



DEPARTMENT OF
Conservation
AND LAND MANAGEMENT
Conserving the Nature of WA

Western Wildlife



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NEWSLETTER OF THE LAND FOR WILDLIFE SCHEME

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THE CORRIGIN GREVILLEA: 12 YEARS OF RECOVERY

Bob Dixon and Siegy Krauss

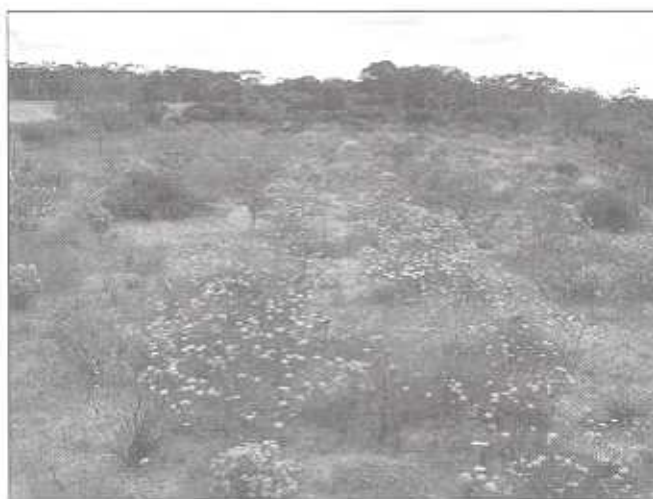
In the very first Western Wildlife (1/1, Feb 1997) Kings Park researchers wrote about plans to conserve the Corrigin grevillea. This article brings readers up to date with the recovery programme.

The wheatbelt region of Western Australia has been extensively cleared for agricultural purposes and Corrigin Shire is one of the worst affected areas with about 95 per cent of land cleared and further native vegetation lost through salination, weed encroachment, and grazing. *Grevillea scapigera* is critically endangered and only known historically from 13 small, scattered populations restricted to a 50 km radius area around the town of Corrigin. Due to its rarity it was decided to translocate this species back into the wild.

Maurizio Rossetto studied the biology of the plant for his PhD, which included an assessment of genetic diversity and propagation methods. For translocation, 10 clones were identified which represented 87% of the known genetic diversity of the species. Translocation has been ongoing since the first trial planting began in 1993, however, some of the earlier sites have been abandoned due mainly to unsuitable site conditions. Finally it was decided to use three larger and more secure translocation sites (0.2 ha in size and protected with rabbit proof fencing - kangaroos do not appear to damage this species) with similar soil and vegetation types. This was a challenge in itself as few

similar vegetation pockets still occur, and planting did not begin on the third site until the year 2000.

Initially plants were grown vegetatively, mostly by tissue culture, to produce an exact replica of the parent plants. This process was very expensive and plants were difficult to get out of culture and into the wild. Better horticultural practices (giving the jars/cultures more light and drying them out until the agar starts cracking) have improved survival rates. As new germinants have appeared in wild populations they are propagated and planted out to add more genetic diversity, hence the number of clones on



*A translocation site with *G. scapigera* in flower, Nov 2005. Note infilling with native species and low weed numbers.*

site is increasing. This new genetic resource, as well as the other clones, has been preserved in cryostorage (minus 196 degrees centigrade) for future use, and as an insurance against any disaster such as disease. As seed became available many pre-treatments have been tried to increase germination rates, the best to date is a special scarification technique, in combination with gibberellic acid. Seed are smoke responsive but this treatment is often unreliable.

The success of the initial plantings varied considerably and was often related to good seasonal growing

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EDITORIAL

Greetings all!

LFW welcomes the Hon Mark McGowan, the new Minister for the Environment; Racing and Gaming, Dr Judy Edwards, who had been Minister for the Environment for nearly five years, resigned in January. She was always very supportive towards *LFW* (as was Hon. Cheryl Edwards before her) and I am sure that all *LFW* members will join *LFW* staff in thanking the retiring Minister, welcoming the new one and wishing him an enjoyable and productive term of office.

The year has started with a few changes among *LFW* staff. Heather Adamson has moved from Merredin to Mandurah to give her kids better opportunities for education. She will be taking over responsibility for *LFW* in the southern Swan Coastal Plain and Hills, from Cockburn to

Bunbury, partly from Claire and partly from Cherie. This should mean that people in this area will not have such long delays before a visit. Heather will have fun adjusting to the very different ecological and agricultural activities in her new area!

Meanwhile, back at Merredin, Mal Harper will be taking over the role of *LFW* Officer. Mal has recently retired after a long period of service in the Department of Agriculture and many landholders will already know him. As one of the very first landholders to register a property with *LFW*, Mal is well aware of the issues involved in managing remnants and doing revegetation, while at the same time undertaking a farming business.

Heather's and Mal's phone numbers are below – why don't you ring to welcome them to their new area?

This year is the 'International Year of Deserts and Desertification'. It is well to remind ourselves that technically, much of WA qualifies as 'arid desert', including the drier parts of the south-west agricultural zone. This is, politically and socially, a very unpopular thing

to remind people about, as if one is somehow being unpatriotic by mentioning it.

Geographer Griffith Taylor found out all about that hangup when the WA Government banned his textbook *The Geography of Australia* from being used in WA schools, because he set the limits of farming in the south-west of WA according to the amount of rainfall – a new idea for his time (1924).

I hope everyone has had a good start to the year, even if, in some areas of the wheatbelt, it was somewhat wet! (A characteristic of deserts, incidentally, is boom or bust rainfall.) Hopefully, the summer rains will stimulate regeneration in woodlands and around wetlands. Watch out for tree seedlings coming up in the edge of the crop and, if they are in a corner or edge that could be spared, fence them off and let them grow. Such self-sown plants often survive better than planted seedlings, though they may be too thick at the beginning and have to sort themselves out.

Remember to check our website for tenth anniversary events near you.

Penny Hussey

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MEMBERS PAGE

LFW AT 'BILINGURR' - A BROOME PERSPECTIVE

Sharon Griffiths

On the outskirts of Broome, on the edge of the Great Sandy Desert and the Indian Ocean in the 'dry tropics', lives a fortunate woman with a love of the bush and no training whatsoever in land care or matters of flora and fauna. Having thrown off the shackles of domesticity and mortgages, I now have more time and direct exposure to go from just an appreciation, to an active participation in protecting the natural and cultural values that abound here.

Here on our one small hectare we have remnants of rainforest – monsoonal vine thickets, and pindan woodland along with the legacy of Aboriginal inhabitants, pastoral interests, Japanese market gardeners and horticultural enthusiasts.

On the western side, the vine thickets form a dense community of distinctive shrubs, trees and climbers eg goowal or snowball bush (*Flueggea virosa*) and snake vine (*Tinospora smilacina*) on the landward side of Cable Beach dunes. The marul or native blackberry, (*Terminalia petiolaris*) provides valuable habitat, particularly for agile wallabies (*Macropus agilis*). Thickets have high conservation and cultural value for bush food, medicines, timber and spiritual purposes - a veritable organic supermarket! In 2001, CALM declared them a Threatened Ecological Community, primarily in recognition of their limited area and vulnerability to development pressures.



Snowball bush Photo: Brian Carter

The pindan woodland is more dominant on the eastern section. Closer to the dunal sands this community is dominated by gubinge (*Terminalia ferdinandiana*) a culturally significant tree with fruit of

high nutritional value and recent commercial interest, and notably here the jigal or Kimberley bauhinia (*Bauhinia cunninghamii*). Further inland it varies into a fire-adapted community on red soils, characterised by wattles (*Acacia tumida*, *A. eriopoda* and *A. colei*) with scattered bloodwoods (*Corymbia dampieri*) and a large variety of other trees, shrubs and grasses.

A butterfly on a fireslick tree, *Premna acuminata*
Photo: Sharon Griffiths

To our north is Buckley's floodplain, and the northwest coastal area follows the song cycle of the Aboriginal people. To our south, the adjacent mango plantations and rural blocks are being transformed into the fast-developing Cable Beach tourist precinct, with camel tourism and a wildlife rehabilitation centre sited next to each other.

'Bilingurr' (called 'Hidden Valley' by the European settlers) and this part known locally as 'The Japanese Gardens' has an interesting history that has impacted on the land and its wildlife.

Part of a significant Aboriginal songcycle, the area was used for eons to sustain Aboriginal people and their culture. With the six seasons here, Yawuru people moved about the area in response to the climatic changes affecting the availability and movement of animals and plants, and their spiritual obligations. The Traditional Owners and custodians are sharing their knowledge of country with us, and their ongoing connection to Bilingurr has benefits for all of Broome.

During the pastoral era, cattle from Waterbank

RESEARCH

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Corrigin grevillea

conditions. Due to the vagaries of the weather and the ever-declining rainfall it was decided to install drip irrigation systems on all sites to try and improve survival rates and seed production.

Present status

The numbers of this critically endangered species in the wild (as at Nov 2005) are currently down to two seedlings and three mature plants (10 years ago there were about 40 plants). Though a disturbance opportunist, populations in the wild are unlikely to increase significantly as most occur as single plants on badly degraded road verges (this species needs cross pollination from another plant to produce good seed). Plants are short lived, about eight years, and generally germinate after disturbance events such as fire or grading.



Plants protected from herbicide overspray when controlling Guildford grass in 2003.



The same site in Nov 2005 with volunteer Kings Park Master Gardeners Robyn Benken and Kaye Thies inspecting the grevilleas.

The situation on the three translocation sites is encouraging. The two earlier irrigated sites contain large numbers of plants and have experienced large seed rains to the soil seed bank. The third site contains a few fully mature plants that had not flowered or seeded for two years because of drought conditions. This site has been improved by enlarging it to 0.2 ha, fencing with rabbit proof wire, fitting a drip irrigation system, and adding over 1000 new plants to the site in 2003, with further planting in 2004 to fill in gaps.

Genetic management has been a key component of recovery. Using powerful molecular techniques, genetic variation has been assessed, and genetic erosion identified. Current research is identifying whether this genetic erosion threatens the long-term viability of this population, through, for example, inbreeding depression. New plants were also added to the other sites to increase genetic diversity and fill in gaps. Many of these poorly represented clones were recovered from ex situ cryogenically or tissue culture stored germplasm. Resulting seed, harvested in Dec 2003, from this previously cryostored material was sown and the seedlings were planted last winter (they flowered in Nov 2005) to evaluate their progress. The total number of mature plants, excluding last winter's plantings, is well over 1600 in the three translocation sites. The three sites are very different in their species composition, the best site, now on a low maintenance programme - eg reticulation system removed - is well vegetated with indigenous species therefore few weeds are present. This illustrates how important it is to use good sites for translocation purposes as our goal is to produce self-sustaining populations that require minimal ongoing management.

To evaluate if the seed being produced was entering the soil seedbank, experiments were conducted in 2001 to stimulate the seed to germinate. This initially resulted in germination in an aerosol-smoked quadrat and two years later in other quadrats where fire and soil disturbance treatments had been used. The winter of 2004 saw the first natural recruits, 10 seedlings on one site. Germination occurred under dead *Grevillea scapigera* plants where there should be a large soil seedbank and between rows of plants amongst Cape weed *Arctotheca calendula*. This illustrates there is a dispersal agent on site eg ants, and some seedlings are capable of germination and survival amongst severe competition from weeds. These seedlings are not being watered as we wish to look at natural survival rates and establish if the translocations can be self sustaining in the long term. Further recruits have been recorded this year on the same site and on

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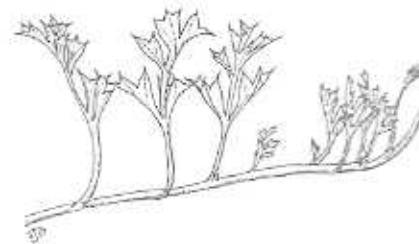
another site for the first time.

Herbicide trials for the control of Cape weed have been conducted to test the efficacy and crop tolerance. To date one herbicide has shown no deleterious effects, at high rates, when applied to mature plants. The same herbicide has been trialled over seed and seedlings in glasshouses as a pre and post emergent herbicide. At high rates some damage has resulted when applied directly to seedlings. No deaths have occurred and the plants are being grown on to monitor the long term effects.

Future research and operations will include addressing genetic erosion by increasing the number of clones (genetic material) from new germinants found in wild populations, monitoring genetic fitness, harvesting seed from 50 year soil seed burial experiments, weed management and monitoring.

The translocation project is a team effort managed by Botanic Gardens and Parks Authority and the Department of Conservation and Land Management, Narrogin District with assistance from Corrigin LCDC, local volunteers including the Bullaring community and Kings Park Master Gardeners.

This project, over the years, has been funded mainly by the Department of the Environment and Heritage, and also by smaller grants through the World Wildlife Fund. The recent site enlargement and improvement was funded by the Western Australian Government Environment Minister's Community Conservation Grant.



The photo shows a flowering plant that has been through the cryostorage process

Both authors are from Botanic Gardens & Parks Authority. Bob can be contacted on: bdixon@bgpa.wa.gov.au
Photos: Bob Dixon. Drawing: Sue Patrick

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A Broome perspective

Station grazed nearby, and over half of the block shows degradation from those days, with buffel grass (*Cenchrus ciliaris*) out-competing native species and delaying natural regeneration.

Between the first and second World Wars, Japanese people toiled hard on this land firstly to draw water supplies for the townsite, and to grow fresh produce for the residents and crews on the pearling luggers.

Photographing the plants in their various stages, identifying them and their traditional uses, and cataloguing it all, is my current passion. Fauna is now



Ornate frog, *Limnodinastes ornatus*. Photo: Sharon Griffiths

included. To date 55 species of indigenous plants, 36 animals (not including birds) and 13

weeds have been recorded.

With the gloriously wet Wet season this year, after rain I have been able to again tackle (dig out) the buffel grass. And I spend hour after hour hand pulling the reoccurring weeds. This year tree planting has not met with much success. Despite covers of wire mesh and miles of green lush pasture nearby, the wallabies know the delicacy of a young mumajen tree – *Mimusops elengi*. My greatest success is assisting natural regeneration and hours of unashamed selfish pleasure getting to know my land and its inhabitants.

RESEARCH

KANGAROO GRAZING PREFERENCES AFTER FIRE
AT WHITEMAN PARK

Christine M. Rafferty and Byron B. Lamont

Grazing can have a significant effect on plant survival following disturbances such as clearing or fire, with bushland revegetation often difficult in the presence of herbivores such as kangaroos. Whiteman Park Reserve, approximately 14 km NE of Perth, contains over 1000 ha of original banksia woodland and is home to over 600 western grey kangaroos, as well as brush wallabies and rabbits. Our research investigated the role of herbivore feeding upon plant species in the reserve following a large fire in February 2001.

Three paired exclosures were constructed in the Reserve immediately following the fire (Fig. 1). Nineteen plant species, all with differing chemical and physical properties were established within the exclosures and allowed to grow for five months. One of each exclosure pair was then removed to allow kangaroo access. The remaining exclosure protected the 'control' plants for the duration of the study. Plants were arranged in groups of nine in high density plots (30 cm spacing between plants) or low density plots (1 m spacing between plants). Overall, 14 of the 19 plant species suffered damage from kangaroo feeding (Fig 2), with the percentage eaten varying greatly for each (Table 1).

Group plantings were favoured by kangaroos and wallabies, with these herbivores enjoying the opportunity to feed in one area rather than browse where possible.

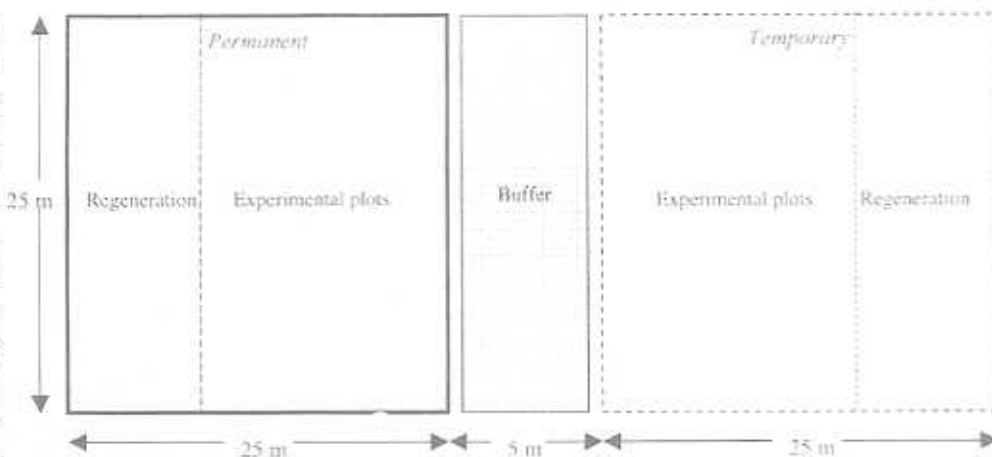


Fig 1: Exclosure design.



Fig 2: Difference between grazed (right) and ungrazed (left).

Thus, while group plantings may be beneficial in the establishment of plants in harsh environments, they may in fact attract herbivore attention.

All herbivores at the reserve, both rabbits, wallabies and kangaroos, appeared to prefer grasses or grass-like species. *Calothamnus* and marri, which contain relatively high levels of essential oils, phenolics and tannins (compounds which may adversely affect herbivore digestive processes) appeared to be unpalatable.

Of all the plant characteristics

analysed, fibre was the most strongly avoided. This aversion has also been noted for brushtail possums and Tasmanian pademelons. Plant spines did little to protect seedlings from being eaten. Spines were either too soft in the young

plants, or kangaroos were able to manoeuvre their mouths as to avoid being injured while feeding. Of all the spinescent species planted, *Hakea prostrata* suffered the least herbivore damage, and may be a suitable species for planting in areas difficult to revegetate due to kangaroo feeding activity.

Rabbits shared many food items in common with macropods, but also were observed to eat plants containing essential oils. As expected, the presence of rabbits may therefore compound difficulties of plant regeneration.

The interest and curiosity of

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Table 1: Percentage of plant species eaten at Whiteman Park when exposed to kangaroos. Note the preference for plant species with grass-like features.

Species	Percentage of plants eaten
Grass-like	
<i>Acacia alata</i>	81
<i>Allocasuarina fraseriana</i>	71
<i>Anigozanthos manglesii</i>	100
<i>Calothamnus quadrifidus</i>	61
<i>Calothamnus sanguineus</i>	63
<i>Cyathochaeta avenacea</i>	100
<i>Notodanthonia caespitosa</i>	100
<i>Sphaerolobium vimineum</i>	100
<i>Xanthorrhoea gracilis</i>	98
<i>Xanthorrhoea preissii</i>	98
Shrub	
<i>Acacia pulchella</i>	42
<i>Banksia attenuata</i>	45
<i>Banksia menziesii</i>	47
<i>Bossiaea eriocarpa</i>	90
<i>Corymbia calophylla</i>	22
<i>Hakea prostrata</i>	13
<i>Hardenbergia comptoniana</i>	97
<i>Mirbelia dilatata</i>	86
<i>Oxylobium lanceolatum</i>	100

herbivores within planted areas, in particular the western grey kangaroo, suggested that cleared planting areas may act as a 'beacon' for feeding activity. Feeding was often accompanied by the pulling of whole plants from the soil, and even feeding upon the remains of jiffy pots.

The use of grow bags, protective plastic sleeves enclosing target plantings, provided some protection to seedlings, although this was again very limited. Exposed portions of plants were regularly grazed. Nurse plantings (planting of select species with spinescent or highly unpalatable partners) appeared ineffective also, as the selective feeding behaviour of the western grey kangaroo allowed target species to be quickly consumed despite the presence of prickly or unpalatable neighbours.

Investigation of the many factors contributing to macropod dietary selection suggests that feeding behaviour is strongly influenced by environmental conditions and the availability of alternate food choices. Plant species high in unpalatable chemical components,

such as the phenolics, tannins and essential oils (features characteristic of members of the Myrtaceae), are typically avoided, thus plantings of species from this group may have a greater potential for establishment than other selections.

Plants with a low fibre content, particularly soft grass-like species were highly favoured, and protection of these is vital if plants are to reach maturity in areas with high macropod numbers. While impossible in many situations, it does appear that appropriate fencing is the most effective method in providing protection to palatable plant species, at least until plant physical and chemical defence mechanisms are sufficiently developed.

Christine Rafferty undertook this study as part of a PhD under the supervision of Professor Byron Lamont at Curtin University. She is currently employed as a disturbance ecologist with the Botanic Gardens and Parks Authority, and may be contacted for references by email: crafferty@bgpa.wa.gov.au.

WA proves to be even older!

Since the 1980s, Sandgroppers have been able to take pride in asserting that WA contains the oldest rocks on Earth. In the Murchison region near Mt Narryer, a zircon crystal 4,200 billion years old (4,200,000,000 years) has been found, contained in a conglomerate rock that is 3,900 billion years old. Well, new research has now shown we are even older!

The Narryer Gneiss, this very ancient rock formation, extends eastward along the line of the Jack Hills. Renewed interest in coal and iron exports have led to considerable geological exploration in the area and Simon Wilde of Curtin University, together with his co-workers, has been looking at the zircons. They have found a crystal that is 4,300 billion years old, with a small portion that is 4,404 billion. This is absolutely astonishing, considering that the Earth itself was only formed 4,600 billion years ago! Even more amazing is the researchers' conclusion that liquid water was present on the Earth's surface at this time, implying that the surface temperatures on the Earth were much cooler than previously thought possible. This has enormous implications for the date at which life could first appear.

Ref: Evidence from detrital zircons for the existence of continental crust and oceans on the Earth 4.4 Gyr ago. 2001. Wilde, SA; Valley, JW; Peck, WH and Graham, CM. *Nature*, **409**, pp 175-178.

FAUNA

HUNGRY BLACK COCKATOOS

Tamra Chapman and Helen Pitman

Since European settlement, more than 80% of all woodlands have been cleared from the agricultural regions of Australia. This has resulted in major changes to the distribution and abundance of Australia's cockatoo species.

While some open-country generalists, such as galahs (*Cacatua roseicapilla*), corellas (*C. spp.*) and sulphur-crested cockatoos (*C. galerita*) have increased in range and number, those cockatoos with specific habitat requirements have declined.

Black cockatoos (*Calyptorhynchus spp.*) are especially vulnerable to the effects of habitat loss because they nest in the large hollows of mature trees and feed on the kernels of a limited number of plants. Most of Australia's black cockatoos have declined as a result of the effects of habitat loss and fragmentation. These include a lack of nest hollows, competition for nest hollows, predation at nest hollows and food shortage.

The glossy black-cockatoo (*Calyptorhynchus lathami*) is particularly susceptible to the effects of habitat loss and fragmentation because it is a sedentary species that nests in large hollows and feeds only on the seeds of sheoaks. This species occurs in eastern Australia from the Great Dividing Range to northern Queensland.

In South Australia, the glossy black-cockatoo relies on the seeds of the drooping sheoak *Allocasuarina verticillata* (a woodland tree like the forest sheoak *Allocasuarina fraseriana* known to many Western Australians) for food. This black cockatoo was numerous on the South



Australian mainland at the time of European settlement. However, clearing of drooping sheoak resulted in its decline from the mainland by the late 1970s and a population of around 300 birds is now confined to Kangaroo Island off the south coast of South Australia.

A recent study has just been published assessing the factors that may have attributed to the decline of the glossy black-cockatoo on Kangaroo Island. The lessons learnt from this study can be applied to the conservation of our own black cockatoos here in Western Australia.

The study showed that there was adequate food available to support the population, but the extent to which the cockatoos used the sheoaks for foraging varied between patches. The cockatoos showed a preference for foraging in habitats with large drooping sheoak trees and individual trees with more profitable cones.

The advantage of foraging in large trees was that the cockatoos

were able to meet their daily food requirements by foraging in only five trees per day. This probably not only helped conserve energy, but also limited exposure to predators.

Breeding birds increased their food intake per tree by significantly increasing the number of feeding bouts (places within the tree canopy from which cones were harvested) per tree and cones harvested per tree. Thus, breeding birds were able to meet their daily energy needs without having to increase the number of movements made between trees.

This study has shown that a combination of habitat structure and profitability determines which patch is suitable for foraging at any one time. The glossy black-cockatoos did not feed or breed in regions of the island where their feeding habitat requirements were not met.

Studies in Western Australia have clearly demonstrated that the proximity of nests to suitable food sources affects the ability of Carnaby's cockatoos to breed.

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FAUNA

For example, if adult Carnaby's cockatoos have to travel more than 12 km per day between the nest and food, their breeding attempt is likely to fail. However, little information has been collected to show how the habitat structure and food density and profitability affects the feeding ecology and nesting success of these cockatoos. The Department of Conservation and Land Management and Curtin University are planning to study this very problem in the near future. In the meantime however, there are a number of steps landowners can take to enhance the feeding habitat of Carnaby's cockatoo.

During the breeding season, Carnaby's cockatoos feed in areas of kwongan heath, which is vastly different from their eucalypt woodland breeding habitat. They prefer eating the seed of the native species from the Proteaceae family including *Banksia* spp., *Hakea* spp., *Dryandra* spp. and *Grevillea* spp. Due to the highly fragmented nature of heathland vegetation in the WA wheatbelt, these species often occur in small, fragmented, degraded patches.

Landholders who have feeding habitat on their property can assist in the rehabilitation of these important habitats by fencing them off from grazing animals and revegetating the area with the appropriate plant species. This will prevent further degradation, promote natural regrowth and help increase the area of feeding habitat available to Carnaby's cockatoo.

The Birds Australia Carnaby's Cockatoo Recovery Project is currently working with regional nurseries in the northern agricultural region to grow food plant species and to supply local landholders with the plants.

The aim is to rehabilitate and

revegetate degraded feeding habitat areas that are in close proximity to breeding habitat and to create corridors of vegetation. This not only provides the cockatoos with high quality feeding habitat, but also provides a secure route for travelling between breeding and feeding habitat.

The Carnaby's Cockatoo Recovery Project Regional Coordinator can assist landholders with selection of local species and the preparation of revegetation plans.

If you are interested in finding out more about the revegetation project or would like to know which proteaceous species the Carnaby's cockatoo prefer you can contact Birds Australia's Regional Coordinator on the details below.

Tamra Chapman is a Zoologist at CALM, Kensington and works on the recovery of Baudin's cockatoo and

the forest red-tailed black cockatoo. Helen Pitman is Regional Coordinator for the Birds Australia Carnaby's Black Cockatoo Recovery Project and can be contacted on 0428 762 292 or h.pitman@birdsaustralia.com.au. Photo: John Lauri

DISTINGUISHING WHITE-TAILED BLACK COCKIES BY THEIR CALL

If you don't get a good look at them, it can be difficult to tell Baudin's and Carnaby's cockatoos apart, especially as Carnaby's are moving into the forested areas that were traditionally the haunt of Baudin's. They do, however, have slightly different calls. Bird calls are difficult to describe in words, but if you go to the 'Cockatoo Care' website (www.cockatooocare.com) you can press a button to hear the calls.

MORE BUSTARDS!

Reports of bustard sightings keep coming in. An unusual location record comes from Graeme Moore who took this photo in February on his property on the Coastal Plain 20 km west of Harvey.



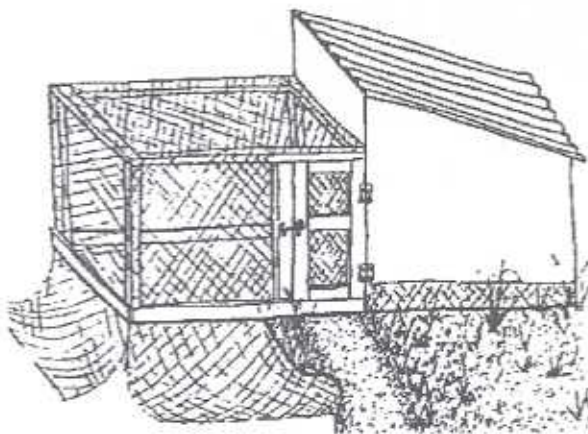
PRACTICALITIES

CHUDITCH-PROOF YOUR CHOOK PEN!

Teagan Smith



Chuditch (*Dasyurus geoffroi*) numbers appear to be increasing, especially in the Chittering area. This dramatic increase in chuditch sightings, and presumably chuditch numbers, is due to large scale fox baiting efforts as part of CALM's *Western Shield* initiative. This program encompasses reserves such as Julimar state forest and Avon Valley National Park.



Some landholders have reservations about the increase in numbers of these amazing carnivorous marsupials. The reason for this is chuditch have been noticed checking out the menu in backyard chook pens! Chuditch are opportunistic feeders and forage primarily from the ground during the night. Due to this opportunistic feeding habit their diet is quite varied consisting primarily of a large range of invertebrates such as crickets, scorpions and spiders, and can include rodents, birds, small lizards and eggs.

Do you enjoy takeaway? Well, it appears that chuditch are just as enthusiastic about take away from convenient locations as we are!

Thankfully for those of you who enjoy freshly laid eggs from the chook pen, help is at hand with some simple steps to make living with chuditch easier. Within the coming months an information sheet on making your chook pen chuditch-proof will be available from CALM's NatureBase website: www.naturebase.net.

In the meantime, here are some quick tips.

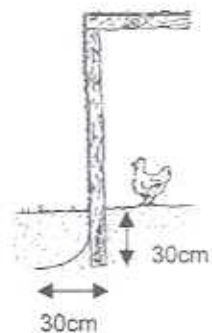
How to chuditch proof your chook pen:

Poultry owners, not just those of us who have chickens, should keep chuditch in mind when they are building or refurbishing their sheds/pens.

Requirements:

- Gaps and holes around the chook pen should be no more than 1-2 cm wide.
- Installation of wire mesh around the exterior of the coop with a mesh size no greater than 1.27 cm (0.5") and a wire diameter of 0.71 mm.
- The walls of the shed need to be two metres or higher, with tightly fitting vertical palings or corrugated iron.
- The structure should be on a secure floor or wire mesh dug well into the ground.
- It is important the enclosure has a mesh roof as chuditch and foxes can both climb.

If the chook pen is not secured to a floor then it is important that the wire mesh is dug 30 cm below the surface of the ground and 30 cm away from the enclosure to deter animals from digging beneath the enclosure.



CALM would love to hear from anyone who has seen chuditch in recent months. Contact Christine Freegard on 9334 0579 or email her christinef@calm.wa.gov.au

Teagan Smith is Land for Wildlife Officer at Kensington, contact: teagans@calm.wa.gov.au Illustrations: Christine Freegard and Western Shield

IN BRIEF

BATS OF THE ORD RIVER AREA

When people think of mammals, they often forget to consider bats. Perhaps it is because bats are night-flying, and so not often seen, but it may also be that most Europeans have a culturally-developed fear of bats and so instinctively shrink from them. (Horror and fantasy films exploit this by introducing bat-like creatures at scary moments!) For whatever reason, the needs of these interesting and ecologically important animals are often ignored.

Thus it is good to see project developers finding out before they start what effect their project will have on the bats.

This study, commissioned by the WA Department of Industry and Resources, covers 30,500 ha of the proposed extension to the Ord River irrigation area, from downstream of the current farming area to the sea at the mouth of the Keep River in the NT, as well as over 42,000 ha of surrounding land proposed to be managed for conservation purposes. The aim was to survey bats present before the project begins. On-going monitoring during and following development can then be compared to this baseline study.

Twenty species of bats were recorded during the 14-day survey period, one of which, the Arnhem sheath-tail bat, is a rare species that had not been previously recorded in WA. Only nine of these species occur over agricultural areas. The study concludes that the proposed clearing of native vegetation for agricultural land will have an effect on the existing bat population, but suggests management steps (including leaving native vegetation along roadsides) that should minimize the effect. Almost half of the report is devoted to photos, descriptions

and detailed notes of each of the bat species found. This is possibly the most interesting part for the general reader. Foraging strategy and habitat requirements are outlined, and processes that may threaten the bat species are given. Just by reading through this section, one learns a huge amount about the bats.

Anyone living in or visiting Kununurra – indeed the whole of the Kimberley – who has even a tepid interest in bats, would find fascinating detail contained in this report. Unfortunately, like all such reports, copies are not widely available. (CALM library has a copy, ask your *LFWO*.)

This is another example of interesting information contained in the 'grey literature' - consultants' reports for development proposals. These are used in decision-making with regard to the proposed development, placed in a library, and then often forgotten. Fortunately nowadays there are State Government databases where the information, or at least a reference to it, can be found.

So if you want to know what has been already recorded about the geology, flora or fauna of your local area, don't forget to make enquiries of CALM, Dept. of Environment, the WA Museum, or even your local Shire, to see if they hold consultants' reports for individual projects.

Ref: Bat survey of the Ord River Stage 2 M2 area. WA. A report produced for the WA Dept. of Industry and Resources. (2005) L. Lumsden, S. Churchill & M. Schultz. Arthur Rylah Institute for Environmental Research, Heidelberg, Vic.

PROTECTING STONE CURLEW NESTS FROM FOXES

One of the reasons stone curlews have become rare is because foxes eat the eggs and chicks. Last year a farmer from Bringalbert in Victoria used a grant from the Threatened Species Network to put an electric fence around a two ha site where they were known to nest. Two chicks were reared – possibly the first time for 40 years that the birds have nested successfully on that property.

If you would like to know more about the design of the fence, contact Richard Hill at the Department of Sustainability and Environment, Casterton, Victoria, on (03) 5554 2302.

Don't forget to record your feral bee sites with the Feral Bee Project Officer, Jacqui Hay, on 9334 0103 or email: jacquelineh@calm.wa.gov.au

FERAL BEES AND TREE HOLLOW AT CATABY CREEK

Catby Creek, near the Catby Roadhouse on the Brand Highway, has a number of trees containing hollows suitable for cockatoo nests. In 1996, 74 hollow sites were recorded along 3 km of creek – two of them had been taken over by feral bees. When checked again in 2005, every hollow had been taken over by bees! Clearly this is going to have an enormous effect on hollow-dependant fauna.

Peter Mawson

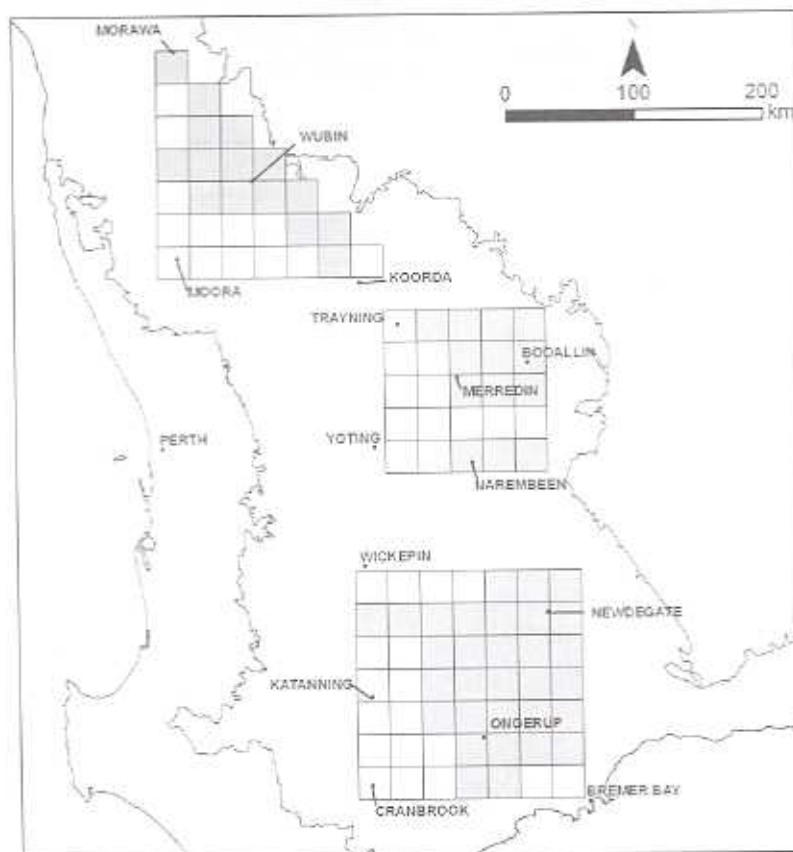
FAUNA RESEARCH

DIAGNOSING THE DECLINE OF MALLEEFOWL USING SIGHTINGS DATA

Blair Parsons

Malleefowl (*Leipoa ocellata*) occur through much of the wheatbelt and when present are fairly easy to spot as they are often seen feeding out into paddocks from remnant bushland or crossing rural roads. Most landholders who have retained malleefowl on their properties are proud of their continued presence and regard it as a sign of good environmental health of their farm. However, the malleefowl is listed as a threatened species in WA and the national recovery plan claims that the species' range has contracted by approximately 45%. Major threats to the species include land clearing, predation by foxes and cats, frequent burning of their habitat, and grazing by stock. The central wheatbelt and the south-west of the state are thought to have suffered the greatest declines, with core populations remaining in the more easterly areas of the wheatbelt. However, the pattern and extent of these declines are not well understood.

Map 1: Areas to be covered by the landholder survey. The study grid spans areas that contain many malleefowl sightings (shaded cells) and areas that do not (unshaded cells).



Understanding the extent and pattern of the decline of malleefowl and the underlying reasons for this decline is the main focus of a three year project, funded by the Natural Heritage Trust, which I started in early 2005. I am using records of sightings of malleefowl to investigate the extent of contraction of its range. The sightings records have been collected by various community organisations and government agencies such as the Malleefowl Preservation Group, CALM and the WA Museum over many years and include the locations of individual birds and both active and inactive mounds. I will use this information to identify the malleefowl's habitat requirements and key factors threatening their persistence.

More than two thousand records have been collected so far and have already provided valuable information about malleefowl distribution in the WA wheatbelt but they also reveal areas of relative abundance and areas of apparent absence. The absence of sightings may indicate a true absence of malleefowl or it could simply be that observers are sparse in these areas or they have not reported their presence. Similarly, areas with an abundance of records may simply be areas where there are many committed observers reporting their sightings to community groups.

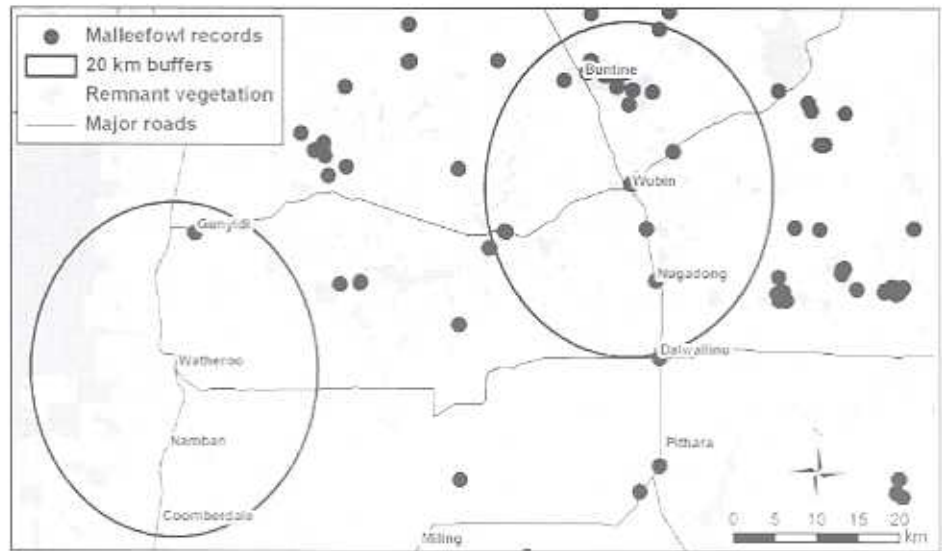
As part of the project, a survey of land managers is being conducted throughout the WA wheatbelt and will cover three zones centred on Ongerup, Merredin and Wubin (see map 1). The survey aims to determine whether areas of apparent absence are genuine or not and will also focus on determining why these patterns occur. For example, in the 20 km surrounding Wubin, 24 sightings of malleefowl have been recorded whereas in the 20 km surrounding Watheroo, which is 60 km to the west, only one sighting has been recorded (see map 2). Similarly, in the 20 km surrounding Ongerup, 56 sightings of malleefowl have been recorded whereas in the 20 km surrounding Gairdner, 50 km to the south-east, only six have been recorded. It is the intention of this study to determine why this is the case.

continued from page 12

RESEARCH

The enhanced knowledge of the distribution of malleefowl and their habitat requirements generated by community-collected sightings data will be used to guide decisions regarding their on-ground management. This might include the identification of key malleefowl habitat, prioritised opportunities for habitat reconstruction or protection, and information on the relative importance of different fire and predator management regimes.

If you have seen malleefowl or their mounds, either recently or in past times, or have information regarding the species that you believe would make a valuable contribution to our knowledge, please contact the Malleefowl Preservation Group on ph: 9828 2007 or fill in their online sighting form at <http://www.malleefowl.com.au/MalleefowlSighting.htm>.

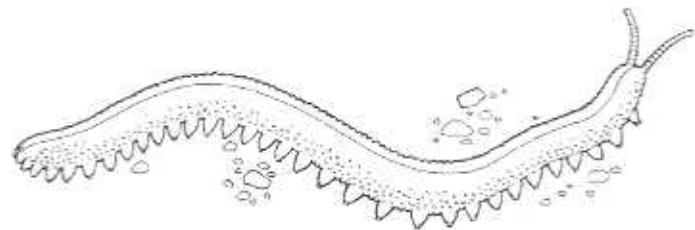


Map 2: Malleefowl records for Wubin and surrounding areas. Note that records are common near Wubin and eastern areas, but become increasingly scarce towards the west.

Blair Parsons is a PhD student working with the Malleefowl Preservation Group and CSIRO Wildlife Research and Management, and is based at CSIRO Sustainable Ecosystems in Floreat. He can be contacted on ph: 9333 6451 or email: blair.parsons@csiro.au.

Bush Detective

Under logs or stones among damp rotting vegetation in the higher rainfall areas of the State you may find this extraordinary night-time hunter. It looks rather like a worm with legs but it does not have a slimy skin. Instead it is covered with many scaly tubercles that give it a dark velvety appearance. The head end bears a pair of large antennae. The legs are in pairs along the body and, unlike millipedes or centipedes, are not jointed although each has a pair of claws. The animal moves by rippling contractions along its body, assisted by leg movements. Have you seen it? (The drawing is about twice life sized and has more legs than most Australian versions.)



It is a velvet worm. It is in a phylum (group) of its own, not closely related to anything else. Australia is the centre of diversity for these extraordinary animals that have been known since the Cambrian era, 500 million years ago, and don't seem to have changed much since. They are fierce hunters, searching out other small invertebrates such as termites, worms and small spiders. To catch their prey, they squirt out sticky goo from tubes on their heads, so entangling and immobilising the unfortunate animal and enabling

the velvet worm to bite off bits for digestion. They have odd sexual practices too – go to the Australian Museum fact sheet to learn more!

http://www.amonline.net.au/factsheets/velvet_worms.htm

So, if you have access to a site with lots of rotting logs and leaf litter, look carefully through the debris and you could find one of these extraordinary animals. (Note, they are more likely to be found in long-unburnt sites.)

NEWS

IN SAFE HANDS

The recent fauna survey in Yelverton State Forest carried out by CALM staff revealed that there are still some native animals around, including the smaller mammals we seldom see. This pygmy possum is tiny, but so beautiful - and daytime dozy, with ears folded down. It is marked with a temporary white stripe to identify the animal during the survey. Pygmy possums are only a couple of bites for a feral cat, so it is great that so many *LFWers* are looking after their bushland to help these animals survive.



They are seen occasionally; for example, recently a pygmy possum was found on a backyard lawn by a property owner in Dunsborough and she realized that her two domestic cats and dog may just take it in one gulp! She passed it onto her neighbour who then passed it onto FAWNA carers to look after but unfortunately it died while being in care. These pygmy possums are so tiny, it is very difficult to see them during spotlighting and most people do not even realize they may be in the backyard or on their properties.

Another one was found on someone's gravel driveway and taken to the *LFW* officer to care for, it was placed in a jumper and put in the vehicle on the back seat for approximately an hour to keep warm as it was in torpor (deep sleep) but when ready to leave the property, the pygmy possum was found to be hopping all over the back seat and so was taken back to the vegetation closest to its natural habitat on the property and released.

A pygmy possum was accidentally sent to Perth from the south-west in a box of flowers heading for florists, when it arrived in Perth the florists realized there was something else in the box and so it was sent back to the south-west and released back on the property it had escaped from - the pygmy possum had no idea where it had travelled as it was in torpor or deep sleep the whole time!

A dunnart was also found during the Yelverton fauna survey. These are also very small animals that people do not realize may exist on their properties, quite a bit more active than a pygmy possum - this one was asleep

and quiet as well, although they are known to be very active and even bite at times when handled. Also in the south-west are mardos, which are mouse-like but with larger eyes and ears, these are quite fast and dart about fairly quickly.

All of these smaller animals are not often seen and are very susceptible to foxes and cats and even domestic dogs, so carrying out feral animal control and controlling domestic dogs in the bush is very important for their survival.

It is just amazing to find out what is living in your backyard just by doing some spotlighting, sand pads or a small fauna survey in your local area. Depending on what time of the year fauna surveys are carried out you will see a different range of animals, for example in the warm months of summer you are likely to see many more reptiles such as bobtails, skinks and snakes.

Cherie Kemp

If you are interested in taking part in a fauna survey in *LFW's* 10th year, if one was arranged in your area, please ring your *LFW* Officer to register your interest. Community participation in fauna surveys is quite difficult to organise, so we will only respond to strong local demand.

RED CARD FOR THE RED FOX

This south-west wide community fox baiting scheme is on again this year. (For a report on last year's effort, see WW 9/3, July 2005.) The programme will extend across all agricultural regions covered by the four NRM groups, SWCC, SCRIPT, ACC and NACC and will be organised by the Dept. of Agriculture's Senior Biosecurity Officer, Mike Clark.

Community fox-baiting programmes have been shown to be more effective than individual efforts alone, as the foxes are hit over a wide geographical area.

The 2006 programme aims to see the baits distributed to users by March/April and laid in the following two weeks. It will be followed up by community-organised local fox shoots.

Landholders wishing to participate must submit a 1080 baiting application form for foxes and rabbits, with a map showing areas to be treated. Full details from your local Natural Resource Management Officer (NRMO).

NEWS

WAGIN - A PHASCOGALE FRIENDLY PLACE



"Ooops! Get me outa here!" Jeff Short releases a phascogale. Photo: Sid Smithies

Early mornings have been exciting times around Wagin lately, with a record 11 red-tailed phascogales surveyed at one bushland site north of Wagin in February. The recordings are part of trapping surveys started late last year by Dr Jeff Short and some keen local volunteers, in attempt to understand more about the distribution and habitat needs of this endangered marsupial.

"Before this project started there were only 16 local sightings in the CALM database, which painted a fairly grim picture for these critters," Dr Short explained. "So far, we've trapped 17 phascogales since November and, considering that they are most mobile during autumn, we are hopefully in for some more exciting times ahead."

The project also involves collating community sightings to update the database. There have been

some great local stories about various phascogale sightings over the years, but until now they haven't been recorded. Of the 20-odd sightings reported so far, most have had to do with cats bringing in dead animals, but we've got reports of people finding them in old homesteads, on jam fence posts in paddocks, in backyards in town, and even one in the gutter in the main street!

While it is comforting to know that the red-tailed phascogale numbers are strong around Wagin at present, these small, tree-based carnivores are still very much under threat as a species. They are now only found in the western wheatbelt

area, where fragmented bushland and predation by foxes and cats put their survival at risk. A focus of the project is to work with farmers to fence off and link up bush that provides valuable habitat for the red-tailed phascogale.

As you can see from the photo, phascogales like sheoak woodland, especially if wandoo (white gum) is associated with it. If anyone would like to know more about the project, especially any landholders in this general area who have suitable bushland, please contact me. I'd also like to know of any phascogale sightings, including historical records.

Sally Thomson

Contact Sally Thomson,
Wagin/Woodanilling Landcare
Coordinator on 9861 2222 or email:
sthomson@agric.wa.gov.au

Did you know?

... that a platypus has 10 sex chromosomes? Unlike humans with just one X and one Y (or two Xs if you happen to be female!), platypuses have five X and five Y. These form a long chain that looks like human sex chromosomes at one end and bird sex chromosomes at the other. This links these monotremes to a very ancient system of sex determination. For more info read: *Nature* 432, 913-917 (2004).

Did you know?

... that less than 1% of beneficial native larger fungi found in remnant bushland have returned to revegetated areas on wheatbelt farmland, even after 20 years? When woody plants are revegetated, most native fungi are unable to colonise and thrive on the altered soil environment of former farmland.

To give your revegetation the best possible chance, add beneficial native fungi to the seedling soil mix! Details on the Fungibank website: www.fungibank.csiro.au or in *Western Wildlife* 6/3, July 2002.

Neale Bougher, CSIRO

Did you know?

... that healthy natural biological soil crusts can inhibit weed seed germination, yet encourage native seeds? In a study of germination adjacent to rabbit warrens, wild turnip and horehound germinated readily where the crust had been removed, but not at all where it still existed. On the other hand, wallaby grass germinated very well on crusted soils, but very poorly where rabbits had destroyed the crust. David Eldridge, Uni NSW

Did you know?

... that acid soils inhibit nitrogen fixation in soil crust organisms? So increasing soil acidity – a major problem in some cropland – means less productive soil.

WEED ALERT

TREE MALLOW INVADES ISLANDS

A plant brought to Australia to be a feature of coastal gardens is causing severe problems on islands around the world. Tree mallow, *Malva dendromorpha* (called *Lavatera arborea* in *Western Weeds*), is a stout branched biennial with lilac flowers, that loves growing on limestone, especially where the soil has been enriched by the guano left by seabirds. It threatens to outcompete local mallow species, and to make areas unsuitable for ground-nesting seabirds.

In the UK, tree mallow is threatening one of Britain's best-loved seabirds, the puffin. This fat, colourful little bird has a sad clown's face with a large red and yellow bill. It feeds on a variety of fish and nests in a burrow on islands. But at least one important nesting site, Craigleith near North Berwick, is now covered with impenetrable thickets of tree mallow, leading

to a reduction in burrows from 28,000 in 1999 to 14,000 in 2004. And the plant is increasing on other islands too ... Tree mallow has long been recorded as a casual around Britain's coast – why has it suddenly increased in numbers and started to cause a problem? It would appear that global warming is to blame, making the temperature much more suitable for the plant (2005 was the Northern Hemisphere's hottest year on record).

Tree mallow is originally from the Mediterranean. It is a handsome plant, resembling a hollyhock but larger and more bushy. In the Perth area it can be seen on coastal wasteland and some of the Safety Bay islands. It is causing a problem because it displaces (and in at least

one instance, hybridizes with) our native coastal tree mallow, *Malva australiana* (*Lavatera pleibea* var. *tomentosa* in *Western Weeds*) a white-flowered plant that also likes to grow in guano. Tree mallow is also threatening island endemic mallows off the Californian coast.

So far, tree mallow has not been found north, on the Lancelin to Dongara islands, nor has it been found on South Coast islands. However, it could appear! It is recommended that any new occurrences be destroyed and old infestations be eradicated. So, if you are on the coast and you see a tall (to 3 m) hollyhock-like plant with pinky-purple flowers, please note the location, take a clear photograph and let the land manager (eg CALM or Shire) and LFW know. It is much easier to control potential problem plants while they are in small numbers.



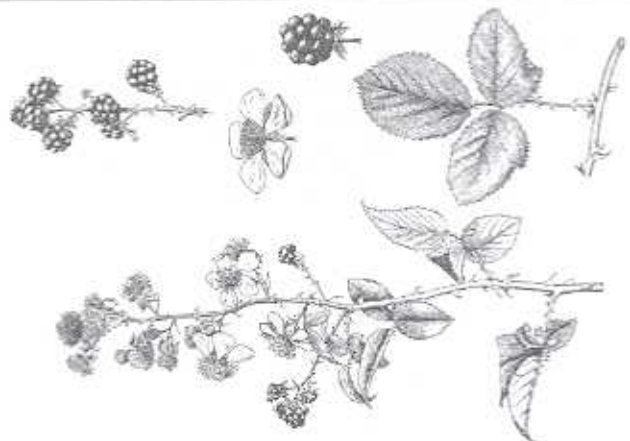
Tree mallow on the Albany foreshore.



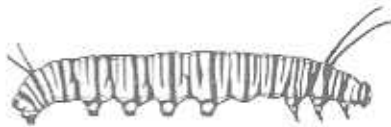
Did you know?

... that the 19th century botanist Baron Ferdinand von Mueller believed that blackberries were a very valuable plant to spread throughout the colony – impenetrable hedges, luscious berries, nectar for bees and leaves for herbal tea. On his various field trips he would carefully spread blackberry seeds in the ashes of his camp fires. He said "Poor people in time to come will bless me for my thoughtfulness". Ah well ... ideas change!

Drawing: *Rubus ulmifolius*, C. A. Gardner



MEMBERS PAGE



A CLOUD OF WANDERERS



Lyn White of Darkan wrote: "When I was returning from Hamelin Bay with a friend in January, we came across a cloud of beautiful wanderer butterflies near the Roelands area. They were coming towards us, so were obviously heading for the coast. Perhaps 'cloud' is an exaggeration, but there were certainly hundreds of them. Once they'd passed us, we saw just the odd dead one on the road.

"I thought of the Bogong moths, and presume that the wanderer migration is also a natural annual occurrence. But as they are not native here, so I have read, are they perhaps attempting to return to the land of their origin?"

Robert Powell of the Insect Study Society says that the wanderer or monarch butterfly (*Danaus plexippus*) is a large and very conspicuous butterfly; black lines on its wings enclose panels of orange with white dots around the edges and on the



body. They are strong fliers and are capable of traversing continents and even oceans. In North America, their original home, they migrate south for the winter, forming huge swarms that can literally cover the trees in favoured resting places. In eastern Australia they migrate from mountainous areas to the coast for winter, but not much is known about their migration patterns in WA.

The wanderer was first recorded in WA in 1897 at Glen Forrest, but only

became common in the 1960s with the spread of its favoured food plant swan plant or cottonbush (*Gomphocarpus fruticosus*) whose light fluffy seeds have spread it widely along creeks and around wetlands in the Darling Range and Swan Coastal Plain. The plant is quite toxic and the brightly black, white and orange striped caterpillars advertise to potential bird predators that they, too, are distasteful and probably poisonous. Cottonbush is a Declared Plant in WA because of its toxicity to stock, so if a serious control campaign were ever undertaken, the 'clouds' of wanderers would also decrease.

For more information: read *Bring Back the Butterflies: butterfly gardening for Western Australians. 1994. RW Hay, TF Houston, AAE Williams & MR Williams. WA Insect Study Society. or check the Australian Museum fact sheet: <http://amonline.net.au/factsheets/monarch.htm>*

HOW LONG BEFORE BALGAS FLOWER?

Cheryl Hamence of Bridgetown has a *Xanthorrhoea preissii* that she grew from seed she had collected herself and planted in her garden – it produced a flower spike at seven years old. So much for grasstrees taking 30-50 years before they flower, as reported in the last Western Wildlife from work in NSW! *LFW* will pass on this observation to David Keith, the NSW ecologist. Perhaps he will have to add a rider to his paper!

It also makes the idea of growing balgas from seed (which is very easy to do, as they do not need heat, smoke or any other treatment and have a high germination rate) much more attractive if you don't have to wait until your grandchildren have grandchildren before it flowers!

To collect balga seed, go in early December to an area where there has been good flowering – eg after a fire. Find a flowering spike where the capsules have started to open. Spread out a tarpaulin on the ground or low bushes beside your chosen spike. Carefully bend the spike towards the tarpaulin. Tap the stem sharply. Dozens – hundreds – of seeds will fly out. Transfer the ones on the tarpaulin to your collecting bag and move to another plant.

(Nb: if you are not collecting on your own land, please make sure that you have the correct licences and permission from the landholder. If you are not sure about licence requirements, ask your *LFW* officer.)

MEMBERS PAGE

A TALL TALE BUT TRUE - HAPPY TADDY TALES PART 2

The first native fish, six western minnows, were introduced into the dam in late winter 2005. They seemed to mature quickly as a good sized adult was spotted in late Dec, with the bulge of a gravid female we hoped, not of gastronomic 'taddy-delights'. This was the only daytime sighting, alas, as these fish seem very shy and well camouflaged.

With great anticipation we waited to see the effect on our new season's tadpoles.

In late Nov. and early Dec. the first juvenile tadpoles were seen, once again rising from the dense forest of algae on the floor of the dam at about noon. However this time they behaved differently, keeping close together in a school much as sardines do in the ocean, but in a slow-motion display. As they rose to the surface, the whole body of tadpoles spiraled constantly. Near the surface they all moved along as a tight group, all taking the same direction. With a few stragglers swimming in the rear, the overall appearance to me was like a monster fish, ponderously patrolling the pond. Moreover, three or four such monsters lurked – and I could well imagine with what fear the western minnows must have fled and hidden themselves from these watery apparitions.

By Jan the tadpoles had fattened and were dispersed throughout the dam, often hanging suspended in the water, nose up tail down, as if taking a nap. Their numbers seemed not quite as prolific as during the previous year but still impressive. By mid-Jan, teenage legs were showing on the motorbike frogs. They seem to enjoy hanging out together in small groups among the reeds at the water's edge, sunning themselves in the shallows.

And as for the fish, this is indeed a tale of "the BIG ones that got away".

Meg Wilson, Mundaring



We asked Prof. Dale Roberts (UWA Zoology) if he knew why the taddies were swimming in spirals. He commented:

These are probably motorbike frog (*Litoria moorei*) tadpoles. I have seen them doing that before. Possibilities:

a) some sort of co-operative feeding behaviour - occurs in toad tadpoles, but there they can be kin groups, not a random mix. Toad

tadpoles do it on the bottom of the pond and stir up sludge. This is in open water so unlikely but possible - eg chasing aquatic prey that might be small enough not to be seen by the naked eye or from the dam bank.

b) might be some sort of predator avoidance. There are a lot of theoretical models about predator-prey interactions that generate groups. Dilution models - one predator limited prey catching ability - join a group to minimise the risk. Use your buddies as a shield against predation - selfish herd models.

c) there might be hydrodynamic advantages in swimming in a school but why you would swim in circles is beyond me!

When you see tadpoles exhibiting this behaviour, I suggest you look out for predators - birds, dragon fly larvae, water beetles, fish - all might have a go. That might help to confirm or eliminate one of the theories.

ORIGIN OF CHYTRID FUNGUS DISEASE IN FROGS

A deadly fungal skin disease that is responsible for wiping out frogs around the world may have been spread by a human pregnancy test. From the 1930s to the 1960s, the standard pregnancy test involved African clawed frogs. A pregnant woman excretes chemicals in her urine that, if injected into the clawed frogs, would induce them to produce eggs or sperm. No pregnancy, no chemicals, no frog eggs. It was simple and reliable, and all over the world laboratories were set up to undertake this test. As a result, huge numbers of African clawed frogs were exported worldwide from South Africa.

Researchers at North West University, USA, have discovered by examination of preserved frogs in museum collections that the first recorded case of the fungus correlated with the use of clawed frogs in this laboratory procedure. Another example of why quarantine (or biosecurity as it is now called) is so important. For further info:

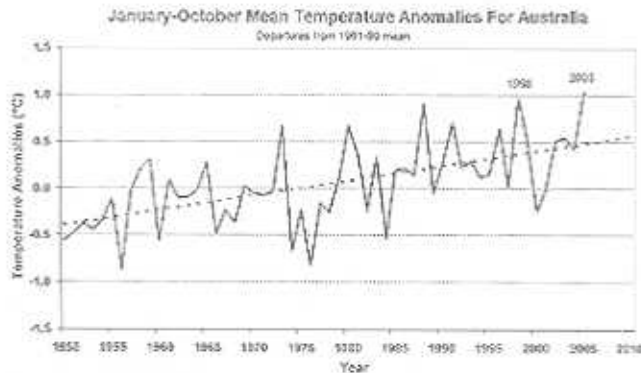
http://www.int.iol.co.za/index.php?set_id=1&click_id=14&art_id=vn20060205134

Anna-Marie Penna, Conservation Council of WA.

IN BRIEF



AND AUSTRALIA GETS WARMER ...



Australia has its warmest year on record last year, with a mean temperature of 22.89°C. The Bureau of Meteorology stated that 2005 was 1.09°C warmer than the standard mean period of 1961-1990, making it the warmest year since at least 1910, when high quality Australia-wide temperature measurements first became possible.

Mike Coughlan, Head of the National Climate Centre within the Bureau of Meteorology said: "Work has only just begun to attribute causes to the observed climate changes in Australia. Nevertheless, many of the observed changes appear to be broadly consistent with those expected from human-induced climate change."

Australian Bureau of Meteorology.

Mushrooming time! Don't poison yourself and your friends!

When the first rains arrive, many people enjoy going out into paddocks looking for mushrooms. But every year someone, somewhere, kills themselves by collecting and eating poisonous toadstools instead. A new leaflet in the Department of Agriculture's 'Gardennote' series, 'Recognising edible field mushrooms', provides good, clear descriptions and colour photos that should make the pastime of mushrooming much safer for all concerned.

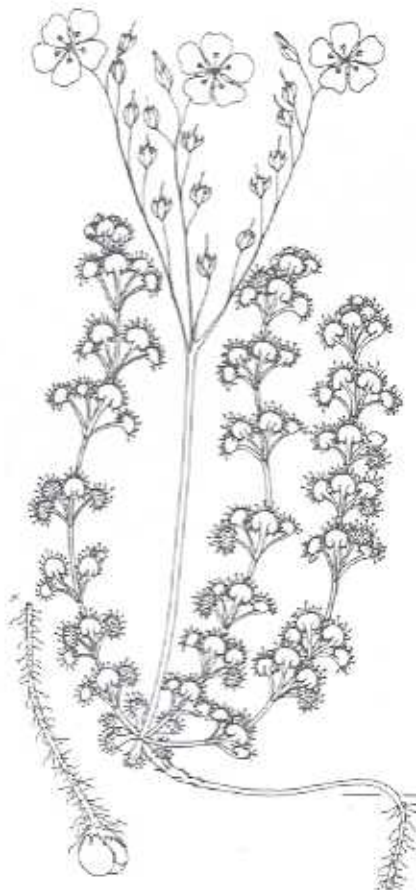
Check the series for what interests you. Obtainable free from Dept. of Agriculture, or visit the website at: www.agric.wa.gov.au

Mating frogs

Don't forget to watch out for multiple mating systems in your local frogs and make notes and report on them as requested by Dale Roberts in WW 9/4, Oct. 2005. Email: droberts@cyllene.uwa.edu.au

LEAFY SUNDEW, *DROSERA* *STOLONIFERA*

Drosera stolonifera and its close relatives have recently been studied in detail by Allen Lowrie (Nuytsia 15: 355-393 [2005]) and ten species have been recognised in the *Drosera* section *Stolonifera*. As well as descriptions, illustrations and a wealth of taxonomic detail, the article contains some fascinating snippets of sundew natural history. For example, the growing plant bud of *D. stolonifera* is enclosed and protected by a thick jelly-like mass as it pushes through the soil. Presumably it helps protect the delicate bud from abrasion by soil grains, and may also deter attack by foraging invertebrates.



There is also a fascinating description of prey capture. All species in this section have small digestive glands in the centre of the leaf and longer, very sticky, retentive glands around the edge. Once the prey touches a retentive gland and starts to struggle, other retentive glands are stimulated to lean towards it and stick on, ensuring the prey does not escape. The whole lot then moves to position the prey close to digestive glands – this process takes about an hour. Digestion takes a few days, until all that is left is the chitinous exoskeleton that can wash away in the rain. The retentive glands move back to their original position, ready for a new catch.

NEW BOOKS

The Drummond Symposium: a review of the work of James Drummond, the first Government Botanist in Western Australia.

Ed: S.J.J.F Davies. 2005. Bulletin No 27. Dept of Environmental Biology, Curtin University, Perth.

The papers presented at the Drummond Symposium held in Toodyay in Aug 2004 have finally been published. Cost: \$10.00. Obtainable from Curtin University Bookshop, or contact Stephen Davies at: S.Davies@exchange.curtin.edu.au

The State of Australia's Birds 2005: Woodlands and Birds

Birds Australia. Supplement to Wingspan 15, 4. Dec 2005

If you are interested in either woodlands or birds you will find stacks of data in this beautifully presented and fully illustrated booklet. Well worth reading. Contact Birds Australia for a copy.

FUNDING

\$20 MILLION ENVIROFUND OPEN FOR APPLICATIONS

Community groups and individuals across Australia are invited to apply for grants up to \$50,000 from the Australian Government Envirofund. Australia's Minister for the Environment and Heritage, Senator Ian Campbell, announced the latest round of Envirofund and welcomed applications for local projects aimed at conserving biodiversity and promoting sustainable resource use. Senator Campbell said Envirofund is the local component of the Australian Government's \$3 billion Natural Heritage Trust.

<http://www.deh.gov.au/minister/env/2006/mr23feb06.html>

For help with your application, call your Community Landcare Coordinator, Natural Resource Management Officer (or whatever the person's title now is!) or your Land for Wildlife Officer.

COMING EVENTS

Interested in bird banding?

Have you a week to spare?

WALLATIN WILDLIFE AND LANDCARE INC.

BIRD BANDING PROJECT 2006

Between 1985 and 1995 CSIRO Wildlife and Ecology, headed by Dr Denis Saunders with support of the Earthwatch Institute and the Kellerberrin/Doodlakine Landcare Community, carried out a major banding program to investigate movements of birds over a 625 sq km area between Kellerberrin and Trayning. The aim of that work was to examine bird use of patches and linear strips of native vegetation in an extensively cleared agricultural landscape.

Seventy-two species of birds were banded and there were over 14,000 handlings with some birds being caught a number of times. Aspects of the work have been widely published.

It has been over 10 years since the field work was completed and there is now an opportunity to conduct more field work, again led by Dr Denis Saunders, on the same research protocol to examine what changes there have been to the bird communities in the same patches and linear strips using the same banding stations as were used in the earlier study. Many of the birds banded in that period may still be alive and there is a superb opportunity to look at longevity and movements over a longer time frame than most studies.

Banding will take place in August 2006 (from Monday 7th to Sunday 20th). Two banding teams will operate with a least one A-class bander on each team and one other experienced bander supported by three volunteers. The project has attracted support from CSIRO Sustainable Ecosystems and we are negotiating with other organisations for support of the volunteers in the form of accommodation and meals.

Wallatin Wildlife and Landcare Inc are looking for 12 volunteers to support the teams for approximately one week each.

Please contact Mike or Sue McFarlane on 9045 8244, Kit Leake on 9045 9031 or Rose Bowen on 9045 8254 to express your interest.

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.

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