



SAVANNA LINKS

Cooperative Research Centre for Tropical Savannas Management

The vision splendid: can we sustain the north's healthy landscapes?

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A HAPPY CHRISTMAS AND
NEW YEAR FROM THE
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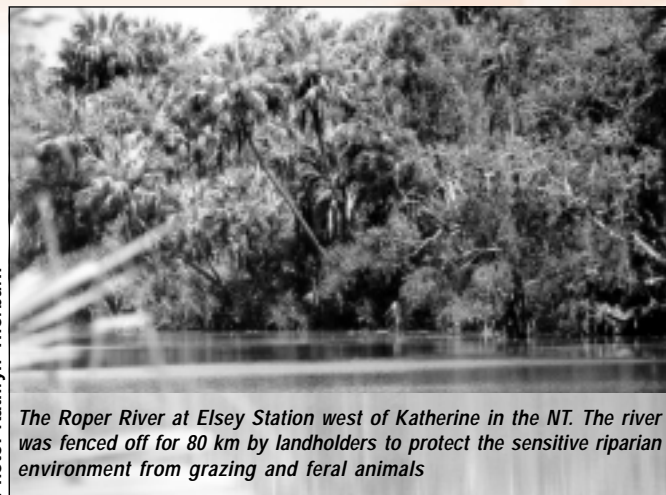


Photo: Kathryn Thorburn

The Roper River at Eley Station west of Katherine in the NT. The river was fenced off for 80 km by landholders to protect the sensitive riparian environment from grazing and feral animals

The pros and cons for potential agricultural development are currently being mooted in several areas in northern Australia.

The large amounts of money and the landscape changes involved in these agricultural visions will affect many people across the tropical savannas.

As Dennis Schulz reports, while many of the natural perils that hindered cropping in the north seem to have been conquered, new problems loom. See pages 4–5.



Photo: Dennis Schulz

Sorghum crop in Kununurra, Western Australia



You will find a copy of *What is healthy country in Australia's tropical savannas?* in this issue. The booklet is a guide to concepts of savanna health, developed by the Tropical Savannas CRC for land managers and users. The booklet describes how the TS–CRC developed a set of attributes to define landscape health which aim to involve the whole range of savanna land users in managing for healthy country.

On page 9, TS–CRC theme leader John Ludwig explains how the concept differs from other definitions of landscape health, how it is being used on the ground and what developments are in store.

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New director for Tropical Savannas CRC

THE Tropical Savannas CRC has appointed a new director, Professor Gordon Duff. Gordon is currently Professor of Environmental Science at Deakin University, and will take over the reins from outgoing director John Childs in January 2002. Gordon has a long and distinguished record in sustainable land-management research, and was one of the founding project leaders in the Tropical Savannas CRC in 1996 and executive officer during the CRC's development phase.

Gordon was deputy director of the Centre for Indigenous Natural & Cultural Resource Management at NTU between 1996–98, and has almost 20 years experience in the Australian tropics, working as an educator, researcher and research manager. In his role at Deakin University, Gordon has established regional partnerships between the University, government and industry, aimed at sustainable regional development and integrated management of natural resources. He helped establish new degree programs in Integrated Catchment Management and Wine Science.

"I'm tremendously excited about working with the Savannas CRC again," said Gordon. "John has clearly done a wonderful job, and the CRC has acquired a national and international reputation that is a credit to him and all the participants.

"The major successes achieved to date give me confidence for the future of northern Australia, and highlight the significance of the CRC's role in that future.

"My recent experiences working in natural resource management in temperate regions have highlighted for me the consequences of inappropriate development of

land and water resources, and the need for genuine partnerships between researchers and resource managers. We have an important task ahead of us."

John Childs became director of the Tropical Savannas CRC in August 1997. In the past four years under John's leadership the CRC has become a relevant and innovative research organisation that consults widely with its stakeholders and provides cross-border and institutional links for its wide range of researchers. He was instrumental in the success of the Centre's recent submission for a new CRC which was launched in September this year.

At the Centre's fifth year review the expert panel commended John for his leadership and management of the CRC, noting the strong corporate spirit evident throughout the Centre. John said his time with the TS-CRC had been tremendously stimulating and rewarding.

"The CRC and the people who bring it to life provide proof that diversity generates creativity, interest and results," he said. "I have been privileged to have worked with people of good will, with an interest in constructively addressing the issues of the north.

"We created knowledge and understanding and also ensured the CRC's renewal to continue and expand its valuable contribution. I am grateful to all of you for what you have given me, a most satisfying experience."

John will still be associated with the Centre through a project with Meat and Livestock Australia on developing codes for environmental management in the pastoral industry.

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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 is used on the land.

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Beef EMS project gets under way

A PROJECT leader has been appointed for the new TS-CRC project *Environmental Management Systems for the Northern Beef Industry*.

Stephen Tapsall, a research scientist currently working on the Ord Bonaparte Scheme in Kununurra, will lead the project.

The project aims to develop codes of environmental practice for the grazing industry by working with the North Australian Beef Research Council's Regional Beef Research Committees. The project will also involve TS-CRC's researchers who will provide ecological input into the codes.

The landscape health concept, developed by the CRC, will be used as a basic framework for industry environmental codes of practice.

The concept caters for the requirements of different land users at a range of scales within a whole of region basis. It includes landscape attributes and indicators relevant to

pastoralism at a range of scales; paddock, property and region. The project is still in the early stages, and is set to begin early in 2002.

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Fire book on the shelves

Savanna Burning: Understanding and using fire in northern Australia will be available in the new year. Written by northern land managers, fire ecologists and scientists, it describes the effects of fire on these vast ecosystems. The book provides information on fire to managers of pastoral, Aboriginal and conservation lands, ecologists and the general public.

An order form is in this issue of *Savanna Links*.



Robert Hill with the Indigenous Protected Areas Advisory Group at the launch of Paruku IPA

Protected area for Paruku Dreaming

AN Indigenous Protected Area has been declared for Paruku in the southern Kimberley. The Paruku IPA covers 434,600 hectares and includes an internationally significant wetland system south of Halls Creek known as Lake Gregory. The Kimberley Land Council worked with traditional owners over several years to organise the IPA's declaration. Paruku traditional owners comprise several language groups including the Walmajarri, Jaru and Kukatja.

For traditional owners Paruku is the end of a long dreaming track that binds together a large number of people living across a wide area. There are diverse land systems within the reserve, including red sand plains, salt pans and spinifex country. Sturt Creek, which forms a delta-like system as it enters Paruku, is believed to form the headwaters of a large ancient river that once flowed westwards across the Canning Basin and emptied into the sea south of Broome. The lakes and waterholes support at least 73 species of waterbird, and are a stopover to 16 migrant shorebirds. It is considered one of Australia's most important inland wetland areas and represents a major drought refuge for waterfowl. The area also supports two cattle stations held by the Aboriginal Lands Trust and managed by the Tjurabalan Pastoral Company.

For more information on the Paruku IPA you can visit the Environment Australia website at: www.ea.gov.au/indigenous/fact-sheets/paruku.html

Strong turn-out for beef conference

THE current buoyancy of the beef and live export industry was demonstrated in Kununurra with a strong attendance from across industry at the Northern Australia Beef Industry Conference between November 8–9.

More than 170 delegates, representing producers, researchers, and allied industries, travelled from across the Northern Territory, Western Australia and Queensland to attend the two-day event hosted by the WA Department of Agriculture. The workshop was partly supported by the Tropical Savannas CRC.

In all, 32 papers and workshops allowed conference delegates to hear of the latest in resource management research findings in land capability and sustainability for the pastoral

zones. Trends in extensive herd management and marketing techniques were also examined. A final session looked at the issues of communication technology and opportunities for learning.

The conference received high praise from delegates, with a strong industry and research sector recommendation that the conference become a biannual event—hosted by all three top-end States on a rotational basis—for northern beef producers across the top of Australia.

—Kaz Price

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Study gives a clearer picture of land clearing

NEWS reports in November claimed that Australia's land-clearing rates were higher than previously estimated—by about 22 per cent. The reports were based on studies by the Queensland Herbarium and another by the NSW Royal Botanic Gardens and NSW National Parks & Wildlife Service.

Both studies, by coincidence completed at the same time, used a different approach—and different criteria—to the satellite surveys and images that currently define much of Australia's land clearing rate. Until now, figures from the satellite data have been the only ones available to determine rates of land clearing.

In Queensland these rates are determined through the Statewide Landcover and Trees Study (SLATS) which assesses changes in woody cover within 30 x 30m pixels. SLATS has estimated change in native tree cover (woody vegetation) at 425,000 ha per annum between 1997 and 1999. Of this, two-thirds (283,000 ha) was estimated to be remnant (previously uncleared bushland) and one-third regrowth bushland (142,000 ha).

The research by the Queensland Herbarium is concerned only with remnant vegetation and used field observations, site data, aerial photography and the SLATS satellite imagery to determine the clearing of all types of native habitats. It found 446,000 ha of habitat were cleared per year. A major reason for the difference in the two sets of data is a matter of approach. SLATS measures changes in woody vegetation only, whereas the Herbarium reports on overall habitat decline. So the extra area recorded by the Herbarium is due to the clearance of the lower-lying shrubs between woodland trees and the plowing up of natural grasslands.

According to Dr Rod Fensham from the Queensland Herbarium, both sets of data are essential and, in fact, complement each other. "We couldn't do our work without the SLATS data, and the Department of Natural Resources & Mines (the agency that administers the state's clearing regulations) need our data," he said.

Large-scale cropping on trial in the north

The prospects for a dramatic boost in agriculture in north Australia made the news recently. The large amounts of money and the landscape changes involved in these agricultural visions will affect many people across the tropical savannas.

But as *Dennis Schulz* reports, while many of the natural perils that hindered cropping in the north seem to have been conquered, new problems loom.

Agriculture has always been a problematic proposition in the northern savannas. The prevailing attitude has been that the climate is too harsh, the predators too voracious and the water too scarce for agriculture to ever be considered an economically viable form of land use. But according to Stuart Kenny of the Northern Territory Irrigation, Grain and Fodder Association, that thinking is now obsolete because of technical advances including pest-resistant crops.

In his address to the Northern Territory's Economic Summit in October, Mr Kenny predicted a big future for farmers in the north if Asian markets can be identified and Native Title issues settled. "Within five years, this industry has the ability to be five times the size it is today," he said of the Territory's \$20 million agriculture industry.

Mr Kenny's assessment coincides with the emergence of a number of huge agricultural development projects across the savannas. In the Territory, the sprawling Katherine/Daly Basin cropping project will accompany the extension of the Ord River Stage II from the Kimberley district of Western Australia. Western Agriculture Industry's (WAI) Fitzroy River cotton project is also planned for the state while other large-scale cotton projects could begin operation in western Queensland's Flinders River region in 2003 following current trials. A soon to be released report from the Australian Cotton CRC has identified more than a dozen sites in the north that may be suitable for cotton.

Rich pickings

When water is accessible, agriculture has been shown to produce results. Mr Kenny pointed out that irrigated agriculture only represents half of 1 per cent of Australia's agricultural land area, but it returns 48 per cent of the total profits. The Ord Stage I development bears testament to that statistic, with just 14,000 hectares of irrigated land producing \$68 million in returns from a wide array of crops last year.

That figure will rise if new international markets are secured. Mr Kenny's growers' organisation recently signed an export deal with companies in Japan for Katherine-grown sesame. The local crop has the potential to also replace \$18 million of sesame imports into Australia.

"It hasn't been a crop adapted to suit our region," says Mr Kenny, "but we now have a variety that's been developed here in the Territory. It has enormous promise."

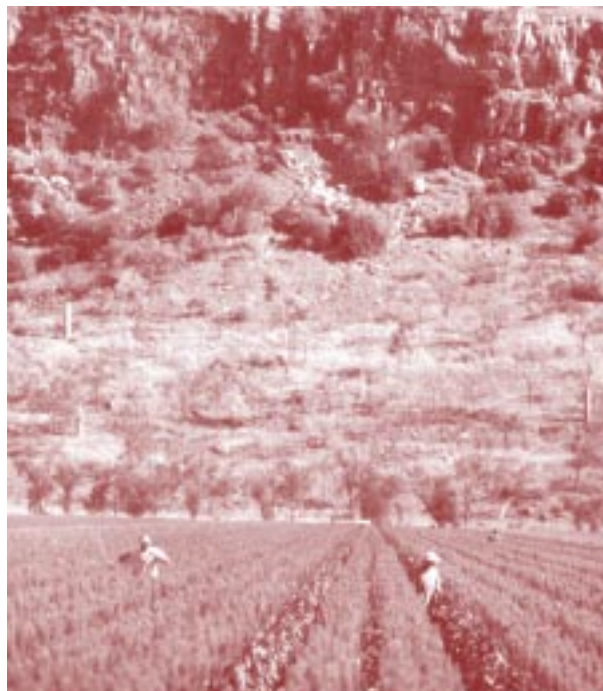


Photo: Dennis Schulz

Sorghum crops in Kununurra, WA. New pest-resistant cotton strains are also being trialled in the same region.

Many of the new developments will concentrate on sugarcane and cotton, both predominantly export crops requiring massive amounts of water. Sugarcane will be the major crop produced in Ord Stage II but cotton and other crops will be introduced to the 60,000-hectare development. A development consortium of Wesfarmers (80 per cent) and Japanese trading house Marubeni (20 per cent) will produce a feasibility study by December 31 that will indicate whether the project will go ahead—but the WA Government fully expects a green light. WAI's Fitzroy River cotton project, south of Broome, is planned to be enormous, beginning with a 20,000 hectare development, expanding to 225,000 hectares to be irrigated with water from the river.

Tougher cotton

Cotton has had an infamous history in northern Australia. Once a valuable export commodity, it was the original crop planted at the Ord Stage I irrigation scheme in Kununurra in 1963. By 1974, even after growers had used enormous quantities of destructive pesticides, the crop had become decimated by pests resistant to the chemicals. But today Kununurra is the site of a new experiment trialling genetically engineered cotton strains, reportedly resistant to pests, that require less chemical spraying. The new Ingard cotton varieties are also being trailed in Richmond in Queensland, Katherine and Broome.

The new strains were developed by CSIRO under license from the United States' corporation, Monsanto. They use a naturally occurring insecticide called Bt toxin that is synthesised into the cotton leaves, halting the digestion of the plant by insects. The strain developed in Australia contains two genes. "It becomes increasingly difficult for insects to become resistant to Ingard when there are two or more genes operating at once," explains

Geoff Strickland, Cotton Project Manager for the WA Department of Agriculture. "With a single gene operating resistance would develop in about six years, but if you've got two genes operating with different modes of action, then that gets expanded to 30 years."

Mr Strickland was involved with the five-year Kununurra cotton trial where results have been impressive. "A quarter of the crops didn't receive a single spray for any pests at all," says Mr Strickland. "Over the past five years we've had an average of less than five sprays per crop compared to the last year of commercial production when there was 40 sprays."

"The question remains: can you effectively manage the development of resistance and in that way keep the product viable for a long time? We believe that we can."

Local concern

These cotton projects have not only raised the hopes of many for a lucrative new source of income, they have raised concerns among local landholders. The WAI project spurred a cross-section of interested parties, including representatives of government, Aborigines and the community to meet in Broome on October 27 for the 'Cotton on Trial' public forum. There, a number of local speakers raised their concerns about broad acre cotton production and the existing Memorandum of Understanding between WAI and the WA Government. That MOU guarantees the company access to 95 per cent of the area's groundwater reservoir for its initial cotton production.

In Queensland's Gulf country, shires downstream of the potential cotton development in Richmond have also expressed concern. A community forum was held in May this year (see *Savanna Links*, Issue 18, April-June). Hosted by the Southern Gulf Catchments Inc. in conjunction with the Richmond Shire Council, the forum drew more than 100 stakeholders including conservation groups, shire councils, graziers, and commercial fishing groups. A Flinders River Catchment advisory panel was established through the forum and has now met three times since May.

According to Andrew Humpherys, the forum's coordinator, the main concern was water allocation. Graziers downstream of the development were concerned over possible shortages of water for livestock. Commercial and recreational fishers in the Gulf were also concerned about changed river ecology that could impact on estuarine breeding grounds for prawns and fish.

A dam has also been fielded for the O'Connell Creek, a tributary of the Flinders River. An initial feasibility study has been completed and is currently being examined by the Department of Natural Resources & Mines.

However, opposition to broad acre cotton projects goes beyond the use of water. Massive land clearing practices remain the greatest concern for environmentalists and Aborigines alike. Significant biodiversity damage can accompany clearing as well as salination and damage to sacred sites.

"We don't have any the legislative framework to ensure that land clearing happens in the correct way," states Mark Wakeham of the NT Environment Centre. "We're potentially supporting developments that are not ecologically sustainable or economically viable."

The cotton commodity price, says Mr Wakeham, is

currently languishing at a 29-year low—though prices did rise slightly in December.

Environs Kimberley, a Broome based environmental group, demands that the WAI cotton project be shelved. They question whether we can afford to cause widespread environmental disruption simply to profit from the production of an export commodity.

"We called for the WA Government to pull out of the MOU and instigate a community-based planning process so the community can decide what sustainable development can be undertaken," says Environs Kimberley campaigner Jann Crase. "We need to ensure that the ecological and cultural integrity of the area is maintained."

Indigenous issues

Widespread clearing and the alteration of the landscape for agriculture is also anathema to traditional Aboriginal people and these concerns have surfaced in the new cotton proposals.

Native Title issues are identified as major impediments for the WAI's trans-genic cotton venture south of Broome. Traditional owners currently deny the developer access to the proposed site.

In the Ord Stage II proposal, the government's negotiator, Mick Dodson, is currently discussing Native Title issues with local traditional owners and concerns regarding sites of cultural significance to Aboriginal people.

"Both the Kimberley Land Council and the Northern Land Council have said these issues are resolvable," comments David Meehan, head of the WA Office of Major Projects.

However, the director of the Northern Land Council, Norman Fry, has serious concerns with the cotton proposals. "When it comes to land clearing, Aboriginal people are not going to be happy to help," he says. "I'm not about to get the organisation I head to be advising the owners of almost 50 per cent of the Northern Territory to be entering into agricultural practices that are going to get us into trouble further down the track."

Mr Fry believes future sustainable land use in the north will arrive in the form of new technologies involving products derived from plant species harvested on Aboriginal lands. He has recently met with representatives of international pharmaceutical companies that have expressed strong interest in the chemical properties of native plants. "In the genetic prospecting area we have some of the most exciting prospects to look forward to," says Mr Fry. "Genetic industries like that would keep the country pristine. We'd be mugs to allow the country to be stripped for an old industry like agriculture that would rob us of the industry of the future."

Australian Cotton CRC www.cotton.pi.csiro.au/

Graeme O'Neill article on INGARD cotton

www.irysec.vic.edu.au/sci/goneill/btgene.htm

Environs Kimberley www.green.net.au/environs-kimberley/

NT Environment Centre www.ecnt.org/

Richmond cotton trials

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Conservation: a not-so private concern

Pressure is growing to see more conservation measures taken on land outside parks and reserves. But who should decide when and where this conservation takes place, who will pay for it, and who benefits? SL explores the issues.

In recent years it has become increasingly clear that we cannot rely on National parks and reserves alone to conserve native plants and animals. Some types of environment, for example, are not abundant in parks and reserves, such as the valuable pasture country of Mitchell grasslands and blue-grass pastures. There is also a limit to the amount of land that can be placed in parks and reserves as they need to be managed within a finite government budget.

Lands outside reserves are vital for many plants and animals. They contain areas such as riverbanks and monsoon vine forests that provide refuge for animals in the dry season as well as routes to move along. According to Dr John Woinarski, a senior wildlife ecologist with the Parks & Wildlife Commission of the NT, many species use 'off-reserve' areas like these as they move across large areas of country—from reserves to unreserved lands and back—to cope with seasonal fluctuations in food and shelter. These species will not persist, even in reserves, if the surrounding lands are degraded.

So how can we safeguard populations of native plants and animals in north Australia? For John Woinarski, coordination is the key.

"For many species the greatest conservation security will be achieved when management across properties and tenures is coordinated," he said, "rather than having a pronounced distinction between conservation lands and production lands."

It appears this coordination still has some way to go as there are now a number of different and often isolated approaches to off-reserve conservation.

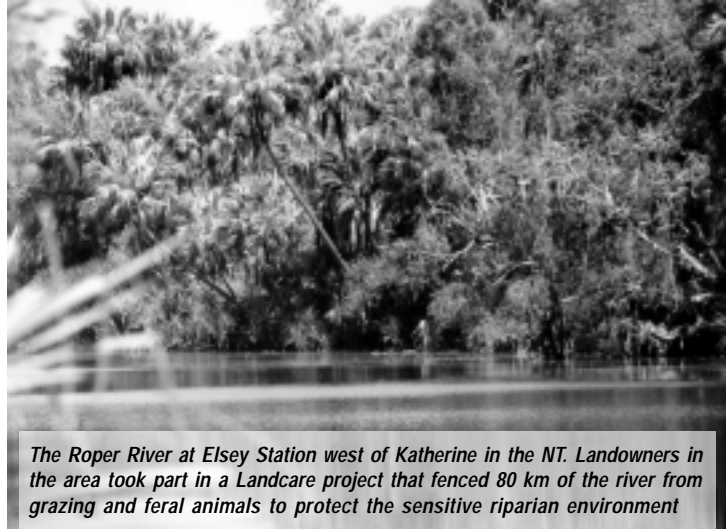
Private parks

One trend that has received much publicity is where land is bought specifically for conservation using funds from sympathetic individuals and businesses.

Bush Heritage is independent, non-profit, and dedicated to protecting species and habitats through creating reserves on private land. The organisation currently owns 13 reserves across the country. Carnarvon Station in central Queensland near Emerald is the latest acquisition, protecting 59,000 hectares of brigalow, grasslands, vine thicket, and other threatened vegetation.

Another such organisation is the Australian Wildlife Conservancy (AWC) which owns five properties in Western Australia, and has just purchased Mornington Station in the Kimberley. This organisation is involved in the recovery and protection of endangered species, especially mammals, and reintroduces these animals to areas after addressing threats such as feral animal predation. It also has research and education programs.

According to managing director Barry Wilson they don't believe any native animals have been lost at Mornington.



The Roper River at Eelsey Station west of Katherine in the NT. Landowners in the area took part in a Landcare project that fenced 80 km of the river from grazing and feral animals to protect the sensitive riparian environment

Photo: Kathryn Thorburn

"Our project there is more about protecting what is there," he said. "We want to use the place as a window of how the Australian environment was elsewhere, and should be again."

As the property is under pastoral lease, AWC is obliged to continue running cattle there, but the plan is to destock key areas, and manage them for conservation and also for public recreation.

Earth Sanctuaries Ltd (ESL) has a more commercial approach. Founded by Dr John Wamsley in 1969, the company was publicly listed on the Stock Exchange in May 2000. It is the world's only publicly listed conservation company. It has 10 sanctuary projects around Australia, with 92,000 hectares under its care. Each property is fenced off to exclude feral animals like foxes, rabbits and cats. Four of the sanctuaries are open to the public: Warrawong, Yookamurra, Scotia and Hanson Bay.

However, at the Earth Sanctuaries annual general meeting on November 26, chairman Dr Don Stammer conceded that the company had lost momentum in developing new sanctuaries, and posted a \$13 million loss in the past financial year. The share price has also weakened.

While there was a 10 per cent increase in revenues in the four months to October, ESL is now listing several properties for sale that it had bought to develop into sanctuaries.

Wendy Craik, former executive director of the National Farmers Federation and recently appointed chief executive officer of ESL is optimistic. During a recent trip to Townsville, Dr Craik raised the possibility of opening new wildlife reserves along Queensland's east coast, and eventually one in north Queensland. Another strategy the company will pursue is to build reserves close to towns and cities to draw more visitors.

Goodwill hunting

Despite the promising start for private conservation parks, in the foreseeable future most conservation outside

Rules and regulations frustrate landholders

THE recent Parliamentary Standing Committee report into public good conservation received submissions and evidence from more than 250 landholders. According to their report, those landholders reported widespread frustration, anger and resentment in the rural community as a result of what were perceived to be inappropriate policies.

The committee said that Australia's present conservation policies were not addressing the country's environmental problems. In fact, the committee suggested that "nothing short of a reconfiguration of land-use practices in Australia was required." And the major drivers of that reconfiguration of land use would be landholders.

While the inquiry noted that landholders were eager to change their land-use system, they often did not have the resources to do so. Without those resources, conservation works were unlikely to be undertaken and the environmental problems facing the country would remain and only get worse.

According to Leon Ashby, organiser of a landholder lobby group, that anger and frustration is because of what he calls over-regulation. In February this year, Leon and his wife Jane started an email newsletter *Landholders for the Environment*, which goes out to landholders, green groups, scientists and government. Even a quick perusal of the newsletters reveals the depth of that anger and differing views to some generally accepted tenants of sustainability and conservation. Leon identifies that anger as landholders being sick to the teeth of over-regulation.

"We are good managers. We are gradually improving the management of our properties and there is no recognition of that," he says. "We believe we need minimal regulation because profits will come from good



ABC TV Landline footage of landholders at Winton in February 2000 protesting against Queensland's new Vegetation Management Act.

Picture courtesy of ABC Landline

management, and from looking after our ecosystems.

"We don't see a need for regulation that doesn't understand the environment or the need for flexibility in management." Leon was the organiser of two rallies held last year in Roma and Winton that attracted more than 1000 landholders protesting against the implementation of Queensland's Vegetation

Management Act. A lack of consultation was a key reason for landholder resentment over the Act's implementation.

In NSW, a number of landholder groups, principally the Fiveways Landholders group, are preparing their own vegetation management processes, and when complete, will be implementing them, rather than those in place under NSW legislation.

He says this form of 'civil disobedience' is the way a number of landholder groups are heading, and that there are other groups looking at exactly the same measures. "Landholders are starting to say we're going to take on the governments now."

Leon says the Standing Committee's report has resonated very well with his members, especially those recommendations supporting landholder's property rights. "Most of them we would agree with, a few technical differences—essentially it was a very good report."

Public good conservation: Our challenge for the 21st century, The House of Representatives Environment Committee Report.

www.aph.gov.au/house/committee/enviro/pubgood/report/contents.htm

Landholders for the Environment

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reserves will have to be carried out by landholders. But this type of conservation effort will rely on the goodwill of landholders and assistance from government.

A number of pastoral properties are choosing to manage parts of their land for conservation rather than production. Elsey station south of Katherine has fenced off sensitive riverbank areas to exclude stock. This has protected the riverbank environment from overgrazing and erosion, but also made mustering easier. On Newry station east of Kununurra, a section was fenced off to protect the habitat of the endangered Gouldian

Finch. Other stations receive assistance from research programs such as Biograze which helps them implement effective conservation strategies (see separate story, p. 8). For many of these pastoral stations, the cost of fencing and other materials has been covered under government-funded programs such as Landcare, and the labour supplied by the landholder.

Land for Wildlife is a national program that encourages landholders to maintain corridors and patches of native vegetation to provide animals with habitat and corridors to move through. Landholders admitted to the scheme get support, advice, technical

notes, field days and links with other LfW members, which is funded by the Natural Heritage Trust through Bushcare. The scheme has been most effective in semi-rural and agricultural areas where habitats are drastically altered or removed entirely. The NT branch of Land for Wildlife was launched in October this year, the last state and territory in Australia to implement the program.

Who should pay?

But goodwill only goes so far, particularly when you are struggling to make ends meet. For those landholders who don't actively pursue

adequate conservation there is always legislation. There are various laws to protect plants and animals outside parks and reserves, ranging from those that protect endangered or threatened species to laws that restrict the activities that can be undertaken on different types of tenure. However, these laws are often difficult to police in remote areas, and in the case of legislation like Queensland's Vegetation Management Act, designed to limit land-clearing, they have kindled fierce opposition from many landholders.

Much of the problem comes down to who pays for conservation efforts and who stands to benefit. Many landholders see conservation laws that prevent them from developing their land as depriving them of income. A recent report released by the House of Representatives Environment Committee into Public Good Conservation examined these issues in some detail. According to committee chair, the Hon. Ian Causley MP, current policy approaches are often out of touch with the realities of rural and regional Australia.

"Very often landholders have to meet significant costs out of their own pockets for conservation works from which they can anticipate little immediate or even medium-term benefit," he said. "The benefit flows to the community, but the cost is borne by the landholder."

The report recognised that landholders were the key to implementing sustainable environmental practices that would ensure the future of not only Australia's rural sector but the

Managing grazing pressure to maintain biodiversity

Pastoralists know that there are plant and animal species that change in abundance under different grazing pressures. These are known as 'decreasers' and 'increasers'. While good pastoral management practice encourages numerous and evenly spread watering points to manage grazing pressure, 'decreaser' species require a network of lightly or ungrazed areas; that is, areas remote to water.

To demonstrate to producers how they might achieve this, CSIRO's Arid Lands Division and the Parks & Wildlife Commission of the NT developed the Biograze program. Biograze assists producers to retain some areas of their properties in a water-remote and therefore ungrazed state. Fencing off lightly grazed areas is another option. Biograze can demonstrate not only the practicalities of these developments on the ground, but also minimise costs to producers in terms of lost production. Biograze (2000) *Biograze: Waterpoints and Wildlife*. CSIRO, Alice Springs. Web: www.cazr.csiro.au

health of its landscapes for generations to come. (See separate story previous page).

The committee developed six basic principles as the basis for public good conservation policy, among them the recognition of landholder rights in respect of land use; and that all landholders have duty of care to manage land in an ecologically sustainable manner. The report was released in September 2001, and the Federal Government is yet to respond.

Although not the main focus of the committee's report, the situation on Aboriginal land has many similarities to that on pastoral land. Increasingly, pressure from the broader community may require Aboriginal communities with few resources to manage their extensive lands for conservation.

Ultimately this may come down to

whether urban Australia, which represents the majority of those who stand to benefit from off-reserve conservation, is willing to provide adequate resources to those people in regional Australia who have to implement that conservation.

The NSW Farmers' Association recently called for a debate on introducing a GST on fresh food as a way to raise public funds for repairing the environment—a signpost, perhaps, to the future.

—By Kathryn Thorburn, Peter Jacklyn, Kate O'Donnell.

Go to: **Australian Bush Heritage**
www.bushheritage.asn.au/

Australian Wildlife Conservancy
www.australianwildlife.org/

Earth Sanctuaries Ltd
www.esl.com.au

NSW Farmers' Association report
www.nswfarmers.org.au/primary

NT history provides guide to effective land rehabilitation

Pastoral Land Rehabilitation in the Semi-Arid Tropics, by Sally Sullivan and Maria Kraatz, brings together for the first time a review of all land rehabilitation projects undertaken on pastoral lands in the semi-arid tropics of the Northern Territory between 1946 and 1996.

This area covers the Victoria River, Katherine and Gulf and Barkly districts. The book includes a timeline history of land rehabilitation in the NT, as well as a detailed station-by-station account of rehabilitation activities in these districts. Thirdly, the report explores factors influencing the success of rehabilitation.

The report is intended to be a useful and practical document for landholders. Although the focus is on pastoralism it may be useful for other land managers.

So what is the take-home message? According to author Sally Sullivan, a former land conservation

officer, "prevention of degradation is far preferable to developing a need for rehabilitation". Once significant erosion occurs it can be difficult to repair.

"The station-by-station analysis of rehabilitation showed that time and time again."

Effective prevention includes judicious land management, control of livestock and feral animals and careful placement of fences, roads and waters. But for land managers who do have degraded land the report provides a comprehensive guide to rehabilitation techniques.

The report is available free on the Internet.
www.lpe.nt.gov.au/advis/land/pastoralrehab/

NT Dept of Infrastructure, Planning & Environment
Tel: (08) 8999 4455

Landscape concept takes a broad view

Savanna Links talks to CRC research theme leader Dr John Ludwig about the healthy landscape concept, what it means for landholders, who is using it and what future developments might be.

Why create a new healthy landscapes concept when there are already many other ways of measuring the health of the landscape?

We felt that these other ways of defining and measuring landscape health were too specific and limited and didn't apply to savannas very well.

Too limited—what do you mean?

I mean they would often focus on a particular forest or other specific area and specific functions such as soil function or biodiversity. We wanted a broader view that would apply to all of the savannas across Australia; an approach that would look at not just how well landscapes worked, but also at biodiversity and other human values in the landscape.

You mentioned human values. Isn't one of the challenges that 'healthy' country will mean different things to different people?

Yes, absolutely, that's why we wanted to keep the definition fairly broad and allow it to accommodate these different views. One problem with trying to define landscape health in a very specific way is that you may end up with a definition that people would object to. For example, if you said that healthy savanna country had to support biodiversity at all scales right down to the level of a cattle paddock, then that definition would upset pastoralists. But, in fact, most people would accept that we need to maintain biodiversity at much larger, say, regional scales.

We think the answer to a useful definition of health lies in describing sensible goals for landscape health that depend on what scale you're looking at. That is, different land uses happen in different places.

And how important is it to have land managers involved in this?

Very important, because we want the concept of healthy country to be applied by people, people who can have ownership of it.

Can you give examples of where this is actually being used by people?

The National Land and Water Resources Audit is trying to define the state of the country for different areas like the savannas, so having an audit of the health of savannas will be an important goal. They haven't achieved that yet, but they will. We've gone a long way to defining what we mean by healthy country here in the north, so that's a good first step.



TS-CRC Research Theme Leader John Ludwig

They're using the definition as a framework?

Yes, that's correct.

What about land managers themselves?

Heytesbury and other pastoral companies have picked up on it. Heytesbury have used some measures of landscape health to see how things have changed on their Victoria River District properties.

How would that be different from what they would have done before?

Is it because they are now using biodiversity as well as land function measures?

Yes, in the savannas we've said that health involves not just how well soil has been conserved and the

condition of the soil surface, vegetation patches and other structures that are important, but also biodiversity. How good are these lands in providing habitats for plants and animals, are they also satisfying the needs of the people? Not just in providing material goods, but in providing country that looks good and satisfies cultural needs, spiritual needs.

Some individual landowners are also monitoring using photo-points. But at the same time as they are taking photos, they are actually looking at soils, grass types and so forth and getting a feel for landscapes and broader issues.

It must be one thing to measure the physical side of landscapes, but are the cultural and spiritual areas more difficult?

Yes they are. Most work so far has been coming up with indicators of healthy soils and vegetation. Indicators for the habitat needs of different animals is getting there, but I think the cultural and spiritual area is much more difficult. That is an area that needs to be advanced.

Is the Tropical Savannas CRC trying to fill the gap on the cultural and economic side of things?

Yes, and that's some of the new research that's coming in our new Themes. It's going to be a very challenging job, but in the end a fruitful one.

So what else is next?

I think one thing that needs to be done is to allow monitoring of vegetation and soils at much broader scales. A lot of the work so far has been done on ground-based measurements, looking at plots, looking along transects, etc. What we want to do in the future is to use remote sensing, new satellites, so that we can more easily view the health of large areas quickly.

Map Maker returns to active duty

A NEW Map Maker for the Victoria River District of the NT is now available on the TS–CRC website, and has many new functions. For example, a particular map feature like a river or road can be selected, and the different vegetation types within a certain distance of that feature can be identified. It can also generate maps of vegetation, soils or land systems, together with information on these features. These maps can be made at scales from the whole VRD down to a few square kilometres and can be overlaid with property boundaries, river courses, roads, etc. Fire histories of the VRD can also be viewed and cross-referenced with information such as tenure type, rainfall, vegetation and soil patterns. A new online database of research references is being developed and will be accessible by the end of December, complete with a section that allows researchers to submit their own bibliographies. Go to: <http://savanna.ntu.edu.au> and then click on the Map Maker icon

Streamlined departments for NT

NEW government agency arrangements in the NT will see the number of departments fall from 35 to 18, an almost 50 per cent reduction. The Department of Infrastructure, Planning & Environment now contains what used to be the Departments of Lands, Planning & Environment, the Parks & Wildlife Commission, and the Department of Transport & Works. The Department of Primary Industries and Fisheries, along with the Departments of Mines & Energy and of Asian Relations & Trade is now part of the new Department of Business, Industry & Resource Development.

Go to: www.nt.gov.au/structure/details/detail.shtml

Queensland launches fire-detection website

QUEENSLAND has now set up its own fire detection website. Developed by the Department of Natural Resources & Mines (NRM), the site aims to help the state's Rural Fire Service to quickly locate and track active fires throughout the state. It is also being used by landholders, natural resource managers and the Australian Defence Force. Information is generated by NRM's satellite receiving station at Indooroopilly in Brisbane, which processes images acquired from three United States satellites that pass over Queensland up to 12 times a day. Additional information can be overlaid such as shire boundaries, major roads and towns. NRM also offers subscribers a free automated email service that alerts them to fires within nominated geographical areas. The website is also being used to monitor strategic aerial burning as part of a Natural Heritage Trust-funded project in the Cape York Peninsula aimed at controlling late dry season wildfires (see *Savanna Links* Issue 18, p. 8).

Go to: www.dnr.qld.gov.au/longpdk/SatelliteFireMonitor/

Digital vegetation maps

A DIGITAL version of 'The Vegetation of the Australian Tropical Savannas' map is now available from the Queensland Herbarium. People wishing to acquire the data must sign a licensing agreement. The dataset is available for cost of supply at \$120.00 (ex. GST). The technical report is currently in preparation and should be available by mid-December. It is to be published on CD-ROM as a series of linked PDF files. The CD and map sheets are included in the folder. The cost will be about \$30 + pp.

For a copy of the license agreement, or more information, Email: Rosemary Niehus: Rosemary.Niehus@env.qld.gov.au

Reading

Hit the Heritage trail

A NEW touring guide *Heritage Trails of the Tropical North—A Heritage Tour Guide to Far North Queensland* describes eight trails that should appeal to those interested in historic railways, early goldfields, military heritage, national parks, and the history of the sugar and timber industries. Along the trails are almost 600 heritage places including 26 national parks, historic railways, goldfields, hotels, churches, town halls, post offices, theatres, timber mills, court houses, cemeteries, sugar mills, wartime airfields and more. It retails for \$29.95 (plus \$5 postage and packaging for mail orders) from major booksellers or the Naturally Queensland Information Centre, 160 Ann Street Brisbane.

Tel: (07) 3227 8197

Email: nqic@env.qld.gov.au

Holistic approach for Cape

The Natural Heritage Significance of Cape York Peninsula, assesses the area's natural features in regional, national and international terms, and recommends a

holistic approach to future management. The report was prepared for the State Government in response to recommendations of the Cape York Peninsula Land Use Study (CYPLUS) and the Cape York Heads of Agreement (Land Use). It was produced by Anutech Pty Ltd, the consulting arm of the Australian National University. The report will be used to help develop a framework for future land-use planning, including guidance to property planning and the development of a conservation strategy. A draft conservation strategy should be released for public comment by the end of 2001.

For copies of the executive summary and full report: www.epa.qld.gov.au

Northern producer strategies

Eleven north Queensland farm businesses have revealed their 'secrets to success' in a booklet *Successful Strategies for Staying in Charge—Experiences from the North*. The booklet is part of a strategies series developed by the Department of Primary Industries Rural Risk Strategies Unit. It shows how the landholders reduced exposure to the risks associated with the

complete range of farm business variables, including climate.

Go to: www.dpi.qld.gov.au

Trees as Greenhouse sinks

The Australian Greenhouse Office (AGO) has published a booklet, *Growing Trees as Greenhouse Sinks—an overview for Local Government*. The booklet is the first in a series of tools being developed by the AGO under the Bush for Greenhouse Program to facilitate investment in greenhouse sinks.

Contact: Rob Thorman at the AGO.

Tel: (02) 6274 1214.

TS–CRC Annual Report out

The Tropical Savannas CRC Annual Report is now available. It rounds up the progress of all our research projects over the past year, as well as linkages formed with myriad research and stakeholder organisations, and how our research is being used on the ground.

For a copy contact: Kathryn Thorburn

Tel: (08) 8946 6754 Fax: (08) 8946 7107

Email: k_thorburn@site.ntu.edu.au

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

Study focuses on Cape York's rare plants

A PROJECT aimed at ensuring the long-term survival of rare and threatened plants in Cape York Peninsula is now nearing the end of its first year—and researchers have found that a number of plants listed as threatened might not be as rare or threatened as previously thought.

The project is being carried out by John Clarkson and Jill Landsberg of the Mareeba office of the Queensland Parks & Wildlife Service.

The first stage of the project is testing the consistency of the official lists of rare and threatened plants.

Lists matter because the species on them have special status in legislation.

“Protecting listed plants and animals is given high priority in regional vegetation management planning,” said Jill. “Listed species also get priority for endangered species funding, and have legal protection from ‘taking’ and ‘use’. They also provide a focus for recovery activities.”

These lists are maintained by both state and federal governments. Until recently, state lists had the greatest influence. However, the introduction of the Commonwealth Environment Protection and Biodiversity Conservation Act 1999, which came into force in July 2000 changed things.

“Previously what was listed on a federal level only had on-ground implications on Commonwealth land,” said Jill. “Now, it has implications for freehold and state land also. A developer has to get permission from Environment Australia to undertake work that might have a significant impact on a nationally listed species, regardless of who owns the land.”



John Clarkson points to an unnamed Stackhousia known only on the sand dunes between the mouth of the McIvor River and Cape Flattery on Cape York

Photo: Jill Landsberg

Therefore it is important that the species on both the federal and state lists really are threatened. However, the project's field searches have found that many listed plants on Cape York Peninsula are more widespread than indicated by the records.

The project has also revealed discrepancies between the state and federal lists. For example, the Commonwealth lists 53 of the plant species of Cape York Peninsula as under threat but Queensland lists 63.

Under the previous Federal Act, the Commonwealth was required to undertake annual reviews of state lists. The new Act does not spell out this requirement, and since its introduction, reviews that might have

dealt with discrepancies have not taken place.

This new research underlines the need for regular reviews of both federal and state lists. “There is an expectation that reviews will continue,” said Jill, “but new federal procedures are still being developed.”

The project is set to continue for another year. The emphasis will be on further field surveys to narrow down the list to just those species that really are threatened, and developing management strategies to protect them.

John and Jill are also preparing a small field guide to help Cape York land managers recognise the special plants under their protection.

Contact: John Clarkson, QPWS

Tel: (07) 4048 4745 Fax: (07) 4042 1284

Email: john.clarkson@env.qld.gov.au

Jill Landsberg, QPWS, Tel: (07) 4048 4697 Fax: (07) 4042 1284

Email: jill.landsberg@env.qld.gov.au

Fire studies to expand in Arnhem Land

THE Federal Government has announced a further \$330,000 in funding for better fire-management practices in the Pine Creek, Arnhem Plateau and Central Arnhem bioregions.

The Northern Land Council in conjunction with the Tropical Savannas CRC and the Bushfires Council of the NT, has been working with traditional owners in west Arnhem Land for the past three years. The new funding will allow research to be expanded to areas between Bulman, Ngukurr in South-West Arnhem Land, together with Arnhem Plateau lands midway between Katherine and Maningrida.

“It is believed that better fire management has significantly reduced the extent, frequency and intensity of wild fires,” Federal Environment and Heritage Minister Robert Hill said.

Senator Hill said that early-season patchwork burning had achieved significant on-ground biodiversity benefits in Arnhem Land's sensitive ecosystems, as well as helping to reduce greenhouse emissions. The fire research will form part of the TS-CRC's new fire research program, currently under development.

Contact: Peter Cooke, Northern Land Council

Tel: (08) 8920 5109 Fax: (08) 8945 2633

Email: peter.cooke@nlc.org.au

Future of rural land

A DISCUSSION paper is open for comment on Queensland's rural leasehold land. It explores issues such as land degradation, economic viability and social and cultural sustainability. The paper is available for public comment until 1 April 2002, and is on the Qld Dept. Natural Resources & Mines website. Hardcopies will be available shortly at the agency's regional offices. Stakeholder workshops are also planned during the consultation period.

Go to: www.dnr.qld.gov.au and click on the Managing State Rural Leasehold Land discussion paper icon.

2002

'Getting it right: Guiding principles for natural resource management in the 21st century'

11–12 March, Adelaide

Venue: Adelaide Convention Centre

Keynote speakers will discuss biodiversity, soil degradation, water quality, the greenhouse effect, and the social, economic and political context of landscape change. Regional case studies from Australia and China will explore on-ground realities of implementing change.

Contact: Plevin and Associates P/L

Tel: (08) 8379 8222 **Fax:** (08) 8379 8177

Email: events@plevin.com.au

Web: www.plevin.on.net/GIR

Balancing the Groundwater Budget: International Association of Hydrogeologists

12–17 May, Darwin

Venue: Carlton Hotel, Darwin

Conference themes include resource quantification; tools for evaluating sustainable yield; ecosystem dependence on groundwater; community involvement; groundwater management plans and estuarine discharge processes.

Convention Catalysts International

Postal: GPO Box 2541 Darwin, NT, 0801

Tel: (08) 8981 1875 **Fax:** (08) 8941 1639

Email: convention.catalysts@norgate.com.au

or contact: Des Yin Foo

Postal: IAH (NT)

PO Box 95, Palmerston, NT 0831 Australia

Tel: (08) 89993615 **Fax:** (08) 8999 3666

Email: des.yinfoo@nt.gov.au

Web: www1.octa4.net.au/iahnt/conference.htm

4th Queensland Environmental Conference

30–31 May, Brisbane

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Please email, or call numbers at right. Views expressed in *Savanna Links* are not necessarily those of the TS-CRC.

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Northern Territory University
DARWIN NT 0909

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

Email: savanna@ntu.edu.au

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

Theme: 'Practical and Sustainable Solutions for Government, Industry & Infrastructure'. Presentations will cover a range of environmental disciplines and professions.

Environmental Engineering Society

Postal: PO Box 1124, Spring Hill QLD 4004

Tel: (07) 3510 2114 **Fax:** (07) 3366 9344

Email: admin@eesq.com.au

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. Fire and savanna landscapes in northern Australia contact: Jeremy Russell-Smith, Bushfires Council 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.

Contact: 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>

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