



# SAVANNA LINKS

Cooperative Research Centre for the Sustainable Development of Tropical Savannas

ISSUE 19  
JULY-SEPT. 2001

VISIT US ONLINE AT  
<http://savanna.ntu.edu.au>

ISSN 1327-788X

## CONTENTS

### NEWS 2-3

- CRC LAUNCH
- REMOTE CONNECTIONS
- BEEFPLAN & EMS
- RANGELAND REPORT
- BROCHURE BONUS

### INDIGENOUS ISSUES 4-5

- BUILDING KNOWLEDGE
- LAND & SEA ALLIANCE

### RANGELAND AUDIT 6

- TRACKING CHANGE

### VEGETATION MAP 7

- MAPPING ADVANCE

### VIEWPOINT 8-9

- LANDSCAPE VISION

### BEEF CONFERENCE 9

- CATTLE MEET

### BIODIVERSITY 10-11

- DESERT UPLANDS

### WEEDS 12

- FIRE CONTROL

### SAVANNA BITES 13

### CALENDAR 14-16

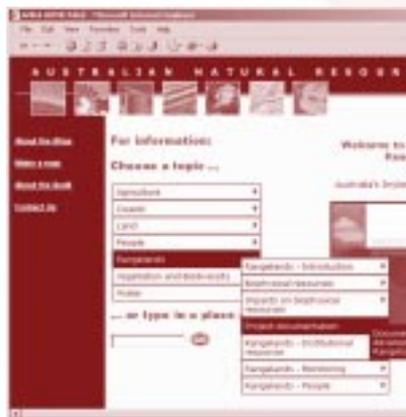
## Caring for country: Aboriginal groups form to save traditional knowledge



Photo: Jason Beringer

It is September 2001. A wildfire is tearing through uninhabited savannas in Kakadu National Park, roasting a parched landscape where rain has not fallen in nearly five months. Aboriginal park ranger Peter Christophersen, Sandra McGregor and their family watch from the floodplain, kilometres away, knowing that the

burning area will be unproductive for years to come. The loss of traditional knowledge in managing country is exacting a terrible toll on the land but now indigenous people are banding together to pass on that knowledge to the younger generation. *Dennis Schulz* writes pages 4-5.



## Monitoring and mapping

The National Land and Water Resources Audit outlines new capabilities in rangeland monitoring for a proposed Australia-wide monitoring system. See page 6.

The CRC produces the first 1:1 million seamless vegetation map of northern Australia, providing a broad overview of the savannas' diverse landscapes. See page 7.

## Viewpoint: a new vision of our landscape

Jo Wearing and her husband Bruce own a small property to the north of Queensland's Darling Downs. This issue Jo talks to *Savanna Links* about why they implemented new management practices on their property and the changing culture of land management in Australia today. See pages 8-9.



CRC  
AUSTRALIA

Established and supported under the Australian Government's Cooperative Research Centres Program



Photo: Barry Ledwidge

From left: CRC Director John Childs, Federal Minister for Environment Robert Hill, Savanna Advisory Group member, Roger Landsberg, and TS-CRC Chair, Hon. John Kerin.

## Minister launches new CRC

THE new Tropical Savannas CRC was officially launched in September by the Federal Environment Minister, Senator Robert Hill. The program will run for the next seven years and will further develop the sustainable land-management research and education of the existing Tropical Savannas CRC. The Centre's headquarters continues to be in Darwin with staff across Queensland, the Northern Territory and Western Australia.

"In the tropical savannas we have the opportunity to do it better; to learn to utilise these lands sustainably," said Mr Hill. "The starting point is good research which is relevant to the various stakeholders. Then educate and train those who would use the natural resources, then monitor and assess change and take remedial action."

John Kerin, chair of the CRC's Board since the beginning of the first CRC, said there would be increasing pressure to develop and intensify use of the tropical savannas, which account for some 22–25 per cent of Australia's land area. He said the emphasis will be on education and communication. He praised John Childs as instrumental to the success of the first CRC, since he joined the Centre as director four years ago.

The first Tropical Savannas CRC began in 1995 with a focus on ecological research. The new Tropical Savannas CRC has a greater focus on management and will use the tools and science developed during the seven-year life of the original CRC. The Centre has integrated its research around four themes and has a new portfolio of research projects.

For more information visit our website at <<http://savanna.ntu.edu.au>>.

## Satellite access for remote Australia: online near you

AS mentioned in the last issue of *Savanna Links*, a new Commonwealth Government scheme aims to make telephone and internet access easier for people in remote areas of Australia.

The \$150 million scheme is being implemented by Telstra and targets customers living in more than 100 extended zones across remote Australia.

As well as providing these users with untimed calls at the local call rate, Telstra can install two-way satellite internet equipment free of connection charges.

If you are in one of these target areas, which include parts of the Kimberley, the Top End of the Northern Territory and north Queensland, you should have already been contacted by Telstra.

If you have not been contacted and you are a remote resident interested in the scheme, contact the Telstra representative in your area.

The roll-out of these services will continue until December 2003.

For more information see Telstra: [www.telstra.com.au](http://www.telstra.com.au)

### Tropical Savannas CRC: Linking the North

The Tropical Savannas CRC is a joint venture of the major organisations involved in land management of the savannas of north Australia. It comprises three universities, two WA, three NT and three Qld government agencies, one federal agency, two divisions of CSIRO, one Aboriginal and one pastoral industry organisation.

The Centre promotes sustainable use and conservation of Australia's tropical savannas by

acting as a bridge between agencies engaged in land-management research and industries representing land users: e.g. pastoralists, Aboriginal groups, the tourist industry and conservation managers; and by looking for ways to ensure more research ends up being used on the land.

Chief Executive Officer:

Tel: (08) 8946 6834

Fax: (08) 8946 107

[savanna@ntu.edu.au](mailto:savanna@ntu.edu.au)

## Brochure on fire in the Top End

INSIDE this issue you'll find a new brochure produced by CSIRO and Environment Australia on the effects of fire on biodiversity in the Top End. The brochure summarises the results of CSIRO's Kapalga Fire Experiment in Kakadu National Park, which covered more than 250 square kilometres, and tested the four major fire regimes common in the Top End. The results showed that while much of the savanna biota is remarkably resilient to fire, a significant number of plant and animals are seriously affected by annual burning. Many of these species are affected more by whether or not fire occurs, rather than by how intense the fire is. The results indicate that savanna biodiversity would benefit from a fire frequency of at most once every three to five years.

For more information or brochures please contact:

Barbara McKaige, CSIRO Tropical Ecosystems Research Centre

Tel: (08)8944 8411 Fax: (08) 8944 8444

Email: [Barbie.McKaige@terc.csiro.au](mailto:Barbie.McKaige@terc.csiro.au)

# BeefPlan thumbs-up: new groups wanted

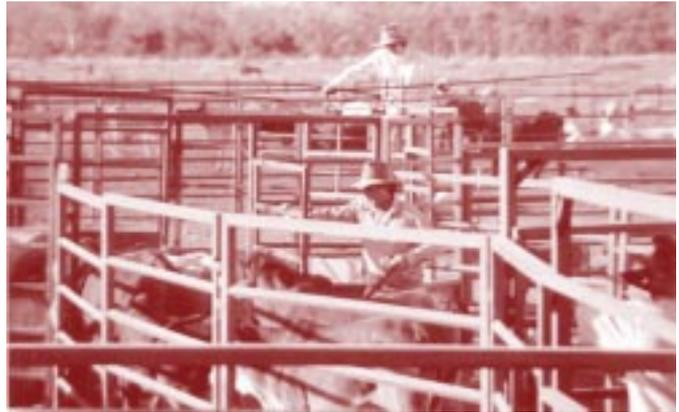
THE Northern Beef Program of Meat and Livestock Australia (MLA) is planning to foster new BeefPlan groups across northern Australia. In a separate initiative, it is also developing a pilot program to test a workable environmental management system (EMS) for the north's beef producers.

The decision to foster new BeefPlan groups follows a three-year evaluation, which ended in June 2001, of five existing BeefPlan groups located in south-east, central and northern Queensland and the Northern Territory. The evaluation found that BeefPlan can improve the triple bottom line of producers—the personal, financial and environmental aspects of their business—encourage cultural change in the beef industry, assist the industry to cope with future shocks and guide future research and development.

“The key to BeefPlan is putting in place a management process that sees producers directly responsible for their own change,” explained MLA Project Coordinator Steve Banney. The process acknowledges that there is no single management system that can be applied uniformly across the north's beef industry. Instead, producers need to drive change themselves while gaining access to critical information.

## Environmental management systems

The second initiative, an EMS program initiated by the MLA, involves beef producers in southern and northern Australia. Since late 2000, four producer groups from different regions of Australia have been developing an EMS that will have international and Australian credibility with other beef producers and the general community. The EMS will be developed within the framework of the International Standard ISO 14001, the world's most recognised production standard for EMS. It can be used for any type of production process—from manufacturing to agriculture—that needs to incorporate environmental



management. The program will also test how the standard will work in Australian beef conditions.

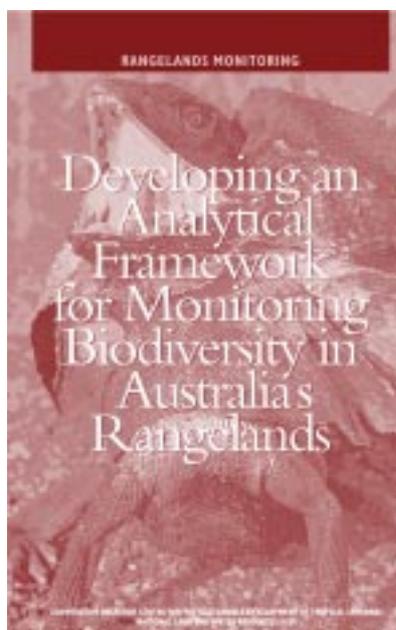
“Each group sees the principal advantage of an EMS as being able to demonstrate that their management is resulting in continual improvement to their natural environment,” said Mr Banney. “The pilot groups are firstly adapting the grains EMS generic model to make it relevant to their own situation. Each group will then produce a generic beef EMS model, which will form the basis of the individual group member's EMS.”

The program is being assisted by the Grains Research & Development Corporation and NSW Agriculture.

Other key objectives of the pilot study will be to document key elements, particularly those that might contribute to a code of practice for the beef industry and its environmental management. With participants achieving ISO 14001 certification, the MLA hopes it will be possible to establish an EMS template available to all producers wishing to create a sustainable grazing enterprise for their properties.

If you are interested in joining or starting a BeefPlan group, or for more information on the EMS program contact Steve Banney Tel/Fax: (07) 4093 9284 Email: [sdb@austarnet.com.au](mailto:sdb@austarnet.com.au)

# Report on rangeland biodiversity sets out monitoring strategy



A TEAM from the TS-CRC has completed a massive report into biodiversity monitoring in the rangelands, carried out under contract for the National Land and Water Resources Audit (NLWRA).

The project developed a framework for monitoring biodiversity across Australia's 49 rangeland bioregions and found that biodiversity had been affected in all rangeland environments.

The report on the project, *Developing an Analytical Framework for Monitoring Biodiversity in Australia's Rangelands*, summarises threatening processes that occur in the rangelands including change in fire regimes, pastoralism, feral predators, weeds, mining, hunting and harvesting native

species, clearing, horticulture, pesticides and climate change. A monitoring strategy is set out in detail and includes the establishment of a common reporting framework and integration of analysis of monitoring results.

Meanwhile, the NLWRA has released a report on its work in rangeland monitoring over the past four years. Turn to page 6 for the full story.

The Monitoring Biodiversity report is available on the NLWRA's Australian Natural Resource Atlas website. Copies will be available for purchase in November.

Go to [http://audit.ea.gov.au/ANRA/atlas\\_home.html#>](http://audit.ea.gov.au/ANRA/atlas_home.html#>).

For more information contact: John Woinarski Parks & Wildlife Commission of NT  
Tel: (08) 8944 8451 Fax: (08) 8944 8455  
Email: [john.woinarski@nt.gov.au](mailto:john.woinarski@nt.gov.au)

# Caring for country: Aboriginal groups form to save traditional knowledge

New indigenous groups are forming across northern Australia. Their aim: to ensure traditional land-management knowledge is passed down to the younger generation, as well as pressing for a greater role in caring for their country. *Dennis Schulz* writes.

**T**hat late dry-season wildfire in Kakadu, watched by Peter Christophersen and his family, adversely affected a myriad of plants like flowering wild plums, an indigenous staple as well as prime possum tucker. Now they say small animals must either forage much further away for their plums and young leaves . . . or starve. As a result, Mr Christophersen's family will not bother to hunt or gather there. The wildfire raged because someone threw a match or a cigarette butt in a place that was not supposed to be burned—especially that late in the dry season. It was this kind of wanton negligence that sparked both Peter and Sandra, with the support of their family—one of the many clan groups within Kakadu National Park—to form a cultural land-management program operating within the clan's boundary.

They believe elder Aboriginal custodians should be carrying out traditional burning practices that were designed by their ancestors to avoid destructive wildfires and to pass that knowledge on to the next generation. "We are seeing that culture is dying," explains Mr Christophersen.

"If our kids are going to stay here to play a role on their country they have to have the knowledge. "There were no programs set up so we decided to do something about it ourselves."

They see traditional fire management as a catalyst that maintains cultural links between children and the elderly and their land. But this information transfer is not simply a matter of elders conveying their knowledge to a group of youngsters or into a tape player for posterity. It must take place on the land where children are taken out and shown how scientific burning can produce a healthier, more productive landscape.

"You got to burn to go hunting. They come together," says Sandra's mother, Violet Lawson, an Aboriginal ranger for more than 20 years. "If you go hunting you look at the plants and the wind and the humidity. You got to know where the breaks are and where the springs are and where a fire will go and when it will go out. Then you throw your match."

## Managing fire in a vast landscape

Already the cultural management group is getting results. In one sprawling floodplain near the South Alligator River, the group targeted hymenachne plant growth, repeatedly burning the native plant that takes over huge areas and provides scant nutrition for wildlife. Their efforts halted the plant's advance and presented an opportunity for nutritious *eleocharis* reeds to take over. With the *eleocharis* came a return of thousands of magpie geese, a favourite indigenous bush food.



*Learning traditional fire management must take place on the land. On Kakadu's floodplain: John Christophersen (uniform) and Violet Lawson (uniform), Sandra McGregor (Peter's partner) Mathew Lawson (in hat) and children Kallum and Tara Christophersen and Karla Rawlinson (some obscured).*

Prior to the Park being declared in 1979 fewer than 100 Aboriginal people lived in the area—but they were unable to cover the vast areas burning along traditional lines. As a result, the land was regularly swept by huge, destructive fires. Kakadu Rangers, assisted by the traditional owners, have since halted this pyrotechnic anarchy through the use of modern technologies (including helicopters) which mimic the effects of large numbers of people burning on the ground.

Although this regime works well it is a poor substitute for the ancient regime that came from many people living on the land. Rangers cannot always cover all the country at just the right time to burn. Mr Christophersen's family's project fills that gap and adds a further level of refinement to Kakadu's fire regime. Theirs is a labor-intensive program that has won administrative approval for a trial in Kakadu by Parks Australia North.

Scientific evidence points to the need for fine-scale mosaic burning with a high level of skill and application. Achieving this mosaic is increasingly recognised as central to biodiversity conservation in Northern Australia. Mr Christophersen's program, in conjunction with aerial incendiary applications, are achieving biodiversity conservation goals as well as the continuation of cultural practice.

## Changes in Aboriginal burning

Once Aboriginal people formed a thin layer of population across the entire northern landscape, carefully managing it for their needs. But in the last century they have moved off their traditional lands into settlements, leaving the country to overgrow with vegetation that becomes fuel for wildfires. "The fires are more frequent and they're

happening later in the year,” says Carol Palmer of the Kimberly Regional Fire Management Project in Broome, “which has pretty devastating consequences for plants and animals.”

Ms Palmer’s Natural Heritage Trust-funded program in the Kimberly is recording traditional information from elders, mapping fire by satellite images and researching the effects of fire on plants and animals. She says, like in Kakadu, many wildfires start because of a lack of people on the ground to burn the country in small, deliberate patches. That’s the way it was done when rangers mustered cattle on horseback, burning as they travelled. Today, mustering is carried out by helicopter and most of the area’s massive cattle properties are unpopulated, unmanaged land.

### Rise of indigenous ranger programs

A return to traditional management practices has fired the interest of Aboriginal people across the north, with many compelled to form community-based ranger groups aiming to take charge of their country’s well-being. A national umbrella group, the North Australian Indigenous Land and Sea Management Alliance (NAISMA), supported by the Tropical Savannas CRC, has begun operation, organised by the Balkanu Cape York Development Corporation, the Kimberley Land Council and the Northern Land Council.

In Maningrida, NT, the Djelek Rangers have diversified into the sustainable commercial use of wildlife, collecting and incubating crocodile eggs for sale and involving themselves in tourism. In Nhulunbuy, NT, the Dhimurru Rangers are patrolling the wild beaches of East Arnhem Land identifying marine turtle nesting areas for protection and management.

“Ranger programs are enterprises where they can top up their CDEP pay to get real wages for their work,” explains Joe Morrison, an indigenous land-management facilitator working through Parks & Wildlife Commission of the NT. In the south Arnhem Land community of Bulman one group of traditional owners put aside \$8000 from mining exploration revenue to set up bush camps for taking kids back to country with community elders. “I was around in the early ’70s when the outstation

movement picked itself up and hurtled along,” recalls the NLC’s Caring For Country Unit executive officer, Peter Cooke. “It was a real movement where you could feel this great crusade under way. What’s happening now is the first thing since then that compares to that.”

Mr Cooke has been involved in helping communities form ranger groups and facilitating the transfer of traditional knowledge from elders to younger Aborigines. He was initially shocked at how much knowledge had been lost, with a significant proportion of younger traditional owners often not knowing the language names attached to important sites. Through the Caring for Country Unit, he set out to change that by taking groups of elders and younger people back to depopulated areas of Arnhem Land to rediscover their roots.

“I think Aboriginal knowledge was traditionally taught in a very place-specific way,” says Mr Cooke. “Children learned it with senior relatives as they did things together on these places. They looked at how fire worked on particular plants in a particular spot. So it’s hard to reduce traditional knowledge down to a set of principles that apply to broad generic situations.”

Ranger groups are already meeting on an annual basis to share knowledge and recommend that their methods be incorporated into mainstream land-management practices. One recommendation made at a recent forum by Mike Redford of the Mimal Rangers gets to the heart of all traditional land management: that it should always be fun. Peter Christophersen agrees as he and his family move across the Kakadu floodplain. “We’re enjoying this work,” he says.

“We’ve been given a chance to intensively manage areas within the clan’s country, the way people wish to do it,” he says. “This opportunity to carry on cultural land management as a clan group will not only produce environmental benefits early on, but I’m confident it will also have social benefits for younger clan members in the future.”

More information Northern Land Council Caring for Country  
 Web: [www.nlc.org.au/](http://www.nlc.org.au/)  
 Dhimurru Lands  
[www.octa4.net.au/dhimurru/default.html](http://www.octa4.net.au/dhimurru/default.html)  
 Kakadu National Park  
[www.ea.gov.au/parks/kakadu](http://www.ea.gov.au/parks/kakadu)

## Indigenous land managers form alliance across the north

The Kimberley Land Council, Northern Land Council and Balkanu Cape York Development Corporation have established an alliance of indigenous land management organisations across northern Australia. The North Australian Indigenous Land & Sea Management Alliance (NAISMA) aims to build capacity by facilitating knowledge sharing across the north. It will also develop collaborative arrangements with western science agencies to benefit both indigenous and non-indigenous land managers.

The Alliance has a broad suite of objectives including:

- to support and promote knowledge and leadership in local communities;
- to assist indigenous leaders to create opportunities for the transfer of knowledge and development of leadership across generations (for example, family-based back to country camps);
- to identify the requirements for the sustainable management of indigenous natural and cultural resources;

- to improve communication and information exchange;
- to investigate culturally and commercially appropriate ways to protect indigenous knowledge.

It also plans to expand the Top End’s indigenous rangers’ conference, publish a newspaper and develop research protocols. The alliance will also be represented on the board of the TS-CRC.

For more information contact Peter Cooke, Northern Land Council  
 Tel (08) 8920 5109 Fax 08 8945 2633  
 Email: [peter.cooke@nlc.org.au](mailto:peter.cooke@nlc.org.au)  
 TS-CRC Web: <http://savanna.ntu.edu.au>

# Audit helps track changes in rangelands

Many issues facing Australia's rangelands extend across state and territory boundaries: a coordinated and collaborative Australia-wide information system is needed. The National Land and Water Resources Audit's new report outlines the capabilities it has developed to achieve this goal, as well as exploring the essentials in its proposed Australia-wide rangeland monitoring program. *Maria Kraatz* reports.

**T**racking Changes: *The Australian Collaborative Rangeland Information System* describes the Audit's work in its Rangeland Monitoring Theme over the past four years. It has sought to define the elements of a comprehensive monitoring program that would provide regular Australia-wide reports and enable people to make better land use and management decisions.

In proposing how rangeland monitoring may work across Australia, *Tracking Changes* outlines existing State and Northern Territory monitoring activities and highlights individual case studies to demonstrate how monitoring systems are already being used to inform land-use and management decisions at a variety of scales. Through the work of the Audit, collaboration between State, Territory and Commonwealth agencies was strengthened, and a much better understanding of the various monitoring systems in place across Australia was achieved—as well as a greater willingness to share data that provides an Australia-wide picture of change.

## New tools for rangeland monitoring

The Audit has developed new capabilities and approaches to rangeland monitoring. These include a framework for monitoring biodiversity within the rangelands (see story page 3), an operational system using remote sensing that enables monitoring across huge areas of northern and central Australia and an approach to rangeland management driven by how landscapes function, rather than how they are used.

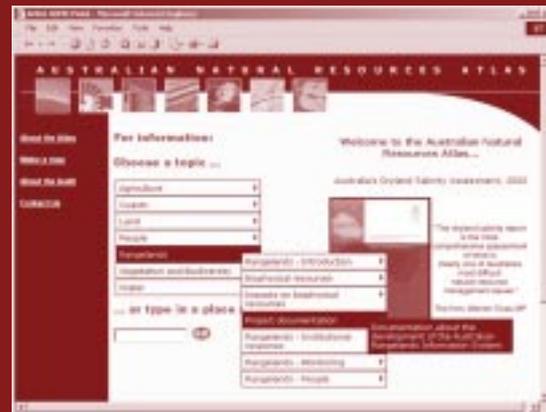
Information such as land tenure, land use and seasonal quality was collated. Links to other work such as fire-scar mapping and Aussie GRASS pasture monitoring are in place. Social and economic change was also considered, as such change can be just as important in rangeland management as biophysical change.

## Collaborative rangeland information system

Existing information and monitoring systems in the rangelands have not comprehensively reflected the condition of Australia's rangelands. The proposed system involves a series of interlinked activities that will build on new rangeland monitoring capabilities.

Standard reports will be produced regularly, as well as commissioned products driven by client need. The latter may involve, for example, biodiversity monitoring, the expanded application of remote-sensing techniques, or reports produced from existing data for new or different client needs.

Information will be collated, interpreted and presented at a range of scales based on data collected from existing activities and will be presented through the Australian Natural Resources Atlas (see boxed story) and regular assessments on the condition of Australia's rangelands.



## Australian Natural Resources Atlas

The Australian Natural Resources Atlas is a web-based information system providing natural resource information from across Australia under broad categories of agriculture, coasts, land, people, rangelands, vegetation and biodiversity and water.

A major output of the the Audit's activities, the atlas presents information at regional, state and Australia-wide scales and is supported by a data library with links to Commonwealth, state and Northern Territory data management systems.

Summaries of existing rangeland monitoring systems in Australia can be accessed, as well as reports, maps and data sets developed for Audit projects. The Atlas is continually updated as new information becomes available and enables users to produce summaries and maps according to specific queries.

Go to: [www.nlwra.gov.au/atlas](http://www.nlwra.gov.au/atlas)

In the early stages, the information system will not be able to meet the needs of all its clients. The aim will be to provide a foundation upon which better information, analysis and reporting can be continually developed. This Australia-wide collaborative approach is currently being considered by government agencies and preparation for its implementation is currently under way in rangeland states. The *Tracking Changes* report will be available in hard copy and on CD-ROM. The latter will include reports and extracts from the Australian Natural Resources Atlas.

**To order a copy contact:** National Land and Water Resources Audit Tel: (02) 6257 9516 Fax: (02) 6257 9518 Email: [info@nlwra.gov.au](mailto:info@nlwra.gov.au).

**For other information contact:** Maria Kraatz, the Audit's Australia-wide rangeland coordinator, Tel/Fax: (08) 89273116 Email: [maria.kraatz@octa4.net.au](mailto:maria.kraatz@octa4.net.au) **Audit website:** [www.nlwra.gov.au/atlas](http://www.nlwra.gov.au/atlas)

A TS-CRC project that brought together botanists from Queensland, the Northern Territory, and Western Australia has produced northern Australia's first ever seamless 1:1 million vegetation map. It provides an overview of the savannas' diverse landscapes, and will allow local research and management practices to be seen in a broad context. By Ian Fox and John Neldner

## Mapping advance for the tropical savannas

The completed maps include digital map coverages at the scale of 1:1,000,000 and a printed map (two maps and one legend) at the scale of 1:2,000,000. The project, jointly funded by the TS-CRC and the Queensland Herbarium, worked to join existing vegetation maps of the region into a seamless map of northern Australia.

The botanists had to overcome disparities in scale, differing classifications of structure and type of vegetation as well as gathering information, sometimes for the first time, on vegetation, geology, soil and landform. The vegetation is grouped using the land zone scheme in *The Conservation Status of Queensland's Bioregional Ecosystems* (Sattler and Williams 1999).

The project team had to develop new methods to modify existing maps, and for an area of about 300,000 km<sup>2</sup> in north-west Queensland, which had no vegetation mapping at a suitable scale, a new map was needed.

### Scale

The scale of existing maps varied. Some maps were at the scale of

1:1,000,000 and these required only minor editing before use. On the other hand, much of eastern and central Queensland had been mapped in greater detail at the scale of 1:100,000 and these maps required substantial re-interpretation to the required scale by a team of botanists from the Queensland Herbarium.

Once maps covering the whole of the project area were finally available, issues of matching edges and developing consistent attributes had to be addressed. This needed the collaboration of the Queensland Herbarium, Department of Conservation and Land Management Agriculture Western Australia and the NT Department of Lands Planning & Environment.

In the final process, 439 individual vegetation units in the source maps were grouped to 249 units at 1:1,000,000 and then to 128 units at 1:2,000,000. An additional grouping into 26 broad vegetation groups completed the hierarchical aggregation.

### Uses of the map

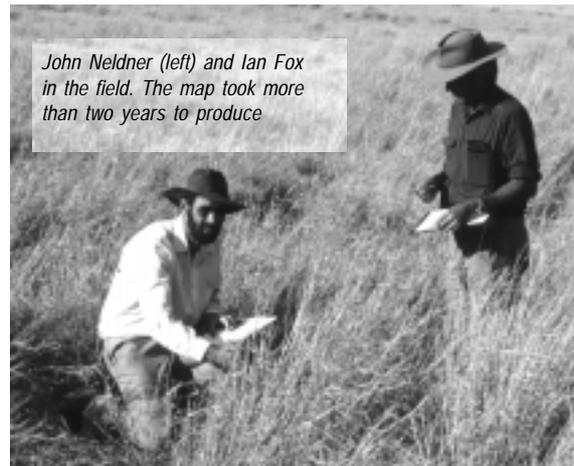
These data will be valuable research tools for a considerable time into the

future. The completed 1:2,000,000 scale, printed map, provides a visual overview of the vegetation of the tropical savannas for students, researchers and any people with an interest in the vegetation of northern Australia.

The 1:1,000,000 digital coverage provides researchers and planners with an important tool for analysis of biogeographic patterns in northern Australia. It also enhances savanna-wide analyses of land use and management practices and it improves capacity to extrapolate from geographically narrow studies, such as the North Australia Tropical Transect to the wider landscape.

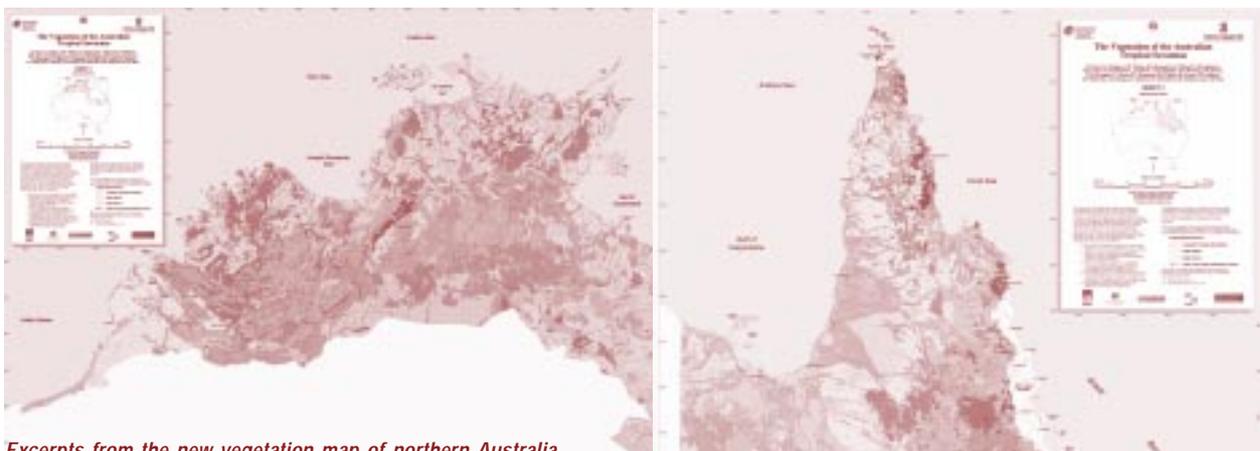
A technical report to accompany the maps is complete and will be released by the end of 2001.

For copies of the map, contact Kathryn Thorburn  
Tel: 08 8946 6754 Fax: 08 8946 7107  
Email: [kathryn.thorburn@ntu.edu.au](mailto:kathryn.thorburn@ntu.edu.au)  
For the digital coverage contact:  
John Neldner, Queensland Herbarium  
Tel: 07 3896 9322 Fax: 07 3896 9624  
Email: [John.Neldner@env.qld.gov.au](mailto:John.Neldner@env.qld.gov.au)  
Web: <http://savanna.ntu.edu.au>— research section.



John Neldner (left) and Ian Fox in the field. The map took more than two years to produce

Photo: John Neldner



Excerpts from the new vegetation map of northern Australia

# Towards a new vision of the landscape

Jo Wearing and her husband Bruce own North Dalziel, a small property in the Taroom district of Queensland. In 1997 after years of drought and poor returns, the Wearing's decided they had to change their land management.

For New Zealand-born Jo, it was the continuation of a search to understand the Australian landscape and what sustainable management really meant. Here she talks to *Savanna Links* about the changing culture of land management in Australia today.

*Was there a particular turning point when you moved to a more sustainable approach to land management—or was it more gradual?*

I think it was more gradual. One turning point was when I did a rural leadership program a few years ago. We learnt to use tools for dealing with the impacts of rapid change and drought and those sorts of negative impacts on our ability to plan long term.

*What are some of those tools?*

The visioning tool is particularly useful for me, but also for bringing all of those with interest in land management together to define clearly what their long-term objectives are. That's really important. All the property management planning, business-plan development sits below that first consideration. Conflict management tools are also really important in developing plans that involve a number of people and putting those plans into practice.

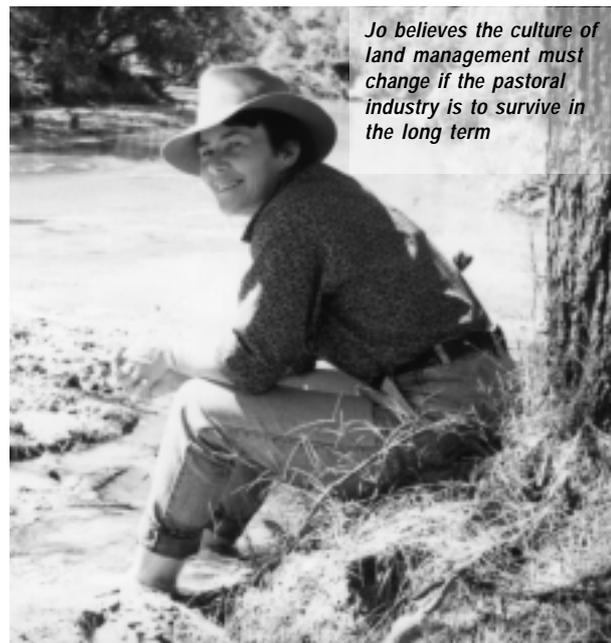
*You've said in a paper at the Northern Grassy Landscapes Conference that you thought you were a good observer until you went to a course on monitoring and then you really started to observe.*

For me personally, monitoring enabled me to learn more about my land, vegetation and the species that use it. When we're working cattle, driving the tractor, doing normal pastoral and agricultural pursuits, our attention is usually on the job at hand rather than taking account of all those biodiverse units of our whole resource. Understanding that biodiversity is really important for our own success and our long-term sustainability.

It's quite amazing how little most of us know about the variety of grasses and their function and the variety of species in our wooded vegetation. We see brigalow but we don't see all the other species in the scrub, or we see eucalypts and not a diverse woodland.

*Do you have to make separate time to do that sort of monitoring?*

Initially, I and others I've worked with, have had to make time to actually do the monitoring but once our observation skills are improved it does become part of our daily routine. So instead of riding across the land



*Jo believes the culture of land management must change if the pastoral industry is to survive in the long term*

seeing cattle, we ride across the land noticing more about what's under our horses' feet.

*Is this something Landcare groups do? Get someone in to talk about the composition of vegetation in the landscape?*

I don't think Landcare groups do that sort of thing nearly enough. In conversation with landholders over vegetation management issues in Queensland what seems to be missing is any real understanding of how ecosystems function.

So we often keep things for the wrong reason: we *think* we're doing conservation, that we're working for conservation outcomes, quite often with almost no understanding of the needs of the species we're conserving for.

*How do you think information could be disseminated?*

Most landholders learn best if they're out in the paddock with their feet on the ground having processes and issues explained to them in context. Landcare does that and has certainly provided a model that works for bringing about cultural change. There is a lot of justifiable criticism of what Landcare has achieved because we're not seeing enormous on-ground changes—in fact, particularly in land clearing, detrimental and degrading activities have continued. However, I think there has certainly been a significant shift in landholders' attitudes.

Cultural change is a slow process but I don't know how else we can get effective changes in land use. Another option might be legislation that starts to remove people from the land, if they're not complying with sustainable management practices.

*Do you see that as a rather drastic alternative?*

I see that as an *extremely* drastic alternative and I don't think that having fewer people on the land is desirable. We need people in the landscape to manage, for example, fire and the spread of weeds. Processes that *reward* good stewardship of land, where the emphasis is on trying to

keep people in the landscape and not remove them, will be much better for our land in the long term.

*Do you include pastoralists like yourself in that sort of scheme?*

I include good land stewards. I am not sure I deserve that title, but people who are using the land sensitively, for economic production as well as for conservation, maintaining biodiversity, maintaining ecosystem services, they are exactly the sort of people we need to be encouraging to stay on the land.

*Bad practices must be readily identifiable, but one of the challenges must be how do you decide what is a good practice?*

Definitions of good practice change. I'm very aware of how much our attitude has changed in the last 20 years in relation to the maintenance of vegetation and ecosystems that we require if we are going to sustain those. My feeling is those levels will continue to rise rather than reverse. Whereas now we think in terms of maintaining 10 per cent of a property unchanged, 30 per cent moderately changed and only 30 per cent highly modified as being a desirable outcome, I suspect we will move to even more conservative views if we're going to maintain ecosystems.

*It's a pretty fragile continent, isn't it?*

Yes, I think that's a new concept. In terms of describing our landscape what strikes me is that traditionally—in the literature, bush ballads, folk history—we regularly talk about this land as harsh, unforgiving, and talk in terms of battling the land, battling nature. We characterise people who survive on the land as battlers and to my way of thinking that whole cultural attitude is at the base of not treating our land more sensitively, more kindly. We've tended to have a love-hate relationship with our land.

*So have we misunderstood its nature?*

Yes, we've seen it as something to be subdued, to be changed and to be regulated and modified, whereas we

need 'to lie down with our land' and just try and understand it.

*What do you think would be a good way to describe our land—if we could come up with a few new adjectives or new myths.*

Fragile is appropriate, and one that people use quite frequently nowadays. We do need a new set of myths. People and actions are largely defined by the stories they tell and we have a set of stories that are not appropriate, I believe, for good stewardship of our land.

Our capacity as landholders still seems to be measured in terms of how well we could wield an axe, drive a bulldozer, or run down a steer. I'm seeing the next generation of people brought up with that ethos still trying to define themselves in those terms.

The sad part about that; there's no doubt that the wealth of individuals and the wealth of this nation has been built on those characteristics. We were and are a wealthy nation because we were successful at those things. But it's been at the cost of future generations. How many generations are going to bear the cost of trying to revegetate southern states? How many generations are going to bear the cost of trying to reverse salinity?

So basically what we've done at all levels; we've mined our landscape, we've taken from it what wasn't sustainable and the future will bear the cost of that. And that's because our vision was always relatively short term.

*So you do feel there is a future for rural people on the land?*

Yes, very definitely and that relates back to my comment earlier that I don't believe we want fewer people involved in land management in Australia but I do think we need a different culture.

---

This is an edited interview originally conducted after the Northern Grassy Landscapes Conference in Katherine, NT, August 30–31, 2000. —Interview: Kate O'Donnell.

## Major beef industry conference for north to meet in Kimberley

The North Australian Beef Industry Conference, to be held in Kununurra between 8–9 November, will explore future directions for research, development and extension in the northern beef industry.

A fundamental principal of the conference is that pastoralism occurs within an ecological context and that R&D effort will have most impact when findings are shared.

The conference will encourage a dialogue between and within the various stakeholder groups: pastoralists, researchers, extension officers and others. The two-day event will cover the following issues:

- Rangeland management systems;
- Meeting market specifications;



- Accreditation: providing environmental safeguards and promoting consumer acceptance of rangeland products;
- Institutional/legislative impediments: how it affects land use and diversification;

- Multiple land use: integrating NRM and beef production;
- Nutrition: role in production and reproduction;
- Training and capacity building today's and future pastoral production systems;
- Increasing the efficiencies in the extension and R&D findings.

The conference's major sponsors are WA Department of Agriculture, Meat and Livestock Australia and the Tropical Savannas CRC.

---

For more information see the flyer enclosed in this copy of Savanna Links, or contact Kaz Price, WA Ag. Dept on (08) 9191 0326 or email [KPrice@agric.wa.gov.au](mailto:KPrice@agric.wa.gov.au).

Vertebrate fauna in Queensland's tropical savannas is largely unknown and unsurveyed—a concern given the mounting need to find a balance between economic and environmental sustainability in managing the land. JCU-CRC PhD student *Alex Kutt* has completed a baseline survey of the region, identifying new and existing species and impacts such as fire and grazing.

## Fauna survey lays foundation for balanced land planning

Photos and story by Alex Kutt

The Desert Uplands (DEU) is one of Queensland's six tropical savanna bioregions, covering over six million hectares and sharing boundaries with the Mitchell Grass Downs to the west, the Brigalow Belt to the south and east, and the Einasleigh Uplands to the north. The DEU has a semi-arid climate with vegetation consisting mainly of *Acacia* and *Eucalypt* woodlands, ephemeral lake habitats and grasslands. It straddles the Great Divide between Charters Towers, Hughenden and Blackall and it is this division between the wet east coast and the dry interior which makes this area of biological and biogeographic interest.

Unlike Queensland's coastal zone and Cape York Peninsula, there is almost no baseline data on fauna that would allow landholders and managers to create a landscape mosaic that maintains the balance between economic viability and biodiversity conservation.

### Survey aims and outcomes

The survey, undertaken between 1997–2000, was designed mainly to identify fauna of the regional ecosystems (the lowest level bioregional planning unit used in Queensland), describe the patterns of the variation in distribution, diversity and abundance of these groups, and characterise the region's biogeographic position within the Queensland landscape.

So after three years and 23,000 Elliott and cage trap nights, 4200 pitfall trap nights, the installation of more than 7 km of drift fence and the equivalent of almost seven weeks at 24 hours-a-day of active searching, the field survey was completed. The primary outcome is a database of more than 35,000 records (24,000 from field survey), representing more than 400 species.

As one would hope for in a predominantly unsurveyed bioregion, there were a number of unexpected finds of animals outside their previously known ranges (some by many hundreds of kilometres) including Spinifexbird and Painted finches, rodents such as the Lakeland Downs mouse *Leggadina lakedownensis*, the Desert Mouse *Pseudomys desertor* and Pebble-mound mouse *Pseudomys patrius*, and dasyurids (marsupial mice) such as Common Dunnart *Sminthopsis murina* and the Julia Creek Dunnart *Sminthopsis douglasi*. Reptiles included the Brigalow Scaly-foot *Paradelma orientalis* and the Centralian Blue-tongue lizard *Tiliqua multifasciata*.

Highlights were the discovery of two new species, both reptiles: *Ctenotus rosarius* sp. nov. (the *rosarius* referring to the blotches along its flank that resembles a string of rosary beads), currently being described in conjunction with the Queensland Museum; and *Lerista*

*It's not easy being endangered: a Julia Creek Dunnart, above, expresses its fury at being handled; restricted to cracking grey clays typical of the Mitchell Grass Downs, its discovery in outlying grasslands in the Desert Uplands extended its known range.*

*Right, one of the smallest mammal species in Australia, if not the world, the inland forest bat. It weighs between 3-5 grams, and is found in south-western parts of the Desert Uplands. It can consume 1-1.5 times its body weight in insects per night.*



sp. nov., still awaiting a formal classification, but this time a collaboration with the Queensland and South Australian Museums. As an adjunct to the trapping survey, the stomach contents of feral cats were examined to gain an insight into how these pests are affecting native fauna in the region—see boxed story.

Besides the value of providing new information, this survey will also produce a range of useful outputs for stakeholders interested in the project. These include government agencies, the Desert Uplands Build-up and Development Strategy Committee, the local Shire Councils, Landcare groups and most importantly the landholders in the region.

### Fauna patterns in the Desert Uplands

The Desert Uplands' bioregion is an area of 'interchange' between the Torresian (north-east Queensland and New Guinea origin) fauna of the coast and the Eyrean fauna (arid central Australia) of the inland. Unlike the wet tropics and Central Australian Deserts which have large numbers of endemic and specialised animals, the Desert Uplands has neither the tall mountains nor expansive deserts that act as refuges to allow unique species to evolve. However as the climate shifts, coastal and desert species expand, contract and interact across the Desert Uplands, leaving behind elements of both faunas, but not many of its own unique species—in effect the bioregion is a jack of all trades, but a master of none.

### Factors that determine the presence of animals

Animals can be clustered into different assemblages, or groups, depending on how often they are recorded in a particular area, and the climate, vegetation and habitat characteristics of a site. For example, the types of species found in tussock grasslands on cracking clays and hummock grasslands on sandy clays are very different, despite both habitats being grasslands with a similar

overall diversity of species. The former has Julia Creek Dunnarts *Sminthopsis douglasi* and Long-haired Rats *Rattus villosissimus* and the latter has the Desert Mouse *Pseudomys desertor* and Delicate Mouse *Pseudomys delicatulus*. Both subtle and stark fauna variations such as this also occur in open woodlands that have the same broad types of vegetation and mix of species. Simple things like the density of trees, soil type, number of logs or litter on the ground and proximity to water cause significant changes in the number and composition of animals in seemingly uniform environments. This information is important in not only providing clues as to the micro-habitat and life-history controls of these animals, but counters any assumptions that all habitats type are the same within a small area or across their geographical range.

### Using regional ecosystems to identify biodiversity

Though the subtle variation and environmental control of fauna assemblages is recognised, the reality is that no one has the resources or time to survey and describe the range of patterns *ad infinitum*. So rather than attempting to make sure individual species are protected, planners in Queensland try to ensure that each regional ecosystem is protected. However there has been little or no examination of the how adequately regional ecosystems correspond to animal diversity and variation across a bioregion.

While regional ecosystem types correlated quite well to changes in animal species diversity across the Desert Uplands (e.g. species in woodlands were quite different to those in grasslands), within a large widespread regional ecosystem unit (e.g. a single woodland type) fauna diversity also varies geographically. Therefore regional ecosystems used as a surrogate to represent the entire biodiversity within this unit fails, unless one considers the differences across its range. The implication here is that planning for biodiversity protection needs to be considered on a variety of scales.

### Impact of fire and grazing

Fire is an important natural influence on fauna assemblages and contrary to anecdotal beliefs, some fire patterns can actually improve biodiversity rather than impede it. Many animals have different micro-habitat requirements (e.g. levels of ground cover) and an abundance of biodiversity is achieved by burning patterns that create a vegetation mosaic in the landscape. However, grazing complicates the pattern in that it also influences ground cover, and therefore the composition of animal groups. A range of moderately grazed and ungrazed quadrats of



The northern velvet gecko, *Oedura castelnaui*. It hides under heavy bark of trees such as gidgee and black gidgee during the day, coming out at night to feed on insects and spiders.

different fire ages were sampled in *Eucalyptus similis* Yellowjack woodlands. Results indicated that though fire and grazing interacted to affect the abundance of many species in this community, vertebrates responded most significantly to the amount of time that elapsed since fires—species changed in type and abundance as the vegetation regrew—whereas differences in ant fauna were most notable between grazed/ungrazed environments.

### More than a snapshot needed

One of the first tasks on completing the thesis is to return to the Desert Uplands and present the findings to the stakeholder groups who assisted over the life of the project. Also a preliminary atlas of distribution ecology of key species in the area is being developed. Mapping known and predicted distribution of significant or indicator fauna is being developed in collaboration with Greg Connors (PWCNT) and Sharon King (QEPA), and this will provide the basis to pursue funds to produce a more permanent, distributable document.

Such a bioregion inventory is just the first step. The reality is that this survey is a snapshot, and not really of the scope to extend our understanding of the dynamics of wildlife in rapidly modifying landscapes. The next phase would be to undertake targeted follow-up work to examine in detail the interplay between land-management regimes (fire frequency, stocking rates, tree clearing) and the best means to balance needs for farm viability with native fauna protection. The maintenance of healthy sustainable landscapes is vital for future generations of people in the bush, and it is also our responsibility to protect the wildlife with which we share our environment.

More information: Alex Kutt, James Cook University  
Tel: (07) 4722 5318 Fax: (07) 4722 5222 Email: Alex.Kutt@env.qld.gov.au  
Web: <<http://savanna.ntu.edu.au>> Go to Education section, then Students.

## Getting the cat into the bag: just what toll are feral cats exacting on wildlife?

As an adjunct to the trapping survey, the diets of feral cats were examined via stomach contents, which were systematically collected across the bioregion and the directly adjacent areas of the Mitchell Grass Downs and Northern Brigalow Belt. Samples were obtained by local professional kangaroo and pig shooters.

A total of 194 cat guts were collected over two years comprising 1300 prey items. Initial sorting revealed some broad patterns: of all prey items identified, 16 per cent were birds, 33 per cent reptiles, 5 per cent amphibians, 25 per cent mammals, and 21 per cent

insects. And volume of prey was frightening: one cat had consumed two birds, one dunnart, one dragon and seven geckoes while another, one dunnart, three dragons, eight geckoes and one tree skink. Multiplied over a year, this translates to a significant amount.

The influence of feral cats on native fauna, particularly in recently modified habitats, is not well understood, and regional information is sorely needed. Hopefully this data will contribute to the debate on the impact of feral cats, which currently does not receive nearly enough attention.

## Fire and weeds: what works—what doesn't

Surveys undertaken with land managers in northern Australia consistently identify control of exotic weeds as one of their key management issues. Presently there is a suite of weeds invading large tracts of land. They range from grasses such as giant rat's tail and grader, shrubs such as bellyache bush to larger woody plants like parkinsonia, mesquite, rubber vine, chinee apple and prickly acacia. Control techniques include chemicals, machinery, fire and biological control. Fire is relatively cheap compared to other options and it can be applied over large areas.

However, Dr Shane Campbell from the Dept. of Natural Resources & Mines Tropical Weeds Research Centre (TWRC) warns that burning is not effective against all weeds. "It is critical that we understand how fires affect the different life stages of each weed we are trying to control," he said. "This information then allows us to incorporate or exclude fire when developing integrated control strategies." Some woody weeds invading our rangelands demonstrate the different responses that can occur following burning and how this affects management decisions.

### Algaroba

*Algaroba*, the most widespread of the mesquite species growing in Australia, is very susceptible to fire. Even very large plants (greater than 10 metres in height) can be killed and some of the seed bank is destroyed thereby reducing the number of seedlings that emerge.

### Rubber vine

Rubber vine is another highly susceptible species but this was not always the case. Before 1995 best kills by fire were only around 50 per cent. Since then a biological control agent—a rust fungus—has been released. The rust acts as a defoliant, reducing the vigour of the plant, making it more susceptible to control. Where once grass was excluded because of the vine's dense foliage it has now returned, allowing a fuel load to accumulate and fire to spread within infestations. The rust also reduces seed production which in turn reduces the size of the seed bank. Consequently few seedlings emerge once the original plants have been controlled. For both *algaroba* and rubber vine, controlled burning can be implemented so they have minimal impact on the productivity of an enterprise or the ecological integrity of the area.

### Bellyache bush

Bellyache bush plants appear to be highly susceptible to fire, but seedling recruitment after burning can be substantial. If follow-up controls are not implemented, the problem can be exacerbated. A major limitation of using fire to control bellyache bush is that once infestations thicken, grass is excluded and burning becomes impossible. In such situations an alternative primary technique may be needed, with fire used as a secondary treatment. TWRC's Dr Faiz Bebawi is currently researching possible options, such as machinery and chemicals.

### Prickly acacia

Prickly acacia is a plant that is only susceptible at the seedling stage so fire is definitely not a primary control



Using fire to manage rubber vine is proving extremely effective since the release of the biological control rust.

Photo: Mike Whiting

option. However, after killing adults with machinery or chemicals, fire may be used to treat seedling regrowth—particularly after wet years when large numbers may appear.

### Chinee apple

Chinee apple is a plant that appears to have no stages that are susceptible to fire. Even small plants less than 30 cm high can re-shoot following burning. It is a difficult plant to remove from an area once infestations become extensive or dense. However, it appears its seed bank does not live much more than a year or two, so there will probably not be much regrowth after the original infestations are killed. Management options are either chemicals or machinery, and both are expensive for treating thick infestations; it needs to be controlled while infestations are small.

### Fire and grazing management

Wherever fire is used its success will largely depend on pre- and post-fire grazing management. It is important that enough fuel is available on which to undertake burning and it is equally important that after burning, pastures are able to recover so that they can compete with any weed seedlings. It is important to remember that while most native species are fairly tolerant of fire there may be some present within the weed infestations that are susceptible. In these situations other control options may be more appropriate. There is also a need to identify grazing and fire regimes that can be implemented to prevent the build up of weeds. The removal of fire from grazing systems is often highlighted as the primary explanation for why we have such weed problems in our rangelands.

### More research needed

We still don't know enough about the impact of fire on many weeds in northern Australia. These include giant rat's tail grass, grader grass and parkinsonia. TWRC, in collaboration with Dr Tony Grice from CSIRO, is about to begin research on parkinsonia, particularly its susceptibility to fire at different seasons. This research is part of a broader cooperative project on the ecology and management of parkinsonia under the auspices of the CRC Australian Weed Management and involves CSIRO Sustainable Ecosystems and Entomology and NRM (Qld).

From Drs Tony Grice, CSIRO, and Shane Campbell, Qld. Dept. Natural Resources & Mines. More information next page.

### Reining in bioprospectors

ENVIRONMENT Australia has released draft amendments for public comment on regulations that cover access to biological resources on Commonwealth lands. The outcome will be a legal framework that controls access to and use of genetic resources of native species. The proposed regulations aim to minimise red tape and provide certainty for industry, while safeguarding Australia's unique biodiversity. They also aim to ensure that benefits derived from commercial use of genetic material accrues to the general community, and that indigenous communities are reimbursed for the use of their traditional knowledge in identifying useful species. Provisions will also be made for penalties for accessing biological resources without a permit. Discoveries flowing from the examination of genetic and biochemical make-up of plants and animals could lead to new products such as drugs to fight disease, enzymes for industrial processes or natural insecticides. Go to Environment Australia website: [www.ea.gov.au/epbc/about/amendments/biological.html](http://www.ea.gov.au/epbc/about/amendments/biological.html)

### Cyber Rangers are go

CHILDREN can now visit Queensland's most remote parks, adventuring into different habitats, from their homes thanks to a new website: the Cyber Rangers, an online children's club. The new website was designed to encourage children aged between six and 14 to appreciate and protect Queensland's natural environment and its wildlife. New recruits to the Cyber Rangers website will be able to meet and chat with park rangers, write a story, participate in interactive activities and provide reports and artwork to the Cyber Ranger Base. Each month members can explore a different Queensland habitat. The site was created by Queensland Parks & Wildlife Service staff and students from Griffith University. Go to: [www.env.qld.gov.au/cyberrangers](http://www.env.qld.gov.au/cyberrangers)

### Information for weed management, pg. 12

Contact Dr Shane Campbell, TWRC  
Tel: 07 4787 0605 Fax: 07 4787 3969  
Email: [campbellsd@dnr.qld.gov.au](mailto:campbellsd@dnr.qld.gov.au)  
Dr Tony Grice, CSIRO Tel: (07) 4753 8543 Fax: (07) 4753 8600  
Email: [Tony.Grice@cse.csiro.au](mailto:Tony.Grice@cse.csiro.au)  
**Weeds Australia, includes National Weed Strategy and weeds database**  
[www.weeds.org.au/](http://www.weeds.org.au/)  
**Queensland Dept. Natural Resources & Mines, Pest Factsheets**  
[www.dnr.qld.gov.au/resourcenet/fact\\_sheets/pestfacts.html](http://www.dnr.qld.gov.au/resourcenet/fact_sheets/pestfacts.html)  
**Department of Primary Industries and Fisheries NT Weeds page**  
[www.nt.gov.au/dpif/weeds/w\\_index.shtml](http://www.nt.gov.au/dpif/weeds/w_index.shtml)  
**Department of Primary Industries and Fisheries NT Weed Agnotes**  
[www.nt.gov.au/dpif/pubcat/weeds.shtml](http://www.nt.gov.au/dpif/pubcat/weeds.shtml)  
**CRC for Weed Management Systems**  
[www.waite.adelaide.edu.au/CRCWMS/](http://www.waite.adelaide.edu.au/CRCWMS/)

### History of Northern Territory pastoralists' industry

*Distance, drought and dispossession, A history of the Northern Territory pastoral industry* is a book on the 120-year old industry from cattlemen's perspective. Written by Glen McLaren and William Cooper, the book draws on archival records of the NT Cattlemen's Association and is written for the everyday reader. One of the book's aims is to provide a counterbalance to the portrayal of cattlemen by academics, the media and others over the past three decades. They acknowledge the abuse of Aborigines but declare their aim is to provide a more comprehensive and balanced picture by examining Aboriginal involvement in the industry from the cattlemen's perspective. From 1892, Aborigines constituted the majority of the NT pastoral workforce. The book notes the incremental growth in knowledge of environmental factors influencing the nature and profitability of grazing. It covers the slow stocking of the NT pastoral industry from the mid-1860s to the first large mobs (1200 sheep, 1600 cattle) in 1879; the push for a railway system to transport cattle to market; attempts to break into overseas markets; the heavy toll the industry took on European pastoralists in the early years and the introduction of helicopter mustering, two-way radios and satellite communications.

From Kathie Rea, *Intuition*, NTU Newsletter

212PP, RRP INCL GST \$36.60

Available from the NTU Bookshop Tel: (08) 8946 6497

### Virtual Herbarium on the way

A \$10 MILLION project to put records of Australia's six million plant, algae and fungi specimens on the web is now under way. The country's—and possibly the world's—first Virtual Herbarium will have plant names, geographic distributions, colour images and associated information all online and available for research, education and environmental decision-making by government, landholders and managers, and community groups.

The specimens are housed in commonwealth and state collections that date back to the late 1700s—the collections of Joseph Banks and Joseph Solander. The site will be important in helping to design revegetation projects, threatened species recovery plans and other land restoration activities and research projects.

Around 40 per cent of the specimens have now been recorded. The project is a long-term collaboration between all of the country's State, Territory and National Herbaria. When online, the website will act as a central point for locating records held by individual herbaria.

Go to [www.anbg.gov.au/anh/](http://www.anbg.gov.au/anh/)

### Rare rock-wallaby gets new chance at life

LIFE is looking up for the rare Proserpine rock-wallaby, one of Queensland's most endangered marsupials, thanks to the release of a recovery plan by the Queensland Parks and Wildlife Service. The plan aims to increase the wallaby's population and area of distribution within five years. The wallaby was only discovered by scientists in 1976 and wasn't a recognised species until 1982. There are only 24 known colonies of the rock-wallaby, and all are in the Proserpine-Airlie Beach area.

To see the plan call: QPWS Airlie Beach office on (07) 4946 7022, the Naturally Queensland Information Centre in Brisbane on (07) 3227 8749 or go to: [www.env.qld.gov.au](http://www.env.qld.gov.au)

## November

### North Australian Beef Industry Conference (NABIC)

8–9 November, Kununurra, WA

**Venue:** Kununurra Leisure Centre

The NABIC conference seeks to foster a joint industry ownership of direction for future research, development and extension in the northern beef industry, which encourages dialogue between and within the various stakeholder groups. The two-day event will facilitate the clarification, categorisation and prioritisation of gaps in recent, planned and current research and extension projects. Issues/themes will include:

- Rangeland management systems;
- Marketing—meeting market specifications;
- Accreditation—providing environmental safeguards and promoting;
- Consumer acceptance of rangeland products;
- Institutional/legislative impediments—how it affects land use and diversification;
- Multiple land-use—integrating NRM and beef production;
- Nutrition—role in production and reproduction;
- Training and capacity building today's and future pastoral production systems;
- Increasing the efficiencies in the extension and R&D findings.

**Contact:** Kaz Price

**Postal:** WA Department of Agriculture  
PO Box 278, DERBY 6728

**Tel:** (08) 9191 0326 **Fax:** (08) 9191 0334

**Email:** kprice@agric.wa.gov.au

### Natural Resources Communicators Conference 13–14 November, Canberra

**Venue:** National Museum, Canberra

**Contact:** Lawrie Kirk

**Email:** Lawrie.Kirk@mdbc.gov.au

### Ecology, Conservation & Management of Biodiversity in Tropical Forested Regions 14–15 November, Cairns

**Venue:** Radisson Plaza Hotel, The Pier, Cairns

The 2001 conference will explore issues related to ecology, conservation and management of biodiversity in tropical forested regions. The conference is open to everyone. Keynote speaker Professor Hugh Possingham, from the University of Queensland, will deliver an address on Decision Theory for Biodiversity Conservation. Topics include rare species in tropical forests; the relation of scale to conservation-related research and its application; responding to threats to biodiversity; examples of best practice in research, protected area management and stewardship in relation to maintaining biodiversity.

**Contact:** Events Officer

**Postal:** Rainforest CRC

PO Box 6811, CAIRNS QLD 4870

**Tel:** (07) 4042 1246 **Fax:** (07) 4042 1247

**Email:** Marybeth.Gundrum@jcu.edu.au

**Web:** www.rainforest-crc.jcu.edu.au

### Second National Wetlands Conference 14–16 November, Stradbroke Island

**Venue:** Couran Cove Resort, South Stradbroke Island

**Conference Theme:** Repairing our wetlands: learning by doing.

The conference has 34 speakers on six wetland themes. Presentation themes include:

- Applying research to select changes in management which can repair wetland systems, applying and monitoring the changes, developing adaptive management systems
- Learning to monitor changes in wetlands, working out what community groups can monitor, how to link with scientific research, how to publicise results and share with other groups
- Working with wetland landowners, providing technical and funding support to encourage changed management to protect and repair wetlands
- Assessing the value of wetlands, putting their value in context alongside other land uses and resource consumption.

There will be formal presentations, practical poster sessions, skills workshops, small group discussion forums, and field tours. The conference is hosted by Wetland Care Australia, and supported by the Natural Heritage Trust. Substantial discounts are available for community members who would like to attend.

**Contact:** Heather Shearer

Network Manager, Wetland Care Australia

**Postal:** PO Box 154

BALLINA NSW 2478

**Tel:** (02) 6681 6069 **Fax:** (02) 6686 8907

**Email:** wca@linknet.com.au

Or Sharon, **Tel:** (08) 8582 3677

**Email:** wca@riverland.net.au

**Web:** www.wetlandcare.com.au/conference\_2001.htm

**Email discussion list:** list@wetlandcare.com.au

### 2nd National Conference on Aquatic Environments 20–23 November, Townsville

**Venue:** Jupiters Townsville Hotel and Casino, Townsville

The conference aims to bring together people and groups directly involved in the science, use, care and protection of natural resources to:

- outline current knowledge on the impacts and magnitude of impacts on aquatic environments and update contemporary national land and water research;
- evaluate performance criteria and targets for the achievement of sustainable aquatic systems;
- provide an opportunity for presentation of successful

overseas and Australian case studies (particularly where these have protected and improved the sustainability and values of landscapes, aquatic environments and associated communities);

- document approaches to enable land and water managers, government and the community to appraise and improve their performance for achieving sustainable solutions.

**Contact:** Clare Porter

**Postal:** PO Box 388, ARTARMON, NSW 1570

**Tel:** (02) 9413 1288 **Fax:** (02) 9413 1047

**Email:** events@awa.asn.au

**Web:** www.awa.asn.au/aquaticenvironments/

## December

### **Australian Wildlife Management Society Conference**

**3–5 December, Dubbo, NSW**

**Venue:** Civic Centre, Dubbo

The 14th annual Australian Wildlife Management Society Conference is scheduled to coordinate with the Australian Ornithological Conference (4–7 December in Bathurst). The conference will be hosted by the NSW National Parks and Wildlife Service, Western Directorate. It is open to all interested in scientific wildlife management including scientists; wildlife managers; wildlife users; educators; students; and interested community members.

There will be three specialist symposia:

- threatened species management;
- clearing and fragmentation effects on native and introduced fauna; and
- wetland management.

**Contact:** Quentin Hart

**Postal:** Bureau of Resource Sciences

PO Box E11 KINGSTON ACT 2604

**Tel:** (02) 6272 3801 **Fax:** (02) 6272 5992

**Email:** Quentin.Hart@brs.gov.au

**Web:** www.awms.org/conf2001.html

### **Australian Ornithological Conference**

**4–7 December, Bathurst**

**Venue:** Charles Sturt University, Bathurst

The inaugural Australian Ornithological Conference 2001 will be hosted by The Environmental Studies Unit and the Applied Ornithology Group of The Johnstone Centre at the Bathurst campus of Charles Sturt University. This conference is supported by Birds Australia and is designed to provide a forum for advancing the knowledge and conservation of Australasian birds. The conference program will span three days and feature topical symposia and regular contributed paper sessions. Poster papers are encouraged. There will be sessions for discussing the role of Birds Australia in the development of Australian ornithology, as well as a session on planning future ornithological conferences.

Potential topics include:

- Systematics of Australian birds: new approaches and

challenging results

- Distribution ecology and biogeography: the Australian perspective
- Adaptations to the Australian environment: physiology, movements and life-history strategies
- Bird-habitat relationships: a hierarchy of scales
- Birds in degraded landscapes: declines, consequences and management implications
- Birds on the brink. Captive breeding and reintroduction: lessons for management
- Bird impacts on human interests
- Birds and ecotourism: is it a win-win?

**Contacts:** Conference Information

AOC 2001 Conference Secretariat

Conference Solutions

**Postal:** PO Box 238 DEAKIN WEST ACT 2600

**Tel:** 02 6285 3000 **Fax:** 02 6285 3001

**Email:** birds@con-sol.com

AOC2001 Organising Committee Convenors

Dr Andrew Fisher

Charles Sturt University, Bathurst

**Email:** afisher@csu.edu.au

Dr David Watson

Charles Sturt University, Bathurst

**Email:** mailto:dwatson@csu.edu.au

**Web:** http://clio.mit.csu.edu.au/aoc2001

### **3rd Annual Conference of the Australasian Research**

#### **Management Society (ARMS)**

**21–23 November, Sydney**

The conference theme is Partnerships: Identifying opportunities and capturing the benefits. There is widespread consensus that partnerships and collaborations between industry, government and research sectors are critical to stimulate innovation and translate research outcomes into economic growth. The conference program aims to address these issues and to contribute to ongoing debate.

Contact: **Tel:** (02) 9956 8333 **Fax:** (02) 9956 5154

**Email:** confact@conferenceaction.com.au

## 2002

### **Fire and savanna landscapes in northern Australia—regional lessons and global challenges**

**8–10 July, Darwin**

### **Managing for heterogeneity—maintaining savanna wildlife**

**11–12 July, Darwin**

These concurrent conferences will be hosted by the Tropical Savannas Management CRC and the Key Centre for Tropical Wildlife Management (Northern Territory University). Both international and Australian speakers will give presentations.

A field trip is an integral part of the conference. Fire and savanna landscapes in northern Australia contact:

Jeremy Russell-Smith

Bushfires Council of the NT

**Tel:** (08) 8984 4000 **Fax:** (08) 8947 2263

**Email:** jeremy.russell-smith@nt.gov.au

Managing for heterogeneity—maintaining savanna wildlife contact:

Peter Whitehead

Key Centre for Tropical Wildlife Management, NTU

**Tel:** (08) 8946 6703 **Fax:** (08) 8946 7088

**Email:** peterw@gis.ntu.edu.au

## 13th Australian Weeds Conference 8–12 September, Perth

**Venue:** Sheraton Perth Hotel, WA.

Theme: Weeds: threats now, and forever? Hosted by the Plant Protection Society of Western Australia Inc. Expressions of interest: To be put on the mailing list, and for registration brochures when they are available, please register your interest with the conference organiser:

Convention Link

**Postal:** PO Box 257, SOUTH PERTH, WA 6151

**Tel:** (08) 9450 1662 **Fax:** (08) 9450 2942

**Email:** convlink@iinet.net.au

**Web:** <http://members.iinet.net.au/~weeds>

## Seminars

**Tropical Ecosystems Research Centre**

**Venue:** CSIRO Conference Room

**McMillans Road, Darwin**

**Time:** 3.45 pm, Fridays (monthly)

**Contact:** Barbara McKaige

**Tel:** (08) 8944 8411 **Fax:** (08) 8944 8444

**Email:** barbie.mckaige@terc.csiro.au

**Web:** [www.dar.dwe.csiro.au/seminars.asp](http://www.dar.dwe.csiro.au/seminars.asp)

**Friday, November 2**

*Metabolic depression in the wet/dry tropics:*

*Who needs it and who has it?*

Keith Christian, Faculty of Science, IT and Education, Northern Territory University, Darwin

**Friday, November 23**

*More magnificent mangoes: Prospects for the mango industry in the Top End*

Richard Brettell, CSIRO Plant Industry, Darwin

**Friday, December 14**

*How I learned to love cows: Biodiversity conservation and pastoralism in the Mitchell Grasslands*

Alaric Fisher, Parks & Wildlife Commission NT.

**CSIRO Seminars, Townsville**

**Venue:** Conference Room, Davies Lab.

**Time:** 11am, Fridays

**November 9**

*Nutrients in river run-off and reef degradation*

Dr Alan Mitchell, Australian Institute of Marine Science

**November 23**

*The new agroforestry and novel crops unit at JCU*

Prof Roger Leakey, James Cook University

**December 7**

*Application of seasonal climate forecasting in cropping and grazing*

Dr Andrew Ash, CSIRO Sustainable Ecosystems

**Contact:** Mark Smith

**Email:** [Mark.Smith@cse.csiro.au](mailto:Mark.Smith@cse.csiro.au)

**Queensland Herbarium seminars, Brisbane. Held on a monthly basis**

Toowong, Brisbane, Qld 4066.

**Contact:** Dr Rod Fensham

**Tel:** (07) 3896 9547 **Fax:** (07) 3896 9624

**Email:** [rod.fensham@env.qld.gov.au](mailto:rod.fensham@env.qld.gov.au)

See our calendar section on our website for more events: <http://savanna.ntu.edu.au>

*Savanna Links* is edited and produced by the Tropical Savannas CRC. Articles can be used with permission of the TS-CRC. Please email, or call numbers at right. Views expressed in *Savanna Links* are not necessarily those of the TS-CRC.

Contact Tropical Savannas CRC  
Northern Territory University  
DARWIN NT 0909

Tel: (08) 8946 6834 Fax: (08) 8946 7107

Email: [savanna@ntu.edu.au](mailto:savanna@ntu.edu.au)

Website: <http://savanna.ntu.edu.au>

Contact

Peter Jacklyn

[peter.jacklyn@ntu.edu.au](mailto:peter.jacklyn@ntu.edu.au)

Tel: (08) 8946 6285

Fax: (08) 8946 7107

Tropical Savannas CRC

Northern Territory University

Darwin NT 0909

Contact

Kate O'Donnell

[kate.odonnell@jcu.edu.au](mailto:kate.odonnell@jcu.edu.au)

Tel: (07) 4781 5967

Fax: (07) 4781 5515

Tropical Savannas CRC

James Cook University

Townsville Qld 4811

Front & back cover design

WWd [andreas@wwd.net.au](mailto:andreas@wwd.net.au)

Tel: (07) 4725 1361

Printed by Prestige Litho

Tel: (07) 4771 4087

Fax: (07) 4721 1432

## OUR STAKEHOLDERS



ABORIGINAL COMMUNITIES



PASTORALISM



TOURISM



MINING



CONSERVATION



DEFENCE