

#97

**COMPLETE**

**Collector:** Web Link 1 (Web Link)  
**Started:** Friday, October 27, 2023 11:17:10 AM  
**Last Modified:** Friday, October 27, 2023 11:34:03 AM  
**Time Spent:** 00:16:52  
**IP Address:** [REDACTED]

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**Q1**

First name

[REDACTED]

**Q2**

Last name

[REDACTED]

**Q3**

Organisation name (if relevant)

University of Melbourne

**Q4**

Email address

[REDACTED]

**Q5**

Phone number

[REDACTED]

**Q6**

Yes

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

**Q7**

I am a researcher/academic

What best describes you?

**Q8**

**None of the above (I have a general interest in the topic)**

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

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**Q9**

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

The Commission publishes submissions on its website for transparency. If you do not want your personal details or responses published, please tell us below.

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**Q10**

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

Enormously

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**Q11**

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

As effectively as they can with existing funding, but while essential, it's still ultimately a game of whack-a-mole with no end in sight.

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**Q12**

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

Ineffective tools

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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?

I'm unaware of changes

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**Q14**

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

Continued ecological damage and economic losses

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**Q15**

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

In the long-term, the only feasible strategy for effective long-term suppression of the fox population is genetic biocontrol (e.g. "gene drive"). There is likely to be a cultural shift in attitudes towards genetic biocontrol in the future as the technology is developed and then deployed – probably initially to island populations of invasive vertebrate pests (e.g. rats). These early successes will pave the way to a broader acceptance that genetic biocontrol is the only realistic option for mainland populations of invasive pests. Thus, financial investment in the production of gene drive foxes should be a high priority since it will likely be 5-10 years before they could be ready for release. I lead a team of researchers at the University of Melbourne that has already initiated the development of a fox gene drive, despite limited funding. Nevertheless, we have made significant progress in establishing cultures of fox cells, deriving stem cell lines, and performing CRISPR editing. Concurrently we are optimising gene drive efficiency in zebrafish as our laboratory model for genetic biocontrol of vertebrate pests. With a substantial boost in funding (for a fox breeding facility, etc), we could have prototype gene drive foxes produced as early as 5 years from now.

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**Q16**

Respondent skipped this question

Any other comments?

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