

BIOSECURITY FAILURES IN AUSTRALIA: 12 CASE STUDIES

4. SMOOTH NEWTS

A case study of the establishment of a new amphibian in Victoria and a failure to proceed with eradication.

Species: Smooth newt (*Lissotriton vulgaris*)

Origin: Europe and western Asia

Australian occurrence: First detected in Melbourne in June 2011. Found at 6 sites in 2012 and 6 sites in 2013, including 4 of the 2012 sites.⁷⁹ The extent of its establishment is unknown.

Potential ecological impacts:⁸⁰ The smooth newt is the only salamander in the wild in Australia (the only member of an entire amphibian order) and the first invasive population of this species in the southern hemisphere, so it is hard to predict likely impacts. Tingley et al. (2014) note that 'On average, exotic species with only distant relatives in their invaded ranges tend to have greater impacts' because the native species probably lack co-evolved defences against them.



Photo: Melbourne museum.

The smooth newt is able to live in a wide range of habitats, and climate matching suggests that large parts of NSW, Victoria, eastern Tasmania, southern South Australia, and south-western Western Australia are particularly suitable for it.

Potential impacts could arise from predation, competition, toxicity and disease spread. The smooth newt is a generalist carnivore, eating invertebrates, crustaceans, and frog and fish eggs and larvae. Therefore it 'may compete with and prey upon a wide range of terrestrial and freshwater species in Australia'.

There is a risk that smooth newts could poison their predators (like cane toads do). Some salamanders produce a neurotoxin (tetrodotoxin) on their skin. Tests have previously shown that the European smooth newt has low levels or no tetrodotoxin but because Australian predators 'have no evolutionary history of exposure to tetrodotoxin ... the effect of even low doses of this toxin on Australian frog-eating predators remains unclear.' If the toxin is potent, it could affect a wide range of potential predators (invertebrates, wading birds, snakes, lizards, turtles and mammals which prey on species occupying similar environments or are morphologically similar).

A close relative of the smooth newt carries chytrid fungus, which has caused extinctions and declines in Australian frogs, so there is a risk that smooth newts will spread the disease.

Potential direct economic impacts: None known apart from potential costs of control.

Pathways: The most likely pathway for establishment is deliberate release or escape from illegal pet keeping. The keeping of smooth newts is prohibited Australia-wide but it used to be allowed. (In Victoria prior to it being declared a 'controlled pest animal' in 1997 it could be kept and traded without a permit; it was prohibited in 2010). Another possibility is it arrived as a stowaway with cargo or in a container.⁸¹

⁷⁹ Tingley et al. (2014)

⁸⁰ Most of this information has come from Tingley et al. (2014)

⁸¹ Grgurinovic et al. (2006) detected viable spores on a wood shipment to Australia from South America

BIOSECURITY FAILURES IN AUSTRALIA: 12 CASE STUDIES

Summary of biosecurity issues: ISC's view is that governments have not taken the potential environmental impacts of the smooth newt seriously enough. Decision-making was exceedingly slow, with a decision by the National Management Group to not attempt eradication taken at least 22 months after detection, allowing the newt to spread and making eradication much more difficult (perhaps impossible) and costly. The precautionary principle was ignored and the decision-making lacked transparency and had limited input from independent experts on ecology and amphibians. This case particularly highlights the lack of precaution applied in decisions about whether to eradicate. Because the smooth newt has not established invasive populations in the southern hemisphere and there are no salamanders in Australia, there are high levels of uncertainty about the likely impact. This uncertainty should have resulted in a higher risk rating and more strongly favoured a decision to attempt eradication. By the time its impacts become apparent it will be far too late to eradicate the smooth newt. A decision on whether to eradicate the smooth newt should be revisited.

Particular biosecurity issues

Emergency response: The smooth newt was discovered in an outer suburb of Melbourne in June 2011. A trapping survey in June–November 2011 found it at 4 locations. Surveys in 2012 found it at additional locations, suggesting it had spread.

Sometime in 2012 the incursion was referred by the Victorian government to a Consultative Committee for a decision under NEBRA on whether it would be eradicated with national cost-sharing. An FOI request for all National Management Group meeting agendas for 2012 showed no evidence that the smooth newt was discussed at that level.

In January 2013 ABARES (Australian Bureau of Agricultural and Resource Economics and Sciences) completed a 'national significance assessment' (as required under NEBRA).⁸² The expertise of the authors of this assessment and the extent to which they consulted with experts is unknown. However, the references suggest the assessment was based solely on published literature. Given the limited extent of the literature, particularly with respect to Australia, which has no salamanders, this seems inadequate. The ABARES assessment 'did not identify any likely severe and/or extensive impact'. However, it acknowledged that the impact on Australian biodiversity, particularly frogs and reptiles is 'somewhat uncertain'. In ISC's view this downplays the extent of uncertainty (contrasting with the analysis of Tingley et al. 2014, who emphasise the unknowns arising from the lack of evolutionary history of salamanders in Australia). The assessment also dismissed the potential for the newt to be toxic to predators (in contrast to Tingley et al 2014, who warn that its effects could differ on Australian species due to their lack of evolutionary exposure to the toxin).

On 16 April 2013 the Victorian Department of Primary Industries completed a NEBRA Preliminary Technical Feasibility Analysis, which concluded that the technical feasibility of eradication was 'moderate' or 'low to moderate' depending on how criteria were weighted (but with many unknowns).⁸³ We do not know how valid the conclusion is, although clearly the almost two years of inaction since detection, allowing the newt to spread, had by this date greatly undermined the potential for eradication. Such assessments would engender more confidence if they were subject to peer review by independent experts. The NEBRA feasibility assessment shows that the criteria need refinement (better definition and weightings).

On a date unknown, a consultative committee or the National Management Group decided to not support an attempted eradication of the smooth newt. This decision was made at least 22 months after the newt was detected, by which time it is likely to have spread, considerably reducing the prospects of eradication and increasing the costs. Due to the lack of transparency of decision-making by the National Management Group and consultative committees, ISC does not know why the proposal for eradication was rejected. As far as we are aware, the decision-making process did not involve ecological or amphibian experts. ISC is aware that opinions (within government) differ as to whether eradication should have been attempted.

We recommend the decision on eradication of the smooth newt be revisited, with advice from an environmental scientific panel on the significance of the newt impacts and the feasibility of eradication.

⁸² Parsons & ten Have (2013).

⁸³ Victorian Department of Primary Industries (2013).

BIOSECURITY FAILURES IN AUSTRALIA: 12 CASE STUDIES

Treatment of uncertainty: By deciding not to eradicate the smooth newt, Australian governments have in effect decided to proceed with the experiment of allowing a new order of amphibians to establish and spread in Australia. This is despite high levels of uncertainty about its impacts – due to the lack of salamanders in Australia and the lack of invasive populations elsewhere in the world. As Tingley et al. (2014) point out, invasive species impacts are on average more severe when there is a large phylogenetic distance between the invader and native species because there has been no evolutionary opportunity for native species to evolve defences. Despite the precautionary principle being fundamental to environmental decision-making (and required for decisions under the EPBC Act), there is no mention of the precautionary principle in NEBRA or other biosecurity policies.

Community engagement: During the first year of investigating the incursion the Victorian DPI strove to avoid publicity about the smooth newt to avoid revealing the location of the incursion. ISC respected this need for secrecy when we found out about the outbreak. DPI officers stated to ISC that this restriction was to prevent amateur collectors from collecting the smooth newt and spreading the risk into new illegal collections. This secrecy meant that there was no opportunity for the community with an interest in the environment and a stake in the consequences to be involved in decision-making. In hindsight, given the poor decision-making, we believe that it is more important to open up decision-making to public scrutiny than to keep new outbreaks secret.

There has been no information published about the decision-making regarding the smooth newt. ISC obtained some documents after applying for them through FOI. We are gravely concerned that the secrecy of decision-making under NEBRA and the other agreements undermines the quality of decision-making and encourages governments to prioritise short-term financial considerations over the longer-term public interest in environmental protection.

Enforcement: The smooth newt incursion raises questions about the extent of investigation of illegal pet keeping and trading and the resources invested in enforcing prohibitions. Do compliance officers properly monitor illegal pet-keeping and trade? We suspect not. There was one seizure in Melbourne in 2004 reported in the media.⁸⁴

Issues for the inquiry

Decision not to eradicate

- Should there be reconsideration of the decision not to eradicate the smooth newt, with an independent peer-reviewed assessment of significance and feasibility?

Decision-making processes

- Why did it take close to 2 years or longer for a decision to be made not to proceed with a national eradication of the smooth newt? ISC has been advised that the time taken to consider an eradication greatly diminished its chances of success.
- How was the decision to not proceed with eradication made and by whom? Was it a unanimous decision by all governments? What was the rationale?
- What consultative committee considered the feasibility analysis? Why is there no record of the national management group making a decision not to undertake an eradication when the national management group is the decision-making body under NEBRA?

Ecological expertise

- Were relevant experts involved in providing advice on the potential impacts and the potential for eradication?
- Given that ABARES is an agricultural research organisation, are they the appropriate body to conduct the national significance assessment under NEBRA?

⁸⁴ <http://www.abc.net.au/news/2004-10-14/exotic-newts-seized-from-melbourne-house/568564>

BIOSECURITY FAILURES IN AUSTRALIA: 12 CASE STUDIES

- Were ecological experts consulted for the NEBRA national significance report? Was the report peer reviewed? Should such reports be published and independently peer-reviewed?

Precautionary principle

- Should the precautionary principle be applied in decision-making under the emergency response arrangements? Given the great uncertainty of potential impacts of the smooth newt and the fact that eradication becomes much more difficult and costly – often impossible - should eradication have proceeded as soon as possible after detection despite the uncertainty about impacts?

Environmental weight

- Was sufficient weight given to potential environmental impacts? Researchers (Tingley et al. 2014) emphasised the potential significance of the smooth newt representing a completely new amphibian order, an issue not even considered in the significance assessment.

Enforcement

- Have there been any risk analyses conducted on the risks associated with the illegal pet trade and illegal pet-keeping in Australia?
- Are there national and state compliance strategies for these activities?
- Has there been any follow-up to determine the likely sources of the smooth newts now established in the wild?
- Are there other amphibian species illegally being kept?

Transparency

- Should decision-making by consultative committees and the national management group be subject to public scrutiny?
- Should decisions be published and the rationale explained?

References

Parsons S, ten Have J. 2013. *NEBRA National Significance Assessment for the Smooth newt (Lissotriton vulgaris)*. Assessment by the Australian Bureau of Agricultural and Resource Economics and Sciences. January 2013.

Tingley R, Weeks A, Smart A, van Rooyen A, Woolnough A, McCarthy M. 2014. European newts establish in Australia, marking the arrival of a new amphibian order. *Biological Invasions*, DOI: 10.1007/s10530-014-0716-z.

Victorian Department of Primary Industries. 2013. *NEBRA Preliminary Technical Feasibility Analysis: Smooth Newt (Lissotriton vulgaris)*.