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Cane toad strategy for Western Australia 2021 – 2026



Department of Biodiversity,
Conservation and Attractions



**PARKS AND
WILDLIFE
SERVICE**

*We're working for
Western Australia.*



Foreword from the Western Australian Minister for Environment

Cane toads have been in Western Australia since 2009 when they crossed the border from the Northern Territory and began to make their way across the Kimberley region. A declared pest, cane toads are toxic when consumed and have direct and indirect impacts on the ecosystems they invade. The Department of Biodiversity, Conservation and Attractions (DBCA) is committed to reducing the impact of this toxic invader on the wildlife of Western Australia.

Under previous Cane Toad Strategies for WA, considerable progress has been made towards maximising the understanding of cane toads, their impacts and management options and this knowledge has been used to develop strategies to minimise the toads' impact. Significant advancements were made in collaborative research and DBCA has played a key role in the Cane Toad Coalition, a group of research, conservation and land management organisations working towards the largest toad mitigation strategy in Australia to date - teaching native predators not to eat the toxic cane toad.

Over this time, DBCA's field-based cane toad surveillance and response team has successfully responded to and resolved 'hitch hiker' toad incidents across the State; created innovative communication and education channels, including a comprehensive schools education program across the State; and engaged the community in toad musters to collect the toad meat needed for on-ground conservation research. DBCA staff worked with Aboriginal ranger groups throughout the Kimberley to collect important information on native species ahead of the cane toad front and establish a long-term monitoring program.

With the momentum, relationships and knowledge gained under the previous strategy it is timely to review and refocus efforts. The Cane Toad Strategy for WA 2021-2026 will ensure the management of cane toads in Western Australia continues to adapt to the most recent advancements in knowledge and technology, with continued collaboration with traditional owners, research partners and stakeholders a primary focus. The updated strategy also highlights the ongoing value of education and communication programs to keep the community involved and informed.



Scope

The Cane Toad Strategy 2021 – 2026 applies across Western Australia to guide research, planning and operations related to cane toad management.

Background

Cane toads (*Rhinella marina*), native to south and central America were deliberately introduced into Australia during the 1930s to control sugar cane beetles in North Queensland cane plantations. Since their introduction, cane toads spread, both naturally and with human assistance, through Queensland, the Northern Territory and into New South Wales and Western Australia, impacting both directly and indirectly on native wildlife and ecosystems.

Cane toad impacts on native species include:

- **Poisoning through ingestion;**
- **Predation;**
- **Competition for habitat and food, and**
- **changing ecosystems through disrupting predator prey relationships.**

The movement of the invading cane toad front has increased in pace over time, with the Western Australian front now moving at an average rate of 50 kilometres a year depending on the topography, and seasonal conditions (most importantly when and how much rainfall occurs during the wet season).

The cane toad is currently listed by the International Union for Conservation of Nature (IUCN) as one of the world's worst 100 invasive species. In 2005 the biological effect of cane toads was listed as a key threatening process under the Australian *Environment Protection and Biodiversity Conservation Act 1999*, highlighting the impact this species has had on the Australian environment since its introduction in 1935. The Australian Government provided national guidance on the threat of this species with the 2011 'Threat abatement plan for the biological effects, including lethal toxic ingestion caused by cane toads', shifting, the national focus from stopping or slowing the spread of the toad to mitigating the impacts. Cane toads are a declared species below the 26th parallel in Western Australia under the state's *Biosecurity and Agriculture Management Act 2007*.

The initial State Government and community response in Western Australia focussed on trying to stop cane toads entering the State. Despite best efforts, cane toads crossed the Western Australian border in 2009 and the focus moved to gathering further information on biological assets in the Kimberley, education, surveillance, and quarantine.

Some actions in the previous strategies are continuing to work well and have been retained, some have been successfully completed, while others have been modified in response to scientific findings. Program achievements under the previous strategy can be viewed at appendix one.





Objectives

The Cane Toad Strategy 2021-2026 will focus on mitigating the impact of cane toads and preventing cane toads from establishing satellite populations, education, and further research, through three objectives.

Objective 1: Mitigate the impact of cane toads.



Objective 2: Address knowledge gaps through scientific investigation.



Objective 3: Collaborate and communicate.




























The Cane Toad Program for Western Australia will be guided by:



- **Research, monitoring and evaluation** of cane toad and native fauna distributions. Innovative management approaches are necessary to facilitate improvements in management over time within an adaptive framework.
- **Taking effective action** by using scientific information and best practice techniques to protect native wildlife and natural environments from cane toads.
- **Collaborative partnerships** are vital, particularly with traditional owners, to ensure a continued shared commitment to effective cane toad management.
- **Integration of cane toad management** with other land management activities, including the Commonwealth's Cane Toad Threat Abatement Plan (2011), 'working on country' plans for Indigenous Protected Areas, and DBCA's management of parks and reserves and biodiversity assets.
- **Public awareness and knowledge** of cane toads and their impacts must be continually improved to ensure effective communication methods are used and broader community awareness is achieved.

DBCA's Cane Toad Program is primarily responsible for implementing the actions in this strategy but will actively seek to collaborate and form partnerships with a range of organisations to be effective.



Objective	Actions	Output/Outcome
	Undertake biological surveys to identify/refine knowledge of high value biodiversity assets/populations under threat from cane toads.	Information from biological surveys undertaken across the Kimberley.
	Map potential locations for targeted conservation programs (including northern quoll, goanna, and freshwater crocodile).	Map of high value biodiversity assets/ populations of vulnerable species.
 	Identify ways to improve mapping of current cane toad front to inform and adapt mitigation activities.	Map the cane toad frontline annually and publish on the DBCA website.
	Monitor changes in populations of native species at risk before and after arrival of cane toads.	Report published that documents changes observed in native species populations at long term monitored sites.
	Undertake mitigation activities to protect identified species.	List and map all sites where mitigation activities have been undertaken and publish in DBCA's annual report.
 	Work collaboratively to eradicate any individual or small groups of cane toads discovered more than 50km ahead of the main front, where feasible.	Report published on actions taken to follow up on isolated populations.
	Review and deliver quarantine procedures post hitchhiker cane toad incidents.	Updated surveillance standard operating procedure available. Maintain database to record each incident. Updated quarantine protocol for tourism, freight etc to cane toad free areas.
	Regularly review and produce public information aimed at minimising the accidental movement of cane toads.	Catalogue of information brochures available for various groups including tourism and transport industries.
 	Facilitate toad musters when feasible and/or promote community cane toad collection to contribute to conditioned taste aversion projects.	Produce cane toad taste aversion sausages from toad meat collected in toad musters.

Objective	Actions	Output/Outcome
 	Partner with Aboriginal ranger groups to manage cane toads.	<p>Updated ranger handbook.</p> <p>Positive relationships with ranger groups ahead of the cane toad front.</p> <p>Support for ranger training programs.</p>
	Align actions with the Commonwealth Cane Toad Threat Abatement Plan (TAP) (2011).	Identify, undertake and document TAP actions that Western Australia contributes to and report as required.
	Communicate and collaborate towards the implementation of island biosecurity measures to prevent introduction and establishment of cane toads.	<p>Update Kimberley Islands Biosecurity Discussion Paper.</p> <p>Prepare and implement communication plan and develop resources.</p> <p>Stakeholders understand their biosecurity responsibilities and available management actions.</p>
 	Publish cane toad related monitoring results and outcomes of research projects, including peer reviewed publications.	<p>Publish peer reviewed reports on research where possible.</p> <p>Updated information on DBCA website on the outcomes of research projects.</p> <p>Stakeholders updated through appropriate channels.</p>
 	Identify areas in the Pilbara region where cane toads could potentially become established and investigate management options.	<p>Landscape scale mapping of areas in the Pilbara susceptible to toad invasion and their persistence.</p> <p>Provide cane toad information for stakeholders.</p>
	Investigate the application of new control methods for cane toads in the field.	<p>List of methods investigated and the feasibility of each method documented.</p> <p>Standard operating procedures developed for feasible methods.</p>
	Evaluate methods to protect biodiversity assets from cane toads through exclusion.	Investigate knowledge gaps that underpin success or otherwise of exclusion concepts.
 	Collaborate with research institutions to investigate alternatives in mitigation activities and other management strategies.	Productive working relationships with researchers.
	Ensure cane toad management strategies developed by DBCA are available to the broader community.	<p>Cane toad project communications plan published.</p> <p>Updated information packages available at ranger stations and other key locations.</p> <p>Surveillance standard operating procedure (including options for island surveillance) and other toad management standard operating procedures are produced and circulated.</p>

Objective	Actions	Output/Outcome
	Promote humane methods of cane toad euthanasia and disposal.	Updated euthanasia and disposal standard operating procedures published. Humane euthanasia methods communicated via website, social media and direct communications.
	Deliver education and information on cane toads and their management.	Educational resources and presentations delivered to communities ahead of the cane toad frontline in preparation for cane toad arrival. School-based cane toad education program rolled out throughout the State. Updated online resources.

Evaluation and Reporting

This strategy will be annually reviewed, and progress checked against the outputs listed for each action. A report will be produced annually and made available on the DBCA website.



Appendix 1 – Achievements under previous strategy

The Cane Toad Strategy 2014 – 2019 has delivered positive outputs and collaborations on several research projects under Australian Research Council grants and partnerships with universities. By supporting effective quarantine strategies, investing in new research projects, and engaging with the community, DBCA has continued to improve the delivery of actions to mitigate the impact of cane toads. In the last ten years, significant collaborative research has been carried out including:

- Conditioned taste aversion (CTA) training of northern quolls using CTA sausages. CTA occurs when an animal (northern quoll) associates the smell and taste of an animal (cane toad) with sickness. The process involves making sausages baits from cane toad meat and adding a nausea inducing chemical to invoke a negative reaction when eaten.
- Teacher toads (metamorph cane toads with minimal toxin) have been released during landscape scale trials in areas of high goanna abundance. This research has found that goannas are able to learn to avoid cane toads through taste aversion training. Pre-toad and post-toad arrival monitoring has shown that taste aversion strategies have resulted in higher persistence of some goanna species after the arrival of cane toads.
- Investigations with support from the Department, into the use of pheromones extracted from cane toad toxin, to attract cane toad tadpoles to traps and interrupt cane toad metamorphosis.
- Monitoring the long-term impact of toads on the fauna of Adolphus Island, including one of the last remaining populations of northern quolls in the east Kimberley. Cane toads arrived on the island in 2014. DBCA has been monitoring the ongoing survival of quolls and other susceptible reptile species to determine long-term survival of these species in the presence of cane toads. This information will help predict the impact and survival of cane toads on other Kimberley islands and so inform possible management options.
- Toad drop-off boxes have been installed in numerous locations in the Kimberley to aid community toad-musters and have provided an important source for collecting cane toad meat for CTA baits.
- Large community toad-musters have been organised, engaging the help of local community organisations, Aboriginal ranger groups and individuals across the Kimberley to collect thousands of cane toads required for CTA bait production.
- DBCA in collaboration with Rangelands NRM, Balanggarra Aboriginal Corporation and University of Sydney has progressed a range of actions funded through the Commonwealth Landcare program. This included the development of a ranger handbook, continuation of the goanna teacher-toad research and the delivery of the monitoring program on Adolphus Island.
- Online information and brochures have been produced and modified according to community needs with education packages republished and presentations updated and delivered to school groups and other organisations. Regular social media posts about cane toad issues are provided to the community, together with a cane toad reporting line for suspected hitchhiker cane toads.