

CASE STUDY:

ASIAN BLACK-SPINED TOAD

UPDATED 2017 NOVEMBER

A case study of efforts to prevent a potential new toad invader.

Species

Asian black-spined toad (*Duttaphrynus melanostictus*).

Origin

Asia (from north Pakistan through Nepal, Bangladesh, India, Sri Lanka, southern China, Myanmar, Lao People's Democratic Republic, Vietnam, Thailand and Cambodia to Malaysia, Singapore, and Indonesia).¹ The toad has recently spread to southern Indonesia, East Timor and Papua New Guinea.²

Australian occurrence

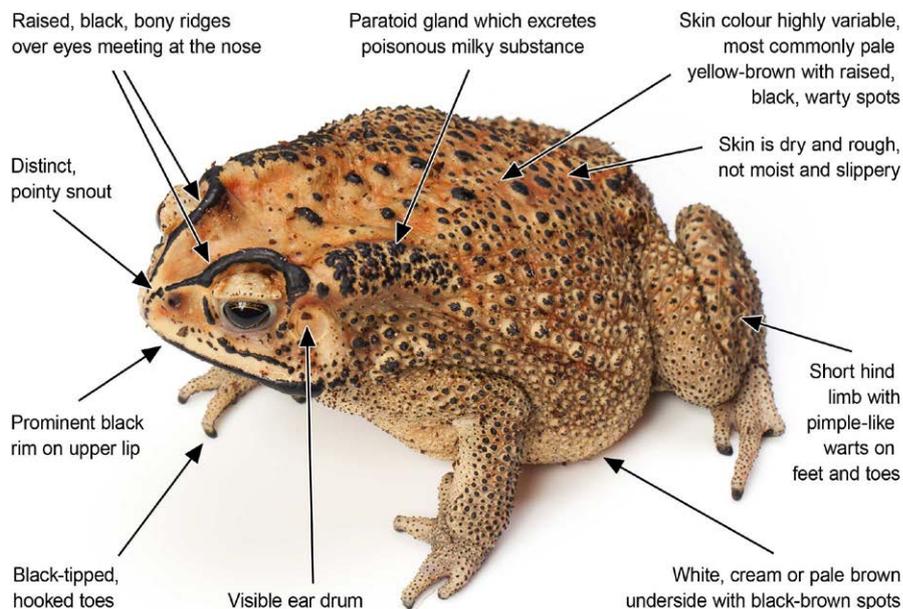
This toad has been detected at least three times in the wild in Australia.³ The most recent incursion, in 2014, was in suburban Melbourne. Just one toad was found.

Potential environmental impacts

The Asian black-spined toad 'may cause serious ecological problems, comparable to the impact of the cane toad' due to competition with native species, its potential to spread exotic parasites and pathogens and its toxicity.⁴ Like the cane toad, the black-spined toad secretes poison from a gland on its back to ward off predators. The toxins contain several bioactive compounds with lethal, hypotensive, hypertensive, neurotoxic, cardiotoxic, haemolytic and sleep inducing factors that could severely affect the snakes, goannas and quolls likely to prey on the toad.⁵ The toad is a prolific breeder with the females typically producing 40,000 eggs at a time.

Potential economic impacts

Potential costs have not been assessed. They could include those arising from reduced tourism, health impacts on children, blocking of drains and costs of control.⁶



Asian black-spined toad. Graphic: DEPI Vic

Pathways

Black-spined toads have usually been detected in international vessels, shipping containers, machinery and personal effects such as bags, shoes, boxes and cartons.⁷

BIOSECURITY ISSUES

Summary

The recent rate of interceptions (about 10 a year) and several detected incursions since 2000 suggest a high likelihood of the black-spined toad establishing in Australia. It is unclear what plans have been developed to respond to incursions and whether they will be sufficient to prevent permanent establishment. The toad is regarded as a high priority target for quarantine interception, so would presumably be a high priority for eradication if there is an incursion. A contingency plan is important for facilitating this.

Planning and surveillance

This toad is regarded by Australia's biosecurity agency as one of its ten 'most unwanted' species and 'potentially more damaging than the cane toad'.⁸ A 2010 assessment by the Invasive Animals

CRC found that the risk of the toad establishing in Australia was 'extreme'. There is no publicly available pathway risk analysis or contingency plan.⁹ We believe it should be a high priority to develop a contingency plan that includes a surveillance strategy.

Pre-border and at-border biosecurity

The black-spined toad frequently travels to Australia as a stowaway. From 2003 to 2012, it was intercepted about 100 times.¹⁰ It has arrived with 'stone, straw, personal effects, baggage, containers by air and ship' from Brunei, China, India, Indonesia, Malaysia, Thailand, the US.¹¹ Since 1999 it has been detected in the wild twice in Victoria, once in WA.¹² The toad is abundant in Bali and Papua New Guinea, and also found in East Timor.¹³ Massam et al. (2010) note there has been some pre-border focus on black-spined toads in some countries, with a report of AQIS import clearance officers visiting the Freeport Mine in West Papua in 2006.¹⁴ They also note that a toad barrier was installed around the unloading dock at Cairns Port to prevent the escape of these and other introduced amphibians.

Emergency response

Due to the notoriety and adverse impacts of the cane toad, we assume that Australian governments would be willing to commit to eradicating the black-spined toad if it established. The 2014 incursion response by the Victorian Department of Primary Industries focused on searching the immediate area near the incursion including a local creek. The National Environmental Biosecurity Response Agreement was not activated since only one toad was located and the Victorian government determined that additional resources were not needed.

CHANGES NEEDED

Prevention and incursion response

- Although the black-spined toad is regarded as a high biosecurity priority, there is little or no public information to reassure us that Australia is well prepared for preventing, detecting and responding to incursions. We need pathway analysis, contingency planning and surveillance programs as well as pre-border and at-border prevention strategies.

ABOUT OUR CASE STUDIES

Our case studies illustrate the need for changes in how Australia prevents the establishment of new invasive species. They were compiled using publicly available information at the time of the last update. We would welcome new information or updates to biosecurity response for inclusion in future updates.

Stronger biosecurity is vital to protect the highly endemic wildlife of Australia and its many special wild places. This is Lord Howe Island, where invasive species have already caused several extinctions.

Photo: Robert Whyte

CONTACT US

- Visit invasives.org.au for more information about the Invasive Species Council and to get in touch.

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ENDNOTES

- 1 Cshures (2010)
- 2 Csurhes (2010)
- 3 Henderson and Bomford (2011)
- 4 Department of Environment and Primary Industries (2014), also Cshures (2010)
- 5 Department of Environment and Primary Industries (2014)
- 6 Taylor and Edwards (2005)
- 7 Cshures (2010)
- 8 Department of Agriculture, Fisheries and Forestry (nd)
- 10 Henderson and Bomford (2011), Minister for Agriculture, Fisheries and Forestry (2013)
- 11 Henderson and Bomford (2011).
- 12 Henderson and Bomford (2011), REF for recent incursion?
- 13 Cshures (2010)
- 14 Massam et al. (2010) citing AQIS (2006)

