Welcome to this the fifth edition of the *Buntine-Marchagee Catchment News*, the magazine keeping people living or working in the catchment and associated stakeholders up-to-date with the Recovery Catchment project and other relevant catchment information. The theme of this edition is ‘managing native remnant vegetation and in particular woodlands, in the agricultural landscape’.

A topic sometimes the ‘bone of contention’ in a landscape with competing land use needs. Land managers are faced with the very real challenge of how to slow the rate of land degradation; conserve species diversity; ensure people earn a living and accommodate the many other land use needs impacting on the landscape and it’s intrinsic values.

Our understanding of the importance of woodlands and what needs to be done to manage them is increasing every day. However, there is a very real threat that species may be lost before we have even had time to know about them.

If you wish to help wildlife on your property, the Land for Wildlife scheme can offer advice and assistance. Participation is free and there are no legal ramifications. Basically, it’s a fantastic opportunity to have an experienced officer visit you and provide specific on-site advice. Similarly, the Woodlands Watch program and the officers in Dalwallinu are ready and willing to help you on-the-ground now!

One more thing before you grab a drink and sit down to read our latest edition, if you or your catchment group would be interested in working together on these or similar issues please register your contact details with Fiona Falconer so that in coming months we may come directly to you with catchment planning information.

Jodie Watts
Flora Surveys in the Northern Wheatbelt

By Professor Stephen Davies

Between 1999 and 2002 I had the pleasure of working with local landowners and Landcare staff in surveying the flora of private remnants in the northern Wheatbelt of Western Australia. The Landcare Districts of Latham, Marchagee, Mullewa, Waddy Forest and Wilton Well span a fascinating transition zone of the State’s flora, with south-western plants such as kangaroo paws occurring in the south and west, and arid zone shrubs, mulga and bowgada, in the north and east.

Remnant vegetation of private land is scattered throughout these areas. Even though many of the government reserves had been surveyed, very little systematic work had ever been done on private land. In all, 170 sites were visited and more than 2000 specimens identified. Many of these specimens were the same species collected in different Landcare Districts, so the total number of plant species recorded was about 1000. This still represents significant biodiversity in the region and emphasises the importance of private remnants in preserving that biodiversity. In each of the Landcare Districts at least some Declared Rare Flora and Priority 1 species were located, for example creeping darwinia (Chamelaucium repens) in Mullewa, Chapman’s hensmania (Hensmania chapmani) in Wilton Well, Eremophila vernicosa in Marchagee and Frankenia bracteata in Waddy Forest. Several of these were known to the landowners but their significance was not. One rare plant, prostrate flame pea (Chorizema humile), was the subject of a special survey, because the Waddy Forest survey had turned up a very large, unrecorded population. The follow-up survey recorded another nine populations, each small but significant in representing further genetic diversity.

Many of the remnants were unfenced but the survey, which involved the landowner wherever possible, stimulated further fencing efforts. Once the value of the remnants was documented, it was supported by Natural Heritage Trust grants. It was especially interesting to find that many plants that were rarely collected and therefore considered rare, grew in the salt creek systems. These areas are regarded as infertile in farming circles, and also, perhaps, in botanical circles. The situation is reminiscent of the arid zone, where gidgee (Acacia pruinocarpa), the largest acacia in the inland, was uncollected and therefore undescribed until 1958 because it flowers only in the first two weeks of December and no good botanist would go to the arid zone in mid-summer! In the same way, the salt creek systems are a neglected resource. Because they are less commonly used by farmers, they are less disturbed than other more fertile areas so yield many interesting specimens when collected. In another way they are very important because they form long, undisturbed corridors traversing the countryside, which enable animals, and to some extent plants, to disperse through otherwise hostile landscapes.

Time and time again, the survey results showed the destructive effects of high rabbit and kangaroo populations. Even in remnants fenced with ringlock and equivalent netting to exclude stock, there was little regeneration because most had been eaten by the herbivores that the fencing did not exclude. Farmers are aware of the damage rabbits can do but few seem to appreciate the damage high numbers of kangaroos can cause. Environment Australia surveys the density of kangaroos over the whole of Australia every three years. These surveys show that the density of grey kangaroos in undisturbed woodland is 0.86 (one) per square kilometre. In the Inering Catchment, east of Carnamah, I have measured densities of 62 grey kangaroos per square kilometre of remnant. No regeneration can sustain so many grazing animals.

Kangaroos feed on clover and other pastures in the winter when, before farming development, they are short of food. In the summer they feed on the young, green regenerating seedlings in the bushland that are eventually wiped out when the kangaroo (or rabbit) density is high.

In areas like Bindi Bindi and Koobabbie, Coorow, where plants like Chorizema humile are protected by bird netting, (12-millimetre netting), the main stems survive, but any shoot beyond the netting is grazed off in the summer. Until publicly and privately owned remnants are adequately fenced with rabbit netting (30-millimetre netting), particularly those containing palatable rare species, biodiversity will continue to be lost in many remnants. Subsidising the cost of fencing remnant vegetation is a key incentive to encourage protection of biodiversity.

The surveys have provided a baseline to follow changes against in the vegetation as landcare practices develop. In the Marchagee and Latham Catchments in particular, survey sites have been marked so, decades later, they can be revisited to measure changes in floral diversity quantitatively. Similar reference points should be established in other catchments.

Finally, I would like to express how much I enjoyed undertaking the work, meeting and getting to know the farmers, and how grateful I have been to those who helped me, sometimes under very trying field conditions. In particular, my assistants Melanie Clinch, Karen Edward, Rebecca Graham, Danika Loomes, Brendan Metcalf, Sandra Santich and Timothy Simmons.
Unique for its ability to thrive as a tall leafy tree in arid environments, the salmon gum was acclaimed by international forest authority Sir David Hutchins when he examined WA's forests. Of goldfield's forests, he wrote in 1914: 'Salmon Gums, Gimlet and smaller gums are wonders of tree growth in such a climate'. (Irene Cunningham, 1998)

It is estimated that in WA's agricultural area, only 20 per cent of the area occupied by salmon gum (E. salmonophloia)–gimlet (E. salubris) woodland remains, and only three per cent of the area occupied by York gum (E. loxophleba), salmon gum, wandoo (E. Wandoo) remains (from Hobbs et al. 1995b, adapted from Beard and Sprenger 1984). In the Moore River Catchment, only seven per cent of the area occupied by medium woodland of York gum and salmon gum remains. These remaining woodlands occur in isolated remnants or on road verges, and are often degraded by livestock grazing and weed invasion and, in most cases, there is little or no regeneration of salmon gum (Yates, Hobbs and Bell, 1994).

The salmon gum grows to about 25 m on loamy soils throughout the Wheatbelt and the Goldfields from Mullewa in the north, east beyond Kalgoorlie and to the south-east of the Fraser Range. The salmon gum is endemic to Western Australia and the bark is smooth, white, silver grey (in winter–spring) over cream, becoming salmon pink to coppery (in summer–autumn). The smooth outer grey-white bark is shed annually, leaving fresh new reddish bark fading to pale salmon pink as it ages. The leaves are glossy and deep green. The flowers are white and are borne in spring and early summer (September–December) in groups of up to 11. The bud caps are rounded and the fruiting capsules hemispherical and less than five mm across. The seed is grey.

One large tree can carry more than 400,000 tiny seeds, which fall to the woodland floor at the rate of five to 10 seeds per square metre per month. Seedling salmon gums are rare as most of the seeds are eaten by ants. Seedlings are usually found in areas where there has been large-scale disturbance such as fire, drought, flood, strong winds, and above-average rainfall in the first summer following germination. The salmon gum was once destroyed in order to improve pasture, crops and water supply. It is now being recognised as a valuable revegetation tree, which helps to lower the watertable and provide habitat for wildlife. The salmon gum is easily raised from seed and unopened mature fruits can be collected in any month. Given the height of the salmon gum, it can be difficult to collect seed, so look out for fallen branches after storms/strong winds. The seed needs to be collected very quickly because in our warm climatic conditions seed can shed within a day. While salmon gums are fast growing, hollows that can be utilised by vertebrate fauna may not form until the trees are 120 to 150 years old.
Woodland watch
By Joel Collins

Recharging the batteries
Picking up the afternoon sunlight and reflecting the most vibrant of colours, standing tall and offering shade and shelter for creatures great and small, are the remaining eucalypt woodlands of a past legacy of immeasurable significance.

When considering the vast area that these woodlands once covered many years ago, one can start to understand the importance of the remaining remnants. They are, after all, our natural assets. The majestic salmon gum (Eucalyptus salmonophloia), the striking gimlet (Eucalyptus salubris), the rare red morrell (Eucalyptus longicornis) and the famous York gum (Eucalyptus loxophleba) are the icons of the Wheatbelt and just the beginning of the incredible biodiversity of the region.

In fact, the Wheatbelt is richer in plant and animal species than previously realised and offers an estimated 4000 species of which more than 60 per cent are endemic. Most farmers in the region can quickly tell you the transformations that occur to their patches of bush in spring, the colours they offer and the variety of birds and insects that flock to the flower show.

People who live and work in the farming area have an affinity for these remnants, however large or small, thick or sparse they are. They offer adventures for kids, picnic places or a place to unwind in the evening. To the visitor passing, they offer a boost to their senses and to their imagination.

In order to increase the likelihood of these remaining patches of bush standing the test of time and remaining viable, key management actions are required. Just as management and conservation actions are tailored to the many different types of woodlands, they also need to be tailored to the different landowners. To help provide landowners with access to different options, the World Wildlife Fund (WWF) Australia, through their Woodland Watch project, is aiming to capture the value of these different woodlands through an on-ground response to landholders’ needs that is practical and valuable.

Woodland Watch background
Launched in June 2000, WWF’s Woodland Watch is working across the Northern Agricultural Region and the Avon Basin with project officers in Northam, Bencubbin and Dalwallinu. To date, the program has provided support and bush management services to more than 100 landholders. Key services available to participants in the project include:

- Flora surveys of woodland remnants - involving professional botanists from the WA Herbarium. These surveys provide detailed information to the landholder about their bushland, and provide useful data for woodland management for applying for landcare funding and for revegetation projects.
- Assistance in accessing funding for landcare projects - in particular fencing projects that protect remnant vegetation. WWF’s Woodland Watch field officers may be able to offer practical support in applying for these funds.
- Linkage with other agencies, schemes, Natural Resource Management (NRM) specialists and landholders in the region who may be able to offer additional services and experience. WWF’s Woodland Watch team works closely with a range of agencies and NRM professionals and is always looking at ways of delivering maximum landcare and conservation benefits to landholders.
- Practical bush management information. The field-based WWF Woodland Watch team brings a wealth of experience to the farm gate, including lessons learnt from other landholders throughout the Wheatbelt.
- Assistance in a range of other areas, including specific information about issues such as farm wildlife, weed species, rare flora and fauna species, regional herbaria and availability of suitable reference material.

Achievements to date
Woodland Watch has already achieved amazing results.

- A total of 91 landholders with remnant woodlands are actively taking part in the project.
- 112 flora surveys have been conducted, with several new plant specimens lodged and vouchered at the WA Herbarium.
• Fifteen species, believed to be new, have been discovered, along with 13 new populations of rare or priority flora species and range extensions for numerous other species.
• Rare tree-stem spider populations have been discovered, extending their current known range.
• More than 50 landholders have implemented or initiated conservation covenants, Land For Wildlife agreements or other voluntary conservation agreements.
• More than 3300 ha has been protected under Land For Wildlife agreements supported by CALM.
• A total of 2600 ha has been set aside under nature conservation covenants (this total includes those in the process of being covenanted).
• About 1000 ha has been set aside under WWF-certified voluntary management agreements.
• About 2500 ha is being managed for conservation under new Shire conservation policies (developed with the direct assistance of WWF).

The situation in the northern Wheatbelt
Woodland Watch has been operating in the Northern Agricultural Region from November 2003. With many good quality woodland remnants throughout this region, project officers at Dalwallinu Shire are keen to assist landholders in achievable bush management initiatives.

If you are interested in finding out more about Woodland Watch, becoming involved in the program or have a great patch of woodland that you would like to talk about, contact WWF.

Landholders in the Northern Agricultural Region can contact their Woodland Watch project officers at the Shire of Dalwallinu (PO Box 141, Dalwallinu 6609, phone: (08) 9661 1001).

Bronwen Smith
Phone: 0427 387 644
Email: bsmith@wwf.org.au

Joel Collins
Phone: 0427 389 764
Email: jmcollins@wwf.org.au

Profile
Dr Duncan Peter

Dr Duncan Peter been appointed as the Strategic Regional Natural Resource Management Facilitator (NRM) for the Northern Agricultural Catchment Council (NACC).

Duncan has worked on a range of projects that have included research, sustainable farming systems and natural resource management.

The position of Strategic Regional Natural Resource Management Facilitator is a three-year, Natural Heritage Trust funded position with the NACC to assist the region develop and put its NRM strategy in place. Duncan is part of a team of NRM facilitators across Australia that operates at regional (five in WA) and State levels, including involvement with Indigenous Land Management facilitators (eight in WA).

There are four major strategic outcomes required from Duncan’s position. These are:
• good communication with people in the region about the Commonwealth and State Government’s NRM policy and other information;
• stakeholder issues and achievements are relayed to the government;
• improved stakeholder engagement; and
• an effective and well functioning NRM facilitator network.

In working to achieve these outcomes, Duncan is a member of the NACC team that provides support to volunteer and community groups in the development of their regional plans and their future implementation. He is also supporting local level facilitators and NRM officers with leadership and general support to help them feel part of the larger regional, statewide and national NRM network.

Duncan is looking forward to working with the community of the Northern Agricultural Region (NAR). His contact details are:

Dr. Duncan Peter
Strategic NRM Facilitator – Northern Agricultural Catchment Council
20 Roberts Street, Moora, WA 6510
Phone: (08) 9651 1302
Fax: (08) 9651 1008
Email: naccfs@westnet.com.au
Web: www.nacc.com.au
Postal Address: c/o Dept. of Agriculture, PO Box 16, Moora, WA 6510
The national and international potential of one of Australia’s most valuable plants, *Acacia*, and the launch of the Dalwallinu Environmental Centre concept were the focus of events at the Dalwallinu Environmental Expo. The expo, held at Dalwallinu earlier this year, celebrated Dalwallinu as an area with rich diversity in *Acacia* species. There are 180 species of *Acacia* found in 100 km of the shire.

*Acacia*, the largest genus of flowering plants in Australia, occur in most habitats and play a vital role within many ecosystems, particularly in arid and semi-arid areas. The plants are tolerant of a wide range of environmental conditions, making them suitable for managing degradation (such as salinity) while also providing potential food for people and livestock.

The *World Wide Wattle* website (www.worldwide.wattle.com) and a new book, *AcaciaSearch*, which focusses on the scientific, social and cultural importance of wattles, were launched at the Expo. These new resources are intended for a range of professional and amateur users. *AcaciaSearch* was published by the Joint Venture Agroforestry Program and identifies, evaluates and provides detailed information for about 35 species of *Acacia* that are considered prospective as new woody crop plants in the agricultural region of southern Australia (in the 250 mm to 650 mm rainfall zone).

The Dalwallinu Environmental Interpretative Centre concept was also launched at the Expo. Such a facility in the region will:

- provide a point of access for farmers and others for relevant environmental information;
- be a centre of education and learning for a range of students, from primary schools through to tertiary institutions;
- act as a base for visiting scientists needing laboratory and research facilities; and
- be a showcase for tourists, to inform and educate them about environmental issues of our region.

CALM’s Midwest Region was well represented at this event with displays from both the Buntine-Marchagee Recovery Catchment (BRMC) and Land For Wildlife.

The BMRC display included a fun, interactive slide show of flora and fauna found in the catchment. A highlight of the display was a competition for school children to name the stuffed little eagle from the catchment, which attracted many original and imaginative suggestions. There were also maps and information on offer about the project.

The Land For Wildlife display featured photos of Land For Wildlife sites across the Northern Agricultural Region, and beyond, with brochures and information on aspects of the scheme. A feral cat (not alive!) lurking in the ‘bush’ backdrop to the display attracted much comment from schoolchildren and adults.
The Buntine-Marchagee Catchment held the Community Hydrology Workshop at the Wubin Sports Club at the end of March. Landholders heard about hydrological studies occurring in the catchment, including:

- the catchment drilling program (CALM);
- groundwater investigations and modelling (Department of Agriculture);
- surface water management (Department of Agriculture);
- the Rapid Catchment Appraisal - the Moore Catchment (Department of Agriculture); and
- oil mallees and lucerne in the farming system (CSIRO).

The purpose of the day was to provide information to landholders on the processes leading to the major land degradation issues faced in the catchment and, in particular, secondary salinity. It also aimed to provide information about the latest research into management options. Thirty four people took part and there was a great exchange of ideas and information between landholders and guest speakers.

Landholders were also able to pick up their copy of the Catchment Drill Report on the day.

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**Book reviews**

**Exploring Wheatbelt Woodlands** By Mike Bamford

This fascinating little book provides an insight into the diversity of flora and fauna found in our Wheatbelt woodlands. The opening pages set the scene and describe both the antiquity of the landscape (the Wheatbelt has supported life continuously since it was last covered with ice more than 200 million years ago) and the changes that have occurred to the woodlands in recent times, since European settlement. The main focus is the life in the woodlands, the plants and the animals. Delicate line drawings accompany the text. To avoid any confusion about the species, or group of species being described, the common and scientific names of all plants and animals mentioned in the book are listed in the appendix. This book will increase your knowledge and appreciation of our wonderful Wheatbelt woodlands.

You can obtain your copy from:

CALM’s Wheatbelt Region
PO Box 100, Narrogin, WA 6312
Phone: (08) 9881 9222
Fax: (08) 9881 3297

**Bush Books** are a series of pocket-sized, practical field guides to help you learn about, and discover, WA’s unique plants, animals and special features, region by region. There are a number of books in the series, which are published by CALM. Titles that may be of special interest locally (i.e. in the Buntine-Marchagee Recovery Catchment) include: Waterbirds of South-West Wetlands, Mammals of the South-West, Common Wildflowers of the Mid-West and Australian Birds of Prey.

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**Websites**

The World Wide Wattle site is a collaborative project involving the Shire of Dalwallinu, CALM and the Canberra-based Australian Tree Seed Centre (part of CSIRO Forestry and Forest Products). It includes descriptions and photographs of Acacia species, information about where they grow and how many species occur in different parts of the world, information about cultivation, utilisation and taxonomy of wattles. It can be found at www.worldwidewattle.com.

A project, which set out to identify mechanisms that would enhance the adoption of biodiversity conservation within regional NRM planning processes has recently been completed. The project was funded by the Natural Heritage Trust and carried out by Viv Read and Associates. You can access the fact sheet on the key findings by visiting www.deh.gov.au/biodiversityorplanning/index.html.

The Australian Bureau of Agricultural and Resource Economics’ (ABARE) results of the NRM survey on Australian farms provide insights from farmers into topics such as land degradation and the adoption of sustainable farming practices. The document is available in electronic format only. To download a free PDF (product code 12675) please register at ABARE’s online shop www.abareonlineshop.com or go to www.abareeconomics.com/.

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Landholders were also able to pick up their copy of the Catchment Drill Report on the day.
**Miscellaneous**

**Salty Business Workshops**

The challenge of managing dryland salinity with trees and running a viable agricultural business.

Dr Amir Abadi, an economist from the Department of Agriculture, is available to run a Salty Business workshop for those who want a challenge.

The workshops can be held in regional centres.

Salty Business is a game designed to teach the principles of, and processes for, managing the commercial survival of a farm business under threat of dryland salinity. It can help farmers and agribusiness professionals enhance the awareness of their many biological as well as economic uncertainties and constraints facing farms with salinity. If you’re interested in organising or taking part in a Salty Business day, please email your name, address and phone number to Amir Abadi (aabad@agric.wa.gov.au).

**Skills for nature conservation - training courses for anyone interested in making a difference to our environment**

**Minibeasts**

Date/time: Saturday 30 October, 9.30 am to 3.30 pm

Venue: Piney Lakes Education Centre, Winthrop

Description: Learn about the role of insects in urban bushland and wetlands.

Presenters: Eric McCrum, Robert Powell, Ribbons of Blue/Waterwatch WA

If you would like more information on these or other courses run by Skills For Nature Conservation, visit www.wrc.wa.gov.au/swanavon/pages/info-sheets.html.

**Did you know?**

- One in five Australian birds requires nest hollows for breeding.
- Boobook owls are the birds responsible for the melancholy nocturnal cry ‘mopoke’. The boobook owl sleeps during the day in a hollow branch, in which the three or four eggs are laid. The same hollow limb is often used for many years.
- Seed from wattles and pea plants retains viability indefinitely, while seed from some plants, such as eucalypts, loses viability over a period of a few years.
- Temperate eucalypt woodlands are among the most poorly conserved and threatened ecosystems in Australia.
- Writer Janet Millet, at York in the 1860s, wrote: ‘coachmakers and wheelwrights speak very highly of the merits of the York gum. This timber is very hard and close-grained, and wheels made from it seem to stand the great dryness of the atmosphere and the rough bush roads very well—a pair of dray wheels had been in constant use for more than four years without showing signs of deterioration’.
- Red Morel (Eucalyptus longicornis) is one of the hardest, densest timbers known. Morrell was widely used in the 1890s for mining construction at the Murchison goldfields, the supply coming from the Mullewa morel forest.
- The salmon gum gecko is a tree-dwelling lizard restricted to eucalypt woodlands of the Wheatbelt.
- The only middle-sized native mammal still common in the Wheatbelt is the echidna.

**Photo - Babs and Bert Wells, CALM.**

**Coming events**

- 2003 wetland sampling results.
- Department of Agriculture - surface water assessment.
- Community Wetland Field Days - early September.
- North Central Malleefowl Preservation Group fox baiting - early August.

**Funding opportunities**

To find out what grants are currently available through the Australian Government, visit www.grantslink.gov.au for a comprehensive list and relevant links.