



Lantana Lowdown

Winter is upon us!

Welcome to winter!

This edition is full of snap shots of what has gone on in with the Lantana WoNS Project over the last few months.

We're excited to bring you updates of our biocontrol agent: *Ophiomyia camarae*, as well as

some preliminary results on the 2006 Survey.

Despite the cold weather in some places of Australia right now, we do encourage you to think about planning your control for the year ahead. Now is the best time to start the planning process—before flowering

begins— to get a head start on your infestation.

If you're keen to get in there and get started, there are a range of mechanical and manual control techniques available to knock down the bulk.

Kym Johnson

National Lantana Coordinator

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Fire as a management tool: Friend or Foe?

Fire can be an attractive management tool for lantana. It's generally low cost and can cover large and inaccessible areas. However, research is patchy and there is limited understanding of its usefulness as a long term management option.

Thanks to a rare 56 year fire research project at Bauple State Forest, near Gympie (210km north of Brisbane), information is beginning to filter through that may fill some of the gaps.

Sifting through the ashes is the Department of Primary Industries and Fisheries' Fire Ecologist, Dr Valerie Debus, who is leading the investigation into the long term effect of repeated burning at a low intensity.

Dr Debus is aiming to determine:

1. the effectiveness of low intensity burning in controlling lantana;
2. the impact of fire frequency in woody species composition and;
3. potential relationships between changes in lantana abundance and other co-existing species.

This area of open forest, with dry sclerophyll vegetation (mainly spotted gum and grey ironbark), has been split into

three compartments for burning. The first has remained unburnt since 1952; the second has undergone annual burning since 1952; and the third has been burnt, on average, every three years since 1973.

It's extremely rare to find a research program that has been running over such an extended period of time and this data provides an exciting opportunity to examine the long-term effects of different fire management regimes.

Analysis of the data collected over the last half decade has revealed:

O Repeated fire (either annual or triennial) was associated with lower densities of lantana but significant differences were not recognised until 1972;

O Lantana densities in the unburnt treatment exhibited a pronounced dome-shaped response over time, peaking in 1982 and remaining at significantly higher densities than in the two burnt treatments from 1973-1993;

O Differences in woody species com-

position among the three fire frequency regimes were considerably less pronounced from 1959 – 1972 than in the post 1973 period, suggesting it takes some time before frequent fire exerts an effect on woody species in this forest type;

In summary, frequent low intensity fire is effective at reducing lantana density, but only over an extended period of time.

There also appears to be no significant benefit to burning every year as opposed to burning every three years.

In light of these results, low intensity burning on a triennial basis appears to be an effective and practical control measure as part of an integrated control program in ecosystems dominated by spotted gum.



Management in action: a controlled burn of *Lantana camara*—similar to those in Bauple State Forest—taking place at Brisbane Forest Park



Bauple State Forest: 210km north of Brisbane, QLD

Bell Miner Associated Dieback: Case Study

Bell Miner Associated Dieback (BMAD) is a phenomenon causing Eucalypt dieback, due to an increase in the psyllid (sap-sucking insect) populations. This appears to be associated with heavy understorey growths of weeds like lantana. The theory is that these weeds outcompete the native understorey of the forest, providing habitat for Bell Miners, who in turn, drive out other native birds that would normally feed on psyllids. As a result, the psyllid population explodes, putting the trees under stress and leading to eucalypt dieback.

The following case study demonstrates the usefulness of the splatter gun technique in controlling lantana to help redress the ecological balance.

- The Location

Creeks Bend is 1200 acres of land located 30km west of Kyogle, at the base of the Richmond Range in New South Wales. Surrounded by state forest, national park and neighbouring private properties, this Northern Rivers property is classed as having a subtropical climate. The property itself has approximately 400 acres affected by lantana.

- The Land Manager

Susan and Wayne Somerville have owned this property for the last 30 years. Susan explains that Lands Department photos of the 1940s and 1950s

show the area being cleared for agriculture. The first signs of weed appeared in the 1960s, and logging of the property took place through to the 1970s. The 1980s saw an explosion of lantana as well as an increase in Bell Miner Associated Dieback (BMAD). Although a causal relationship between these two events has not yet been demonstrated, the presence of one phenomenon is strongly correlated with the other in several northern NSW open eucalypt forested environments and research is ongoing.

The Somervilles' initial attempts at lantana removal were thankless. Whether it was with the use of chains attached to tractors, mechanical and hand removal, Susan says they always found themselves "looking for some other answer".

- The Removal

Glyphosate (360g/L) has been applied in a concentration of 9:1, on the infestation with a gas powered splatter gun. The Somervilles have been surprised by the efficiency of this technique. They favour the splatter gun as a control method, due to its ecologically sensitive nature: it can target individual lantana bushes and is easily carried into areas usually deemed to wet or rugged for other machinery or tools.

The lower volume of a higher concentrated mixture also

minimises waste, and can be easily modified to suit the terrain.

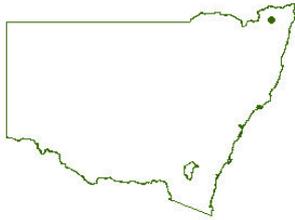
- The Follow Up

The main concern of follow up at Creeks Bend was catching regrowth from the seed bank. A post-doctoral student is taking regular recordings of the property in the aftermath of control, while follow up takes place.

Less follow up is required on areas of Creeks Bend where lantana was previously a part of the understorey – as the rainforest canopy and other native understorey species are able to gain a hold in the environment following the initial removal of lantana. However, where lantana has been growing without a canopy - out in the open to the light - it will require more follow up, as it is more likely to outcompete against native plants again.

The recent lantana control implemented at Creeks Bend has resulted in 80-90% of lantana being completely removed in the forested areas, and follow-up continues in more open areas.

These results support the argument for regeneration after control takes place. The importance being that there must be established natives present to compete with encroaching lantana infestations.



Creeks Bend: 30km west of Kyogle, NSW



Michele Rogers:
Containing lantana



Daniel Stock:
Controlling lantana

Introducing: The Lantana WoNS Technical Team

Over the next few editions, we've decided to include an introduction of a couple of our Tech Team members (the Lantana Lads and Lasses, you could say!) who are currently working on the WoNS project. We hope to give you a glimpse of what is happening out on the ground, and what you can

Michele Rogers
Project Officer—Lantana Containment Zone

In her words:

"The lantana containment zone project is identifying isolated lantana infestations throughout Australia and initiating removal programs in these areas."

Michele is responsible for coordinating and assisting in lantana control around Australia's containment zones, limiting its spread, and pushing lantana spread back. Her work takes her to Western Australia, Northern Territory, far west Queensland and to the Cape.

Daniel Stock
Project Officer—Lantana Best Practice Management

In his words:

"The lantana integrated trials project is looking at developing a decision support tool to assist land managers in controlling lantana in a more cost effective and successful way."

Daniel is responsible for Lantana control trials at different sites up and down the east coast of Australia—from north Queensland, down to the south coast of New South Wales, being carried out to find the most suitable control sequences according to landscape.

CLIMEX model (far right): mapping areas suitable for *Ophiomyia camarae* to survive after release

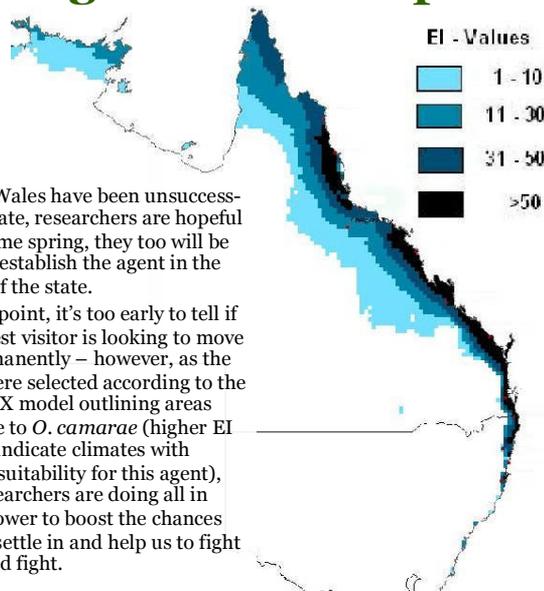
On The Loose: Biological control update

There are signs our latest biological control agent – *Ophiomyia camarae* – is spreading over the weed at its release sites.

Researchers from Biosecurity Queensland and the New South Wales Department of Primary Industries have been toiling away over the last six months to work out the best rearing and establishment practices to ensure the new arrival settles in.

Initially released at 21 sites across the south east of Queensland, the little fly has shown promising signs that it may establish successfully at many of these sites.

Biosecurity Queensland entomologists have observed mines in the lantana leaves at several points of release – an indicator that *O.camarae* is successfully emerging and may actually be breeding. While efforts to rear it in New



South Wales have been unsuccessful to date, researchers are hopeful that come spring, they too will be able to establish the agent in the north of the state.

At this point, it's too early to tell if the latest visitor is looking to move in permanently – however, as the sites were selected according to the CLIMEX model outlining areas suitable to *O. camarae* (higher EI values indicate climates with higher suitability for this agent), the researchers are doing all in their power to boost the chances they'll settle in and help us to fight the good fight.

Update: 2006 Survey Results

The responses from the 2003 and 2006 Lantana Surveys have now been compiled and analysed with a view to contacting participants in the near future.

For those of you not previously involved, the aim was to gather information on spread and impact of lantana and any changes over the three year period.

Findings will be used to help the WoNS Team identify areas where further research and extension is required so we can all attack lantana more effectively.

Participation was voluntary (so there might be a slight skew toward the more proactive amongst us), with more than 1,200 participants in 2003 and 400 in the 2006 survey.

Unfortunately results are not directly comparable between the years because a different pool of participants was used. However, there are some general findings that can be used as benchmarks.

The table below provides a summary of some key results.

As can be seen, in the 2006 survey, over 60 percent of respondents indicated that lantana was having either a significant or major impact on their property.

For primary producers, the most commonly reported negative impacts (in order of importance) were death of stock, increased mustering costs, increased weed control costs, clogging of fences and invasion of grazing areas.

Major limiting factors to adoption of control methods include time (74.3 percent of respondents in 2003 and 74.5 percent in 2006), cost of control (49.0 percent in 2003 and 34.1 percent in 2006) and terrain or accessibility (39.8 percent in 2003 and 47.5 percent in 2006). Limiting factors didn't vary significantly between New South Wales and Queensland.

In summary, the average cost of control almost doubled between 2003 and 2006, with labour expenses almost tripling over this period. This increase in

expenditure is likely a reflection of both increasing labour and input costs, as well as an increase in control efforts. Despite this, the report indicates that over three quarters of land managers are satisfied with the results of their control effort.

Overall, management of lantana appears to be effectively reducing the spread of lantana, with a higher proportion of respondents indicating the spread of lantana is decreasing rather than increasing in both the 2003 and 2006 surveys.

The Lantana WoNS Team is hopeful that with the release of the new Best Practice Manual and Decision Support Tool in early 2009, land managers will be able to increase the effectiveness of their integrated control strategies and minimise wasted expenditure.

If you would like to see the report in its entirety, please contact us on the details overleaf.

When solving problems, dig at the roots instead of just hacking at the leaves

~ Anthony J. D'Angelo

Average estimates	2003		2006	
	NSW	QLD	NSW	QLD
Property size (Ha)	632.9	1275.5	1436.8	876.2
Portion of property infested	35.1%	33.5%	16.8%	18.3%
Infestation size (Ha)	272.8	562.8	536.3	82.8
Net spread (last 2 years '03; last 1 year '06)	-12.9%	-6.1%	-15.6%	-5.6%
Average annual expenditure on control	\$2,765	\$4,350	\$6,261.68	\$7,282.32
Average annual expenditure on control per hectare of property	\$3.90	\$4.03	\$32.70	\$8.00
Average annual expenditure on control per hectare of infestation	\$8.99	\$8.76	\$181.56	\$92.01

Grants & Funding

We can now announce that funding is available under the Caring for Our Country program for the 2008-09 period!

Caring for Our Country Open Grants <i>Close: 1 August 2008</i>	Funding for activities addressing national priorities, which include biodiversity, coastal environments and sustainable farm practices. For further information, see www.nrm.gov.au
Working on Country <i>Close :11 August 2008</i>	For activities involving on ground works, that address the national priorities of Caring for our Country: protecting biodiversity, natural icons and coastal environments; supporting natural resource management in northern Australia, and; enhancing community skills, knowledge and engagement. For further information, go to www.nrm.gov.au

Lantana Lineup

July 2008

NAIDOC Week	6-11 July	www.naidoc.org.au
Grow Me Instead—Wollongbar, NSW Train The Trainer Workshop (\$55/person)	9:00 am—3:00pm 8 July	info@ngina.com.au
Grow Me Instead—West Kempsey, NSW Train The Trainer Workshop (\$55/person)	9:00 am—3:00pm 9 July	info@ngina.com.au
Planet Ark National Tree Day	27 July	www.treeday.planetark.com

August 2008

Caring for our Country—Applications Close	1 August	www.nrm.gov.au
National Science Week	16—24 August	www.scienceweek.info.au
Keep Australia Beautiful Week	25—31 August	www.kab.org.au

September 2008

Biodiversity Month	All Month	www.environment.gov.au
Landcare Week	1-7 September	www.landcareonline.com
National Threatened Species Day	7 September	www.environment.gov.au
Clean Up the World Weekend	19—21 September	www.cleanuptheworld.org
Lantana Field Day (Albion Park, NSW)	TBA	LantanaWoNS@dpi.qld.gov.au

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Australian Government



Who said lantana doesn't grow in western Queensland? Lantana discovered in Rubyvale, Central West Queensland

The Next Lowdown:

- Biodiversity
- Remote Sensing
- Control in National Parks
- Lilyvale Containment