

**Spring 2004
Volume 22
Part 3**

**Scientific
Officer's Report:**
2004 State Budget
— a brief overview

**Conservation
Biology Grant
Report:** Hidden
insects of the
Flinders Ranges
bat caves

**Future for native
vegetation?**
General meeting
report

Deep Creek
Biodiversity says
'**what about me?**'

Southern Seas
and Insights into
the Gulfs, Part I

NCSSA major concerns include

- Native vegetation, threatened species and habitats
- Protecting all forms of life (biodiversity) on land and in the oceans
- Park dedication, management and legislation
- Education about biodiversity to all sections of the community
- Cooperation with other conservation groups

Inside this issue:

D. Kraehenbuehl AM Annual General meeting	3
Get a Grip	4
Scientific Officer's Report— 2004 State Budget	6
Deep Creek Biodiversity says 'what about me?'	7
Future of native vegetation?	8
Bandicoot Survey	9
Conservation Biology Grant report	10
Southern Seas and Insights into the Gulfs, Part I	12
Walks with Nature Vale David Vincent	15

Around NCSSA

Katie Rouse has recently left to take up a full time position with the Department of Health. Katie worked as last year's survey coordinator (Hopkins Creek) and as Assistant Biodiversity Extension Officer organising biodiversity workshops. Katie has done great work over the past year and we will miss her around the office, but hopefully will see more of her in a new role, as a member on our management committee.

Katie's departure leaves a vacancy at NCSSA and we will shortly be advertising her Biodiversity Extension Officer position. This is a temporary position for a period of 6 months working 4 days per week - see notice this issue.

Tim Jury has recently commenced employment as the Threatened Plant Action Group Program Coordinator, based in the NCSSA office. We look forward to working with Tim over the next year.

With the appointment of Tim, Annie Bond has finished as temporary TPAG program coordinator and is finally off on her travels around Australia. We are all very envious, and wish Annie all the best.

Other additions to the Wakefield Street office include Tim Milne. He is our Biodiversity Extension Manager and was previously located in our office at the Pasadena Natural Resource Centre. Tim has recently moved back to our main office and will continue his work managing the bushland monitoring manual projects, overseeing our biodiversity workshop programs and liaising with the Integrated Natural Resource Management groups.

Visit the NCSSA website for details on some biodiversity workshops planned for Berri and Meningie on the unique flora and fauna of the Murray Darling Basin. Topics to be covered in a four workshop series at each location will

include: the ecology of butterflies and other insects, reptiles and frogs; habitat requirements of bats and other mammals; understanding the ecology of birds; and investigating the unique habitats and vegetation of the Murray Darling Basin. These workshops will be during October and November, and are supported by the Murray Darling Basin Natural Resource Management Group.

Kerry Gilkes' project working as Grassy Ecosystems Officer in the Upper South East has now finished. Kerry has done a terrific job over the past two years, educating landowners in the importance of grassy ecosystems, most recently funded by the SE Natural Resource Consultative Committee. Kerry is continuing her work in the region, but funded through other sources.

NCSSA people

Management Committee

President, vacant
Vice-President, Helen Vonow
Secretary, Phil McNamara
Assistant Secretary, vacant
Treasurer, Misch Benito

General committee

Sara Boulton, Nicole Lewis,
David Moyle, Ann Prescott,
Peter Tucker, Scotte
Wedderburn, Richard Winkler

Staff

Scientific Officer, Matt Turner
Administrative Manager, Elizabeth Lonie
Biodiversity Extension Manager, Tim Milne

Project Officers

Penny Paton, Temperate Woodland Campaigner
Meg Robertson, Stop Bushland weeds
Jo Spencer, Grassy Ecosystems, Mt. Lofty Ranges
Eastern Flanks
Tim Jury, Program Coordinator, Threatened Plant
Action Group

Darrell Kraehenbuehl AM

The mid-year Honours List cited one of our 1963 initial steering committee and foundation members, Darrell Kraehenbuehl, as an *Order of Australia* recipient for his contribution to conservation of the environment and for extending the knowledge of botanical history.

Darrell's zeal for conservation began in 1953 when he joined the Field Naturalists Society of South Australia and the South Australian Ornithological Association. In the 1960's he lectured on botany for the WEA for some eight years, and on two occasions was the botanical tutor for The University of Adelaide Spring Schools in the Flinders Ranges.

Darrell took up a position with the (now) Department for Environment and Heritage in 1983 as a botanist until his retirement in 2000. In 1981 he took a B.A. (University of Adelaide) majoring in Aboriginal Anthropology and German History. Darrell has written 175 articles for various journals, including about 10 biographies on important botanists who came to 19th century South Australia. He is also the author of *Pre-European Vegetation of Adelaide* (1996). Darrell also wrote the botanical reports used in part in the submissions which resulted in the acquisition of several Conservation Parks, including amongst others: Deep Creek, Piccaninnie Ponds in the SE, Kaiserstuhl, Marino, Cox Scrub and the Aldinga Scrub C.P.

Our congratulations to Darrell on his well-earned reward.

Annual General Meeting

The AGM of NCSSA will be held on September 2nd from 6.30pm at the Armoury Building, at the rear of the South Australian Museum (entrance from Kintore Ave, along the back of the State Library)

Speakers are founding members **Anne and Peter Reeves** on the topic of *Nature Conservation - Past, Present and Future. ~ an illustrated and interactive presentation.*

Do you want to assist your Society?

Nominate for the NCSSA Committee. Positions are: President, Vice President, Secretary, Assistant Secretary, Treasurer and five Committee members.

A Nomination form can be down loaded from our website www.ncssa.asn.au or from the office.

We also require assistance with:

Xanthopus - submissions and editing

Projects - on Steering Committees

Activities - organisation and participation

General Meetings - helpers and speakers

Your contribution enables the running of the Society.

Upcoming position:

Assistant biodiversity extension officer

Role: Manage a series of biodiversity workshops in the Murray Darling Basin, Mid North and Yorke Peninsula. This involves designing an appropriate workshop series, organising key speakers, arranging venues, liaising with regional extension staff, attending and evaluating workshops, and completing reporting on workshop outcomes.

Position at 4 days per week for 6 months, extended to 10 months dependent on funding. PSO 1 salary range.

Further details available from the NCSSA website (www.ncssa.asn.au), or on 8223 6301. Applications will be due Monday 6th September.



HANDS ON ACTIVITIES FOR MEMBERS

National Threatened Species Day - 7th September

Each year this day marks the day the last Tasmanian Tiger died in the Hobart Zoo in 1936. The day is used to highlight the plight of Australia's threatened species and to encourage the community to become involved in local recovery actions.

A calendar of activities and events for September 2004 will be available from the Threatened Species Network (SA) in late August, as well as National Threatened Species Day Kits including threatened species fact sheets, stickers and a poster. For more information about National Threatened Species Day 2004 activities, or to order a copy of the calendar or kit please contact Karina Mercer, TSN (SA) at the Conservation Centre on (08) 8223 5155 or email: tsnsa@wwf.org.au.

The NCSSA Spring Survey

Keep an ear to the ground ~ the Annual Spring Survey is coming soon to a place near you! NCSSA intends to hold a Spring Survey with a difference this spring. As usual NCSSA is on the cutting edge of biodiversity and land management – monitoring and evaluation of decision-driven management.

WHEN: predominantly weekends, late October and throughout November

WHERE: several properties in the Goolwa/Strathalbyn area

The purpose of the survey will be to collect quality baseline data on things we think might change in response to landholder's management actions (e.g. fencing, biological controls, controlled grazing, burning). This sort of information will help landholders and biologists make decisions about maintaining and improving the "biodiversity condition" of Pink Gum woodlands on private land, including Heritage Agreement land. This will also help monitor their usefulness for retaining declining woodland bird populations.

Questions that landholders and biologists want answers to include:

- Can we get regeneration of native species using adaptive management techniques?
- Can we get reduction of weed cover using adaptive management techniques?
- Should we burn for biodiversity gains?
- Should we time-manage some grazing for biodiversity gains?
- Can we get trees to germinate and grow in paddocks with limited and controlled grazing?
- Can we manage mistletoe populations better?
- Can we manage weeds such as Bridal Creeper and Perennial Veldt Grass better?
- What effects will these decisions have on bird populations and breeding?

Activities to include:

- Vegetation mapping (*Eucalyptus* and Sheoak seedlings; weed distribution and populations)
- Bird-watching for habitat use of various species

WHO: Anyone with an interest in good science, land management, Pink Gum woodlands & birds of the Fleurieu are welcome to participate. To be involved get your contact details to the NCSSA office on (08) 8223 6301 or ncssa@ncssa.asn.au. Further information will be sent to you via snail mail and/or email.

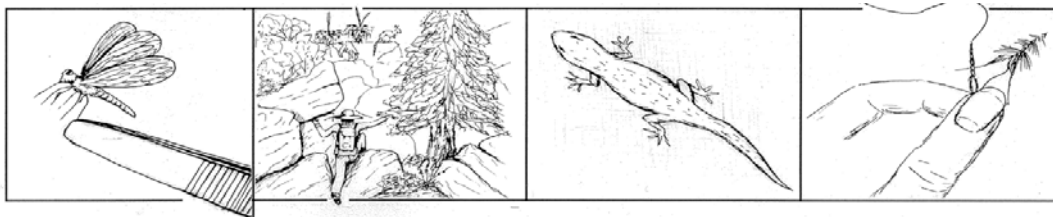
2004 Native Grass Workshops

Once again the *Native Grass Resource Group*, *Trees For Life* and the *NCSSA* bring you our Native Grass Workshops, presented by Ann Prescott (supported by the Mount Lofty Ranges INRM group).

Get close and personal with grasses. Learn the necessary terms for successful grass identification. Sharpen your observation skills. Learn common characteristics and differences between grass groups.

This year we have only one series of workshops running, so please register early as places will go fast. The series will comprise 6 evening sessions (weekly) 7- 9pm, commencing Tuesday October 5th and will also include a 2 hour field trip on Saturday 20th November.

Cost per session is \$22 for financial members (\$50 for non-members). Preference will be given to participants booking for the entire series. For bookings please contact Elizabeth at NCSSA on (08) 8223 6301.



Threatened Plant Action Group (TPAG) Activities

If you'd like to help out with management of threatened plants and vegetation communities contact Tim Jury our TPAG Coordinator on 8232 4088 or tpag@ncssa.asn.au.

TPAG working bees coming up over the next couple of months are:

September 6th - 17th, Kangaroo Island field trip

To continue with on-ground recovery actions for several species of national conservation significance. Those interested need to get in touch ASAP with TPAG Coordinator Tim Jury on 8232 4088.

Saturday 16th October, Belair National Park, Long Gully

Help restore and protect habitat for the nationally vulnerable Leafy Greenhood with the Native Orchid Society, Friends of Belair, and DEH.

Weekend 30th - 31st October, 10.00am, Pine Point, Yorke Peninsula

A spring weekend away with the Australian Plant Society to continue with habitat management work for Neat Wattle.

Field River walk - Sunday 31st October

The Marion Council have agreed to take Society members on a walk through the land encompassing the Field River at Hallett Cove. The Council's Marion South Plan proposes that the land be publicly managed. Come along to hear and see the issues regarding environmental management of this unique, spring-fed waterway.

Contact Scotte Wedderburn on 0412 501 115, or the NCSSA office on 8223 6301 after the 27th September to register interest and find out a meeting time and place.

FNSSA Mammal Club field trips

Warrenben Conservation Park on Yorke Peninsula during the October long weekend, Friday 1st - Monday 4th October 2004. Leader Rodney Hutchinson

Carpenters Rocks - a property in the South East owned by the Field Naturalists Society of S.A. Proposed for 26th to 29th November 2004. Also to explore Bool Lagoon and Naracoorte Caves. Nearby caravan park bookings are being considered. Transport can be arranged for those needing transport. Please contact Jenny Mealor ASAP Ph: 83652491 so that definite plans can be made.

Douglas Scrub Survey 5th to 7th November 2004. Property owned by the Girl Guides Association, along Blewitt Springs and Douglas Gully Roads, north of McLaren Flat. Leader Rodney Hutchinson

If you are interested in participating in or would like further information please contact:-

Peter Matejcic (chairperson) on home ph: 82633125 or email pmatejcic@adelaide.on.net

Rodney Hutchinson on home ph: 8264 0289 or email rodlyd@chariot.net.au

Graham Medlin on home ph: 8276 4499 or email gmedlin@bigpond.com

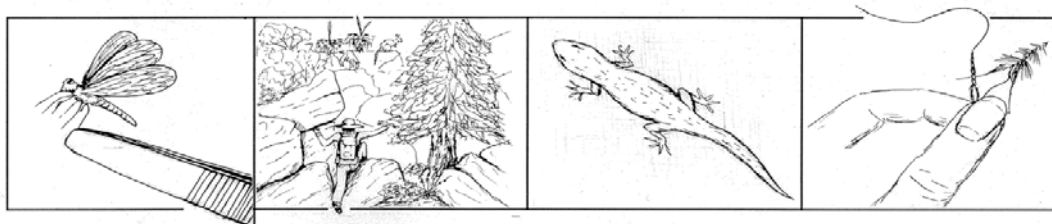
so that specific details, maps and arrangements for the trip can be sent or posted to you prior to the event.

Participation by members of other conservation groups is welcomed. Students at tertiary institutions studying biology, natural resource management, Parks and Wildlife Management or any ecology-based courses which include aspects of field survey are particularly welcome. No experience required. Families are welcome. You do not need to be a member to participate on initial field trips, but we hope that you might consider joining the FNSSA and Mammal Club.

Froggy Weekend, Morgan - Friday 22 to Sunday 24 October 2004

The SA Herpetology Group is holding a social get together and a Froggy weekend at Morgan, on the River Murray and backwater lagoons, to study frogs and reptiles along the river's edge.

For further info contact Peter Matejcic on pmatejcic@adelaide.on.net or 8263 3125 (a/h).



Scientific Officer's Report:

2004 State Budget — a brief overview

On the 27th of May, the State Treasurer released the 2004-2005 Budget. As most people are well aware "the Budget" is a cumbersome and obtuse beast. To make good sense of the Budget you need a PhD in smoke-and-mirrors. Nevertheless, despite the impediments to understanding a government's accounting ledger, I will attempt to make some sense of it.

Apart from the objective of keeping the State's economy in the black, this year's Budget was clearly focussed on issues such as hospitals, literacy, child protection and law enforcement.

With several billions of dollars to spend, one might believe that there is enough money for all services, including the environment. However, a quick look at our hospitals, roads, and national parks soon brings us back to the reality that in each area more money could be spent.

The Budget papers do not give the relative breakdown for each portfolio, but a quick calculation shows that the Environment and Conservation Portfolio¹ gets 1.8% of the government's revenue.

It seems that the government is happy for its spin doctors to show graphs which seem to indicate a steady increase in funding (Figure 1). In fact, it is *not* displaying gross expenditure funding, but a steady increase in 'net cost', being the government's top-up revenue to match gross expenditure. Much of this 'increase' is merely a transfer of revenue streams to other government departments. To keep these programs going, the government needs to make up the difference.

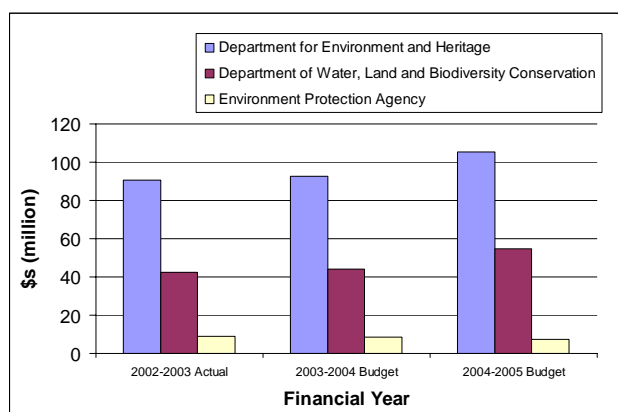


Figure 1. Environment and Conservation Agencies ~ Net Cost

Several points require closer scrutiny. While the level of net funding to the Department for Environment and Heritage appears to have increased over the last three financial years, the overall trend in gross spending is falling – arguably a better indicator of conservation efforts. Also some programs have benefited more than others (Table 1).

Sustainability net funding appears to have increased substantially. However, significant revenue was previously collected under this program from public inquiries relating to property title information. This responsibility has been transferred out of the Environment and Conservation Portfolio, so the net cost of delivering the Sustainability program has increased. This makes direct comparison of trends for both gross and net spending difficult to judge without including those items transferred to other portfolios.

Funding for the Nature Conservation Program continues to decline in both net and gross spending. This program is one of the

most important services provided by the Department, and include important sub-programs such as Scientific Services (e.g. the Biological Survey, the State Herbarium, biodiversity planning, pre-European vegetation mapping) Biodiversity Conservation Services (e.g. threatened species, *NatureLinks*) and Regulatory Services (e.g. permits, detection of illegal vegetation clearance, etc). Each of these sections provide the fundamental information and direction for on-ground management both inside and outside parks throughout the State.

Table 1. Summary of program funding for Dept for Environment & Heritage.

Program (program objectives in brackets)	Net Cost		
	2004-05 Budget (\$000)	2003-04 Estimate (\$000)	2002-03 Actual (\$000)
Sustainability (Promotion of sustainable and eco-efficient human endeavour with minimal impact on essential life systems)	18791	10877	13698
Nature Conservation (The management, science and education contributing to conserving the State's biodiversity)	16474	16721	18299
Public Land Management (The conservation, maintenance and stewardship of the State's public lands)	58191	53294	48921
Coast and Marine Conservation (The conservation, management and protection of the State's coast and marine environment)	8641	7706	5744
Heritage Conservation Services (The understanding, conservation and protection of the State's rich heritage)	2538	2084	3025
Animal Welfare (The promotion and regulation of the humane treatment of animals)	720	724	729
Totals	10535	91406	90416

The Nature Conservation Program has consistently declined in funding over the past few years. Yet this has happened at the same time as increased responsibility (for example, the government's initiatives of *NatureLinks* and *No Species Loss* come under this program).

The net cost associated with Public Land Management has steadily increased over the last few financial years, although gross spending has decreased slightly. The lion's share of this funding stream, \$27,000,000, is directed to 'Visitor Management Services' (walking trails, tourism related initiatives, interpretation, park infrastructure, etc). However, the increase in the table is attributed to reduced revenue going to Land Administration Services.

One program that *does* appear to have been granted a genuine increase in funding in both net and gross spending is Coast and Marine. The additional funding here has gone to Marine Protected Areas, an Adelaide Coastal Protection Strategy, and the Adelaide Dolphin Sanctuary.

In summary, it is disappointing to see that once some of the illusion and window-dressing is removed from the budget figures, we can see that real levels of funding to the environment have declined. Moreover, the programs hit hardest are those most needed.

Matthew Turner E-mail: scientific@ncssa.asn.au

¹ The Environment and Conservation Portfolio is comprised of three government "Agencies" – the Department for Environment and Heritage, the Department of Water, Land and Biodiversity Conservation, and the Environment Protection Authority.

DEEP CREEK BIODIVERSITY SAYS – “WHAT ABOUT ME?”

When the lyrics of the song ‘What about me’ were first penned, it would be a fair bet that the last thing the songwriters had in their minds was the environment.

Yet, in borrowing the following verse from the song, ~

*“What about me, it isn’t fair
I’ve had enough, now I want my share,
Can’t you see, I wanna live
But you just take more than you give”*

it becomes a poignant statement to highlight the plight of the biodiversity within the upper reaches of Deep Creek ~ which gave its name to the Park ~ a situation in which a once permanent water regime has been reduced to intermittent water flows. The creek is now dry for more than half the year, the result of planting a ForestrySA pine plantation in 1990 within a spring-fed subsection of the watershed.

Oh, you won’t hear a chorus emanating from the bush, but if you look carefully, nature is showing us signs that all is not right ~ the impoverished sedge grasses, the dying swamp wattles. The water-dependent Tall Spike-rush standing in the middle of a dry creek bed, once rich green and in a metre or more of water, now a pale yellowish-green and chewed to within 600mm of the ground, its very survival in the balance. The Hard Water-fern, struggling to put out a few green fronds amongst the tangled mat of dead and dying fronds. The

Bassian Thrush, the Sacred Kingfisher and the migratory visitor from Japan Latham’s Snipe we haven’t seen for the past few seasons. The Kangaroo “camps” in the rich peat soils that once formed the creek bed. And the list goes on. The more you look the more you see.

The native Galaxias and introduced Brown Trout have long gone, but the drying springs and creeks not only threaten their own aquatic and water-dependent biota, but that of their attendant swamps and wetlands. One has to ask, where do the myriad insects and other animals now go to quench their thirst and complete their lifecycle? And how has this change affected the natural prey / predator balance, and placed added pressure on the remaining water resources in the area?

I fear we are only observing the ‘tip of the iceberg’, and that the ramifications of these changes are even more complex and far-reaching.

The expansion of tree plantations within the adjoining Dog Trap Creek watershed has the potential to further restrict the summertime flows of the entire Deep Creek system. This would impose even greater pressure on the plants and animals in an even larger region.

There is a small population of approximately 200 of the now critically endangered Mt Lofty Ranges race *intermedius* of the Southern Emu-wren in heathland within the Deep Creek Conservation Park, and a number of even smaller discrete populations in swamps on private land in its close proximity.

If we do nothing and allow the degradation and loss of these

swamps and bushfire razes the Conservation Park heathland, destroying their breeding habitat, there is a real possibility that the birds will be exterminated, as happened in Cox Scrub Conservation Park in 1983*. The preservation of the swamps thus fulfils primary and secondary components of a risk management strategy for the preservation of the sub-species in the event of destruction of the main breeding habitat.

Whilst the Mt Lofty Ranges Southern Emu-wren is an iconic bird to the area it is not the only conservation-rated plant or animal reliant on these ecosystems, and the loss of any of the diversity associated with Deep Creek would be a bitter blow.

The South Australian government has taken a strong stance with neighbouring states about their use of water from the River Murray, and our rights to retain an ecologically healthy river system for the use of all South Australians. This situation is no different for Deep Creek. It needs a permanent flow to retain the life forms dependent on that water.

It is ironic that the Premier and his Government are fighting so strongly for the River Murray’s environment while another government instrumentality, ForestrySA, is so obviously at odds with this direction. It has steadfastly refused to acknowledge that Deep Creek was a permanent waterway prior to the establishment of its pine plantation in 1990, despite evidence ~ historical; landholder; direct witness; biological and video. It therein denies that its plantations are

damaging the environmental flows and the ecosystem of Deep Creek and its associated peat swamps, three of which are specifically identified within the Environment Protection and Biodiversity Conservation (EPBC) Act 1999.

In 2002/03 ForestrySA reported a \$37.8 Million trading profit (prior to revaluation) which, when spread across all its 82,165ha of plantations equates to \$460/ha/annum return or \$1.26/day/ha (ca. \$124,000 PA return on its 269.62 ha Deep Creek plantation) ~ what a remarkably small return for the Government to forgo to ensure that our natural heritage is passed on to future generations! But in fact it seems feasible that if those ca. 270 ha were harvested and sold as pasture land, (thus restoring natural springs and water seepage flows to Deep Creek) the return would be sufficient to buy cheaper ready-cleared land to augment ForestrySA’s plantations in the Lower S.E.

The biodiversity of Deep Creek is telling us that changes to its water regimes are seriously affecting its ecosystem. It cannot say the words, but in actions it is screaming ever so loudly, ‘What about me’, so I guess the task of articulating its message is quite simply left ‘to you and me’.

Kevin Bartolo
(local land owner)

* In a re-establishment attempt, 46 Emu-wrens were translocated from Deep Creek C.P. to Cox Scrub C.P. in 2001-02. Up to 26 young evidenced short-term success. But in late 2003, monitoring was able to confirm a minimum of only 12 birds ~ and these included four colour-banded individuals translocated in 2001. (Eds.)



Deep Creek ~in despair

Photo: Kevin Bartolo

Future for native vegetation?

On our usual Thursday evening monthly general meeting, we were fortunate to have the Acting Director of the Land and Biodiversity Services Division, in the Department of Water, Land and Biodiversity Conservation, Mr Tim Dendy, talk on (how to) 'Halt the Decline and Decreasing Quality of SA's Native Vegetation'. As substantively the Manager of the DWLBC Native Vegetation Group, he is well-positioned to present recent changes to the Native Vegetation Act.

As expected, many members and visitors came laden with their own preconceptions to hear what Tim had to say about the future of SA's native vegetation. Major changes to the Act and Regulations came in August last year, and have also been provided for in the Natural Resources Management Act 2004 recently approved by Parliament. Tim sought the meeting's views.

The most important changes to legislation included:

- a formal end to broadacre clearance
- a requirement that clearance approval must be conditional on a significant environmental benefit to offset biodiversity loss through clearance, and
- a considerable increase in maximum penalties for non-compliance.

Tim said that despite having, arguably, the most effective native vegetation conservation legislation in Australia, species loss was still continuing. He suggested that a good deal of habitat restoration was needed to help redress some of the losses. '*Halting the decline in the quality and extent of native vegetation*' was one of five key priorities for DWLBC. The Department recognised the need to do something different.

Tim believed that the key to the future was working in partnership with landholders to tie improving biodiversity with an increasing farm income, using an outcome-driven process across the landscape.

He outlined a number of initiatives currently being examined and invited views. These included:

- **Providing resource security for biodiversity and farming operations through a system of voluntary property native vegetation plans.**

He noted that this approach could provide farmers with the option of an alternative to the current exemption provision that allowed landholders to clear regrowth within five years without approval. The current exemption discouraged

farmers from allowing natural regeneration. It also placed additional expense on farmers who were undertaking pasture renovation within a much shorter period, (within five years), and more often than traditional operations which were usually carried out about every fifteen years. As part of a property plan, a landholder may agree to the retention of a specified number of regenerating trees, for example, with the security that other regenerating trees may be cleared.

- **Biodiversity adjustment on a property and landscape scale**

To achieve biodiversity outcomes, Tim suggested that offsets for clearance could be achieved on a property and landscape scale.

- **Systematic monitoring of native vegetation clearance on a two-yearly basis**

Tim suggested that using satellite images to detect native vegetation changes, already used in the Upper South East and Kangaroo Island was a cost-effective way to monitor broadscale clearance.

- **Education**

Tim recognised a need to further promote the value of conserving native vegetation, but that this was also a role for conservation groups.

Some of these changes were questioned and challenged, and some positive recommendations were made. The precise positive benefits to biodiversity were questioned regarding extending the period in which landowners are allowed to clear regrowth. Many agree that this debate needs to continue before such a provision can be included into legislation. It was agreed that the Native Vegetation Council needed to raise its profile, which would assist it to receive more funding for projects, and improve clearance monitoring and legal action.

Tim asked the question "How do you eat an elephant" to which he replied "Piece by piece." He used this analogy with regards to changes to native vegetation legislation, arguing that proposing significant changes would be poorly received by the community and some parliamentarians. Several members question this argument, particularly in the context of a need for Biodiversity Act that could potentially deal with vegetation clearance matters. In part Tim attended the meeting to receive feedback. The opportunity for comment and clarification on these important issues was greatly appreciated.

Sara Boulton
Committee Member

XANTHOPUS

The views presented in this newsletter are not necessarily those of the NCSSA

TEAM: Bob Brown, Nicole Lewis, Elizabeth Lonie, Helen Vonow, Scotte Wedderburn

COPY DEADLINE: Copy for the Summer issue of *Xanthopus* is **Monday 1st November 2004**

Contributions in a variety of formats will be considered, but electronic submissions are preferred.

Bandicoot Survey

Of the eight species of Bandicoot and Bilbies that used to occur in South Australia, only the Southern Brown Bandicoot still occurs in the wild. It has coarse brown fur, a long snout, small round ears and a short tail. It is a marsupial about a third to half rabbit-size and is sometimes mistaken for a large rat! In April 2001 the subspecies that occurs on mainland SA and Kangaroo Island (and Victoria and New South Wales) was listed as nationally endangered. In early 2002 a regional recovery team was formed to oversee its conservation and recovery in the Mount Lofty Ranges.

Bandicoots were previously considered to be relatively common, but extensive vegetation clearance and modification has resulted in fragmented habitat. Other threats thought to have contributed to a decline in numbers include bush fires, predation by foxes, cats and dogs, and road kills.

Southern Brown Bandicoots live in dense habitats and because they are predominantly nocturnal, are rarely seen. Their presence is often first detected by the telltale conical holes they dig in search of invertebrates and fungi. They also eat some fruits, seeds and other plant material. During the day bandicoots rest in nests of grass and other vegetable matter constructed on the ground, usually well hidden in dense vegetation or leaf litter. They live for three to five years and usually breed from winter through to summer. During this time a female can produce up to four litters of two to three young. Bandicoots have the shortest pregnancy of any marsupial, two weeks, and after birth the young remain in the pouch for two months.



Southern Brown Bandicoot
(Photo courtesy of The Advertiser)

Despite the relatively large number of young produced each year, few individuals survive to maturity.

The Department for Environment and Heritage has contracted a Bandicoot Project Officer, Kirstin Long, to undertake actions to assist in the population recovery of the Southern Brown Bandicoot in the Mount Lofty Ranges. The position is funded by the Natural Heritage Trust directed through the Mount Lofty Ranges and

Greater Adelaide INRM group. During the next six months Kirstin will:

finish writing the species Regional Recovery Plan; provide information and advice to the community about bandicoot conservation; undertake a broad-scale survey of the Mount Lofty Ranges to

clarify its distribution; identify future research priorities; and devise a method of monitoring outcomes of management actions (such as revegetation and habitat restoration) that can be undertaken in conjunction with local community conservation groups.

For further information about bandicoot identification, threats, or ways to help conserve your local bandicoot population, please feel free to contact Kirstin at Black Hill Conservation Park (ph: 8336 0919). If you see a bandicoot record the location details as accurately as possible and submit the record via the DEH website www.deh.sa.gov.au/biodiversity/bandicoot.html or write to Kirstin.

Kirstin Long, Bandicoot Project Officer, DEH

Call for volunteers!!

Except at a few well-studied sites, broad-scale surveys for Southern Brown Bandicoots have not been conducted in the Mount Lofty Ranges since the 1980s. To assess the current distribution of the species in the region, DEH is about to conduct surveys at a number of sites using devices to collect hair samples and to record bandicoot footprints.

The survey will be run each week from Monday to Thursday starting September 6th through until about mid-October. Sites on the Fleurieu Peninsula will be surveyed during the first three weeks and sites in the Adelaide Hills in the second three weeks.

Volunteers must be physically fit to cope with long hours in the field pushing through dense scrub (rain or shine!) and be able to commit to at least two consecutive days work.

People interested in assisting with the survey effort should contact Kirstin Long, Bandicoot Project Officer, on ph: 8336 0919

NCSSA CONSERVATION BIOLOGY
GRANT REPORT:

Hidden insects of the Flinders Ranges bat caves

The diversity and abundance of cave-dwelling invertebrates in Australia is beginning to be studied and fully appreciated. South Australia has several limestone areas with the potential to hold large subterranean invertebrate communities relying on bat guano as food. The 200,000 km² Nullarbor Plain in the far west of the state is one of the world's largest karst areas (i.e. terrain with high rock solubility combined with subterranean drainage). The south east karst of South Australia is renowned for its numerous water-filled sinkholes, although many dry caves are also found there. The Flinders Ranges is famous for its spectacular scenery and arid beauty. More than 200 caves have been recorded from the numerous limestone outcrops throughout the Ranges, many of which are home to small (<50 individuals) bat populations. These transient populations are dominated by the inland cave bat (*Vespadelus findlaysoni*), and the chocolate wattled bat (*Chalinolobus morio*) is occasionally recorded.

This study was undertaken because little was known about cave-dwelling, and specifically, guano invertebrates of this important karst region, lying between the comparatively well-studied eastern and western karst regions. Published accounts of guanophilic (guano loving) arthropods for the Flinders Ranges are of the beetle *Brises acuticornis* from only three caves. There are also several unpublished records of unidentified mites, beetles (Carabidae) and flies (Nycteriibidae).

The majority of caves examined during this study are small and rarely reach complete darkness or attain a deep zone (constant temperature

and humidity). Several horizontal mine adits were also examined, because they form important bat roosts in some areas. Guano caves and mines in the Flinders often have extremely low relative humidities (20%) and are commonly characterised by dry, acidic pellet-like guano, even under active bat roosting areas which elsewhere normally have moist conditions.

The diversity of guano-associated invertebrates in 12 caves and mines in the Flinders Ranges was recorded (Table 1). Active arthropod communities were found at all sites,

“Vandalism is the greatest threat to caves and their fauna”

but not in old guano deposits that were extremely dry and powdered. This represents a substantial increase from the single species previously identified (*Brises acuticornis*) and the four species in unpublished records. Previously known only from the type locality near Eucla on the Nullarbor Plain, a second record of *B. caraboides* from Weetootla Gorge greatly increases its known distribution. The predatory emesine reduviid bug *Armstrongula* (Hemiptera) has a wide distribution in the Flinders Ranges, with three undescribed species collected.

Data collected through direct observation and relevant literature was combined to summarise species interactions as a food web. Fascinatingly, meat ants collect fresh guano from the twilight zone of Eregunda Mine near Blinman. This adds a unique facet to species interactions at this locality by providing a potentially rich food

source for many of the predatory species living near the mine's entrance, such as pholcid spiders, reduviid bugs and antlions (neuropteran larvae).

In comparison with other South Australian karst areas, the guanophilic arthropod communities of the Flinders Ranges show low species diversity and abundance. The most limiting factors are low humidity, and transient bat populations that restrict the volume and continuity of guano sites. Further, the lack of moist substrates removes a key refuge for the numerous moisture-dependent species commonly found in guano caves. Consequently these species are notably absent from the Ranges, and are replaced by arid-adapted species such as tenebrionid beetles. Arid-adapted species comprise a substantial part of the species richness for individual caves and across the entire region. The guanophilic arthropod fauna of the Flinders Ranges shows closest similarity in arthropod species diversity to the Nullarbor Plain to the west, and to isolated karst areas to the north and east.

Moving south from the Flinders into the wetter coastal areas of south-eastern Australia the change in fauna composition is marked, as several taxa such as the guano mite (*Uroobovella coprophila*), histerid beetles and phorid flies become dominant on fresh guano.

The conservation of guanophilic arthropod communities within the Flinders Ranges is difficult due to the lack of biological information. Several species are known only from single specimens, with no known information about population levels and breeding cycles. New caves are

regularly discovered by speleologists from the Cave Exploration Group, South Australia (CEGSA), and many of the known caves in the Flinders Ranges remain to be investigated. Undoubtedly numerous new species will be discovered in the future. Vandalism is the greatest threat to caves and their fauna. This is not yet a serious problem in the Flinders caves because of the isolated nature of many sites and the lack of signposting. Apart from general aesthetics and fauna conservation, some caves also contain extensive archaeological and palaeontological sites that need protecting. Conservation of cave fauna is best achieved by keeping casual tourists out of caves, generally through not

signposting cave locations. Casual visits to some caves is unavoidable, such as those near popular campsites (e.g. Brachina Gorge), and in these instances, education is the best option by erecting signs detailing minimal impact caving practices. Guano invertebrate communities are at serious risk if bat colonies are disturbed, because bats are the basis of their food source. Disturbance of bat colonies in winter when bats are torpid can cause deaths through energy depletion. Public education about bats and bat roosts is an important step in conserving colonies and the host of fascinating animals that inhabit bat guano.

This study represents the first stage of identifying the diversity of cavernicolous guanophilic arthropods in the Flinders Ranges. The transient nature of bat colonies and their relatively small numbers make the study of guanophilic fauna difficult. However, the region warrants further attention as it represents an important interface between the cavernicolous fauna of the Nullarbor Plain and those in the wetter coastal areas of south-eastern Australia.

Timothy Moulds

Centre for Evolutionary Biology
and Biodiversity, School of Earth
and Environmental Sciences,
The University of Adelaide

Table 1.

Arthropods collected from guano deposits in the caves and mines of the Flinders Ranges. Caves are listed alphabetically by the area in which they are found. Some specimens could only be identified to subfamily or genus

Location	Cave	Order	Family	Genus	Species
Brachina Gorge	Unnamed	Coleoptera	Anobiidae		sp 1
	river cave	Neuroptera	Myrmeleontidae	<i>Aeropteryx</i>	sp 1
	Unnamed	Neuroptera	Myrmeleontidae	<i>Aeropteryx</i>	sp 1
Bunyerroo Gorge	hillside cave				
	Unnamed cave no.1	Hemiptera	Reduviidae	<i>Armstrongula</i>	sp 1
	Unnamed cave no.2	Hemiptera	Reduviidae	<i>Armstrongula</i>	sp 2
Chambers Gorge	Unnamed cave no.1	Neuroptera	Myrmeleontidae	<i>Aeropteryx</i>	sp 1
	Unnamed bat cave	Zygentoma	Nicoletidae	<i>Trinemura</i>	sp 1
		Araneae			sp 1
		Neuroptera	Myrmeleontidae	<i>Aeropteryx</i>	sp 1
		Orthoptera	Gryllidae		sp 1
Mount McKinley	McKinleys	Diptera			sp 1
	Daughters	Hemiptera	Reduviidae	<i>Armstrongula</i>	sp 1
	Cave (F175)	Neuroptera	Myrmeleontidae	<i>Aeropteryx</i>	sp 1
Moro Gorge	Moro Bat Cave (F47)	Lepidoptera	Noctuidae	<i>Dasypodia</i>	<i>selenophora</i>
		Lepidoptera	Pyralidae		sp 1
		Neuroptera	Myrmeleontidae	<i>Aeropteryx</i>	sp 1
Oraparinna	Oraparinna Bat Cave (F8)	Coleoptera	Anobiidae	<i>Ptinus</i>	<i>exulans?</i>
		Coleoptera	Anobiidae		sp 1
		Coleoptera	Tenebrionidae	<i>Brises</i>	<i>acuticornis</i>
Point Well	Eregunda Mine	Araneae	Pholcidae		sp 1
		Coleoptera	Tenebrionidae	<i>Brises</i>	undetermined
		Hymenoptera	Formicidae	<i>Iridomyrmex</i>	<i>purpureus</i>
		Pseudo-scorpionida	Cheliferidae	<i>Protochelifer</i>	sp 1
Weetootla Gorge	Mine 1	Psocoptera			sp 1
		Araneae	Pholcidae		sp 2
		Coleoptera	?Dermestidae		sp 1
	Mine 2	Araneae	Pholcidae		sp 3
		Blattodea			sp 1
		Coleoptera	Tenebrionidae	<i>Brises</i>	<i>caraboides</i>
		Hemiptera	Reduviidae	<i>Armstrongula</i>	sp 3
		Neuroptera	Myrmeleontidae	<i>Aeropteryx</i>	sp 1
		Orthoptera	Gryllidae		sp 1

SOUTHERN SEAS and INSIGHTS INTO THE GULFS: South Australia's natural marine heritage PART I

Introduction:

Most South Australians live literally and metaphorically at the edge of a gulf. Although we like the amenity values, we often do not appreciate the unique natural heritage and ignore serious conservation issues of our coastal and marine environment.

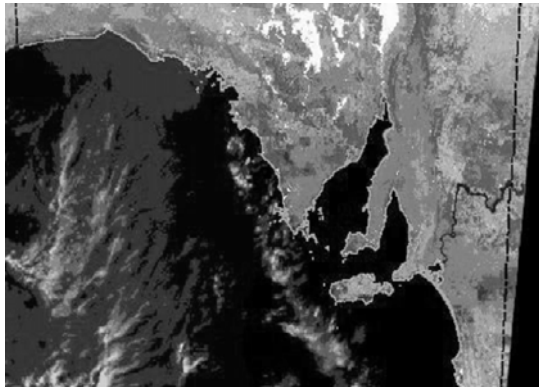


Fig 1. South Australian Gulfs from space. Image available at www.atlas.sa.gov.au

Why are our Gulfs and southern waters so important?

- They are a part of a great southern marine region with high endemism
- They are a meeting place for eastern and western geographic influences
- There are a large number of off-shore islands with near-pristine conditions
- We have two of the largest gulfs in Australia, with unique conditions and ecosystems

Endemism

– the number of species unique to a region

Although highly publicized, spectacular and species rich, the Great Barrier Reef shares 90% of its organisms with other bio-geographical regions.



Fig. 2. Underwater view, Heron I., GBR



Fig. 3. The Green alga, *Struvea* from 25m deep, St Francis I.

Southern seas have far more endemism. Overall, probably 40% of all our algal species are endemic.

Some groups have up to 70% endemism! Specific examples are:

Green Algae

endemic genera = 5%

endemic species = 30%

Brown Algae

endemic genera = 19%

endemic species = 70%

Red Algae

endemic genera = 30%

endemic species = 75%

Source: Womersley, H.B.S. *The Marine Benthic Flora of southern Australia. Part I*

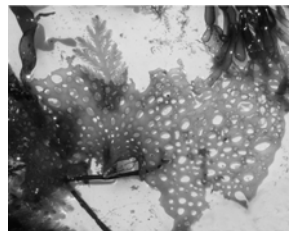


Fig. 4. A mix of delicate reds from 30m deep, St Francis I., including a *Kallymenia* species looking like a sheet of wet cellophane shot through with holes

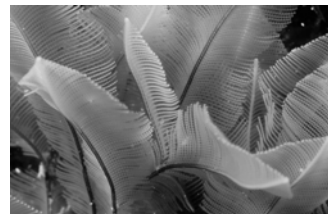


Fig. 5. Feathery hydroid colonies from St Francis I. Not plants but animals!

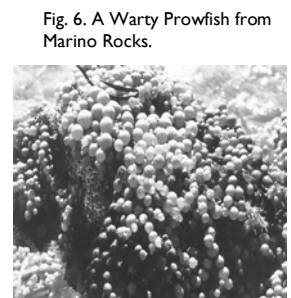


Fig. 6. A Warty Prowfish from Marino Rocks.

Some animals, too, are endemic to southern seas

Currents around other southern hemisphere continents are different. In the western hemisphere, species migration is mainly south to north.

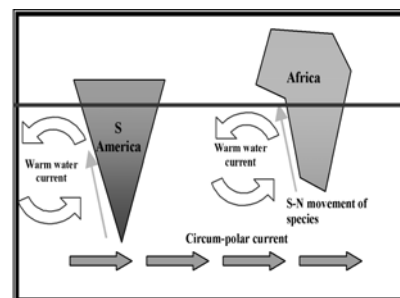


Fig. 7. (graphic of S America & Africa)

Southern Australia lies in a westerly current. Species generally migrate from west to east.

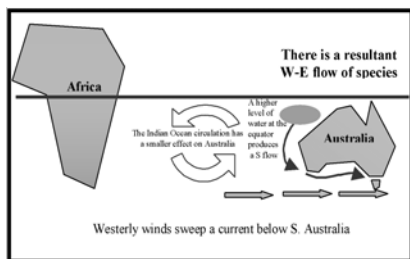


Fig. 8. (graphic of Africa & Australia)

In similar latitudes, marine environments are more uniform and stable. Our species have been “trapped” in a southern belt. The general rule is that you find more species where stable ecological niches (or “things to do and places to occupy”) occur.

In addition, Australia drifted north from Antarctica much later than other continents during the big break-up of the super-continent, Gondwana. Scientists think marine species were trapped in an inaccessible sea and so had time to speciate in isolation before the break-up of continents exposed them to the diluting effects of more widely distributed species.

Implications for conservationists

If you want to fully understand the uniqueness of a region you should know about its history and place it in a global context.

Which regions need better publicity if they are to survive?

Southern Australian waters are a meeting place of western and eastern geographic influences

The warm Leeuwin current from Western Australia swirls along the Great Australian Bight, and then spins onto the northern coast of Tasmania.

Some surprising groups more allied to tropical waters occur in southern waters as a consequence.

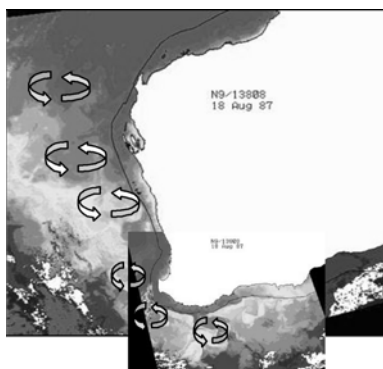


Fig. 9. Infrared imaging of the warm S and E-flowing Leeuwin current, with swirls (gyres) of warm water indicated. Images: available from the Oceanographic Data Centre (Navy) <www.aodc.gov.au/Inventory>



Fig. 10. The Southern Grey Mangrove, *Avicennia marina* has been trapped in shallow gulf waters as a relict of past times when the climate was warmer.

Nomadic species pass through our waters

Southern Blue-fin Tuna passing through our waters have come from a great distance. They are progressively hunted by many countries before they have a chance to return to their spawning grounds in Indonesia.

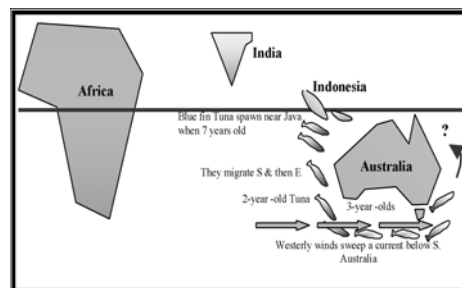


Fig. 11. (graphic of migration of S Blue fin tuna.)

Artificial spawning has not been successful, and the aquaculture industry in South Australia only fattens stock taken from the wild.

Some scientists believe the species is already endangered.

Implications for conservationists

Marine systems are “open” ones — organisms, including commercially important and foreign and unwanted ones may come from distant places

Is a global perspective needed to safeguard species and ecosystems?

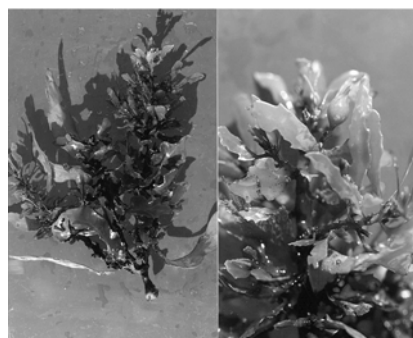


Fig. 12. Some brown algae more allied to tropical regions, such as the *Sargassum* species shown occur in our waters.

There are 140 off-shore islands in South Australia

Some are in near-pristine condition, because of their remoteness and inaccessibility.

Some of these were the first places visited in South Australia by Europeans, and are steeped in history.

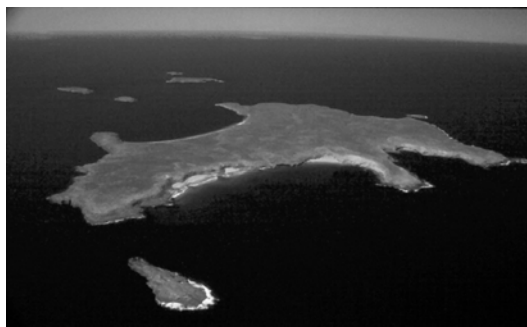


Fig. 13. Isles of St Francis off Ceduna, Far West Coast of South Australia

Pieter Nuyts first visited the Isles of St Francis off what is now Ceduna, in 1627. Gulliver was supposed to have met the Lilliputians on the islands, according to Jonathon Swift in 1658. Flinders visited the same islands in 1802, and his botanist, Robert Brown, and artist Ferdinand Bauer collected and described plants there.

Rare and unusual organisms have developed in isolation on such islands.

Fig. 14. The rare Pearson Island Wallaby



Fig. 15. A small race of Carpet Python is sustained by a meal of one or two Mutton Bird a year at St Francis Island.



Fig. 16. Larger Blue-throated Wrasse occur on isolated islands and populations have a wider distribution of ages than more accessible ones. (Pers. comm., Scoresby Shepherd.)

Isolated islands if not exploited can act as breeding ground to replenish fished stocks in neighbouring more accessible sites.

Implications for conservationists

Are islands feasible refuges for rare and threatened terrestrial and marine species?

Can islands be used as "flagships" for the establishment of Marine Protected Areas (MPA's)?

This is part of a transcription of a PowerPoint presentation made to a general meeting of the NCSSA in July, and it shows! A number of over-generalisations and summary statements have been made which work in a verbal presentation, but which may prove trite when seen written down. Some of the sense of what I tried to get across verbally is found in the graphics I used. Because of limitations of size, space, lack of colour and animation for images, the impact may be less. However, if this article awakens (re-awakens?) an interest in our unique coast and marine regions and their conservation problems, then I will have been successful, and will cheerfully ride out any criticisms that it may engender.

[Part 2 of this presentation will be printed in the Summer editions of *Xanthopus*. Eds.]

Bob Baldock,
University of South Australia,
and volunteer researcher, algal
laboratory, State Herbarium of SA

NCSSA COMPETITION (not the ecological kind!!!!)

Invent a 'SLOGO' for the NCS and win yourself a 'NCS-ware' pack, not to mention global renown! Including stickers, a drink bottle and cap/hat...

SLOGOs are a marketing concept, which as the name suggests, are a combination of slogan and logo. SLOGOs are corporate slogans that are "logo-like" in that they are used repeatedly to reinforce a corporate identity.

Your SLOGO can be just words (maximum six) or can incorporate the *Xanthopus* logo and/or the NCSSA website address: www.ncssa.asn.au

Send your entries attention Activities Committee at the NCSSA office. Closing date: 1st October 2004.

WALKS with NATURE

Walks With Nature is a program of free public nature walks held in National Parks and other areas close to Adelaide. They are coordinated by the Nature Conservation Society of South Australia, and each year five monthly walks are held, over winter and spring. These Sunday walks are advertised in the *Sunday Mail* the weekend before each walk, and directions will be available through the NCSSA office and on the website.

Can you help?

We are always looking for **walk leaders** - to turn up on the day and help the enthusiastic walkers discover the natural wonders along the way. If you know a little about plants, birds, insects, tracks, scats or any other aspect of natural history that you'd like to share with a captive audience, then this exciting opportunity is for you! If you feel a little doubtful of your expertise - 'cheat sheets' are provided.

Contact Geoff Coombe on 8524 7050 or 0408 838 034 or gncoombe@picknowl.com.au or the NCSSA office on ncssa@ncssa.asn.au to volunteer.

Forthcoming Walks:

August 29	Scott Creek Conservation Park
September 26	Anstey Hill Conservation Park
October 24*	Morialta Conservation Park



*The Morialta Conservation Park walk is part of the *Great Australian Bushwalk* program which is occurring all around the country on this date.

Please make a special effort to come out to lead a walk.

Vale David Vincent

A long-standing NCSSA member, David Vincent, died on June 16th 2004.

David became a member of the Society in 1972. He was elected to the Committee in 1990 and as Vice-President later in the same year. He completed his term in office in 1992.

Perhaps his biggest contribution to the Society was as co-editor and then as sole editor of all volumes of *South Australian Parks and Conservation* a magazine published by the Society twice a year from 1978 to 1982. He was a *Walks with Nature* leader over many years, and also volunteered in the office with distribution of publications in recent years.

A dentist by profession, David was a very active but quietly competent and self-effacing conservationist. He also served as Foundation Librarian of the Conservation Council of SA and on its Executive in 1976 and 1977. He served two terms as Vice-President of the South Australian Ornithological Association and as its President for three years. David was also involved for more than 12 years including time as a Director, in the Bushland Conservation Company, a private company set up to protect in perpetuity important tracts of native vegetation.

David regularly attended meetings until illness restricted him somewhat over the last two or three years.

We are grateful for David's many contributions to the Society and to nature conservation in South Australia, and we wish to extend our condolences to his wife Jeanine, his son Peter and daughters Jill, Robin and Suzy.

GENERAL MEETINGS

**are usually held on the 1st Thursday of the month
at the Conservation Centre Meeting Rooms
120 Wakefield St, Adelaide**

7pm (front door open at 6.45)

Next Meeting: Annual General Meeting
6.30pm, Armoury Building, rear of the South Australian Museum
(entrance from Kintore Ave, along the back of the State Library)

Speakers **Anne and Peter Reeves**
Nature Conservation – Past, Present and Future.

October 7th Julia Bignall, DEH
Reintroduction of Tammar Wallabys to Yorke Peninsula.

November 4th To be announced

December Friday 3rd 5.30 pm
End of Year gathering for members.
Botanic Park, opposite the Conservatory gate