over that period. These vaccines have also been used to control fertility in fallow deer, white-tailed deer, American elk, black-tailed and mule deer, muntjac, bison, various antelopes, tahr, wild boar, feral horses, kangaroos, koalas, lions, other big cats and many other mammals.<sup>34</sup> Results have been impressive, with conception rates of deer reduced from over 80% to 11 or 12% with a single injection. There is no doubt that IC vaccine injection is an effective method of reducing fertility in female deer, PZP can be delivered by hand or remotely, by dart;<sup>35,36</sup> It works.

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<sup>32</sup> <https://pubmed.ncbi.nlm.nih.gov/12220157/>

<sup>33</sup> <https://pubmed.ncbi.nlm.nih.gov/8324616/#:~:text=The%20production%20of%20chemical%20analogues,basis%20for%20use%20in%20contraception.>

<sup>34</sup> [https://escholarship.org/content/qt5gd6x4dg/qt5gd6x4dg\\_noSplash\\_d2e80344e6931eb4bc7c3fb07f2b69b1.pdf?t=plu11x](https://escholarship.org/content/qt5gd6x4dg/qt5gd6x4dg_noSplash_d2e80344e6931eb4bc7c3fb07f2b69b1.pdf?t=plu11x)

<sup>35</sup> [https://bds.org.uk/wp-content/uploads/2021/01/Bullet-or-Needle\\_Deer-AUTUMN\\_2019.pdf](https://bds.org.uk/wp-content/uploads/2021/01/Bullet-or-Needle_Deer-AUTUMN_2019.pdf)

<sup>36</sup> <https://www.townofbethlehem.org/DocumentCenter/View/4427/Deer-PZP-Fact-Sheet-7-12?bidId=>

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**Recommendations:**

10. Employ known methods of immunocontraception to the management of deer populations
  11. Provide adequate funding for additional research to be conducted at institutions with no vested interest in the results.
  12. Provide funding for trials of different methods of immunocontraception deployment that are appropriate to the Australian environment.
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**Apex predator control - Australia's native predator - the dingo**

The role of apex predators in the ecosystem is to control weak and sick animals through predation. In other words, dingoes help to maintain a balanced ecosystem so that the number of other species is kept under control.<sup>37</sup>

A recently published study in the School of Life and Environmental Sciences, Centre for Integrative Ecology at Deakin University provided a fascinating insight into the diet variation between our native apex predator, the dingo and an introduced mesopredator, the fox in Victoria's alpine region.<sup>38</sup>

Over three seasons the diet of dingoes and foxes was examined using macroscopic scat analysis. The analysis identified little overlap between the carnivores' diets, with the fox experiencing a broader diet than the dingo. The areas studied were across Mt Hotham, the Bogong High Plains and Mt Buffalo.

The Dingo's diet heavily featured larger mammal species, with sambar deer accounting for 44% and wombats 34% of their diet. The diet of the fox typically featured smaller mammals such as the native bush rat 55% and the European rabbit 15%.

Importantly the study showed that:

***"It is possible that dingoes could help regulate the distribution and/or abundance of sambar deer through predation and/or fear induced changes to deer behaviour and habitat use".***

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<sup>37</sup> <https://adrf.com.au/content/view/35/79/>

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[https://dro.deakin.edu.au/articles/journal\\_contribution/Interspecific\\_and\\_geographic\\_variation\\_in\\_the\\_diets\\_of\\_sympatric\\_carnivores\\_dingoes\\_wild\\_dogs\\_and\\_red\\_foxes\\_in\\_south-eastern\\_Australia/20911576](https://dro.deakin.edu.au/articles/journal_contribution/Interspecific_and_geographic_variation_in_the_diets_of_sympatric_carnivores_dingoes_wild_dogs_and_red_foxes_in_south-eastern_Australia/20911576)

As a result of the Dingo consuming significant amounts of deer whether from scavenging or hunting, the Dingo is vulnerable to secondary poisoning<sup>39</sup> due to ineffective attempts to manage deer via toxic baits, as proposed in the draft national “feral” deer plan.

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### ***Recommendations:***

13. Leave dingoes to fulfil their role as apex predators in National Parks.
  14. Rewild areas with dingoes where they are not seen to be a threat to introduced farm animals.
  15. Introduce a financial compensation scheme in cases where “livestock” are proved to be killed by dingoes.
  16. Prepare a cost /benefit analysis to show the relative cost of a compensation scheme compared with the cost of baiting programs.
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### **Guard dogs and other guard animals**

Research has shown that deer do not frequent places where Maremma dogs are present.<sup>40</sup>

A study published in Biological Conservation by two researchers from the University of Florida concluded that the presence of dogs is the greatest determinant of distribution for the small-bodied deer endemic to the dense temperate forests of southern Chile and Argentina. In the area studied, the deer’s fear of the domestic dog has a stronger influence on the deer's movement patterns than human activity, habitat type, and even the presence of its natural predator, the puma.

The study was conducted by interviewing dog owners and estimating the probability of dog attacks on deer. They then deployed camera traps in the temperate forests to investigate the association between dogs, deer, pumas and humans. They found that the probability that a dog would attack and kill the deer was 50%. This high rate of mortality is further supported by camera trap photos, which feature dogs in pursuit of deer, and provides evidence of deer avoiding areas containing the presence of dogs.

The most profound effects of carnivores on prey may be through fear rather than mortality. The non-lethal effects of predators can include habitat displacement to safer but less desirable

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<sup>39</sup> <https://www.austdeer.com.au/2023/01/10/1385382/dingo-diet-study-reveals-a-taste-for-venison>

<sup>40</sup>

[https://www.researchgate.net/publication/324081726\\_Interactions\\_between\\_dingoes\\_and\\_introduced\\_wild\\_ungulates\\_Concepts\\_evidence\\_and\\_knowledge\\_gaps](https://www.researchgate.net/publication/324081726_Interactions_between_dingoes_and_introduced_wild_ungulates_Concepts_evidence_and_knowledge_gaps)

areas (e.g. less food or shelter), increased stress and reduced feeding. This leads both directly and indirectly to decreased reproduction.<sup>41</sup>

Australian graziers are getting good results with guardian dogs when used correctly, according to best practice models, from small holdings to large outback stations. They vigorously repel not only predators, but also kangaroos, feral deer and other animals. With sheep, the dogs pay for themselves within a year by reducing losses, other livestock can take up to three years. They lessen the need for lethal controls yet do not push the predators into neighbouring areas. Grazing competition is reduced and livestock feel safer, wandering more freely to graze.

Australian graziers are commonly biased against livestock guard dogs, perhaps from their haphazard introduction to Australia, lack of government support and the difficulty of believing guardian dogs can live permanently with the livestock and not harass and harm them as some dogs do. This bias is regrettable and has no basis in fact. As long as there are enough dogs for the property situation (terrain, livestock type and numbers, vegetation, predator type and numbers, etc.), they are one of the most effective predator control methods we have in this country. They have found common acceptance in the USA, Canada and of course in traditional guardian dog regions. However, a grazer must be committed long term to their implementation, just as he/she must be committed long term to training and caring for traditional sheep and cattle dogs.<sup>42</sup>

In Australia alpacas, llamas and donkeys are also employed as guardian animals.<sup>43,44,45</sup> Considering how many wild donkeys there are, they could be employed as an almost free resource.

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### **Recommendations:**

17. Subsidise the use of guard animals as a deterrent in urban and rural areas.
  18. Develop best practice guidelines and codes of practice for the use of guard dogs as deterrents. Ensure that there is input from those with experience as well as dog trainers during the development.
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<sup>41</sup> <https://environment-review.yale.edu/wildlife-going-dogs-domestic-dog-presence-limits-deer-distribution-0>

<sup>42</sup> <https://landholdersfordingoes.org/livestock-guardian-animals/>

<sup>43</sup> <https://www.abc.net.au/news/rural/2019-04-23/donkey-guardians-protect-herd-from-wild-dogs/11018666>

<sup>44</sup> [https://www.daf.qld.gov.au/\\_\\_data/assets/pdf\\_file/0005/76982/IPA-Wild-Dog-Fact-Sheet-Livestock-Guardian-Dogs.pdf](https://www.daf.qld.gov.au/__data/assets/pdf_file/0005/76982/IPA-Wild-Dog-Fact-Sheet-Livestock-Guardian-Dogs.pdf)

<sup>45</sup> <https://pestsmart.org.au/toolkit-resource/guardian-animals-for-livestock-protection-and-wild-dog-exclusion/>



### Genetic tools

CRISPR-Cas9 is a genetic technology capable of affecting fertility in a population-wide-target species. It exists now and is expanding in its applications. Through stringent regulations, we may be able to direct its application toward keeping deer populations under control.

Furthermore it is acknowledged by the AJP that the negative impact of introduced species, in this case, deer, is a hard problem to solve. It is not a problem that will be addressed with simplistic or one-dimensional thinking; nor will it be addressed in the short term.

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### Organic Communication

This technology has emerged from the Waite Institute of the University of Adelaide and its application to date has been promising.

In effect it uses a species-specific communication to direct that species, driven by Artificial Intelligence, to move away from sensitive areas.<sup>46</sup> It does so randomly without the chance of habituation and can be distributed across a vast target area. It herds animals without any direct human intervention, but in real time.

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### ***Recommendations:***

19. Allocate funds to investigate the broader applications of these new technologies, particularly how they apply to deer and how they can be utilised in Australian environmental conditions.
  20. Ensure studies also examine the impact or lack thereof, on non-target species.
  21. Collaborate and share resources with those already using these technologies for other species and/or purposes to increase overall experience and mutual benefit.
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<sup>46</sup> <https://cherrp.eco/>

## Conclusion

Why are some introduced species, such as deer vilified, yet the impacts of others are rarely discussed? There are 28 million cows and 65 million sheep in Australia, yet we rarely hear about the biodiversity loss and environmental damage caused by these introduced species, despite 46 percent of Australia's land mass being used for grazing of native vegetation<sup>47</sup>.

Humans are responsible for the impact of introduced species, through poor decision-making, lack of foresight, and/or disregard for native species and the environment. While we urgently need to address the impacts of introduced species on Australia's biodiversity and environment, we must not shift the blame by vilifying them.

Current strategies using poisons have not worked as evidenced by a growing issue with the numbers of so called "feral" species. We must take a more enlightened and humane approach and stop employing the colonial mindset of the last two hundred plus years. These strategies include the use of immunocontraception and guard animals in urban areas and the apex predator control and guard animals in rural and remote areas. Science has shown us it can be done. Only vested interests are stopping our success.

Poisoning animals has no social licence except amongst those people who benefit from its use, such as farmers who are breeding animals for "meat" and who do not want deer competing for food with introduced farm animals.

Importantly, we must recognise that environmental damage and biodiversity loss are currently being exacerbated by current government policies on land clearing, pollution, and climate change. Humanity must address all drivers of biodiversity loss and environmental damage, take appropriate accountability for all introduced species including those exploited for agriculture, and employ rational and humane strategies to reduce the impacts.

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<sup>47</sup> <https://soe.environment.gov.au/theme/land/topic/land-use-and-management>