

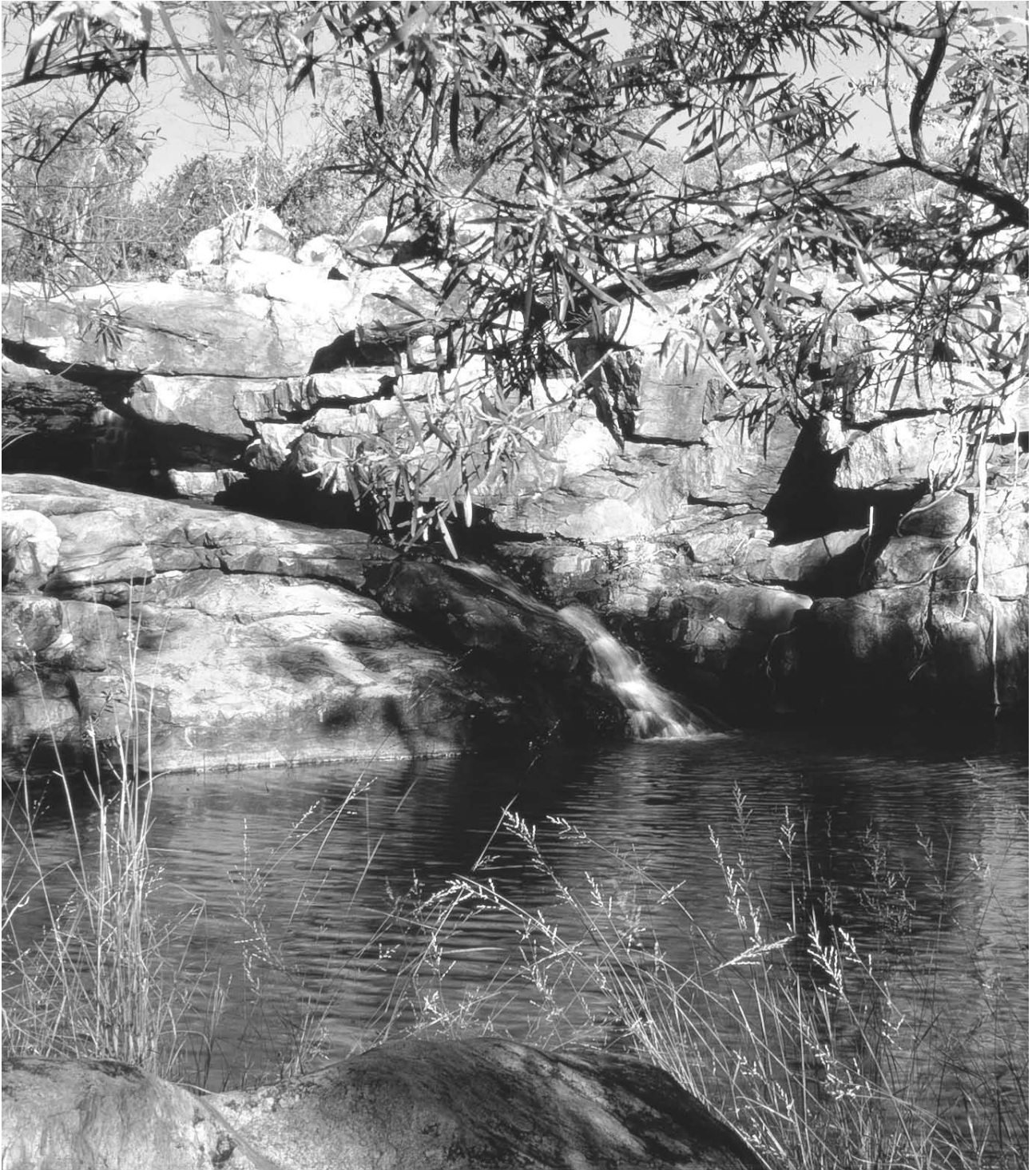


**Cane Toad Strategy
for Western Australia**



2009–2019





FOREWORD



It is clear that cane toads pose a very real and significant threat to our State's biodiversity, environment and our lifestyle.

We have, over recent years, seen major community-wide efforts to slow cane toads from entering Western Australia. These efforts have involved both government agency staff and community groups, including many thousands of volunteer hours, from people across all walks of life.

I have personally seen the efforts of community volunteers in the field and have been very impressed with their enthusiasm and dedication to combating these pests.

The State Government recognised the need for a new focus for cane toad actions, after they crossed the border into Western Australia earlier this year. In May 2009 a Draft Cane Toad Strategy was prepared and released. Following a six week public consultation phase the **Cane Toad Strategy for Western Australia: 2009-2019** has been finalised.

The final strategy is action oriented, streamlined and produced as a 'living' document that can be updated readily as new information comes to hand.

The Liberal-National Government values community efforts against cane toads and has also extended State Government agency operations, producing new educational information packages and establishing the first of a planned series of cane toad drop-off points. We will continue to support the implementation of this finalised strategy.

I would like to thank everyone who has contributed to the development of this strategy, particularly those who made submissions to the draft. I would also like to offer special thanks to the Kununurra-based Community Stakeholder Reference Group (SRG) for their input into this strategy. As people who are on the front line, the strategy has clearly benefited from their experience and dedication in the fight against cane toads.

A handwritten signature in black ink, appearing to read 'Donna Faragher'.

Hon Donna Faragher JP MLC
MINISTER FOR ENVIRONMENT; YOUTH

PART 1: BACKGROUND AND ORGANISATION

1.1 Introduction

Cane toads (*Bufo marinus*) were deliberately introduced into Australia in 1935 in an attempt to control sugar cane pests in Queensland. Cane toads have since spread, both naturally and with human assistance, throughout much of Queensland, northern New South Wales and northern parts of the Northern Territory, impacting on native fauna, agricultural, social and cultural values along the way. The movement of the cane toad invading front has increased in pace over time, with the front now moving at an average rate of approximately 55 kilometres a year (Phillips et al. 2007). The first cane toads crossed the Northern Territory-Western Australia border in February 2009.

Cane toads have been listed by the Invasive Species Specialist Group of the World Conservation Union (Lowe et al. 2000) as one of 100 of the world's worst invasive alien species. They are widely regarded by the Australian community as a highly undesirable pest animal. Cane toads potentially impact on native species in three main ways:

- poisoning through ingestion;
- predation; and
- competition for habitat and food.

The community response to the threat posed by cane toads in Western Australia has been unprecedented, with well-organised and committed community groups working since 2005 to prevent the entry of toads into the State. Two key community action groups, the Kimberley Toad Busters and the Stop the Toad Foundation, have conducted regular toad-busting activities, facilitating the involvement of thousands of volunteers and raising awareness of the cane toad issue across the community.

The Government of Western Australia has invested more than \$13 million in the fight against cane toads in cooperation with a range of stakeholders, including community groups, universities, the Australian Government, local shires and indigenous groups and others. These

funds have been spent on a range of innovative and groundbreaking programs including a field-based cane toad surveillance and response team, biological surveys, strengthened quarantine measures, awareness campaigns, free-call cane toad hotline, cane toad drop off points and funding research programs to find longer-term solutions for the control of cane toads.

Despite the above efforts, the westward movement of cane toads to the Kimberley has continued and it is now clear that this movement cannot be stopped using any of the methods currently available. While promising research continues in the hope of discovering long-term effective cane toad management solutions, coordinated action is needed to ensure that Western Australian communities are prepared for the arrival of cane toads, supported with appropriate short-term control programs where necessary, and that effective measures are taken to ensure satellite populations of toads do not establish elsewhere in the State.



1.2 Scope, Goals and Principles

The original operational strategy that guided Western Australian government agency efforts between 2005 and 2009 was focused on actions attempting to at least slow cane toads reaching Western Australia. Given the arrival of the cane toad front at the Northern Territory/Western Australian border in February 2009, it was clear that a new strategy was required to guide efforts against cane toads within this state.

This new Cane Toad Strategy for Western Australia: 2009-2019 emphasises the critical role of partnerships between government and community-based organisations in fighting cane toads within Western Australia over the next ten years.

This strategy has three goals.

1. *Maximise understanding of cane toads, their impacts and management options.*
2. *Minimise the impact of cane toads.*
3. *Discover, and implement, long-term management solutions for cane toads.*

The implementation of this strategy is guided by the following principles:

- a. **Consultation and partnership** arrangements between landholders, local communities, industry groups, Federal, State and local governments must be established to achieve a collaborative, integrated and ongoing approach to cane toad management.
- b. **Effective pest management** is a shared responsibility requiring the commitment of government, industry, landholders and the community.
- c. **Public awareness** and knowledge of cane toads and their impacts must be raised to increase acceptance, capacity and surveillance efforts to detect and remove toads.
- d. **Prevention** is better than cure, to be achieved by:
 - preventing the spread of cane toads by human activity;
 - early intervention to minimise their spread and adverse impacts; and
 - having acceptable and effective methods to control cane toads.
- e. **Ecological processes** can best be preserved by using cane toad control techniques that have the fewest undesirable impacts.



- f. **Integration** of cane toad management (with other land management activities) is a vital part of managing natural resources and production systems for the longer term.
- g. **Planning** for cane toad management should be consistent at local, regional, State and national levels to ensure that:
 - domestic and international obligations about pest management are met;
 - a widespread, effective planning process is maintained across the landscape to target the priorities of stakeholders; and
 - all available resources are efficiently used to target priorities identified under State, national and international best practice management guidelines/policies.
- h. Ongoing **research, monitoring and evaluation** of cane toad occurrence and control activities are necessary as part of an active adaptive management approach to facilitate improvements in management over time.
- i. **Animal welfare** is to be taken into account, such that any control program must:
 - recognise that cane toads require animal welfare consideration consistent with legislative requirements under the *Animal Welfare Act 2002*; and
 - be target specific and not cause suffering to non-target animals.

1.3 Community Input

Development of this strategy has included substantial stakeholder and community involvement. A Draft Cane Toad Strategy for Western Australia was prepared by the Department of Environment and Conservation (DEC) in consultation with a Kununurra-based Stakeholder Reference Group. The draft was released for a six-week public comment period on 12 May 2009 and 22 submissions were received.

The key messages from the public submissions were:

- the need for measurable objectives to assist with performance assessment;
- actions should be prioritised; and
- as a whole, the draft strategy captured most of the details about the cane toad issue.

1.4 Organisation of the Strategy

This final strategy is action focused and is designed to be easily read and interpreted by any reader. It includes Background Information and a Plan of Action. The Plan of Action identifies, for each Goal, a series of key aims and actions. Responsibility for each action is identified, along with the priority and timeframe for implementation.

1.5 Implementation

Implementing the Cane Toad Strategy for Western Australia will require cooperation and commitment from government agencies, groups and individuals responsible for land management, quarantine and control of introduced species. In addition, non-government organisations (such as Kimberley Toad Busters and Stop the Toad Foundation) will continue their involvement.

1.6 Evaluation

It is important that the strategy undergoes regular review and consolidation and that progress is checked against the actions listed. DEC will report through the Minister for Environment on the strategy's progress every five years, with updates on progress against actions noted annually to ensure that it remains up-to-date. These reviews will also determine the appropriateness and effectiveness of the range of strategies employed, and whether the accompanying actions remain relevant, or need to be modified.

1.7 Further Information

Further detailed information on cane toads, their impacts, and their spread across Australia is included in the *Draft Cane Toad Strategy for Western Australia 2009-2019*, published and released in May 2009. The draft strategy will remain available on the internet at www.dec.wa.gov.au as a reference document.

PART 2: PLAN OF ACTION

2.1 Overview

It is most important that this new Cane Toad Strategy is an active and 'live' document.

One of the key lessons to emerge from the last five years of actively fighting cane toads in the Northern Territory, undertaking research into possible control techniques and investigating cane toad impacts, has been that there is much that we can learn about the species and its interactions with the Australian environment and our biodiversity. Many new and exciting areas for investigation have emerged and the most prospective of these are being pursued.

It has become increasingly clear how difficult the tasks of finding effective control techniques and minimising cane toad impacts are. Remarkably, given these difficulties, we still have unprecedented community effort and support for coordinated actions against cane toads.

While this version of the Cane Toad Strategy for Western Australia is dated 2009-2019, it is intended that the strategy document will be regularly updated as new information comes to hand and new techniques that can be used against cane toads are discovered.

It is hoped that some day, a means of controlling cane toad numbers will be developed. This strategy has been framed on the basis of what we know now, but will take advantage of any new and better techniques to use against cane toads, as these are developed.

The following pages set out aims and actions for each of the three goals of this strategy, along with responsibilities for these and their overall priority and time frame. All organisations participating in the implementation of this strategy will do so subject to the availability of necessary resources.



**Goal 1:
MAXIMISE UNDERSTANDING OF CANE TOADS, THEIR IMPACTS AND
MANAGEMENT OPTIONS**

Aims	Actions	Responsibility	Priority Timeframe
<p>To support and enhance processes that improve the coordination, collaboration and communication of cane toad information and management between key stakeholders.</p>	<p>1 Support a Stakeholder Reference Group (SRG) or similar groups to ensure that relevant government agencies and community groups are aware of management and research progress and recommended actions, and relevant groups are able to contribute and access information as required, including sharing information about cane toad operations and location of the frontline.</p>	<p>DEC, with SRG members</p>	<p>High/ongoing</p>
	<p>2 Advertise on all relevant extension material, newsletters and media releases the existence and purpose of the DAFWA Freecall 1800 cane toad reporting and information line.</p>	<p>DEC, Department of Agriculture and Food (DAFWA)</p>	<p>High/ongoing</p>
	<p>3 Create a joint database to record cane toad sightings, presence and removal via a coordinated data collection and GIS system, linked to the existing reporting and other data collection systems.</p>	<p>DEC, DAFWA and community groups</p>	<p>High/2009</p>
	<p>4 Hold a community forum in Kununurra prior to the arrival of the cane toad frontline and progressively throughout the Kimberley ahead of the frontline.</p>	<p>DEC and community groups</p>	<p>High/2010</p>
	<p>5 Facilitate and conduct stakeholder workshops to promote ongoing coordination and information exchange and to ensure maintenance of collaborative relationships.</p>	<p>DEC and community groups</p>	<p>Medium/2009 and ongoing</p>
	<p>6 Identify and develop information appropriate for Indigenous communities.</p>	<p>DEC, with SRG input</p>	<p>High/ underway</p>
	<p>7 Produce a set of information sheets for specific industry, transportation and tourism groups, to minimise accidental movement of cane toads to other areas of Western Australia.</p>	<p>DEC, with DAFWA, Tourism WA and SRG input</p>	<p>High/2009/10 and reviews later</p>
	<p>8 Support community groups to investigate additional sources of funding and resources.</p>	<p>DEC, with SRG input</p>	<p>Medium/ ongoing</p>

<p>To support and enhance processes that improve the coordination, collaboration and communication of cane toad information and management between key stakeholders (continued).</p>	<p>9</p>	<p>Assist with the development and implementation of any National Cane Toad Strategy.</p>	<p>DEC, with SRG members</p>	<p>Medium/as opportunities arise</p>
<p>Build community and industry awareness of cane toad impacts and management</p>	<p>10</p>	<p>Develop, maintain and update an education program that includes cane toad demonstration materials, student handouts and a teacher resource kit. The program will address different age groups and audience types, including Indigenous communities and areas with and without the presence of cane toads.</p>	<p>DEC, with SRG input</p>	<p>Medium/ 2009-10</p>
	<p>11</p>	<p>Review written information and produce complementary material for dissemination via stakeholder groups, toad-busting kits and websites. Information to include cane toad impacts, management options, safe handling, identification, reporting, euthanasia and disposal. Information material to be targeted to meet the needs of all community sectors.</p>	<p>DEC, DAFWA, Shire of Wyndham East Kimberley (SWEK), Kununurra Visitor Centre and community groups</p>	<p>High/ongoing</p>
	<p>12</p>	<p>Continue to maintain up-to-date information on the DEC/DAFWA cane toad web pages.</p>	<p>DAFWA/DEC</p>	<p>High/ongoing</p>
	<p>13</p>	<p>Raise awareness of the need to accurately distinguish cane toads from native frogs through various means including posters, websites and MP3 files of calls.</p>	<p>DEC</p>	<p>High/ongoing</p>
	<p>14</p>	<p>Circulate any significant research findings via websites, newspaper articles and newsletters.</p>	<p>DEC</p>	<p>Medium/ ongoing</p>

Goal 2: MINIMISE THE IMPACT OF CANE TOADS

Aims	Actions	Responsibility	Priority Timeframe
Apply best practice techniques and standards, including appropriate cane toad euthanasia and disposal, for the short term control of cane toads in high value areas.	15 Continue in the short term with the current focus on frontline reconnaissance, survey and removal of cane toads, including mapping the movement of cane toads.	DEC and community groups	High/2009/10 wet season. Review before 2010/11 wet season
	16 Incorporate cane toad management as part of broader Indigenous land management and enhance existing ranger training programs to include cane toad management.	DEC with SRG input	High/early 2010
	17 Develop a biodiversity asset protection matrix, initially for the east Kimberley, to assist in identifying species/ communities at high risk from cane toads. Develop and implement protective management programs accordingly.	DEC with SRG input	High/2010
	18 Evaluate the feasibility (cost, potential locations, benefit) of protecting critical habitat for geographically restricted or threatened species, such as the land snails of the Ningbing Range, with fencing and manual cane toad control programs, while addressing other key threatening processes.	DEC	High/2010 and ongoing
	19 Establish identification and disposal points in towns likely to require this service as the frontline advances.	DEC, SWEK	High/ achieved in Kununurra; to be implemented elsewhere ahead of cane toad front
	20 Promote the use of acceptable methods for euthanasing and controlling cane toads. Produce information material outlining recommended and unacceptable methods of euthanasing and disposing of cane toads, targeted at both residential communities and toad-busting groups.	DEC, Department of Local Government (DLG) and DAFWA, with SRG input	High/ ongoing

Continue to monitor the impacts of cane toads on native fauna, identify and prioritise species at high risk from cane toads and implement protective management programs.	21	Continue the current east Kimberley monitoring program for species at risk to measure changes in abundance prior to and after the arrival of cane toads and determine population recovery.	DEC, with community involvement	High/ongoing
	22	Investigate the feasibility of establishing an acoustic tower network to monitor the long-term trends of frog populations.	DEC	Medium 2010-11
Support research to identify high value biodiversity assets and locations for targeted conservation programs.	23	Continue research and biological surveys to identify high value biodiversity assets and potential locations for targeted conservation programs.	DEC	High/ongoing
	24	Ensure that relevant research data continue to inform the development of a biodiversity asset protection matrix to guide resource allocation.	DEC	High/ongoing
	25	Assess the risk of cane toads invading offshore islands and devise mitigation strategies for islands at risk (transport of freight/food etc).	DEC	High/2009/10 and ongoing
	26	Identify areas on the mainland that may be used as refuges for species at risk or in trials of cane toad exclusion zones.	DEC	Medium/2010
Minimise the likelihood of new populations of cane toads establishing ahead of the frontline through improved intrastate quarantine, surveillance and reporting procedures.	27	Review quarantine procedures and cost-effectiveness of possible intrastate quarantine and auditing of road, air and ship freight and tourism companies.	DEC, with assistance from DAFWA	High/ 2009/10 and ongoing
	28	Review the use of detector dogs with a focus on quarantine and investigate ways in which this role could be expanded now that cane toads have arrived in Western Australia.	DEC, with assistance from DAFWA	Medium/ ongoing
	29	Conduct pathway analyses and risk assessment to identify potential sources and likelihood of human assisted cane toad movement within Western Australia.	DEC and DAFWA	High/late 2010

<p>Minimise the likelihood of new populations of cane toads establishing ahead of the frontline through improved intrastate quarantine, surveillance and reporting procedures (continued).</p>	30	Review the declaration of cane toads under the <i>Agriculture and Related Resources Protection Act</i> and the <i>Biosecurity and Agricultural Management Act</i> now that breeding populations of cane toads are established in Western Australia.	DEC and DAFWA	Annually from 2010
	31	Assess the risk posed by normally non-quarantine risk material (QRM) that is or will be transported from cane toad infested areas into cane toad free areas, and strengthen quarantine inspection and auditing processes accordingly.	DAFWA and DEC	High/early 2010
	32	Investigate the requirement/cost-benefit of creating additional road checkpoints to minimise the possibility of satellite populations of cane toads becoming established in southern Western Australia.	DEC and DAFWA	High/2010-11
	33	Eradicate any satellite toad populations discovered ahead of the main front.	DEC and community groups	High/ongoing
	34	Continue the DEC trapping program for surveillance, monitoring and as sentinels in high risk areas (e.g. trucking depots), incorporating the use of attractants (e.g. lights, baits and acoustics) as appropriate.	DEC	Medium/ongoing



Goal 3:**ACHIEVE A LONG TERM SOLUTION(S) FOR CANE TOADS**

Aims	Actions	Responsibility	Priority Timeframe
To support appropriate scientific research that contributes to cost-effective control at both local and landscape scales.	35 Facilitate and support appropriate research into the long-term biological control of cane toads.	DEC and SRG	High/ongoing
	36 Investigate the establishment of a formal medium for information exchange on cane toad research between community groups and government agencies.	DEC and community groups	High/2010 and ongoing
	37 Promote awareness and possible synergies between various research programs conducted across Australia, and assist with projects that align with the intent of this strategy.	DEC and SRG	High/ongoing
	38 Review current research that is investigating possible control methods for cane toads and make recommendations for future funding.	DEC and SRG	Medium/ongoing
	39 Maintain awareness of new developments in various research programs into genetic and immunological control options and investigate the application of results in the field.	DEC and SRG	High/ongoing
	40 Investigate the field application of alarm pheromones (particularly in combination with other control measures) and determine further funding priorities and requirements.	DEC and SRG	High/late 2009
	41 Support and facilitate further research into the identification of parasitic lungworms on cane toad survival, growth and recruitment in laboratory and field situations.	DEC, community groups and SRG	High/ongoing
	42 Investigate the potential of using low toxicity baits to stimulate taste aversion learning in native predators, dependent on results of laboratory work, support and facilitate field-based trials.	DEC, in collaboration with research organisations	High/from late 2009

Acronyms used in this strategy

DAFWA	Department of Agriculture and Food Western Australia
DEC	Department of Environment and Conservation
DLG	Department of Local Government
IUCN	International Union for Conservation of Nature (now known as the World Conservation Union)
MP3	Digital audio format
QRM	Quarantine risk material
SRG	Stakeholder Reference Group
SWEK	Shire of Wyndham East Kimberley

References

Lowe, SJ, Browne, M and Boudjelas, S (2000). 100 of the world's worst invasive alien species. Published by the IUCN/SSC Invasive Species Specialist Group (ISSG), Auckland, New Zealand.

Phillips, BL, Brown, GP, Greenlees, M, Webb, JK and Shine, R (2007). Rapid expansion of cane toad (*Bufo marinus*) invasion front in tropical Australia. *Austral Ecology* 32: 169 – 176

