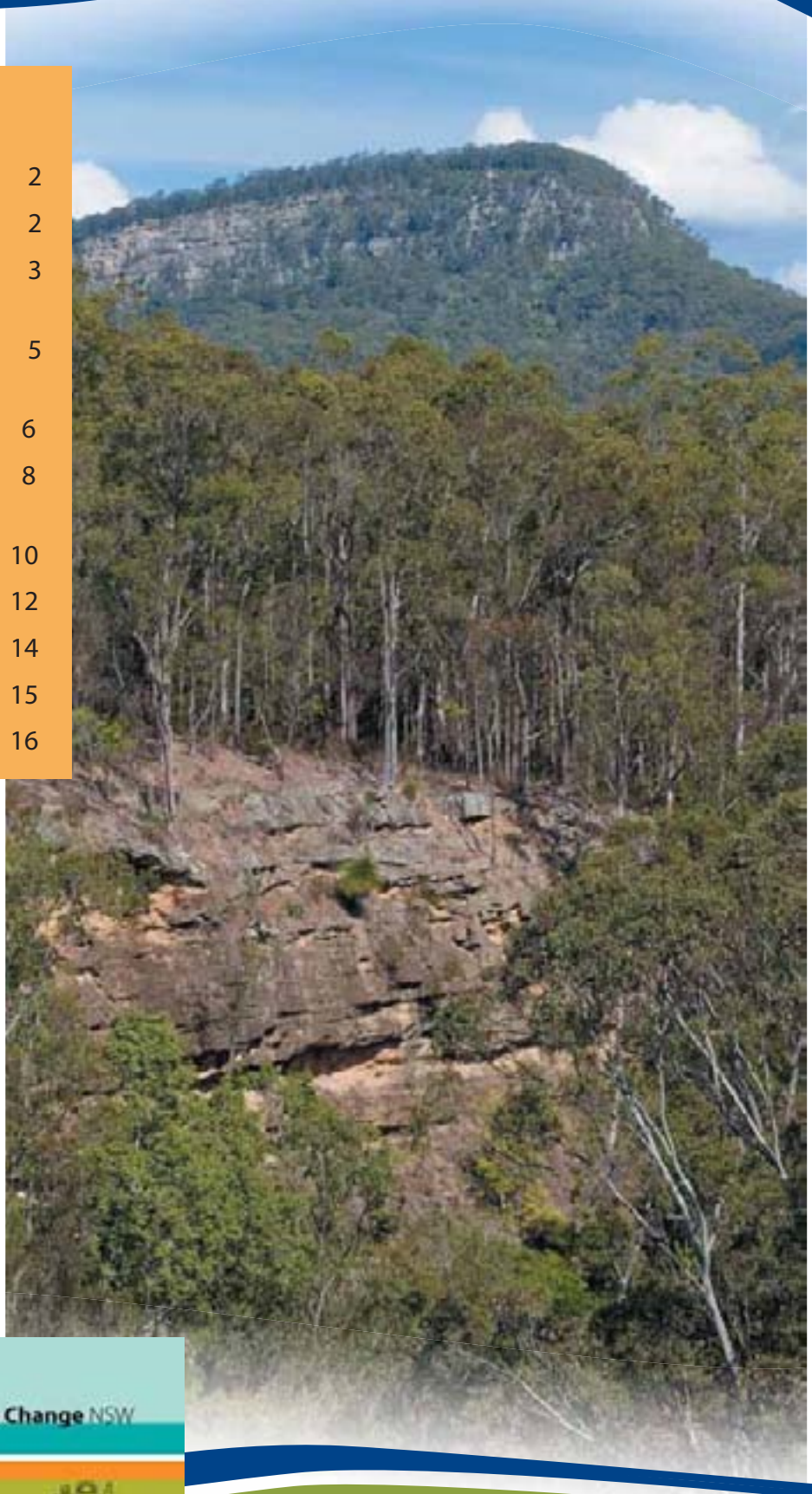
Bush Matters

Newsletter of the Conservation Partners Program of the Department of Environment and Climate Change NSW

No. 10

Conservation PARTNERS PROGRAM

Contents



Bow Wow Gorge in the Lower Hunter Valley is protected by a Conservation Agreement. The gorge is a fascinating place with galleries of fossils clearly visible in its steep cliffs and abundant wildlife including over 150 species of birds (see article on pages 8 and 9).

This photo shows a view across the gorge to the Watagan Mountains. The property is part of a corridor of private and public land between Watagan and Werakata national parks. The Hunter Central Rivers Catchment Management Authority is working with landholders to improve the connection between bushland areas in the region as part of its Biodiversity Corridors Project.

Photo: David Barnes

Department of Environment & Climate Change NSW

Autumn 2008

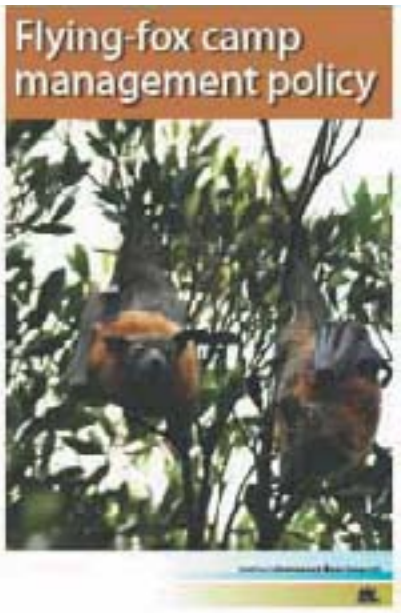
From the Director General

This edition of *Bush Matters* focuses on the theme of climate change, which is a global issue of concern. Substantial efforts are underway to secure the survival and adaptation of our unique Australian wildlife and natural environments. One of the most important responses lies in building greater connectivity and strengthening resilience of public and private protected areas which contain examples of the full range of natural ecosystems across the state.

Conservation Partners are already engaged in the formal protection of wildlife and its habitats through Conservation Agreements and Wildlife Refuges on private and other public lands. *Bush Matters* showcases initiatives contributing to the climate change response. They are prime examples of positive commitment and action.

Considerable momentum is being generated to encourage broader landholder involvement in voluntary conservation in New South Wales. These include the Wildlife Corridors project, the Alps to Atherton and great Eastern Range connectivity corridor project, and expansion of the Land for Wildlife Program. The Department has recently consolidated its private land conservation activities into a new Landscapes and Ecosystems Conservation Branch. This recognises the increasingly important contribution that Conservation Partners are making to the protection and conservation of natural and cultural heritage. They complement the large core public national parks and reserves across the state, and thus help address the challenges of climate change.

LISA CORBYN
Director General
Department of Environment and Climate Change NSW



Managing flying-fox camps

Mention of flying-foxes produces a wide range of reactions, with landowners whose crops are damaged by flying-foxes concerned about their presence. However flying-foxes help to preserve native forests by pollinating plants and dispersing seed, and this is essential for forestry and conservation of biodiversity.

Three species of flying-fox roost in large numbers in camps in NSW: the grey-headed, black and little red flying-fox. These are protected under the *National Parks and Wildlife Act 1974*. Grey-headed and black flying-foxes are also listed as vulnerable under the *Threatened Species Conservation Act 1995*. The grey-headed flying-fox is also listed as vulnerable under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

Increasingly the presence of flying-foxes is creating conflict in urban areas. The widespread and continued clearing of native vegetation in eastern Australia has resulted in a substantial reduction of the habitat for flying-fox foraging and roosting. As a result, flying-foxes are increasingly roosting in camps near urban areas when food is locally available. In addition, urban housing is expanding into places which have been historically or irregularly used for flying-fox camps.

To provide assistance to deal with these situations, the Department of Environment and Climate Change NSW (DECC) has produced the *Flying-fox Camp Management Policy*. DECC staff, the broad community and wildlife carers, local government and catchment management authorities will all find information and guidance on how to appropriately conserve and manage flying-fox camps in NSW.

Find the document at www.environment.nsw.gov.au/policiesandguidelines/flyingfoxcamppol.htm

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Would you like to hear about upcoming events?
Go to the Conservation Partners website, or send us your email address

Biodiversity and climate change

Climate change is regularly in the news. We change to energy saving light bulbs and consider solar panels. What about biodiversity? How can we help our plants and animals adapt to climate change? It is easy to feel overwhelmed by the whole idea.

The good news about climate change is that many actions which deal with climate change also benefit us in other ways. For example, reducing emissions from industries will not only decrease greenhouse gases, but also improve air quality and human health. In a similar way, planning for biodiversity and climate change builds on and adapts strategies already in place to help protect native plants and animals.

Climate change has occurred throughout geological history and has been a major driving force for evolution, with plants and animals slowly adapting to new conditions. However, there is significant concern that human activities may be causing a much more rapid change. Along with changes in average temperature (which is predicted to generally increase) and rainfall, we can expect changes to the frequency of extreme events such as storms, floods, heatwaves and bushfires.

Schedule 3 of the NSW *Threatened Species Conservation Act 1995* lists Anthropogenic Climate Change as a key threatening process as does the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

The website of the Department of Environment and Climate Change NSW provides background information on climate change—go to www.environment.nsw.gov.au/climatechange/index.htm or phone the DECC Information Centre on 131 555.

How might climate change affect biodiversity?

Biodiversity is the term used to encompass all living organisms, including plants, animals, fungi and micro-organisms. Australia is one of the world's most biologically diverse countries, and has more endemic species (found nowhere else) than any other nation. This is due to Australia's geographical isolation which occurred early in the earth's history, and the great diversity in our climate. However, many species may have trouble adapting with the rate of change associated with climate change as they can only survive in a limited climate range.

There is uncertainty about how individual species and ecosystems might respond to climate change. Organisms that coped with previous climate change using strategies such as migrating to more suitable areas, will find this more difficult in our landscape where habitats have been fragmented. The impact of other environmental stresses such as weeds, grazing, fire regimes and water extraction will also affect the ability of native plants and animals to adapt to climate change.

Species most at risk include those with long life spans, poor reproducers, poor mobility, those only found in a narrow range of locations, those with specific relationships with other plants, animals and ecosystems, isolated and specialised species and those which require large areas of land for their survival.

Conversely, some species, both native and exotic, may be advantaged by climate change as they migrate into new areas and compete with local species.

Climate change would pose a threat to any species found in areas that are near the upper limit of their temperature range or in areas from which they cannot migrate.

In the Australian Alps, species such as the southern corroboree frog and the mountain pygmy possum could be lost.

The mountain pygmy possum hibernates under snow in winter with breeding success directly related to the depth of snow. Given that snow cover has declined over the last 40 years, this species and its ability to breed could be directly affected in the future.


Photo: © DECC, D. Hunter


Photo: © DECC, L. Broome

Coordinating Australia's response

Despite uncertainties, there are a range of important actions we can take and planning to coordinate these is taking place.

At a national level, the National Biodiversity and Climate Change Action Plan 2004–2007 has been produced. (www.environment.gov.au/biodiversity/publications/nbccap/index.html).

The NSW Government has developed the NSW Biodiversity and Climate Change Adaptation Framework 2007–2008, which can be found at www.environment.nsw.gov.au/threatspec/climatechange.htm

These provide frameworks to help government tackle climate change and its impact on biodiversity. Actions to deal with. These impacts include :

- researching and monitoring impacts and adaptation
- incorporating adaptation strategies into policy and operations
- providing adaptation planning methods and tools
- minimising the impacts of climate change on key ecosystems and species

- minimising the increased threat of invasive species that comes with climate change
- improving communication to better share knowledge and raise community awareness

In-situ conservation is emphasised. This is the conservation of species and ecological communities in their natural location to better facilitate natural adaptation. This strategy requires the involvement and support of landholders so that species can be conserved in their natural habitat.

Ex-situ conservation is another option, but is a high-cost intervention involving moving species to other locations, captive breeding programs in zoos and setting up seed banks. This approach does not conserve ecosystems and processes which would support a wide range of native plants and animals under threat.

What action can individuals take to protect our biodiversity?

Patterns of biodiversity in the landscape may change over time with climate change. Existing ecological communities may disappear and other new ones emerge. Species which are currently 'protected' in public reserves and other protected areas could be put at risk.

The actions and strategies listed below enable us to help the natural adaptation of species to climate change and protect species that are particularly vulnerable.

Individual landholders already play an important role. Landholders with Conservation Agreements, Wildlife Refuges and Land for Wildlife properties are already participating in action to conserve biodiversity and providing opportunities for adaptation to climate change.

Create networks of protected areas

Predictive modelling has shown that many species could be adversely affected unless populations of these species are able to move across the landscape. This is assisted by setting in place a comprehensive and adequate network of protected areas which represent the range of ecosystems present.

This is not simply a government action, but a whole-of-community initiative. National parks are protected areas. Land under Conservation Agreements and Wildlife Refuges also contribute to a protected area network.

Networks linking vegetation across regions and over the whole country will allow the migration of plants and animals. In order to help adaptation to climate change, such networks need to incorporate the different climatic gradients.

Build resilience to climate change

The resilience of an ecosystem is a measure of its ability to withstand and recover from environmental stresses and disturbances. Healthy ecosystems are more resilient and are better able to adapt to climate change.

Landholders are already building the resilience of ecosystems by controlling weeds and pest animals.

Create refuges

Refuges are natural areas where plant and animal species may survive the immediate impacts of climate change and extreme events and then disperse to colonise new locations as environmental conditions allow. Native vegetation on private land is instrumental in providing refuges.

Create buffer zones

Buffer zones around key habitats are important in maintaining the health and resilience of the core habitat as they provide a degree of protection from adverse impacts such as weed invasion.

Where private land and public reserves adjoin, the quality of native vegetation on both, is more easily maintained where the landholders are managing their land for conservation. Landholders working collaboratively with reserve managers and other landholders make a major contribution.

Monitoring conservation values and threats

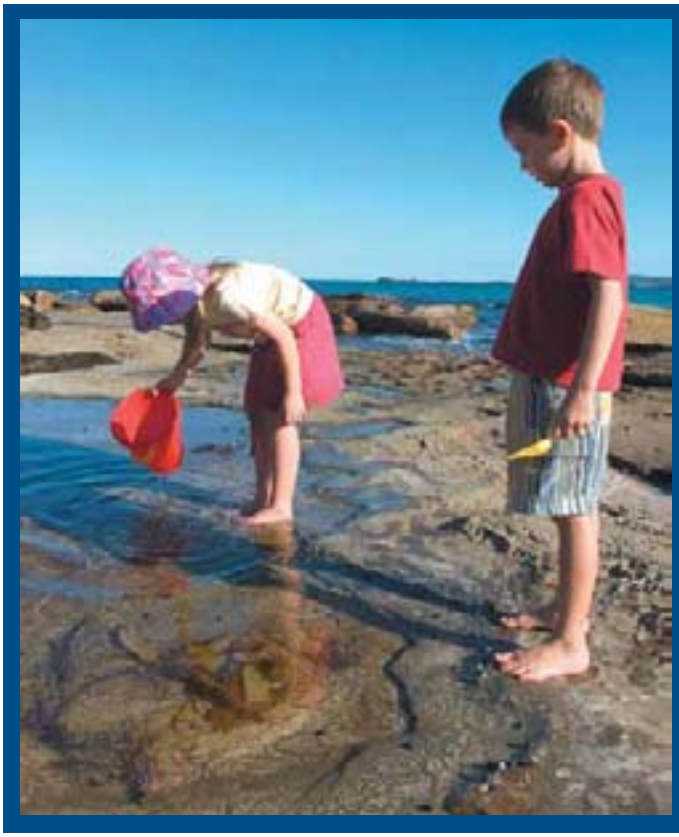
Landholders with Conservation Agreements, Wildlife Refuges and Land for Wildlife properties are in an ideal position to implement monitoring programs which will provide information about changes on their properties. Adaptive management decisions can be made to respond to these changes.

Find the best management techniques

To identify the best ways to protect our most vulnerable species, research is needed into issues such as fire management, grazing, and regeneration of habitats. Long-term monitoring and evaluation programs are essential for providing a clear picture, and there are many ways for landholders can participate in such programs.

How do we put these into action?

A number of articles in this edition of *Bush Matters* give practical examples of translating planning into on-ground actions.



The effects of climate change on our coastal regions has the potential to adversely affect marine ecosystems near the coast.

Changes to currents, water temperatures and to the amount and quality of run off will all impact on coastal and waterway environments. Rising sea levels will affect land, and saline water will move further upstream.

Reconnecting the landscape

Can weeds help restore rainforest across cleared areas?

Creating ecological connectivity between patches of native vegetation often involves restoration of areas which are largely cleared. Replanting can seem like the obvious way to restore native vegetation, but is very expensive. Natural regeneration may occur but this will depend on the time since the area was cleared and the intensity of any farming or other land use that has taken place.

Understanding the processes of natural regeneration can enable the identification of stages and techniques which might speed the process along.

Weed species in vegetation restoration can be viewed as providing sorely needed habitat and assisting the process of natural regeneration. An alternative view is that weeds should be removed as a matter of urgency for a variety of reasons.

In the early stages of rainforest regeneration, woody vegetation will shade out aggressive exotic grass and herbaceous species, and provide a favourable microclimate for the establishment of native rainforest species. Seed dispersal in rainforest is important, especially for spreading seed into areas being restored. Exotic species may attract animals and birds which disperse seeds.

Research was undertaken in the Big Scrub region (east of Lismore in northern NSW) looking at rainforest restoration in patches of camphor laurel, a major weed species of cleared areas in this region.

Investigations included which bird species consume the fruits of rainforest plants and disperse their seeds; how common these birds are in camphor laurel regrowth patches and which rainforest plants are recruiting in these patches. Twenty four patches of well-developed camphor regrowth were examined.

Most frugivorous (fruit-eating) birds used the patches in winter when camphor laurel is in fruit. Many were also present in summer when most native rainforest trees were fruiting. Birds such as the figbird, pied currawong, rose-crowned fruitdove and topknot pigeon, all of which have a high potential to disperse rainforest seeds, were found to be common and widespread in the regrowth patches.

The patches contained a large number of local rainforest species including trees, palms, shrubs, vines, epiphytes and ferns at all stages of growth. It was shown that seedlings of native trees can survive and grow in camphor laurel patches.

Camphor laurel dominated regrowth adjacent to extensive forests of the Nightcap Range in north-east New South Wales.

Adult trees in the patches were mostly mature camphor laurels, some privet and 25% native species. The new generation of trees were of a different mix with only 22% being camphor laurel and 47% natives. Interestingly, many native tree species typical of mature rainforest and dispersed by birds were appearing as young plants even though they were uncommon as adults.

Using camphor laurel to facilitate rainforest restoration

We can use this information to develop strategies for rainforest restoration, using a staged approach. We can retain camphor laurel regrowth until a large pool of native species have established and the canopy is closed. At this point, the camphor laurel trees and seedlings can be removed progressively from the site.

Exotic plants and rainforest restoration

This research showed that some exotic species may have a positive role in assisting forest restoration in cleared landscapes. A case-by-case assessment is needed to see if this translates to other landscapes with different exotic species. Some invasive weed species have little positive effect on assisting diverse species to survive. However, in highly cleared landscapes exotic species may provide the only habitat components for a number of species, and their continued survival would be jeopardised by the rapid removal of the exotic plants.

While the conservation of remnants of relatively intact native vegetation remains a priority for management, connectivity between patches of bushland and rainforest is needed. This allows the movement of native animals although we need to recognise that these areas have had large changes and it is highly unlikely that the restored areas can ever be identical to those that previously existed. In this case we need to look at the function of the vegetation and adapt our management and restoration practices which include the role of weeds in the functioning and restoration of ecosystems.

The study was carried out by the Rainforest Cooperative Research Centre which was funded through 1993 to 2006. Information can be found in a report at www.jcu.edu.au/rainforest/issues.htm.

The work of the Rainforest CRC and publications produced can be accessed at www.jcu.edu.au/rainforest/. Contact: Professor Nigel Stork, Rainforest CRC, PO Box 6811 Cairns QLD 4870. Phone 07 4042 1246

Half Moon Flat Wildlife Refuge, Mongarlowe

By Sandra von Sneidern

This fascinating property has attracted many creative and interesting people over the years, to live among its varied natural landscapes and abundant wildlife.

Half Moon Flat Wildlife Refuge lies between Braidwood and Morton National Park on the Mongarlowe River; a tributary of the Shoalhaven. A long way back in geological time as the Mongarlowe River meandered through Half Moon Flat it formed an oxbow. Later the river broke through the high rocky ridge producing a 'headland', now known as 'Sydney Heads,' leaving lagoons with deposits of gold in the bypassed riverbed.

Early goldmining

In 1852 gold was found near Mongarlowe and the influx of goldminers, both European and Chinese, subsequently affected the surrounding landscape along the river and its tributaries. Often, when the Europeans gave up, the Chinese moved in and meticulously worked over the same ground with good results. They used tailings to carefully construct vertically stacked stonewalls to either facilitate drainage, dam up water supplies or to keep rainwater from the workings. Unlike the Europeans, the Chinese were well organised and worked cooperatively. The whole of the Half Moon area is riddled with shafts, tunnels, mullock heaps and the water races used to wash the dirt through the sluice boxes. In the early days mercury was used as an amalgam to extract the gold. Some mercury is probably still in the soil while tests have shown its presence in the Mongarlowe River. Later on cyanide was used to extract the gold.

James Williams and William Mc Dowell were the first to purchase land on Half Moon Flat. John Feagan built the only large house in the area in 1863—a substantial two storey stone building called The Brook which at one time was run as a dairy farm. Feagan's daughter, Eleanor, married James Richardson and their son Edwin Arthur also lived there with his wife Mary Seidel where their son, Ted, was born. He became a well-known identity and had many stories to tell about the people who lived around there and Mongarlowe.

SUMMER

This place's quality is not its former nature
but a struggle to heal itself after many wounds.

Upheaved ironstone, mudstone, quartz and clay
drank dark blood once, heard cries and the running of feet.

Now that the miners' huts are a tumble of chimney-stones
shafts near the river shelter a city of wombats.

Scabs of growth form slowly over the rocks.

Lichens, algae, wind-bent saplings grow.

I'll never know its inhabitants. Evening torchlight
catches the moonstone eyes of big wolf-spiders.

All day the jenny-lizard dug hard ground
watching for shadows of hawk or kookaburra.

At evening, her pearl-eggs hidden, she raked back earth
over the tunnel, wearing a wide grey smile.

In burned-out summer, I try to see without words
as they do. But I live through a web of language.

Judith Wright

Boronia rhomboidea.
Photo: © DECC, H Matthews

In 1902 a dredge was built on Half Moon Flat and worked its way through the lagoons. Water was required for hydraulic sluicing and a flume was built over the Mongarlowe River at Sydney Heads to take water from a race on the western side to the dredge. The flume was 61 metres long and built of wood and the water was then carried through a rock tunnel to the dredge.

As well, there were extensive mine workings along Feagans Creek with water races, huts and vegetable gardens. A bridge was constructed across the lower part of the creek so that miners could walk over to the workings on the other side. The remnants of this can still be seen—if you know where to look.

The Day Dawn Mine on the western side of Feagans Creek was started around 1884 and eventually reached a depth of 122 metres. Due to the high-water table in the Half Moon area, pumps were constantly in use and it eventually closed down in 1908 with the low gold yield making the mine uneconomic.

Recent history

Half Moon escaped the bushfire that almost destroyed the Mongarlowe Village on the 13th January 1919. Ten years later, with winds from the west, Half Moon was on fire destroying Richardson's and Seidel's properties and spreading to Currockbilly where the school and other houses were lost before continuing through to the coast. Since then there have been no serious bush fires in this area and native vegetation has reclaimed the land, covering the scars of human endeavours.

Ted Richardson remembers the Depression years when the area up and down Feagans Creek was heavily settled, people cultivated vegetables, raised stock and fossicked to keep alive. Mary Harris remembers riding with Harry Neilsen past the many remnants of huts and a large house site that may have been the boarding house run by the Seidel family, who owned the land up to the Half Moon gate. Years later Herman Seidel was murdered by his wife after one beating too many. She was acquitted.

Beginnings of the Wildlife Refuge

In 1962 Stewart Harris bought Half Moon Flat from Harry Neilsen. It was then bounded by the Mongarlowe River, Bobs Creek and Feagans Creek. The land was added and the old stone house built by John Feagan was restored with the help of a government grant.

When Harry Neilsen wanted to sell the Seidel property which he had bought earlier, Stewart acquired it as well and now owned all the country between the river and Feagans Creek, and from the gate 1.3km down Half Moon Road to Bob's Creek further north. This resulted in a total of 2500 acres on which they mostly ran cattle. This was Half Moon.

Except for a small area near The Brook the country was mostly scrub with some of the ridges covered by an impenetrable blanket of *Alloasuarina nana*. There are very few large trees but much regrowth since the miners and eucalypt distillers disappeared.

Mining turned over a lot of soil, pitted it with shafts, tunnels, holes and mullock heaps leaving the soil denuded and

unproductive with erosion a continuing problem.

There is a wide diversity of animals and birds in the Half Moon area. Swamp wallabies live in the gullies, red necked wallabies are everywhere with grey kangaroos mainly staying in more open country. Quolls have been seen; echidnas waddle around; wombats leave their calling cards and platypus play up and down the river and its tributaries. There are several pairs of gang gang cockatoos; the Rufous Whistler nests here and the yellow tailed black cockatoos scream across the sky. The rare species, *Eucalyptus recurva* and *Boronia rhomboidea,* have been discovered on Half Moon. They are remnants of Ice Age plants also found among the high mountains of Tasmania.

Hunters, fishermen, fossickers and vagrants used to come to Half Moon to shelter in the remnants of buildings or shacks. Stewart Harris was concerned with the influx of people causing damage to the land and the campfires out of control. As an environmentalist, he decided in 1972 to register Half Moon as a Wildlife Refuge hoping to control trespassers. Story goes, a year later he cleared away all the building remnants and shacks.

Red-necked wallaby. Photo: © DECC, H Matthews

Stewards of the land

The following year, Stewart subdivided the Seidels part of Half Moon into lots of around 100 acres. He wanted to sell the property but also wanted to make sure that only people who were environmentally aware and would care for the land were allowed to buy it. Stewart interviewed the prospective purchasers (much to the amazement of Phil Shoemark, the local estate agent) to sound out their attitude to the environment. If they 'passed muster' each was required to sign a Wildlife Refuge agreement with NPWS.

Having met all the requirements, amongst the first people to move to Half Moon were the poet Judith Wright, Solvig Baas Becking a weaver and Alan Geier, a marine biologist. Judith Wright lived here until a few years before her death. She named her part Edge because it was on the edge of Half Moon. The poem *Summer* was written at Edge and in her essay *From the Ridge to the River* she takes a walk around her bush retreat describing the rocks, plants, animals and birds in intimate detail. Judith never considered that she owned the land—it was hers to care for.

Solvig Baas Becking AM who became a close friend of Judith, built her own home on the property, Mithem, where she lived from 1975. The surrounding landscape inspired some of her most outstanding woven floor rugs—*Gum leaves*, *Rusty Iron* and *Rain on my Dam* amongst many others. Some of her floor rugs are held in national and state galleries. They all express what she saw around her. On her property mining in the past has caused huge erosion problems. A 6metre actively eroding gully was sending tonnes of sediment into Settlers Flat Creek. Mongarlowe Landcare together with the Catchment Management Authority (CMA) worked to alleviate the situation with a 400mm pipe attached to a sump taking water directly to the creek and the surrounding bank revegetated with trees, scrubs and *Lomandra* native to the area.

From 1985 the rest of the property was sold, except for The Lagoons. All the incoming owners signed a Wildlife Refuge Agreement. In this way Mal and Jenny Sharpe, Pru and George Ingham, both designers in wood, Roger Ford a filmmaker, Jill Ford, Ailsa Korten, a statistician, John Real and Anthony Maxwell became part of the Half Moon Wildlife Reserve. Christine Bot an artist and her husband Sasha Grishin eventually bought The Lagoons a few years later.

Half Moon has had its share of fighting threats to the environment and this continued with a meeting on 15th February 1986 when several people from Half Moon met at Judith Wright's home to fight against proposed gold mining development and dredging lease of the Mongarlowe River. Their concern was for the Macquarie perch and spiny crayfish as well as the platypus. There was a danger that dredging in particular would stir up the mercury lying in the sediments of the river which together with the resulting turbidity would threaten these populations. Although the Tallaganda Shire Council had given consent this was later quashed in the Land and Environment Court.

Since then, the original group has expanded becoming the Friends of the Mongarlowe River Inc. and still includes 11 Half Moon residents many of whom are founding members. The aim of the organisation is still the same— ' to work for the protection of the Mongarlowe River and its catchment areas, and the maintenance/improvement of its quality.' The present ongoing project is to assess the presence of the now nationally endangered Macquarie perch, its distribution and habitat under the tutelage of Mark Lintermans a Senior Aquatic Ecologist with Environment ACT.

The Macquarie perch requires a clean river with clear access across riffles in order to spawn and multiply.

Cattle have been largely removed from much of Half Moon over the last 30 years, except for some stock on cleared country. This has allowed the country to revert to a more natural ecosystem.

Half Moon was a Wildlife Reserve with multiple owners in 1985. Since then some of the original owners have sold or subdivided their property. However nearly all the new owners and residents, have pledged to carry on the intention of the original Half Moon Wildlife Refuge.

We all know one another and have a common purpose—to keep Half Moon as a natural environment, a refuge for plants and animals.

References:

Roger McDonald, ed (1990) *Gone Bush* Bantam Books—Includes *From the Ridge to the River* by Judith Wright

Judith Wright (1994) *Collected Poems* Angus and Robertson - Includes *Summer* (reporduced with permission)

Barry Mc Gowan (1996) *Bungonia to Braidwood* self-published

Bruce Russel (1994) *Mongarlowe and the Little River Goldfields* Braidwood and District Historical Society

Judith Wright's Archives-Friends of the Mongarlowe River National Library - includes *Meeting on 15/02/1986*

Solvig Baas Becking—A retrospective Catalogue from Goulburn Regional Gallery

Netta Ellis (1997) *Braidwood Dear Braidwood* self published

For information and anecdotes the following people have been invaluable:

- Mary Harris—the wife of Stewart, who lived on Half Moon for many years.
- Paul Dann who lives on Half Moon and has detailed knowledge of mining sites and activities over the whole of Half Moon.
- Solvig Baas Becking, Mal Sharp, Prue Ingham and John McGrath all contributed vital information about the area.

Mongarlowe River. Photo: © DECC, H Matthews

On the Bow Wow Creek Gorge

Colin and Pamela Fitzsimons have a Conservation Agreement on 64 hectares of their property at Mount Vincent, south-west of Cessnock. Here they describe some of the many special features of the property.

When we enter what T.W. Edgeworth David[1] described as a 'rugged narrow gorge' via the house yard (the only permitted route) and across Wallis Creek into the Bow Wow Creek Gorge (BWCG) we are almost immediately in the rainforest on the narrow floor of the gorge through which winds Bow Wow Creek. The creek flows for 1.6km, enclosed by cliffs on either side rising 50-80 metres but mostly hidden from us on the ground by the dense vegetation. Thinned after the June 2007 storms, the canopy is gradually returning to its previous dense cover. Just now with the thin canopy and previously grey sandstone rocks sandblasted to their original colour by the rush of water during that 300mm rain storm, there is a new golden glow.

There are many interesting scenic and scientific features to enjoy and explore.

Among the more than 150 species of birds the powerful owl is a regular visitor, but not always seen holding the previous night's brushtail possum catch, as photographed by John Goswell during the 2006 NPWS Discovery tour. The tour group also had a glimpse of the regent bower bird in a place where satin bower birds live all year. In spring there are lots of bird nests to discover including grey goshawk, raven, sacred and azure kingfishers, white-throated and brown gerygone—and the list continues.

Rainforest vegetation in the gorge. Photo: David Barnes

Throughout the year walking groups, each here for their special interest, are guided through Bow Wow Creek Gorge. The botanically inclined enjoy the diversity of vegetation types as the gorge twists from north-south to east-west orientation where the north facing cliffs and slopes are dried by the sun. Opposite beneath the rise there is a lush moist growth with different species. In many places are ferns and orchids and *Callistemon shiressii* a species with quite a limited range of occurrence. Above on the plateau over the BWCG, we see cycads from ancient time *Macrozamia reducta* (formerly part of *M.communis*) and *Macrozamia flexuosa*, where also roam the dragon-like lace monitors up to 1.5m in length.

In the BWCG a researcher, Michael Shea studies snails and has found they are most abundant here; some 34 different species of native snails in the rainforest leaf litter. BWCG is rich with a variety of fungi waiting to be found, photographed and identified by the enthusiastic mycologist. In 1907, T.W. Edgeworth David published pictures of the fossils in the rocks and many specimens are encountered as we walk up the creek and along the cliff face where limestone columns and stalactites also may be seen. Every walk in the gorge is different.

BWCG was created over time beginning when the land was part of the super-continent Gondwana (or perhaps earlier as part of Pangaea before Gondwana

broke away); the slow erosion revealing on sheer vertical surfaces of sandstone, sea shell and other fossils deposited some 250 million years ago. The delicate surface fossils enhanced by weathering, along with the flora and fauna are protected by legislation at all levels of government. Federally BWCG is listed on the Register of the National Estate. It is classified by the National Trust (NSW), conserved via Conservation Agreement (CA) under the *National Parks and Wildlife Act 1974* and, as part of the Bow Wow Creek catchment which is currently entirely in private ownership, the gorge has been given a protective local environment plan (LEP) by Cessnock City Council.

Little is known to us about Aboriginal activities in BWCG and so far we have found no evidence of occupation, but with grinding rock grooves within a few kilometres we can be sure Aboriginal people passed through. Initial European interest in the area was to develop a land route from Sydney to Newcastle via the crossing at Wisemans Ferry; then in harvesting timber and later establishing dairy farms on the cleared land. Now the dollar value of the land is so high, properties have been subdivided. Farming of small lots is often not viable but the interest of industry has not waned. The next change is soon to occur as extended height long-wall coal mining approaches below, potentially in the next few years collapsing Wallis and Bow Wow Creeks and possibly affecting the Bow Wow Creek Gorge.

Our local community group of volunteers, Mount Vincent Landcare, regularly helps with maintenance and planting. The main weed pests have been crofton weed, now under control after regular (1% glyphosate) spot spraying of emergent plants for the past 10 years and lantana where we have had welcome success eradicating since adopting the 'splatter gun' technique promoted by the National Lantana Task Force, (and as described in *Bush Matters* Spring 2006). We do still use cut and paste where appropriate and pulling of small lantana seedlings. Other threats come from edge effects of adjacent clearing and from upstream clearing which increases the speed and quantity of water run off, initiating erosion and later leaving a dry creek as little water is retained upstream.

Hunter and Central Rivers Catchment Management Authority is having some success in encouraging owners of small holdings to set aside part of their land for vegetation/wildlife corridors linking through BWCG, the Watagan National Park 3km to the south with Werakata National Park which is about the same distance away to the north. A 2001 study funded by Cessnock City Council identified seven vegetation types in the Bow Wow Creek catchment, highlighting its diversity of habitat and explaining the high number (>150) of bird species recorded[3] since 1993, making it an important stepping zone in the north-south link between the two national parks.

To protect the vulnerable and endangered flora and fauna, a Conservation Agreement was established in 2005 with the NSW Minister for the Environment. Of those species of particular interest for the Agreement because of the habitat present, we sometimes see the powerful owl, sooty owl, yellow-bellied glider, glossy black cockatoo, grey-crowned babbler, brown treecreeper and long-footed myotis (fishing bat) or evidence thereof. The north-south wildlife link proposal was an important determinant for the Conservation Agreement.

This year we hope to eliminate the remaining established lantana, leading to an easier future of controlling weeds as they emerge. This and other maintenance means a lot of not-all-easy bushwalking ahead. Along with tools and materials we carry camera and binoculars and always that hope for the next sighting.

Fossil Galleries. Photo: © DECC, S. Ash

References

1 David, T W E (1907) *Geology of the Hunter River coal measures* Memoirs of the Geological Survey of NSW (Geology) 4

2 Bell S. and Murray M. (2001) *The Ecological Significance of Bow Wow Creek Gorge, A Nationally Significant Site* Report to Cessnock City Council

3 Fitzsimons, Pamela A. Personal observations since 1993

Photo: © DECC, S. Ash

Action for climate change and biodiversity

There are a number of ways that landholders are translating identified climate change strategies into on-ground action and education.

Creating networks of protected areas

The Department of Environment and Climate Change NSW (DECC), through the Conservation Partnerships Section, is working to implement the Climate Action Wildlife Habitats and Corridors Community Conservation Project funded by the NSW Climate Change Fund.

This project involves the identification of climate change corridors, together with protecting and improving the health of native vegetation and wildlife habitat in these corridors. To identify corridors for climate change, previous work on specific habitat and corridors has been used. Consideration has also been given to social factors such as where communities and partner organisations are found which are likely to participate in the initial trial and pilot projects.

Building on existing projects

Projects already being undertaken can also incorporate actions for climate change. In southern NSW, projects are already underway on identified priority corridors. The Kosciuszko to Coast (K2C) corridor was featured in an article in the last edition of *Bush Matters*. A second corridor is the Slopes to Summit (S2S) which will link natural areas from the western slopes near Albury to Kosciuszko National Park. Community groups are key members of the steering committee.

A number of groups including community groups, DECC, Bush Heritage Australia, Greening Australia, Nature Conservation Trust of NSW and the relevant catchment management authorities are working together on these corridors.

Using existing knowledge to identify corridors

Mapping of key wildlife habitats and corridors has already been undertaken in north-east NSW. Priority corridors for climate change have been identified using this work with the incorporation of additional criteria. These criteria incuded corridors providing habitat for native species predicted to be vulnerable to climate change, and where at least 30% of the mapped corridor has been identified as key habitat.

The inaugural Kosciuszko2Coast Open Day on the dynamic 'Ingelara' property, Michelago, on Saturday 12th April 2008 was a great success. Photo: © DECC, Stuart Cohen

Kosciuszko to Coast

The K2C partnership can help with the following:

- field days and training, sharing information and becoming part of a community network
- species identification courses and on-ground plant and animal surveys
- stewardship payments—resting land with options for grazing
- Voluntary Conservation Agreements—setting aside land for conservation in perpetuity
- establishing wildlife refuges
- incentive funding to assist with fencing and revegetation
- opportunities to sell grassy woodlands with high conservation value

Check the map to see if you are in the K2C area. If you wish to get involved contact:
K2C Project Facilitator,
c/- Post Office, Bredbo NSW 2626.
via email at facilitator@k2c.org.au,
or call Lauren on 0411 402 978.

Sections of the corridors with intact native vegetation were recorded, as well as sections requiring work to enhance fragmented areas and to re-establish connections with large patches of bushland.

One identified corridor runs across the Kyogle area and a number of landholder workshops and gatherings will be held here over future months. Landholders are encouraged to formally protect their land for conservation.

DECC is working with the Northern Rivers CMA, Landcare, the Nature Conservation Council, the Border Ranges Alps to Atherton Implementation Group and the World Heritage Central Eastern Rainforests Reserve Community Advisory Committee.

Building resilient ecosystems

Managing bushland and wetlands of high biodiversity value and within priority corridors which are under threat from weeds is vital for the retention of species diversity and to ensure we have landscapes which are able to cope with the impacts of climate change.

Managing weed invasion is a major way that landholders are able to improve the health of different native vegetation communities and wetlands on their property. There are a number of approaches to improving the knowledge and skills of landowners to implement weed management programs.

Research on the effects of climate change on weeds

It is expected that climate change will affect the distribution and level of weed invasion. Increasing temperatures, fewer frosts and changes in rainfall will all change the areas where different weed species will flourish. Another factor will be changes to the levels of carbon dioxide in the atmosphere.

A project is being undertaken to explore the impact of climate change on invasive plant species in Australia by a team comprising Paul Downey from DECC, and Lesley Hughes and Michelle Leishman from Macquarie University. Using a combination of bioclimatic modelling, field surveys and experiments manipulating CO2 and temperature, the potential distribution of around 50 exotic plant species under several climate change scenarios is being assessed. Exotic vines are one of the most serious groups of weed invaders. Field surveys are being used to investigate the impacts and distribution of these in one endangered ecological community—littoral rainforest.

For more information contact paul.downey@environment.nsw.gov.au

Strategically managing weeds that threaten biodiversity

Many landholders with Conservation Agreements and Wildlife Refuges have already been invited to nominate one or more sites on their properties where widespread weeds are impacting on native plants and animals. The nomination of these sites is part of a project in which DECC, the Department of Primary Industries and the 13 catchment management authorities are working together to determine regional priorities in order to reduce the impact of widespread weeds on biodiversity.

A recent report from the Weeds CRC (Cooperative Research Centre), *Impacts of weeds on threatened biodiversity in New South Wales* (Coutts-Smith & Downey 2006) found that weeds posed a threat to 45% of all native species and communities listed as threatened (Find this report at www.weeds.crc.org.au/documents/tech_series_11.pdf).

Widespread weeds in particular are having a significant impact on biodiversity by competing with and excluding native species. Strategically managing this threat requires identification of sites where weed control will result in the recovery of native species.

Landholders and other stakeholders are being invited to nominate areas of high biodiversity value that are currently under threat from widespread weeds. An assessment of the biodiversity value and potential impact of weed control at a site is used to rank sites within each catchment and guide future investment in weed control for biodiversity conservation. Priority sites will be monitored for the reduction in invasive plants and the recovery of native species following control.

Landholder participation is vital for the ultimate success of the project, as many areas of high biodiversity value are on private land. To find out more about this project or about how to nominate a site in your area visit: www.environment.nsw.gov.au/pestsweeds/RegionalWeedmgmtPriorities.htm or contact: weeds.cma@environment.nsw.gov.au.

Weed education programs for children

Educating children about the threat of weeds and the potential for this threat to increase under a changing climate is the key to long-term, sustainable management.

A new school resource that educates children about the impacts of weeds was developed through a partnership between the Australian Government, DECC, NSW Department of Education and Training, and NSW Department of Primary Industries.

Weeds Attack! is an interactive multimedia resource that involves students in authentic scientific investigation, problem-solving and interactive games to increase weed awareness. Students are engaged by exciting computer games and the opportunity to do 'hands-on' field work as Weed Warriors. Students are empowered to act on weed issues using biological control agents. In NSW, students actively reduce the impact of bitou bush by rearing, releasing and monitoring the tortrix leaf-roller moth in their community.

Weeds Attack!, which focuses on bitou bush and other Weeds of National Significance, addresses the NSW science curriculum and is easily adapted to other states and territories. The program will be launched in NSW schools on June 13th 2008.

Contact: Hillary Cherry at DECC 02 9585 6587, hillary.cherry@environment.nsw.gov.au

Contacts

If you would like more information on these projects or would like to participate, contact details are given above or you can contact Sally at sally.ash@environment.nsw.gov.au or phone Sally at DECC on 02 9995 5000 (switch).

Coutts-Smith, A.J. and Downey, P.O. (2006) *Impact of weeds on threatened biodiversity in New South Wales*. Technical Series no. 11, CRC for Australian Weed Management, Adelaide.

Land for Wildlife in NSW

Amanda Bland from the Community Environment Network (CEN) talks about the changing role of CEN, and its work with landholders.

Land for Wildlife (LFW) originated in Victoria in the early 1980's and has proved successful as a voluntary non-binding program for recognising and supporting landholders who are providing habitat for wildlife. The program was taken up by a number of other states including NSW. In NSW the program has been coordinated at a statewide level by the Department of Environment and Climate Change NSW (DECC) as part of the Conservation Partners Program. DECC entered into partnership arrangements with a number of community groups or local councils to implement the program in their local area. This is now changing.

Currently in NSW, Land for Wildlife is delivered by Hornsby and Ballina Shire Councils, the (CEN) on the Central Coast, and by the Murrakool Landcare Group in the Murray Catchment. In addition a number of landowners on the north coast joined Land for Wildlife through a specific project.

Land for Wildlife in NSW and the Community Environment Network

The Community Environment Network has now assumed the role of the State Coordinator of Land for Wildlife in NSW and we are pleased to expand our role with LFW. We look forward to continuing to work with DECC in supporting and expanding the program. CEN will be working with all the providers and landholders currently in LFW across the state.

As State coordinators, CEN will continue to support existing partner agencies through regular updates on the program, conducting a NSW Land for Wildlife conference in 2008 and by providing a wide range of resources. We have great expectations for the program and plan to expand it into a number of areas across the state. Already three regions have expressed interest in joining the program.

Mike and Sue of Lake Macquarie. Photo: © CEN, A. Bland

Land for Wildlife on the Central Coast

CEN has delivered Land for Wildlife on the Central Coast since 2002. We are a non-profit community-based organisation working to improve ecological sustainability and reduce the threats to it. CEN currently operates within the local government areas of Gosford, Lake Macquarie and Wyong, and due to the popularity and benefits of LFW, CEN extended LFW services to the Cessnock City Council area in late 2006.

In the past two years LFW membership has more than doubled from 100 to 250 landholders covering a total of 1183 hectares of native vegetation on the Central Coast. During this period the LFW program on the Central Coast has been funded via a grant received from the NSW Government through its Environmental Trust.

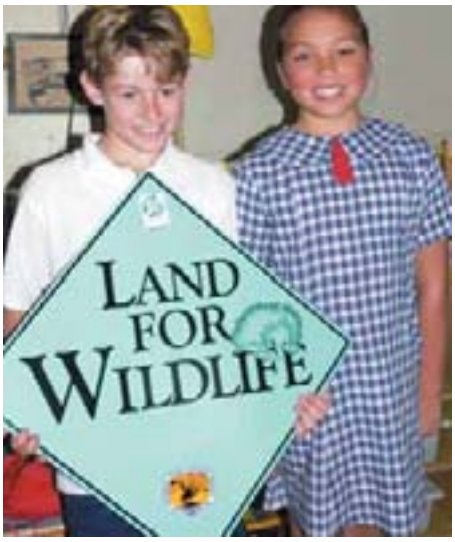
Participants in the Central Coast LFW Program receive:

- a site visit from a LFW extension officer
- a site map and species list of both native and exotic species
- a detailed site report with recommendations on managing properties for native wildlife
- a LFW sign to display on the property
- opportunities to attend workshops on managing vegetation and habitat
- access to the CEN regional seed bank, to the CEN Bush Regeneration team at subsidised rates and to other industry professionals and programs
- help and advice with funding opportunities and applications

Who has joined LFW on the Central Coast?

Land for Wildlife is a voluntary, non-binding program which supports landholders who wish to manage their land for biodiversity values. LFW is not restricted to private landholders. On the Central Coast nine schools have joined the program, including Wyong Creek

Public School, which won the 2007 state Landcare Education award. There are also seven Landcare sites registered with Land for Wildlife. These range in size from 4 ha in an urban area providing a haven for native wildlife to over 70 ha in rural areas connecting large corridors to state forest. The inclusion of schools and Landcare sites increases the profile of LFW across the region and gives recognition to the dedicated people managing the properties for wildlife habitat.



Wyong Public School students receiving their LFW sign on a Community Catchment crawl. Photo: CEN, A. Bland

Workshops

During the past three years CEN has held a total of 25 workshops for Land for Wildlife members on various topics with 370 attendees in total. In addition to members of LFW, other landholders in the DECC Conservation Partners Program with Conservation Agreements and Wildlife Refuges have participated—in fact, several of these landholders have registered with LFW. The most positive outcome of the workshops is the stories that landholders relay to us afterwards of how valuable their new found skills have been.

Regional seed bank

CEN has established a seed bank of local provenance native seed. Seed is collected on Land for Wildlife properties with the landowner's permission, cleaned and stored for future propagation and revegetation. Some seed is offered back to the landholders and the remaining seed is used for environmental works in that catchment.

Landholder feedback

CEN recently conducted a survey of all our LFW members on the Central Coast with over 25% of surveys returned. The feedback was positive and inspirational and demonstrates that the contribution of Land for Wildlife to conservation on private lands is invaluable in achieving biodiversity objectives. Comments included;

'I think it is a great program that should continue indefinitely and more landowners be encouraged to participate for the benefit of the community and our natural environment'

'(Land for Wildlife) gives us a feeling of satisfaction in regards to protecting our small corridor of an ecosystem'

'I am proud to be a part of Land for Wildlife'

'Land for Wildlife is a wonderful and very positive program'

Creating corridors across landscapes

Through its Conservation on Private Lands project, CEN has identified strategic wildlife corridors with the assistance of partner agencies. Corridors are designed to link large areas of native vegetation providing essential pathways for wildlife to move between large areas such as national parks and state forests. This will assist in helping native plants and animals adapt to climate change.

The criteria for selection of these strategic corridors included good connectivity with riparian areas and reserve systems using native vegetation corridor maps for the three local government areas of Gosford, Wyong and Lake Macquarie. During property site visits potential corridors are identified and discussed with landholders.

The Land for Wildlife program on the Central Coast has built community awareness on the importance of these areas, as well as promoting the benefits that vegetated corridors have for agricultural lands.

Through strategic targeting of areas there have been a number of significant corridors created, many of which link to national parks or reserves:

- 38 Land for Wildlife members have created a large corridor through Holgate/Matcham linking large areas of bushland in the Erina Creek Catchment. This semi-rural area is largely surrounded by urban development so this corridor provides a safe haven for native wildlife.
- 32 Land for Wildlife members have created corridors along significant rivers on the Central Coast. This helps native wildlife and also protects our waterways by stabilising creek banks, reducing erosion and providing better habitat for native fish species.
- A significant corridor in Lake Macquarie encompasses 29 properties adjoining Olney State Forest and the Watagans National Park. These properties range in size from 4ha to 300ha and are a prime example of the integration of conservation on private lands and sustainable agriculture. The landholders are dedicated to maintaining the biodiversity and natural beauty of their area and have improved their properties through weed and feral animal management, revegetation and improving habitat for a wide variety of wildlife.

Photo: © CEN, A. Bland

Marketing your slice of paradise

By Leonie Gale, Foundation for National Parks & Wildlife

As Trinny and Susannah would say 'It's all about wearing the right type of clothes to suit the body-shape and personality'.

And with marketing conservation properties for sale our recent research undertaken for the DECC Conservation Partners Program has revealed that it's all about the packaging. What sellers, buyers, agents and conservation program managers want, according to the survey, is:

- help with advertising properties
- making conservation properties highly desirable
- attracting the 'right type' of buyer

Enhancing the body-shape of your property

Owners know their property better than anyone—the best views, where the animals like to gather and the silent spaces. The morning light over the grasslands with the mist rising from the creek and the dramatic sunsets making the granite rocks flame with colour are the intrinsic values that make a piece of paradise so irresistible.

These are the key attractors for the right type of buyers, so any promotion of your property needs to show them to their best advantage. Many photographs and images used in marketing conservation properties however show a photo of the house and sheds or a picture of a dam.

A picture paints a thousand words. Get some good shots that capture its special features. What would you like to see if you were a buyer? Show your house in the context of 'living in nature'. Capture these special places in the best light.

Images need to be digital for easy use on web sites or publications. High resolution allows use in different promotional mediums. If you're not an ace photographer maybe you have a friend who is.

Put a ticket on It

You love it, so put a ticket on it—stick a 'for sale' sign at your property where it will be seen by the public, showing your best emotive photograph, and proudly display your conservation partner sign. If your sign is getting ragged, contact Conservation Partners for the new shiny version.

Selling the sizzle

Interest people in what you want to sell by painting pictures with words. Let people envisage themselves owning the property and enjoying the experience. Language should be emotive and say what your ideal buyer wants to know more than what you feel you want to say.

Which of these do you prefer?

'You've done your time working in the city'
Are you looking for that perfect place to relax?
'Wake up to birds not buses'
'Soak up the peace and quiet and breathe easy'

Or this actual wording from an advertisement;

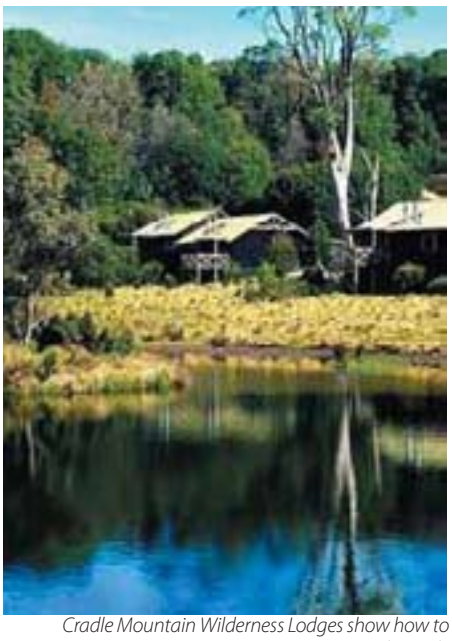
'Nature and ecology lovers special'
'Intense exposure to natural flora and fauna'
'Adjoins national park'
'Inviting exploring, bushwalking and trailrides'

Finding the right people

When promoting your property talk about what your buyer will experience. And talk is important—a large proportion of buyers heard about the property from the owners, their friends or neighbours.

Real estate agents use a mixture of marketing tools to find the right buyer. In their case, the right buyer is the one that will hand over the money. However, you know you want a little more than that. Finding the right type of person who will give your property the care and attention that you have given is just as important as getting the right price.

If it's not your neighbour, your buyer is most likely to come from a town or city within two hours drive of the property,



Cradle Mountain Wilderness Lodges show how to capture the sizzle

looking for a place to retire or get away from the stresses of city life and work, or do some manual work. For these people, the internet is the favoured method of finding their dream property. But this can be difficult. Current real estate websites do not allow you to search easily for a conservation property. There is a need for broadened search parameters and/or a purpose-driven website for conservation properties for sale.

On the April long weekend, the Sydney Morning Herald ran a feature article in Domain on conservation properties that attracted 30 enquiries and five property inspections. Proof that if we promote the values of our conservation properties, the right buyers will come.

Traditional marketing through your local real estate agent is still a good idea. Once your buyer has found your property on the net, the next stop is the real estate agent's window where your property needs to stand out in the crowd. Newspaper and web advertising, signs in the agent's window and on your property itself, sales brochures and visits with the agent are all helpful to clinch the deal.

Private Land Conservation Small Grants Program

Conservation Agreement landowners have been invited to apply for funding through the Private Land Conservation Grants Program. This program is a partnership initiative of the Paddy Pallin Foundation, the Foundation for National Parks & Wildlife, the Humane Society International and the DECC Conservation Partners Program.

Photo: © DECC, L. Ransom

A reminder that applications close 30 June 2008. Check the Foundation for National Parks & Wildlife website www.fnpw.org.au or call 02 9221 1949.

Desert knowledge

Interested in finding out more about our rangelands and deserts? The current issue of *The Rangeland Journal* Vol 30 (1) 2008 is a special issue focusing on desert knowledge.

'Desert Knowledge' is broadly defined as unique knowledge of living well in the desert. In Australia, it is growing aided by the formation of the Desert Knowledge Cooperative Research Centre (DKCRC) and Desert Knowledge Australia (DKA).

DKCRC is a research organisation made up of 28 partner organisations around Australia. Each participates by contributing resources to the centre which enables research to be undertaken. The research aims to see how things can be done in these arid and semi-arid environments using both western science and indigneous traditional knowledge and improve the livelihoods of people living in these areas.

DKA is a point of contact for Australia's knowledge of successful desert living. It is a community-driven organisation of partnerships and networks, applying scientific and informal knowledge, both ancient and innovative, to create demand for Australian expertise and to promote best practice in economic, social and environmental development. DKA also brings people and ideas together, networking across borders and making the connections to build business opportunities.

The DKCRC covers the rangelands as mapped below. Seventy percent of Australia is arid (average rainfall <250 mm) or semi-arid (average rainfall 250–350 mm), making Australia the driest inhabited continent in the world. These rangelands annually generate significant wealth through a range of increasingly diverse industries such as mining, tourism, desert art and agriculture. They are also valued for their unique environments. They have diverse ecosystems which support unique native plants and animals which contribute to Australia's biodiversity.

These regions have a number of unique attributes. The climate is dry, unpredictable and with extremes. This climate combined with soil of low fertility results in scarce natural resources. Plants, animals and people have developed ways of life that enable them to survive in these areas.

Another factor which influences how people live in these areas is that they are remote from markets and the centres of power, learning and decision-making. Desert people compensate by building up their local knowledge—and indeed one of the most remarkable is their knowledge of landscape and how it works, whether we are speaking of Aboriginal people, pastoralists, geologists or the new eco-tourism operators. This is much greater than the landscape knowledge of many other Australians.

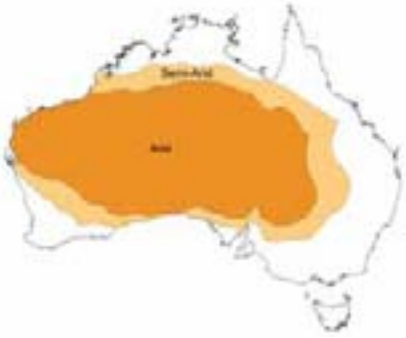
The Desert Knowledge issue of *The Rangeland Journal* presents papers on a range of topics being researched by DKCRC, including what drives deserts and the people in them, sustainable desert settlements, social capital and livelihoods in these areas.

For more information: www.desertknowledge.com.au/ or Desert Knowledge CRC Tel: (08) 8959 6000 PO Box 3971, Alice Springs, Northern Territory 0871

The Rangeland Journal publishes high-quality papers addressing key problems in all rangeland environments and can be found at www.publish.csiro.au/nid/202.htm or CSIRO Publishing (03) 9662 7500, PO Box 1139, Collingwood, Victoria 3066.

Rangelands

Desert areas are often referred to as 'rangelands'. They are found on every continent except Antarctica and cover 70% of the earth's land surface. Australian rangelands are permanently covered in vegetation of four broad ecosystems: grasslands, shrublands, woodlands, and savanna. Soil and rainfall determine where the different vegetation types are found.



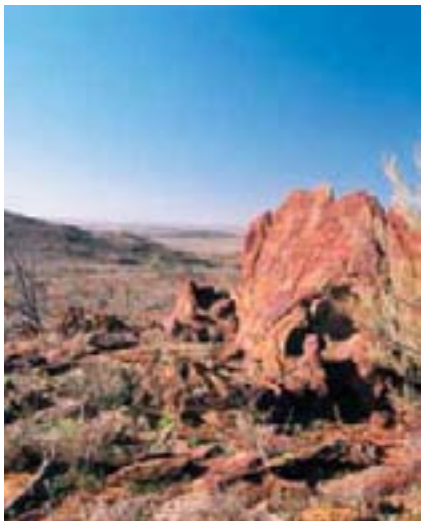


Photo: R. Shepherd

2008 Desert Knowledge Symposium and Business Showcase

Developing Desert Directions: Rethinking the Future

3–6 November 2008

Alice Springs Convention Centre

Desert Knowledge Australia and the Desert Knowledge Cooperative Research Centre have been joined by a new partner, the Desert Peoples Centre, in hosting the 2008 Symposium and Business Showcase.

Be part of this rare opportunity to hear about how business innovators, researchers and educators from Australia and overseas are working in partnership with communities, industry and governments to develop a body of desert knowledge that will help sustain desert communities around the world.

2008 Desert Knowledge Symposium and Business Showcase will focus on six key themes:

- making remote governance work
- networking business and knowledge
- learning for desert futures
- capturing industry opportunities for desert people
- seizing the desert environment opportunity
- exporting desert knowledge.

DESERT KNOWLEDGE AUSTRALIA

DESERT KNOWLEDGE CRC

Bush Matters is the newsletter for the DECC Conservation Partners Program which provides ongoing support for landholders with Conservation Agreements, Wildlife Refuges, Property Registrations and Land for Wildlife. *Bush Matters* is produced twice yearly.

Published by Department of Environment and Climate Change NSW Ph: 02 9995 5000

Past issues can be found at www.environment.nsw.gov.au/cpp/BushMatters.htm

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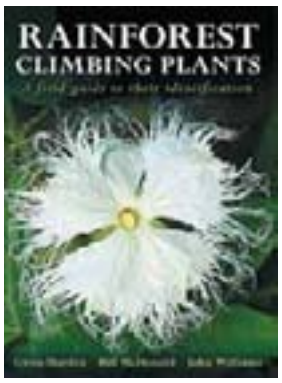
Books

Field guides and plant identification books often use many complex features to correctly identify plant species, and of course, they often rely on flowers and fruit, which are inevitably either absent or out of reach when visiting the forests. Luckily the two field guides below rely on vegetation features such as leaves to aid identification. This system was largely developed by the late John Williams (of the University of New England, Armidale).

Rainforest climbing plants: a field guide to their identification

By Gwen Harden, Bill McDonald and John Williams (2007)

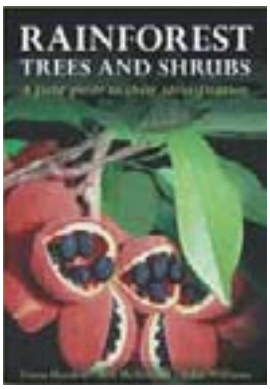


CSIRO Publishing 192 pages $40.00

This field guide uses features of leaves and climbing mechanisms to enable identification of the rainforest climbing plants in Victoria, New South Wales and subtropical Queensland, using vegetative features. The groups and individual species are illustrated and the species descriptions provide information on habit, the rainforest type in which the species occurs and their geographic range. This book is a rewrite of the well known 'Green Book' *Rainforest Climbing Plants* and covers double the number of species.

Rainforest trees and shrubs: a field guide to their identification

by Gwen Harden, Bill McDonald and John Williams (2006)



CSIRO Publishing 300 pages $50.00

This field guide covers rainforests from Rockhampton in southern Queensland, through NSW to Victoria. The guides uses features of leaves and branchlets and these features are illustrated by line drawings. In addition, for each species the geographic distribution and type of rainforest where it is found is given.

This book is a rewrite of the widely used 'Red Book' *Rainforest Trees and Shrubs* with the number of species described increased from 309 to 850.

What's on

NSW Land for Wildlife conference —creating natural connections

Friday August 1 and Saturday August 2 2008, Sydney

Featuring guest speakers and displays. The forum will promote benefits such as on-ground support, targeted training and networking opportunities for agency staff and landholders.

Field trips will look at the practical application of the Land for Wildlife program across a range of landscape uses. These include peri-urban, agricultural and bushland.

A chance to share ideas with like minded people and see innovative methods of enhancing conservation on private lands.

For more information contact Amanda Bland
02 4349 4754
lfwnsw@cen.org.au
or log onto the CEN website and follow the links to Projects, Land for Wildlife.

Veg Futures—Australia's national vegetation conference

Monday October 20 to Thursday October 23 2008, Toowoomba

The national conference about vegetation management. Comprehensive, practical papers and ideas about the nation's most pressing challenges for vegetation management in regional and peri-urban landscapes.

For more information contact Lyndal Page, Greening Australia
02 6202 1267
lpage@greeningaustralia.org. au
www.greeningaustralia.org.au/vegfutures/index.html