



REVIEW OF PROGRESS TOWARDS THE
Lantana camara STRATEGIC PLAN
2006-2007

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Executive Summary

Since its genesis in 2003, the National Lantana Coordinator under the direction of the National Lantana Management Group has successfully met or initiated actions towards the achievement of all key performance milestones identified in the “Weeds of National Significance Lantana (WoNS) Strategic Plan”. While some priorities have shifted since the strategy was first penned, the lantana WoNS program has clearly demonstrated the value of national coordination and how much can be achieved when federal, state and local level governments align their plans toward a single aim.

This financial year, information regarding the true impacts of lantana on our economy and environment has added considerable urgency to efforts to effectively control lantana across Australia. An independent report commissioned by the Queensland Department of Primary Industries and Fisheries indicated lantana cost the Australian grazing sector \$104.3 million per annum (2005/06 values) and if allowed to expand to its full potential distribution could cost the sector between \$1.2 and \$2.3 billion per annum. The effects of lantana on environmental systems has also been highlighted with a joint Queensland Department of Primary Industries and Fisheries and NSW Department of Environment and Climate Change (DECC) study indicating lantana is negatively impacting on more than 1300 species.

2006/07 has seen the continuation of a number of projects to minimise the impact and prevent the spread of lantana. There continues to be significant support from a range of stakeholders, with additional contributions from state and local government, NRM, CMA, community groups and individuals totalling more than \$457,000.

The containment zones project has established northern and eastern containment lines, and delivered an increase in reporting and management of lantana infestations in areas outside the core infestation. To assist stakeholders with strategic management, 17km grid mapping of all known *Lantana camara* infestations was also completed and work began on mapping lantana by remote sensing, with preliminary results returning greater than 90 percent accuracy.

The ongoing requirement for information on lantana management practices was demonstrated by the large number of direct requests for resources, with more than 800 Lantana Control Manuals, 5000 Lantana Herbicide Manuals and 4700 assorted fact sheets distributed. A Lantana WoNS newsletter was also launched to provide stakeholders with up to date information on management techniques and program outcomes.

Educational benefits for land managers were also delivered by the integrated control trials project, delivering best practice management advice to more than 300 land managers and building our knowledge of best practice techniques. Work is on track for the completion of the lantana management decision support tool and best practice management manual for release in late 2008.

Approval was also provided for the distribution of a new biocontrol agent *Ophiomyia camarae*, supported by a Defeating the Weed Menace funded community biocontrol project. It's hoped that further refinement of our knowledge of the relatedness of lantana, through a CSIRO initiated project, will enable better targeting of agents to plants in the near future.

The National Lantana Management Group would like to acknowledge the significant contribution and commitment of the Australian Government to the Weeds of National Significance Program. This support has enabled the delivery of a range of key achievements directed towards reducing the impact and spread of lantana throughout Australia and has been vital in leveraging additional funding from a range of stakeholders.

Introduction

This report provides an overview of the major achievements of the Lantana WoNS program for the 2006/07 financial year and highlights the important role the Weeds of National Significance program has played in ensuring enhanced coordination of lantana management across Australia. For the benefit of the 2007 WoNS review committee, it also provides some basic background information and a précis of the achievements of the lantana WoNS program since its instigation in 2003.

Lantana camara, its history and impact in Australia

Lantana camara (hereafter referred to as lantana), is recognised as one of the ten most invasive plants in the world and has a current distribution that includes more than 60 countries or island groups¹.

First introduced to Australia as an ornamental garden plant in the early 1840s, it has since spread to cover more than four million hectares of grazing land and 5.1 percent of the total Australian land area. Naturalised infestations have been identified in all states and territories of Australia with the exception of Tasmania (where it currently grows only under cultivation) and it is considered to be one of Australia's worst environmental and pastoral invaders².

The most heavily infested areas of Australia are east of the Great Dividing Range in Queensland and New South Wales. This region supports these states' highest yielding agricultural, grazing and forestry industries; is home to a thriving tourism industry; and includes some of Australia's most ecologically diverse and significant environments – all of which are under threat from lantana.

In other states and territories, the distribution of lantana is patchy and it has had only minor impacts. However, CLIMEX modelling suggests that if left unchecked, lantana could infest as much as 35 million hectares of the Australian continent with the potential to cause serious environmental and economic problems for these states in the future.

In coming years, additional factors such as land degradation (due to the effects of drought, land development and population growth), climatic change and the expected increase in extreme weather events as a result of global warming will exacerbate weed problems. Research indicates increased mean temperature due to climate change is likely to allow lantana to invade higher altitude areas and will potentially push its distribution further south³.

A national solution

The Weeds of National Significance Lantana Strategic Plan⁴ (the strategic plan) was agreed to in July 2001 with the aim of ensuring enhanced coordination of lantana management across Australia. Implemented by the National Lantana Management Group (NLMG) through the National Lantana Coordinator, the strategic plan is framed around five key goals:

1. minimise impact;
2. prevent sale;
3. increase community awareness;
4. prevent spread; and
5. coordinate management.

Since its formation in 2003, the NLMG has made significant inroads, having successfully initiated actions towards the achievement of all key performance milestones identified in the strategy.

Implementation of the strategic plan has ensured bipartisan commitment to lantana management across Australia and provided a coordinated focus for weed research and management groups. This has seen the involvement of all levels of government and the development of a range of industry and community partnerships.

Key to this has been the recognition of the serious nature of this weed in federal, state and territory legislation, with the inclusion of all lantana varieties on the AQIS prohibited list and the ban on sale and distribution of *Lantana camara* in all States and Territories of Australia.

While lantana is still common in many areas, this legislative commitment has curtailed much of the significant human mediated spread of the weed.

Research to support the project has been delivered by Queensland and New South Wales state agencies and through the independent support of universities as a result of postgraduate research projects into the potential viability of cultivated lantana varieties, lantana fire ecology, impacts of lantana on rainforest ecology and other aspects of lantana population dynamics.

Among other benefits, listing as a Weed of National Significance has given lantana a priority status that has ensured early intervention in the case of new and outlying infestations. Current and ongoing containment programs are expected to result in huge savings in potential long term management costs in the Northern Territory, Western Australia, South Australia, Victoria and western and far northern Queensland.

While there is still much to be done, with continued support from stakeholders, it is the author's belief that we are well on the way to achieving the strategy's vision of: *"The community working together to contain the range and minimise the impacts of lantana"*.

Progress to date

Timeline of Key Achievements:

2001/02

- Regional plans developed in NSW for coordination of management

2002/03

- National Lantana Coordinator employed and NLMG formed
- Non-sterile varieties of lantana banned from sale in Queensland
- Lantana listed in 50 Queensland local government area pest management plans
- Development of extension materials (fact sheets, brochures and displays)
- Landholder survey (2003) to determine current practices with >1000 respondents. Reported spending an accumulated \$2.7 million in direct clearing activities for lantana
- Community Bio-control Project established to assist with
 - distribution of key agents: *Falconia intermedia*, *Prospodium tuberulatum* and *Aconophora compressa*
 - ongoing monitoring of previously released biocontrol agents
- Removal of lantana from NSW North Coast nurseries through the Bush Friendly Nursery Scheme (BFNS)
- Strategic containment areas identified for southern NSW
- All lantana varieties placed on the AQIS prohibited importation list

2003/04

- Publication and promotion of the Lantana Control Manual
- NSW and Vic legislation introduced to stop the sale and supply of lantana
- South coast NSW containment line proposed at Ulladulla, NSW and support by NSW DPI
- New infestations identified in Orbost (Vic), Darwin, Adelaide River, Mataranka (NT) and Kununurra (WA).
- Containment and buffer zones proposed as part of the New South Wales South Coast Lantana Regional Weed Management Plan

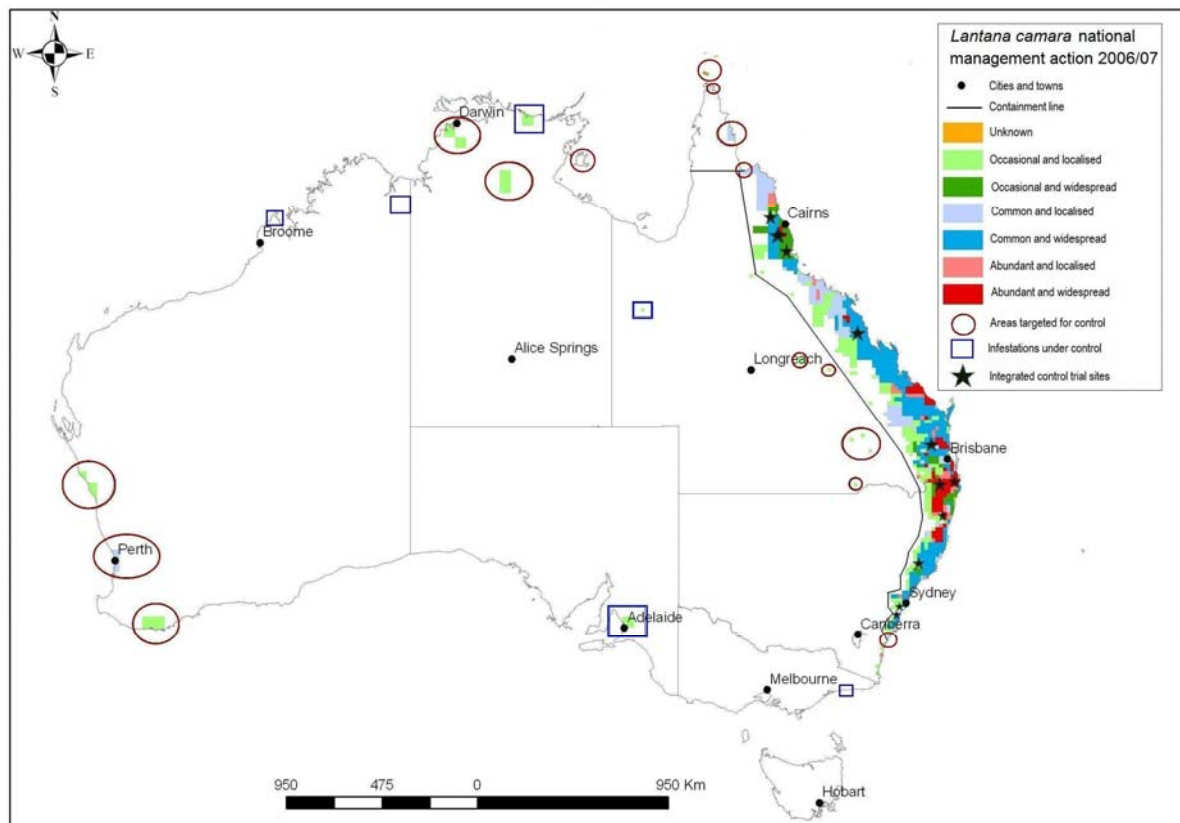
2004/05

- Pilot of the lantana biodiversity conservation project workshops
- Regional scale mapping – pilot of the remote sensing project (funded by Qld NRM)
- Initial national 50 km grid mapping for Qld, NSW and NT completed.
- Assisted in developing contacts for Qld and NSW community bio-control program
- A member of the NSW Lantana Biocontrol Taskforce.

- Communications program – moved from general awareness to targeting “motivation and attitude”, “education and adoption” and “reinforcement and reminders”.

2005/06

- Five significant lantana projects funded through the Australian Government’s DWM program
- Ecology of lantana – research into seed bank longevity, and bird dispersal and attractiveness of lantana seeds (Weeds CRC and AFRS, Qld NRW)
- CSIRO commenced DNA study to determine relatedness of lantana varieties
- New infestations identified in Western Australia, Northern Territory, western Queensland and Torres Strait
- Legislation to ban the sale of lantana in place in all states/territories (WA to come into full effect in August 2007)
- Publication of “Using Herbicides on Lantana” with the support of NSW and Queensland agencies and herbicide companies. 5000 booklets distributed within 2 months
- Integrated control trials commenced at 8 sites throughout Queensland and New South Wales to develop best management practices for the control of lantana
- Program of field days at six of the trials sites (80-150 attendees at each)
- Spread of *Aconophora compressa* continued unaided into south east Queensland, northern NSW, north Queensland (Atherton Tablelands and Mt Fox).
- Some difficulties in getting *P. tuberculatum* establishing due to drought conditions. *F. intermedia* restricted to 2 sites in north Queensland.



Map 1. Current management activities

Goals and Achievements in 2006-07

Goal 1:	Minimise impact
Desired Outcome:	Effective and efficient control methods available for all situations

Because of the wide spread distribution of lantana throughout coastal Queensland and New South Wales, it is recognised that blanket management options are not feasible. Therefore, the National Lantana Strategy focuses on the delivery of effective minimisation of impact through a combination of strategic management, targeted research, communications and education projects.

New information on the economic and environmental impacts of lantana has highlighted the critical need to reduce the effects on biodiversity and the grazing industries and increased support for the prioritisation of lantana within pest management planning frameworks.

This year, an economic review commissioned by Biosecurity Queensland (Department of Primary Industries and Fisheries), indicated lantana costs the Australian grazing sector \$104.3 million in lost production per annum (2005/06 figures)⁵. These costs have significant flow on effects to the Australian economy with losses of:

- \$82.8 million in gross output;
- \$42.0 million in value added or GDP;
- \$16.1 million in wages and salaries paid; and
- 744 full time equivalent employment positions.

In addition, research conducted by the NSW Department of Environment and Climate Change (DECC) as part of a federally funded joint Lantana WoNS and DECC project, indicates at least 1247 native plants and 141 native animals, many of which are listed under threatened species legislation, are at risk due to the effects of lantana invasion⁶. This constitutes an increase of 1258 more species than were previously recognised to be at risk. The DECC study also indicates lantana threatens 32 endangered ecological communities listed under the NSW *Threatened Species Conservation Act 1995*, 104 regional ecosystems classed as endangered under the Qld *Vegetation Management Act 1999* and ten threatened ecological communities listed under the *Environment Protection and Biodiversity Conservation Act 1999*.

Information stemming from these studies has been disseminated via media releases, interviews (TV and radio), industry newsletters and direct contact with NRM and CMA groups. While the full implications of these reports are still to be reflected in the pest planning process, this research has already provided considerable impetus for containment zone projects underway as land managers take up the challenge to control lantana before it causes significant economic or environmental damage in their states.

Within the core lantana infestation, the information collected by DECC on the native species and communities impacted by lantana is being used to establish strategic lantana management areas for biodiversity protection. By identifying the most vulnerable species, a prioritisation process can be developed to ensure resources are targeted where they are most needed.

This project has required extensive community consultation, with a series of 20 workshops run throughout Queensland and New South Wales to collect information on the full range of species currently being affected. To further engage and inform stakeholders, a DECC sponsored website was created specifically for the project⁶.

It is envisaged that this project will lead to the development of a national threat abatement plan for lantana, around which future project coordination and funding can be directed. To date, site nominations have been received from respondents in six of the seven Queensland

NRM regions and all five of the New South Wales CMAs that lie within the lantana infestation area. This shows considerable support and indicates the likely long-term resilience of the project to provide ongoing strategic management of lantana for biodiversity protection.

2006/07 has also seen the successful completion of the second season of the integrated trials project, with an additional three sites added to the eight sites already under way. This project continues to refine best practice management guidelines (see Map 1 for trial site distribution) in response to public feedback requiring suitable and feasible control options to increase the efficacy and efficiency of control. The ultimate aim of the project is to build a decision support mechanism that will allow land managers to plan and implement control strategies with confidence. Data collected over the past two control seasons is currently being collated in preparation for analysis during the 2007/08 financial year. The format for the decision support tool and accompanying best practice manual was established this year with the assistance of an expert panel and the new Best Practice Lantana Control manual is on track for completion by late 2008.

In addition to the obvious benefits of increased knowledge and awareness, the program has successfully leveraged an estimated \$53,500 of in-kind support for work undertaken at the integrated control trial sites over the past 12 months. This demonstrates the considerable commitment of state and local governments, private land managers and chemical companies to the success of the project.

Progress has also been made this year in the field of lantana biological control research, with approval granted to Biosecurity Queensland for the release of *Ophiomyia camarae*, the herringbone leaf mining fly. A successful application to the federal DWM funding program will see the mass rearing and release of *O. camarae* throughout its predicted Qld and NSW range in a collaborative Biosecurity Queensland and NSW Department of Primary Industries project in the 2007/08 financial year.

Ongoing monitoring of biological control agents indicates the drought has reduced the spread and establishment of some of the agents over the last 12 months. However, predicted increases in rainfall should reinvigorate populations and further monitoring and distribution of some agents is planned to assist natural distribution.

According to the economic impact assessment⁵, the bio-control induced reduction of as little as five percent of lantana as a result of a successful biocontrol project would provide a return of approximately \$9 for every dollar invested. This strongly reinforces the value of ongoing research to identify more effective biocontrol agents. In support of this aim a CSIRO research project was initiated this year to determine the genetic relatedness of lantana varieties within Australia as compared to those elsewhere in the world. Results from this project should provide greater surety of success for future biocontrol projects, ensuring better targeting of research towards biocontrol agents that are *known* to host on Australian lantana phenotypes and enabling releases of insects to be targeted to the correct lantana phenotype.

Performance indicators

- Demonstrated collaboration and commitment of key stakeholders in Queensland and New South Wales through the development and delivery of projects such as the lantana biodiversity threat abatement plan, the containment zone project and the community biocontrol program.
- Ongoing development and delivery of lantana integrated management guidelines and extension tools, ensuring land managers can confidently and effectively tackle lantana infestations.
- Increased community awareness of lantana impacts and the need for ongoing management.

- Identification of strategic management areas through the development of a national lantana biodiversity threat abatement plan and the delivery of key outcomes from the lantana containment zones project.
- Completion of the study into the economic impacts of lantana

Ongoing work / variances to the strategy

There have been no significant variances from the strategy to 'minimise impact' although further work is required to determine strategic management areas within the core infestation zone. It is hoped that effective guidelines for the identification of strategic areas (based on asset protection) can be established in the new financial year. These can be more accurately targeted once the lantana remote sensing tool has been refined (see goal 4: prevention of spread for further details).

The NLMG is currently exploring options to ensure long-term maintenance of achievements from the lantana WoNS program, chiefly to safeguard containment areas. This is of particular concern in Queensland where there is no legislative facility for regional declaration and the current state-wide declaration level (Class 3) only allows enforcement of lantana control in areas adjacent to environmentally significant areas.

Goal 2:	Prevent the sale
Desired Outcome:	Reduction in the genetic diversity of the weedy lantana forms

The capability of lantana to hybridize has been demonstrated by the wide range of phenotypes specifically cultivated for sale and evidence of cross hybridisation within wild populations. The extent of this is largely unknown. Despite efforts made by the nursery industry to breed sterile varieties of lantana, research indicates significant levels of viable pollen are still produced. This brings with it the risk that greater drought or frost tolerances bred into cultivated varieties might 'leak' into the existing wild populations, expanding their potential range and the level of difficulty with which they can be controlled.

Lantana has been banned from sale and supply across all states and territories since late 2005, however confusion by the nursery and garden industry in WA over yellow ornamental varieties extended time to sell these varieties until August 2007. If effectively policed, this should see an end to all human mediated transport of lantana in Australia. This is unlikely given the trade that occurs at flea markets and through garden clubs. The ban from sale is planned to be followed up with an emphasis on voluntary removal from public plantings.

Legislative restrictions on *L. camara* and *L. montevidensis* were also made more stringent in the Northern Territory in support of the national program. The *NT Weeds management Act 2001* previously declared only *L. camara* as a weed where it was located outside of town areas, meaning ornamental plantings in town area gardens were permitted. In 2006, the Act was changed to classify both species of lantana as declared weeds in all areas of the NT.

The restrictions have resulted in some backlash from elements of the nursery and horticultural media industry (as reported in WA and NT); however efforts are currently being made to build relationships to highlight the potential opportunities inherent in promoting the replacement of weedy garden plants with non-invasive varieties. A particular priority will be the cultivation of a 'champion' within the horticultural media industry. Graham Ross, President of the Horticultural Media Association (NSW) and gardening guru from Better Homes and Gardens has shown some interest and further work in this area will continue next financial year.

To support our aims to educate the wider community about the impacts of garden lantana plantings on the environment, a promotional poster was produced and distributed to targeted

groups around the country. Work on regional lists of recommended suitable alternatives has commenced and will continue in the new financial year.

To support efforts by relevant state agencies to enforce the ban on sale of lantana, a monitoring program of internet-based nursery advertising has been established by the Lantana WoNS group. No illegal sales have been identified through this process this financial year.

Performance indicators

- All states and territories now enforcing a ban on the sale of *Lantana camara*.
- No evidence of illegal lantana sales through internet advertising.
- Mixed horticultural media industry response to the ban on sale. This area requires further work in the next financial year to harness the cooperation of these groups.

Ongoing work / variances to the strategy

Further work to gain the active cooperation of the nursery and gardening and horticulture industries is required to effectively disseminate information on the potential impacts of garden lantana plantings to the broader community. This project, in conjunction with the development of a 'grow me instead' list of potential replacement garden plants will be pursued during the 2007/08 financial year.

Goal 3:	Increase community awareness
Desired Outcome:	Community attitudes and actions reflect the severity of the impact of lantana

An underpinning principle of the lantana strategy is the need for collective action and the recognition that responsibility for lantana management falls on the total community⁴. As such the lantana WoNS communications strategy incorporates a wide range of key messages and strategies to engage the diverse range of stakeholders. An analysis of outcomes from the 2003 and 2006 lantana surveys⁷ were used to update and refine the strategy ensuring key messages and delivery modes are relevant to stakeholders.

Public recognition of lantana as a Weed of National Significance is relatively high within the east coast rural communities of Queensland and New South Wales and there is an ongoing demand for information and funding to assist in the control of lantana infestations. In the 2006/07 financial year, 828 lantana manuals, 5066 herbicide booklets, 4738 assorted fact sheets and promotional items were distributed as a result of direct requests from land managers and educational professionals.

Over the last 12 months this 'active management' audience was also targeted through lantana management field days and demonstrations at Berry and Grafton in NSW; and Cambooya, the Gold Coast and the Sunshine Coast in Qld, with more than 300 land managers receiving information in integrated lantana management practices.

In an effort to extend information on best practice management to an even wider audience, the Lantana WoNS project team also completed work on an educational DVD, 'Battling lantana: learning from the experiences of others'. Due for launch early 2007/08, this DVD uses interviews with experienced land managers to deliver key management messages.

There is still considerable work to be done in other states and within urban and peri-urban communities across Australia to ensure greater recognition of the importance of lantana control on public and private property. This will be a key focus of awareness activities for the 2007/08 period and an agreement has been established with the Queensland branch of

Keep Australia Beautiful to include the removal of lantana from public plantings as an assessment criterion in their Tidy Towns, Clean and Healthy Schools and Clean Beaches Challenge programs. If successful and the sponsorship resources can be found, this agreement will be extended to other key states.

Promoted in close association with the Clean and Healthy Schools program will be the new Lantana Education Resource. This resource, developed throughout 2006/07 and due for launch in early 2008, aims to harness the current enthusiasm and concern for environmental management within the younger generation. Developed for the middle school years (5-9) the Qld and NSW curriculum linked resource has been designed to provide practical and easy ways children and young adults can contribute to a better environment and engage their peers and community in the process.

Also launched this year was the first edition of Lantana Lowdown, the Lantana WoNS newsletter. Produced on a quarterly (seasonal) basis it provides stakeholders with direct access to a range of information on lantana management. The newsletter has a subscription level of more than 2900 direct email and mail-out contacts. Response from the first newsletter has been favourable, as demonstrated by a number of direct communications and an increase in subscriptions.

Considerable work was undertaken by the NT Weeds Branch (NRETA) to inform the nursery industry and general public of increased levels of declaration relating to *L. camara* and *L. montevidensis*. This has included the publication of 2000 Garden Weed Brochures featuring lantana, the engagement of community groups in active management programs and direct communications with nurseries, including surveys of stock. In addition awareness of the impacts of lantana has been raised by the NRETA Weed Management Officers and Bushcare Facilitors by training Aboriginal Ranger Groups, publishing newsletter articles, distributing approximately 50 lantana information kits to the NT Cattleman's Association and a focusing on lantana during the NT show circuit.

Information on all lantana WoNS programs was distributed on a regular basis through media releases and industry publications. In-kind support was provided by the media staff of Qld DPI&F, extension officers from the Weeds Branch of the NT Department of Natural Resources, Environment and the Arts, as well as Landcare and Land for Wildlife staff from Qld, NSW and the Northern Territory who allowed us to utilize their newsletters and direct mailing lists.

Performance indicators

- Proposed alterations to the communications plan were endorsed by the NLMG in May 2007.
- Delivery of the communications strategy is on-track with several major resources developed and due for release early in the 2007/08 financial period.
- Focussed communications activities delivered by other state agencies in support of the Lantana Weeds of National Significance program.

Ongoing work / variances to the strategy

The National Lantana Communications Strategy is a living document and continues to evolve as awareness and education requirements change. Incorporated in the current strategy is a 'behaviour change' campaign designed to target land manager motivation, attitude and behaviour. As part of the 2006 landholder survey, participants were requested to provide 12 month management milestones and sign a commitment statement. In the coming financial year it will be necessary to follow-up with these participants to determine what they achieved, what the impediments to achievement were and whether we can provide additional informational resources to assist them.

Additional funding will also be sought to pursue a campaign of 'reminder messages' e.g. point of sale signage at seasonally appropriate times to remind land managers of key messages with regard to lantana management.

As mentioned under goal 2 (prevent the sale), further efforts will also be made during the 2007/08 year to engage and harness the support of the horticultural media and nursery industry to deliver key messages with regard to removal of ornamental lantana varieties and replacement with suitable alternatives.

Goal 4:	Prevent spread
Desired Outcome:	Prevent new lantana infestations

Prevention of spread relies strongly on a good knowledge of the true distribution of lantana. This financial year grid mapping of all known lantana infestations was completed with the 50 km grid square resolution reduced to approximately 17 km, providing land managers with a more useful scale for strategic planning (see Map 1).

Significant steps have also been achieved toward the development of mapping using remote sensing based on Landsat 5 imagery. Work conducted by researchers from the Qld Dept. Natural Resources and Water in a DWM funded project indicates lantana has a unique spectral response and with the inclusion of a predictive model, achieves accuracy levels of greater than 90 percent.

Initial mapping over Queensland and New South Wales commenced in July 2007 and will be followed by an extensive field validation process with the results feeding back into the and predictive model development. Landsat imagery provides the added benefit of time sequence data over the last 10 years and it is hoped this historical information will provide insights into the rate of spread of lantana, with potential to identify increases in density as well as distribution.

Containment of lantana has also achieved significant successes this year, with increased reporting and active management of infestation sites in southern NSW, Western Australia, the Northern Territory, western Queensland and the Torres Strait.

It is in these outlying areas, beyond the core Qld and NSW infestation, where the most immediate and cost effective benefits of lantana control can be achieved. CLIMEX modelling indicates lantana has the potential to infest more than 35 million hectares of the continent, with the associated cost to the Australian grazing sector of a low level lantana infestation estimated to be \$1.2 billion₅. The current three year investment of \$500,000 made by DAFF for the lantana containment zones project therefore has the potential to result in huge economic savings.

As a result of detailed survey work and ongoing consultation with local governments, provisional containment lines have now been established:

- the northern containment line crossing Cape York at the Jeannie River, and extending westwards just south of Princess Charlotte Bay
- a north-south containment line running approximately along the Great Dividing Range through Queensland and New South Wales (see Map 1)

This links with other known areas of spread and the need for a southern containment line (previously established) at Ulladulla on the south coast of New South Wales, which continues to be defended through the efforts of local governments and the NSW Department of Primary Industries.

Of particular note is the only known South Australian naturalised infestation (20m x 5m infestation) that was found on a roadside in the Burnside City area (Adelaide) and was

promptly controlled with the support of local council, rendering the state provisionally free of all naturalised lantana.

In the Northern Territory, the Department of Natural Resources, Environment and the Arts (NRETA) has taken primary responsibility for coordination of the lantana containment zones project. This year two efforts were supported by the containment zones project:

- Increasing community awareness of *L. camara* in the Northern Territory and
- Building community ownership – strategic control of lantana in Northern Territory.

An in-kind contribution of \$25,700 was provided by NRETA, more than matching the containment zones project contribution of \$20,000. Through this project, eleven community, agency and local government groups have been engaged in active lantana management programs in five key management regions in and around Darwin, the Adelaide River, Katherine and the Roper River region and NRETA instigated a significant community awareness program (as described under goal 3). The ongoing maintenance of control work has been assured through the establishment of management agreements with local governments.

Work to increase public awareness of the containment zone project began in earnest in Western Australia toward the end of this financial year resulting in the commencement of work to eradicate lantana from a site at Denmark. Continued project coordination for the control of other identified sites in WA is planned for the 2007/08 financial year.

Work also commenced at Alpha in central west Queensland. This infestation is outside the previously known climatic tolerances of lantana and has added significant weight to the argument that lantana could spread inland along riparian corridors. An application to extend the containment zones project to encompass this infestation was approved this financial year, with additional funding of \$40,000 provided by DAFF through the DWM program for a 12 month project.

Other work to prevent the spread of lantana is currently being undertaken by the Queensland Parks and Wildlife Service (Environmental Protection Agency) at 40 Mile Scrub National Park and Minerva Hills National Park in central Queensland and with funding from the National Landcare Program on the Torres Strait islands of Yorke (Masig), Darnley (Erub) and Murray (Mer).

In total, in-kind contributions of \$100,888 have been leveraged from state and local government, community groups and individuals compared to a DWM contribution of \$77,986 for the containment zones.

Performance indicators

- National grid mapping completed for *Lantana camara*.
- Establishment of preliminary containment lines
- Significant co-contributions and cooperation between all stakeholders to contain the spread of lantana.
- Active control programs initiated in the Northern Territory, Western Australia, South Australia, southern NSW, central west Queensland and the Torres Strait.

Ongoing work / variances to the strategy

Further work needs to be done to raise awareness and garner support for the implementation of containment zone actions in Western Australia, western Queensland and Cape York areas. This will be a key focus of the 2007/08 financial year for the containment zones project to ensure on-ground management projects can be achieved successfully before the end of the funding period in June 2009.

Work to gain support for the maintenance of proposed containment lines will also commence to ensure the increased priority of lantana management in key areas is included in pest management planning processes.

Goal 5:	Coordinate management
Desired outcome:	Management is coordinated at all levels

A legislative framework for coordinated management has been established, with the inclusion of *Lantana camara* in state and territory legislation, and the associated flow-on inclusion in pest management plans at state, local and regional levels. This cooperative approach has facilitated the effective delivery of the National Strategic Plan, with active assistance from stakeholders in all affected states and territories.

The two key state agencies involved in the Lantana WoNS program, Queensland and New South Wales have both contributed significant resources to research and active control of lantana over the 2006/07 period (Fig. 1). This report records contributions made to active WoNS projects but has been unable to capture the full contribution to lantana control made by a diversity of land managers through state agencies including National Parks, Main Roads, Qld DPI&F, NSW DPI and Qld NRW; local governments, NRM groups and CMAs, community groups and major industry groups, besides countless individual efforts. As mentioned previously, the Northern Territory has also made considerable contributions to the program during the 2006/07 financial year and assistance in the establishment of programs for the next financial year has been provided by Western Australia.

During the 2006/07 financial year, outcomes from the Lantana Strategic Plan have been achieved through the ongoing coordination and management of a number of projects funded through the DAFF Defeating the Weed Menace Program:

- Integrated control and best management practices
- Containment zones project
- Behaviour change campaign
- Strategically managing lantana for biodiversity conservation
- Remote sensing for lantana
- Community biocontrol (for *Ophiomyia camarae*)
- Lantana and rubbervine control in central west Queensland.

The coordination and delivery of these projects has been supported by the National Lantana Management Group (NLMG) and through meetings and information delivery sessions with target groups. During the 2006/07 financial year, the National Coordinator presented at 12 regional weed management meetings, met with industry representatives from the Meat and Livestock Association, Keep Australia Beautiful, Clean Up Australia and Landcare, as well as providing educational information to the north region Main Roads Environmental Officers, and to more than 300 land managers at a variety of field days. These meetings have led to the active involvement of several groups in WoNS programs to map lantana distribution, validate remote sensing information, survey for biocontrol agents and undertake educational activities.

The National Lantana Management Group (NLMG) met twice during this financial year, to provide strategic direction and endorsement for current programs. The Chair of the NLMG also met with the Australian Government's Minister Abetz and Queensland Government's Minister Mulherin during this period to lobby for continued support of the Lantana WoNS program.

Performance indicators

- Active involvement of all affected states and territories in lantana management
- Adequate resources sourced for current projects (two new projects funded this financial year).
- NLMG providing active support and direction for the delivery of the National Strategy.
- NLMG chair actively lobbying for additional support and effort toward lantana management.

Ongoing work / variances to the strategy

Coordination support will be directed to building support for the firm establishment of containment lines during the 2007/08 period, aiming for the incorporation of lantana containment priorities in local government area pest management plans and the active support of regional NRM and CMA groups.

2006/07 has seen ongoing support for existing programs and increased awareness and enthusiasm within groups in states and territories outside the core lantana infestation. The challenge in these states for 2007-08 is to provide information to stakeholders to overcome the ingrained notion of lantana as a garden plant and increase their awareness of its environmental and economic impacts.

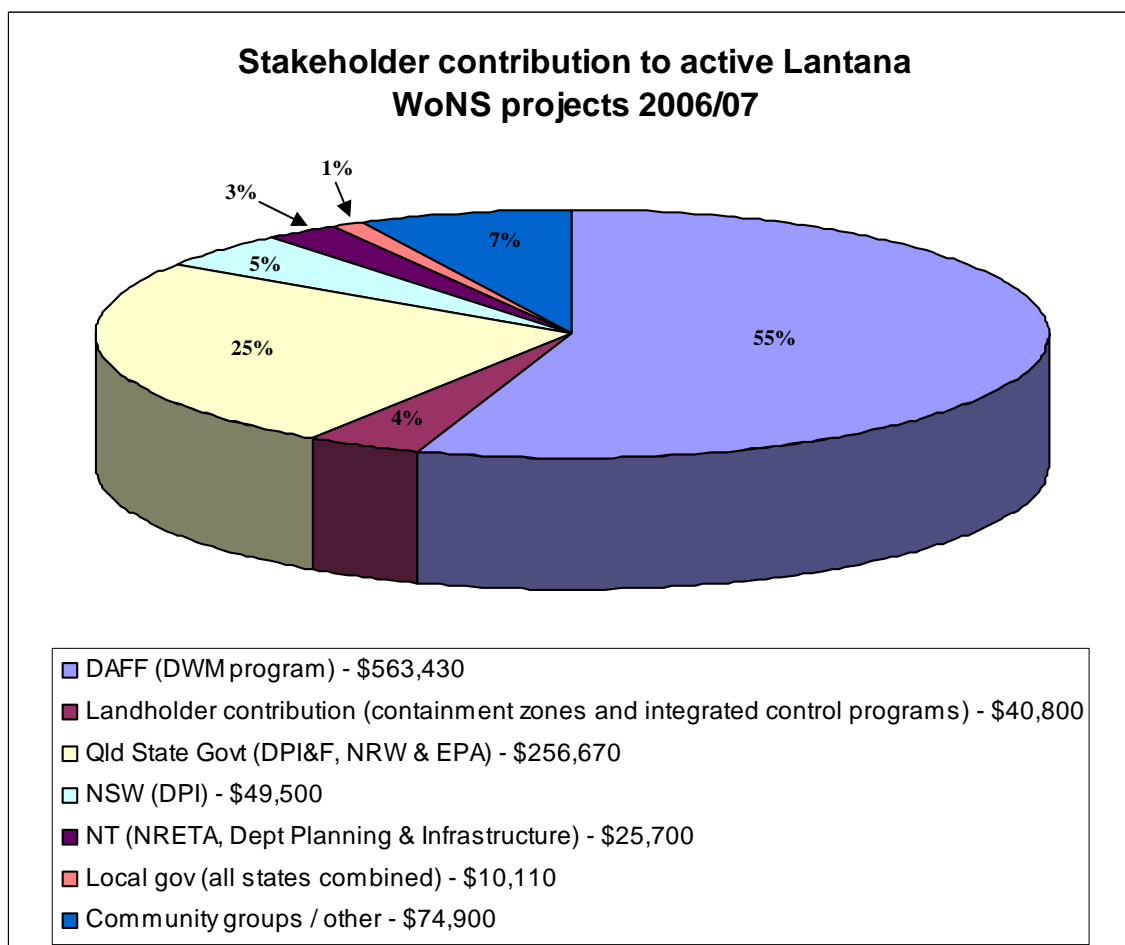


Fig. 1 Relative contributions to the current Lantana WoNS coordinated projects. Please note this does not include lantana control work undertaken independently.

References

1. Day, M.D., Wiley, C.J., Playford, J. Zalucki, M.P. (2003). *Lantana: Current management status and future prospects*, Australian Centre for International Agricultural Research, Canberra.
2. Martin, P. (2003). *Killing us softly – Australia's green stalkers*, CRC for Australian Weed Management, Adelaide. www.weeds.crc.org.au/documents/kus_sect_two.pdf
3. McFadyen, R. (2007). *Invasive plants and climate change: Weeds CRC briefing notes*, CRC for Australian Weed Management, Adelaide.
4. Agriculture and Resource Management Council of Australia and New Zealand, Australian and New Zealand Environment & Conservation Council and Forestry Ministers (2001). *Weeds of National Significance Lantana (Lantana camara) Strategic Plan*. National Weeds Strategy Executive Committee, Launceston.
5. AECgroup (2007a). *The economic impact of lantana on the Australian grazing sector*, Qld Dept. Natural Resources and Water, Brisbane.
6. Department of Environment and Climate Change (2007). *Managing the impact of lantana on biodiversity: a national challenge*. Department of Environment and Climate Change, Hurstville. www.nationalparks.nsw.gov.au/npws.nsf/Content/Lantana_threat_to_biodiversity.
7. AECgroup (2007b). *Lantana survey analysis (final report)*, Qld Dept. Natural Resources and Water, Brisbane.

2006/07 Financial Reporting Table

2006/07		Planned budget		Actual Expenditure	
Employees & positions held	Recipient's Contribution (without GST)	Funds paid by the Commonwealth (without GST)	Recipient's Contribution Expended (without GST)	Commonwealth Funds Expended (without GST)	
Co-ordinator salary and on-costs		\$86,000			\$91,100
State/Territory, CSIRO and other groups	\$245,900		\$250,000		
NRM groups, state/territory community support inputs (DWM Projects)			\$51,000		
A	Total employment costs	\$245,900	\$86,000	\$301,000	\$91,100
	Operating cost items	Recipient's Contribution (without GST)	Funds paid by the Commonwealth (without GST)	Recipient's Contribution Expended (without GST)	Commonwealth Funds Expended (without GST)
	Vehicle		\$19,000		\$18,850
	NLMG meetings, teleconferences, travel		\$16,000		\$33,700
	Phone/computing		\$3,000		\$4,900
	Training		\$ 500		\$980
	Printing/office expenses and general operating costs	\$25,000	\$3,000	\$20,000	\$1,250
	Media costs		\$1,000		\$1000
B	Total operating costs	\$25,000	\$42,500	\$20,000	\$60,680
C	Total cost (without GST)	\$270,900.00	\$128,500.00	\$321,000	\$151,780
D	GST (10%)	\$27,090.00	\$12,850.00	\$32,100	\$15,178
E	Total cost (incl GST)	\$297,990.00	\$141,350.00	\$353,100	\$166,958

National Lantana Management Group (NLMG) members

DPI&F – National Coordinator – KYM JOHNSON – (South East Queensland – Brisbane)

Queensland

North Qld – RAY BYRNES
Mayor, Eacham SC; Landcare Group Coordinator

North Qld – PETER KENNEDY
Grazier, (Glen Ruth Station, Mt Garnet)

Central Qld – JOHN MORRIS (NLMG Chair)
Businessman; grazier (“Tallawalah”, Broadsound Shire)

South East Qld – MARGO CANAVAN
Grazier, (“Warragul Heights”, Mt Berryman), AgForce member

South East Qld – CHRIS LOVE
Development Manager, Qld, Dow AgroSciences, Qld Weeds Society member.

Department of Primary Industries & Fisheries – ANDREW CLARK
National Weeds Awareness Coordinator

Department of Primary Industries & Fisheries, Forestry – VALERIE DEBUSE
Ecologist, Horticulture and Forestry Science

Environmental Protection Agency (QPWS) – JOHN HODGON
Principal Conservation Officer

New South Wales

North Coast NSW – STEPHANIE LYMBURNER
Bush Regenerator, Ballina area

NSW Local Govt – IAN TURNBULL
Vegetation Officer Bellingen Shire Council, Secretary North Coast Weeds Advisory Committee.

NSW Department of Environment and Conservation – DR. ANDREW LEYS
Pest Management Coordinator

NSW Department of Primary Industries – ROD ENSBEY
Regional Weed Control Coordinator

NSW Local Govt – GRAHAM HARDING
Weeds Officer Eurobodalla Shire Council, project coordinator Lantana control in southern NSW.

Lantana WoNS Technical Group

DR DANIEL STOCK – Lantana Integrated Trials Project Officer
Qld Department of Primary Industries & Fisheries, Brisbane

MICHELE ROGERS – Lantana Containment Zones Project Officer
Qld Department of Primary Industries & Fisheries, Brisbane

CLARE RAVEN – Lantana Awareness and Education Project Officer
Qld Department of Primary Industries & Fisheries, Brisbane

ANDREW STEWART – Lantana Remote Sensing Project Officer
Qld Department of Natural Resources and Water, Brisbane

PETER TURNER – Lantana Biodiversity Project Officer
NSW Department of Environment and Climate Change