GOVERNMENT OF WESTERN AUSTRALIA
DEPARTMENT OF Conservation AND LAND MANAGEMENT
Conserving the nature of WA

Western Wildlife

LAND FOR WILDLIFE VOLUNTARY NATURE CONSERVATION

April 2002 Vol. 6, Number 2

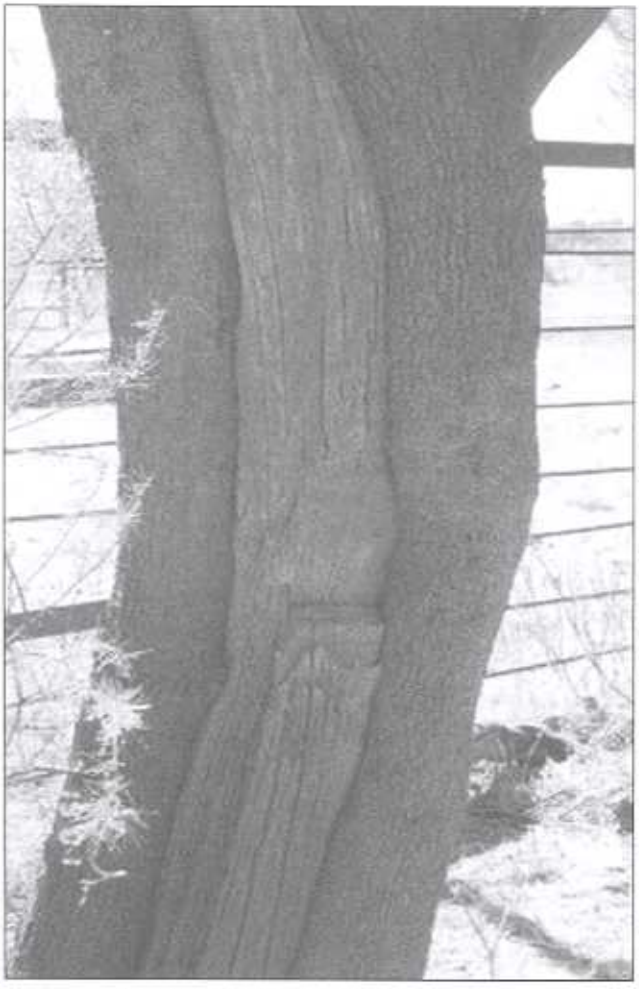
NEWSLETTER OF THE *LAND FOR WILDLIFE* SCHEME

REGISTERED BY AUSTRALIA POST PRINT POST: 606811/00007

HERITAGE TREES AND LAND MANAGEMENT

Marion Hercock

LAND managers and farmers in Victoria and New South Wales can often claim with great pride that they have an Aboriginal 'canoe tree' on their property. A 'canoe tree' is usually a eucalypt from which the indigenous people of south-eastern Australia would make a simple floating canoe. This water craft consisted of a long curved portion of the outer trunk of the tree. Such trees are a significant part of the local heritage because they are not only the surviving remnants of a native flora, but are also a relic of past indigenous uses of that flora. In contrast, in rural and rangeland Western Australia, it is human actions of a more recent nature that are sometimes recorded on trees.



Beefwood blazed by Gregory in 1861

A jarrah, wandoo or karri tree blazed with numbers or initials is familiar to anyone who walks or rides through the forest. These trees were marked by forestry workers in the twentieth century and the late nineteenth century, and still provide valuable reference points for forest visitors. Explorers and surveyors would often scar a tree trunk with an axe to record a campsite or water source. Any reference numbers or letters on the tree would be recorded in the explorer's journal and on a map, so people following those first surveyors would have a human-made point of reference in addition to natural landscape features. Other marks on trees included metal plates and nails.

A cairn on John Forrest Drive, near Hopetoun, marks the spot where a blazed Christmas tree *Nuytsia floribunda* was found. The tree was scarred by John Forrest on his 1870 expedition to South Australia, along the Great Australian Bight. The tree was chopped down, perhaps by souvenir hunters, and the local people erected the cairn in its place. Blazing a tree trunk to mark a campsite was a regular practice of Forrest, who, on the 1874 expedition from Geraldton to the South Australian and Northern Territory borders marked numerous 'white gum trees'. Although many of these scarred trees have

continued on page 3

EDITORIAL

Greetings everyone!

It is a sad day when one of our team of *Land for Wildlife* Officers leaves the programme, and those of you that know Anne Rick will be aware of what a great loss she will be. Over the last couple of years she has very successfully raised the profile of biodiversity conservation in the eastern wheatbelt. Of course, she and Barry are still farming at Newdegate - it was even a decent season last year! - so we hope she will keep in touch. In addition, she will still be working with the Department of Conservation and Land Management covenanting programme, and will be organising the popular 'Magenta Fauna Day', as well as doing some botanical consulting.

Land for Wildlife will soon be getting two new officers, one in Katanning and one in the Esperance District. As soon as they are established, they will contact members in their regions to introduce themselves.

The effect of fire on bushland has been a hot topic this summer (sorry! I couldn't resist it!!) and two workshops organised on the South Coast by the Friends of the Fitzgerald River National Park and *Land for Wildlife* brought together a number of speakers and generated some spirited debates. For people in the drier areas, especially inland woodlands, mallee and kwongan, you might find some of the papers quite interesting (see p15). In April a high-powered conference on fire will be held in Perth. If you are in a higher rainfall area, and you like scientific presentations, you will find plenty to keep you interested during these three days.

NHT is under way again, and there are small grants (up to $20,000) available to individual landholders They could be used to help with bushland management such as weed control, revegetating, fencing etc. If you wish to apply, your local *LFW* Officer may be able to work with you to present your application, with the *LFW* Assessment of your bushland's conservation value as a strong supporting document. It is worth a try!

Penny Hussey

INDEX

DO YOU WANT A SECOND BINDER?

If you have been with *LFW* for several years, and are filing all your Western Wildlifes, your binder will be getting quite full. If you would like a second one, they are available for sale:

Binder + GST = $5.00
(if you collect it personally from a *LFW* Officer)

Binder + GST + postage in WA = $7.70

(please make cheques payable to *Land for Wildlife*)

Did you know?

..... that some mycorrhizal fungi can make roots live longer? When they colonise a rootlet, they produce cytokinins which extend the longevity of that rootlet - to years as against months. Yet another example of how the partnership with fungi increases plant productivity.
From Prof Jim Trappe, Uni. Of Oregon.

Contact details for *Land for Wildlife* Officers

	Location	phone & email
Heather Adamson	Merredin	(08) 9041 2488 heathera@calm.wa.gov.au
Avril Baxter	Narrogin	(08) 9881 9218 avrilb@calm.wa.gov.au
Jenny Dewing	Bridgetown	(08) 9761 2318 mdewing@iinet.net.au
Fiona Falconer	Coorow	(08) 9952 1074
Claire Hall	Perth	(08) 9334 0427 claireh@calm.wa.gov.au
Penny Hussey	Perth	(08) 9334 0530 pennyh@calm.wa.gov.au
Bob Huston	Mundaring	(08) 9295 1955 roberthu@calm.wa.gov.au
Cherie Kemp	Busselton	(08) 9752 1677 cheriek@calm.wa.gov.au
Sylvia Leighton	Albany	(08) 9842 4500 sylvial@calm.wa.gov.au

FLORA

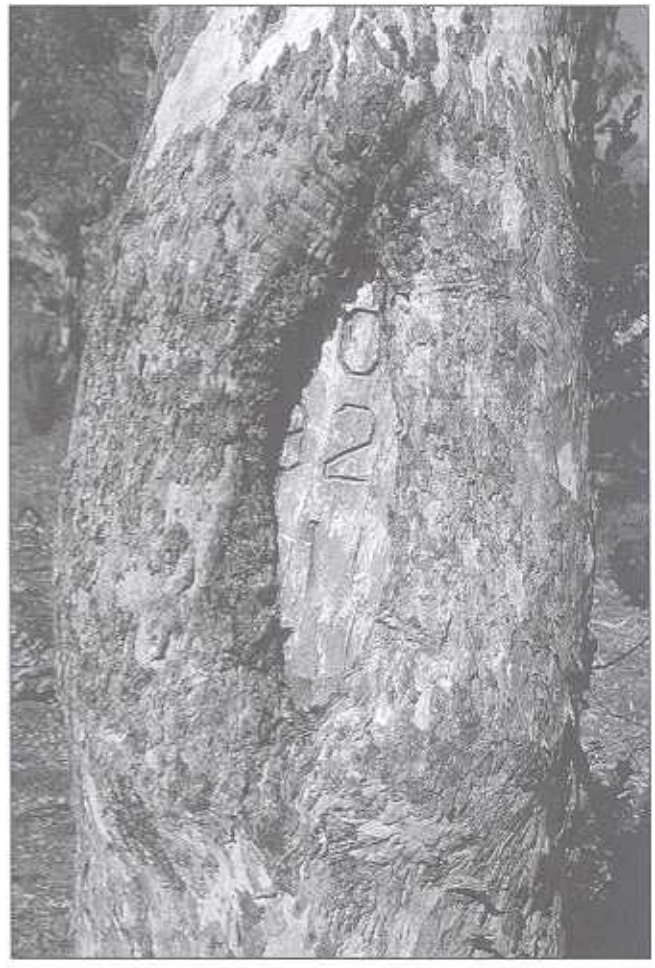
Heritage Trees continued from page 1

not survived owing to the ravages of fire, termites and sheer old age, some relics still exist. For example, a river gum *Eucalyptus camaldulensis* on Manfred Station in the Murchison was identified as a John Forrest tree by the Geraldton Historical Society in 1974. The original blaze marked the site of camp 17 with 'F17'. A commemorative plaque was left on the blaze, but over the years both blaze and plaque have almost been concealed by re-growing wood, as these eucalypts are quick to 'bleed' and heal their 'wounds'. Therefore, every so often, it has been necessary to cut out the regrowth. The tree is cared for by the managers of the station.

Two other river gums bearing plaques to show heritage can be found on the Milly Milly-Byro Road, just over the Murchison River. One of the trees commemorates Forrest's camp 18, and the other tree reminds travellers of the 28th camp of the drover E.T. Hooley in 1866. Neither tree is the original, as these have not been found – perhaps lost as firewood or as building timber or to ever-hungry termites.

In contrast, a group of beefwood trees in the Pilbara, blazed by F.T. Gregory's North-west Australian Exploring Expedition in 1861, has lasted without mishap. The beefwood *Grevillea striata* is a long-lived tree owing to its resistance to termites and tolerance of fire. This species can grow up to 15m high in the Gascoyne and Pilbara regions, and has a grey bark with creamy coloured flowers. The common name is derived from the colour of the heartwood, which looks like raw beef. Despite the length of the blazes – axe blows 1metre long and up to 30cm wide - the trees appear healthy. The wood has regrown around the edges of the blazes, for only a couple of centimetres at the most, but some of the axe marks remain clear and sharp. Although all trees thicken with growth and age, they don't grow up from their base, so the axe marks are the same height - a metre off the ground - exactly where the explorers swung their axes. The height of the trees today suggests that they have not grown much taller since 1861, which we would expect from these typical, hardy, arid zone species, which are characteristically slow growing. Gregory noted that 'we marked several trees on the north side of the gorge close to a pool' in his journal, and recorded the number of the camp on his map. He made no comment about carved initials or a date, and there are no traces of numbers or letters on the blazes. The men of the North-west Australian Exploring Expedition must have recognised the beefwood as a hardy tree, because they ignored the River Gums down by the pool.

If you have a blazed or marked tree on your property, or know of a tree in your locality, try to find out about its origins, as it may have heritage value. The Western Australian Heritage Council and your local Shire's heritage officer could assist with providing historical and cultural background. Equally, they would appreciate your information. Do identify the species of tree, because knowing something about the species, its characteristics and its susceptibility to termites, disease or fire, will guide you in protecting the tree. It is equally important to be aware of the threat posed to such heritage trees by souvenir hunters. Sad to say, some trees in the rangelands have had the entire blaze removed, so heritage tree management is also a matter of people management.



Marked wandoo in the forest near York.

People who work in remote areas do not blaze trees today for navigational purposes, thanks to the satellite GPS (Global Positioning System) and soft plastic tape. However, whilst the coloured tape might prevent an injury to a tree, it doesn't have the mystique of a mark made long ago.

Marion Hercock is a geographer and has published on a range of environmental topics. When not lecturing at the University of Western Australia, she runs expeditions following the original routes taken by WA's great explorers. Marion may be contacted at Explorer Tours, telephone 9361 0940,
web site: www.explorertours.com.au.

ECONOMIC VALUE OF BIODIVERSITY

FARM LAND AND BUSH CARE - AN EXPENSE OR AN INVESTMENT IN PRODUCTIVITY?

Kennedy Miller

I began my farming career in 1978, with a very small equity, after the dissolution of a family farming partnership. My property lies 70 km east of Narembeen, in a 350mm rainfall zone. It is very hilly and, since much of the clearing was done in the 1920s using manual labour, 25% of the area remains covered by native vegetation. Also, during the 1960s my father resisted the 'clear a million acres per year' government policy. At the outset I realised that I had problems with erosion, limited water supplies and unsustainable yields due to lack of rainfall retention, as well as poor soil structure and soil fertility. On the other hand, because of the retained remnants, the erosion wasn't as bad as it could have been, and I had excellent stock shelter.

Our approach was to get control of the water on our hilly land with grade banks, turn erosion into productivity by storing water where it lands and address soil structure issues, whilst at the same time ensuring maintenance of the bushland. I got a lot of inspiration from the book "Water for Every Farm" by P.A. Yeomans, from which I realised that I had to have a whole farm approach to integrate all of the features and issues. Having done this now for over 20 years - with no grants - and seen farm productivity (and therefore profitability) continually increase, I am convinced that landcare is an investment in productivity.

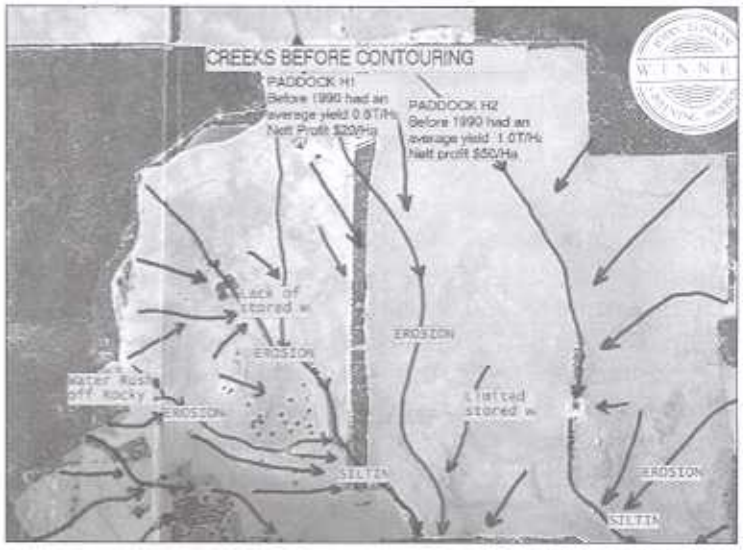


Fig. 1 1990 photo

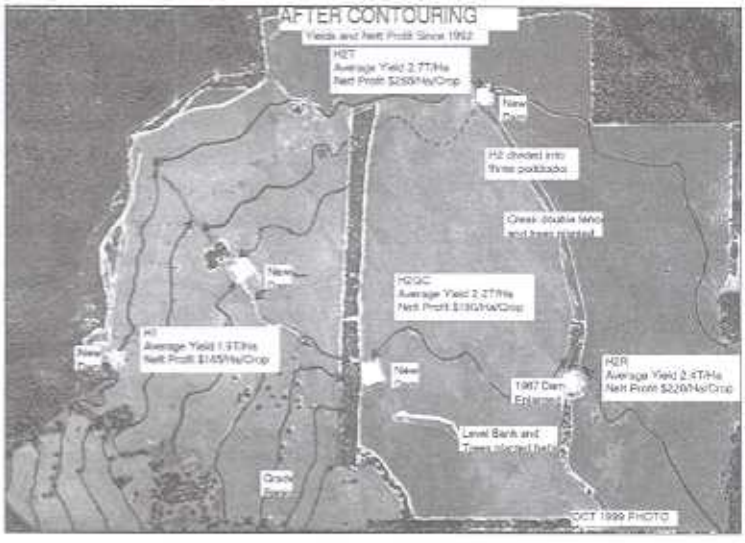


Fig. 2 1999 photo

Landcare actions

The attached photographs, Figs 1 and 2, illustrate the actions taken in two representative paddocks. Essentially we first developed a farm plan, then contoured (treeing some of the banks), put in new dams, subdivided paddocks, fenced and replanted creeklines, applied gypsum to clays, trialled new pasture legumes and adopted the best, changed to direct drilling, etc. Greater detail of the landcare actions can be found in the paper that I gave to the 2001 State Landcare Conference at Mandurah, pp 461-6 in the Conference Proceedings.

The results? Well, the average yield of wheat has doubled, see Fig. 3, giving very satisfactory financial returns. (Again, for detail, see the Conference paper.) The red loam and morrel soils are now producing a high protein hard wheat and even durum. Our net return on investment since 1994 has been 12%, compared with the national average of 3%.

Bush management actions

The principal bush management cost has been fencing, which has been an on-going programme. We are convinced that the maintenance of this healthy bushland has contributed to our positive financial returns, but it is very difficult to actually fit dollar figures to it. To take some examples from the paddocks illustrated in the photos.

The bushland which surrounds the paddocks on the west, north and east is on rocky, breakaway country. If cleared, it would not be productive farmland. As it is, the bush uses water year-round, and there is some run-off

ECONOMIC VALUE OF BIODIVERSITY

from that area, ie: it controls water erosion and is vital for overall farm water balance. The bushland is excellent shelter, even though the sheep are not allowed in it. For example, we have very strong, cold south-west winds, and in paddock H2GC (Fig 2) lambs move to the SW corner in the morning, where they are out of the cold wind yet in a nice sunny spot. Windbreaks are also important in cropping, often enabling you to work in protected areas when wind conditions would mean that activities such as spraying could not be done in unprotected areas. There are also direct effects on the crop. In the photos, a gap (it's a one chain wide gateway) can be see about half way down the central bush strip. After a severe westerly there was noticeable crop damage in H2GC in a funnel shape where the wind had blasted out from this hole.

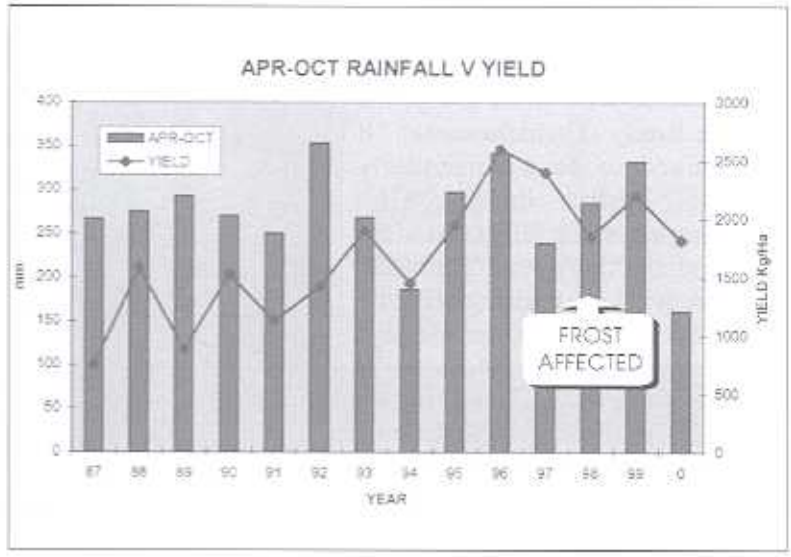


Fig. 3 Apr-Oct rainfall and yield.

It should be noted that grazed bushland strips are not efficient as either windbreaks, stock shelter, or at controlling water runoff. In fact, sheep grazing in remnant bush removes the understorey, compacts the soil, reduces water infiltration and increases water runoff.

Water balance

Another important area is water use. As much as possible of the rainwater that lands on the property is retained by the bushland and the cropped and pastured areas. Any runoff is conveyed to dams by the grade banks and watercourses (we have constructed 17 dams since 1978). Only when the dams are full does any water get into a creek and leave the property. The 25% of remnant vegetation which we have on the farm is obviously an important part of this water use strategy.

Thus, by ensuring that the water is used where it falls, we are helping to limit water table rise and the spread of salinity on our own property and downslope.

Value of remnant vegetation

I believe our remnants are the most valuable trees we can ever have as they are a complete system, almost impossible to replicate, and ensure the survival of the local flora and fauna, as well as being vital for windbreaks, natural pest control and water table management. But under the current commercial, taxation and Shire rate regime, remnants are a major cost to commercial farmers. The current regime encourages a "wait for a handout (grants) mentality" resulting in important bushland work being delayed, by the grant system, which is currently very slow and very expensive to deliver. We really need an effective "reward for effort" rebate incentive through the Shire rating and the taxation system. When these policy issues are addressed, and the whole community is prepared to accept and fund the real cost/value of owning remnant bushland, then there will be a major positive shift in landholder attitude.

One example is the value put on land categories when the land is sold. Only the land's crop/stock productive capacity is given a monetary value. In our area, cleared non-saline farmland sells at $250-600 / ha. Saline land is valued at $0 / ha, and so is bushland. However, if 25% of the land is required to be in remnant or strategic revegetation to control the watertable, and that 25% is therefore seen as protecting the other 75%, then the bushland's value should be THREE TIMES that of arable land. It thus becomes the most valuable land on the property.

In summary

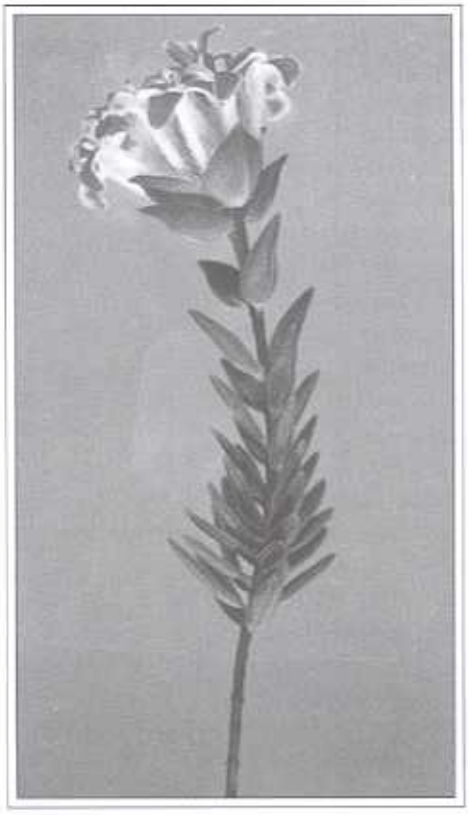
We have addressed erosion, salinity, productivity, sustainable water supply, ecology and economic issues whilst maintaining 25% remnant vegetation and planting over 100,000 trees - all done with no grants. Economically the results have been terrific. We have been able to pay off the previous owners and the bank, educate two boys (away from home) and make some off-farm investments.

My conclusion? Land and bush care is an investment in farm productivity, not a cost.

Kennedy Miller is a farmer and Landcare Consultant for Farm Sustainable Productivity Improvement. He can be contacted by ph/fax: 9062 0056 or email: kennedyjmiller@yahoo.com.au

(Editor's note: If any reader would like a copy of Kennedy's paper to the State Landcare Conference, contact me and I will send one to you.)

FLORA



Pimelea preissii. Photo: B. Rye.

PIMELEAS – THE ORIGINAL BANKSIAS!

Barbara Rye

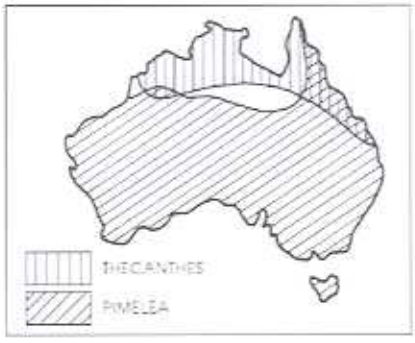
PIMELEA is a genus of over 100 shrub species belonging to an almost world-wide plant group, the Daphne family (Thymelaeaceae). It has proved to be a particularly adaptable genus in Australia, extending across the full extent of the mainland and throughout Tasmania, and occupying a surprising diversity of habitats from coastal dunes to high alpine meadows. Beyond Australia, it extends south-east to Chatham Island and includes at least 17 species endemic to New Zealand. Only in some parts of the far north of mainland Australia is *Pimelea* absent, and there it is replaced by the very closely related herbaceous genus *Thecanthes*, which extends north to the Philippines.

History

The genus was discovered, as least as far as European botanists were concerned, in New Zealand during Cook's second voyage of 1772–1775. The botanists who were to have accompanied Cook on this voyage, Joseph Banks and Daniel Solander, were replaced at the last moment by the German botanists Johann Forster and his son Georg. In 1775 the Forsters named the new genus they collected in New Zealand, not as *Pimelea* but as *Banksia* in honour of Sir Joseph Banks. It was only by a kind of botanical accident that the genus lost this name, as this was the earliest use of the name *Banksia* and should have been retained.

In 1782, however, Carl von Linnaeus (the younger) decided that the Forsters' *Banksia* was not sufficiently distinct to be treated as a separate genus and included its species under an African genus, *Passerina*, that had been named by his father of the same name (also considered to be the father of modern botany). At the same time the younger Linnaeus reused the name *Banksia* for a genus in the Proteaceae. This would not have been allowed under the current rules of botanical nomenclature, but the new use of the name became so well accepted that eventually, in 1940, the name *Banksia* was officially conserved for its current use.

Meanwhile a series of other generic names had been published for the Forsters' genus, with the oldest of these, *Pimelea* (1788), becoming the accepted name.



Common names and cultivation

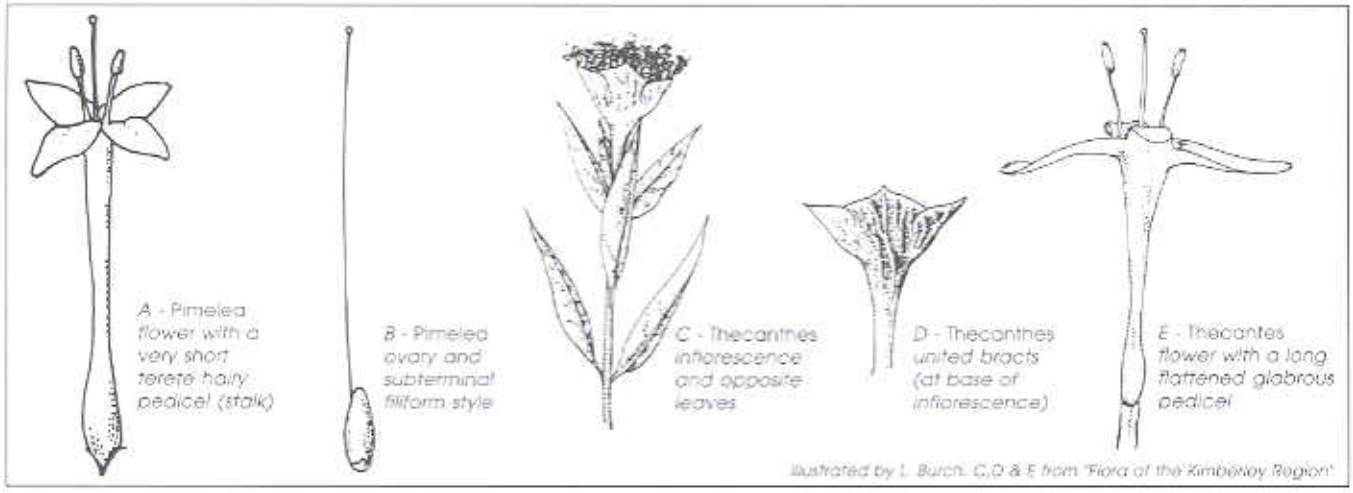
In South Australia and the eastern states of Australia, pimeleas are commonly known as riceflowers. Western Australian pimeleas are more commonly known by Aboriginal names. An example is the Bunjong, which is well-named botanically as *Pimelea spectabilis* since its particularly large inflorescences of very long flowers are among the most spectacular in the genus. Two other Western Australian species, Rose Banjine (*Pimelea rosea*) and Coastal Banjine (*Pimelea ferruginea*), both with beautiful deep pink flowers, have become well known horticulturally. The latter, in particular, is widely cultivated, and is prized for its natural domed shape that could only be achieved in most shrubs by careful pruning.

Economic importance

One characteristic of members of the family Thymelaeaceae is their very stringy bark which has been widely used by indigenous peoples in Australia and other parts of the world for string-making. In Western Australia, the reported Aboriginal uses of this fibre include fishing lines and fine-meshed nets.

One of the most widespread species, *Pimelea microcephala*, also appears to have been one of the most useful (see "Useful Bush Plants." by P. Bindon). It was known in the Murchison area of Western Australia by the Aboriginal name Gundagarrie and is known in other States as Mallee Riceflower. This is one of the relatively few species to have berries; most pimeleas have a dry fruit. In addition to its sweet edible berries and use for string-making, Gundagarrie can also be used for relieving throat and chest complaints with a drink produced from its root bark.

The vegetative parts of *Pimelea* species may commonly be toxic, as at least 13 species have been reported to cause stock poisoning.



Illustrated by L. Burch. C,D & E from "Flora of the Kimberley Region"

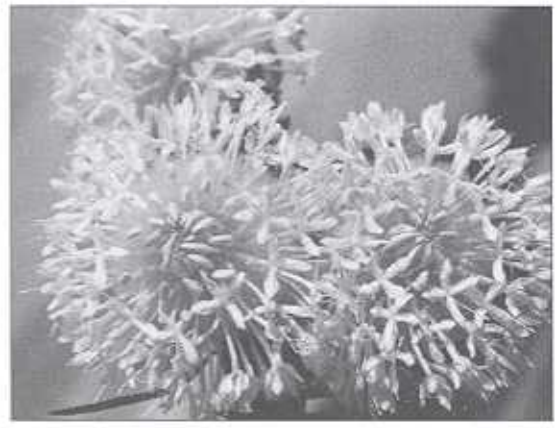
Characteristics and pollination

Pimeleas are nearly all shrubs, ranging from prostrate to tall, with the largest Western Australian species *P. lanata*, which is associated with swamps in the far south-west, being up to 4 m high. Apart from the stringy bark already mentioned, the genus is characterised by having tubular flowers massed into heads or more cylindrical inflorescences, a slender floral tube swollen at the base around a 1-celled superior ovary and topped by four petal-like lobes, a slender subterminal style and an indehiscent 1-seeded fruit. Most of the larger-flowered species are evidently adapted for pollination by butterflies and moths, as only insects with a long slender proboscis can reach the nectar present in the swollen base of the floral tube. Few, if any, other Australian genera have shown such a great development of butterfly-pollinated species as *Pimelea*. Even the small-flowered species attract small species of moths and butterflies, although in this case other small insects such as bees and flies may possibly have a greater importance as their pollinators.

The single exception to the insect-pollinated rule in *Pimelea* is the spectacular Qualup Bell. Some of the larger-flowered species of *Pimelea*, particularly in Western Australia, have large colourful bracts surrounding a large pendulous flower head. This has been carried to its extreme in the Qualup Bell, which closely resembles the Mountain Bell species found in an unrelated genus *Darwinia* of the Myrtle family (Myrtaceae). Like the Mountain Bells, the Qualup Bell is bird-pollinated. Alone among the pimeleas, this species has a broadened floral tube allowing easier access to the nectar, and extremely long stamens and style that would reach the feathers on the bird's face or head when it is feeding, and so allow pollen to be transferred between flowers.

Pimelea and its close relative *Thecanthes* are readily distinguished from all other members of their family by having only two stamens. One of the Tasmanian species of *Pimelea* has undergone a further reduction to only one stamen per flower. These low stamen numbers, when combined with the other floral characteristics described earlier, also distinguish the two genera from all other Australian plant groups.

Thecanthes differs from *Pimelea* in being a small tropical genus of herbs, its almost complete lack of hairs and its unique inflorescence, which has four large bracts



Pimelea spectabilis. Photo:B.Rye.

united together with the long flattened pedicels (stalks) of the flowers into a broad basal tube. In *Pimelea* simple hairs are present in nearly all species, although sometimes only in obscure locations such as the leaf axils or the inside of the floral tube. The *Pimelea* inflorescence is commonly subtended by two to numerous bracts but these are free from one another as well as from the short terete pedicels of the flowers. Flower colour in *Thecanthes* varies from white through to bright or deep red. Red is a rare colour among pimeleas, which mostly have white, pink or yellow flowers.

Conservation

Most species of *Pimelea* and *Thecanthes* are attractive and reasonably conspicuous plants that have consequently been well collected and well documented. In Western Australia most of the recognised species had been collected by 1900 and all of them by 1985. Fortunately, few are considered to be endangered. Even the somewhat elusive *Pimelea rara*, which was feared to be extinct since it had not been collected for over 80 years, is now known to be common! Its long period of 'disappearance' was due to a combination of its summer flowering time, its relatively diffuse low-growing habit hidden amongst dense shrubbery and its relatively sparse flowering pattern.

Barbara Rye is a botanist at the Western Australian Herbarium. Some of the plant groups she specialises in are the Lamiaceae, Myrtaceae, Proteaceae, Rhamnaceae and Thymelaeaceae. She can be contacted by phone on 9334 0141.

FAUNA

WONDERFUL WOODSWALLOWS

John Blyth

BIRDS do not have to be rare or difficult to see to be interesting! The six Australian species of woodswallows all occur in Western Australia, with two, the Black-faced (*Artamus cinereus*) and Dusky (*A. cyanopterus*), common and conspicuous in south-western agricultural areas. These two are slightly larger and heavier looking than the very common Welcome Swallow, have similar levels of aerial skills and have a charm all their own.

Black-faced Woodswallow at nest. Photo: Babs and Bert Wells/CALM

Woodswallows are not related to true swallows, nor, despite having brush-tipped tongues, do they appear to be closely related to honeyeaters. There is increasing evidence that their closest relatives are butcherbirds, currawongs and the Australian Magpie, and current classifications puts them all together in the family Artamidae.

Remarkably, they differ from their closest relatives, and from all other passerines ('songbirds' or 'perching birds'), in lacking a preen gland, a modified sebaceous gland at the base of the tail, that produces a 'feather restorer', an oily, water resistant secretion with many qualities helping to maintain the feathers in healthy condition. The maintenance of strong and healthy feathers is vitally important in all flighted birds, especially such aerial specialists as the woodswallows, and a large proportion of each day is spent preening the feathers. In woodswallows feather maintenance is assisted by powder-down, rather like talcum powder, instead of oil from the preen gland. The powder-down is produced by the breakdown of the tips of special feathers on the breast and back, and is spread around all feathers during preening. This contributes to the soft, non-glossy appearance of their plumage, a characteristic shared with the common and widespread Black-faced Cuckoo-shrike (*Coracina novaehollandiae*) and some of its relatives. These songbirds also produce powder-down, but unlike the woodswallows, have retained the preen gland as well.

The brush-tipped tongue indicates that the ancestral woodswallow is likely to have fed heavily on pollen and nectar, but this does not appear to be an important food source for the two species common in the southwest. Like all Woodswallows, the Black-faced and Dusky are superb aerialists and they feed mainly on flying insects, taken while on the wing, sometimes hundreds of metres above the ground. Woodswallows soar and glide to an extent unknown in most other songbirds.

There is little difference between the sexes in either the Black-faced or Dusky Woodswallow. The two species may occur together around the edges of woodlands and open forests and can be difficult to identify, especially when flying, or perched, silhouetted, against the sky. They are about the same size and perch and fly in a similar manner. Both species also have the habit of swinging their tail vigorously from side to side, fanning it out while they do so, thereby highlighting the large white corners at the end of the tail. However, reasonable views allow the dark, dusky brown underparts of the Dusky to be separated from the much paler fawny-grey of the Black-faced. The small but well-marked face mask of the Black-faced is obvious with better views, as is the long white leading edge of the wing on the Dusky Woodswallow.

Birds in juvenile plumage (the first full set of feathers replacing the down of chicks) of both species are very different in appearance from the adults, being mottled and streaked in off-white on a largely brown background (no doubt providing camouflage during the very vulnerable period before and immediately after fledging). However, even at this stage the Dusky can be identified from the Black-faced by the white leading edge to the wing and a darker throat.

The Black-faced Woodswallow is common and conspicuous

FAUNA

throughout the wheatbelt, where it sits on power lines, fences and dead trees, from which perches it soars and swoops in search of it's flying prey. It is absent only from the wetter parts of the southern, eastern and northern coasts, but is most characteristic of arid and semi-arid Australia. In general it favours dryer and more open vegetation than the Dusky Woodswallow, which is largely a bird of open forest and woodland, including well grown mallee.

Like the Australian Magpie discussed by Ian Rowley in the April 2001 Western Wildlife, Black-faced Woodswallows have coped well with the changes wrought by agriculture and have expanded their range to the south and west around the wheatbelt. Open farmland with scattered trees is similar in structure to the savannah grasslands in which they occur throughout inland Australia, and, because of the artificial enrichment of agricultural land, there is usually no shortage of their main prey, flying insects.

By contrast, the Dusky Woodswallow has declined markedly in the southwest, as much of its main habitat, the open forest, woodlands and tall mallee of better soils, have been cleared for agriculture. From my experience this species appears to need substantial areas, tens perhaps hundreds of hectares, of the right habitat to maintain a population.

Southwestern populations of both Black-faced and Dusky Woodswallows have been thought until recently to be entirely sedentary, moving little from their breeding area. This seems to be true for the Black-faced Woodswallow which even in the arid zone is essentially sedentary, although outside the breeding season flocks form and may become locally nomadic. However, recent detailed analysis by Ron Johnstone of the WA Museum has shown that the southwestern population of Dusky

Dusky Woodswallow. Photo: Babs and Bert Wells/CALM

Black-faced Woodswallow. Photo: Babs and Bert Wells/CALM

Woodswallows is at least partly migratory. Birds leave the colder and wetter parts of the south-west in autumn/winter and fly northwards, sometimes in flocks of several hundred, as far as the Murchison and Gascoyne Rivers. They return to the southern parts of their range, where breeding occurs, in spring.

In the southwest both Black-faced and Dusky Woodswallows live in small family parties, and breeding occurs mainly in the period from August to December. In the arid zone the Black-faced Woodswallow will breed in almost any month depending on rainfall.

All woodswallows are very gregarious birds, and have an expanded family system probably similar to that described by Ian Rowley for magpies but much less well studied. They also roost together in family or larger groups, and this results in two related habits that I find very endearing. The first of these, apparently exhibited by all Woodswallows, is their clustering in tight masses to roost. This behaviour is most developed in the Dusky Woodswallow, and up to 100 birds have been seen, on the trunks or larger branches of trees, clinging to each other and to the

continued on page 10

FAUNA

Woodswallows continued from page 9

tree, looking more like bats than birds. This behaviour may occur during the day if the sky clouds over or the temperature drops, and it is thought to be a mechanism for limiting heat loss.

The second habit, also seen very clearly in Dusky Woodswallows, is for a group of up to ten or so birds to perch on a bare horizontal branch, all huddled together in a line. If one bird near the centre finds the pressure too much and flies out, the space is immediately filled by all the rest of the birds moving closer. In many cases, the deserter soon appears to regret its decision, and attempts to squeeze back into the line. Birds on each end of the row also appear to think that their position is less desirable and continually flutter up and attempt to infiltrate the middle of the row, presumably so that they can have both sides kept warm at the same time!

The two southwestern species of woodswallows build a broad, rather flimsy, bowl-shaped nest of fairly light twigs, usually rather rough on the outside, and both members of the pair take part in nest-building. The nest of the Dusky Woodswallow is often placed in a quite solid fork in branches or trunks of trees or behind stiff but projecting pieces of bark, up to 10 metres from the ground. Black-faced Woodswallows are more likely to place their nest in thicker bushes closer to the ground, and both species have been known to nest in broken stumps or even on top of fence posts.

Both species lay three to four eggs, which are incubated, by both parents, for about 15 days before the chicks hatch. Fledging usually takes between 16 to 20 days, during which time both parents, and often some young birds from the previous brood, feed the young. Like many Australian songbirds, woodswallows will frequently nest and lay again if the first clutch or brood is lost reasonably early in the breeding season. Occasionally two broods may be reared successfully in one breeding season. Those breeding pairs assisted by adult young fledged in the previous year are more likely than unassisted pairs to be able to raise two broods in the one year.

If you are lucky enough to have one or both species of the local woodswallows on your property, not only will they act as natural controllers of outbreaks of some insects, but they are a delight to watch. They are both quite tolerant of human presence and both species have commonly been recorded breeding around homesteads where the habitat is suitable.

John Blyth is Principal Ecologist in the Department of Conservation and Land Management's WA Threatened Species and Communities Unit at Woodvale. He is also a joint Editor of Western Australian Bird Notes produced quarterly by Birds Australia (WA Group). He can be contacted on 9405 5161 or email: johnbl@calm.wa.gov.au

BUSH DETECTIVE

Spot the bird!

Some animals have wonderful camouflage, can you spot the bird in this jam tree? Turn to p 19 for a close-up.

FAUNA

UPDATE ON THE COMMUNITY OWL SURVEY

Jenny Dewing

THE Blackwood Environment Society and *Land for Wildlife* members carried out a community owl survey from November 2000 to November 2001. This survey was not a full blown scientific survey but was designed to introduce community members to a much admired group of birds that are common in this district. It gathered information on the local distribution and numbers of owls, particularly the two priority species, masked and barking owls. Ian Wheeler, CALMScience, trained six team leaders to take small groups out to different survey sites, this way more sites were covered and the experience was "hands on" for each participant.

The survey technique used was the one developed by the Department of Conservation and Land Management for monitoring forest sites in the southwest of WA. This way the data could be included in the Statewide database. Four separate surveys were carried out, at different times of the year and over a range of habitats, to see if season, and/or habitat, influences the occurrence and activity of the owls. Each site was monitored in the four surveys but the number of sites was extended where an enthusiastic landholder wanted to include their home patch. In total, 14 regular sites were monitored and about a dozen casual observations collected.

The detail of the monitoring procedure was reported in Western Wildlife 5/1. Essentially surveyors at each site first listen, then play an owl tape and listen for responses, then spotlight and record fauna observed.

Masked owls were heard or observed at eight of the fourteen sites, mostly only once over the year. Previous survey experience from the Department of Conservation and Land Management indicated that up to nine surveys are required to pick up 90% of owls in a particular territory as their range is about 800 hectares. The barking owl remained elusive, despite many reports from landholders who have heard them.

Observations indicated that masked owls were more prevalent along the forested Blackwood River valley and the Hester Brook foreshore. One to two masked owl observations were recorded for all survey nights with autumn producing more observations - 8 masked owls over 5 sites. Autumn produced the largest number of observations, but weather on individual nights could be more significant than season, as the autumn survey was also conducted in the best weather conditions, fine, still and clear. More frequent surveying over the same sites is needed to establish a seasonal trend.

Surveyors observed Australian owlet nightjars, tawny frogmouths and a boobook owl during their drive to and from the survey sites. These observations were also recorded in the database. Spotlighting carried out during the procedure revealed healthy populations of brushtailed possums and phascogales.

Data collected from the survey was provided to the Department of Conservation and Land Management and to Birds Australia for the census of Australian Birds. Data was entered into an Access database which is available to other groups interested in using this survey technique.

One of the rewarding outcomes of the exercise was an unprecedented public interest in owls. Over sixty different landholders from around the district and nearby areas registered to attend. Participants included people registered with *Land for Wildlife*, Blackwood Environment Society members and the general public. Some participants travelled from Manjimup, Donnybrook and Kojonup to attend. Displays at the Balingup Small Farm Field Day and the Bridgetown Show attracted enormous interest and a demand for information and owl tapes, which were distributed widely to landholders. Articles on the survey were written for local newspapers.

The Blackwood Environment Society will continue to monitor the fourteen sites 1-2 times a year, autumn and spring. The group will also assist Ian Wheeler to extend the survey to Boyup Brook and Balingup this year. Several landholders from the Boyup Brook area have reported barking owls - it would be exciting if we encountered one!

Last year the conservation status of the masked owl changed from priority four status to priority three, reflecting its lower numbers in the southwest. Scientists suggest that clearing of native vegetation for farming and changes in fire regimes are the likely causes of this decline. The action plan for Australian Birds 2000 recommends further baseline surveys.

Jenny Dewing is Land for Wildlife *Officer at Bridgetown.*
Ph: 9761 2318

Bush Rangers and owls

Ian Wheeler has been teaching owl monitoring techniques to CALM Bush Rangers from Metropolitan schools. Some of the Bush Rangers are also helping by completing the GIS mapping of owl species sightings, and also by making a CDROM of owl calls. When ready, these will be available for community group use via Ian.

FLORA

Orange Borya, Sullivan Rock.

Golden Cord Rush, Ecdeiocolea, near Moora.

AUTUMN COLOURS

Alex S. George

AUTUMN colours in Western Australia? Surely only deciduous trees in gardens turn colour at that season? Apart from the well-known orange or pale yellow pincushions, *Borya* spp., on granite rocks, and the brown or purple hues of tamma, *Casuarina campestris*, in the wheatbelt, our native plants do not turn colour in autumn. After all, they are evergreen - or they were until last year!

The record dry summer of 2000-2001 revealed a different face to the bush. Apart from the north-eastern and eastern agricultural regions, the south-west had its driest summer and autumn on record, generally receiving less than a quarter of the average rainfall. From the end of November until the start of May, for example, Badgingarra had 7.6mm compared with the average of 82mm. Even in Perth, where 20mm fell over the same period, the effect on the bush was startling. Just as we talk of 100-year floods, so was this a 100-year drought. It was a rare opportunity to see how the bush responded.

In autumn 2001, from Eneabba to Perth and inland to Ravensthorpe, many plants showed a change in foliage colour, and some colours were quite spectacular: reds, yellows and browns. Observations after the winter rains began showed that, although a number of plants died, most turned green and recommenced growing and flowering.

The habitats where I saw 'autumn colour' include eucalypt woodland, coastal heath on dunes and limestone, inland heath on sandy, gravelly and granitic soil, winter-wet clay-loam flats and granite outcrops. In some places there was a general colour change, whereas in others only certain species and plants changed. One prominent area was the Darling Scarp just east of Perth, where many shrubs changed to turn large areas orange-brown. Small areas on the Brand Highway between Cataby and Eneabba also changed markedly.

Some changes were spectacular. A cushion sedge common in the central wheatbelt, *Schoenus calcatus*, normally dark green, turned bright yellow or golden. The coneflower *Petrophile seminuda*, widespread in parts of the south-west, turned deep red and glowed in the late-afternoon sunlight. Along the coast Cockies' Tongues, *Templetonia retusa*, gradually changed to gold. Less colourful but still striking was the Common Hibbertia, *Hibbertia hypericoides*, which turned brown or yellow and gave every appearance of being dead. A number of sedges such as *Caustis dioica* and *Desmocladus flexuosus* turned yellow. The very common, sedge-like *Ecdeiocolea* became deep orange.

Other changes were more subtle. The honeymyrtle *Melaleuca platycalyx* and the bell flower *Darwinia speciosa* usually have some red colouring in their leaves; they just turned a deeper red. Around Perth the hopbush *Dodonaea hackettiana* simply went a dull, pale green.

Generally the leaves that changed colour showed no or little change in orientation and texture. After all, many are quite stiff in their structure which allows no 'give'. Those that did alter include the bipinnate-leaved wattles

continued on page 13

FLORA

continued from page 12

Acacia lasiocarpa and *A. pulchella*, in which the leaflets closed together, *Thomasia macrocarpa*, in which they hung vertically, and the coast banjine *Pimelea ferruginea* in which the leaf edges rolled under.

The rate of regreening was quite variable. Whereas *Borya* regreens within a few days of receiving sufficient moisture, other plants generally seemed to take two to three weeks, but some took longer. A few such as *Spyridium globulosum* regreened within a week or so of the first rain. The coastal beard-heath *Leucopogon insularis* and its inland relative *Astroloma serratifolium* not only regreened but their flower buds, formed the previous spring but dormant during summer, grew to flowering within three weeks. *Templetonia retusa* regreened variably, some plants taking two weeks, others still having yellowish leaves after four weeks or more.

In some species not all plants behaved the same way, probably due to variation in the soil moisture. A plant in autumn colour might be seen next to one that remained green. An extreme case was seen in the fuchsia grevillea, *G. bipinnatifida*, when, among a population that changed variably, one was even seen in flower! After the rain came, not all plants regreened: some had clearly gone beyond the point when they could recover and died. Species that suffered many deaths include the pea *Nemcia spathulata* and prickly moses, *Acacia pulchella*. The extreme drought also led to deaths in species that showed no autumn colouring of the leaves, e.g. *Hakea trifurcata*.

In all some 100 species in 59 genera of 24 families of flowering plants were recorded in which there was a colour change which was followed, after the rain, by the same foliage regreening. Some of them are plants that are killed by fire and regenerate from seed, others are lignotuberous or rhizomatous plants that sprout after fire. Leaf form ranged from broad and flat to narrow, some needle-like, some with revolute margins. In some leafless plants the stems changed colour, e.g. the globe pea *Sphaerolobium*, and sedges of the Restionaceae. The list will certainly be extended as opportunities arise to make observations at other localities and habitats. Not every year will be suitable, of course, since any substantial rain will either reverse or at least delay any colour change.

It seems that at least 10 mm of rain within a 24-hour period is required to begin the regreening process. Lighter rain has no obvious effect on the plants. In 2001 the first widespread effective fall over the south-west (generally around 20 mm) was on 6 May, though some areas did not get a good fall until much later. Conversely, some inland areas (such as around Merredin) received rain during the summer, and there the autumn colours did not develop.

These autumn colours should not be confused with the colourful new leaves of many native plants. Many Proteaceae, in particular, have red, pink or brown new leaves. Nor should they be confused with foliage that appears pale or yellow either through ageing or through a nutritional deficiency as is commonly seen in cultivated plants, less so in the wild.

Besides colour change of foliage, other fascinating changes occur in the bush during late summer and autumn. A few species avoid the dry season by shedding their leaves, e.g. *Phyllanthus calycinus*, or by allowing leaves to die, then producing new ones after the rain, e.g. *Opercularia*. In some small herbs such as triggerplants, *Stylidium*, the leaves die but form a protective covering over the shoot tip and/or rootstock.

Other shrubs and trees appear to survive by 'allowing' parts to die while the rest of the plant remains alive. In autumn 2001, many balga, *Xanthorrhoea preissii*, at several localities seemed stressed, the lower leaves and/or upper parts of leaves turning yellow. These parts did not regreen after rain. On a plant of *Hovea pungens* at Crystal Brook one half died, the other remained green and flowered.

At Crystal Brook and Forrestfield, most mature trees of Wandoo (*Eucalyptus wandoo*) showed no or little drought effect, but on a number of young plants (up to 4 m tall) the foliage died, possibly because the roots had not yet reached the water table. Yet a very few leaves remained green, and by 7 August new shoots appeared as they do after fire.

Another seasonal change is in the colour of the bark of some smooth-barked species of *Eucalyptus*. In these the colour becomes more intense as the summer progresses, the outer layer then peeling off to reveal pale new bark beneath, e.g. White Mallee (*E. erythronema*). In others the new bark is darker and slowly pales, e.g. Salmon Gum (*E. salmonophloia*), Gimlet (*E. salubris*) and Salmon White Gum (*E.lanepoolei*).

The story related here contrasts with one that I wrote a year ago on summer wildflowers (*WW* 5/1). It is a paradox that, while some plants are shutting down to survive the dry spell, others are flowering or even making new growth. So, don't think that spring is the 'wildflower season' and that there is nothing worth going out for in summer. In fact there is a great deal to see.

If you noticed the autumn colour in the bush last year then you may have seen a one-in-100-year event. This summer there has been more rain, albeit patchy, and the colours may not show up again except for the 'regulars' - orange pincushions, brown tamma and red petrophile. I will be interested to hear of your observations.

Alex George is a freelance botanist, editor and indexer. He may be contacted on (08) 9337 1655; email ageorge@central.murdoch.edu.au

BOOK REVIEW p.20

Unfortunately in this newsletter we cannot print colour plates to show the startling colour changes that some of these plants undergo. You can see them in Alex's book on autumn colours, The Long Dry.

FAUNA

The Great Relocate

Kim Bendtsen

IT started quite simply with a man who thought before he did. When his dam dried out this summer he was going to get it cleaned, however there were about 15 "tortoises", that he'd counted, living in it. What was going to happen to them?

He rang the Toodyay Naturalists' Club and the fun and games started. The club talked to some experts, contacted Peter Lambert in Wildlife Protection at DCLM, sent off for permits to move the animals, got back permits, got in touch with Jacqui Giles, a Western Long-necked Tortoise expert and picked a day.

This was all something of a rush because if the dam dried out too far the tortoises might dig in to wait out the summer. If this happened we would never find them and they stood a good chance of being crushed when the dam was cleaned.

The day came, Jacqui came up from Perth, club members, many of whom are also *LFWers*, came and as many kids as we could lay our hands on were dragged along to do their bit. We all met, before heading off to the dam for the final assault.

It wasn't a big dam, about the size of a tennis court, it didn't have much water, not even knee deep, we could see lots of somethings moving in the water, but the one thing we were sure of was, there was plenty of mud. We looked, we considered and finally we found "volunteers" to wade in.

Jacqui had actually come equipped with waders, so she volunteered, the boys had been bought along especially for this task and our lone girl and a couple of the braver adults showed great daring in risking the sucking ooze.

Method number one was wading in and grabbing them, you sank in the mud, and the turtles swam away. We sat on the bank for a while considering the alternatives.

Method number two was to drag a length of shadecloth across the dam to try and herd the turtles to the edge. This worked a little better and one was caught, but the turtles disappeared through the ooze and ducked under the net. I was sent off for sheets of tin, etc to do something about the sinking feeling only to come back to find the problem solved.

There in the middle of the dam with bucket was Jacqui grabbing the turtles as the boys with the shadecloth herded them past her. The turtles were then passed along to the people on the shore, who washed them and put them in a shady spot to await weighing and measuring. By the time we gave up we had 38 turtles waiting for new homes and two people that needed a great deal of help to get out of the mud.

We measured, weighed, and where possible sexed the animals recording the information as we went in preparation for delivering them to their new homes. The smallest turtle captured weighed a mere 70 gm, less than a bar of soap, while the largest was a grand old lady weighing in at 1.6kg.

We'd come, we'd seen and we'd done what we had set out to do. There were still some turtles in the dam we hadn't managed to catch; the owner will keep an eye out for them, but the majority is going to be safe.

Some went to other dams on *LFWer's* properties and some went to council reserves that still had water. The largest specimens went into Toodyay Brook, which wasn't far from the dam they were being rescued from. All bar two of the locations were part of the same local catchment, the remaining two sites still on the same river system. We were concerned that if they all went to one place there wouldn't be enough food for them and anything that was already in residence. But the biggest mystery to my mind is what were they all doing in a small dam in the middle of a paddock in the first place.

Kim Bendtsen is a LFW Landholder in Toodyay.

PRACTICALITIES

AN INNOVATIVE CAT TRAP

From Avril Baxter

Community Landcare Coordinator Anthony Witham proudly displays David's cat trap at the Broomehill Aquafest.

WHEN David Dilley and family moved to a small property near Broomehill they planted macadamia trees to secure a long-term income. Geese were seen as a natural part of the system for grass control within the orchard, however before long, they were dismayed to find that the geese were being killed, but not eaten.

David borrowed a trap to see if he could catch the culprit and sure enough there was a feral cat at work. As cat control needed to be ongoing, David soon became tired of picking up and returning the trap. He then realised he could make one by modifying an old shopping trolley which was for sale at the Katanning tip. A hook at the back of the trap is baited with old meat bones (ham works particularly well) or inch thick slices of polony log with the skin left on. When the cat pulls on the bait, the trap door closes behind it.

David now has the feral cat population under control in his area and only sets the traps if one of his or his neighbours' birds are taken.

John Asher from the Department's Environmental Protection Branch in Bunbury notes that feral cats living on the outskirts of towns or around rubbish tips are more likely to enter traps than those with little human contact.

The Cruelty to Animals Act (1920) states that traps must be inspected at regular intervals and feral captures disposed of humanely. In David's case this means that traps are set around 5 pm, checked first thing in the morning, non-target animals are released and feral cats shot.

David has traps available for sale. For more information contact him on 9824 1123.

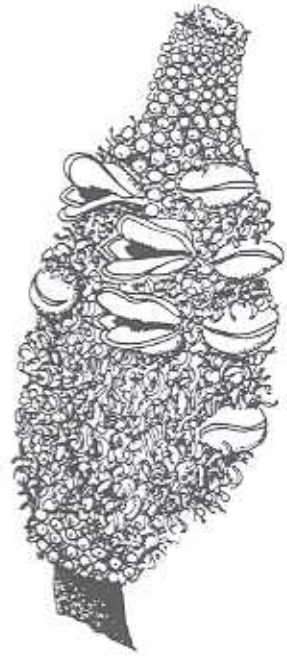
Note some local government areas, eg semi-urban areas, may have their own guidelines which affect trapping and should be consulted before embarking on a control program.

LFW NEWS

FIRE SYMPOSIA, RAVENSTHORPE AND GAIRDNER

In total, over 100 people attended these two Symposia in late February, to hear a range of speakers discuss all aspects of fire management, from fire in WA plant evolution (Steve Hopper, Kings Park) to the logistics of confronting a wildfire roaring out of vacant Crown land (John Winton, FESA). Numerous topics of interest in managing both large and small areas of bushland for (a) the safety of humans and their property and (b) the regeneration of native plant communities, arose during the two days.

It is understood that the speaker's notes and discussion sessions are going to be made available on CD - cost unknown as yet. If you are interested in obtaining a copy of this CD, please contact Sylvia Leighton on 9842 4500 or email: sylvial@calm.wa.gov.au



Banksia seed capsules open after fire.
Illustration from Banksias of the Wellstead District.

LFW NEWS

Lyn Ovens asks Josh Ovens and Rhett Prendergrast what they have found. Photo: Jayne Cullen.

FASCINATING FAUNA AND FUNGI

In the last issue of Western Wildlife there wasn't room to include a photo to illustrate the Fascinating Fauna and Fungi Field Day at Coorow in Sept. Here it is, plus a letter from one of the students shown.

"SOMETHING SPECIAL

On September 10th there was a bug day. A man named Karl gave us some ethanol. There were hundreds of spiders everywhere. There was a spider that acted like a bull ant. The spider holds up two of its legs like antennae. Same colour red and black like a bull ant. The spiders that Josh and I caught were bright plus colourful. I caught a centipede which uses its back grabbers to hold stuff and the front to kill it's prey. The centipede was colourful. It was an exhausting day, but fun.

Thank you Mrs Falconer.
Rhett Prendergast"

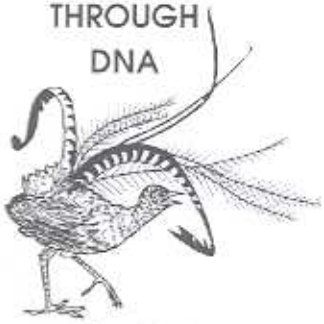
Congratulations!

In February, Cherie Kemp, LFW Officer at Busselton, was awarded the degree of Bachelor of Arts in Education and Training from Curtin University. At the graduation ceremony Cherie was presented with her Degree Certificate, and the evening was completed by a spectacular fireworks display.

Well done Cherie!

IN BRIEF

ORIGIN OF SONGBIRDS TRACED BACK TO AUSTRALIA THROUGH DNA



It was once thought that songbirds emerged in the northern hemisphere and then spread south, but now research by Dr Les Christidis, Head of Sciences at Museum Victoria, has proved that Australia was the cradle for half the world's songbirds. There are about 3000 species of songbirds in the rest of the world, including nightingales, canaries and birds of paradise, which have evolved from Australian ancestors. The 300 species of songbirds in Australia are characterised by the complex musculature in their voicebox. The oldest songbird has been identified as the Australian lyrebird, which is known as a brilliant mimic.

Dr Christidis, with help from scientists at the Swedish Museum of Natural History and the University of Stockholm, studied the DNA sequences of the world's modern songbirds, also known as passerines, tracing the evolutionary pathway back to common ancestors with Australian songbirds. Songbirds spread out around the globe when Gondwana broke up into Australasia, South America, Africa, Antarctica and India about 60 to 80 million years ago.

The research has been published as: Ericson PGP *et al.* "A Gondwanan origin of passerine birds supported by DNA sequences of the endemic New Zealand wrens" in: The Proceedings of the Royal Society of London, 269, 7th February 2002. A group of United States researchers found similar evidence to support the theory and have published in the same Journal.

Claire Hall

MEMBERS' PAGE

FAST FOOD

A highway is one great long fast food takeaway for scavengers! Unfortunately, in the arid zone many wedge-tailed eagles are also hit by vehicles while dining on roadside carcasses. The problem is that wedgies are slow on the takeoff, and road-trains can't swerve to miss them. Many are killed or maimed in this way.

Therefore, if you see a carcass on the road, stop and pull it off the carriageway, so that eagles and goannas don't become the next course in the diner!

From Rex Gill, Onslow.

MORE ABOUT ALBINOS

The recent note about a sighting of an albino scarlet robin reminds me of a time when I saw two albino white-winged fairy-wrens, out at Willandra Lakes National Park in western NSW. (An old birdo I knew then told me he'd seen "Albino just-about-anythings" - that deflated me a bit, but they are still rare and probably most don't survive to reproduce. But maybe some do.) They were like dandelion puffs with a hint of powder blue in wind-blown feathers - very beguiling.

From Sally Stephens, Bush for Wildlife National Coordinator, Canberra.

MORE ABOUT WOOD WHITES - SORRY, JEZEBELS!

Avril Baxter noticed dozens of Wood White butterflies, *Delias aganippe*, at "Knotwood" her eastern Williams block, in February. They were congregating in pairs and groups around the mistletoe *Amyema preissii* (growing on Jam) which was in full flower at the time. Had they just hatched? They appeared to be visiting the flowers rather than laying eggs on the leaves. They also visited flowering Marris, so perhaps they were fuelling up rather than looking for somewhere to lay their eggs.

We asked Robert Powell of the WA Insect Study Society, and he says that this butterfly breeds opportunistically, whenever food is available, maybe as many as three times a year. He also pointed out that the preferred common names for Australian butterflies have changed and this species should now be known as the Spotted Jezebel. (Biblical scholars will remember that Jezebel, the wife of Ahab, King of Israel, was considered shameless and abandoned, because she painted her face. Presumably it's the face-painting that gives these butterflies their new name, rather than the shameless behaviour of their females ... !)

Bryan Haywood, who works with Bushcare in South Australia, has set up a Walk to monitor butterfly numbers in Penambol Conservation Park. He says it's a pretty easy to do and can tell you a lot about the health of your bushland. More in a later issue.

REPLANTING - REGENERATION

Tom Field of Yerecoin planted this line of Flat-topped Yates (*E. occidentalis*) in 1958, soon after he started working on the farm with his father. He notes the following:

- a single line of trees, close to the salt, will not control it. He has since moved to mass plantings in seepage or wet areas that have not yet turned salt. This is proving very sucessful in limiting further spread.
- trees that grow tall and thin, like Flat-topped Yates, do not provide stock shelter. Much better are bushy species such as Salt River Mallet, *E. sargentii*.
- in all the years these trees have been growing, no seedlings have ever been noted. But, protected from the sheep among the branches of one felled by big storms two years ago, are dozens of seedlings.

IN BRIEF

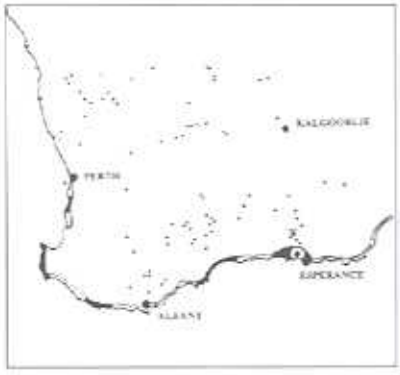
HAVE YOU SEEN HOODED PLOVERS?

The Hooded Plover is a bird of coasts and salt lakes in southern Australia that is rare and declining. In some areas its range has contracted and its numbers dwindled, and now it is estimated that the total popluation is only about 5000 birds.

It lives and breeds on beaches and salt lake margins. It's nest is a small scrape on an open beach, very hard to see because of the cryptic colouring, but vulnerable to cats and foxes.

Birds Australia has a project to survey for the Hooded Plover. Although predominantly coastal, as you can see from the map, they do occur inland. This winter, as your local salt lake fills, have a look for Hooded Plovers. Contact Julie Raines at Birds Australia and she will send you recording sheets and notes on the birds, including identification of possibly confusing species.

Drawing by Judy Blyth.



Julie Raines: ph/fax 9306 5819 or email: birdswa@starwon.com.au

TROUBLED ABOUT TUARTS? - CALL THE TRG!

The Tuart Response Group, that is! Set up after a public meeting late last year, this new committee will seek ways of understanding and managing the very noticeable Tuart decline which is occurring in some areas (notably around Lake Clifton). A Tuart Strategy is being written. To find out more, and how you can help, ring the Executive Officer, Drew Haswell, at the Department of Conservation and Land Management on 9334 0369 or email: drewh@calm.wa.gov.au

CARNABY'S BLACK COCKATOO PROJECT - AN UPDATE

Birds Australia has a new, enthusiastic and highly knowledgable Project Officer, Leonie McMahon, who is continuing this project which aims to promote the conservation of these magnificent birds. Next issue, Leonie will be giving us more detail, but in the meantime, if you would like to know how you can help, contact:

Leonie McMahon: ph: 9287 2448; mob: 0438 678 492; email: ljmcmahon@bigpond.com

PAYING FOR THE BATTLE AGAINST WEEDS?

Associate Professor Rick Roush, CRC for Weed Management, Glen Osmond, SA, says: "We need to develop new ways of resourcing the battle of invasive plants. I do not believe that the 'polluter pays' model will work for them. With 65% of our weeds introduced as garden ornamentals, many remain 'sleepers' for decades before spreading and becoming a problem. By then it is often very difficult to apportion blame. A better system might be the 'beneficiary pays' model, by which the importers or users of new species pay into a trust fund that can be used to offset the costs they may be imposing on future generations."

Do you think this is a good idea?

An example of a 'sleeper' weed. Agapanthus, a popular garden plant in Australia for many years, is now becoming a real problem weed in coastal areas in Victoria and NSW. It is spreading from root clumps and seeds.

ABOUT GROUPS

CALM BUSH RANGERS

CALM Bush Rangers is a vocational training programme operating within many secondary schools in WA. Through the programme last year, 800 students contributed more than 100,000 hours of nature conservation action across the State. Students undertake bush management tasks such as flora and fauna monitoring, trail maintenance, weeding or nest box construction, as well as designing artworks, producing CDROMs and writing articles for the media - among many other projects. If you toured the Landcare display at the Royal Show last year, you will have noted how enthusiastically the Bush Rangers provided advice and assistance to visitors.

Leadership and teamwork has been an explicit component of the programme. This has involved devolving both planning and tasks to the youth in the Units, such as organisation of weekly events as well as camps, peer and primary school student mentoring. It is being organised as a VET (Vocational Educational Training) in WA schools, and in 2000 the programme achieved national accreditation.

The programme has won numerous awards, both State and National, but it's success is linked directly to the variety of community involvement.

If any *Land for Wildlife* landholder wishes to involve CALM Bush Rangers, please contact the Coordinator, Bronwyn Humphries, ph: 9334 0137.

BUSH DETECTIVE

It's a tawny frogmouth pretending to be a dead branch! This night hunter sleeps during the day and relies on absolute stillness and it's extraordinary camouflage to escape attention. It may be watching you through slitted eyes, though! They are quite common in open woodland in the south-west, where they feed mainly on ground-dwelling invertebrates such as beetles, grasshoppers, spiders, scorpions and centipedes. Occasionally they may take frogs, geckos and mice.

The pics were taken in woodland on Val Hassan's property in West Brookton. Thanks to Emma Bramwell for photographing this puzzle.

NEW BOOKS

The Long Dry: Bush Colours of Summer and Autumn in South-western Australia

Alex George
Four Gables Press, Kardinya

This is a different sort of wildflower book, as the 180 photographs are mostly of foliage rather than flowers. Dry summers put plants under stress, and cause many to respond with a change in the colour of their foliage. Some end up looking almost dead but, astonishingly, it seems they can recover. This book illustrates 60 of these plants, showing the coloured and re-greened states. There are also general photos of bushland in autumn colour, and of other drought survival strategies, as well as some easy-to-read text which discusses what all this means to the plant.

Many people tend not to do much bushland observation in summer, but clearly there is a lot more to see and learn about how plants can survive in our climate. If you are already interested in wildflowers, you will find that this attractively-presented book will prompt you to think about the whole plant and its relationship to our very variable landscape. The photos, too, with their subtle and delicate colours, are a new dimension in our 'carpets of colour' image as "The Wildflower State".

Available from bookstores or the author.

ph: 9337 1655, fax 9337 9404

or email: ageorge@central.murdoch.edu.au

$20.00 ($23.50 +p&h)

Geology & Landforms of the South-West

Iain Copp
Department of Conservation and Land Management
Kensington

The latest in the Department of Conservation and Land Management's Bush Book Series: a series of practical field guides to help you learn about and discover WA's unique plants, animals and special features, region by region.

More than 3700 million years of geological histroy is recorded in rocks of the South-West of Western Australia. The landscape of the South-West began to develop about 295 million years ago. This book explains the formation of The Darling Range, the Stirlings, Porongurups, the Pinnacles, Collie coal and many more South-West landforms.

The author Iain Copp is a geologist and freelance writer/photographer. He worked for many years with the Geological Survey of Western Australia and also in exploration for mineral and petroleum companies.

These pocket size books make wonderful presents.

More information is available from Department of Conservation and Land Management offices.

Price $6.50

FUNDING

Blackwood Basin Group - Biodiversity Programme

The BBG has funds available for on-ground works that would benefit biodversity - eg remnant fencing, environmental weed control. If you live in the Blackwood Catchment, and think you may qualify for monetary assistance, ring Avril Baxter 9881 9218 (Upper Blackwood) or Jenny Dewing 9761 2318 (Middle and Lower Blackwood).

New BUSHCARE Coordinator - Gordon Graham

A short note to let you know that I have taken on the role of Bushcare Coordinator for Western Australia. As I settle into the job I will let people know what is happening with funding arrangements for Bushcare, however at this stage guidelines are still being formulated. I can be contacted by phone or by fax and I look forward to working with all those people with links to the Bushcare program. Please contact me if there are Bushcare issues that you would like to discuss.

Gordon Graham - Bushcare Coordinator
Department of Conservation and Land Management,
Locked Bag 104,
Bentley Delivery Centre, WA 6983
Phone (08) 9444 0479
Fax: (08) 9334 0199

COMING EVENTS

▶ "Fire in South-western Australian Ecosystems: Impacts and Management"

16-17-18 April 2002
Technology Park Function Centre, Brodie Hall Drive, Bentley WA 6102
Cost: $35.00 per day
Contact: Glenda Lindsay ph 9334 0463 fax: 9334 0135
email: glendal@calm.wa.gov.au

▶ "Weeds - Threats Now and Forever?" 13th Australian Weeds Conference

8-13th September 2002
Sheraton Perth Hotel
Cost: ?
Contact: Dianne McLeod email: convlink@linet.net.au

▶ "Prospects for Biodiversity and Rivers in Salinising Landscapes"

21-25th October 2002
Albany
Cost: ?
Contact: Marcus Blacklow ph: 9386 4897
or email: mblacklo@agric.uwa.edu.au

This Newsletter is a compendium of articles written by many different people. The views expressed are those of the authors, not necessarily those of the Department of Conservation and Land Management.
Published by the Department of Conservation and Land Management, Perth. All correspondence should be addressed to:
The Editor 'Western Wildlife', Department of Conservation and Land Management, Wildlife Branch,
Locked Bag 104, Bentley Delivery Centre, WA 6983.
Design and Desktop publishing by Louise C. Burch Graphic Designer.