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NEWSLETTER OF THE LAND FOR WILDLIFE SCHEME

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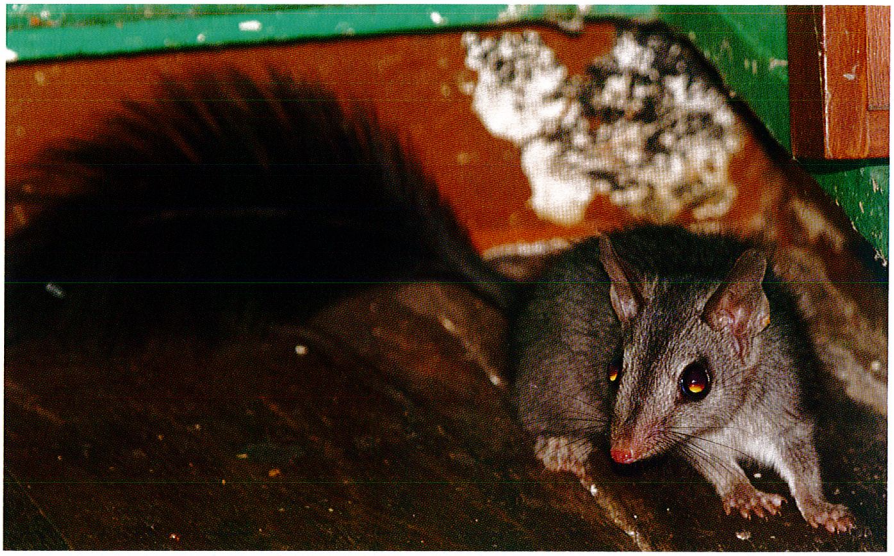
AT HOME WITH BRUSH-TAILED PHASCOGALES

John S. Pate

The Brush-tailed Phascogale (*Phascogale tapoatafa*) is still found across a broad but scattered area extending around most of coastal Australia, and we are lucky to have a reasonably large and healthy population persisting across a range of habitats in and around the Denmark/ Walpole area.

On Pate's Patch the species is proving to be a fairly frequent visitor to the roof spaces of the two settlers' cottages and the hay barns, sheds and resource rooms on the property. Presumably these individuals are resting up during the day after a night of foraging close by or well out into the surrounding forest. A favourite 'roost' is in some three-metre lengths of polythene drain piping stored up in the rafters in one of our sheds. Climbing up on a ladder one can easily look down the pipes to see whether one is occupied! They are also known to spend much time foraging at night in gum trees in full bloom, evidently mostly after nectar but no doubt also consuming insects attracted to the blooms. A local resident has even seen phascogales eating figs fallen on the ground, so a sweet tooth is suspected for the species.

Despite the Brush-tailed Phascogale's long-standing reputation for killing domestic poultry we have had no casualties amongst our stock, but have every reason to suspect that they are highly effective in reducing numbers of rats and mice. They are



A juvenile exploring the kitchen in the old cottage. Photo: Karon Swan

primarily arboreal foragers where they supposedly feed on beetles, ants, spiders and raid bird nests and even catch unwary birds as they roost in the canopy. They feed especially on bark-inhabiting insects, so spend a lot of time on trunks and main branches of old trees, especially those whose bark is damaged or peeling away.

Phascogales have claws on all digits except the shortened thumb, to use when climbing. Furthermore, their feet can be rotated and splayed out laterally when climbing trunks of large trees. The beautiful black tail also balances the animal as it moves in an arching fashion across the ground, up a tree or even along the single strand of a wire fence.

Some years ago, myself and my late wife Elizabeth were very privileged to have a female Brush-tailed Phascogale construct a large and elaborate nest out of layers of sheep wool insulation in the corner of the floor of the loft in the cottage. We assumed that she was using this nest to deposit her partly weaned young. Listening from the bedroom below we could hear scufflings as the female returned periodically during the night to suckle her young. We could even hear the litter emitting soft squeaks during such events but we elected not to fall into the temptation of going up to have a look at her and her brood in case she deserted the nest or carried the young off to what might well be a less safe location. This last November 2011, a juvenile phascogale was spotted catching moths and other insects on the struts supporting the back verandah of the same cottage.

continued on page 4

Editorial

Hello readers!

The design of this issue of *Western Wildlife* has changed somewhat. The designers in DEC's publications section have, for a long time, been telling me that the magazine's appearance could be 'updated' – a term which made me very nervous! I thought they were going to suggest effects such as merging one photo into another, or putting white text on top of a photo, both of which I find makes it more difficult to read the story. But as you will see, it is not very different, it just looks neater.

Long-standing *LFWers* will recognise some of the material in Tony Start's article 'Dams on the Ord River, a photo history'. Tony and colleague Tricia Handasyde wrote an article about the value of old photographs in WW 6/3. Here, Tony expands the theme to discuss how human activities can lead to extensive change to the natural environment and landscapes.

Very best wishes for 2013 from the *LFW* team. *Penny Hussey*

Questionnaire

Enclosed within this issue you will find a questionnaire. Please would you take a little bit of time to complete it and post it back to us – it is postage paid.

Land for Wildlife has now been going for 16 years, and twice before we have asked for specific feedback from readers. We have always tried to practice 'adaptive management' – asking for your opinions and taking them into consideration, as it is vitally important that the service we provide is acceptable to you, our *Land for Wildlife* registered landowners and *Western Wildlife* readers. We are always open to suggestions although, alas, resources do not always permit us to act on them, at least in the short term. So please, have a go at the questionnaire and return it to us. Even if you don't feel you can answer all questions, that does not matter, just answer what is relevant to you. The more responses we receive, the better we will be able to plan the future direction of the programme.

The *Land for Wildlife* team is very proud that, while other extension programmes may come and go, we are here for the long term. Our motto is "*LFW*, the IN thing: INterest, INform, INvolve, INspire." In fact, it is you, the *Land for Wildlifers*, who inspire us to continue, with your love of the land and determination to work for a sustainable future that will include biodiversity conservation as an automatic consideration on all types of land use.

Please help us to become even more relevant to you in the future.

Please note: Question 6 refers to a 'Facebook' page. Unfortunately, although the format has been compiled, it has not yet received permission for release from the appropriate authority within DEC. So ignore this question, please, but watch out for something coming along in future. Wayne Gill, *LFWO* at Esperance, has put in all the hard work on this one. If you would like to know the status of the project, contact him by email, given below.

INDEX

Contact details for *Land for Wildlife* Officers

Name	Location	Phone	Email
Heather Adamson	Mandurah	(08) 9303 7738	heather.adamson@dec.wa.gov.au
Avril Baxter	Narrogin	(08) 9881 9240	avril.baxter@dec.wa.gov.au
Fiona Falconer	Coorow	(08) 9952 1074	fiona.falconer@dec.wa.gov.au
Wayne Gill	Esperance	(08) 9083 2118	wayne.gill@dec.wa.gov.au
Claire Hall	Perth	(08) 9334 0427	claire.hall@dec.wa.gov.au
Mal Harper	Merredin	(08) 9041 6004	mal.harper@dec.wa.gov.au
Sheila Howat	Bridgetown	(08) 9761 2405	sheila.howat@dec.wa.gov.au
Penny Hussey	Perth	(08) 9334 0530	penny.hussey@dec.wa.gov.au
Cherie Kemp	Busselton	(08) 9752 5533	cherie.kemp@dec.wa.gov.au
Zara Kivell	Mundaring	(08) 9290 6112	zara.kivell@dec.wa.gov.au
Sylvia Leighton	Albany	(08) 9842 4522	sylvia.leighton@dec.wa.gov.au
Dorothy Redreau	Albany	(08) 9842 4522	dorothy.redreau@dec.wa.gov.au
Phil Worts	Kojonup	(08) 9834 2242	philip.worts@dec.wa.gov.au

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OUTBACK DEATH TRAP

Simon Cherriman

Mulga Parrots. Turquoise green, striking reds and yellows, blue and orange, glistening in the golden rays of the morning sun. The three of them contrasted beautifully with the red mud as they landed at the edge of the puddle. The male shuffled towards the water, glancing around nervously. He took a quick couple of beak-fulls, one droplet glinting as it lingered for a second on his bill. Then in a flurry of green, the trio were gone.

I'd spent the first rays of daylight eating my breakfast and waiting for birds to come in to drink at a watering point on a farming property just south of Cue, in WA's Murchison region. The old bent windmill had stopped working, but the trough had filled with water from recent rains, and there were a few pools of surface water nearby, something which had not escaped the attention of local birds. The previous few days I'd seen Australian Ringnecks and Bourke's Parrots gathering at these water sources, precious in an otherwise barren landscape. They drank momentarily before fleeting off into the scrub. On this still morning, a lone Budgerigar had burst from its roost, narrowly escaping with its life after a male Collared Sparrowhawk chanced a sudden attack.

I walked over to the trough, still tingling from the thrill of seeing the Mulga Parrots, such beautifully vibrant birds. The water supply was now dwindling and covered in algae. Only a few insects floated down to the moisture. The surrounding silence was deafening.

The large, fibreglass tank near the windmill then caught my attention. Curious to see if any water remained, I walked over to an opening in the top and peered inside. As my eyes adjusted to the darkness, I could make out the shape of many small bones scattered over a layer of cracked, dusty mud on the floor of the tank. Grabbing a head-torch from my dashboard back at the car, I climbed up to the opening and lowered myself into the tank.

Closer inspection revealed the bones were all those of birds - skulls, lower jaws, sternums, wing bones. Five, eleven, sixteen, twenty-five... thirty-TWO!! I gathered the skulls together and arranged them in front of me. What a terrible shame, and a horrible way to die.

This skeletal collection is the sort of thing I would usually be very excited about. Being a keen researcher, I often collect bones beneath the nests of Australian birds of prey in order to examine their diet. However, the 32 skulls pictured do not represent birds killed in a natural situation. I glanced over my shoulder and peered up at the small window of light through which I'd climbed. Imagine looking up at that but not being able to get out. I shuddered with claustrophobia.

Most of the skulls belonged to galahs, with a couple of pigeons and a few parrots, probably of the species mentioned above. Vivid green Mulgas and soft pink Bourke's. These individuals must have been attracted to a shallow layer of water that once remained inside the tank. Over decades the birds had learnt about this artificial watering point, and had come to drink one day... but the trough was dry. So they inquisitively sought out moisture in the tank. Once inside, they would have had nowhere to land, and no easy way out. The opening in the top was too small. Flapping frantically, they eventually became bedraggled and were sucked under the water, slowly submerging and drowning inside the plastic prison.

There is an old saying "Out of sight, out of mind." When we make changes to the landscape, then forget about them, effects of these changes cease to exist in our thoughts. But they don't cease to occur. Such things should be carefully considered when humans come and go, leaving these changes which can have profound affects on other beings.

There are probably hundreds of other outback death traps such as this, still inhumanely killing birds all over the place. And these unnecessary deaths can be prevented. With one... little... ***LID***.

Simon Cherriman is an ecological consultant and film-maker. He can be contacted on: aquila84@iinet.net.au

continued from page 1

Brush-tailed Phascogales

On other occasions phascogales have been seen running along the base and up the sides of window casements of the cottage intent upon gathering insects attracted to house lights.

Books tell us that courtship and mating between phascogales takes place in late winter and is characterised by bouts of fierce fighting and chasing amongst males as they congregate wherever a female happens to be in season. Males reportedly go into a fatal decline shortly after mating, and die a few weeks later.

Territory sizes of Brush-tailed Phascogales are allegedly from 20 to as much as 70 hectares for a female and twice that for males. Both sexes use a number of hollows or other suitable locations across their territory as 'bolt holes', day time refuges, or in the case of females, locations in which nests can be constructed and used over several months as nurseries for young.

The breeding cycle of Brush-tailed Phascogales involves a gestation period of 30 days. After birth in August/ September the tiny naked and blind embryos climb up the abdomen of the mother to attach themselves to one or other of the eight teats (occasionally only six) located in a bare area adorning her lower stomach with its rim folded in to partly enclose the young. After a five-week period firmly attached to the mother's teats, and having been carried everywhere by her during this period, the still hairless young will still be only a few grams in weight. At this stage she starts to deposit them in the nest whenever she goes out foraging. At first she comes back every few hours to suckle them, but later spends most of the night out and abroad eventually returning at dawn to nurse her litter. Young are fully weaned at about 100 days, whereupon they leave the nest, and for a time are ferried on the back of their mother. Dispersal of young occurs in early to mid-summer and studies have indicated that juvenile males tend to move well away from their natal area whereas females remain in closer proximity.

Juvenile phascogale exploring the chimney. Note the splayed feet while climbing.
Photo:John Pate

Feral cats and, somewhat surprisingly, owls, are said to be major killers of phascogales, yet one would have expected that they would have surely been well able to look after themselves in view of their exceptional agility and armories of sharp teeth and claws. On several occasions we have found freshly severed brush tails lying on a trail or along the margin of the forest – presumably the inedible 'brush' is all that was left behind after a meal by a predator.

Evidence of the presence of phascogales in and around the cottage and sheds at Pate's Patch can be obtained on finding their characteristic faeces deposited predominately on fence posts or on top of old machinery boxes etc., in our farm sheds. Such behaviour seems to be a form of territory marking.

Fence post with faeces depostited by the mother to mark her territory.
Photo: John Pate

An exciting episode occurred in the spring and summer of 2011 in our other 1926 settler's cottage. Used occasionally by visitors, this wood-clad cottage is wonderfully 'designed' for occupancy by any of a multitude of biota ranging from spiders, geckos and marsupials such as phascogales and antechinuses through to less welcome species such as mice, rats and cockroaches. Anyway, my son David was cooking his breakfast porridge on an old electric stove when he heard soft squeaks apparently coming from inside the stove. Thinking a nest of rats had moved in to the back of the stove he pulled it out from the wall and, on partially raising its top, he disturbed an adult female phascogale which quickly disappeared through a

continued on page 5

continued from page 4

Brush-tailed Phascogales

rat hole behind the stove to scramble up into the wall cavity. Subsequent inspection showed that she had built a nest of insulation material collected from the ceiling to completely fill the body of the stove and had deposited therein a litter of four absolutely delightful babies. Photographs were duly taken (with some difficulty) and the stove quickly replaced in its previous position. By the next day the babies had been removed, presumably transferred by the mother to another nest somewhere in the wall cavity of the cottage. The only downside of the whole saga was that David had to clean out the smelly poo left behind in the latrine used by the family in the lower part of the stove!

Part of the nest in the back of the stove, with four babies cuddling up together. Photo: John Pate

Continuing with this exciting event, the babies started to explore the surroundings and by early November were already exiting from various holes and gaps in the walls of the cottage to climb up a brick chimney, run noisily across the tin roof and jump across into trees to forage in the orchard. So photographers were kept very busy and eventually became reasonably expert at flash photography of very fast moving objects!

But an opportunity for photography transcending all others resulted when a torch scan around the fence surrounding the cottage revealed a juvenile phascogale

Juvenile phascogale on a fence surrounding the property. Photo: John Pate

negotiating at speed a single strand of barbed wire to stop periodically at each fence post to catch insects. He or she 'froze' in the torch light on one such post, thereby enabling members of our watching crew to use a hand held camera and clever torch work to click away for five minutes as the post-bound phascogale played 'hide and seek' with human observers. What a magical experience it was! When we felt the baby had surely had enough, we extinguished the torch, whereupon it immediately raced back along the wire fence to the cottage.

I should have said that three days before this unprecedented photographic experience, we discovered to our horror that a female lactating phascogale had been killed on the road outside the cottage. Surely it could only be the mother of our babies, so we had to start laying out extra supplies of food for the three of them, hoping that they would be sufficiently weaned to pull through without their mother. Judging from the amount of hand-outs disappearing each night over the next three weeks, they survived until becoming strong enough to disperse successfully. Indeed a month later we saw one still exploring the sheds and apparently in good condition while another presumed member of the group eventually established territory in our 'home' cottage 800 metres away. Surely a successful outcome and a vindication for giving nature a helping hand, particularly since in this case individuals in the piece did not become habituated to hand feeding!

John Pate is Professor (Emeritus) of Botany at The University of Western Australia, now retired to Denmark.This story is abridged from part of a chapter in John's new book "Slime, Scales and Pouches", reviewed on p. 20.

[Ed: the south-west Brush-tailed Phascogale is regarded as a separate subspecies from the south-east animals, and is listed as Threatened Fauna under the name Phascogale tapoatafa *ssp. (WAM M434)]*

DAMS ON THE ORD RIVER – A PHOTO HISTORY

Tony Start

In the late 1800s cattlemen built fragile grass castles from the vast savannas along the Ord River in the tropical east Kimberley. Then, in the 1960s and 1970s, engineers built dams so farmers could irrigate the river's fertile floodplains. But how did these industries affect the river and its environment?

History

The first cattle arrived in the Kimberley in June 1884. At first the herd grew rapidly on the plains of seemingly endless fodder alongside the Ord River. However, there were no fences or bores and the soils were fragile. During the dry season, the growing herds congregated on river frontages for water. Within a few years the grass was gone. Even the trees died. When wet season thunderstorms burst over the bare, baked ground, the friable soils washed into the river leaving vast, eroded scars.

Eroded cattle country along the Ord River, 1960s, before rehabilitation. Photo: Alan Payne

Decades on, new pioneers envisaged bounteous, irrigated harvests from the lower Ord's huge floodplains. Dams were planned and the denuded pastoral lands further upstream were resumed and rehabilitated to prevent frightening volumes of sediment washing down the river and silting up the reservoirs. In time, Kununurra was born, two dams were built, cotton and rice, melons and mangos were planted and new-age cattlemen cherish their pastures.

Two dams

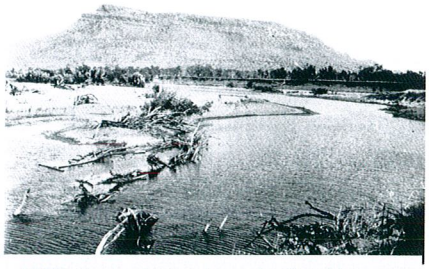
To function effectively, the irrigation scheme needs two dams. Wet season flows are stored in Lake Argyle and slowly released to maintain a constant level in Lake Kununurra (aka the Diversion Dam), from which water is diverted into irrigation channels. This is the dam you cross when driving to Kununurra.

Before the dams, the Ord was a seasonal river, flooding in the wet and dwindling to pools through the dry. With the riverside pastures gone from upstream, run-off into the river increased, floods became bigger and the riverine forests were washed away. A few old photographs show rafts of logs washed onto sand banks but there are no written records of that. Nowadays, the lower Ord flows continuously because excess water (required to drive turbines) is released from the Diversion Dam. Once again, the changes were profound.

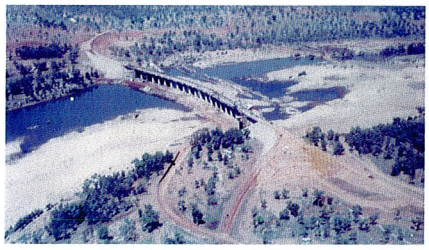
The need to know

Nobody studied the lower Ord's riverine environment before the dams were built in the 1960s and '70s. Even that recently, there were no requirements for environmental impact assessments or environmental management plans. The region was remote, the projects were bold and 'development was good'! To be sure, water yields, agricultural potentials and rangeland erosion were studied but (officially anyway) no one was interested in environment changes that taming and tapping this mighty river would bring.

Nowadays, we realise that productive country is healthy country. We have added 'biodiversity', 'multiple-use' and 'sustainability' to our vocabulary. A water allocation plan ensures there is enough flow down the lower Ord to maintain its environmental values as well as supplying water to the farmers.



1929: the banks erode, and rafts of logs are washed up onto sandbanks. Photo: Battye Library



Building the Diversion Dam, 1962 Photo: unknown

To write that plan, it was necessary to understand the changes wrought by the dams, and to know the state of the river when the dams were commissioned. But there was no written record! This was the dilemma Tricia Handasyde and I faced in 1999.

Photographers

Soon after we began, Noel Murdoch, a touring Victorian, dropped into DEC's Kununurra office with some slides he'd taken of Ivanhoe Crossing in 1963. (This concrete causeway had been part of the main Perth to Darwin road; it's still negotiable by four wheel-drives.) They showed a sandy river bed almost devoid of trees, quite unlike the well-vegetated banks we were familiar with in 1999. We printed the images, took them to the crossing and found we could still identify rocks in exactly the same places they'd been 42 years earlier.

Had photographers unwittingly solved our problem?

continued on page 7

continued from page 6

Dams on the Ord River

Left, Ivanhoe Crossing in 1963. Photo: Noel Murdoch. Right, same site in 2000. Photo: Tony Start. To compare, note the angle of the roadside kerb on the left-hand side, and then, on the right, the same large rocks in place. But the vegetation shows a lot of change!

We showed the photos to other people. Old-timers reminisced, younger people ooh-ed and aah-ed and word spread that we wanted to borrow and copy any old photographs. The interest people showed and the generosity with which people lent us their treasured collections was amazing.

Whilst the photographers were from many walks of life, scientists, engineers, travellers and farmers, many photographed the same scenes, particularly river crossings and so, collectively, their pictures provide a record of change at several places, all starting at least 10 years before the first dam was built.

Before the dams

Pre-1950 photos are elusive. Our earliest, taken in 1886, suggests stable banks clothed in tall, dense reeds. Sadly, there are not enough landmarks to precisely locate and re-photograph that view today. Nevertheless, there are no such reed banks today. Later pre-dams photos reveal eroding banks and large tree trunks washed-up on sand bars.

As late as 1952, there were still remnant silt bars held together by dense root mats of huge paperbark trees at Button's Crossing. They were gone when we went there in 1999. In fact there are almost no large, old paperbarks on the lower Ord today but big trees are still common on tributaries where floods are less energetic.

And what of the wildlife? We know White-browed Robins and Purple-crowned Fairy-wrens were common on the lower Ord until at least 1908. The robin lives in dense riverine woodland while the wren likes pandanus and tall reed beds on river margins. By the 1950s, riverine woodlands and the robin were rare. There were no reed beds, few pandanus and the wren had apparently vanished.

Dam changes

The range of subjects people photographed was diverse; drovers with mobs of cattle, crocodiles, big floods, big fish, engineering projects and family picnics. The subjects are fascinating in themselves, but to us their value lay in the settings. The coming and going of sandbanks spoke volumes. In the foregrounds we could identify herbs and grasses and in the backgrounds we could see how extensive (or otherwise) the riparian woodland was, and even identify many of the trees.

1952-1963 – Before the dams

In the channel, sand, sometimes in thin sheets and sometimes in massive bars, came and went with the floods. There were few trees except whippy little terminalias and, less often, paperbarks, anchored to rock bars. Here and there, pockets of mixed woodland clung precariously to sheltered spots on the banks, but the photos reveal that they too were being washed away, bit by bit. Time and again, thickets of paperbark seedlings established, hedge-like, on the margins of dry-season pools and grew for a while. Inevitably, they perished, regenerated and perished again, their lifespans determined by the frequency of big floods. There were no waterlilies, bulrushes or other emergent aquatic plants in the pools that are so common now.

1963-1973 – The Diversion Dam before Lake Argyle was formed.

Alone, this dam had little effect. In the wet season, the gates were opened wide to let big floods run free before the dam itself was washed away. Remnant woodland pockets were still eroding and sapling paperbark thickets were still short-lived. In the dry, the river still dwindled to a few deep pools.

Post 1973 – The two dams

Big floods became a thing of the past and the river flowed continuously. Pockets of woodland expanded; the paperbark thickets grew on

continued on page 8

continued from page 7

Dams on the Ord River

and forests developed alongside the channel. Bulrushes colonised the banks and, in the shallows, floating leaves of water snowflakes (*Nymphoides indica*) formed tranquil, green patchwork quilts.

Though rapid and dramatic, the process was orderly and logical. Look at the photo that shows the sand bank dumped over Ivanhoe Crossing by the '52 flood and note the small group of paperbarks growing on a rocky shelf in the water just to the rear. In 1973, the area was still a sandbar, albeit only just above water level, and the paperbarks hadn't changed much. By 1983, the bank was colonised by white dragon trees that specialise in growing fast on flood-disturbed sites. (In a couple of years they have seeded and it matters not if they're washed away then.) In the damp ground around the dragon tree stand, bullrush (its seed brought in on the wind) flourished except on the edge of the pool where the current was stronger. There, tough roots of pandanus armoured the bank.

Careful inspection of the 1983 photo reveals the tops of sapling Leichardt trees and stem-fruiting figs peeping over the dragon trees. Although they are capable colonisers of new banks, these species took more time to mature but they form the forest patch familiar today to so many visitors to Ivanhoe Crossing. However, even today, the paperbarks seen in the 1952 images, are still growing strongly on their submerged rock a few metres into the pool.

Elsewhere the succession patterns were just as orderly and just as profound but they varied in detail. Different sites had different hydrologies, different substrates and different outcomes but in one form or another, forests now line the banks of the lower Ord. Change

Ivanhoe Crossing in the 1960s, showing a sandbank deposited over the road and paperbarks growing upstream on a rocky shelf in the water. Photo: Barrett

Looking back from the centre of Ivanhoe Crossing in 2001. The leaning trunks of the paperbarks seen in the 1960s photo above can just be made out in the forground of the thicket. Photo: Tony Start

is still progressing. In particular, *Phragmites*, a tough rush, is armour-plating the river banks in many places.

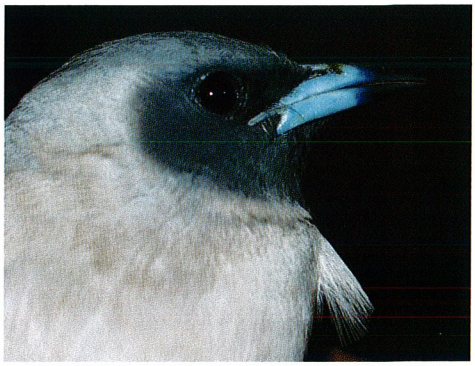
And what of the wrens and the robins? The dams came too late for the wrens, they are gone from the lower Ord but with the extensive development of riverine woodlands, the enchanting calls of the white-browed robins once more ring out from thickets and forest patches all over the place! They have even moved into riverside gardens and mango plantations.

Tony Start is a retired Senior Principlal Research Scientist from DEC, with a particular interest in the Kimberley. He can be contacted by email on: tonys@wn.com.au

MASKED WOODSWALLOW MIGRATION

On 16 October 2011, Lawry Pitman from Corrigin noted thousands of Masked Woodswallows fly over his house for three hours; many camped on trees around the sheds at dusk and were gone by morning. Lawry had never seen such a mass migration before. We asked Ron Johnstone from the WA Museum if this was an unusual phenomena. He replied:

"These birds are certainly Masked Woodswallows (*Artamus personatus*). This species occurs throughout the greater part of the state mainly in the arid and semi-arid zones and also arid parts of eastern Australia. It is highly nomadic and its abundance varies locally and seasonally from very common to scarce or absent. In the south-west of WA it is mainly a visitor



Masked Woodswallow
Photo: Lawry Pitman

in late October to mid-January and is most numerous during spells of hot north – easterly winds and in certain years, for example in 1912, 1916, 1972 and 1982. Usually in flocks of about 20 to a few hundred but occasionally in large flocks of many thousands. In this part of the state breeding is recorded south to Ongerup and west to East Yuna, Moora, York, Broomehill and Mt Heywood. When on migration flocks often fly very high and make loud 'chapp-chapp' and 'chrrup' sounds. Their food is mostly insects, especially swarming grasshoppers, but also nectar. While large migratory flocks are a fairly common sight after good rains in the Pilbara and Gascoyne regions they are far more unusual in much of the wheatbelt."

Lawry's observations fit this pattern as the migration happened on the hottest day of the month and into northerly winds.

Did other *Land for Wildlife* members observe large flocks around this time?

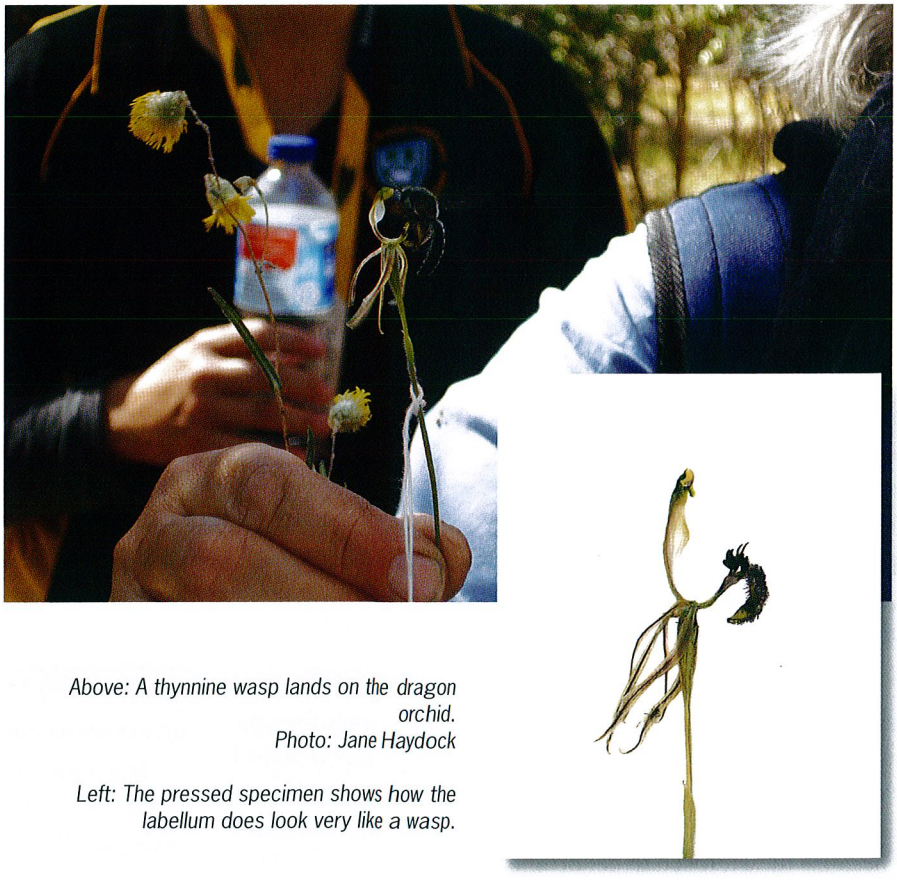
The Museum keeps a database of bird sightings so if you see mass migrations or interesting bird sightings please contact Ron Johnstone 9212 3739 or email Ron.Johnstone@museum.wa.gov.au

THE PROOF IS IN THE WITNESSING!

Readers will remember a *Western Wildlife* article last year about orchids which use sexual deception to lure male thynnine wasps as their pollinators.

On a recent field trip, Avril Baxter was holding a dragon orchid when a thynnine wasp flew over her hand and proceeded to mate with the orchid. Luckily another member of the party had a camera on hand and captured this photograph.

Noel Hoffman and Andrew Brown in their book *Orchids of South-West Australia* (1998) note a similar experience. "This irresistible attraction was highlighted during a warm October morning in 1985 when wasps were seen to beat themselves repeatedly on one of the authors' cars in their frenzy to get to the flowers inside".



Above: A thynnine wasp lands on the dragon orchid.
Photo: Jane Haydock

Left: The pressed specimen shows how the labellum does look very like a wasp.

SHORT CIRCUIT

One August morning, my wife Ginny and I were walking along Stirling Terrace in Toodyay. As we passed under the verandah of the Victoria Hotel, a Welcome Swallow flashed out from under the bull-nose iron verandah of the hotel and was lost to our eyes. On inspection we discovered a good-looking mud nest, made no doubt by the swallow that we had just seen. The sturdy-looking nest was made considerably sturdier by view of the fact that the mud building material had been interwoven around several electrical cables – a definite hot spot! Two minutes later the swallow arrived back to the nest; no building material was noted. In fact the nest appeared in readiness for a brood, furnishings and electrical all complete! Both of us continued along the terrace for our mugs of coffee. We were absent from Toodyay for a couple of weeks. On returning to the Victoria Hotel and peering up towards the nest, we were pleased to find a couple of little heads peaking out over the rim; a few seconds later, one of the parent swallows arrived back home, presumably with some tasty insects – fresh or fried!

John Barnett, Toodyay

DAFT - OR NOT?

I once watched a television program titled "The Daft Dotterel", it was many years ago but I still remember the presenter holding a dotterel's nest in his cupped hands while the dotterel sat on its nest. The program was filmed in Scotland and reported that dotterels were killed each year because they refused to get off their nests and were trodden on by grazing cows.

We have many species of dotterels in Western Australia and most rely on camouflage to provide protection from predators. Their nests are just a scraping in the soil and their eggs are a similar colour to the soil, making nests almost impossible to find.

We have had a pair of Black-fronted Dotterels living on our main dam for some years now. Our driveway crosses the small creek on top of the dam wall and we often see our pair of dotterels as we are coming and going. Last year I was fixing the foot value and noticed a single egg on the bank where I was working. I searched the immediate area for the nest but as the egg had rolled out of the nest I could not find it.

This year a Black-fronted Dotterel kept leaving from about the same spot as I was working grading gravel to fill potholes on the driveway, so I sat still for a while at a reasonable distance and watched until the bird returned to the nest. The nest turned out to be perilously close to the gravel that I had been grading. The nest would have been almost impossible to spot if the bird had not given away its position by returning to it.

It would seem to be a very daft place to nest, exposed on top of a dam wall right alongside a driveway, but not so if you think about it. The bird has a commanding view to observe anything coming its way from all directions, so the bird can spot predators before they see it and slink quietly away if need be and re-emerge further down the driveway to lure the predator further away from the nest.

Her eggs are very well camouflaged and therefore would be difficult for predators to notice. Foxes must walk past her nest almost every night, but so far her three eggs have survived.

Steve Newbey, Collie

AN INTRIGUING PLANT AT NORTHAMPTON

Since European settlement in Western Australia, a number of plants have been introduced. Most introductions occurred during the 19th Century before quarantine restrictions were established. Some plants snuck in, whether on the sheep's back, in fodder, bedding, in soil and so on. Others were deliberately introduced for use as pasture, crops, ornamentals and for medicinal and culinary use.

There are now about 1,400 introduced species that have become naturalised in WA. These plants have succeeded in adapting to our conditions and grow and reproduce without human intervention.

Recently, a sharp-eyed *Land For Wildlifer*, Marlo Elsum-Beaumont, spotted a stunning, unfamiliar pea plant growing on the site of an old house on her property at Northampton (the house had been built 80 or 90 years ago). The mystery plant with its butterfly-like red flowers, pinnate leaves and large and inflated pods has been identified as *Sutherlandia frutescens* (sometimes known as *Lessertia frutescens*). It is one of the introduced species that have become naturalised in WA.

Photo: Marlo Elsum-Beaumont

A native of southern and eastern Africa, the flowers are pollinated there by sunbirds. The large, lightweight, inflated pods enable seed to be dispersed easily by wind. In its native Africa, it has long been used as a medicinal plant as well as an attractive ornamental in gardens. There are many common names for *Sutherlandia frutescens* that create fascinating word pictures of the plant and its uses including;

- o kankerbos – cancer plant, reflecting its reputation as a cure for cancer
- o blaasbossie – balloon pea
- o blass-ertjie – bladder bush
- o klapper (meaning rattle) – referring to the way seeds rattle in the dry, mature pods
- o hoenderbelletjie – refers to bright red flowers suggestive of the wattles (belletjies) of a fowl (hoender)
- o umnwele – a Zulu word meaning 'hair', referring to the fact that the plant stops people 'pulling out their hair' in distress.

Marlo has prepared a pressed specimen of the plant that will be forwarded to the WA Herbarium. While *Sutherlandia frutescens* has been recorded as a weed in WA (as a garden escape that has become naturalised on near-coastal limestone road verges and wasteland from Perth to Busselton), there are no records for areas to the north of Perth, so the specimen will be a useful addition to the herbarium's collection.

Fiona Falconer

MEET A BEE-FLY!

The bee article in the last issue sparked a flurry of interest, and Nigel Smith sent in this photo taken on his property at Redgate, showing a distinctive insect visiting a *Pimelea ferruginea* bush, asking if we knew what the beastie could be. He took it in October and noted that the insects are always present around that time, year after year. However, their presence seems to be short-lived; just a few weeks.

Photo: Nigel Smith

It is rather bee-like in size and general appearance but it has a distinctive long proboscis, and, when stationary, it can be seen that there is only one pair of wings – that makes it a fly (Diptera). It is a bee-fly (family Bombyliidae, sub-family Bombyliinae), possibly of the genus *Meomyia*.

Bee-flies are a cosmopolitan family and there are some 80 species of this sub-family in Australia. They favour warm, sunny localities, particularly more arid climates. They have a strong, hovering flight and are most often seen hovering above, or resting on, blossom. Despite that long, needle-like proboscis, which is used for taking nectar from flowers, they don't bite or sting humans. Little is known about their natural history, but their larvae are believed to be parasites in eggs or larvae of other insects including bees, butterflies, other flies and even, possibly, the egg-masses of grasshoppers and locusts.

Thank you to Terry Houston (WA Museum) for the ID.

SOME INVERTEBRATES CAN SURVIVE EATING CANE TOAD EGGS

Cane toads, in all stages of their life cycle, are very poisonous and, in Australia, mostly kill the vertebrate animals (such as northern quolls) that predate them. But many invertebrates eat eggs and tadpoles, and not much was known about what effect the cane toads might be having on this portion of the food web. A recent study* has shown that at least some invertebrates can consume quantities of cane toad eggs and tadpoles without succumbing to the poison. Perhaps these water beetles and water bugs are acting as a control on toad numbers?

[For ref, contact Ed.]*

FAUNA IN THE FITZGERALD BIOSPHERE RESERVE

The Fitzgerald Biosphere Reserve covers around 1,354,000 ha on the south coast of WA. Its core is the Fitzgerald River National Park, surrounded by a buffer from the Pallinup River on the west to the Rabbit Proof Fence on the east, and inland to the Lake Magenta Nature Reserve. Over the years, many fauna surveys have been carried out within this region, and a recent paper provides a synthesis of the distribution and relative abundance of the vertebrate fauna recorded during these surveys and in the state database – five species of inland fish, 15 frogs, 56 reptiles, 206 birds, 28 extant native and seven introduced mammals, as well as seven extinct mammal species.

If you live within this region, you may find the article interesting reading, and will be able to use it to determine what vertebrate fauna still occurs close to you. Perhaps you can expand the data with your own records?

Ref: Sanders A., Chapman A., Teale RJ., and Harold G. 2012 Vertebrate Fauna of the Fitzgerald Biosphere Reserve, Western Australia. *The Western Australian Naturalist* **28**: 141-253. Email: info@naturalists.org.au to find out how to obtain a copy.

NEW CLIMATE CHANGE REPORT

The World Bank's Global Expert Team for Climate Change Adaptation has released a report *Turn Down the Heat: Why a 4°C Warmer World Must be Avoided.* The report spells out what the world would be like if it warmed by four degrees Celsius – the figure scientists believe will be the case unless governments implement new policies.

The projected risks are grim:

- coastal cities will be inundated
- there will be increasing risks for food production potentially leading to higher malnutrition rates
- many dry regions will become dryer, wet regions wetter
- there will be unprecedented heat waves in many regions, especially in the tropics
- there will be substantially exacerbated water scarcity in many regions
- there will be increased frequency of high-intensity tropical cyclones;
- there will be irreversible loss of biodiversity, including coral reef systems.

A copy of the report is available at: http://climatechange.worldbank.org/sites/default/files/Turn_Down_the_heat_Why_a_4_degree_centrigrade_warmer_world_must_be_avoided.pdf

INFORMATION FOR CAMERA TRAPPING

Internationally, camera trapping is rapidly being adopted for diverse monitoring purposes, from wildlife research and management to asset protection. There is a wide variation of cameras and technology that can be used for this purpose. It is important to use the best camera trap for each situation so the best data can be collected.

The Invasive Animals CRC, The Churchill Trust, NSW Department of Primary Industries and the Australian Government have released a manual detailing the best way to use camera trap technologies.

The manual is available by free download from the Feral.org.au website.

FAIRY-WREN NESTLINGS NEED A PASSWORD BEFORE THEIR MOTHER WILL FEED THEM

Research on the breeding behaviour of Superb Fairy-wrens (*Malurus cyaneus*) in South Australia has shown that the mother calls to her unhatched eggs, and that later the nestlings use the same one-note call to beg for food.* The call differs from one nest to another, and a mother will not feed nestlings that use the wrong call, in other words, they are taught a password. This is evidence that the call is learned, not inherited. It may allow fairy-wren parents to discriminate between their own young and those of cuckoos that may have been laid in their nest.

[For ref. contact Ed.]*

OUTSIDE OF A DOG, A BOOK IS A MAN'S BEST FRIEND. INSIDE OF A DOG, IT'S TOO DARK TO READ.
GROUCHO MARX

LATHAM PRIMARY SCHOOL NATIVE SEED COLLECTION AND IDENTIFICATION EXCURSION

Adam Benton, year 4, age 9

Chloe Campbell, pre-primary, age 6

Nicole Bryant, year 3, age 8

On Thursday the 25th of October, excitement filled the air. The Latham Primary students were all worked up knowing a change to the normal routine was nigh. Lizzie King from NACC (Northern Agricultural Catchments Council) and Fiona Falconer from *Land for Wildlife* arrived at the start of the day, laden with a variety of teaching tools, and well prepared to deliver their lessons. Fiona opened the interactive lesson with some background knowledge on native flora found in this area and origins of introduced species. Students were given samples to examine and discussed different plants' means of seed dispersal. Following the opening session, Lizzie and Fiona guided the students through the bush area surrounding the school to identify local native plants and wildlife. The students were armed with magnifying glasses, note pads and pencils and were lucky enough to share Fiona's binoculars. It was an absolute pleasure to join the children and the NACC and *Land for Wildlife* 'experts' on this bush walk. The students were thoroughly engaged and were thrilled at their uptake on the knowledge and their ability to identify the plants and wildlife. They were even lucky enough to spot a dragon lizard which is well known to frequent a particular spot on the track! After a long, hot and fly ridden, fun-filled walk, we all returned to the classroom. The students were then asked to draw a particular plant that they liked or something that caught their attention on the walk. Drawing is always a winner with the children. So they tucked into their task nicely and produced some outstanding drawings. With the help of our guests from NACC and *Land for Wildlife* the students were given the correct botanical names to write on their drawings. It was a fabulous and most informative day. On behalf of the staff and students at Latham Primary School, our sincere thanks go to Lizzie and Fiona for taking time out to involve us in this very important aspect of education.

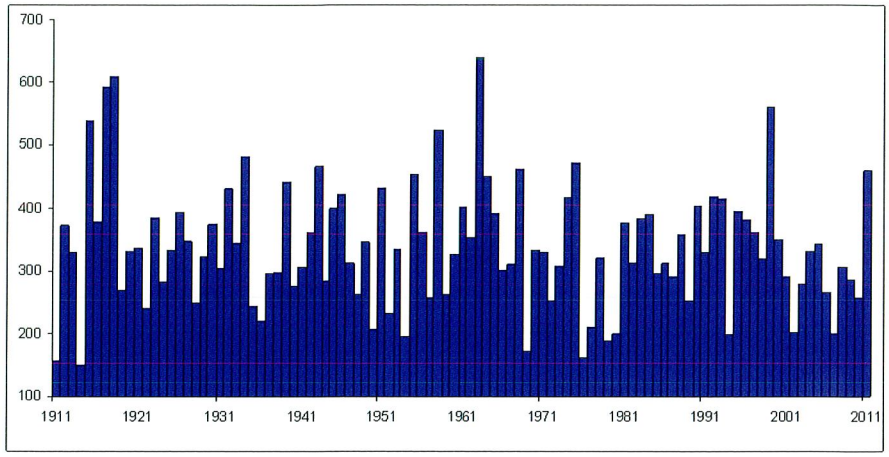
Kurt Johnson, year 6, age 12

Peta Head
Principal
Latham Primary School

THE IMPORTANCE OF LONG-TERM WEATHER OBSERVATIONS

Glenn Cook

It seems like a fairly easy task to read a rain gauge. It might take a couple of minutes out of your day, at the most. But what if you were asked to read a rain gauge every day for the next 100 years? Now apart from being very difficult to achieve on your own (not too many of us live for 100 years!), it would take an extraordinary commitment. However this is what Alison Doley and her family have achieved in recording daily rainfall readings at Koobabbie, near Coorow, since 1911.



Annual rainfall at Koobabbie since 1911 (in mm). Source: Bureau of Meteorology

The value of the daily rainfall observations to Alison's local community can not be underestimated. From a short-term weather monitoring perspective, rainfall observations are very important in describing what has actually occurred. Rainfall can be particularly variable over relatively small distances, so local readings can highlight local rainfall patterns that may differ considerably to that recorded by the neighbours, or the nearest Bureau of Meteorology weather station. When looking back beyond yesterday, complete long-term records are extremely useful for describing the local climate variability, between months, years, and decades, and of course very long rainfall records have been shown to be crucial in highlighting significant climate change.

Despite modern technology and electronic rain gauges (Alison has one sitting alongside her manual gauge), manual observations still are held in very high regard and continue to have their place. Although they can't necessarily compete with an electronic gauge sending in a rainfall reading every minute, manual rainfall readings are crucial for checking that the electronic gauges are working correctly since power and communication failure is all too common. More importantly though, complete records are the key for climatologists when studying climate variability and climate change, and manually read rain gauges are certainly preferred because they are generally more reliable when it comes to reporting every day. If the power is off and it is raining, the poor old electronic rain gauge has no chance of providing a useful reading!

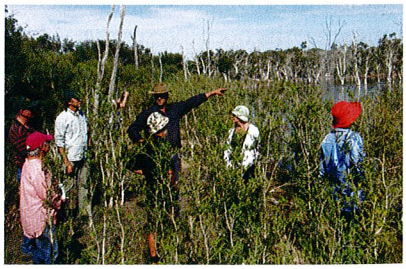
So is it too late to start recording your own rainfall, weather, or other environmental observations? The answer of course is no. It is never too late because you cannot possibly foresee what might occur in the future, and how the information you collect may be used. Imagine Alison Doley's grandfather in 1911 when he made his first rainfall reading, and his motivation for committing his time to this seemingly inconsequential task.

Every one of Alison's family's rainfall readings can be viewed on the Bureau of Meteorology website at: http://www.bom.gov.au/climate/data/ (search for Coorow and look for Koobabbie in the nearest sites, or find Koobabbie on the map).

Glenn Cook is Regional Climate Services Manager, Bureau of Meteorology, Perth.

WETLANDS AND FENCING FIELD DAY

A joint Green Skills and *Land for Wildlife* field day on restoring flora and habitat for wildlife near Lake Nunijup, Tenterden, focused on how landholders can restore wildlife habitat. The field day also visited the outstanding landcare work on the Slade family's Upper Kent farm where participants were treated to a fencing demo by David Slade. His incredibly efficient system uses extra long wooden posts and 5 line ringlock unrolled and tensioned by a tractor to provide fast, safe and economical fencing. More trips to see this in action may be planned if enough interest is shown. Contact Basil Schur at the Green Skills Denmark office: bschur@greenskills.org.au



A WEALTH OF EXPERIENCE AND KNOWLEDGE

Land for Wildlife teamed up with the South West Catchments Council (SWCC) to host a bushland regeneration day at Knotwood, the home of myself and Ned Crossley in west Williams.

The aim of the day was to increase peoples' awareness of bushland condition and examine some management options.

Thirty-two people including SWCC staff, Natural Resource Management officers, Department of Environment and Conservation (DEC) officers, *LFW* Officers and members and a staff member from Alcoa attended the day.

The walk begins. Photo: Julie Palmer

The bushland served as the classroom and gave us the opportunity to hear from the experts and discuss vegetation associations and condition, the importance of the woodland ground layer, animal habitat requirements, feral animal control, the use of fire in regeneration and weed control.

As the *LFW* officer for the area, I have the privilege of knowing the participants either as work colleagues or as *LFW* members whose properties I have visited. And what a fabulous group of people they are! These dedicated people have a wealth of knowledge and experience which they willingly shared. Like the valuable pieces in a jigsaw puzzle, the bigger picture was viewed by all.

Thank you to everyone for your valuable contribution

Avril Baxter.

FLINDERS PARK STUDENTS VISIT BALIJUP FARM

In September, the Year 7 students of Flinders Park Primary School visited Balijup Farm in Tenterden. The students have been involved in a year's enquiry into soil and investigating the wide variety of farming styles undertaken within a 100-kilometre radius of Albany. On this day they looked at an integrated farming system where commercial agricultural cropping is carried out alongside bushland conservation.

During the day, Thomas Dimer, the Aboriginal Liaison Officer from DEC, gave a talk on Noongar culture. The students experienced wearing kangaroo skin capes, throwing boomerangs and trying out their rhythm skills on wooden tapping sticks. *Land For Wildlife* Officer Sylvia Leighton provided a guided bushwalk to look at the special ecology associated with the Wandoo woodlands and the wetland areas on the property. Sylvia also talked about all the different kinds of wildlife that are being especially protected by the owners of Balijup Farm. The students enjoyed the bright colours of the spring wildflowers including at least six different orchids.

Trying on a kangaroo skin cape. Photo: Sylvia Leighton

A lovely day was had by all, enjoying an open air classroom in the beautiful spring sunshine.

Sylvia Leighton

A DUGITE IN THE GARDEN

We have a *LFW* property in Walpole and like to promote as much wildlife as possible around and near our house with plantings of natives to attract them. As a result, we also have to expect the odd not-quite-so-welcome visitor that becomes attracted to what we plant. This dugite was spotted in our garden having caught a lizard that had been basking on a rock. He finished his meal and calmly disappeared into my compost heap where, we suspect, he has been living for a while now. We will relocate it to a more mutually acceptable location away from the house, children, dogs, etc!

John and Hilary Mayger, Walpole

COMING EVENTS

Canaby's Black-cockatoo Symposium

17 Feb 2013, DEC Conservation Science Centre, Kensington. For further information, email: symposium@birdlife.org.au

Talkin' Soil Health Conference

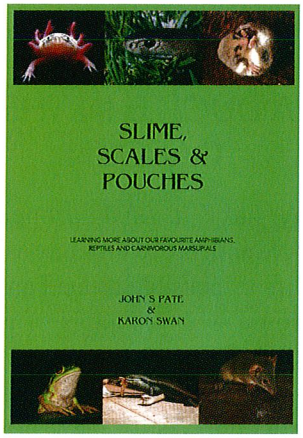
March 2013, York. For further information: www.talkinsoilhealth.com.au

Slime, Scales and Pouches: *learning more about our favourite amphibians, reptiles and carnivorous marsupials*

John S. Pate and Karon Swan

Cost: $29.95 (Special deal for LFWers *- $15.00 + $10.00 p&h)*

Available from good booksellers or contact: karonswan@btinternet.com



Anyone who has visited "Pate's Patch", or who has read any of the author's previous natural history books, will know what to expect; lots of fascinating detail, amusing anecdotes and impeccable scholarship.

This book looks not only at local South Coast fauna, but ranges wider, to compare life histories and evolutionary trends among fauna in a world-wide context – for example there is an interesting chapter comparing the Australian Marsupial Mole, the African Naked Mole Rat and the European Mole.

The book is easy to read and well illustrated. If you love nature, and are keen to learn more fascinating facts, then this book will keep you saying "Wow! I didn't know that!" on almost every page.

Penny Hussey

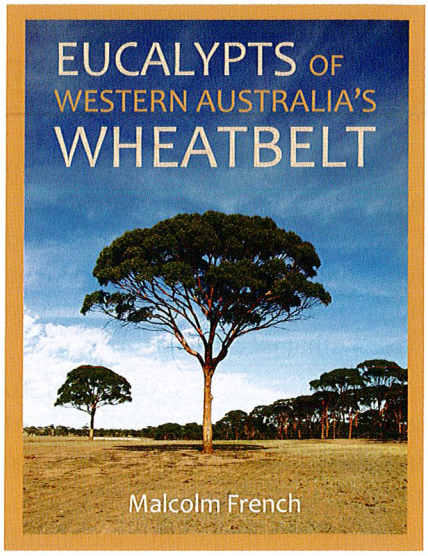
Eucalypts of Western Australia's Wheatbelt

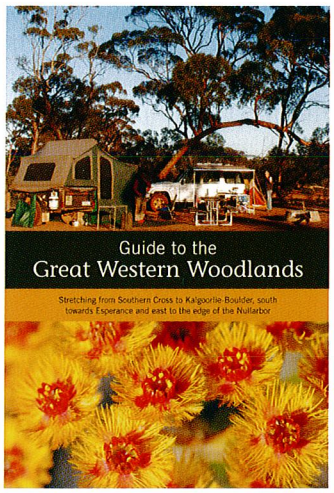
Malcolm French

Cost: $49.00 Available from: good bookstores or contact MEF@EucalyptsofWA.com.au

By the time you read this, a new guide to the eucalypts of the Wheatbelt should be available. It describes all the species occurring naturally in the Wheatbelt of WA (159) with a two-page spread including clear pictures for identification, distribution maps and lots of information about each species. There are also general chapters including the art of identifying a eucalypt – become an expert, easily!

This is a superb book, and will become an essential reference for everyone interested in Wheatbelt eucalypts. *Penny Hussey*





Guide to the Great Western Woodlands

DEC staff

Cost: $29.95

The Great Western Woodlands is a delightful area to visit, with numerous granite outcrops, secluded bush camping areas and historic attractions scattered across this large chunk of Western Australia's heartland. It is also a culturally significant place for Aboriginal people who continue to have a strong connection to their country.

Covering almost 16 million hectares, the Great Western Woodlands is the largest remaining intact Mediterranean climate woodland on Earth. More than a fifth of WA's native plant species (more than 3,000 species) are found here, including 20 per cent of Australia's eucalypt species (more than 160 species).

Cathy Birch

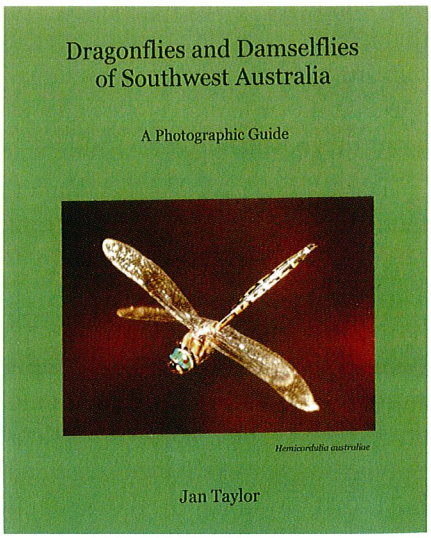
Dragonflies and Damselflies of Southwest Australia

Jan Taylor

This 20-page booklet is designed as a field aid to the identification of SW species. The first two pages are made up of tables presenting the key identifying features of 36 species. This is followed by a photographic guide together with text giving details of behaviour, distribution, habitats and flying seasons.

I can currently provide copies @$10 each to cover my costs. Anyone interested can contact me by email: jmtay5@bigpond.net.au

Jan Taylor



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 Environment and Conservation.

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All correspondence should be addressed to: The Editor 'Western Wildlife', Department of Environment and Conservation, Species and Communities Branch, Locked Bag 104, Bentley Delivery Centre, WA 6983.