

#10

**COMPLETE**

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**Q1**

First name

[REDACTED]

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**Q2**

Last name

[REDACTED]

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**Q3**

Organisation name (if relevant)

UNSW Sydney

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**Q4**

Email address

[REDACTED]

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**Q5**

Phone number

[REDACTED]

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**Q6**

Yes

Can we contact you about your submission (if required)?

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**Q7**

I am a researcher/academic

What best describes you?

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**Q8**

Which of the following regions best describes your location/area of interest?

**Statewide NSW,**

Other (please specify):

Global

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**Q9**

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**I agree to have my submission published with my name or company/organisation**

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**Q10**

To what extent are the NSW environment, industries and communities currently impacted by invasive species?

**Respondent skipped this question**

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**Q11**

To what extent do you think existing programs in NSW are effectively managing invasive species?

**Respondent skipped this question**

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**Q12**

What, if any, are the key barriers to effective management of invasive species?

**Respondent skipped this question**

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**Q13**

How has invasive species management changed since the introduction of the NSW Biosecurity Act 2015 legislation and associated programs and plans?

**Respondent skipped this question**

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**Q14**

What are the future risks posed by invasive species to the NSW environment, industries and communities?

**Respondent skipped this question**

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**Q15**

What opportunities do you see to improve the outcomes of invasive species management in the future?

## Invasive Species Review - Have Your Say

I am writing with a suggestion for improving invasive species management, beginning from an understanding of what it is that allows the introduced species to succeed in a new ecosystem.

I think there are two main types of plant invaders:

### 1. SPECIES THAT CAN INVADE AN UNDISTURBED ECOSYSTEM

Species that can invade an undisturbed ecosystem tend to have an adaptation that native species lack. A clear example of this comes from Hawai'i, which had soils with low natural nitrogen availability and no native nitrogen fixing plant species. Hawai'i has been heavily impacted by a nitrogen-fixing invader, *Morella faya* (Vitousek et al. 1987). Species that can invade undisturbed ecosystems can have dramatic and transformational impacts on the natural environment, and targeted control efforts are absolutely merited. However, I believe that such cases are relatively rare.

### 2. SPECIES THAT ONLY INVADE WHEN THE NATURAL ENVIRONMENT HAS BEEN CHANGED.

The majority of introduced species worldwide occur where the natural environment has been altered in some substantial way, such as changes in grazing regime, fire regime or soil fertility (Moles, Gruber & Bonser 2008). Such changes can simultaneously disadvantage native species while boosting the success of invaders. A local example is provided by Lake & Leishman (2004), who found that sites on Sydney Sandstone without disturbance did not have any introduced species, while sites where urban run-off had increased nutrient availability were heavily invaded. A follow-up study showed that nutrient addition can substantially increase growth and survival in exotic invasive species, while not similarly boosting growth or survival of non-invasive species native to low nutrient sandstone soils (Leishman & Thomson 2005)).

In cases where species only become invasive where the environment has been changed, the main issue is not the introduced species per se, but rather the change in conditions that has allowed the introduced species to thrive. Too often, control efforts are implemented in these situations that focus on the introduced species (e.g. intensive manual/chemical removal/killing of introduced species as in many bush regeneration projects). Such approaches treat the symptom, but fail to address the underlying cause of the problem, and are thus unlikely to have long-term success. In these cases, I suggest we would do better to focus on restoring the natural conditions, for instance restoring natural fire or grazing regimes, reducing physical disturbance, or preventing nutrient addition.

In short, I absolutely acknowledge the horrific effects of many introduced species on our natural ecosystems. However, simply targeting the invasive species isn't always going to be the most effective response, at least for plants. I believe a broader consideration of the situation and a response that addresses the root cause of the problem could save enormous amounts of time and money, and provide greater long-term success.

## REFERENCES

Lake, J.C. & Leishman, M.R. (2004) Invasion success of exotic plants in natural ecosystems: the role of disturbance, plant attributes and freedom from herbivores. *Biological conservation*, 117, 215-226.

Leishman, M.R. & Thomson, V.P. (2005) Experimental evidence for the effects of additional water, nutrients and physical disturbance on invasive plants in low fertility Hawkesbury Sandstone soils, Sydney, Australia. *Journal of Ecology*, 93, 38-49.

Moles, A.T., Gruber, M.A.M. & Bonser, S.P. (2008) A new framework for predicting invasive plant species. *Journal of Ecology*, 96, 13-17.

Vitousek, P.M., Walker, L.R., Whiteaker, L.D., Mueller-Dombois, D. & Matson, P.A. (1987) Biological invasion by *Myrica faya* alters ecosystem development in Hawaii. *Science*, 238, 802-804.

**Q16**

**Respondent skipped this question**

Any other comments?

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# #13

**COMPLETE**

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Page 1

**Q1**

First name

[REDACTED]

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**Q2**

Last name

[REDACTED]

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**Q3**

Organisation name (if relevant)

UNSW

---

**Q4**

Email address

[REDACTED]

---

**Q5**

Phone number

[REDACTED]

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**Q6**

Yes

Can we contact you about your submission (if required)?

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**Q7**

I am a researcher/academic

What best describes you?

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**Q8**

Which of the following regions best describes your location/area of interest?

**Statewide NSW,**  
**North Coast,**  
**Northern Tablelands,**  
**North West,**  
**Western,**  
**Central West,**  
**Central Tablelands,**  
**South East,**  
**Hunter,**  
**Greater Sydney,**  
**Riverina,**  
**Murray**

**Q9**

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**Q10**

To what extent are the NSW environment, industries and communities currently impacted by invasive species?

Invasive species are a major concern for NSW environments, however at current a significant proportion of the NSW Government invasive species resources and effort is being spent on killing dingoes (under the misnomer 'wild dogs'). Dingoes are a native animal and should not be subject to invasive species legislation or policy and certainly should not be killed as an invasive species inside conservation areas and National Parks like they currently are.

The continued killing of dingoes inside National Parks and conservation areas is contradictory to the aims of invasive species management because mesopredator releases means that this may remove suppression or behavioural alternation of feral cats and red foxes with subsequent negative flow-on to native species conservation and biodiversity protection. Furthermore, removal of the apex predator (dingoes) causes disturbance to natural ecosystems processes which increases the risk of invasive species incursions and causes biodiversity disregulation (ie increases in large native herbivores with subsequent impacts on native vegetation).

Invasive species management in NSW needs to be more holistic rather than species specific and needs to be targeted towards species that are invasive instead of wasting government resources on managing a native animal (dingoes) for ineffective management of livestock protection. In

### Q11

To what extent do you think existing programs in NSW are effectively managing invasive species?

Invasive species management programs for many species are ineffective and not properly evidence-based. There is limited research on the effectiveness of management programs and little is done to monitor the impact of invasive species management on native ecosystems.

At the current there are huge volumes of resources devoted to killing dingoes (under the misnomer wild dogs) when DNA evidence demonstrates these animals are dingoes not feral dogs (or even dingo hybrids). This wasting of government resources on killing dingoes (a native animal) under the guise of invasive species management is ineffective and means there are improper resources allocated to the management of truly invasive species in NSW.

Furthermore, far too much of the NSW Gov invasive species management programs are focused on aerial and ground baiting of foxes, dingoes (and feral cats - yet to be fully approved) yet there is limited evidence to suggest these programs provide net benefit to ecosystems or protect conservation assets in NSW. In particular the killing to dingoes is unlikely to be fruitful as it may increase the occurrence of invasive mesopredators, as well as enable the spread of invasive herbivores. Whilst dingoes do not remove foxes or cats from the environment there is extensive research showing foxes are more impacted by the presence of dingoes than they are by 1080 baiting.

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### Q12

What, if any, are the key barriers to effective management of invasive species?

At current there are too many resources being diverted to managing dingo populations across public land (National Parks, State Forests and conservation areas) rather than devoting those resources to the mitigation of true invasive species. There is also inadequate investment into alternative and innovative methods of invasive species management, and invasive species detection. Too often the invasive species actions are reactive and too late rather than employing adequate monitoring and evidence-based threat mitigation.

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### Q13

How has invasive species management changed since the introduction of the NSW Biosecurity Act 2015 legislation and associated programs and plans?

Since the introduction of the NSW Biosecurity Act there has been a massive increase in the amount of Government resources diverted to killing dingoes in public areas - including in National Parks. Furthermore, schedule 2 areas which were previously dingo conservation areas have effectively been removed. This effort has not been evidence-based and improperly devotes government resources for invasive species towards killing native dingoes. Native animals which impact agriculture can be managed under existing Biodiversity legislation.

Additionally there is a severe issue in NSW with inadequate and improper consultation with Traditional Owners and First Nations peoples about invasive species management - and in particular about the killing of dingoes. This needs to be rectified. Proper consultation must be carried out prior to management on public land.

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**Q14**

What are the future risks posed by invasive species to the NSW environment, industries and communities?

Continued diversion of invasive species resources to the killing of dingoes will leave the NSW environment, industries and communities open to serious threat from real current and future invasive species. Already the inadequate investment into monitoring and mitigation of invasive species is having serious consequences ie the Varroa mite incursion in the NSW Central Coast. The NSW Government needs to devote further funding to innovation, monitoring and research as well as risk assessment of current and future invasive species issues.

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**Q15**

What opportunities do you see to improve the outcomes of invasive species management in the future?

The NSW Government has the opportunity now to improve invasive species management in the future by:

- \* investing in innovative and effective threat mitigation strategies focused on preventing invasive species incursions
- \*investing in innovative research into effective and ethical mitigation of current invasive species - for either (or both) agriculture and biodiversity
- \*Adapting legislation and policy so that it differentiates between native species and true invasive species - allowing proper evidence based and tenure-specific management of species that are native but cause concern for agriculture whilst properly protecting them as native animals in conservation & public lands.
- \*Wider and ongoing consultation with First Nations peoples and future and current species management.

Wider investment into research and monitoring is needed, whilst also assessing whether existing management programs are cost-effective and evidence-based.

Continued killing of dingoes, a native animal, under invasive species legislation is not evidence-based or consistent with the objects of NSW legislation.

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**Q16**

Any other comments?

The NSW Government needs to consider the recent submission by 25 scientists to the Minister for Environment and Minister for Agriculture about current public policy regarding dingoes. The submission is relevant to this consultation and was sent to Ministers around August 2023.

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