



SCRUBBED UP

An update on the Invasive Native Scrub Research Program

Issue 4 - December 2008

Highlights:

Release of 'Listening to the Managers' report

Spotlight on soil function and erosion research

Updates on INS projects happening

Where will the research program lead?

Season's greetings and welcome to the fourth issue of Scrubbed Up — an update of current research and collaboration to manage the serious issue of Invasive Native Scrub (INS).

The direction of this work is moving into a new phase, as many of the research projects are winding up, documenting their results and developing principles and techniques to manage INS and restore native grasslands and open woodlands.

The INS Landholder Knowledge report was officially launched in Nyngan earlier this year. The community turned out in numbers to hear the latest on INS management and discuss related issues with Catchment Management Authority (CMA) staff and Board members.

As this and other information is becoming available, researchers, program staff and community representative are developing resources outlining the principles and techniques of INS treatment. We expect this material to be available by June next year.

Information on each of the nine research projects and the overall program can be found on the Central West and Western CMA web sites (www.cw.cma.nsw.gov.au or www.western.cma.nsw.gov.au).

A number of INS management resources and cases studies are also available from these sites.

Cheers,

Carolyn Raine

Chair

INS Research Program Management Team

Team members: Carolyn Raine (Central West CMA), Russell Grant (Western CMA), Brian Wilson (DECC), Sue Briggs (DECC) and Gary Howling (DECC).



New South Wales Government



Australian Government



An example of INS near Hermidale. Under the same grazing pressure and environmental conditions, perennial groundcover under the thick cypress pine is markedly lower than nearby open areas.

Project in Profile — Developing best management principles for soil function

Much of the work done on INS management has concentrated on managing INS to restore native grasslands and open woodlands.

Soils in INS areas often have obvious differences to the soils of non-INS areas. Soils under INS often lack permanent ground cover, and can be eroded, crusted, or hard-setting.

This project asks how the physical, chemical and biological processes in soil under INS compare with soils under native pastures and open woodlands. What are the differences? Does management of INS improve soil condition? If this happens, how long does this take, and how much does the soil improve?

This project is exploring these questions and the effects that managing INS has on the functioning of the soil (i.e. the processes and cycles that operate in soils).

Through this work, a number of practical Best Management Principles (BMPs) are being developed to help land managers improve the health and functioning of soils in INS and restored pastures.

Dr Matt Tighe from the University of New England (UNE) is carrying out this work and studying a number of sites across the Nyngan and Cobar districts.

“The research project has been running over the last 16 months and has received great input from the community,” said Dr Tighe.

“We’ve had access to a number of properties to run studies and landholders have contributed a lot in terms of their land, time and sharing the history of the sites.



Matt on site near Cobar.

“We have discovered several important differences in the condition of the top and surface soils between INS and adjacent managed pastures, particularly concerning soil acidity.

“A number of management recommendations are emerging from this work, and with the help of the CMAs, we be letting the community know once finalised.”

Matt and UNE erosion researcher Carlos Muñoz have become regulars in Central Western and Western NSW over the course of their work, having visited many times to collect samples, talk to landholders about results and to participate in several field days and workshops with producers.

So where will all this lead?

The INS Research Program has been running now for some two years – helping to help fill gaps in what we know about this issue and develop the principles of treating INS and restoring native perennial pastures and open woodlands.

Many of the projects under this umbrella will run for a few years yet, but some are now finishing and are presenting a range of information to communities, CMAs, the wider government and other users.

This information is freely available from the Central West and Western CMA websites:
www.cw.cma.nsw.gov.au or
www.western.cma.nsw.gov.au

Included are final research reports, case studies and INS management guides. People are invited to visit these sites to see what is available and how it can be used to make informed decisions on INS management.

As more information, reports and resources come from the program, these sites will be updated.

The details from the research projects will be drawn together in a single reference point, according to Chair of the INS Research Program Management Team, Carolyn Raine.

“The overall research program will lead to the production of a user-friendly ‘road map’ to treating INS,” said Carolyn.

“This tool will present the principles and techniques of treating INS and restoring native perennial pastures and open woodlands.

“Previous research, current science, landholder feedback and expert advice will all form this resource.

“The ‘road map’ will be supported by workshops, field days and awareness raising activity to let people know it is out there.”

Project in Profile — Understanding soil erosion and INS

Soils in INS areas often lack perennial forage by way of ground cover, allowing high velocity water run-off and poor water infiltration.

This trait has the potential for serious erosion and is the focus of study by University of New England (UNE) researcher Carlos Muñoz.

This project explores the relationship between erosion processes and variables such as vegetation, groundcover, surface-soil properties, topography and history of management.

Erosion is being studied at both the regional and paddock scale, says Carlos.

“A regional assessment of erosion risk will help identify the areas, vegetation states and land uses most prone to erosion, and help us understand the factors responsible for erosion at a landscape level,” said Carlos.

“Information about vegetation, groundcover, land use, soil properties and evidence of erosion by water is being linked to satellite images to assess erosion risk across the region.

“At the paddock level, a rainfall simulator is being used to test rainfall infiltration, runoff and sediment production under different land-use practices and across a variety of INS types.”

An area affected by INS and gully erosion is also being studied to determine the main factors influencing gully extent, severity and growth.

Overall this work will:

- evaluate and compare water runoff, sediment production and water infiltration under different land uses (INS, crop, pasture) using simulated rainfall
- identify what influences gully erosion in managed and non-managed INS areas
- assess soil erosion at a regional scale
- develop recommendations for INS and erosion management.

Common elements between this work and the UNE Soil Function project mean that Carlos and researcher Dr Matt Tighe work together in a number of areas

The results coming from Carlos’s work will be developed into recommendations based on soil Best Management Principles (BMPs).



Carlos in a stand of Wilga Near Nyngan.



The rainfall simulator in action.

In brief: INS demonstration day at Condobolin

The Lachlan CMA will be hosting an INS demonstration afternoon on 26 February at Condobolin. The day will provide demonstrations of a large broad-acre mulcher, Weedseeker, brushcutter and possibly a stick rake in action. All are invited to attend.

For further information or to RSVP, contact John Drady on 0408 245 983.

Paddock-based INS management advice flows from report

Generations of experience in managing Invasive Native Scrub (INS) have now been recorded and are available to the community with the launch of the *Listening to the Managers* report.

This resource captures the knowledge, experiences and observations of 20 landholders in managing INS to help both landholders and government understand and manage this serious issue.

Landholders who have contributed to the report have decades and often generations of experience in managing INS according to the report's author, Geoff Cunningham.

"This report details the variety of management techniques that have been used by experienced landholders in an effort to remove, manage and prevent the spread of INS," said Geoff.

"Some of these have been successful, while others have failed or have resulted in INS becoming a more serious problem.

"The take home message from this report is that there is no simple solution to scrub management – flexibility and persistence is needed."

The Chairman of the Central West CMA Tom Gavel stated that "the report recognises the depth of management information held in the landholder community".

"Through funding this report, we are acknowledging the depth of management experience in the community and recognise the importance of landholders learning from other landholders," said Tom.

The detailed *Listening to the Managers* report will contribute to a number of facts sheets, guides and other community oriented material to be developed in the future. The full report is available from www.cw.cma.nsw.gov.au or www.western.cma.nsw.gov.au.



L-R: Attending the launch were Nymagee landholder and Central West CMA Board member Peter Weston, report author Geoff Cunningham, Central West Chair Tom Gavel and Central West CMA Deputy Chair Mike Sutherland.

In brief: INS the focus at Trangie

Researchers, landholders, and DPI and CMA staff met earlier this year at the Trangie DPI Research Station to review current INS management knowledge and information coming from the research projects and set the future direction of the program.

Presenters gave a mix of information on practical INS treatment, grazing management, science and research to take advantage of best available knowledge on the issue of INS.

The workshop was a positive exercise in information sharing between landholders, government agencies and researchers.

Cheaper ways to check on our biodiversity

The Biodiversity project has been working to understand how the health of the land depends on what we do across the whole landscape, not just in each individual paddock, and how both pastures and scrub contribute.

Unfortunately, it is very expensive and time-consuming to assess biodiversity all over the landscape. So the project team recently trialled a new method for comparing biodiversity across different sites: bioacoustic sensors.

Nicknamed 'blue bunnies', these sensors record bird calls (the white bunny tail is a wind filter on the microphone) and can send information back to land owners or CMAs via the mobile phone network.

Drs. Veronica and Erik Doerr from CSIRO Sustainable Ecosystems are currently trying to find automated ways to analyse these recordings, so that simple information on biodiversity could be available to any land owner or manager at any time, for a fraction of the current cost of a research team.

Results will be available by the middle of next year.



Darren Moore, from CSIRO Information and Communication Technologies, testing a bioacoustic sensor (aka 'blue bunny'). Photo: Stuart Harris.

Program updates as at December 2008

Landholder knowledge

Final report and management information available from:

www.cw.cma.nsw.gov.au or
www.western.nsw.gov.au

Soil function and soil erosion

These sister projects are currently investigating and testing preliminary soil management BMPs.

Coolibah-blackbox case study

UNE PhD student, Megan Good, is currently writing a paper from an initial field study comparing dense regenerating coolibah and adjacent open vegetation, as well as planning next year's fieldwork, based on the findings.

Cypress pine

Final report in development, with quite a few interesting scientific observations to describe how 'lock-up' happens in white cypress pine, and results from a three year management trial that suggests some BMPs for pine.

Biodiversity

Recently undertook second round of field sampling in Tottenham.

Short-term cropping

Final report in development.

Classification and mapping

Final report in development.

Fire

Final report for the fire literature review almost complete.

Fire extension officer, Brian Dohnt extended to June 2009. Developing burning guides, trials and field days.

Principles of INS management

Case studies on successful INS treatment in development.

Currently reviewing information sources for 'road map' to INS management.

For more information about the INS Research Program, or to added or removed from this list, contact:

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