



AUSTRALIAN *Wildlife*

WINTER 3/2006

Journal of the Wildlife Preservation Society

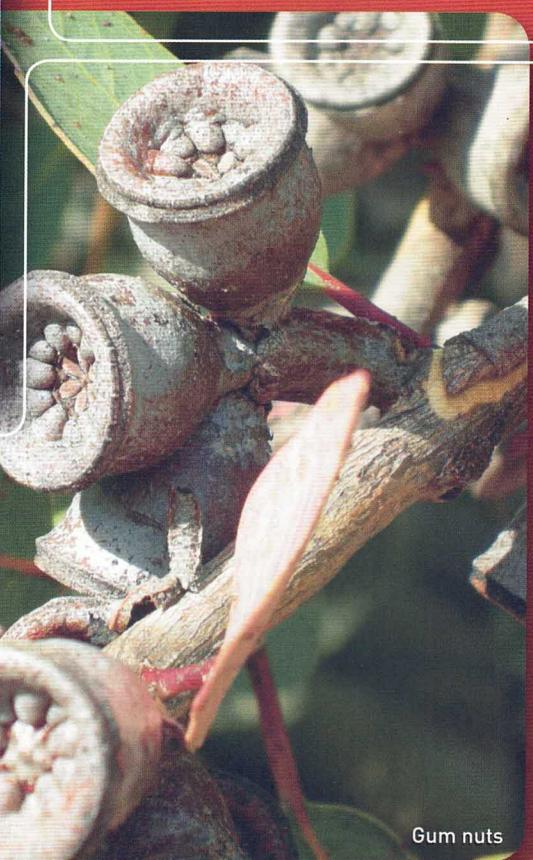
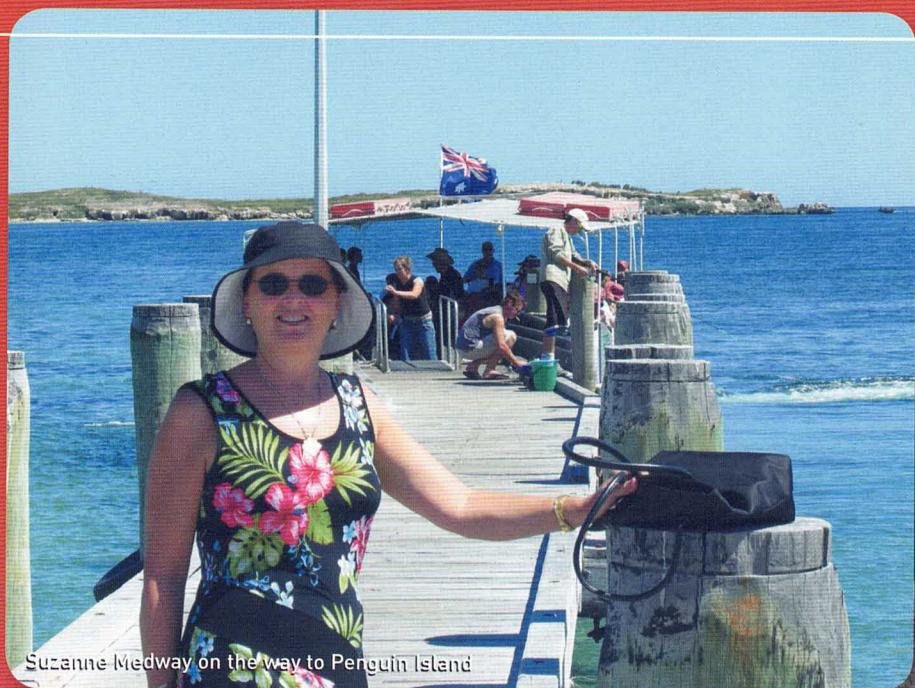
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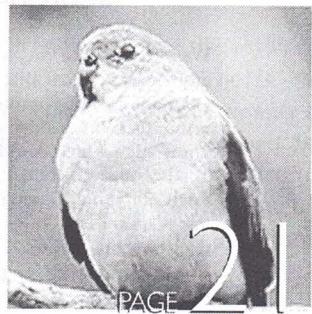
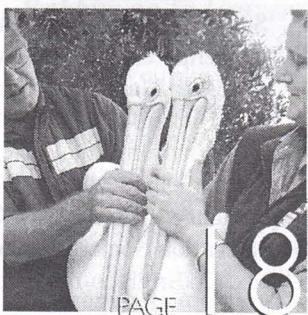
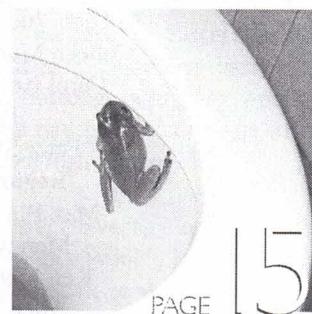
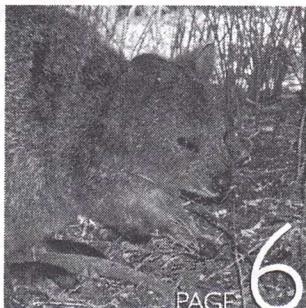
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Western Australia
Wildlife in the city
World Environment Day
University Student Research Grants

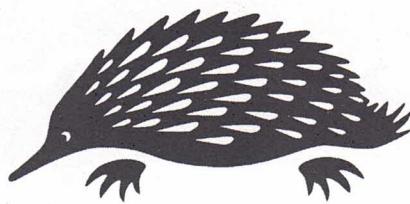
Western Australia scenes



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AUSTRALIAN WILDLIFE

*is the official journal of the
Wildlife Preservation Society of Australia Inc.*

*Founded in 1909, the Society is dedicated
to the conservation of our unique
Australian Wildlife in all its forms.*

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REGIONAL COUNCILLORS

We would like to hear from our country members,
anywhere in Australia, who would like to become Regional
Councillors. The value to us is we would have a more
intimate relationship with women and men who have a
knowledge which could be valuable for conservation.

Such Regional Councillors would be sent the minutes of
our Council meetings so they would know more about
what we are doing. They could also submit motions for
consideration and so play a part in Society decisions. By
being listed in our newsletter state members could contact
them in emergencies.

*All articles are written by
Suzanne Medway unless stated otherwise.*

From the President's Desk...

Visit to Mt Rothwell, Victoria

During a recent trip to Victoria Suzanne and I visited the Mt Rothwell property at Little River near Werribee to see the breeding program for some of Australia's rare and endangered small mammals. I was very impressed with the dedication of both staff and volunteers working on the program. On the 1,100 acres property is an historic homestead constructed of blue granite with 32 rooms. The homestead is now used as the headquarters for the Mt Rothwell wildlife projects to save endangered species.

On the sanctuary at the moment there are Eastern grey kangaroos, Eastern quolls, Eastern barred bandicoots, Southern barred bandicoots, pademelons, bettongs and long nosed potoroos living in a safe natural environment surrounded by predator proof high fencing.

The Melbourne University uses the Mt Rothwell Centre for various wildlife research programs and some students work as volunteers on this wildlife research work.

Rabbits go to University

During a quick visit to the Deakin University in Geelong, I was taken aback by the number of wild rabbits running around the grounds of the University. The extensive and well groomed grounds were a horticultural delight with a wide range of native shrubs and trees planted throughout the grounds and around the natural waterways. The recent rain ensured that the main lawn areas were green and fresh looking despite the winter cold.

Feeding and breeding among this idyllic setting was some of Australia's most feral pests – the rabbit. We have since contacted the University authorities and asked how they might remove these pests from the campus to prevent them from spreading and becoming over-educated and launching off into a new feral plague across our countryside.

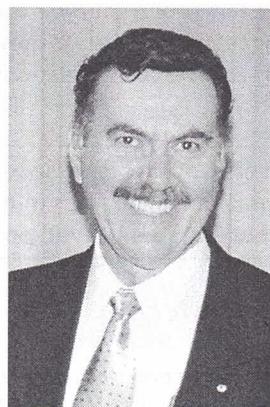
Geelong Botanic Gardens

It was a real pleasure to walk through the historic Geelong Botanic Gardens during my visit south. With a wide range of native and exotic plants and many historic trees now added to the National Register, the Gardens new centrepiece was the Plants for the 21st Century. The emphasis was on dry and low water usage plants that can exist in a low rainfall area. Many native plants and succulents

are displayed and several boab or bottle trees are featured in the new garden for the 21st Century. Well worth a visit at any time of the year.

Premier of NSW Launches \$80M package

The Premier of New South Wales, the Hon Morris Iemma MP, officially launched his second major environment and conservation package at a special ceremony at the Australia Museum recently. A number of prominent conservation groups received special grants, ie the Nature Conservation Council, NSW National Parks Association and the Wilderness Society to carry out specific conservation projects.



Patrick W Medway AM
NATIONAL PRESIDENT

Western Australia

by Suzanne Medway

Patrick and I recently visited Western Australia to learn more about the state's wildlife and to find out what is happening with wildlife conservation. Western Australia is a very beautiful and exciting part of Australia and is an ideal destination to see some of Australia's rarer species of wildlife.

ARAZPA Conference – Integration; the challenge for conservation

During our visit, we had the pleasure of attending the 2006 ARAZPA Conference, hosted by Perth Zoo. The Conference explored the theme of "Integration" which is a feature of the recently released World Zoo and Conservation Strategy. The challenge of this theme is the examination of the operation of zoos and the understanding of how they operate as organisations in relation to conservation – in their business areas; species management; general husbandry; education programs; media relations; and veterinary programs.

Conservation is the securing of long-term populations of species in natural ecosystems and habitats wherever possible.

The Western Shield

The destruction of native habitats and the introduction of feral predators have had a catastrophic effect on Australia's native wildlife. Of all the states, Western Australia has had a bad record for the conservation of mammals - 10 of the 18 that have become extinct since European settlement have been from Western Australia. But, in Western Australia, they're having remarkable success in turning the tide. With a combination of fox-baiting and captive breeding and release programs, the Department of Conservation and Land Management (CALM) has now taken three mammals off the endangered list.

The Western Shield was launched in 1996, and is now the biggest wildlife conservation program ever undertaken in Australia, working to bring at least 13 native fauna species back from the brink of extinction by controlling introduced predators - the fox and feral cat.

The main weapon in this fight is use of the naturally occurring poison 1080, found in native plants called *gastrolobiums* or 'poison peas'. While our native animals have evolved with these plants and have a high tolerance to the poison, introduced animals do not. In the southwest forests, scientific

research and monitoring has shown that where baiting has reduced fox numbers, there has been a dramatic increase in native animal numbers. Western Shield makes use of this natural advantage and involves aerial and hand baiting on almost 3.5 million hectares of Department-managed land. Baiting operations take place four times a year throughout the State from as far north as Karratha to Esperance in the south. Smaller nature reserves are baited more frequently.

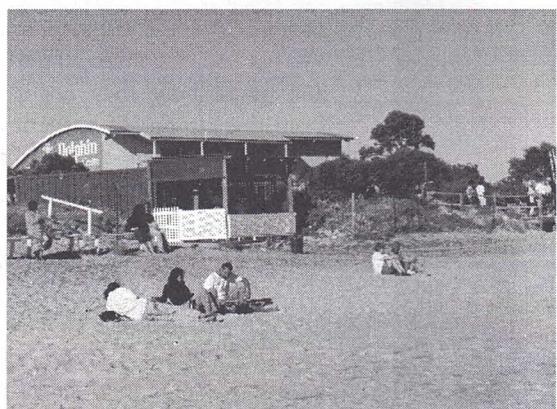
Dolphins

With its thriving dolphin tourism trade, Western Australia is the ideal place for studying the impact of tourism on local populations of dolphins.

Dolphins have fascinated humans with their social behaviour for decades. Experts believe there is a direct link between short-term changes in dolphin behaviour and long-term, biologically significant impacts of nature-based tourism. Tourism, even at a low level, can have profound impacts on dolphin populations and, if it is to continue, the tourism industry and other industries that draw tourists to the area must ensure it is sustainable. Dolphins live for 40 to 50 years and one of the problems that has been identified in dolphins frequenting tourist areas is that the females reproduce less successfully. Bottlenose dolphins live in complex societies where adult males form long-term alliances to compete for access to females. The social bonds can last decades and the loss of a member of an alliance can impact upon the whole group.

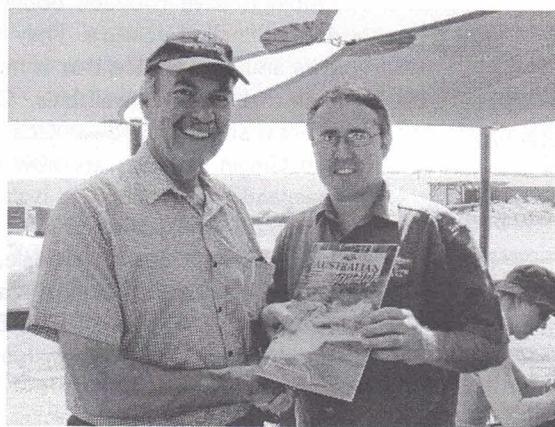
Bunbury

The Dolphin Discovery Centre in Bunbury, operated by the Bunbury Dolphin Trust, is a unique place. Opportunities are provided for people to learn about dolphins by interacting with these animals in their natural environment.



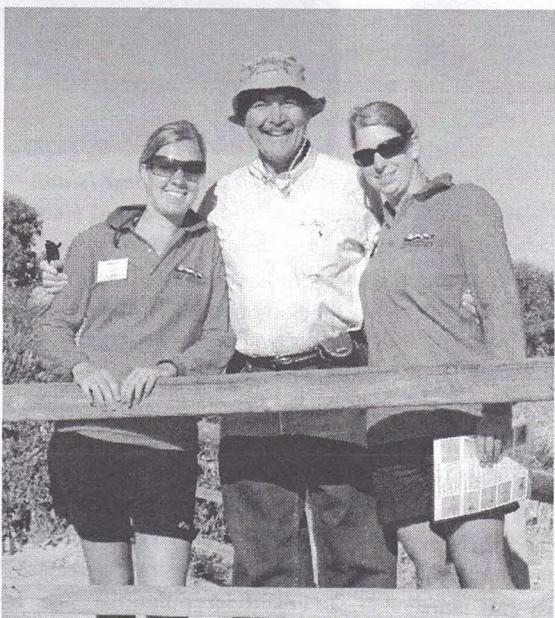
The Dolphin Discovery Centre

The impact of human activities on dolphins will be the focus of a world-class scientific research program being conducted by Murdoch University and Bunbury's Dolphin Discovery Centre. Renowned international dolphin expert Dr Lars Bejder will lead the program through a research fellowship at Murdoch University using new research facilities to be built at the Dolphin Discovery Centre. When complete, the research will provide insights into human-dolphin interactions that will help ensure the ongoing viability of dolphin populations in heavily populated areas worldwide.



Patrick Medway and Andrew Horan

During our visit to the Bunbury Dolphin Centre general manager Andrew Horan explained that the centre had been seeking support for a major dolphin research program for two years and that the involvement of Murdoch University had been the catalyst that had pulled it all together.



Patrick Medway with two volunteers at the Bunbury Dolphin Centre

Penguin Island

Penguin Island is a truly unique place to visit. Only 42 kilometres from the centre of Perth, it is home to a diverse array of wildlife and boasts breathtaking marine and coastal scenery. It is home to the largest colony of little penguins on the west coast of Western Australia. The small, 12.5-hectare island is less than 700 metres off shore from the growing regional centre of Rockingham. The waters surrounding the Island form the Shoalwater Islands Marine Park that encompasses an incredibly rich and diverse marine environment, but also surrounds a chain of unique limestone islands. These island nature reserves are significant in the ecology of a number of bird species. The Park covers an area of approximately 6,545 hectares and contains the waters of Shoalwater Bay, part of Cockburn Sound off Cape Peron.

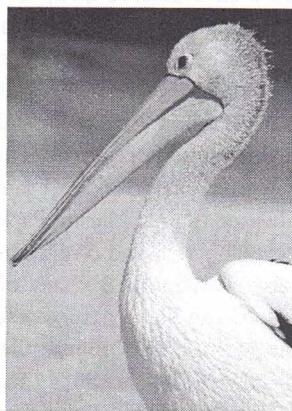


Penguin Island is home to one of the few breeding colonies of Australian pelican (*Pelicanus conspicillatus*)

The Penguin Experience - Island Discovery Centre allows visitors to see little penguins up close in an environment similar to their natural habitat, and learn about them through feedings, commentaries and displays. The birds that live in this facility have either been rejected by their mothers as chicks, and raised by wildlife carers, or nursed back to health after injury. They would otherwise have died. They have now become so used to people that they would probably be unable to survive in the wild. A research and management centre has been built on Penguin Island to manage the Island and undertake important research. It will become a regional base for important marine, island and coastal research.

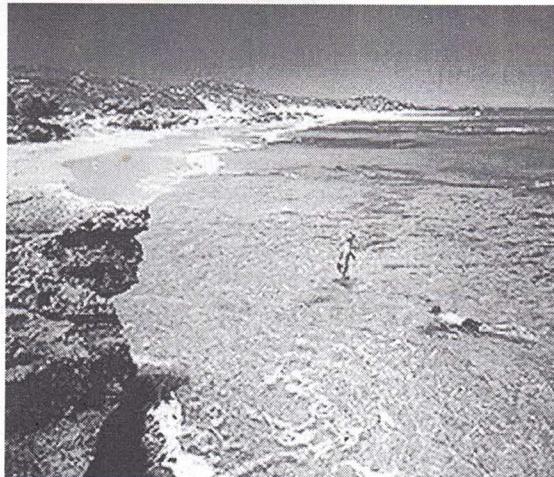
Penguin Island abounds with seabirds, many of which are seldom seen on the mainland. They are important seabird breeding sites. Sixteen species use the Shoalwater Islands for courtship, nesting, feeding and roosting. Little penguins breed in hollows under the dense vegetation and in the limestone caves on Penguin Island. There are also

breeding colonies of silver gulls and rare bridled terns. Other species commonly seen, but not usually breeding on the islands, include crested, fairy and Caspian terns.



Australian pelican (Pelecanus conspicillatus)

Penguin Island is home to one of the few breeding colonies of Australian pelican (*Pelecanus conspicillatus*) known along the Western Australian coastline and offshore islands. They arrived during 1998; previously there have been no sightings on Penguin Island. In the breeding colonies both birds build the nests after sufficient rain usually during Spring using sticks, grass, leaves, feathers and pebbles to form loose platforms on the ground or occasionally in the bushes.



The tranquil waters of Penguin Island

Rottnest Island

Approximately 7,000 years ago it is believed Rottnest Island was separated from the Western Australian mainland, isolating the flora and fauna and creating unique environmental conditions. Rottnest boasts a rich variety of flora and fauna. The Island is home to many species of marine and land dwelling animals.

There are 140 indigenous flora species on Rottnest Island. The plants that exist on the Island are hardy and able to withstand the exposure of the Island and adapt to high salinity levels.

Quokkas

Quokkas were one of the first Australian mammals seen by Europeans. In 1658 Dutch mariner Samuel Volckertzoon wrote of sighting "a wild cat" on Rottnest Island. De Vlamingh thought they were a kind of rat and hence named the island "Rottenest" (Dutch for "rat nest") in 1696.

Quokkas have rounded bodies with a short tail and a hunched posture. They have small rounded ears and a wide face that is much more flattened than that of other wallabies. Once very common in areas such as the Swan Coastal Plain near Perth and Gingin, quokkas are now uncommon on the mainland and confined to isolated pockets within the south-west corner of WA. They are, however, found at Dwellingup, Jarrahdale, Harvey and Collie, in Stirling Range National Park and along the South Coast to Two Peoples Bay. They occur in large numbers on Rottnest Island, and Bald Island, east of Albany.



A quokka on Rottnest Island

Quokkas on Rottnest have a well-developed pecking order. The males defend individual spaces and the older a male is the more authority he has. The males dominate the females and younger quokkas. Defined groups of 25 to 150 adults occupy shared territories, which they rarely leave. They breed once a year, and produce a single joey. Their low numbers on the mainland, compared with relatively large numbers in less than optimum habitat on fox-free Rottnest Island, suggest that mainland populations are heavily predated by foxes.

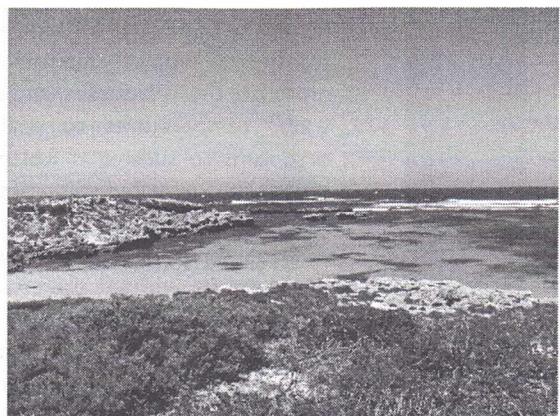
Marine life

Rottnest Island has many marine inhabitants, from exotic tropical fish, sea lions, and sea stars to marine marvels such as the manta ray. The Rottnest Island Marine Reserve has a far greater range of habitats, marine plants and animals than that of the adjacent mainland coastline. Extensive seagrass meadows occur around Rottnest Island, and with nine species, it is second only to Shark Bay in species diversity. Approximately 400 species of fish and twenty species of coral occur within the Marine Reserve. Fish include the Western Australian dhufish, baldchin groper, harlequin fish, cobbler, flathead, leatherjacket, Samson fish, tailor, butterfly fish, moon wrasse, blue devil and migratory fish such as marlin and tuna. The Island is also a popular area for migrating humpback whales, bottle-nose dolphins and Australian sea lions.

Whale watching in winter is a fascinating experience on Rottnest Island. The humpback whale which passes through the Indian Ocean off Rottnest is a baleen whale, which sieves planktonic organisms from the water, as distinct from the toothed whales which feed on squid, fish and marine mammals. The scientific name for the humpback whale is *Megaptera novaeangliae*, which comes from the Greek meaning "great wing" because of its huge, wing-like flippers. Land based whale watching is possible from Cape Vlamingh (The West End) during the migratory season. Mature humpback whales weigh roughly forty tonnes and grow to nineteen metres in length. They have been protected from whaling in the Southern Hemisphere since 1963.

The population of humpback whales in Western Australian waters is believed to be about 2,000 to 3,000 animals and in Eastern Australia about 1,200 animals. They spend summer in the Antarctic and migrate north each winter towards their tropical calving grounds.

Female humpbacks are pregnant for about eleven to twelve months and the calves at birth are more than four metres long, weighing more than one tonne. The mother's milk is the consistency of chewing gum and has a thirty-five percent fat content (as compared with human milk content of about two percent fat). A female humpback can produce up to 600 litres of milk per day and a suckling calf can gain over 45kg a day during the first few weeks of life. Nursing ends at eleven months when the calf is approximately eight metres long.



The beautiful waters surrounding Rottnest Island

The crustaceans around Rottnest Island include several species of crab, such as the blue manna, a favourite summer food for Western Australians. However, the best known crustacean of Rottnest Island is the Western rock lobster which occurs only in continental shelf waters of the Australian west coast between the North West Cape and Cape Leeuwin. It forms the basis of a lucrative export industry particularly to the United States and Japan. A wide variety of shrimps, prawns, barnacles and hermit crabs also inhabit the waters around the Island.

There is an enormous variety of seashells on and around Rottnest Island. They vary from bivalve mussels to the large baler shell. Various species of cowry, cone shells, clams, and abalone and turban shells abound along the seashore.

The Rottnest Island Authority

The Authority was established in 1987 as the statutory body to control and manage the Island under the Rottnest Island Authority Act 1987. Rottnest Island is an A-Class Reserve (no.16713) for the purpose of public recreation and protection of flora, fauna and heritage values under the Land Administration Act 1997. Control and management of the Island and its waters is vested in the Authority for the purpose of provision and operation of recreational and holiday facilities; protection of the flora and fauna of the Island and to maintain and protect the natural environment and man-made structures of the Island and to the extent that the Authority's resources allow, repair its natural environment.

The Leeuwin Current

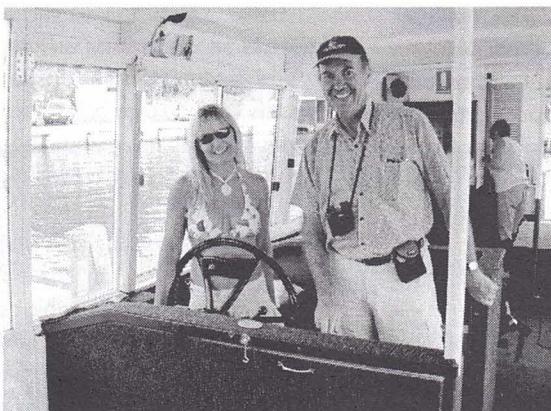
The Leeuwin Current is a warm-water current of tropical origin that flows southwards down the Western Australian coast, most strongly in autumn and winter, which maintains much higher sea temperatures off the coast than occur off the west coasts of Southern Africa and South America.



It has two effects on our coastal waters - it transports tropical marine larvae down from more northern latitudes, and it also raises winter water temperatures to enable many of these organisms to survive at Rottnest Island. Satellite images have revealed some of the complex current patterns associated with the Leeuwin Current. Average temperatures derived from the satellite data have shown that the coastal waters near the eastern end of the Island vary from about 23°C in summer to 19°C in winter. Thanks to the Leeuwin Current, this is a much smaller temperature range than occurs near the mainland coast, where the temperature falls to about 15°C in winter.

Augusta

During our visit to Augusta we were delighted to take a Blackwood River cruise. We experienced the natural wonders of a majestic river system, watched the dolphins at play and viewed over 60 species of exquisite birdlife. The cruise was a wildlife photographer's dream. We focused on up-close experiences with the masses of birdlife living and nesting along the banks of the Blackwood River.



Patrick Medway and the captain of "Miss Flinders"

Two Peoples Bay

Two Peoples Bay boasts unspoilt coastal scenery and is a vital area for threatened animal species. Two Peoples Bay Reserve was formally gazetted in 1967 and covers the entire headland, the adjacent islands and the short isthmus connecting to a wetland system of lakes, streams and swamps - remnants of an estuary in the Pleistocene era.

The noisy scrub-bird

This small brown bird was first brought to the attention of science through John Gould's lavishly illustrated *Birds of Australia*, published in England

in 1845. Gould originally named this new species the noisy brush-bird (*Atrichornis clamosus*, the "loud bird without bristles").

It has unusually small rounded wings, a strong muscular body and a very loud voice. After the turn of the century, searches were made throughout the south-west by many ornithologists. They all proved fruitless, and scientists began to fear the bird was extinct.

In February 1962, a small remnant population was found inhabiting the gullies of Mount Gardner in Two Peoples Bay. In all the world there remained only about 100 individuals, confined to one small area on the edge of the Southern Ocean. This rediscovery gained international publicity. Local, national and international conservationists worked hard to stop residential developments planned for the area, and to protect the bird's habitat.

All of the known noisy scrub-bird habitat was included in Two Peoples Bay Reserve, giving the reserve a diverse array of vegetation types suitable for many other species. Research into the noisy scrub-bird showed that the bird was sensitive to fire and needed dense, long-unburnt scrub with a well-developed leaf-litter fauna. In fact, it was probably the change in fire regimes, grazing and clearing of habitat following European colonisation that had brought the bird so close to extinction.

From the early 1970s, the reserve was managed to exclude fire and, in response, scrub-bird numbers began to increase. By the end of the 1970s, the population had grown sufficiently to contemplate creating other populations outside Two Peoples Bay Nature Reserve. If it was confined to a single population, there could never be much of a future for the scrub-bird. The amount of habitat within the Reserve is limited, and the population would always be vulnerable to wildfires. Colonising new areas outside the nature reserve is a slow process for the flightless bird. To spread, it needs corridors of continuous scrub connecting breeding areas to vacant habitat. It also needs many breeding seasons to produce a supply of dispersing birds.



Noisy scrub bird

Since 1983, noisy scrub-birds from Two Peoples Bay have been released in several places east of Albany. When released into good habitat that is protected from fire, the birds breed and their offspring gradually colonise all the available habitat. In this way the total number of noisy scrub-birds has increased tenfold since its rediscovery, and the population is now spread along almost 50 kilometres of the coast around Two Peoples Bay.

Other Birds

Two Peoples Bay is unusually rich in birds, with 188 species recorded there. Some of these are seabirds, like the great-winged petrels, flesh-footed shearwaters and little penguins, which breed on Coffin Island. Others are transequatorial waders or nomadic species of honeyeaters, lorikeets and pardalotes, which appear in response to seasonal blossom. The majority, however, are residents that breed within the reserve. Like the noisy scrub-bird, some also face problems of low numbers and reduced ranges.



Spotted pardalote (Pardalotus punctatus). The tiny spotted pardalote can often be heard high in the tree tops feeding on insects which are picked from the leaves of eucalypts. It has a soft piping voice. They are most commonly seen during the winter months

The western bristlebird (*Dasyornis longirostris*) is found in the dense heaths on the sandy slopes of Mount Gardner, and is currently designated an endangered species. So is the western whipbird (*Psophodes nigrogularis nigrogularis* - Two Peoples Bay subspecies), an inhabitant of the scrubby thickets.

Thanks to habitat protection within the Reserve and surrounding areas, the numbers of western bristlebirds and western whipbirds have increased during the last two decades, and their populations are now also spread north and east of the Bay.

Mammals

The Bay is also a haven for a number of rare and uncommon mammals. The diggings of the quenda are common - at times, areas particularly favoured by these omnivorous bandicoots resemble newly dug-over vegetable gardens. Quendas are often seen during the day crossing roads and tracks within the Reserve, and are taken by birds of prey such as the little eagle.



*Quenda (Southern brown bandicoot) (*Isoodon obesulus fusciventer*)*

Western ringtail possums are occasionally seen in the low forest trees on Mount Gardner, where their dreys (basketball-sized nests made of sticks) are common.

For many years, the population of quokkas on Mount Gardner was one of few known on the mainland. These small mammals make tunnel-like runs through thick vegetation. Seldom seen in the thick cover, the runs and their distinctive droppings are often the only sign of their presence.

The numbers of quenda, ringtail possum and quokka, judging by sightings, tracks and droppings, also appear to be increasing as the fox control program takes effect. The most exciting and least expected spin-off from the conservation of the noisy scrub-bird came in late 1994, when a small, rabbit-sized marsupial called Gilbert's potoroo (*Potorous gilbertii*) was found on the slopes of Mount Gardner. This animal had not been reliably reported anywhere in the south-west for more than 100 years, and had been officially proclaimed extinct. Gilbert's potoroo is a nocturnal and appealing little animal that has been quietly going about its truffle-hunting business beneath the Mount Gardner scrub, unseen for many years. But it must have come very close to extinction.



Gilbert's potoro (Potorous gilbertii). A medium-sized mammal slightly smaller than a rabbit and bearing some resemblance to a bandicoot, Gilbert's potoro has a dense coat of soft grey-brown fur. The tail is lightly furred, and curls up tightly when the animal is at rest. When standing, the animal has a hunched appearance and its eyes appear to look obliquely upwards. The sides of the face are furred giving the appearance of heavy jowls and the snout is slender, curving slightly downwards as in other potoroos. The ears are rounded and almost completely buried in the fur

There are less than 40 Gilbert's potoroos left in the wild. The survivors are healthy, and the females produce young every year, but the population is not growing. The surviving potoroos live in a pocket of bush too small to support more animals, with no suitable habitat close by where they can set up new territory.

Cane toads

Western Australia is facing an invasion from a creature that's alien to Australia. Cane toads (*Bufo marinus*) were introduced to Queensland decades ago to try to stop beetle damage in sugar cane crops. Instead, they became a major pest themselves. Ever since, cane toads have been steadily moving across northern Australia towards WA.

To help fight this invasion, the WA Government is working closely with the Northern Territory Government and the community to trap and kill toads before they reach the WA border. They are also collaborating on developing new technologies to stop the invaders.

WA is the only State that so far has implemented active control and management initiatives before cane toads reach its borders.

Scientists are working on a biological control to stop these aliens, but that solution is probably

years away. The front line in this battle is currently the Victoria River in the Northern Territory, about 200 kilometres from the Western Australian border.

The quarantine checkpoint at the WA/NT border, which operates around the clock, is on alert for cane toads in vehicles entering WA. Quarantine officers pay special attention to those vehicles coming from toad infested areas.

In WA, a special Kimberley surveillance team has been set up in Kununurra to investigate reported cane toad sightings in the east Kimberley and Victoria River region and carry out other management actions.

The Department of Conservation and Land Management's office in Kununurra is also disseminating information material to the local and tourist communities to raise awareness of the looming cane toad menace.

Cane toads are notorious for hitchhiking long distances, hidden in camping gear, clothing, caravans, farm produce, and any other spot they can find.

Perth Zoo

Native Species Breeding Program

Located behind-the-scenes on the Zoo's South Perth site, the Native Species Breeding Program (NSBP) is the central focus for many of the captive breeding and research projects concerned with the conservation of Western Australian fauna. The primary goal of the NSBP section of Perth Zoo is to support Threatened Species Recovery Plans by providing animals for release under CALM's Western Shield program and by conducting scientific research into the reproductive biology of threatened fauna.



Suzanne Medway and Dr Helen Robertson, Acting Director Animal Health Services and Research, Perth Zoo

Some of the very successful programs have been the breeding-for-release of:

Chuditch (Dasyurus geoffroii)

The chuditch, or Western quoll, is one of four quoll species in Australia and is the largest marsupial predator in Western Australia. At the time of European settlement, chuditch occurred in approximately 70 percent of the continent. By the late 1980s they had become Endangered, with less than 6,000 remaining in the south-west of Western Australia. Perth Zoo has bred more than 300 chuditch for release in the last decade. Since the breeding program began, chuditch have been downlisted from Endangered to Vulnerable. This breeding program is now completed.



Known as the native cat, the chuditch was almost blasted out of existence by early settlers because of their nightly visits to hen houses. Then foxes and disease took over, and their habitat was reduced. The chuditch is carnivorous and nocturnal. Males grow to about 60cm long and the females a little shorter. They are swift runners and cover a big territory in search of food. Found in the south-west and occasionally seen around forest

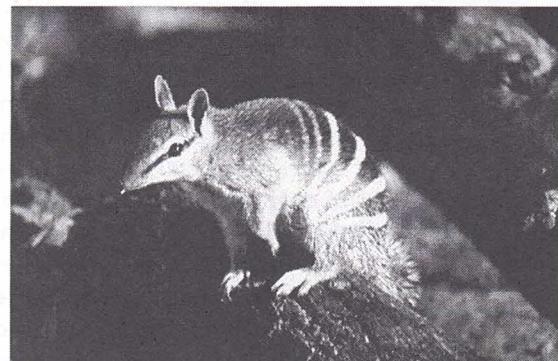
Shark Bay mouse (Pseudomys fieldi)

Also known as djoongari prior to 1993, the only known population of djoongari was on Bernier Island in the north-west of Western Australia, adjacent to the Shark Bay region and was considered to be one of Australia's most geographically restricted animals. Over three hundred Perth Zoo bred djoongari have been released to sites on the mainland and on islands in the north-west of Western Australia. This breeding program is now completed.

Numbat (Myrmecobius fasciatus)

Western Australia's mammal emblem and one of only two diurnal marsupials, the numbat is the only Australian mammal to feed exclusively

on termites. Once considered Endangered, the numbat has been reclassified to Vulnerable as a result of the establishment of several populations by CALM. Perth Zoo has been breeding numbats for release into the wild since 1986. By early 2003, 83 Numbats had been provided by the Zoo for release into protected habitat.



The numbat is a solitary animal. It is reddish brown in colour with distinctive white stripes. Its body measures about 25cm in length. The numbat is the only diurnal or day active marsupial. It is active in the mornings and afternoons. This is probably because its diet, termites, are also active in the daytime. The reddish brown colour of the numbat helps it to camouflage in daylight. The natural predators of the numbat are the carpet python, little eagle and other birds of prey

Dibbler (Paranthechinus apicalis)

This small carnivorous marsupial is found on two islands off the coast of Jurien Bay (island dibblers) and on the south coast of Western Australia within the Fitzgerald River National Park (mainland dibblers). It once had a much wider distribution. Perth Zoo bred dibblers were used to establish a new population on Escape Island in Jurien Bay. The focus has now changed to breeding dibblers from Fitzgerald River National Park for release on the mainland. By early 2003, over 170 dibblers had been provided by the Zoo for release into protected habitat.

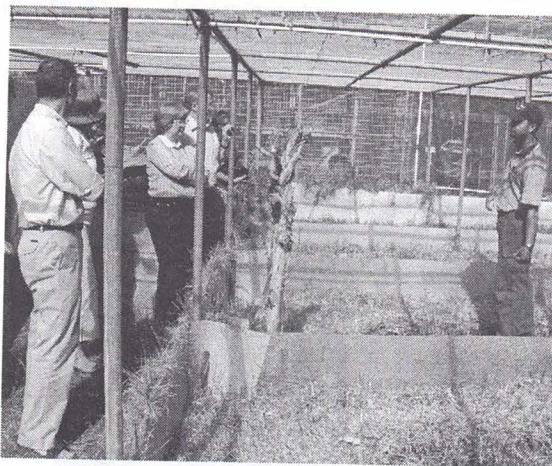


Dibbler

Once found throughout much of the south-western corner of Australia, but now surviving in the wild at only a handful of sites, the dibbler is an endangered species at very high risk of becoming extinct. Little is known about this small carnivorous marsupial — it was thought to be extinct for some 83 years. The dibbler is a small, spotted marsupial mouse from the dasyurid family. It has distinctive white eye-rings, a rounded body, long hairy tail and large ears. Its coat is generally brown and grey. Dibblers grow to about 14 centimeters and weigh between 40 and 100 grams. They have large eyes, a pointed snout, long whiskers and strong jaws with several tiny, sharp teeth. The bottoms of their broad feet feature grooves that run along the pads and act as suckers, enabling them to grip to trees and rocks. The feet end in sharp claws. These features make the dibbler extremely agile and acrobatic. Dibblers are most active at dawn and dusk. The dibbler feeds on ground-dwelling insects and other invertebrates but will also eat small lizards, small birds and small mammals. It seems to prefer dense, heath vegetation which it can move through at amazing speed and with little noise. The dibbler is threatened due to loss of habitat through land clearing and predation by feral predators such as foxes and cats. Also, frequent burning off may reduce the availability of invertebrates in the leaf litter as dibblers seem to be absent from burned areas for years.

Western swamp tortoise (Pseudemydura umbrina)

The Western swamp tortoise is a short-necked freshwater tortoise and Australia's most Critically Endangered reptile. The Western swamp tortoise has only been recorded at scattered localities in a narrow, three-to-five kilometre strip of the Swan Coastal Plain. Since 1988, Perth Zoo has bred more than 400 Western swamp tortoises. The main barrier to the further recovery of the species is the lack of suitable habitat.



The breeding facility for the Western swamp tortoise at Perth Zoo being inspected by ARAZPA members

Update on the Western swamp tortoise breeding program at Perth Zoo by Daniel Scarparolo, Perth Zoo

It has been another successful year for the Western swamp tortoise breeding program at Perth Zoo with 35 hatchlings. Perth Zoo breeds Western swamp tortoises for release into the wild as part of a Recovery Plan for this threatened Australian reptile.

The Department of Conservation and Land Management (CALM) coordinates the recovery project in partnership with Perth Zoo, the National Heritage Trust, the Swan Catchment Council, and the World Wide Fund for Nature, the University of Western Australia and the Friends of the Western swamp tortoise.

Since 1994, over 200 Western swamp tortoises bred at Perth Zoo have been released into the wild. The Recovery Plan to rebuild the wild population of critically endangered Western swamp tortoises has recently been updated with the objective of creating at least three wild populations and increasing the total number of mature individuals in the wild.

The Western swamp tortoise takes 8 to 15 years to reach sexual maturity which means the population is taking a long time to recover.

The main barrier to further recovery is the lack of suitable release sites and habitat. The Western swamp tortoise has only been found in two small areas of natural habitat at Twin Swamps and Ellen Brook Nature Reserves. These reserves are intensively managed by the Department of Conservation and Land Management. Fifty-four Perth Zoo-bred tortoises were released in 2005 with 40 planned for release in the 2006.

In the 1970s and 1980s, the Western swamp tortoise was the rarest tortoise in the world with a total population of less than thirty animals. Now, thanks to a successful partnership, the tortoise population is increasing. However, there is still a long way to go before the species can cast off its title as one of the rarest reptiles in Australia.



Western swamp tortoise hatchling. Photo by Gerald Kuchling/UWA

Central rock-rat (*Zyzomys pedunculatus*)

The central rock-rat is a Critically Endangered rodent that was presumed extinct until it was rediscovered in the MacDonnell Ranges (Northern Territory) in 1996. Perth Zoo acquired central rock-rats to breed and hold as a back-up ('insurance') captive colony.

Members of the Society were most impressed with what both CALM and Perth Zoo are doing to preserve and protect Australian wildlife.



Wildlife in the city

It has been a very interesting week for wildlife in Sydney. If you look up an entry for "Wildlife" in the Sydney telephone book the first entry is for Wildlife Preservation Society of Australia Inc. If you ring information and ask for a number for wildlife, our office telephone number is the one given out. Hence, we receive calls about wildlife at all hours of the day and night.

Our first interesting call came from a woman who had an echidna in her backyard in suburban Monterey. (For those who don't know Sydney, this suburb is near the airport.) Her dog had cornered the echidna and it was caught under the dividing fence with her neighbour. The echidna was digging in to get away from the dog. She called us as she wanted to save it. Our advice was to immediately remove the dog and to leave the echidna alone for a period of time to see if it could move off by itself. We also gave her our wildlife rescue number in case the echidna was injured and needed extra help.

The second call was from a man out walking in our local park who spotted darter birds nesting. Although darter birds can be easily spotted around suburban Sydney, it is rare to see them nest and raise young in a heavily populated area. Luckily for us, it gave a perfect opportunity to take this magnificent photo.



Darter and four chicks

Our third call came from a family that had just moved to Darwin. This call resulted in the following email from the family and the picture below.

"Well imagine my surprise when this little fella greeted Zara as she went to the toilet. I thought she was playing a trick on me when she yelled out, "Mum, there is a frog in the toilet!" But she was telling the truth. With tears in my eyes and Jonah telling me to "be brave mum" I scooped him into a plastic container and set him free in the garden. I am sure more encounters with wildlife will occur in the future. I just hope it is not a crocodile in the pool because there is no way mum will "be brave" in that situation!"



A surprise visitor

Next, I awoke one morning to a young bird in our kitchen. I don't know how it got into the house during the night, but I was astonished to see it was a baby kingfisher. We don't live near the water and I just can't imagine how it got into our area. Patrick caught the panicked bird by throwing a tea towel over it. Before taking the kingfisher down to the nearest waterway, we gave it a few drops of water and a bit of ground up meat. We debated letting it go outside our house, which is not their normal habitat as the sacred kingfisher usually inhabits woodlands, mangroves and paperbark forests, tall open eucalypt forest and melaleuca forest.

Kingfishers are common and familiar throughout the coastal regions of mainland Australia and less common throughout Tasmania. The species is also found on islands from Australasia to Indonesia and New Zealand. In Australia, sacred kingfishers spend the winter in the north of their range and return south in the spring to breed. For most of the year the birds are mainly solitary, pairing only for the breeding season. Sacred kingfishers forage mainly on the land, only occasionally capturing prey in the water. They feed on crustaceans, reptiles, insects and their larvae and, infrequently, fish. The birds perch on low exposed branch on the lookout for prey. Once prey is located, the sacred kingfisher swoops down and grasps it in its bill, returning to the perch to eat it.



Our rescued kingfisher



Book review

Planet Earth: The Making of an Epic Series

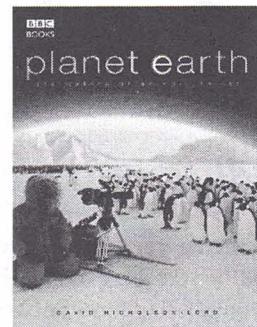
David Nicholson-Lord

I was absolutely enthralled and delighted to watch the new series *Planet Earth* on ABC TV on Sunday evening. One question I kept asking during the show was "how do the film such great scenes of wildlife?"

Imagine my delight when this new book arrived on my desk exactly answering my question.

With producers and camera people travelling to every continent and almost every corner of the world, from the highest mountains to the lowest depths, their adventures have been many and unforgettable. Using every kind of craft and technological wizardry imaginable, from helicopters and submersibles, to satellites and remote cameras, they have also witnessed remarkable things. And what makes so much of the series special are the unique aerial perspectives from which they have filmed so many of the animals.

This book tells the dramatic tales of their encounters, discoveries and many trials and tribulations. Also revealed are the ingenious means by which some of the unique sequences in the series have been made. Memorable sequences filmed in the wild include wild camels in the snow in the Gobi desert, a giant (truly giant) salamander hunting at night, desert lions capturing an oryx, golden snub-nosed monkeys playing high in the mountains of China, a giant panda in a cave tending her tiny newborn and a snow leopard chasing its prey down a sheer rock face. Used for the first time in any book are special photographs taken from high-definition film footage, which will bring the tales to life.



Batreach

by Donna Browning (Donna is a volunteer for Batreach, and was a national parks ranger for ten years in the NT (Kakadu and Uluru) and has been involved in the making of wildlife films (eg Call of Kakadu))

Nestled in the misty covered mountains surrounding the city of Cairns lies the village of Kuranda, located just 25km northwest of Cairns in Far North Queensland. Kuranda is surrounded by World Heritage Rainforest and is only approximately two hour' drive from the Daintree.

Pam Tully started caring for flying foxes around 1990 and then established a bat and wildlife care centre at Zillie Falls in the Atherton Tablelands. In 1999 Pam relocated and established Batreach in the rainforest village of Kuranda.

Batreach is a rescue and rehabilitation centre for injured and orphaned flying foxes, micro bats and a variety of other animals. At the time of writing there are approximately 150 bats in care, and a number of gliders and possums.

Cyclone's Larry and Monica have had far reaching consequences on all the local bat colonies. Due to the gale force winds and torrential rain, food for the wild bats is in short supply and this has led to not only a number of orphaned bats but also many wild bats that now come to Batreach in search of food.

Pam is in need of people who are willing to volunteer their time for a minimum of two weeks. Volunteers are needed to help with feeding, cleaning enclosures and if comfortable with public speaking, providing talks to the general public. Batreach is funded solely by donations collected at the gate (admission is free) and 100% goes to food and medical supplies for all those animals in care.

Accommodation is provided for volunteers, including most of the food. Vaccination against the Australian Bat Lyssavirus (ABL) is a compulsory requirement.

If you feel you would like to help and donate some time please call Pam on 61 (0)7 4093 8858 or email ps@me-au.com. If you are unable to volunteer your time but would still like to help out, donations can be made to Batreach by emailing or calling the above number for details.



This squirrel glider (Petaurus norfolkensis), Molly, arrived as an orphan and is nearly ready for release into the wild



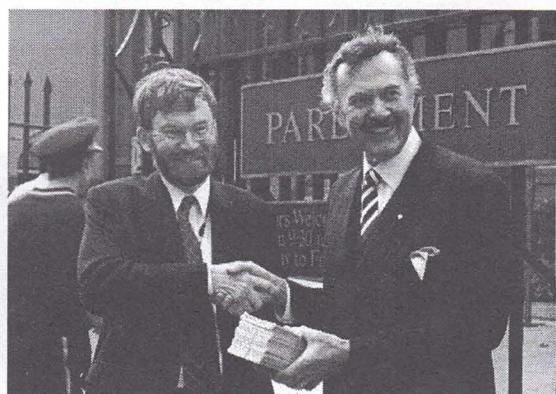
Volunteer Coral attending the feeding of spectacled flying foxes (Pteropus conspicillatus) - these are generally recovering from various injuries or malnutrition and are released as soon as they can cope with the real world

From our Regional Councillors

New South Wales Central Coast

by Max Branch of Newcastle

On Monday 22 May a rally was organised on the steps of the NSW Parliament House to deliver thousands of signed Green Corridor postcards. You will remember that our Society distributed these cards with our Autumn edition of this magazine. The postcards spell out the message of protection for the green corridors of the Hunter, Lake Macquarie and Port Stephens. The delivery pre-empted the delivery of the Hunter Conservation Strategy which needs to identify protection for all the remaining green corridors of the Hunter. The supporters travelled to Sydney by train, starting with a gathering at Newcastle station for a media event before joining the train. Our National President, Patrick Medway, met the supporters at Parliament House and presented the postcards to Ted Plumber, Policy Adviser to the NSW Minister for the Environment



Patrick Medway presents thousands of Green Corridor postcards to Ted Plumber

On 12 May a rally of over 100 people representing a coalition of organisations met outside the Department of Planning Office on Wharf Road in Newcastle to voice concern about the Draft Lower Hunter Regional Strategy (LHRS). A vigil was maintained from Friday until Monday when a delegation travelled to Sydney to meet with representatives from Premier Morris Iemma's office. On 15 May representatives of over 150 conservation groups met the State Government and NSW Opposition to voice concern about the draft LHRS and other similar plans in the pipeline for other areas in the state. The strategy identifies areas for new development. Unfortunately under the draft plan, development outside the designated areas is allowed provided the proposals meet "sustainability criteria". Total Environment Centre



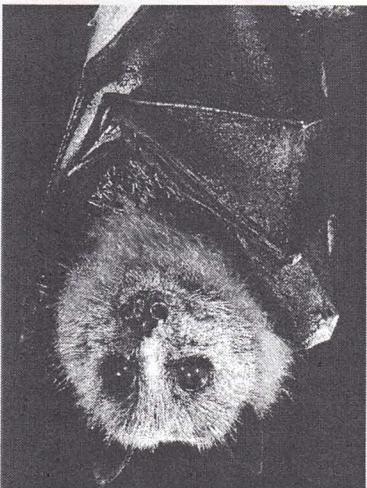
director Jeff Angel said that the criteria were placed there to serve the interests of powerful developers.

The group asks for proper protection for green corridors and the environment generally in the Lower Hunter.

A concern is that development projects seem to be fast tracked with little or lip service attention addressed to conservation and protection of the environment. It was stated that the sustainability criteria set out in the draft plan were weak and would allow development outside identified areas. Premier lemma was asked to reconsider the sustainability criteria and revise nine of the twenty-seven areas of development. The Department said that it would save large areas of high quality vegetation from development while supporting economic growth. There were more than 1,000 submissions received in response to the draft strategy.

Bat colony

The bat colony in Blackbutt Reserve is doing well. The bats are grey-headed flying foxes (*Pteropus poliocephalus*). They appeared in Blackbutt perhaps eight or ten years ago and the colony has been growing in size ever since. It probably now numbers over ten thousand.



The grey-headed flying-fox is found along the east coast of Australia, ranging from Bundaberg in Queensland to Melbourne and as far west as Warrnambool on the far west Victorian coast. The range extends from the coast inland to the western slopes of New South Wales. There have also been recent reports of the grey-headed flying-fox in South Australia. The grey-headed flying-fox is the largest of the Australian fruit bats. It is recognisable by its grey head and a reddish-yellow neck, chest and shoulders. The rest of its body is covered with dark brown fur. The species forages on a wide variety of flowering plants and native and introduced fruits

In the evening hordes leave the Reserve passing over nearby suburbs of Newcastle on their way to feed. At any time there in the evening there are tens and even hundreds flying over Kotara, all flying south. Closer in to the city, the bats are common in the inner suburbs of Cooks Hill and The Junction, foraging in the food trees. On the other hand, as they seem to be able to fly fifty or more kilometres each night, so they must be widely dispersed in every direction. As the seasons change, their direction of flight changes as they seek out trees in fruit and blossom.

The colony's camp in Blackbutt Reserve is in the rainforest section of the Reserve. This area is a very old part of the Reserve and has a very lovely old track wandering through. It was replanted in the 1960s to make a very pleasant and interesting walk. The flying fox camp is right on this walkway, but the track is not much used by visitors and so far most walkers are more intrigued by the flying foxes than annoyed by the noise or droppings. It is fair to say that most Novocastrians are unaware of the colony's existence. Blackbutt is extensively used by visitors, but this part of the Reserve although beautiful is seldom walked.

As the east coast population of the grey-headed flying fox is dwindling through loss of habitat and the animal being unwelcome to many people, it is encouraging that this colony does not attract the odium that colonies have in other places. The grey-headed flying fox is listed as Vulnerable under the Threatened Species Conservation Act.

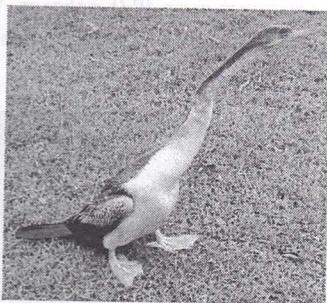


Wildside by Lance Ferris

Mercy dash for darter

There are literally hundreds of different beak shapes in birds. In South America, one rainforest bird has evolved a beak with a bend, ideally suited to extract a seed – from a seed-pod with an identical bend! All are designed to specialise in foraging for particular types of food. Eagles have a hooked beak to tear at prey during feeding, while the cormorant's hooked beak is designed to grab fish underwater. Darters are often mistaken for cormorants but, instead, have a very straight beak, which they use to spear fish underwater. When a darter's nest site is disturbed, the young may jump out in a mad dash to escape the would-be predator. These young birds are unusually quiet when rescued and are particularly compliant in care. A darter released earlier this week was

rescued again after it found its way into the man-made lakes at Northlakes Estate at Ballina. A commercial fisherman made a mercy dash to our centre with the bird, which was suffering severe intestinal problems. So far, the young bird is recovering well.



This darter is recovering well following its second rescue in a week

Safe disposal

Microscopic examination of plastics retrieved from the innards of a dead sea turtle revealed a piece of plastic with remnants of words that read: "Please dispose of properly." I wonder whether the manufacturers meant the plastic... or the turtle.

Young whale dies

The mass stranding of whales is still a mystery. Disease, interference with their navigation systems, suicide, or just old age is some of the theories put forward to explain these strange events. It doesn't apply to one species alone, and often the phenomenon can result in hundreds of dead and dying cetaceans on the beach. A young whale was recently sighted on Ballina's main beach. The two-metre melon-headed whale was seen thrashing about in the shallow water but, despite all the valiant efforts of beach-goers, the little whale just didn't make it. Back at our WildlifeLink Sanctuary, zoologist, PhD student and cetacean researcher Christine Fury was unable to find any obvious cause for the whale's demise. Samples were taken for future analysis.



Zoologist Christine Fury, (left) and two ASR volunteers, examine the dead whale found on Ballina Beach

Volunteers not deterred by icy snap

A dozen people braved the unusually cold weather at our Victorian workshop. On the field day, 'Murphy's Law' prevailed, bringing air temperatures down to near zero. Despite the conditions, a keen team of volunteers emerged to take care of seabirds and pelicans in the Gippsland area. We addressed two public forums, along with a full day of seabird rescue instruction for new volunteers. Leona Waldegrave-Knight from the Victorian Department of Sustainability and Environment (DSE), was a formidable driving force behind the success of the weekend's activities, and ensured that we and other guest speakers were treated royally. With the ongoing support of the DSE and the obvious enthusiasm of all attendees, the wildlife in the Gippsland waterways are now under the watchful eye of trained rescuers.



Victorian DSE Officer Leona Waldegrave-Knight compares a male and female pelican captured during the field-day rescue instruction in Gippsland

No party for giant petrels

Party balloons are a child's delight, especially if the balloon is filled with helium, and floats magically in the air. Although the mass release of helium balloons are illegal in NSW, the occasional party balloon slips through the fingers and drifts off to places unknown. We regularly pick up a few scattered along the beaches to avoid them being swallowed by turtles and seabirds.

Recently a local avid birdo noticed a giant petrel wallowing in the surf at Shelley Beach. Volunteers were soon on the scene and retrieved the bird from the water. A ribbon was hanging from the bird's beak and we had some serious fears that a balloon was lodged in its intestines. For an hour we struggled with the ribbon but, try as we may, the item would not dislodge. In desperation we dosed the bird with olive oil to lubricate the system. A few minutes later 30 cm of ribbon was hauled from the bird's innards, with an orange

balloon attached. Within the hour, the bird was feasting on fresh fish at our WildlifeLink Centre.

Little wonder why these birds are now on the 'vulnerable' list. They will eat just about anything, and are loosely referred to as 'the jackals of the sea'. Balloons resemble several natural food items for these and many other marine species and, once ingested, there is little hope.



ASR volunteers Angie and Marny examine the Northern giant petrel. A ribbon hung from its beak, which was attached to a balloon (see inset), 30 centimetres down in its intestines

Fishing takes its toll – how sustainable is our marine and aquatic wildlife?

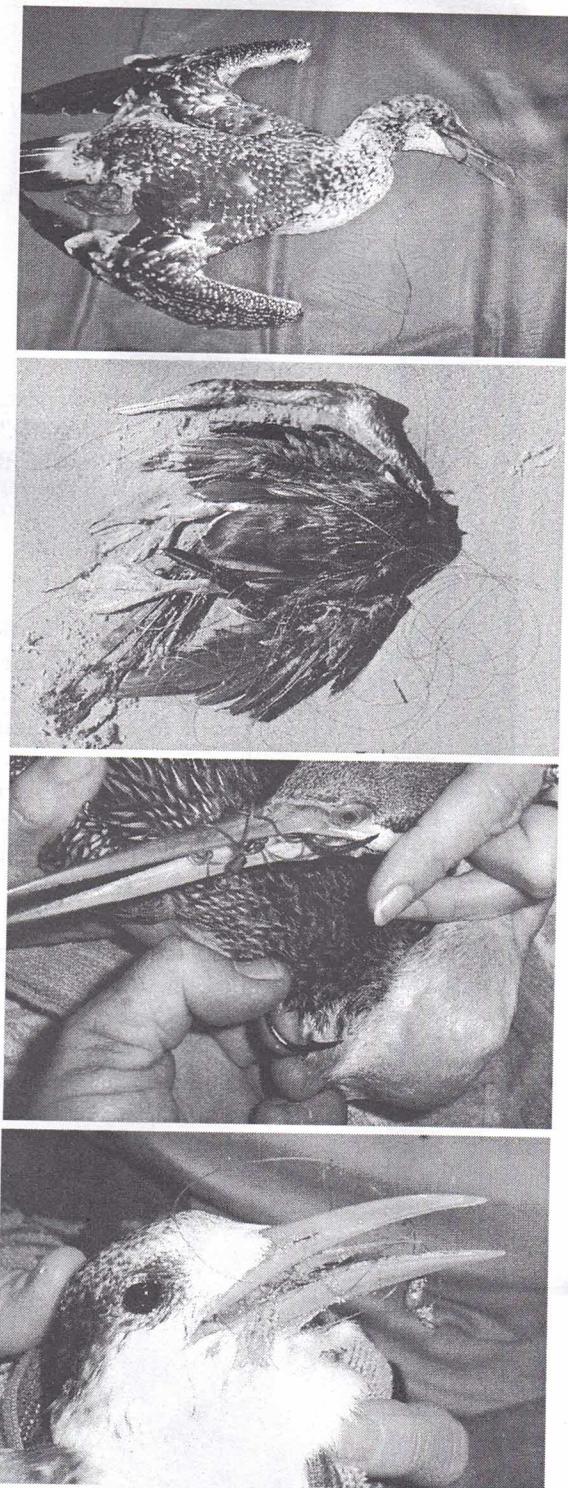
There is always going to be some 'collateral damage' to wildlife, when people go fishing. Those irresponsible fishers who leave bait bags and tangled line behind are signing a death warrant for hundreds of species of marine and aquatic animals. However, it is an urban myth to lay the blame entirely on discarded fishing gear for the serious problems caused to birds. Entanglement in discarded tackle represents only five percent of all injuries, with a staggering 95 percent of birds being hooked by active fishers.

Over the last two months, in the Richmond River alone, birds have been hooked at an alarming rate – one every five days. If the injury rate is the same in all other estuaries, (and there are 173 estuaries in NSW), the number of birds injured in NSW over the last two months, could be more than 2,000.

I don't believe that the wildlife in our rivers can sustain this sort of onslaught. While we are aware that these incidents are generally accidental, more care needs to be taken when fishing near birds. The sad part is, of the birds rescued in the last two months, none were called in by the angler who caught it. By the time we found the wounded creatures, or a passer-by phoned, some of the

birds were either dead, dying, or in a dreadful state. If it was a dog with a hook in it, the phones would run hot, but in the 'sport' of fishing, injured wildlife seems to be acceptable collateral damage.

To date, among the dozens of other species of birds rescued by the ASR groups, volunteers have captured over 950 pelicans, 92 percent of which were hooked in fishing tackle.



Collateral damage



Wildlife walkabout

International

Tony Blair

On 28 March the British Prime Minister, Tony Blair, speaking to a combined meeting of all parties in Parliament, illustrated why our Society regards an Environmental Bill of Rights as the world's most urgent need. The United Nations is our only hope for a secure world. He spoke of problems like global warming, damage to the environment from pollution, with the present problem of terrorism, as well as humans taking too much of the earth's resources, with people being forced to live in overcrowded cities. It is always good to know when world leaders agree with our points of view.

Danger

A map published in the proceedings of the National Academy of Science shows the danger spots for extinction of animals. Australia can be proud as it shows we have many full or partially protected sites. We have made many mistakes in the past but, conservationists, of which our Society has been prominent, have worked hard at changing a careless nation to a caring one

National

Water commonsense

The world and Australia suffer water shortages because we lack commonsense. We can take Australia as an example, but it applies to other nations as the problem of global warming indicates. In Australia we are slowly learning the lesson to recycle the wastewater which we throw into the ocean, taking our wastes with it, as a cheap solution to domestic problems. Nature has been doing it since the earth began by washing salt from soils into the vastness of the oceans. Humans added domestic waste, though sensible nations hundreds of years ago began to recycle. A rash State Minister said the public will not drink recycled water. He was too ignorant to realise nature has been doing this for millions of years. Nature uses the energy of sunlight to evaporate fresh water from the sea to form clouds, these move over the land, releasing it as rain. Desalination plants may achieve the same results but at a high cost.

However, commonsense seems to be coming at last. The race is on between Toowoomba in Queensland and Goulburn in NSW, two parched cities with critical water shortages, to be the first

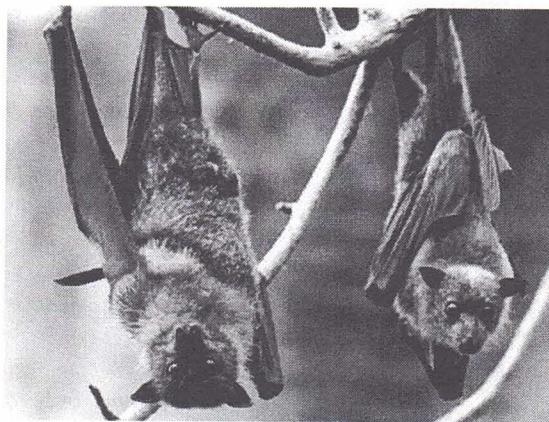
in Australia to recycle sewage water into drinking water. This is already done in other countries around the globe such as Japan, the United States, Britain and Singapore.

Agroforestry

Once more ECOS magazine points out to Australia what we learned from the Fentons of Western Victoria. It suggests that within thirty years seventy percent of farm income will come from agroforestry. This technology was given scientific status by CSIRO many years ago. Now ECOS writes this message - "Research suggests that most farmers could plant trees and shrubs on up to fifteen percent of their land, helping farm health, agricultural productivity and income." Our manuscript 'Bushland on Farms' described a way to counter salination of our farmlands from the lessons of a dozen farmers who not only followed nature's advice but also became prosperous as a result. Become conservation minded and become rich!

Native animals can become a problem

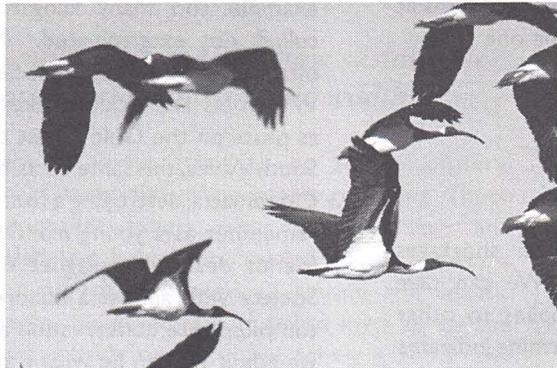
Often our Society is in conservation hot water since we sometimes must agree particular species can become a problem in certain areas - for example, too many kangaroos which must be culled, not exterminated. Native noisy miners often keep other small species out of their patch. White ibis are troublemakers, becoming labelled as pests on the Gold Coast tourist strip. In New South Wales, the same birds have become pests at Cabramatta, destroying a fruit-bat colony. Yet I also remember as a young man ibis were the farmer's friends destroying plagues of grasshoppers. Our Society with almost a hundred year's experience can offer wise conservation advice. With humility we admit we can be wrong at times.



Fruit-bats play an important role in Australian nature. Bats are mammals which give birth to live young and produce milk to feed them. Over sixty different kinds occur in Australia. Most eat insects, but eight feed only on flowers and fruit, and are known as fruit-bats or flying-foxes



The white ibis is identified by its almost entirely white body plumage and black head and neck. The head is featherless and its black bill is long and down-curved. During the breeding season the small patch of skin on the under-surface of the wing changes from dull pink to dark scarlet. Adult birds have a tuft of cream plumes on the base of the neck. Birds measure 69 - 76 cm. Females differ from males by being slightly smaller, with shorter bills. Young birds are similar to adults, but have the neck covered with black feathers. In flight, flocks of Australian white ibis form distinctive V-shaped flight patterns



The straw-necked ibis is the most abundant and widespread ibis in Australia. It can be identified by its black wings and back, white breast, belly and tail and has a dark brown featherless head, with straw-like feathers on the lower neck of both males and females. Males have a longer bill. The straw-necked ibis breed in large noisy colonies often mixed and associated with spoonbills and are often seen perched in dead trees. They feed in both wet and dry areas and often graze paddocks in large flocks in response to grasshopper plagues. Their diet consists of small animals, crustaceans and insects. They concentrate along inland river systems, only rarely found on the coast

Common or Indian myna

Today this is the most widespread of all birds. The late Alec Chisholm, famous naturalist and conservationist, wrote they were first brought to Queensland to combat insect pests, particularly plague locusts; today they are the 'locust' of the bird world competing with native species for nesting holes and food. Traps for catching the birds are being distributed so they can later be painlessly killed. We are not the only sufferers. John Long in his classic book 'Introduced Birds of the World' lists many countries suffering from this introduced pest brought in for a variety of reasons. Long devotes five pages to this myna whose original home was India as well as Southeast Asia. They love forest edges as well as human habitations. It seems likely we can never rid our country entirely of this pest but a drastic reduction in numbers would be worthwhile.



The common Indian myna is fast becoming Australia's number one feral enemy!

Geothermal energy

Amidst all the recent debate on energy production, it is well to remember Tim Flannery's great book *The Weather Makers*. He writes of geothermal energy. 'This one rock body in South Australia is estimated to contain enough heat to supply all of Australia's power needs for seventy-five years at a cost equivalent to that of brown coal without the CO₂ emissions. So vast are the resources that distance to market is no object, for power can be pumped down the power lines in such volume as to overcome any transmission losses.' The same method is already being trialled north of Newcastle in NSW.

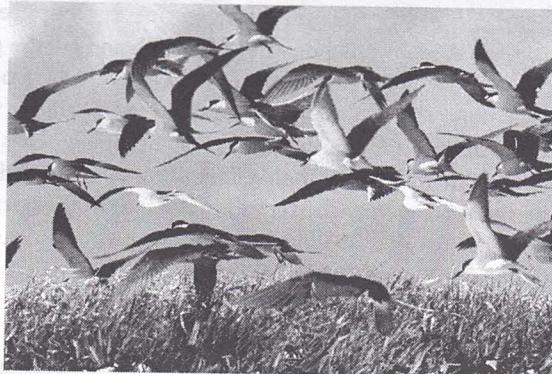
Queensland

Island sanctuaries

Our Queensland sister society's magazine has a plea for island sanctuaries. The most world famous are the Galapagos Islands made best known by evolutionist Charles Darwin. Australia can be proud that we have conserved some of our most important island sanctuaries. The marine natural wonder of the world, the Great Barrier Reef, and on the west coast the Abrolhos, the Ningaloo Reef and the Montebello Islands described to us many years ago at a dinner party by the world's most famous modern evolutionist, the late Ernst Mayr, as 'test tubes of evolution.'



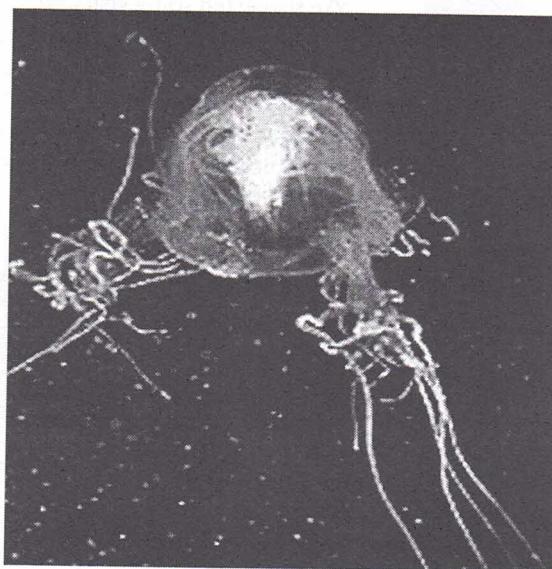
Lesser noddy terns in their nesting mangroves, described long ago by John Gilbert assistant to John Gould as rivaling in numbers the passenger pigeons of the United States



Sooty terns in millions nesting on Pelsart Island. In the seas around are coral reefs, the most southerly in the world whose rich marine life sustained the spiny rock lobsters. This industry earned the World Wildlife Fund's first marine medal for a sustainable industry

Deadly jellyfish

The deadly jellyfish of the Great Barrier Reef, which can kill a bather a few minutes after being stung, has finally been tracked to its breeding lair. An active breeding ground has been found off Double Island. This means scientists may find a cure. Certainly they will be able to give warning of invasions and its size.



Box Jellyfish (*Cchironex fleckeri*) is said to be the most venomous marine animal

Hinchinbrook Island

From our Conservation Medal Winner, Margaret Thorsborne, and her husband Arthur, has come a magnificent new book on this spectacular island. Years ago I spent a wonderful week travelling by yacht along this passage along which an old sailor claimed nobody could travel without believing in God.

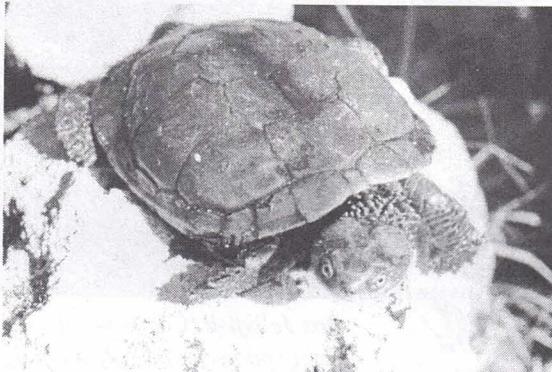


One of the features, a native fish trap as sound today as when it was built long ago

Western Australia

The short necked tortoise

This rarest of world reptiles was discovered at a Perth Wildlife show. This is described in our new book 'Conservation Victories with Battles Yet to Win'. Now *Wildlife*, magazine of our sister society, has a four-page article on its chances of survival. We suggested some years ago the need to recreate pools in clay country; shallow enough to dry out in summer as well as adding captive bred reptiles. These will also need fox proof fences. Many years ago our Society gave a hundred pounds to the 'save the tortoise fund'. We hope for its survival in the future.



At a 1953 Wildlife Show a tortoise was brought in which a farmer had found near Bullsbrook, north of Perth. Director of the Western Australian Museum, Ludwig Glauert, who was an expert on reptiles, later identified the small creature as a short necked tortoise

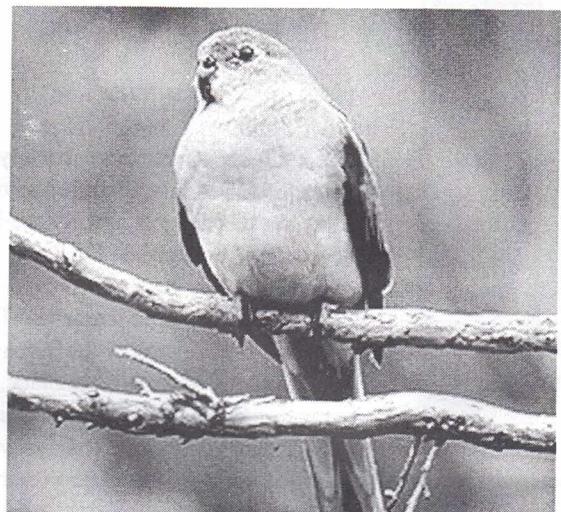
Sandalwood

CSIRO has stated it takes 1,500 litres of water to produce a single kilo of rice. In WA's wheat belt it takes 150 litres of oil to produce fertiliser for a single hectare of wheat, so they are working to find a better crop. This may prove to be sandalwood whose nuts produce an edible and healthy oil.

Tasmania

Orange bellied parrot

The media has become almost hysterical about the fate of the rare orange bellied parrot since Federal Environment Minister, Ian Campbell, banned a wind farm which might kill birds migrating to the mainland. The generally accepted opinion of bird experts is that there is little danger of wind generators having any serious impact on bird populations.



Orange-bellied parrot (Neophema chrysogaster)

New South Wales

Cane toads

Toadbusters is a conservation group hoping to hold in check the invasion of the cane toad. This South American animal does good work for farmers in its native land, but our Society warned in the thirties we needed more research before bringing this species into our country. Cane farmers, with the approval of the State Government, ignored our advice. This species is spreading south into NSW and west into the Northern Territory and Western Australia, doing immense damage to other native species. The toad's defence weapons are poison glands in the shoulders. Frogwatch, a Northern Territory group, sells toad traps to landowners to catch and kill the pests. The second method in NSW is to have groups of volunteers catching adults by torchlight, as well as destroying tadpoles in their breeding pools. The best of luck to their efforts. Fortunately, today, every state has Conservation Councils, the groups governments listen to for their advice, so our quarantine laws today, hopefully, will never allow such a piece of stupidity to happen again.



The toad in a pool



A chain of eggs in frog spawn

Koalas

Research in Queensland, NSW and Victoria indicates koalas need one hundred hectares of bushland, of which forty to sixty percent must be eucalypt forest. The increase of city human populations and of agricultural usage has brought pressure on koala populations. However, it is possible to make even urban areas suited to the marsupials as has been shown in a Sydney suburb. For improvements in urban areas it is up to conservationists to protect and increase the habitat of our most favoured marsupial.



Everyone's cuddly favourite. In the twenties our Society saved the species, as described in our official history

Down go the trees

Estimates of land illegally cleared in NSW each year amount to one hundred thousand hectares. The problem occurs in other states as well. Remember Kangaroo Island where our President went to find the truth of whether koalas were causing the killing of the trees. He saw no koalas but found farmers were illegally clearing the trees for new crops.

Corroboree frog

Years ago when I was in charge of science at the Claremont Teachers College I had a pair of these beautiful frogs in a vivarium in my office. The other lecturers often came in to stare at my pets.

James Woodford, environment reporter for the Sydney Morning Herald, recently wrote 'in the 1980s and 1990s their numbers plummeted, and today a mere eighteen colonies are left, most with fewer than five adults.' The reasons: climate change, drought and a frog disease fungus have all been blamed. Desperate work by the NSW National Park Service allowed 4,000 captive reared tadpoles back into the wild. This effort failed because of the fungal disease, 'all our data suggests they're likely to be extinct in the next five or ten years'. The new hope is that since the adult frogs don't go near the water they may escape the disease by leapfrogging the tadpole stage. So after three years in a refrigerated shipping container about two hundred frogs will be released to see their first high country life. The adults do not go near the water, even laying their eggs on low land waiting for the swamps to flood. It appears the only hope is to breed adult frogs for continual release hoping the disease will disappear.



The Corroboree frog is a distinctive species with prominent yellow and black stripes





The Last Chance for the Corroboree Frog: A Collaborative Approach

Michael McFadden

Herpetofauna Division, Taronga Zoo, Sydney

Introduction

The Southern corroboree frog (*Pseudophryne corroboree*) is a boldly marked, terrestrial frog, restricted to the Snowy Mountains in the southeast of NSW. It is found only within the confines of Kosciusko National Park, between altitudes of 1,300 and 1,760 metres. Within this region, it is largely restricted to sphagnum bogs, wet heath and wet tussock habitats during the breeding season, venturing into surrounding woodland and tall heath outside of this period. It is easily distinguished from other species by its unique bright yellow and black dorsal markings. Ventral markings are similar, consisting of yellow, black and white blotches. It is a relatively small species, with adults reaching maximum lengths of only 2.5 to 3 cm. During the summer breeding season, adult male frogs call from a terrestrial nest within the moist sphagnum moss at the edge of pools. This calling attracts females to the nest, which will enter and deposit their eggs, which the male will proceed to fertilise. The male will remain with nest until the end of summer and continue calling to attract any further females. The eggs remain in their moist nest until rain or snowmelt fills the pools in autumn or winter, flooding the nest and allowing the tadpoles to enter. The tadpoles will then undertake metamorphosis in early summer.

The decline of the corroboree frog

Since the early 1980s, declines have been noted in the abundance and distribution of the Southern corroboree frog (Osborne 1989). Once a relatively abundant species in suitable breeding areas, the Southern corroboree frog has declined to such an extent that very few sites contain greater than ten males (Hunter et al. 2005b). The Southern corroboree frog is recognised as Critically Endangered by the 2005 IUCN Redlist and is listed as Endangered by both the NSW Threatened Species Conservation Act 1995 and the Commonwealth Environment Protection and Biodiversity Conservation Act 1999. If the species continues to decline at current rates, it is expected to become extinct in the wild within the next 15 years (Hunter et al. 2005a). As with the continuing decline of many amphibian species, the entire cause of the demise of the Southern corroboree frog is not certain. However, evidence now suggests that an introduced fungus, implicated in a number of frog declines within Australia

and worldwide, has been a major causal factor (Berger et al. 1998). The amphibian chytrid fungus is a highly lethal fungus, which is caused by the pathogen *Batrachochytrium dendrobatidis* (Longcore et al. 1999). It infects the keratin in the skin of frogs and the mouthparts of tadpoles. Although lethal to frogs, tadpoles remain relatively unaffected until metamorphosis, when the young frog, with newly keratinised skin also dies (Berger et al. 1998). Growing evidence indicating that the chytrid fungus is a major causal factor in the decline of this species includes the discovery of the fungus in populations only post-decline and the concurrency between the decline of this species and that of other frog species within Australia in which the fungus has been implicated. Recent testing of Southern corroboree frogs for chytrid fungus has demonstrated that the fungus was present in eight out of twelve sites sampled (Hunter et al. 2005b).

Factors other than disease may have also contributed to the decline of the Southern corroboree frog, including drought, fire and habitat degradation due to former cattle grazing. Drought in particular is suspected to have played some role, at least in initial declines, which occurred during severe drought (Osborne 1989; DEC 2005). This species relies on rain during the post-breeding season to fill the ephemeral sphagnum bog pools, flood the nests and hence, release the tadpoles. Lack of rain during this time can leave the eggs to desiccate. Similarly, insufficient rain following the initial filling of the pool can lead to early drying of the pools and desiccation of the tadpoles prior to metamorphosis. Thus, increasing droughts can prevent successful breeding in this species, leading to declines, especially if in conjunction with other threats, such as disease.

The role of captivity in the recovery of this species

The recovery of this species to date has involved a number of institutions, including the Department of Environment and Conservation (DEC), the University of Canberra, the Amphibian Research Centre (ARC) and Zoos Victoria. Actions conducted have included annual surveys and monitoring, research into the species, life history, investigations into the possible causal factors for the decline and establishing a captive population. With the current rates of decline and the status of the population, it is quite likely that the Southern corroboree frog may face extinction in the wild in the near future. In the most recent recovery plan, it states that the persistence of this species may ultimately rely on the re-introduction of captive-bred progeny.



The captive component to the recovery of the Southern corroboree frog was established in 1996 as a partnership between the ARC and DEC, formerly known as the NSW National Parks and Wildlife Service. Within the past ten years, large numbers of eggs have been collected annually from the wild and reared in captivity at the ARC with excellent survival rates (Hunter et al. 2005a). A population augmentation project was undertaken in 1997 to determine if populations can be increased by reducing egg and early tadpole mortality (Hunter et al. 1999). Further releases of tadpoles and young frogs have taken place more recently as part of research to determine at which life stage to release animals in order to increase wild populations (Hunter et al. 2005a). Although husbandry procedures have been developed for this species, captive breeding has proven more difficult, with only one clutch being produced successfully on one occasion despite many individuals being kept in captivity.

Taronga Zoo's involvement with the Southern corroboree frog

Up until now, the entire captive population of Southern corroboree frog, excluding a small number at Melbourne Zoo, has been held at the Amphibian Research Centre in Werribee, Victoria. If unfortunate circumstances, such as a disease or natural disaster were to hit this facility, the entire species could be lost. In order to spread the risk, in addition to the resource and financial burden on the ARC, the recovery team decided to involve another large institution. Located in the home state of the Southern corroboree frog, with considerable amphibian experience and high visitation rates, Taronga Zoo was well suited to participate. The aim of Taronga Zoo's involvement in the recovery of the Southern corroboree frog is to hold a large insurance population from wild-collected eggs, rear and release frogs under the guidance of the recovery team, attempt to successfully achieve captive breeding of this species and to educate zoo visitors on their decline and status.

In February 2006, Taronga Zoo received a refrigerated shipping container, specially fitted to rear and house corroboree frogs. The container was funded by the DEC and fitted by the ARC, with the aid of Taronga Zoo's Herpetofauna and maintenance staff. The container has four large tanks, designed to hold eggs and tadpoles, and rows of glass shelving, in which the young metamorphosed frogs will be housed. On the side of the container exposed to public viewing are two windows. Through the smaller of the two windows, visitors will be able to view an enclosure housing a small number of adult corroboree frogs in a sphagnum setting. Through the larger window,

visitors will be able to view the entire inside of the container, including the processes involved in raising this critically endangered species from an egg until it is ready to be released as a young frog.

Education is one of the main roles of Taronga Zoo's involvement in the recovery process. As Taronga Zoo is situated in Australia's busiest city, with large numbers of visitors entering every day, there is an excellent opportunity to bring this little known and rapidly declining species to the attention of the world. As such, the graphics for the container have been carefully designed to catch the attention of visitors and tell the story of this species, through various life stages, detailing their decline and current recovery efforts. The main graphic covering the front of the container is a large sphagnum bog backdrop, portraying the habitat of this species. This attractive image is a sight the vast majority of people will never see. Additional to these graphics, a small shelter adjacent to the container has been restored and will contain a range of interpretative messages and graphics. These messages will include information on recovery efforts in place for the Southern corroboree frog, details on other recovery programs that the Zoo is participating in and facts on some of Sydney's declining frogs.

Conclusion

The Southern corroboree frog is one of the world's rarest amphibians and is closer to extinction than any of Australia's other endangered frogs. Due to disease and drought there is a very real chance that this species could disappear from the wild within the next ten to fifteen years. Currently, a small number of institutions are working in collaboration to extend the persistence of this species in the wild, with the eventual aim of securing sustainable wild populations. The collection of eggs for ex-situ rearing and release is the last chance for this vibrantly coloured and critically endangered species.



World Environment Day

Councillors, Patrick and Suzanne Medway, John Clarke, Carol Nolder and John Robertson attended the NCC NSW Conservation Awards held to celebrate World Environment Day.

The Marie Byles Award for the most outstanding new environmental campaign was awarded to the Rivers SOS Campaign.

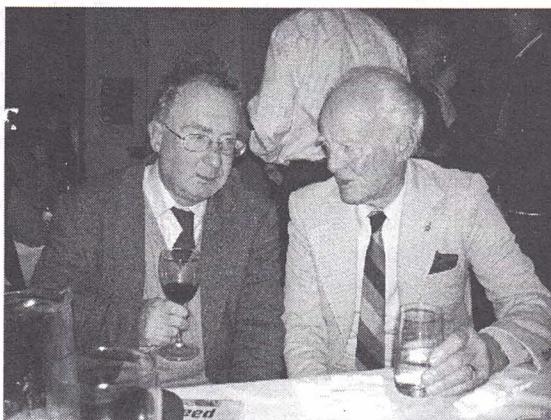
The Dunphy Award for the best environmental effort of an individual was awarded to Bev Smiles (Central West Environment Council, Mudgee District Environment Group).

The Nature Conservation Council Member Group Award for the most outstanding Environmental Group was awarded to the North Coast Environment Council. The Wildlife Preservation Society of Australia was short listed.

The Allen Strom Hall of Fame was established in memory of the late Allen Strom. Bernie Clarke, OAM was short listed and the winner was Alex Colley (Cologn Foundation for Wilderness).



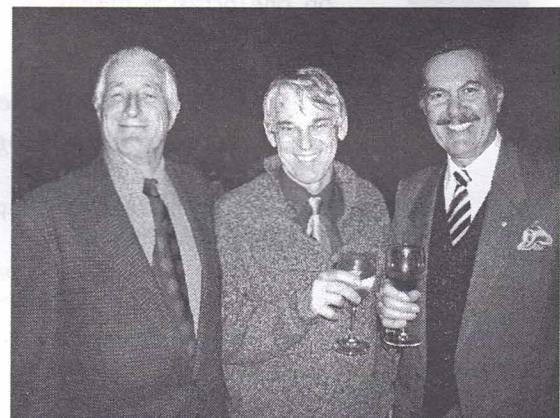
National President Patrick W Medway AM with Bev Smiles of the NPA and Malcolm Fraser of the Wilderness Society at the 2006 World Environment Dinner at the Glebe Town Hall



Professor Paul Adam of UNSW discussing the Towra Point Nature Reserve with Regional Councillor Bernie Clarke OAM at the 2006 World Environment Day Dinner



Members of the Executive Council attending the 2006 World Environment Day Dinner at the NSW Nature Conservation Council at the Glebe Town Hall



Councilor John Clarke, Brian Everingham, President of the National Parks Association (NSW) and the National President Patrick W Medway AM at the 2006 World Environment Day Dinner at the Glebe Town Hall



Wildlife Preservation Society's 2006 University Student Research Grants

Our Society is delighted to announce the successful winners of the Wildlife Preservation Society's 2006 University Student Research Grants.

The university students research grants funds are provided for the purchase of equipment and consumables, travel expenses related to field research, or attendance of conferences at which the student is presenting their academic work. By awarding these grants, we hope to not only assist the successful applications with their studies but also to provide a real benefit in the



preservation of our precious Australian wildlife. By supporting applied scientific research with a wildlife conservation focus, we will further the Society's commitment to environmental education and support university students with a special research interest in wildlife conservation.

The number and standard of applications received were very high and our judges had to be very strict to narrow the winning applications to ten. The applications were judged on their benefit to Australian wildlife conservation, achievability within the proposed time frame, and the level of need. The applications all demonstrated the ability of the student to produce good results within a given time frame, but some demonstrated it more strongly than others.

We will be featuring a more extensive article on the winners in the Spring edition of our quarterly magazine, *Australian Wildlife*.

We will endeavour to continue to support university research students who are involved in wildlife research projects and hope to attract continuing support for the work of the Society throughout Australia. If you have friends who are interested in joining our Society, please feel free to contact our National Office for more literature or membership brochures.

Congratulations to the ten worthy winners.

The awardees for 2006 of the ten university research grants of \$1,000 each to honours or postgraduate students conducting research that will contribute to the conservation of Australian wildlife are:

Enzo Guarino

Enzo is studying at the School of Botany & Zoology, The Australian National University. His PhD research topic is "Conservation Genetics and Comparative Phylogeography of Australia's Biodiversity Hotspot".

Steven Dalton

Steven is studying at the National Marine Science Centre, Coffs Harbour, the University of New England. His PhD research topic is "In situ coral disease transmission experiment and methods to manage coral disease within subtropical reefs, eastern Australia".

Michael Sale

Michael is studying at the School of Life and Environmental Sciences, Deakin University. His PhD research topic is "The ecology and life history of the swamp antechinus (*Antechinus minimus*) and the effect of ecosystem productivity".

Louise Pastro

Louise is studying at the School of Biological Sciences, University of Sydney. Her PhD research topic is "Fight or Flight: Mammal responses to broadscale wildlife in the Australian arid zone".

Kris Murray

Kris is studying at the School of Integrative Biology, University of Queensland. His PhD research topic is "Disease in endangered species: ecology of the interaction between frogs and chytrid fungus".

Abbi McDonald

Abbi is studying at the Department of Marine Biology and Aquaculture, James Cook University. Her PhD research topic is "Latitudinal investigation of coral survival and growth on the Great Barrier Reef".

David Pavlacky

David is studying at the School of Integrative Biology, The University of Queensland. His PhD research topic is "Avian patch occupancy in fragmented subtropical rainforests of Central Eastern Australia".

Tamsin Barnes

Tamsin is studying at the School of Veterinary Science, University of Queensland. Her PhD research topic is "Hydatid disease in macropods: The consequences of an introduced parasite".

Lisa Warnecke

Lisa is studying at the University of New England, Armidale. Her PhD research topic is "Thermal biology and energetics in Dasyurids".

Maria Cardoso

Maria is studying at the School of Biological, Earth and Environmental Sciences, University of NSW. Her PhD research topic is "Population genetics of Australian quolls (Family Dasyuridae)".

We are looking forward to continuing this successful research grants scheme next year to assist other students in their efforts to help gain a better understanding of our Australian wildlife in all its forms.



Use of native species for human needs

Our Society has no objection to the use of native plant or animal species for human needs provided that harvesting is at sustainable levels; the decision to allow such use is made on the basis of sound scientific evidence; levels of exploitation are checked frequently and such levels revised on the basis of sound management practices which are themselves based on hard scientific data and, in the case of animal species, harvesting is carried out in a humane manner, by licensed operators under the control of relevant wildlife government authorities.

Native animal species should not be hunted or farmed for the purpose of supplying human ornament or dress as there are adequate sources of such materials from plant, domesticated animal or manufactured sources.

Where species such as kangaroos are killed for other reasons, such as pest control, meat and skins should not be wasted but should be available for commercial use. If carcasses have a monetary value which can only be realised through proper channels, there is even greater incentive to remain within a licensed system.

Farming of suitable species, such as crocodiles and turtles, should be encouraged as an alternative to taking of individuals or eggs from the wild. Farming is a means of ensuring that there is no depletion of wildlife populations. Farming of some species already has been carried out successfully for a number of years under control of the NT and Queensland wildlife authorities.

Wildlife-based tourism and commercial use of native plants and animals can be an incentive for biodiversity conservation and landscape rehabilitation according to Dr George Wilson, Program Manager of Rural Industries Research and Development Corporation's Sustainable Wildlife Enterprises (SWE) project.

"These incentives can give landholders a reason to sustainably manage threatened landscapes such as rangelands and wetlands, and to restore degraded habitats while also bringing in extra income," Dr Wilson said.

"The sustainable use of our natural resources will continue to require changes in the way we perceive and utilise our natural resources.

"Native species are adapted to Australia's unique landscape and climatic conditions and the development of sustainable wildlife enterprises

is one way to enhance the resilience of our agricultural systems, while minimising the impact on our natural landscapes.

"Through recognition of the value of native species, opportunities to enhance biodiversity conservation and preservation of species and ecosystems on private lands can be derived."

In addition, Dr Wilson said there is an identified need to complement the National Park network by increasing the area devoted to biodiversity conservation on privately managed land.

"Incentives and market-led inducements are needed to encourage biodiversity conservation and to promote sustainable production on private lands," he said.

"Case studies overseas indicate that providing landholders with greater responsibility for wildlife, within strict rules and guidelines, has increased farm incomes and long-term productivity," he said.

"At the same time, areas given over to nature conservation overseas have doubled and the number of species conserved has never been higher."

With support from the Australian Government's National Landcare Program, SWE will develop a strategic and implementation plan for commercial, sustainable biodiversity management that can be implemented by landholders (including Indigenous communities) and rural industries. The plans will be based on integrating wildlife enterprises into existing land use systems.

SWE does not seek to purchase properties and does not ask landholders to forego their existing farming or grazing enterprises. The project is designed to assist landholders to create new enterprises and diversify income streams through the adoption of production systems that may or may not include conventional farming activities.

Members who have any questions about the Society's policies on this matter should contact our national office.





Cost of 4 night/5 day Tour

\$360 per person includes:

- travel in a comfortable coach from Canberra
- twin share accommodation (single supplement \$40 extra per night)
- park entrance fees
- 3 picnic lunches and 1 buffet lunch
- 3 dinners
- Breakfast - self catered. Tea, coffee, milk, sugar bread and marmalade supplied. Extra supplies can be purchased in Jindabyne

**Tour led by Dr Mike Augee
Mammalogist/Paleontologist**

XPT train travel from Sydney to Canberra at own arrangement and cost

Deposit of \$100 required at time of booking

**Bookings by 1 October 2006 essential as numbers are strictly limited
Phone: 9456 4042**

Snowy Mountains - Sawpit Creek Wildlife Tour

Well known for being home to Australia's best snow sports, it is outside this peak season the mountains shake off the snow to expose their real beauty. Spectacular peaks, clear mountain streams and the clean, crisp high country air provide a brilliant backdrop for our Wildlife Tour. In the warmer months, when fields of wildflowers bloom, you can become snap-happy in the high plains or enjoy the impressive scenery on a bushwalk along the rooftop of Australia. The Snowies offer an abundance of natural and cultural attractions and activities.

Sawpit Creek is halfway between Perisher Valley and Jindabyne - 15km each way. On the doorstep of Australia's magnificent alpine wilderness Kosciusko Mountain Retreat is the ideal base for our Wildlife Tour. All cabins have full cooking facilities.

Itinerary

Thursday 26 October

- Depart Central Railway Station at 6.58am via the XPT to Canberra, arriving 11.20am (approx \$65 return) - **please make your own bookings at own cost** or arrange own transport to Canberra railway station or Kosciusko Mountain Retreat
- Met by tour guide, Mike Augee, and bus at Canberra railway station
- Get acquainted buffet lunch
- Dinner to be arranged
- Accommodation at Kosciusko Mountain Retreat, Sawpit Creek

Friday 27 October

- Local walks to the fish hatchery and other places of interest
- Picnic Lunch and BBQ dinner included

Saturday 28 October

- Travel by coach to Thredbo, then on to Kosciusko and Charlotte Pass - with a choice for the energetic folk of walking any of these sections, or take the chair lift
- Picnic Lunch and BBQ dinner included

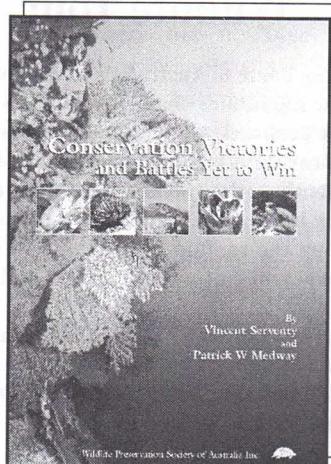
Sunday 29 October

- Visit to the power stations, then on to a "wombat search" at Jindabyne
- Picnic Lunch included
- Evening meal in Kosciusko (at own cost)

Monday 30 October

- Homeward bound. Coach trip to Canberra railway station
- Depart Canberra on XPT to Sydney
- Arrive Central Railway Station Sydney

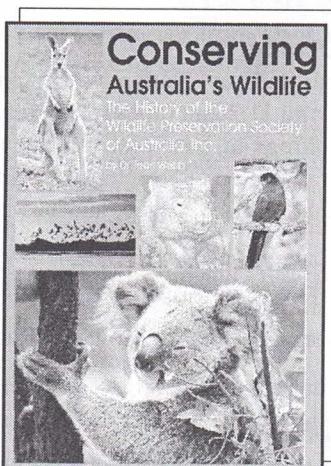
Books from WPSA - Order Now!



This new book chronicles many successful conservation battles to protect and save the Australian environment across a wide range of controversial issues.

Written by prominent conservation and environmental activist, Dr Vincent Serventy AM, and the current National President of the Wildlife Preservation Society, Patrick W Medway AM, this book covers conservation battles ranging from the campaign to extend the protection zone of the Great Barrier Reef to the restoration of the Towra Beach RAMSAR site. Examples of conservation victories achieved by some of the actual people who were on the ground at the time of these conservation battles are faithfully recorded in great personal detail.

Price: \$20.00
including GST
(Plus \$5 postage & handling)



A book detailing the history of the Wildlife Preservation Society of Australia since its inception in 1909. You will be able to read in this book the history of our Society over almost a hundred years.

Price: \$15.00
including GST
(Plus \$5 postage & handling)

Conservation Victories and Battles Yet to Win

By Vincent Serventy and Patrick W. Medway

Price: \$20.00 each

Conserving Australia's Wildlife

By Dr Joan Webb

Price: \$15.00 each

Please allow 14 days for delivery

Quantity	Total
in	_____
_____	_____
_____	_____
Add Postage & Handling :	\$5.00
TOTAL:	_____

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Payment Details (please tick)

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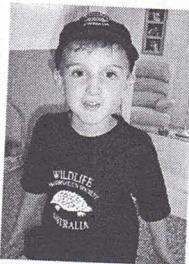
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WPSA MERCHANDISE

Many of our members have expressed interest in purchasing gift merchandise for friends and family (or even themselves)! This is a great way to support WPS, so we have responded below with a mail order system. Simply send your cheque or credit card details (with expiry date) and we will post your order out to you. All prices include GST and 20% member's discount. All proceeds go towards our conservation projects.



Polo shirts: \$25.00
(navy with white logo/ white with navy logo)



Kids T'shirts: \$10.00
(navy with white logo/ white with navy logo)



Cap: \$10.00
(navy with white logo)



WPS ceramic mug: \$5.00
(white with blue logo)



Drink bottle bag: \$10.00
(navy with white logo, bottle not included)

Product	Quantity	Size	Cost per item	Total
Polo shirts	_____	S, M, L, XL, XXL	\$25.00	_____
Children's T shirts	_____	4-6, 8, 10	\$10.00	_____
Caps	_____	n/a	\$10.00	_____
Mugs	_____	n/a	\$10.00	_____
Drink bottle bag	_____	n/a	\$5.00	_____
		n/a	\$10.00	_____

Add \$5 Postage & Handling within Australia :

Please allow 14 days for delivery **TOTAL:** _____

Delivery Details

Name: _____

Phone: _____ Email: _____

Address: _____

Payment Details (please tick) Cheque Money order Mastercard Visa Bankcard

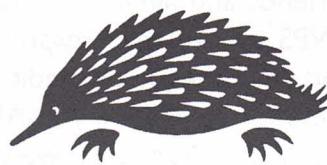
Card Number: _____

Name on Card: _____ Expiry: _____

Signature: _____

Send this order by MAIL:
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Brighton Le Sands NSW 2216
or for CREDIT CARD payments
by fax to: 02 9599 0000

Membership Form...



WILDLIFE PRESERVATION SOCIETY OF AUSTRALIA, INC.

Wildlife Preservation Society of Australia, Inc. (Founded 1909)
PO Box 42 Brighton Le Sands NSW 2216

Membership

Why not become a member of the Wildlife Preservation Society of Australia Inc?
Simply fill out this form.

Name:

Address:

City/ Suburb: Postcode:

Telephone: Fax:

Membership category (please circle)

Individual: \$35 Family: \$45 Concession (pensioner/student/child): \$25

Associate (library, school, conservation groups): \$55 Corporate: \$65

(Includes GST and postage within Australia. Add \$10 for overseas postage)

Payment Details (please tick) Cheque Money order Mastercard Visa Bankcard

Card Number: _____ Amount \$

Name on Card: _____ Expiry: _____ Donation \$

Signature: _____ Total \$

**Mail to the: Wildlife Preservation Society of Australia Inc.,
PO Box 42, Brighton Le Sands NSW 2216.**

Consider - A Bequest

Another way which you can support the work of the Wildlife Preservation Society of Australia Inc. is to remember us in your will.

If you would like to make a bequest to the Wildlife Preservation Society of Australia Inc., add the following codicil to your Will:

I bequeath the sum of \$ to the Wildlife Preservation Society of Australia Inc. for its general purposes and declare that the receipt of the Treasurer for the time being of the Wildlife Preservation Society of Australia Inc. shall be complete discharge to my Executors in respect of any sum paid to the Wildlife Preservation Society of Australia Inc.

"The challenge to the present adult generation is to reduce the increasing pressures on the Earth and its resources - and to provide youth with an education that will prepare them emotionally and intellectually for the task ahead."

VINCENT SERVENTY AM
President of Honour

PATRICK W MEDWAY AM
National President



Western Australia scenes



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