



Review of progress towards the National Mimosa Strategic Plan 2008 - 2009

Prepared by: Kay Bailey
National Mimosa Coordinator
on behalf of the
National Mimosa Management Committee

Department of Natural Resources, Environment, The Arts & Sport
PO Box 1120
ALICE SPRINGS
Northern Territory 0871

CONTENTS

Executive Summary	3
Introduction.....	4
Mimosa, its history and impact in Australia	4
A national solution.....	4
Progress to date.....	5
Goals and achievements in 2008-09	8
1. Information and Education Program	8
2. Prevention of Spread Program	10
3. Research and Development Program.....	12
4. Impact Reduction Program	14
Appendices	
Appendix A - National Mimosa Management Committee members.....	15
Appendix B – Mimosa distribution and management in Australia	17



CARING
FOR
OUR
COUNTRY



ACKNOWLEDGEMENTS

The assistance of members of the National Mimosa Management Committee who contributed to this report is acknowledged.

This project is supported through funding from the Australian Government's Caring for our Country.

Executive Summary

A native of Central and Southern America, *Mimosa pigra* is a woody invasive shrub that grows rapidly and can withstand severe drought and flooding. *Mimosa* is a threat to any wetland - it invades and alters the ecology, severely impacting on the social, cultural and environmental value of the land.

Mimosa was introduced into Australia at the Northern Territory Darwin Botanic Gardens in the late 1800s. *Mimosa* has since spread to some of the main river systems (Finniss, Reynolds, Mary, Adelaide, Daly, East & South Alligator) in the Top End of the Northern Territory and an outbreak was located near Proserpine's Peter Faust Dam in northern Queensland in February 2001.

The infestation at Peter Faust Dam in Queensland remains the single infestation outside of the Northern Territory. The eradication program at Peter Faust Dam is continuing to reduce the size and impact of *mimosa*.

Within the Northern Territory there has been significant focus on developing effective and enduring partnerships with Aboriginal communities and traditional owners, the pastoral industry, and other Territory primary producers and local government for the management of *Mimosa*. The various programs have resulted in 12 Aboriginal Ranger groups and 17 pastoral properties managing *mimosa* on their respective land and NT Government Contractors controlling *mimosa* on Crown managed land.

Biocontrol of *mimosa* continues to reduce seed production and spread in core infestations with effective agents now established in most of the high priority catchments in the Northern Territory. Two previously released agents were found to have established in 08-09.

Numerous education and awareness activities are resulting in improved capacity to map, survey, monitor and control infestations and to detect new incursions.

Future areas of focus for the committee include developing a national communications plan, raising the profile and importance of on-going surveillance to protect clean areas and state borders and prepare historic information for input into reviewing the national strategy.

Introduction

This report documents progress towards implementing the *National Mimosa (Mimosa pigra) Strategic Plan 2001* throughout Australia. It provides evidence for the benefits of a nationally coordinated program demonstrating that this has led to improved stakeholder understanding, involvement and commitment to the long-term surveillance and management of Mimosa in Australia.

Mimosa, its history and impact in Australia

Mimosa is a native of tropical America; is a leguminous, thorny shrub; and can grow up to 6m in height. A typical Mimosa stand comprises one plant per square metre and produces 9,000 seeds per square metre of canopy. However, larger isolated plants can produce up to 220,000 seeds per year with the hard seeds surviving up to 23 years on sandy soils. Seed viability decreases more rapidly on clay soils.

Mimosa is a threat to any wetland - it invades and alters the ecology, and severely impacts the social, cultural and environmental value of the land. Mimosa has the potential to dominate wetlands across the whole of northern Australia from Broome Western Australia (WA) to northern New South Wales (NSW).

It is thought that Mimosa was introduced into Australia at the Darwin Botanic Gardens in the 20 years prior to 1891. It wasn't until 1952 that it was noticed outside the Darwin City area in the area upstream from the Adelaide River township about 100km south of Darwin. It is believed that sand contaminated with seeds was removed from the Adelaide River in the 1950s and used around the Top End in commercial building operations. Mimosa has since spread to some of the main river systems (Finniss, Reynolds, Mary, Daly, East Alligator and South Alligator) in the Top End from Legune Station in the west to the Phelp River (Arnhem Land) in the east. Infestations are also present on three islands (Peron, Tiwi and Croker Islands). Mimosa infestations in the Northern Territory have affected a total of 140,000 hectares. Of this area, approximately 100,000 are under active management.

The only Mimosa outbreak outside the Northern Territory was discovered near Proserpine's Peter Faust Dam in northern Queensland (QLD) in February 2001. This outbreak has since been subject to an effective eradication program.

A national solution

The *National Mimosa Strategic Plan 2001* was developed to enable a co-ordinated approach to the management of the *Mimosa pigra* species throughout Australia. The strategy outlines a number of actions designed to prevent further infestations and minimise the impact current infestations have on the environment and industry.

A full time National WoNS Coordinator for *Mimosa pigra* and Athel Pine was appointed in December 2006 resulting in the National Mimosa Management Committee reforming during 2007. Prior to this a part-time officer from DNRETA held the Mimosa position focussing on developing effective and enduring partnerships with Aboriginal communities (including traditional owners and Aboriginal Ranger groups) and the pastoral industry in the NT and supporting the eradication program at Peter Faust Dam QLD; the WA Dept of Agriculture and Food border surveillance program and the Australian Quarantine and Inspection Service (AQIS)/ Weeds CRC community capacity building program in western Arnhem Land.

The revised National Mimosa Management Committee (NMMC) has been operating since August 2007, with approved Terms of Reference, a logo and a community Chairperson. The NMMC enables a national, strategic approach to management of Mimosa and implementation of the Mimosa Strategic Plan.

Progress to date

Current activities build on the programs undertaken during the past 7 years reported in previous progress reports.

The many achievements up to June 2008 included:

- Legislation. *Mimosa pigra* is declared and banned in all states / territories as a direct result of the Mimosa National Strategy.
- Eradication continues on the isolated Mimosa outbreak at Peter Faust Dam, Proserpine QLD - a program that has been operating since the infestation was first reported 2001. Isolated infestations south of 14° S latitude in the NT also under eradication programs.
- On-ground control.
 - Strategic programs are in place for all catchments affected within the NT with approximately 90% of infestations under active management. Solid partnerships created between the Indigenous Land Corporation (ILC), Northern Land Council and Tiwi Land Councils' Aboriginal Ranger program, traditional owners and the Dept of Natural Resources, Environment, The Arts and Sport (NRETAS), together with capacity building activities, have resulted in improved mapping, monitoring, surveillance and control of Mimosa infestations on Aboriginal Land throughout the NT.
 - Additionally the AQIS/ Weeds CRC project successfully engaged Aboriginal communities in western Arnhem Land on the risks of new Mimosa incursions on their lands as part of an early detection program.
 - Solid partnerships created between the NT Cattlemen's Association and NRETAS, together with capacity building activities, resulted in improved mapping, monitoring, surveillance and control of infestations on pastoral land. Property mimosa weed management plans were developed and implemented for 18 pastoral properties. In addition, four properties managed mimosa outside of the program. The NAPMC assessed that 90% of NT pastoralists have the knowledge and tools to control Mimosa on their land.
 - In order to reduce the adverse impacts of mimosa infestations a catchment approach was adopted within the NT. Initial aerial surveys were conducted across 16 catchments in 2003. Since then annual aerial surveys at a finer scale have been conducted on Indigenous lands. In the last 12 years there has only been one new catchment affected by mimosa (Victoria River catchment) and this weed has been controlled and monitored annually within that catchment. Catchments where the extent of Mimosa infestations have been reduced are the Victoria, Fitzmaurice, Moyle (most areas), Mary, East Alligator, Goomadeer, Blyth, Goyder and Liverpool as well as the Tiwi islands.
 - Integrated control incorporating herbicidal, mechanical, biological and other non-biological control practices. Integration of fire and feral animal management with Mimosa management has been promoted to land managers. These practices were integrated into the draft Best Practices Manual that was under development.
 - A draft NT Mimosa Management Plan, which identifies priority zones in the 16 NT catchments, is in place to prevent the spread of mimosa into areas not currently affected; to manage smaller low level infestations of mimosa at an early stage to prevent further establishment; and to minimise the impact in areas where mimosa is currently well established.
 - The 2006 report 'Minimising the risk of spread of *Mimosa pigra* from Peter Faust Dam, Proserpine" provided a plan for the management of this weed in that catchment and was implemented under the direction of the Queensland Mimosa Stakeholder Group.

- The status of *Mimosa pigra* as a Weed of National Significance has increased the development of research and knowledge of floodplain management. Land management is recognised as an important tool in managing Mimosa as this weed does not handle competition. Assisted revegetation using native species prevents reinfestation by Mimosa.
- Surveillance along the NT/ WA border, NT/ QLD border and coastal areas from Broome WA through the Gulf of Carpentaria to Cape York QLD provided early detection. No new Mimosa sightings had been recorded in coastal areas from Broome to Cape York in recent surveys. Aerial surveillance for Mimosa is now built into all Aboriginal Ranger Programs in the NT.
- Biocontrol
 - A long term collaborative Mimosa biocontrol program between CSIRO Entomology and NRETAS, funded largely by the Australian Government, has operated from 1980 costing a total of approximately \$22M (figures to 2004). During this program, 13 insects and two fungi have been released. Seven had become established by June 2008. At least two were having a measured impact (*Carmenta mimosa* and *Neurostrota gunniella*) with an additional four probably contributing to control of mimosa.
 - Weed Officers from NT NRETAS survey areas at 6 research sites on a monthly basis to monitor distribution and density, so that biocontrol can continue in strategic locations.
 - Biocontrol agents failed to establish at Peter Faust Dam and further introductions are not warranted at this location as mimosa is under an active eradication program.
- Research
 - Seedbank studies funded through the Defeating the Weeds Menace program at Peter Faust Dam in Queensland indicated that Mimosa eradication efforts at this location will be required until ≈2021. Soil seedbank data for the core infestation area showed a 90% reduction between 2002 and 2006 with initial soil seedbanks measuring up to 19,000 seeds m².
 - Soil seedbank studies in the Northern Territory showed reductions from 8,500-12,000 seeds m² in 1986 before biological control of *Mimosa pigra* to 991 seeds m² in 2005 after biological control. This is largely attributed to reduction in seed rain with damage to Mimosa plants by biological control agents particularly *Carmenta mimosa* and *Neurostrota gunniella*
 - The NT and Queensland populations of Mimosa have varying ecological characteristics. Research has shown that flowering and podding in Queensland occurs all year round, whilst flowering in the NT Mimosa occurs from February to May and podding from March to July.
- Mapping
 - The National Land and Water Resources audit grid map, developed during 2006/07, is an accurate representation of the distribution of Mimosa in Australia. In addition detailed point/ polygon/ line data underpins this grid information. This good baseline mapping information for both the NT and QLD, is updated annually following aerial and ground surveys. See Appendix C for the national distribution of Mimosa (current and potential) including areas for surveillance, eradication and control.
 - Employment of an Indigenous GIS officer for the Aboriginal ranger program with the Northern Land Council has enabled these rangers to develop skills in spatial data collection. This GIS officer also managed the spatial data collected from

aerial surveys and produced maps enabling strategic management decisions to be made.

- Information and education

- Increasing public awareness about Mimosa programs in both the NT and Queensland through displays at public shows (including the NT Boat Show), signage, field days, attendance and presentations at meetings of stakeholder organisations including the Amateur Fishing Association), and training programs is enabling better on-ground outcomes.
- In Queensland the *Mimosa pigra* Stakeholder Group has developed extension material including posters, stickers, flyers, Community Service Agreement, media releases and editorials – all in line with a weed risk assessment report 'Minimising the risk of spread of *Mimosa pigra* from Peter Faust Dam, Proserpine'. A commercial on the impacts of Mimosa ran statewide for 2-3 months during 2007/08 resulting in increased awareness. Additional signage was also posted around the Peter Faust Dam to promote identification and reporting of outbreaks.
- In Western Australia the emphasis was placed on encouraging the reporting of anything new and unusual rather than specifically targeting Mimosa. Pamphlets about preventing weed spread are available at roadhouses.
- The indigenous language posters developed in the NT ensured that the awareness and identification messages were more likely to reach this stakeholder group. Two manuals were produced to assist Aboriginal Ranger Groups correctly use GPS and software to record spatial data relating to Mimosa distribution and control activities.
- Liaison with local government councils in the Top End to prevent the spread of mimosa through soil and vehicle movement has been provided by the Weed Management Branch in response to development applications. In addition, best practice procedures (such as hygiene requirements for the cleaning and transport of vehicles to the Tiwi Islands – the washdown facility and procedure has been in place for a number of years) have been put in place for new developments.

During the reporting period of 2008/09, the National Coordinators position was again vacant for 4 months, which consequently again slowed progress this year. However, the National Committee members continued to achieve outcomes through their respective roles. This continued activity enabled surveillance and active integrated control of infestations to continue and be reported, and communication and knowledge sharing between the states and the Northern Territory on species biology and effective control techniques. With the new Coordinator commencing in the position in March 2009, emphasis was placed on developing her background knowledge, completing a national communications strategy and commencing a review of the implementation of the National Strategy.

This report outlines key achievements made by national coordination of *Mimosa pigra* management in 2008/09 relevant to the goals of the national strategy.

Goals and achievements in 2008/ 09

The Mimosa (*Mimosa pigra*) National Strategy enables a strategic national approach to be taken to the management of mimosa. This approach is based on collaboration between many stakeholders and across many land tenures. The Strategy is aimed at both amelioration of its impacts on existing areas as well as the prevention of spread to places currently unaffected.

Key achievements in 2008/09 under each of the four Strategic Plan programs are reported below.

1: Information and Education Program

Long term outcome: *Adverse impacts of mimosa on productivity and natural assets are minimised.*

Intermediate outcome: *Capability and willingness to manage WoNS increased – Stakeholders are informed and educated about mimosa, its adverse impacts and appropriate land management strategies for its control.*

Key activities contributing to this outcome for 2008/09:

Communication with stakeholders

- The National Mimosa Management Committee considered a draft communication strategy produced by the WONS Co-ordinator. This strategy will be revised to include an action plan and will be complementary to the QLD Mimosa Stakeholders Group communications and extension plan produced in December 2008.
- Weeds Management Branch NRETAS provided identification, extension and management training to nine Aboriginal Ranger Groups involved in ILC / NLC partnership *Land Management for Economic Development* project.
- Extensive consultation with key landholders, local government and environmental groups occurred during the research for and development of the *Mimosa pigra* National Best Practice Management Manual.
- Liaison with local government councils in the Top End to prevent the spread of mimosa through soil and vehicle movement was provided by the Weeds Management Branch in response to development applications. In addition, best practice procedures (such as hygiene requirements for the cleaning and transport of vehicles to the Tiwi Islands) have been put in place for new developments.
- The Queensland *Mimosa pigra* Stakeholders Group undertook a number of surveys of local residents and visitors at regional shows to determine the extent of awareness of mimosa and the effectiveness of the previous extension activities.

Information and education material

- During the reporting period national and Queensland mimosa extension material previously developed continued to be produced and distributed to stakeholders aiming to increase awareness and prevent spread. This included the Weed Management Guide and the brochure 'Recommendations for the Management of *Mimosa pigra*' and the QLD posters and stickers.
- The *Mimosa pigra* National Best Practice Management Manual was launched on 30 June 2009 by the Chair of the NRM NT Board, Kate Andrews. This document is a key tool to assist landholders to manage their mimosa in a way that is strategic, affordable and using the best techniques known. The associated media release and ABC Country Hour article assisted to raise awareness of this tool.
- Community awareness of mimosa and its impacts continued to be raised during the year through displays and media events as follows:
 - NT – media release during Weedbuster Week (1-7 September 2008); 2 community shows;

- QLD – advert ‘Stop the Spread’ placed in Queensland Fishing Monthly; display at Proserpine and Bowen Shows, media release in December 2008.
- On site signage at popular fishing locations in the NT and at the Peter Faust Dam continue to educate recreational fishermen on what they can do to prevent the spread.
- Generic powerpoint presentation on *Mimosa pigra* identification and national distribution prepared by National Coordinator and provided to NSW North Coast Weeds Advisory Committee to train 18 local Weeds Officers to look out for this weed during their regular patrols.
- Queensland *Mimosa pigra* Stakeholder Group have produced a powerpoint presentation in layman’s language to provide to all relevant fishing groups and key industry groups such as the Canegrowers to establish and maintain local community awareness, participation and support at other high risk areas.
- In Western Australia general pamphlets on preventing weed spread are available at roadhouses.

National Mimosa Management Committee

- The National Mimosa Management Committee (see Appendix A for the 2008/09 list of members) continued to operate throughout the year holding two face to face meetings in Darwin (one in October 2008 and one in conjunction with the launch of the Best Practice Management Manual at the end of June 2009). The outcome was continuation of coordination and knowledge sharing resulting in an increase in the capacity and willingness to manage mimosa.
- The National Coordinator’s position was filled from July to November 2008 and a new Coordinator again appointed in March 2009. The efforts of other members, particularly Steve Wingrave, Principal Weeds Officer, NRETAS NT, in again keeping the NMMC functioning during the periods without a Coordinator is to be commended.
- The national network of stakeholders involved in mimosa identification, research and management was expanded by the new National Coordinator in 2009 resulting in improved coordination, efficiency and knowledge sharing. This will continue into the next reporting period.
 - The National Coordinator attended MERI / Program Logic training and prepared a retrospective program logic of the *Mimosa pigra* program based on the 2001 *Mimosa pigra* National Strategy. This will be used to assist with the Review of the Mimosa WoNS Program in the 2009/10 reporting period.

Future activities required:

The National Mimosa Management Committee recognises the following priorities for future action under the Information and Education Program:

- Develop and implement an awareness and communication program based on a national *Mimosa pigra* communications strategy and action plan;
- Provide further training to ensure stakeholders can take part in relevant mimosa control programs – update and provide CD version of generic identification powerpoint presentation to be used by stakeholders as required;
- Deliver an extension program to raise awareness of mimosa in northern WA;
- Increase education and awareness within remote regional communities of the Gulf of Carpentaria, Queensland, the Top End of the NT and northern WA; and
- Develop a MERI strategy for the mimosa program.

2: Prevention of Spread Program

Long term outcome: *Mimosa free areas of Australia are maintained.*

Intermediate outcome: *Infestations of mimosa are prevented from spreading and impacting on new areas.*

Mimosa currently occurs over 140,000 hectares within the Northern Territory and at one location in Queensland but has the potential to dominate wetlands across the whole of northern Australia from Broome WA to northern New South Wales. A key desired outcome is thus to prevent this weed from spreading to and impacting on new areas.

Key activities contributing to this outcome for 2008/09:

National declaration

- NRETAS Weeds Management Branch is currently developing a briefing paper proposing a change in the current declaration status of mimosa in the NT. Currently all mimosa north of 14°south is declared Class B (growth and spread to be controlled) in all catchments regardless of infestation size. The Branch is proposing that a Class B declaration only applies to high density well established infestations in the Moyle, Daly, Adelaide, Finniss, Mary and east Alligator system – all other catchments in the NT are proposed to be Class A (to be eradicated).

Eradication of satellite outbreaks

- Monitoring and inspection of the Legune Station outbreak site was undertaken with no mimosa plants found.

Protocols to reduce spread

- In order to prevent the interstate spread of mimosa from core areas in the NT, the check point at the NT/WA border continues to operate with vehicles, boats and caravans checked for weeds and seeds.
- Spatial data is provided to and managed by NRETAS WMB and is used in the planning process to target areas for aerial control and ground control activities on satellite outbreaks. Ground and aerial control operations are conducted by Indigenous ranger groups, pastoral land managers and contractors in strategic areas identified on a regional, catchment and property level. Unfortunately, the GIS mapping position within WMB NRETAS was vacant throughout the 2008/09 period thereby reducing the collation and analysis of the data. However data was still being collected and supplied with the aim to fill the position as soon as possible.

Reduce seed spread

- During this reporting period no new infestations were detected/recorded in any catchment previously unaffected in the NT and no infestations have been detected/recorded as “new” on areas being managed by the Aboriginal Ranger program.
- Surveillance was carried out in the east Kimberley along the NT / WA border with no infestations recorded.
- Surveillance was also carried out throughout the Kimberley as part of a feral donkey eradication program.
- Integrated mimosa management strategies continue to be pro-actively developed prior to approval of development applications in the Territory. The inspections carried out as part of the approval process allow recommendations to be made on weed issues, including hygiene to prevent mimosa seed spread.
- Within the NT the monitoring program for the road network, pastoral land and indigenous land continues aimed at measuring the effectiveness of the weed control program and reduction of seed spread.
- The road program is part of the program to manage weeds on NT Government owned lands and has reduced infestations and prevented seeding at all monitoring sites. A draft

Strategy for NT Crown Land Weed Management was produced by NRETAS WMB during the reporting period under a Memorandum of Understanding with the NT Department of Planning and Infrastructure. One of the priorities identified for 2009/10 was to *review the effectiveness of the mimosa eradication and control program including any newly located, isolated outbreaks on Crown managed lands*. The strategic benefit of this program is enormous due to the long life expectancy of mimosa seed.

- At the Peter Faust Dam in Queensland regular boat and ground surveys every two months continued with only 16 mimosa plants found by January 2009 (this is down from 47 to the same period in 2008 and 229 in January 2007). Due to high water levels in the Dam no new plants have been located since. Protocols such as cattle holding in clean paddocks for 7 days, promotion and use of washdown facilities and feral pig control activities have continued to assist in preventing spread of mimosa seed.

Land management strategies to reduce susceptibility

- The joint funded ILC / ABA (Aboriginal Benefits Account) *Land Management for Economic Development* project maintained core land management activities including mimosa ground and aerial control for nine Aboriginal Ranger Groups across the Top End during 2008/09. Fire management and feral animal control was also undertaken thus reducing the susceptibility of these areas to mimosa spread.

Future activities required:

The National Mimosa Management Committee recognises the following priorities for future action under the Prevention of Spread Program:

- Understanding the relative significance of the vectors of spread (eg do native species such as magpie geese play any part); and
- Preparation and presentation of the case for recognising mimosa as a key threatening process under the Environment Protection and Biodiversity Conservation (EPBC) Act 1992.

3: Research and Development Program

Long term outcome: *Mimosa free areas of Australia are maintained.*

Intermediate outcomes:

1. *Infestations of mimosa are prevented from spreading and impacting on new areas.*
2. *Existing infestations are under strategic management: The knowledge base and methods for effective and efficient management of mimosa are developed, especially through application of integrated methods*

Key activities contributing to this outcome for 2008/09:

Mimosa ecology

- Funding opportunities to undertake DNA genetic studies to compare seed types from NT, QLD and Thailand were explored during the year.
- As part of the Queensland “Blueprint for the Bush”, SunWater and Whitsunday NRM, mapping of all seedlings found at Peter Faust Dam continues showing that the number of plants needing to be controlled is declining.
- The annual soil seedbank studies at Peter Faust Dam continued with a survey resulting in 98-99% of seeds found being viable after being present in the soil for 6 years. It is estimated that the time required to deplete the seedbank in the core area to 0.1 seeds/m² is 14.5 years (ie 2017). These results direct the continuation of the control and monitoring program at the Dam.
- The Queensland Department of Primary Industries and Fisheries (QDPIF) propose to undertake measurement of the expected seed germination event after the water at Peter Faust Dam has receded and the resultant depletion of the seedbank. QDPIF also propose to undertake a rapid mimosa seed aging test.
- QDPIF have undertaken research into chemical, mechanical and fire control of three *Melaleuca* species that impede control of mimosa at the Peter Faust Dam. The most effective result was use of the Ellrott Plough during May to July which achieved a 90-95% control without disturbing the soil to any extent.

Biological control

- Surveys have shown that an additional two biological control agents have established bringing the total to nine. The first of these is the weevil *Chalcodermus serripes* that attacks mimosa green seeds and tips which was found in December 2008 on the Finnis River infestation where it had been released between 1996 and 2000. The other agent was the moth *Leuris fimbriata* that attacks mimosa leaves and was found for the first time in March 2009 at Berrimah Farm and the Adelaide River and later on the Mary River. *Leuris* was released between 2004 and 2007.
- Mass rearing and release continues by the NT NRETAS Biocontrol program team of the latest beetle, *Nesaecrepida infuscata*, that attacks mimosa roots and seedlings. The rate of spread of this agent is also being researched as part of a broader NPB CRC project.
- Assessment of the last agent, the tip weevil *Temnocerus debilis*, has been completed and application made in June 2009 for release. At the end of the reporting period, CSIRO Entomology were pursuing funding options to complete the mass-rearing and release work on this newest agent if release is approved. Minor non-target damage is predicted with this agent.
- Review of what has been learnt from the mimosa biocontrol program shows that:
 - Agents targeted at seasonal resources have been less successful;
 - Agents with poor climatic matches have not established;
 - Modelling in 2004 indicated that reduction in fecundity is not the most important impact of biocontrol, rather defoliation around the edges of stands allowing grasses to outcomplete mimosa seedlings is likely to be more significant. This has been borne out by the results of evaluation studies showing that the two agents that are currently inflicting severe damage are doing so through seed

reduction and reduction of seed banks making it easier for competing vegetation. This leads to lower mimosa seedling survival and retreating stands.

Integrated control

- The most significant achievement towards integrated control of mimosa during 2008/09 was the production and launch of the *Mimosa pigra* National Best Practice Management Manual. This manual incorporates herbicidal, mechanical and other non-biological control method development and practices. As the Manual states, an integrated approach with the best type, mix and timing of control methods is essential to successful control of mimosa.
- The partnership between the Queensland Government, landholder, industry groups, NRM regional body and relevant recreational user groups has ensured the Queensland infestation site at Peter Faust Dam, Proserpine continues to be under active management with a comprehensive management, monitoring, extension and research program.
- Integration of fire and feral animal management with mimosa management continues to be promoted with land managers in both NT and QLD. Investigations and trials of alternative methods for aerial control (ie: use of fixed wing aircraft) to provide a more cost effective option for control is also being undertaken. Research on altering grazing regimes post mimosa control to effectively develop competitive pasture cover is underway.

Sustainable Land Management

- Training in and management of mimosa by the nine Aboriginal Ranger Groups that are part of the ILC / ABA 'Land Management for Economic Development' coordinated through the Northern Land Council, has been a core activity that has enabled other land management activities to be undertaken such as fire management, feral animal control and development of enterprises based on natural resources (such as collection of Billy goat plum).

Future activities required:

The National Mimosa Management Committee recognises the following priorities for future action under the Research and Development Program:

- DNA genetic studies to compare seed types from NT, QLD and Thailand leading to understanding of pathways of spread and future management to prevent spread;
- Review the use and usefulness of remote sensing for mapping and monitoring mimosa;
- Measuring the expected seed germination event after the water at Peter Faust Dam has receded and the resultant depletion of seedbank.
- The modes of dispersal, distinguishing between natural and human vectors, enabling the setup of preventive control programs;
- Mass rearing and release of the last biocontrol agent, *Temnocerus debilis*;
- Monitoring and measuring the impacts of biological control agents; and
- Sustainable land management actions such as:
 - methods for restoring habitats invaded by mimosa;
 - native understorey species for revegetation of areas reclaimed from mimosa, and protocols for revegetation; and
 - Documentation of the economic benefits of mimosa control for various land uses including pastoralists.

4: Impact Reduction Program

Long term outcome: *Adverse impacts of mimosa on productivity and natural assets are minimised.*
Intermediate outcome: *1. Existing infestations are under strategic management: The knowledge base and methods for effective and efficient management of mimosa are developed, especially through application of integrated methods.*
2. The current adverse impacts of mimosa infestations are reduced.

Key activities contributing to this outcome for 2008/09:

Catchment management

- Implementation of management activities according to the zones identified for each catchment in the draft NT Mimosa Management Plan has continued. Weed Management Branch, NRETAS staff from both the Darwin and Katherine regions assess the monitoring sites set up as part of the Property Weed Management Plans and support the on ground mimosa control for both pastoral stations and Aboriginal land.
- Within the NT, the initial 2003 aerial surveys have continued to be supplemented with annual aerial surveys associated with aerial spraying on areas controlled by the nine Aboriginal Ranger Groups.
- At the end of the reporting period the Caring for our Country funding of \$1.42M was announced for the 'Coordinated response to on-ground control of *Mimosa pigra* in the Daly and Moyle Catchments'. During the next two reporting periods (2009 to 2011) this project, coordinated through the NRM NT Board and working with four Aboriginal Ranger Groups as well as four pastoral stations within the catchments together with NRETAS Weeds Management Branch, will:
 - foster the partnerships to maximise communication and agreement;
 - update the mapping of infestations within these two catchments;
 - treat using an integrated approach the strategic priority target areas including upstream outliers, invasion front and areas critical to conservation and culture; and
 - develop a five-year strategic management plan for these catchments with identified mechanisms to sustain ongoing mimosa management.
- The aim of the Queensland *Mimosa pigra* Stakeholder Group is to eradicate mimosa from the Proserpine River Catchment and, to this end, surveys of high risk areas downstream of the Peter Faust Dam are undertaken on a regular basis; feral animal (pig) baiting has been undertaken in the upper catchment; and information and education activities targeted at stakeholders throughout the Proserpine and neighbouring catchments are undertaken. These activities are guided by the 2006 report 'Minimising the risk of spread of *Mimosa pigra* from Peter Faust Dam, Proserpine' which continues to provide a plan for the management of mimosa in this catchment.

Infestation control in western Arnhem Land

- Three Ranger Groups operated to control mimosa in the western Arnhem Land area during the reporting period (the Adjumarllarl, Mardbalk and Garngi Groups). On ground control activities were undertaken in accordance with a workplan and aerial surveys undertaken in conjunction with the Weed Management Branch, NRETAS.

Future activities required:

The National Mimosa Management Committee recognises the following priorities for future action under the Impact Reduction Program:

- Establish catchment management groups for all mimosa affected catchments within the NT;
- Develop and implement specific catchment management plans within the NT establishing priorities for control areas and activities based on the NT draft Mimosa Management Plan; and
- Evaluate proposals for commercial use of mimosa according to the goals of the National Mimosa Strategic Plan.

Appendix A - National Mimosa Management Committee members 2008/2009

Chairperson

Jim Forwood

National WoNS Coordinator – Mimosa & Athel Pine

Renee' Long – July to November 2008

Kay Bailey – March to June 2009

NT NRETAS Weed Management Branch

Steve Wingrave

Principal Weeds Officer

NT NRETAS (Parks & Wildlife Service)

Barry Scott

Chief District Ranger

CDR Arnhem Wetlands District

NT Cattlemen's Association

Tony Searle

Manager Melaleuca Station

NT Local Government Association

Jaemie Page

Councillor for Coomalie Community Government Council

WA Department of Agriculture and Food

Noel Wilson

Kimberley District Manager

NT DRDPIFR

Arthur Cameron

Pastoral Pastures and Extension Agronomist

CSIRO Entomology

Tim Heard

Senior Research Scientist

Sunwater QLD

Jason Williams

Senior Environmental Scientist

QLD DPI&F

Earl Sparkes

Project Manager Invasive Plants & Animals

Australian Government

Georgina Bailey (July 2008 to April 2009)

Desley Darby (May to June 2009)

Department of Agriculture, Fisheries and Forestry

John Thorp

National Weeds Management Facilitator

Appendix B – Mimosa distribution and management in Australia



