January 2009

Volume 2, Issue 3

Lantana Lowdown

National Lantana Management Group

Inside this issue:

International Lantana — the invasive plant seen on a hillside in Hawaii [*photo by Andy Stewart, QLD NRW*]

CfoC—A new way forward

On behalf the Lantana WoNS Technical Team, we hope you've had a Merry Christmas break and are geared up for a wonderful year ahead in 2009.

At the end of 2008, the Australian government announced their new natural resource management funding arrangements through the release of the Caring for our Country Business Plan 2009-10.

With more than $2.25 billion available over the next five years, the mad scramble is now on to organise partnerships and applications by the 6 march '09 deadline.

CfoC as it's affectionately known, has been designed with the aim of achieving landscape scale protection of our key environments through the delivery of strategic management and community capacity building programs.

With a big focus on cross-regional collaboration, this program promises to encourage better communication and collaboration toward mutual natural resource management targets.

The Weeds of National Significance (WoNS) species are a key target of the CfoC Business Plan and applicants seeking to include WoNS components are encouraged to contact the relevant coordinator for information on national priorities. For contact details go to the Weeds Australia website.

National Biodiversity: *Protecting our natives from lantana*

The Plan to Protect Environmental Assets from Lantana (Lantana Plan) is being developed to provide a framework for the protection of threatened native species and ecological communities from lantana invasion.

Research undertaken through this project indicates that more than 1473 native species are at risk due to lantana invasion, including 279 plants and 93 animals listed as rare or threatened under state and/or federal threatened species legislation.

The final Lantana Plan will provide a prioritised list of management areas based on the threatened status of species or regional ecosystems, their distribution in relation to lantana, and the potential for lantana management activities to lead to their protection.

The National Lantana Coordinator Kym Johnson said the plan was being developed to coordinate strategic management in core infestation areas.

"The tiered design of the plan will allow resources to be allocated on a regional basis toward the control of this invasive weed," she said.

The first round of this federally funded project has supported lantana control at 19 high priority sites across Queensland and New South Wales. Management of these sites is expected to protect 93 endangered and vulnerable species of native flora and fauna.

Due for release in early 2009, the Lantana Plan's development was funded through the Australian Government's Defeating the Weeds Menace initiative and driven by the NSW Department of Environment and Climate Change and Biosecurity Queensland.

Remote Sensing Update

The lantana remote sensing project was established to provide detailed information on lantana distribution at a regional scale. This will enable local governments and state agencies to focus limited resources toward high priority areas for lantana control.

The pilot project encountered minor errors in accuracy with other vegetation mistaken for lantana in some spectral images. After analysis of 51 Landsat images of Queensland and 17 of New South Wales, it is apparent that poison peach (across the Cape York Area) and blackberry (in south west NSW) are the key species being mistaken for lantana by the remote sensing system.

These errors are being overcome and accuracy increased with use of Spectral Unmixing Analysis (SMA) and a Predictive Model.

Accuracy will also be increased with the use of a subpixel classifier, which essentially determines the presence of *material of interest* – lantana — within pixels.

Despite the confusing jargon, the output should be simple enough to use, with remote sensing maps of lantana

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The Lantana Plan: Action in North Queensland

By Mark Parsons

Henrietta Creek site — along Seaview Range, Girringun National Park

As a part of the Plan to Protect Environmental Assets from Lantana (The Lantana Plan), the Australian Government is funding lantana control in areas where the weed threatens priority endangered species and ecosystems. The plan is being coordinated by the NSW Department of Environment & Climate Change and the Queensland Department of Primary Industries & Fisheries.

Location

Located along Henrietta Creek, within Girringun National Park in northern Queensland, are two sites of tropical wet eucalypt forest currently funded in accordance with the Lantana Plan.

Impacts on this wet grassy eucalypt forest are alarming – some infestations record 40 – 60% lantana coverage and as a result only 1% native shrub and <5% native grass cover. As well as having a significant impact in its own right by drastically changing the forest structure, lantana also harbors feral cattle and pigs and its negative influence suits other aggressive weeds such as sicklepod, calapo and knobweed.

The two sites also encompass a series of nearly 40 hectares of endangered terrace and creek ecosystems, along the Seaview Range, which feeds into the Herbert River. Lantana threatens two endangered ephemeral wetlands, which occupy an area equivalent to less than three football fields within a park over 200,000 hectares.

Several Wet Tropic endemic flora and fauna species are at risk, including C*ajanus acutifolius* and *Albizia procera* (the primary food tree of the mahogany glider). Where lantana is pervasive, *A. procera* is prevented from germinating. Lantana blocks fire movement, and fire is a major catalyst in the germination process of *A. procera*.

At risk — The Mahogany Glider [*3yr Male Image © 2007 D Dickson*]

As well as the nationally endangered mahogany glider, other fauna at risk where lantana pervades includes the Apollo jewel butterfly, and several small granivorous birds; manikins and crimson finch, that require native grasses to feed on and nest within. These grasses are severely depleted when lantana is present.

The Land Manager

These two sites are managed by the Queensland Parks and Wildlife (QPW), under the supervision of Mark Parsons.

The Removal

QPW have been trialing various weed control combinations:

- Mechanical removal – Piling of worst density thickets via backhoe and small tractor. Dissecting across nearly 40 hectares of thickets, 5 kms of temporary tracks enable access for herbicide and/or fire treatment blocks.
- Splattergun application – targeting worst density infestations of ≥50% cover across 3 hectares. Typical kill rate observed is >90% for single round treatment.
- Foliar spraying – using Grazon DS and Lantana 600 for scattered thickets ≤ 50% cover of 1 – 2 hectares. Typical kill rate observed is 50-75%, requiring ongoing control.

The Follow-Up

- Fire is integral to control in this ecosystem; given the imperative to replenish native grass cover for longer term recovery. Burning of piled lantana stacks and the use of fire following herbicide application removes much of the weed biomass. Very low levels of lantana recruitment have been observed in combination treatment sites, particularly the splattergun/ post fire sequence.

To date, promising signs of recovery of native grass cover has already been witnessed extending into treated areas within 6 months of setting out from control. Going into this season, it is thought that one third of last year's effort will be required to sustain the benefits of control, allowing further work to be expanded.

"It rewards the many scratches, scars and curses incurred from battling ole mother thicket"

The site disturbance in the mechanical control areas has seen sicklepod, knobweed and calapo rise as weeds also requiring attention.

While the work required at this site is relatively intensive, evidence of the resilience of native ecosystems is promising and indicates the potential to lessen the concentrated impacts of lantana. As Mark Parson says, "it rewards the many scratches, scars and curses incurred from old mother thicket."

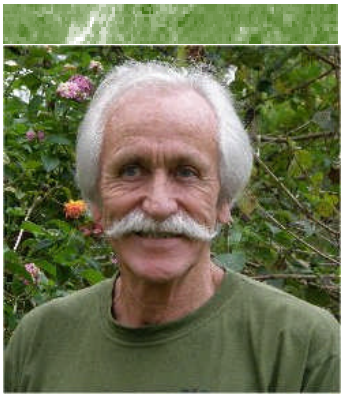
Remote Sensing Update *from page 1*

distribution due to be made available for all of QLD and NSW by June 2009.

To validate the accuracy of the remote sensing tool and provide information for the development of the predictive model, the team (Andy Stewart and Grant Hodgins from Queensland Department of Natural Resources & Water) traversed more than 40,000km of road networks and confirmed the presence of lantana at 67,699 sites.

The predictive model built from this data uses geographical, climatic and temperate attributes that are favourable for lantana, allowing the removal of false positives.

Introducing: Graham Harding



Introducing:
Graham Harding

Graham Harding is the Senior Noxious Weeds Officer with the Eurobodalla Council, on the south coast of New South Wales, and a member of the National Lantana Management Group (NLMG).

In this role, he has been responsible for the coordination of the NSW South Coast Regional Lantana Management Plan and is a member of the NSW Lantana Biocontrol Taskforce.

When asked why he chose to become a member of the NLMG, the answer seems to come easily: he believes such a group – with a national perspective – provides an increase of knowledge sharing, resources, and assistance.

"Enthusiastic members with diverse backgrounds always provide stimulation and encouragement," Graham said.

The encouragement seems to have paid off. One of the biggest successes the Senior Noxious Weeds Officer has been a part of is the Regional Management Plan's Southern Containment Zone. Its purpose is to outline an area in which all lantana should be eradicated, before pushing the "weed front" back towards the north – containing the infestation.

The organisations maintaining this Southern Containment Zone are Bega Valley, Eurobodalla, Shoalhaven councils, and the Illawarra District Noxious Weeds Authority (a coalition of Wollongong, Shellharbour and Kiama councils), with funding assistance from the NSW Department of Primary Industries, the Southern Rivers Catchment Management Authority and the federal government.

These stakeholders work tirelessly towards eradicating infestations along public roads and on reserves, while also conducting inspections on private land and assisting the landholders with property control plans.

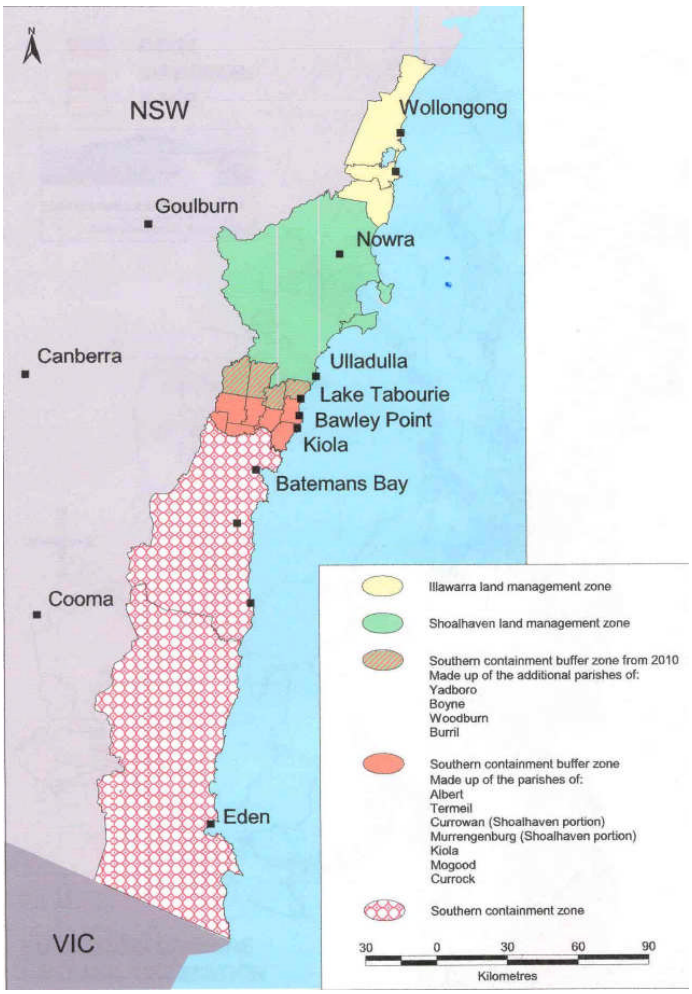
Education and awareness activities take place throughout this zone, whereby council weed officers participate in field days, distribute extension materials and organise media coverage of weed issues.

As a local member of the community, Graham sees first hand the benefits of the group effort in eradicating lantana within the Southern Containment Zone.

Although most control work is completed by mechanical and chemical means, the NSW Lantana Biological Control Taskforce has also been funded by four of the local councils to establish biological control agents within the area. So far, *Prospodium turberculatum*, the lantana rust has successfully established in the Illawarra region.

Lantana control and management within Shoalhaven Council – the southern most area of the Containment Zone – is ahead of schedule, with goals set for completion in 2010 already achieved in early 2008.

This is an exciting development for lantana control and a sign for landholders everywhere that the menace can be successfully defeated!



Southern Containment Zone and Shire Council boundaries

Lantana Lineup

Notes

January 2009			
Happy New Year!			
March 2009			
Caring for our Country *Call for investment proposals*	Closing date: 6 March	Australian Government www.nrm.gov.au	For information on Lantana WoNS priorities, contact the team **as soon as possible**
Rainforest Weeds Field Day Southern Lockyer, QLD	14 March	SE QLD Catchments www.seqcatchments.com.au	Guest speakers will include Kym Johnson (National Lantana Coordinator) and Dr Daniel Stock (Integrated Control Project Officer).
Lantana Field Day: Sarina	17 March	QLD DPI & F (Central region)	Still to be confirmed—for more details
Lantana Field Day: Eungella	19 March	QLD DPI & F (Central region)	contact the Lantana WoNS Group.
May 2009			
Australia's National Beef Exposition 2009	4-9 May	Rockhampton www.beefaustralia.com.au	Meet the team and hear more about the new Lantana Decision Support Tool
June 2009			
Launch of Decision Support Tool	TBA	New South Wales & Queensland	Stay tuned for further details
Later on in 2009...			
10th Queensland Weeds Symposium	26- 29 July	Yeppoon www.wsq.org.au	
2009 Queensland Landcare Conference	15-17 October	Longreach www.iceaustralia.com/qldlandcare09n	

If you have other lantana-related events please submit them to Clare Raven (contact details listed below) for inclusion in the Lantana Lineup

Origin of the species

As the 150th birthday of Darwin's Origin of the Species approaches, a current research program exploring the genetic relationships and 'evolution' of lantana varieties is underway.

The research, conducted by CSIRO geneticist Dr Richard Watts, aims to unravel the complex relationships between Australian lantana varieties and those from the plant's home range in central and South America.

Many of the lantana biocontrol agents introduced in the past have turned their noses up at Australian lantana varieties, or have established on only some flower colours. By identifying genetic relationships it is hoped researchers can select biocontrol agents that are more likely to recognize and do damage to Australian lantana varieties.

Unfortunately these relationships have been confused by the generations of horticultural breeding that occurred in the glass houses of Europe before the plant's introduction to Australia in the early 1840s.

As a result, the weedy Australian *Lantana camara* varieties have traditionally been lumped into a single species complex. However, recent morphological analysis by Roger Sanders, a world expert in *Lantana* taxonomy, has brought this grouping into question – suggesting it may include several distinct lantana species.

While there is sure to be debate, initial genetics work by Dr Watts' group doesn't seem to support this theory, indicating the weedy Australian *L. camara* group is indeed a single species, albeit one with a great deal of phenotypic (environmentally driven) variation.

Much more work needs to be done to determine the origin of this particular species so we will keep you posted as further results emerge.

"The vigorous, the healthy, and the happy survive and multiply"
(Charles Darwin, 1859)

Stay tuned for future issues:

- Information on the lantana seed ecology project
- Management ideas for winter
- Launch of the decision support tool
- Northern Containment Line

How to contact us?

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