



THIRTY-SEVENTH PARLIAMENT

REPORT 1

**STANDING COMMITTEE ON ENVIRONMENT AND
PUBLIC AFFAIRS**

**A PETITION INTO PREVENTING THE ENTRY AND
ESTABLISHMENT OF CANE TOADS IN WESTERN
AUSTRALIA**

Presented by Hon Louise Pratt MLC (Chairman)

September 2005

STANDING COMMITTEE ON ENVIRONMENT AND PUBLIC AFFAIRS

Date first appointed:

August 17 2005

Terms of Reference:

The following is an extract from Schedule 1 of the Legislative Council Standing Orders:

“1. Environment and Public Affairs Committee

- 1.1 An *Environment and Public Affairs Committee* is established.
- 1.2 The Committee consists of 5 members.
- 1.3 The functions of the Committee are to inquire into and report on -
 - (a) any public or private policy, practice, scheme, arrangement, or project whose implementation, or intended implementation, within the limits of the State is affecting, or may affect, the environment;
 - (b) any bill referred by the House; and
 - (c) petitions.
- 1.4 The Committee, where relevant and appropriate, is to assess the merit of matters or issues arising from an inquiry in accordance with the principles of ecologically sustainable development and the minimisation of harm to the environment.
- 1.5 The Committee may refer a petition to another committee where the subject matter of the petition is within the competence of that committee.
- 1.6 In this order “**environment**” has the meaning assigned to it under section 3(1), (2) of the *Environmental Protection Act 1986*.”

Members as at the time of this inquiry:

Hon Louise Pratt MLC (Chairman)

Hon Paul Llewellyn MLC

Hon Bruce Donaldson MLC
(Deputy Chairman)

Hon Robin McSweeney MLC

Hon Kate Doust MLC

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Government Response

This Report is subject to Standing Order 337:

After tabling, the Clerk shall send a copy of a report recommending action by, or seeking a response from, the Government to the responsible Minister. The Leader of the Government or the Minister (if a Member of the Council) shall report the Government's response within 4 months.

The four-month period commences on the date of tabling.

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REPORT OF THE STANDING COMMITTEE ON ENVIRONMENT AND PUBLIC AFFAIRS

A PETITION ON PREVENTING THE ENTRY AND ESTABLISHMENT OF THE CANE TOAD IN WESTERN AUSTRALIA

1 REFERENCE AND PROCEDURE

1.1 Between May 3 2005 and August 16 2005, Hon Robin Chapple MLC¹ and Hon Giz Watson MLC tabled 19 petitions², requesting the Legislative Council:

- (1) *Establish what methods exist or are under study nationally for the containment or eradication of cane toads;*
- (2) *Investigate all methods of physical restriction of cane toads into Western Australia;*
- (3) *Make recommendations as to effective short and long-term strategies for preventing cane toads becoming established in any part of Western Australia.*

1.2 In accordance with Standing Order 134(i), the petitions stood referred to the Environment and Public Affairs Committee (**Committee**).³

1.3 The Committee has conducted preliminary inquiries into the matters raised in the petitions by gathering background information, including writing to 12 principal petitioners, the two tabling Members as well as the Minister for the Environment and the Minister for Agriculture.

1.4 The Committee received four submissions from principal petitioners (Appendix 2) as well as correspondence from both Ministers. (Letter from Minister for the Environment, Appendix 3, Letter from Minister for Agriculture, Appendix 4).

1.5 The Committee also held a public hearing with the Acting Director of Nature Conservation, Mr Gordon Wyre, from the Department of Conservation and Land Management (**CALM**) on August 17 2005. The transcript of the hearing is attached as Appendix 5.

¹ Mr Robin Chapple tabled petitions when a Member of the Legislative Council. Mr Chapple's seat was vacated on May 22 2005 on expiry of his fixed four year term.

² See Appendix 1 for petition details.

2 BACKGROUND

- 2.1 Cane toads (*Bufo marinus*) are native to central and South America. In Australia, the cane toad was deliberately introduced into Queensland in 1935 to attempt to stop the greyback cane beetle damage in sugar cane crops.⁴
- 2.2 In Western Australia (WA), the cane toad is a declared animal under categories A1 (entry prohibited), A2 (subject to eradication in the wild) and A3 (keeping prohibited) of the *Agriculture and Related Resources Protection Act 1976*.⁵
- 2.3 In brief, cane toads are a problem because they have:
- a very high reproductive rate and can occur in very high numbers. All life stages of cane toads are toxic causing a number of environmental, social and economic impacts.*⁶
- 2.4 It was reported in June 2005 that the front line of the highly invasive cane toad had not yet reached WA.⁷ The nearest confirmed reporting of cane toad population was the Victoria River Road House, 270 km from the WA border.⁸ While cane toads were previously moving at “*only a few kilometres a year*” they are thought to have moved in the Northern Territory at “*more than 200km up the Roper River in about a year.*”⁹
- 2.5 For Western Australians there is a fear that the cane toad will enter into and establish itself in WA with a lasting detrimental environmental, social, cultural and economic impact, particularly but not exclusively in the Kimberley. Appropriately resourced intervention is required to manage the potential environmental, social, cultural and economic impacts.

3 GOVERNMENT FUNDING

State Government Funding

- 3.1 Preventing the entry and establishment of cane toads in WA has increasingly become a priority issue for the WA State Government. Stopping the westward march of the

³ On August 17 2005, the Legislative Council re-established the Committee. The Committee resolved to continue the former Committee’s inquiry into these petitions.

⁴ Department of Agriculture, CALM, *Farmnote: Cane Toad*, No. 42/2002, p2. See <http://www.agric.wa.gov.au/pls/portal30/docs/FOLDER/IKMP/PW/VP/TOAD/CANETOADPN.PDF> (accessed on 31/08/05).

⁵ Letter from Hon Dr Judy Edwards MLA, Minister for the Environment; *Science*, August 4 2004, p1.

⁶ CALM, Department of Agriculture, *WA Cane Toad Initiative Update*, June 2005, p4. See http://www.calm.wa.gov.au/projects/cane_toads.html (accessed on 23/08/05).

⁷ Ibid.

⁸ Ibid, p2.

⁹ Ibid.

‘toxic toad’ is also a matter of great community concern and one that is receiving considerable media coverage.

- 3.2 Since December 2004, the State Government has announced an allocation of \$2.5 million to “*fight the entry of cane toads into WA from the Northern Territory.*”¹⁰ Of that \$2.5 million, \$500,000 has been provided to the not-for-profit, community-based Stop the Toad Foundation,¹¹ for on-the-ground trapping programs and \$500,000 for a major community awareness program.¹²

Federal Government Funding

- 3.3 In August 2004, the Federal Minister for the Environment wrote to the WA Minister for the Environment seeking cooperation to “*undertake a ‘Kimberley cane toad program’ implemented by both governments funded on a matching dollar for dollar basis*” to prevent the cane toad reaching WA.¹³
- 3.4 Nearly one year later, in August 2005, the Federal Government announced that it was committing \$600,000 to WA’s Cane Toad Initiative. This amount falls considerably short of the Federal Environment Minister’s August 2004 undertaking to provide matched funding for a ‘Kimberley cane toad program’.
- 3.5 The Federal Government has, however, committed a further \$3 million to boost the Commonwealth Scientific and Industrial Research Organisation’s (CSIRO) research into biological control of the cane toad.¹⁴

4 ISSUES AND GOVERNMENT ACTION

- 4.1 In December 2004, the State Government established the ‘State Cane Toad Initiative’ to fight the entry of cane toads into WA from the Northern Territory.
- 4.2 The Committee notes the Minister for the Environment’s advice to the Committee, written just prior to the announcement of a further \$1 million commitment from the State Government to stop the cane toad:

*with current resources and technologies, it will be very difficult to permanently prevent cane toads from reaching WA.*¹⁵

¹⁰ Letter from Hon Dr Judy Edwards MLA, Minister for the Environment; Science, August 4 2004, p1.

¹¹ Stop the Toad Foundation is an arm of the Conservation Council of Western Australia (CCWA), which is a non-government, not-for-profit, voluntary conservation organisation. See www.conservationwa.asn.au and www.stopthetoad.com.

¹² Mr Gordon Wyre, Acting Director of Nature Conservation, CALM, *Transcript of Evidence*, August 17 2005, p3.

¹³ See <http://www.deh.gov.au/minister/env/2004/mr29aug04.html> (accessed on 28/08/05).

¹⁴ See <http://www.deh.gov.au/minister/env/2005/mr05aug05.html> (accessed on 28/08/05).

¹⁵ Letter from Hon Dr Judy Edwards MLA, Minister for the Environment, August 4 2004, p1.

4.3 The Committee notes that there have been, and continue to be, many active taskforces, advisory committees, reports and programs operating at both the state and federal levels of government relating to all aspects of cane toads, including:

- reviewing the threat posed by the cane toad;
- reviewing the status of current research into control and eradication methods;
- identifying and protecting key biodiversity assets;
- preventing the entry of the cane toad into WA;
- raising public awareness; and
- developing coordinated strategies (interstate and national) for cane toad management. (See reports discussed by the Minister for the Environment in Appendix 3 and see List of Reports, Appendix 6.)

5 COMMITTEE COMMENT

5.1 The Committee has considered the evidence received in its hearing with the Acting Director of Nature Conservation, Mr Gordon Wyre, together with the information provided in submissions received and the correspondence from the Minister for the Environment in relation to the issues raised in the petitions.

5.2 The Committee notes the initiative shown by the community, particularly those in the Kimberley, through the petitioning of Parliament as well as through the establishment of the Stop the Toad Foundation. The Committee also notes the government's financial support of that organisation in recognition of the public's keenly felt interest in actively participating in addressing the threat posed by the cane toad.¹⁶

5.3 The Committee further highlights the following information and comments provided during its preliminary inquiries:

- a) The State Cane Toad Initiative's focus is on:
- preventing the establishment of cane toads as a result of accidental introduction;
 - stopping the natural spread of cane toads; and

¹⁶ Mr Gordon Wyre, Acting Director of Nature Conservation, CALM, *Transcript of Evidence*, August 17 2005, p2.

-
- identifying key biodiversity assets at risk in WA and putting in protective measures and management strategies.¹⁷
- b) Over the past 70 years there has been “*no major on ground effort to stop the cane toad moving*”.¹⁸
 - c) WA is the first State to attempt to prevent the establishment of the cane toad before the invasive toad reaches its borders.¹⁹
 - d) “*Large scale trapping, poisoning and the sorts of programs that are used regularly for other pests have not been used against the cane toad.*”²⁰
 - e) Quarantine inspections have been upgraded at the WA/Northern Territory border and a “*surveillance system to monitor high-risk areas...has been in place since early this year*”.²¹
 - f) To date, there have been “*inadequate studies on the impact of the cane toad on biodiversity*”.²²
 - g) The State Government is seeking to work cooperatively with the Northern Territory Government in order to prevent the cane toad reaching WA.²³
 - h) Community awareness is a key component in the strategy to prevent the entry and establishment of the cane toad in WA.
 - i) While trapping is an important component of the strategy to keep cane toads out of WA and is good for community involvement, there remains a need for significant ongoing research into different forms of biological control and specific toxins that could be applied to cane toads.²⁴
 - j) It may be the case that there has been inadequate investigation into cane toad baiting.²⁵

¹⁷ Ibid, p4.

¹⁸ Ibid, p2.

¹⁹ CALM, Department of Agriculture, *WA Cane Toad Initiative Update*, June 2005, p1. See http://www.calm.wa.gov.au/projects/cane_toads.html (accessed on 29/08/05).

²⁰ Mr Gordon Wyre, Acting Director, Nature Conservation, CALM, *Transcript of Evidence*, August 17 2005, p3.

²¹ Ibid, p3.

²² Ibid, p4.

²³ Ibid, p11.

²⁴ Ibid, p10.

²⁵ Ibid, p13.

5.4 The Committee refers readers to the Minister for the Environment's response (Appendix 3) and the transcript of evidence of Mr Gordon Wyre, Acting Director of Nature Conservation (and the State Cane Toad Initiative), CALM (Appendix 5) both of which address the key issues raised in the petitions and provide an overview of the current state of play both in WA and Australia in addressing issues associated with the cane toad.

5.5 The Committee further refers readers to the reports referred to in the Minister for the Environment's letter for further detailed information on the research being conducted into various aspects of the cane toad (See Appendix 3 and Appendix 6.)

6 CONCLUSION

6.1 The Committee thanks petitioners for bringing this issue to the attention of Parliament.

6.2 The Committee considers that the cane toad poses a serious risk to WA's environment – including its flora, fauna and aquatic systems – as well as its Indigenous culture, its economy and more generally the Western Australian lifestyle. Preventing the entry and establishment of the cane toad in WA is a matter of paramount importance.

6.3 The Committee is of the view that the State Government recognises the urgency and significance of the threat posed by the cane toad.

6.4 The Committee is of the view that the State Government is seeking to comprehensively address the issues raised by petitioners including ongoing research into methods for containment and eradication of cane toads as well as all issues associated with preventing the entry and establishment of cane toads in WA.

6.5 The Committee calls on the State Government to ensure that preventing the entry and establishment of the cane toad in Western Australia remains a high priority.

6.6 The Committee further calls on the State Government to continue to support research into methods for biological control and, ultimately, eradication of the cane toad.

7 RECOMMENDATIONS

Recommendation 1: The Committee recommends that the State continue to explore all means of preventing the entry and establishment of the cane toad in Western Australia.

Recommendation 2: The Committee recommends that the Government ensure the adequate resourcing of government and non-government programs associated with managing the environmental, social, cultural and economic impact of the entry and establishment of the cane toad in Western Australia.

Recommendation 3: The Committee recommends that the State Government, as a matter of priority, ensure that key biodiversity assets are identified and protected from the devastating effects of the establishment of the cane toad in Western Australia.

Recommendation 4: The Committee recommends that the State Government ensure the adequate resourcing of research into mechanisms for the biological control of the cane toad.

Recommendation 5: The Committee recommends that the State Government continue to call on the Federal Government to provide matched funding for cane toad initiatives in Western Australia.



Hon Louise Pratt MLC
Chairman

September 15 2005

APPENDIX 1
CANE TOAD PETITIONS TABLED IN THE LEGISLATIVE
COUNCIL MAY 3 - AUGUST 16 2005

Date	Tabling Member	Tabled Paper Number
May 3 2005	Hon Robin Chapple MLC	290
May 6 2005	Hon Robin Chapple MLC	329
May 18 2005	Hon Robin Chapple MLC	349
May 18 2005	Hon Robin Chapple MLC	350
May 18 2005	Hon Robin Chapple MLC	351
May 19 2005	Hon Robin Chapple MLC	365
May 25 2005	Hon Giz Watson MLC	390
May 25 2005	Hon Giz Watson MLC	391
May 25 2005	Hon Giz Watson MLC	392
June 21 2005	Hon Giz Watson MLC	417
June 21 2005	Hon Giz Watson MLC	418
June 21 2005	Hon Giz Watson MLC	419
June 21 2005	Hon Giz Watson MLC	420
June 21 2005	Hon Giz Watson MLC	421
June 21 2005	Hon Giz Watson MLC	422
June 21 2005	Hon Giz Watson MLC	423
June 21 2005	Hon Giz Watson MLC	424
June 21 2005	Hon Giz Watson MLC	425
August 16 2005	Hon Giz Watson MLC	544

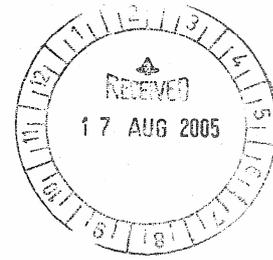
APPENDIX 2
SUBMISSIONS ON CANE TOAD PETITIONS

No.	Submissions
1	Nadeen Lovell, Lovell Diversion Gallery, Kununurra
2	Lorna and Peter Hanna
3	Kelly Howlett, Chairperson, Care for Hedland Environment Association
4	Russell Gueho and Vanessa Hayden, Northern Habitat

APPENDIX 3
LETTER FROM MINISTER FOR THE ENVIRONMENT



GOVERNMENT OF WESTERN AUSTRALIA
MINISTER FOR THE ENVIRONMENT; SCIENCE



Ref: 2391

Hon Louise Pratt MLC
 Chairman
 Standing Committee on Environment and Public Affairs
 Parliament House
 PERTH WA 6000

Dear Ms ~~Pratt~~ *Louise*

PETITION NO. 4 – CANE TOADS IN WESTERN AUSTRALIA

Thank you for your letter of 27 June 2005 requesting information about current policies in relation to cane toads and comment on the terms of Petition Number 4.

In Western Australia, the cane toad (*Bufo marinus*) is a declared animal under categories A1 (entry prohibited), A2 (subject to eradication in the wild) and A3 (keeping prohibited) of the *Agriculture and Related Resources Protection Act 1976*, which is administered by the Agriculture Protection Board. Within my portfolio, the Department of Conservation and Land Management is the lead agency responsible for cane toad management. The Department of Agriculture also is involved because it is responsible for biosecurity and quarantine with respect to pest animals, diseases and weeds. In response to your query about the Department of Environment, that Department does not have any current policies that specifically relate to cane toads, nor does it administer any legislation that specifically relates to the management of vertebrate pests like cane toads.

Current policies

In December 2004, the State Government launched a Cane Toad Initiative to fight the entry of cane toads into WA from the Northern Territory. It needs to be noted that, with current resources and technologies, it will be very difficult to permanently prevent cane toads from reaching WA.

The State has now allocated \$1.5 million for a Cane Toad Initiative, including \$600,000 last financial year and a further \$900,000 for this financial year. The Commonwealth is allocating \$600,000 to match our initial allocation and we have requested a further \$900,000 to match the allocation for this financial year. If the total State funds are matched by the Commonwealth, over \$3 million will have been committed to fighting cane toads in little over 18 months.

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The Initiative has focused on border security and surveillance, development of control technologies, identifying and minimising impacts on biodiversity, and public awareness raising. A State Cane Toad Advisory Committee has been established and is comprised of representatives from Government agencies involved in biodiversity, agriculture, tourism and animal welfare, as well as the NT Government and the Conservation Council of WA, and has two community representatives from the Kimberley region. It met for the first time in Perth on 21 April 2005 and has been charged with preparation of a proposed State strategy for the management of cane toads.

There are four key programs under the Initiative. These are:

1. Fight Toad Entry and Establishment

Objective: To stop cane toads entering and establishing in WA using known or innovative techniques to prevent entry, achieve surveillance and undertake control, including eradication, where appropriate.

2. Key Biodiversity Asset Protection

Objective: To identify those native species and communities most at risk from cane toads, determine whether these will require assistance or interventionist management and develop and implement protective management strategies for these.

3. Public Awareness

Objective: To increase community and interstate traveller awareness and reporting of cane toads, and to educate the public on likely toad impacts and the prognosis for toad control.

4. Statewide Coordination

Objective: To achieve a collaborative and effective ongoing approach to cane toad management throughout Western Australia.

Terms of the petition

1. Establish what methods exist or are under study nationally for the containment or eradication of cane toads.

A National Cane Toad Task Force was formed by the Natural Resource Management Ministerial Council. It had representation from the Department of Conservation and Land Management, and evaluated all relevant information on cane toads, their impacts, and past and future control options. The terms of reference for the Task Force were to:

- Review the current threat posed by cane toads;
- Review the states of research into developing tools to abate those threats;
- Identify any gaps in current approaches;
- Assess costs and benefits of options for priority joint national action.

The Task Force has completed its report (Attachment 1), which outlines a range of research actions that should be undertaken to address the problems caused by cane toads including projects designed to identify permanent solutions to the threats posed by this species.

In February 2004, the Australian Government Department of the Environment and Heritage sponsored a workshop on "Biological Control of Cane Toads" in Brisbane (Attachment 2). The purpose of the workshop was to provide information to the Australian scientific community and public interest groups about the current CSIRO biocontrol project and to discuss key issues relating to the impact and control of cane toads.

2. Investigate all methods of physical restriction of cane toads into Western Australia.

The National Cane Toad Task Force investigated, and reported on, physical methods for controlling cane toads and these issues were also discussed at the workshop held in Brisbane in 2004. Additionally, the Australian Government Department of the Environment and Heritage commissioned a report (Attachment 3) on the feasibility and cost of exclusion as a mitigating control strategy for cane toads, which was published in December 2004.

3. Make recommendations as to the most effective short and long-term strategies for preventing cane toads from becoming established in any part of Western Australia.

Considerable Government and community attention has been given to the issue of cane toads in recent months. However, cane toads have been spreading across Australia from Queensland for approximately 70 years and have been the subject of considerable research. No strategy or technique has been developed and successfully implemented to date to prevent that spread, despite intensive searching for bio-control agents and other methodologies.

In recent years, there have been a number of good reviews about the impact of cane toads (Attachment 4) and methods for their control (Attachments 1-3). Additionally, the Legislative Assembly of the Northern Territory held an inquiry into issues associated with the progressive entry of cane toads into the Northern Territory in October 2003 (Attachment 5).

The reports listed above address the terms of the petition in considerable detail and all are publicly available.

Thank you for providing me with the opportunity to comment on the petition.

Yours sincerely



Dr Judy Edwards MLA
MINISTER FOR THE ENVIRONMENT; SCIENCE

- 4 AUG 2005

PUBLIC

APPENDIX 4
LETTER FROM MINISTER FOR AGRICULTURE



MINISTER FOR AGRICULTURE AND FORESTRY;
 THE MIDWEST AND WHEATBELT
 LEADER OF THE GOVERNMENT IN THE LEGISLATIVE COUNCIL



Ref: 8-01250

Hon Louise Pratt MLC
 Chairman
 Standing Committee on Environment and Public Affairs
 Parliament House
 PERTH WA 6000

Dear Ms Pratt

Thank you for your letter to the Minister dated 27 June regarding the current policy in relation to cane toads, and the petition entitled *Petition No. 4 - Cane Toads in Western Australia*.

As from 1 July 2005 the lead role on cane toads in Western Australia became the responsibility of the Department of Conservation and Land Management (CALM). CALM and the Department of Agriculture are working together to ensure that Western Australia has the policies and procedures in place to prevent the entry and establishment of cane toads in this State.

Cane toads are Declared Animals under the *Agriculture and Related Resources Protection Act 1976* (ARRPA). The Department of Agriculture has the responsibility of administering the regulations under ARRPA.

I have forwarded your request for information on the terms of the petition to the Minister for the Environment; Science for attention and direct reply to you.

Yours sincerely

John Dagostino
 A/CHIEF OF STAFF

21 JUL 2005

PUBLIC

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APPENDIX 5
TRANSCRIPT OF EVIDENCE, MR GORDON WYRE,
ACTING DIRECTOR OF NATURE CONSERVATION,
DEPARTMENT OF CONSERVATION AND LAND
MANAGEMENT

**STANDING COMMITTEE ON
ENVIRONMENT AND PUBLIC AFFAIRS**

**INQUIRY INTO PETITION NO 4
REGARDING CANE TOADS**

**TRANSCRIPT OF EVIDENCE
TAKEN AT PERTH,
ON WEDNESDAY, 17 AUGUST 2005**

Members

**Hon Louise Pratt (Chairman)
Hon Bruce Donaldson (Deputy Chairman)
Hon Ken Baston
Hon Matthew Benson-Lidholm
Hon Kate Doust
Hon Paul Llewellyn
Hon Robyn McSweeney**

Hearing commenced at 10.10 am

WYRE, MR GORDON

**Acting Director of Nature Conservation,
Department of Conservation and Land Management,
Hackett Drive,
Crawley 6009, examined:**

The CHAIRMAN: Good morning. On behalf of the committee, I welcome you to the meeting. You will have signed a document titled "Information for Witnesses". Have you read and understood that document?

Mr Wyre: Yes, I have.

The CHAIRMAN: These proceedings are being recorded by Hansard. A transcript of your evidence will be provided to you. To assist the committee and Hansard, please quote the full title of the document you refer to during the course of this hearing, for the record. Be aware of the microphones; try to talk into them. Ensure that you do not cover them with paper or make noise near them. I remind you that your transcript will be a matter for the public record. If for some reason you wish to make a confidential statement during today's proceedings, you should request that the evidence be taken in closed session. If the committee grants your request, any public and media in attendance will be excluded from the hearing. Please note that until such time as the transcript of your public evidence is finalised, it should not be made public. I advise you that premature publication or disclosure of your evidence may constitute a contempt of Parliament and may mean that the material published or disclosed is not subject to parliamentary privilege.

Thank you for being with us this morning. Would you like to make an opening statement to the committee?

Mr Wyre: Thank you very much for having me here today. Basically I am here as the manager of the state's cane toad initiative, which has been in operation since January 2005 under funding launched in December last year. Until 30 June this year, the state cane toad initiative was managed through the Department of Agriculture. With the second round of funding for the initiative in the 2005-06 financial year, management fell to CALM because the principal impact on the state from cane toads will be biodiversity. A decision was made to transfer responsibility to CALM, at which point I took over the management of the program. I have a power-point presentation, which I have printed off. If I have a chance I will speak to that, otherwise it is up to the committee to ask me questions.

The CHAIRMAN: Mark will distribute the presentation; we can speak to that. You can table that presentation even though it does not have a title.

Mr Wyre: It is a generic overview of the cane toad initiative and it is background information for the Council. It is background information we give to anyone who asks what the story is with the project.

The CHAIRMAN: If you go through it with us, that would be much appreciated.

Mr Wyre: As I said earlier, it commenced in January this year. There are four aspects that the presentation covers - the current status of the program, where the funding comes from, what we are trying to achieve and what specific things are happening. First and foremost, the biggest information is that cane toads are not currently found anywhere in the wild in Western Australia. They are infrequently turning up in freight and cargo. One of the things that we have noticed since we launched the program at the start of the year is that we are getting more reports of cane toads being found in freight. We suspect that that is not just linked to the fact that more cane toads are coming through, but because there is a greater awareness that cane toads are something we do not want in Western Australia. It is illegal under the Agriculture and Related Resources Protection Act to import cane toads into Western Australia or to keep them without a permit. The only people who currently have permits are universities and the like, and they are only allowed to keep male cane toads so that we do not have any threat of breeding in Western Australia.

I refer to the main cane toad front. Cane toads have been in Australia for 70 years - since 1935. I believe the anniversary of when cane toads were released is this week. They have been gradually moving their way across Australia. They have been in the Northern Territory for around a decade. There is a small map on page 2 of the sheets titled current status. There is a dotted line on the right hand, one-third of the map. That is the cane toad front. That is where cane toads are found. The area that we are managing jointly with the Northern Territory government is the size of Tasmania - you can see the inset there - which is the Victoria River district of the western Northern Territory.

The CHAIRMAN: Does that mean it took a decade for cane toads to move across the Northern Territory from one side to another?

Mr Wyre: I will have to check the actual dates, but it has been quite a while. In Queensland they found that traditionally cane toads moved only a few kilometre a year. However, in some parts of the Northern Territory they have moved up to 200 kilometres a year. We suspect - we do not know for sure - that some of that movement has been assisted by people and products taking cane toads accidentally as hitchhikers. Once they get into some river systems with the right climatic conditions they can move a long way. The next map is titled access. I will give the committee a full copy of the power-point presentation so that it can get proper sized maps. The darker cross-hatching on the map represents areas that are basically inaccessible. They have not been exposed to agriculture and are normally rocky and mountainous-type country, which we also hope is not accessible to cane toads. To give you an impression, it is a very major area that we are working in. The cane toad control area is about 65 000 square kilometres. As I said, \$600 000 was provided by the government in December last year. We have had a promise from the commonwealth to match that funding. That was reiterated a couple of weeks ago by Senator Campbell, but we have not received the commonwealth's money yet. We expect it any day. In May 2005 state budget, a further \$900 000 was allocated to the initiative for 2005-06. In July this year, the state added a further \$1 million to the program. Half of that - \$500 000 - goes to the Stop the Toad Foundation, which is coordinated through the Conservation

Council in Western Australia. It has some prominent sponsors, including Luc Longley and the like.

Hon KATE DOUST: What is the purpose of that foundation? What is it doing that is different from what CALM is doing?

Mr Wyre: The foundation is set up to get community involvement, awareness and commitment into the program. The depth of feeling to stop cane toads getting to Western Australia has been quite surprising, particularly in the Kimberley community. We have not seen that elsewhere in Australia. Cane toads got into the Northern Territory without great fuss. They got into New South Wales without great fuss. However, there is a concerted band of people in the Kimberley who want to stop them getting in. They believe it is up to not only the government, but also everyone to stop cane toads getting in. They have established a foundation, which they have been trying to get funding for, and the government has seen that that is a good initiative and has put in \$500 000.

Hon BRUCE DONALDSON: Funding of \$500 000 has been given to the Stop the Toad Foundation and \$500 000 to a major community awareness program. In giving the Stop the Toad Foundation half a million dollars, is that a duplication of the other \$500 000 that will be going to a community awareness program? Will that money pay for traps?

Mr Wyre: Stop the Toad Foundation is targeting community involvement and trapping programs. It has money from other donors. It ran a forum in June in Perth, where it was launched. I do not think that it will need that sort of money for awareness raising any more. Now that the government has a \$500 000 awareness campaign, the Stop the Toad Foundation will put all the money into community trapping operations.

Hon BRUCE DONALDSON: Are they paying for the traps?

Mr Wyre: They will be paying for the traps and will probably pay to assist volunteers to put the traps out and to service the traps. The fine detail of that has not been sorted out yet. They are working on it. I will have discussions with those people in the next few weeks.

Hon PAUL LLEWELLYN: What is considered to be the most effective strategy to stop cane toads advancing? If trapping is done on a huge front in a huge area with a relatively small number of people, is that an effective use of resources?

Mr Wyre: We will find out. The history is that, amazingly, even though they have been here for 70 years, there has been no major effort of on-ground action to stop cane toads moving. All the research and trials that have been undertaken - they really started only in the 1980s - have been looking at biological control techniques or weaknesses in cane toad biology that can be exploited. Large scale trapping, poisoning and the sorts of programs that are used regularly for other pests have not been used against cane toads. It is only in the past two years that they have been used as a result of initiatives by a group called Frog Watch in the Northern Territory.

Hon KATE DOUST: They originate from South America, do they not?

Mr Wyre: Yes, from northern South America.

Hon KATE DOUST: Have countries in South America experienced the same types of problems in terms of the rapid movement of the cane toads and the consequences they have for agriculture? If they have, has any information been forthcoming about how they have dealt with it? Have they come up with any practical or successful solutions to deal with cane toads?

Mr Wyre: The short answer is no, they do not have any practical solutions. Cane toads occur throughout central America and North and South America. Where they occur naturally they are not a problem. They have been introduced to many countries, including the United States. They have also been introduced to Hawaii and lots of islands. Wherever they occur, they are terribly invasive. There is no form of control. They are extremely poisonous. Where they naturally occur in central and southern America, their predators have developed an immunity to the toxin. Anywhere else where they have been introduced, a predator that tries to take them is poisoned.

Hon KATE DOUST: What sort of predators would cane toads face in South America that would be immune?

Mr Wyre: Anything that eats frogs, so there is everything from big cats to rats, snakes, major lizards, all those sorts of things. They have grown up with them so they are immune to the poison. You do not get the abundance of cane toads that occurs when they are introduced. They are officially on the world's most invasive species list. They are one of the top 20 or 30 invasive species in the world. One of the reasons is that a single female cane toad would normally produce around 25 000 to 30 000 eggs at a time. Native frogs put out a few hundred eggs, which turn into tadpoles. Cane toads breed at least twice a year. The maximum figure calculated is a single female producing up to 100 000 cane toads a year. In normal circumstances a vast majority of those eggs do not mature into adult cane toads. However, there is a phenomenal breeding capacity.

The CHAIRMAN: On one hand, trapping is a bit of a nonsense if they are reproducing at that rate anyway. On the other hand, if you are catching a reasonable number of cane toads, you are stopping a reasonable number of them reproducing.

Mr Wyre: The theory behind the trapping program we are running is not that we will capture 100 per cent of all cane toads moving towards Western Australia. The climatic range and the terrain between where they are and Western Australia is quite dry and harsh. Even though some of them will survive, we are hopeful that we will get continued dry seasons and not very good wet seasons, which is what they depend on to move great distances. The difficulty of cane toads surviving is enhanced by drier climates. We hope that we can reduce the number of cane toads that are going to survive, to the extent that it will stop them moving. It is a trial. We do not know whether it will work. It has never been attempted anywhere on the planet, as far as we can determine. We are trying it the best we can.

The CHAIRMAN: Sorry to interrupt you with questions. You can return to your presentation.

Mr Wyre: We are trying to prevent the establishment of cane toads in Western Australia as a result of accidental introduction or hitchhiking. That can be relatively easily achieved compared with stopping them moving across the land. We have a lot of experience in quarantine issues and with agricultural products and the like coming

into Western Australia. We are also trying to stop the natural spread of cane toads towards Western Australia. We hope that biological control will be developed. That will be for the eradication of cane toads. We are not trying to eradicate cane toads; rather, we are trying to stop them moving from the Northern Territory to Western Australia. The third key plank of our program is identifying key biodiversity assets at risk in Western Australia and putting in place protective measures and management strategies ahead of any cane toad invasion. Another thing they have found in the past 70 years is that there have been inadequate studies on the impact of cane toads on biodiversity. When they studied it in the Kakadu area in the Northern Territory, it was found that almost 100 per cent of some of the key predator species are eliminated when the cane toads come through. The northern quoll was almost made extinct in the area as a result of cane toads. This is because quolls are naive to cane toads; they try to eat them and then they die. They have established a program to put quolls on some islands off the Northern Territory. The other problem is that cane toads have moved from the mainland onto islands, either by rafting on floating material or perhaps swimming in fresh water lenses. There is also the risk that they will be taken across on boats and in products taken on boats. They have got into all the islands in the gulf and all the major islands on the Queensland coast. Island biosecurity is a major issue.

What are we doing or planning? We have upgraded quarantine inspections at the border. We have put an additional person on at the border checkpoint. A surveillance system to monitor high-risk areas where cane toads may establish themselves has been in place since early this year. We have mapped the Victoria River district in terms of the billabongs, permanent waterholes and the like where cane toads might persist in areas when the time gets drier. In conjunction with the Northern Territory government, we have found the frontline of the cane toads. We have mapped that. We are investigating with the developers of an automatic cane toad detection network, which has been in place in the Kakadu area for the past few years. We have investigated control techniques and are looking at incremental improvements in trap design. As I said before, traps have really only been used in the past 18 months or two years. Each time a trap is used we get more information. We assisted the Northern Territory government in its competition for the world's best cane toad trap. We participated in that trial. A lot of good information came out of that about what worked and what did not work when it comes to capturing cane toads. We are looking at having trial fencing for cane toads. The problem with cane toad fencing is the sort of terrain we are dealing with and the size of the animal. They cannot jump, so we do not need a high fence, but they can squeeze underneath and between fences. Obviously, if fences are damaged through stock, people or trees falling on them, it is not a secure barrier.

Hon BRUCE DONALDSON: I refer you to the automated detection network. Is that closed-circuit television or something?

Mr Wyre: No. Two people have developed this, and one of them is an engineer at Sydney University. They have put listening devices on towers that digitally record the sounds that cane toads make. A program on a microcomputer within that can identify the various species making the call and can time log it. We can get a print-out of which species were calling at what time over however many months the program has been active. The problem with the network in the Northern Territory is that only the

engineer from Sydney can do it. We have been having discussions with him. He is developing the second generation of this equipment, which will be more user friendly so that more people can use it. He is very keen on developing the third generation of these devices, which anyone will be able to use. We are working with him over the next six to 12 months to get that third generation up. We have also negotiated with him to come up in the next couple of months and put a couple of the second generation towers up.

Hon BRUCE DONALDSON: I refer to the institute of supervising scientists that used to be based at Jabiru. Is it still operational and are visiting scientists still coming in? I know that some have come to Western Australia to do certain work and the base has been Jabiru.

Mr Wyre: A lot of research has been done in the Kakadu area with federal funding over the past decade or so. The work we are talking about with the towers - they not only detect cane toads, but also monitor what other species are active and calling in those areas at the same time - is done with commonwealth funding. We hope to use that. That will not obviously stop cane toads moving, but it will mean that if there are areas where it is extremely difficult for us to get to, we can say that at least cane toads have not been calling in the area. Or, if they have been calling we will try to get people into those areas to do something about it

Hon PAUL LLEWELLYN: What is the cost of this technology and what is the range of its use? Surely it will be localised. Does it use a sound frequency?

Mr Wyre: It is recording sound; it can hear over a couple of hundred metres.

Hon KATE DOUST: Cane toads are very loud.

Hon PAUL LLEWELLYN: I am trying to get a sense of the cost effectiveness because we are talking about a huge area.

Mr Wyre: We would not use this technology to have a barrier to cane toads.

Hon PAUL LLEWELLYN: This technology is not easily mobile.

Mr Wyre: It is not easily mobile. Over the past seven years the only way of detecting whether cane toads are in an area is to send people out to listen or search. This technology is far more cost-effective and valuable than having several hundred people listening for cane toads.

Hon PAUL LLEWELLYN: It is only for monitoring and detection.

Mr Wyre: It is for monitoring and detection. We can get an abundance measure in terms of the frequency of calling and the likely number. We are intending to use it only to see what native species are calling in those areas before cane toads get there, and if cane toads get there to be alerted to that fact. Obviously we can also use it to tell if there is any change in that abundance of native species.

The CHAIRMAN: You can use it to monitor biodiversity?

Mr Wyre: Yes, of species that call and have sound.

The CHAIRMAN: Is it a computer program that listens to the tape, and you do not need to have people to listen?

Mr Wyre: No. It is all computerised and digitised. It puts on a time stamp and does print-outs. But again, with the first generation only one person can do it because it is his program.

Hon PAUL LLEWELLYN: Are we going to get the CIA onto this and absorb some of its resources?

Mr Wyre: It would be very useful if we could get satellite tracking to track the cane toads.

The automatic detection network will be put in place over the next few months. We are looking at improving the trap design, as I have said, and we have talked about the options for fencing. The biodiversity protection area is significant and that is one of the reasons that CALM is coordinating the program. As I have already said, in the Northern Territory suites of species have severely decreased in numbers because of cane toads. The northern quoll has been listed as threatened nationally because of the cane toad risk. We have a range of species in the Kimberley right across the small mammals and into the reptiles and invertebrates that could be at threat from cane toads. We have some isolated invertebrates in some of the rocky areas in the Kimberley that occur only on those rocky areas, and they could readily be wiped out by cane toads. We need to protect them. How do we protect them? We are looking at localised fencing and monitoring programs, so that if cane toads are in there we find out fast enough to take action against them.

Key actions for public awareness must be changed, given the extra \$500 000 we have received. We have a communications plan. We have released a Farmnote - I can leave behind some copies - jointly with the Department of Agriculture. We are still running a Watch Out for Cane Toads campaign, which I can send copies of. We have also done things like the cane toad initiative update, which is available on the web. I have copies here also. We have run promotional material through the east Kimberley, because that is obviously the area where people are more likely to come into contact with cane toads. A series of road signs were installed at the end of July, across from Katherine in the Northern Territory to the Western Australian border, asking people to watch out for cane toads and to check their vehicles and loads to see whether cane toads are in them and to dispose of them before they get to Western Australia. When they come to the border checkpoint, they are advised that there may be cane toads in their vehicle and the vehicle can be inspected. Information material is handed out to travellers. The extra half a million dollars will go into things like a television campaign. We are developing a school education program so that schools will have as part of their voluntary curriculum - it will not be compulsory - an education unit on cane toads and what to do about them. While cane toads have not been implicated in killing people, their poison is toxic to people. It is not something we want children ingesting. If they have been anywhere near a cane toad, cleanliness and those sorts of issues must be brought to their attention.

Hon BRUCE DONALDSON: Say I am a traveller and I pull up in my vehicle and find out that I have a couple of hitchhikers. How would I handle that? What are you telling people to do? There is no point reporting that they have dropped off on our side of the border.

The CHAIRMAN: How would a person know whether or not it is a native frog?

Hon BRUCE DONALDSON: People probably have a better idea now. What program are you suggesting that will make people aware of the cane toads and how to destroy them?

Mr Wyre: The Farmnote document identifies common frogs. As the Chairman mentioned, although we are getting regular reports from Queenslanders that they have seen cane toads, they have turned out to be native frogs. It is not that simple. Although a biologist can readily differentiate between them, it is not easy for ordinary people. People should put them in a container - a plastic bag is ideal or any other container - put a lid on it and allow them to breathe some air. They should be handed in at the border checkpoint. They can also be frozen in a refrigerator and killed in that way. Amphibians are not that good at regulating their temperature. They can slowly be cooled down and we can then freeze them. They will die humanely in that process.

Hon BRUCE DONALDSON: Given the poison that comes from their back, can they be handled?

Mr Wyre: One of the remarkable things about cane toads is that most of them are relaxed. It takes a bit to get them worked up to a point where they will exude the poison. They do not try to get away from you. If they are on the ground, generally you can pick them up. The reason they survive is because they release their poison whenever anything tries to mouth or eat them. There are a couple of reports of them squirting and spraying the poison, but that is extremely rare. You have to hassle them and rough them up a bit. That is one of the reasons that we do not support people jumping on them, hitting them with sticks and golf clubs and those sorts of things which have been in the media, because that is when the poison will spray out. Biologists kill them by destroying the brain. You can do that with a blunt instrument or by pithing, which is putting a needle into the brain, and destroying the brain tissue that way. That is a high risk for people who do not know what they are doing. When freezing them, you do not even have to closely handle them. Put them in a plastic bag in the fridge and freezer, wait for a day or two and then dispose of them. When talking about a major trapping program, disposing of hundreds of thousands of cane toads that are toxic - we do not want them to be dug up by pet dogs - is an issue we are looking into.

Hon BRUCE DONALDSON: What about incinerating them?

Mr Wyre: Incinerating them is a suitable means of disposing of them. However, throwing them in a hole in the backyard is not a good idea if you have pets.

Hon PAUL LLEWELLYN: Is the poison useful for anything? Can we harvest them?

Mr Wyre: I am not aware that it has been found to be useful for anything. However, a cottage industry in Queensland uses leather from cane toads. The leather is not that bad.

Hon KATE DOUST: They make very good fridge magnets.

Mr Wyre: In the public awareness program, we are looking at a major television and radio campaign.

Hon KATE DOUST: Will more emphasis be placed on the public awareness campaign in the north west rather than in the city?

Mr Wyre: It is not finalised yet. The initial focus has been to let everyone generally know that cane toads are something that they should be aware of. There has been a specific focus on the tourist trade in the east Kimberley. We are looking at expanding that across the Kimberley area. There will also be a general awareness raising of all travellers that they could come across cane toads. The program is really a coordination program, which has now taken on a new meaning in terms of coordination between the state initiative and the Stop the Toad Foundation initiative, now that it has some very serious resources available to it - over half a million dollars for a trapping program. Obviously we need to work together so that we are not doubling up with our resources. It is pretty well understood and recognised that even though we have \$3 million to apply to a pest as destructive and invasive as the cane toad - in the order of \$2.5 million has been pledged by the state government and another \$600 000 by the commonwealth government - it is not a huge amount of money, particularly given that the cane toad front is over an area of 65 000 square kilometres. We must make sure that we do not waste any of that resource.

Hon PAUL LLEWELLYN: Has any research been done about the interaction between fires and the distribution of cane toads?

Mr Wyre: Fire is a regular occurrence in the landscape in tropical savanna Northern Territory. Fires have not had any major impact on cane toads' movement or distribution.

Hon PAUL LLEWELLYN: There has been research looking specifically at the impact of fires?

Mr Wyre: I am not aware whether the research has had that specific objective; however, I am aware that it has looked at the movement and spread of cane toads and their impact on the landscape in areas that have been burnt traditionally for years throughout the process of the research. No impact has been noted.

Hon PAUL LLEWELLYN: They are following the river systems?

Mr Wyre: Another remarkable fact about cane toads is that they can rehydrate in quite dry soil, so they do not need to be in water at any stage after the tadpole stage. They can survive out of water for their entire lives as long as there is moisture in the landscape. A soil of two per cent water is sufficient for them to rehydrate their bodies in normal circumstances. One of the interesting facts is that they can rehydrate out of a cowpat; they do not need to find water. Obviously in northern Australia it is very hot.

Hon PAUL LLEWELLYN: Do they need to breed in the presence of water?

Mr Wyre: They need water to breed.

Hon PAUL LLEWELLYN: They can become dormant through long, dry periods, with a small amount of moisture -

Mr Wyre: I am not sure that it is traditional dormancy, but they can shut down their systems. They can survive in shady areas where they have some access to moisture in hot periods. They cannot survive in exposed areas.

Hon KATE DOUST: I note in an article in *The West Australian* of 6 August that the federal government has allocated the money you mentioned earlier. It also talks about

funding for the CSIRO to develop a gene technology solution to deal with cane toads. The article refers to the lengthy process to do that. What is your view on that approach? An article in *The Australian* indicates that the traps are just a control measure and not necessarily a solution.

Mr Wyre: As I said earlier, traps are an experimental control measure. We hope they will have a significant impact on the population to the extent that they will stop the movement. With these sorts of pests right throughout the world, the modern thinking is that the only way to have any chance of eradicating them is not to use traditional methods like shooting, trapping and poisoning, but to have a biological control methodology. They have been traditionally looking at releasing a predator, a pest or a disease that naturally takes these sorts of animals.

Hon KATE DOUST: Something akin to the calicivirus.

Mr Wyre: Now, because of gene technology, they are looking at ways of transmitting genetic defects into the cane toad population through things like viruses. They could look at stopping them becoming sexually mature through a virus that transmits that gene or chemical deficiency. That sort of research is very exciting - scientists love it - but it is very long term. There is still a huge - I would not call it a luck element - risk that we will not quite find the exact thing we are looking for.

Hon KATE DOUST: Are you aware of any similar type of research being conducted anywhere else? You mentioned how cane toads exist in Hawaii and the USA and other places. Are they doing any research into gene technology to get rid of them?

Mr Wyre: I understand that the research being done in Australia is leading the world, but Australia has been in contact with the other countries that are trying to do something about them. Since about the mid-1980s our people have been to South America searching for active ways of controlling cane toads. It is about 20 years of on-again, off-again research. Although there have been 20 years of research into control, it has not been continuous research. It has hinged on grants that have lasted three or five years, then it has stopped and started again.

Hon KATE DOUST: Has that research predominantly been conducted in Queensland because that is where they first took hold?

Mr Wyre: The initial research was definitely conducted in Queensland, but the latter research through the 1990s and 2000 and the current research has been done by CSIRO, which is based all over the country.

Hon PAUL LLEWELLYN: It is worth noting that the cane toad was a biological control method in the first place. It is now the problem and we would face the same kind of problems even if we introduced the virus. You said most of the investment in cane toad control has been in biological controls. Do we have any idea how much has already been invested Australia-wide and what the cost effectiveness of that is?

Mr Wyre: I neglected to bring with me today a report that is available on the Internet. I will provide the Internet address and a copy of the report. A task group was established by state and territory ministers working in natural resource management through what is called the Vertebrate Pests Committee. It brought together all the information it could on cane toads and what had been done in the past. That report

contains a figure of the total amount of money invested in cane toad control. I think it is in the order of \$10 million to \$15 million, but I will check that.

Hon PAUL LLEWELLYN: My line of thinking is: how much is \$2 million worth?

HON BRUCE DONALDSON: \$3 million.

Hon PAUL LLEWELLYN: Whatever the number is in terms of effort.

The CHAIRMAN: Issues have come before us from petitioners because, as you have indicated, a large level of public interest and commitment has been shown by the community in the north west and the Kimberley about restricting cane toads from entering Western Australia. Their petition sought information on what methods exist or are under study nationally for the containment or eradication of cane toads. They are supportive also of field control of the cane toad population, so I suppose from that point of view they mean trapping. If we are investing \$500 000 in trapping through this community project, do you have a sense of whether it will be successful methodology? At what point will you be able to say trapping works and we should invest much more in it if the cane toad population were to move closer to Western Australia? How will you monitor the success of, say, a trapping program?

Mr Wyre: There are two aspects to that: it includes the state initiative trapping program. I did not mention earlier something that members could not see on the small version of the map, that there is a small what we call incursion of cane toads across the Victoria River towards Western Australia, which is thought to be about a 20-kilometre incursion into Western Australia over a couple of thousand hectares. As far as we know, the rest of the cane toad front is all to the east of the river. We have been negotiating with the Northern Territory government and through it with the traditional Aboriginal owners of that land to undertake a trial eradication and control program in that population. We are hoping to trial and see, with a very intensive trapping program, whether we can eradicate cane toads from a small area when they are under stress. We are also focusing our efforts on that as one of the obvious major areas where cane toads are likely to move towards Western Australia when the wet season arrives at the end of this year. That will be done with scientific methodology so we can say that, with this type of array of traps over this period, cane toads were controlled or were not controlled and did or did not move through. That will be the first trial on that sort of scale, which is an operational scale. To date, the only trials of trapping have been done around billabongs. A few traps have been set in one billabong and no traps in another so that a comparison could be made between the number of cane toads. A lot of other factors could influence the number of cane toads in each billabong. That situation is very difficult to take into account.

The CHAIRMAN: Our petitioners are asking what methods exist or are being studied nationally for the containment and eradication of cane toads. It sounds like that is leading edge -

Mr Wyre: That is leading edge in terms of the trapping side. The CSIRO is undertaking its \$3 million study. The Queensland government has \$1 million for biocontrol investigations based in Queensland to look, I think, at poisoning and other controls of cane toads.

The CHAIRMAN: You could say that we are confident that we are doing our own projects and examining what other jurisdictions are doing to see whether any other successful methods emerge?

Mr Wyre: Yes. One of the major things for the government and the community to consider is what level of investment is worthwhile to try to stop the cane toads. It is quite apparent - and I have not heard anyone speak against it - that the level of investment over the past 70 years has been grossly inadequate. The question now is: what reasonable investment should be put into some of these techniques. Because cane toads are so invasive and robust to control, we should have a lot of streams of investigation occurring at the same time. We should not have just two or three hoped-for success stories. Trapping is very good for community involvement, but a lot of other research avenues could be being followed up in terms of different sorts of biological control and specific toxins that could be applied to cane toads. Native frogs are almost 100 per cent reliant on live food. However, cane toads will eat anything they can fit into their mouths whether it is alive or not. They eat dog food, baits and those sorts of things. That is another thing about cane toads that is unique. If we had a specific toxin we could probably bait quite successfully for cane toads.

Hon BRUCE DONALDSON: I understand they can get something the size of a tennis ball in their mouths. Could we coat a tennis ball with a chemical to entice them to try to eat the ball and choke. As you said, about a third of Kakadu is burnt every year. There has been an explosion in the number of crocodiles in the Northern Territory. Although the cane toad toxin can kill crocodiles, are crocodiles becoming immune to the toxin?

Mr Wyre: No. A study is under way at the moment that has been going on for the past year or so of freshwater crocodiles in the Kakadu area. They are suffering huge mortalities. There are fears that there is a unique subspecies of freshwater crocodile in the Northern Territory that could be wiped out by cane toads. As you can imagine, crocodiles regularly take cane toads. The other thing I neglected to mention earlier is that cane toads are not just toxic as adults, their eggs and tadpoles are toxic. Anything that eats any life stage of the cane toad is likely to be poisoned.

Hon KATE DOUST: What do the traps look like? It is difficult to imagine. You have to attract the thing in there. I understand they live in them quite comfortably until they are collected.

Mr Wyre: The trap that won the trapping competition was different from the traps developed and promoted by Frog Watch. We are using the Frog Watch traps because we can order them and get them manufactured. They are easy to make and are very light. The Frog Watch innovation comprises a door about 20 centimetres long, which has clear perspex flaps that make a clear barrier that cane toads will push through to get to food. The flap closes behind them and it cannot open out the other way. A cane toad cannot put a finger out and pull the door open, so it becomes trapped. The other innovation is that cane toads are attracted to light. Anyone who has been in tropical northern Australia will have seen what happens when it gets a bit moist at night and a huge number of insects are attracted to the light. We still do not know whether the toads are attracted to the light or all the insects around the light. We suspect it is a bit of both. Cane toads will feed on the insects around the light. A light is positioned either in the trap or on top of the trap. Cane toads cannot climb up to the top of a trap.

Unlike native frogs, they cannot climb at all. The only way of getting to the insect ball around the light is by trial and error and going around the trap and finding an area where they can push through and get in. Once there, they eat the insects.

The CHAIRMAN: What number of native frogs get caught up in these traps?

Mr Wyre: That is the other amazing thing and something we are investigating also. In the Frog Watch trials being done in the Northern Territory it is being reported that no native amphibians are being caught. One of the reasons might be that all native amphibians can jump so they can get on top of the traps and eat the insects. The trap that won the great cane toad competition was a large metal device that had ramps and a light at the top. The toad walks up the ramp to the top where there is a trapdoor arrangement so that their weight causes them to fall into the trap.

The CHAIRMAN: In terms of the cane toad front line - you talked about investment from the commonwealth - are other measures being taken by the Northern Territory or is Western Australia on its own?

Mr Wyre: The Northern Territory government has not dedicated any new money towards helping us out there, but it has provided some of its staff resources to help us monitor traps, to identify where traps should be placed and to negotiate with traditional owners. One of the things we have to do while there is a huge threat to bush tucker from cane toads, is burn some of the landscape in order to have an effective trap in some areas. Obviously there are Aboriginal issues in terms of who burns, when they burn and what areas are burnt. We have a lot of negotiation going on there so that we can put a trap in with a light source and toads can see it. The Northern Territory government is helping us out in smoothing the way for us.

The Northern Territory has put money into Frog Watch. It also has a trap subsidy for the community in the Northern Territory. I think people can claim back \$30 on a basic cane toad trap. Its focus is stopping toads getting into Darwin.

Hon BRUCE DONALDSON: The Queensland government has had cane toads for years. Has it just accepted that fact?

Mr Wyre: The Queensland government's approach is interesting. It has done basically nothing to stop cane toads. I do not know whether it has given up or what. However, it launched the \$1 million fund this year to investigate control techniques. A cane toad is not a declared pest in Queensland.

Hon KATE DOUST: It is a bit of a sport is it not?

Mr Wyre: Yes. The number of cane toads in the initial front is a lot more than occurs once some sort of natural balance is established. With an initial front there will be big cane toads and a lot of them. After 20, 30, 50 years of having cane toads around there does not seem to be as many cane toads or perhaps people do not notice them as much.

Hon PAUL LLEWELLYN: It seems to me they harvest the biodiversity and once that collapses the toad population collapses alongside that.

Mr Wyre: That is right. The food source is decreased, so the cane toad population decreases.

Hon PAUL LLEWELLYN: That is pretty common for a pest. What about adaptation in terms of our community? What has Queensland done? Perhaps that is

not a good line of questioning. Trapping is probably a lifelong effort. When do you stop trapping? What kind of adaptation strategies are in the landscape to keep it down to a manageable level?

Mr Wyre: With that line of thinking we need only look at mice, rats and those sorts of things. There is no campaign to eradicate Australia of house mice or introduced rats. People employ exterminators and apply a trapping and baiting campaign until they are comfortable in their local area, home or whatever that they have the pest under control. In terms of trapping in the long term in places in the Northern Territory it will be up to the people. If they want to keep going with the trapping effort so that they can have a barbecue in the background and not see cane toads hopping all around it they will do it.

Hon KATE DOUST: I think Queenslanders have made that adjustment in their lifestyle in dealing with cane toads in a domestic situation. Cane toads are usually hopping around in the early evening. People keep everything closed and lights out etc. People work around them.

Mr Wyre: People do not put cat food on the ground.

Hon PAUL LLEWELLYN: I am thinking more of the economic impact. It must have a pretty big impact because of a loss of biodiversity. It will have associated impacts other than the impact on barbecues and households. It will have agricultural impacts.

The CHAIRMAN: I have a few more questions raised by petitioners. You outlined basically that we are working across the border in the Northern Territory. The petitioners would like to see investigation of all measures, physical restrictions and the necessity to fight the fight in the Northern Territory. Clearly we are making an investment in that, but I suppose we would want to see the efficacy of that before making a significant investment. Do you agree with that or would that be worthwhile now?

Mr Wyre: In the next six months or so, the limiting factor will not be the dollars so much but how many traps we can get out there, where we can put them and how well we can maintain them. One of the things we are struggling with is the logistics of getting back to these traps. The other thing is dealing with traps in an area where a torrential downpour can result in a river going from a few metres to a few kilometres wide and collecting the traps from a river or a wetland before they are washed away. We will have to be highly responsive to all those issues. A significant investment has been made in the community and government program this year. It will be well worthwhile to make sure we can document that and see how successful it is before we determine what additional programs we need to put in place.

The CHAIRMAN: This petition is from people in Kununurra. Clearly, the local people have talked about barrier fencing as you have already. Is barrier fencing being trialled at the moment?

Mr Wyre: We are looking at small-scale fencing, not barrier fencing. I can give you a reference in the Northern Territory where they looked at fencing off Coburg Peninsula. Depending on the engineering design of that fence it was going to cost millions of dollars. Anyone who has worked in pest control and dealt with barrier fences before will tell you that none of the fences is absolutely secure. They all leak.

A prime area of leakage is people deliberately bringing pests through as well as accidentally.

In the cane toad issue we are following on the example of the state's starling control program, which involves a dedicated team of people working right across the Nullarbor from Western Australia as far east, I think, as around Ceduna in South Australia, killing, trapping and shooting starlings to stop them getting in and establishing in Western Australia.

The CHAIRMAN: I understand that the current quarantine checkpoint is on the border. People have asked whether it is worth moving the checkpoint east for the purposes of providing some control.

Mr Wyre: One of the key reasons for moving it east is that there is an area called Duncan Highway that a lot of campers take and it takes them into the back of Lake Argyle so they can get into Western Australia without going through a quarantine checkpoint. We are hoping to establish a system where the road is manned, but it is very costly. We have to ask whether it is worth \$150 000 or \$250 000 for someone to man the road compared with putting that money into trapping and other programs. Over the next year we are most likely to have what we call mobile checkpoints where a person in a vehicle mans a temporary checkpoint and randomly inspects vehicles, rather than establishing a permanent site. A whole lot of costs are obviously involved in moving the checkpoint.

The CHAIRMAN: Is there anything on public record that reports debates about the decision-making processes on where the money goes and the merits of the different locations?

Mr Wyre: A cane toad advisory committee is advising on and preparing the state cane toad strategy. I chaired the last meeting of that, which was a week and a half to two weeks ago. It has basically a 90 per cent complete draft of a cane toad strategy, which will be publicly available. Community people are on that advisory committee, including two representatives from the east Kimberley, a Conservation Council representative, scientists and departmental people. That sets out what the strategy and the program should be and the relative priorities.

Hon BRUCE DONALDSON: Is the sugar cane industry in Queensland or our fledgling industry in the Ord River area concerned about the effect of cane toads on the eco system and some of the insects they rely on as part of sugar cane growing? I know cane toads were introduced in the first place to help Queensland solve its problem. Is it a threat to that industry or the horticultural industry generally in the Ord River area? If stage 2 were developed, for argument's sake, which goes into the Northern Territory, it would be a great pathway for cane toads if the irrigation went ahead. If they are not eliminated in the Northern Territory, I can see that as the cane toads' highway into Western Australia.

Mr Wyre: Cane toads have no impact whatsoever on sugar cane. The insects they were brought in to control do not live on the ground and cane toads do not get off the ground. It was not investigated very significantly. However, cane toads eat whatever insects they can catch and put in their mouths. If some of the more specialised horticultural industries require a specific type of bee or other insects for pollination or

something like that, cane toads could be a threat, particularly if there is a lifecycle or life stage close to the ground.

The CHAIRMAN: You mentioned earlier the possibility of baits. Who is doing research on that and are you confident enough research is going on somewhere in the world that, should there be successful baiting, that is something we can implement?

Mr Wyre: No, baiting is a very traditional way of controlling pests. It is surprising there is no approved or developed cane toad bait. Whether it would be sufficient to eradicate cane toads is a very long shot, but to be able to control them in even a large area would be well worth investigating and it is something we will promote. I believe there is inadequate investigation into cane toad baiting.

The CHAIRMAN: Is that something that will come up in your 90 per cent complete cane toad strategy?

Mr Wyre: It is identified in the task force report. It should be in the strategy as well. We have to follow-up with Queenslanders to see what they are doing with the \$1 million and whether they are going down that path. I am not sure whether they are.

The CHAIRMAN: If other jurisdictions are not as interested in border control as we are, although clearly the Northern Territory must be at some level if it is trying to prevent cane toads from getting into Darwin, that might mean there has not been enough discussion about trying to stop the main front moving as opposed to trying to control their population overall. Is that right?

Mr Wyre: Yes. There has been inadequate investigation. The general view is that they are such a super invasive pest, that we will need super high technology to knock them out. Perhaps some of the more traditional low-tech technologies with adaptation will do the job.

The CHAIRMAN: Petitions referred to the use of traditional indigenous water deoxygenation plants - fish poisons - to place pressure on tadpoles. Has that been used anywhere or trialled? What would be its impacts on that species?

Mr Wyre: I am not aware of any trials. I do not have the technological knowledge. We would have to ask: if everything in the water body is being knocked, is that the way to control cane toads?

The CHAIRMAN: There are also conceptions within the community, which I suppose arise because jurisdictions such as the Northern Territory and Queensland let them spread, that frontline control is not something that is a viable option. Accusations have been made that the Department of Conservation and Land Management does not believe that this kind of control is viable and, therefore, it is not being taken seriously and it is being done just for show. Can you demonstrate to us that is not the case?

Mr Wyre: I can assure you that that is not the case. I addressed the Kimberley forum in March this year. I said it is an extraordinarily long shot. We have a front line of around 700 kilometres of river frontage with traps that are effective over only a few hectares. Unless we are very successful in where we put the traps and they are very successful with the toads they capture, we will not be able to capture 100 per cent of the toads. Therefore, we are relying on the weather conditions, environment and landscape to knock off the toads we cannot catch. That is the strategy we have in

place. We do not believe that trapping alone will stop the toads, but trapping with the landscape can stop them if we are lucky and if we get everything right.

The other thing is that we believe that we do not have only one year's shot at this. We have been lucky over the past three years in that we have had very poor wet seasons in the east Kimberley and the Victoria River area. If we have another couple of poor wet seasons, obviously we will learn more about trapping; we will be better adapted to where we put traps in; and we will have better traps, because each time we order traps they are making improvements to them. In the next couple of years, if trapping is going to work, we will be able to show it does and we will be there doing it. We really do need community effort as well.

The CHAIRMAN: If we had one-off funding - clearly you are talking about an ongoing front line because the population will not stay where it is, so it is a permanent

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Mr Wyre: We will have to do it forever.

Hon PAUL LLEWELLYN: It seems that the front line of cane toads is too big to control. However, you would have islands of high biodiversity so it would be better to invest whatever resources we have to protect the high biodiversity areas and ration out the resources so that we get the best outcome from the investment. If the problem has been around for 70 years on a front across Australia, it will end up the same as the situation with rabbits. We will get them here and no amount of fencing will stop them. We will have to be lucky to find a calicivirus. We may find an equivalent calicivirus, but for the time being if it has peak population on its front, which seems to me to be harvesting the biodiversity, surely we need to be strategically investing into the high biodiversity areas. That is where we should be putting our effort rather than across the entire front of Australia, because it might end up a bit like vegemite, you know, a bit thin. It would be better to adopt strategic investment of resources into protecting the places that deserve our attention, rather than trying to control the cane toads on the vast plains.

Mr Wyre: There are people who share your view. However, one of the things that we have really got behind us is the fact that no-one has tried a broadscale trapping program. Even though it is a long shot, given what we know about cane toads, if we pick the right areas and the traps work as effectively as we hope they can, it may work. It would be a bit silly to say that there is a chance it might work, but we will not even give it a go. We have an interesting debate with the community about to what extent we put all our eggs in the trapping basket and to what extent we spread some of the money into other areas. As I said, in our program we are looking at protecting islands and high biodiversity assets, and having early warning and response systems to try to protect those from cane toads should they get through.

Hon PAUL LLEWELLYN: Have you investigated the tourism industry being based around cane toads?

Mr Wyre: No. There does not seem to have been any negative impact on the Queensland tourism sector as a result of having cane toads in the landscape in tropical north Queensland. The tourism sector in the Kimberley is considering marketing the Kimberley as being Australia's cane toad-free jewel to see whether there is any advantage to that.

Hon BRUCE DONALDSON: You said you were relying on another couple of dry wets. History tells us that we will probably get a big wet very soon.

Mr Wyre: We will get a big wet sooner or later.

Hon BRUCE DONALDSON: Are you keeping your fingers crossed that the dry spell will continue for at least a couple of years? If a big wet came this season it would put back the whole program for some time.

Mr Wyre: If we get a big wet this season, our inexperience in mounting a trapping control program could be very costly. The ideal situation is, if it is a while before we get a big wet and we get more experienced at trapping, we are obviously going to get better at it. We will inevitably get a big wet and we will be under pressure to see whether the trapping program works.

Hon KATE DOUST: How many staff in your department are allocated to working on a cane toad strategy?

Mr Wyre: Five positions have been established to work on cane toads in the field team; another person is the cane toad coordinator - that is six. We have just announced that we are trying to establish a community coordinator, who we will house with us, to help the community and the cane toad foundation organise their volunteers because that is a full-time job. We are looking at seven. An extra person has been put on the border checkpoint so that is eight. We hope to have in place in the next couple of months a cane toad detector dog. We have negotiated with suppliers of trained dogs: One supplier is prepared to train up some trial dogs

Hon KATE DOUST: What sorts of dogs?

Mr Wyre: In Queensland, in terms of turtles, they have used a Labrador. That is a non-offensive dog to have jumping around people. We would put that at the border checkpoint. We cannot physically check every possible nook and cranny of every vehicle that comes across the border, but there must be some sort of risk analysis. A dog's sense of smell, which is 100 000 times greater than humans, may be able to smell cane toads in vehicles. If that is so, that will be fantastic. We are looking at a total of eight or nine staff.

Hon KATE DOUST: That is a substantial number allocated to looking at a single pest, is it not?

Mr Wyre: In an organisation like CALM, given the total staff in the Kimberley, it is very significant.

The CHAIRMAN: Thank you very much for your attendance today. I understand your transcript will be available in a few days. We are very grateful that you made time available. If we have any further questions we will be in contact.

Mr Wyre: I will be happy to come back. I will leave the printouts and supply the web address information to the committee so that it can follow up on some of the information I referred to.

Hearing concluded at 11.22 am

APPENDIX 6

REPORTS REFERRED TO IN THE MINISTER FOR THE ENVIRONMENT'S LETTER DATED AUGUST 4 2005

Brook BW, Whitehead BJ and Dingle JK (2004). *Final Report for the Australian Government Department of the Environment and Heritage: Potential cane toad short to medium term control techniques - the biological feasibility and cost of exclusion as a mitigating strategy*, December 2004.

Hyatt, A and Robinson AJ (2004). *Biological Control of Cane Toads: February 26-27 2004 Brisbane Workshop Report for the Australian Government Department of the Environment and Heritage*;

Legislative Assembly of the Northern Territory, Sessional Committee on Environment and Sustainable Development. *Issues associated with the progressive entry into the Northern Territory of cane toads*, Report No. 1, October 2003.

Taylor R and G Edwards (Eds) (2005). *A Review of the Impact and Control of Cane Toads in Australia with Recommendations for Future Research and Management Approaches: A Report to the Vertebrate Pests Committee from the National Cane Toad Taskforce*, June 2005.

van Dam RA, Walden DJ and Begg WA (2002). *A preliminary risk assessment of cane toads in Kakadu National Park*, Scientist Report 164, Supervising Scientist, Darwin NT.