

# Around NCSSA

The Nature Conservation Society of South Australia is a voluntary organisation. It has members drawn from all parts of the State and all walks of life. One of the primary objectives of the NCSSA is to "foster the conservation of the State's wildlife and natural habitats".

**Its activities include:** protecting and managing habitats, particularly native vegetation, researching threatened species and habitats, working to ensure adequate park dedication, management and legislation, educating the community and all tiers of government, and cooperating with other conservation groups and land managers.

The Society has taken action on many varied environmental issues since its formation in 1962.

### Surveys to support new reserve dedications

A major objective of the NCSSA has been to ensure that South Australia has a comprehensive and representative reserve system. This is a vital part of the system needed to ensure that the State's native plants and animals are conserved in their natural environment.

The Society has sought the addition of new reserves and opposed the withdrawal of existing reserves when necessary. It has been Society policy to put its case objectively, based on the facts available. Since 1966, in most years, there has been a major biological survey carried out by members and other volunteers to support the case for dedication of a new reserve in a particular area or to promote conservation in an area by a range of landholders.

### Promoting conservation more widely

The Society has played a strong role in the formation and development of environmental legislation such as the original Native Vegetation Management Act in 1985 and the Native Vegetation Act 1991. It is now obvious that conservation reserves alone will not ensure the survival of all of the State's plants and animals, and that as much native habitat as remains is needed to conserve the biological diversity of South Australia. The Society has played a major role in the promotion of biodiversity conservation on a range of land tenures including Heritage Agreements and in integrating biodiversity objectives into the whole range of land management decisions.

### Research about environmental issues

The Society conducts scientific research related to environmental protection and management. Studies done by, or on behalf of the Society, are published as reports and made available to the public through sale and distribution to libraries and government institutions. Grant funding supports this work, awarded on scientific merit from a number of grant sources.

### Education and skill development about ecological matters

The Society is also active in public education through activities such as an extension program of biodiversity understanding and management workshops for rural landholders, biological skill and knowledge development for members, informative general meetings open to the public, and through its newsletter Xanthopus.

### Getting involved with NCSSA activities

An elected Committee handles the Society's affairs. However it is not necessary to be a Committee member to play an active role in pursuing particular issues or topics of research on behalf of the Society. There are many opportunities to volunteer, such as assist on a survey, help manage a project, lead a members activity, or to promote the organisations activities.

The Society has its offices at **260 Franklin Street, Adelaide, 5000**. The NCSSA is financed by subscriptions, sales of its publications, private donations, and State and Federal Government grants. Much of the work is voluntary, while a few part time staff ably support this volunteer work. Donations are always welcome and fully tax deductible

For more information please contact the office on **(08) 7127 4630**, or by **email: ncssa@ncssa.asn.au**.

## NCSSA people

### Management Committee

President: vacant  
 Vice-President: Helen Vonow  
 Secretary: Susan Graham  
 Assistant Secretary: Caroline Taylor  
 Treasurer: Richard Winkler

### General Committee

Nerissa Haby, Robert Lawrence, Blair Grace, Michael Stead, Jason Tyndall, Andrew Crompton (co-opted)

### Staff

Conservation Ecologists: Anthelia Bond and Georgina Mollison  
 Administrative Manager: Amanda Stewart  
 Project Manager: Elizabeth Lonie / Peter Mahoney  
 Threatened Plant Action Group Programme Coordinator: Tim Jury  
 Woodland Bird Survey Coordinator: Tina Gillespie  
 Mokota Conservation Park survey coordinator: Meg Robertson  
 Database & Website Project Officer: Lesley Parton  
 Bushland Condition Monitoring Project Officer: Peter Mahoney  
 Other ongoing project staff: Ben McCallum, Bill New, Sarah Telfer, Kellie MacKenzie

### Regular volunteers

Sara Boulton: Activities sub-committee  
 Keith Lloyd: General office support and library  
 Max Possingham: Woodlands Birds database  
 Christina Robertson: General support  
 Rachel Gein: General support

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# Around NCSSA

## NCSSA Conservation Biology Grant

The May General Meeting of our Society was held jointly with the Biology Society of South Australia (BSSA). There were presentations by previous recipients of the NCSSA Conservation Biology Grant and the BSSA Field Research Grant. They were:

Victoria Marshall, Adelaide University, recieved both the NCSSA Conservation Biology Grant and the BSSA Field Research Grant. Her topic is: Mapping/modelling the distribution of invasive weed, Buffel Grass *Cenchrus ciliaris*. A report of her work to date is in this edition of *Xanthopus*, pg 8-9.

Sarah Pearson, Flinders University, recieved the BSSA Field Research Grant. Her topic was: Genetic structure and gene flow in the social lizard *Egernia stokesii* (gidgee skink).

Laura Falkenberg, Adelaide University, recieved the NCSSA Conservation Biology Grant. Her topic was: Interactions between global- and local-scale stressors: consequences for marine assemblages of rocky temperate coasts

Winners of the 2011 Grants were also announced. This year we awarded four grants:

Ryan Baring, Flinders University \$950

"An investigation of the role that floating macrophytes play as a habitat for juvenile fish from source to sink".

Ryan's proposed research aims to investigate drifting macrophytes as a juvenile fish habitat and the food web that is supported by these habitats. The knowledge gained from the proposed investigations will provide a much better understanding of the importance of floating macrophytes as a mobile habitat and functional nursery for juvenile fish.

Sarah Catalano, The University of Adelaide \$500

"Dicyemid parasite diversity in South Australian cephalopod species as a tool to explore species status in *Sepia apama* (Giant Australian cuttlefish)"

Sarah's aims to verify the population structure of the giant Australian cuttlefish, *Sepia apama*, in southern Australian waters using molecular

genetics of their dicyemid parasites. She will also address the species status of the mass cuttlefish breeding aggregation population in Upper Spencer Gulf (USG), whose environment is under threat from industrial developments. Dicyemid parasites are microscopic worm-like parasites found only in the kidneys of benthic cephalopods. Because of their high degree of host specificity and high intensity of infection, they are good candidates to use as biological tags to help clarify the population structure and species status of demersal cephalopods.

Jessica Strauss, Flinders University \$500

"Testing a Mark re-sighting method for estimating abundance of Southern Hairy-nosed Wombat *Lasiorhinus latifrons* at Brookfield Conservation Park"

Jessica's immediate aim is to use this funding to develop a robust method of estimating Southern Hairy-nosed Wombat abundance at three locations. One Wombat may excavate more than one warren leading landholders to believe there are many more than there actually are. This has confounded the management of Wombats. More worrying is the growing evidence to suggest the Southern Hairy-nosed Wombat numbers are in decline. This project will provide data for a longer-term study into Wombat population dynamics and the effects of climate change on wombat health and disease.

Laura Williams, The University of Adelaide \$1,000

"Recovery of seed banks from fire and the impact of grazing on post-fire seedling establishment"

The soil and canopy seed banks will be assessed at sites within Scott Creek and Kyeema Conservation Parks in vegetation with different ages since fire. The canopy seed bank will be assessed *in situ* and the soil seed bank will be assessed by looking at seedling establishment after a prescription burn and from experimentally burnt soil samples. This will give an indication of how long it takes for the seed bank to establish following a fire. In addition, grazing pressure will be measured to determine whether it is has a significant impact on seedling establishment post-fire.

# Conservation Ecologist Report

## A Win for Conservation at Arkaroola

It has been a long and drawn out process, but finally the State Government have bowed to public pressure and have announced a ban on mining within Arkaroola Wilderness Sanctuary in the Northern Flinders Ranges. For those of us who have been involved in this battle it is a significant and uplifting win for an incredibly unique and astonishingly beautiful part of South Australia.

Unfortunately it has become obvious that Marathon Resources will not go quietly. While their irresponsible actions have left a long-term scar on the Arkaroola landscape they are now seeking compensation from the Government for a loss of income due to the ban. We will continue to keep you updated on this new development and its future outcome.

Come along to the AGM to hear Marg Sprigg speak about the history of Arkaroola and these recent challenges.

## Tintinara - Coonalpyn Water Allocation Plan

The Society has a long history of ecological research in the South East, and has been involved in many aspects of conservation throughout the region. One of our priorities over the years has been the ecological health of many of the unique wetland habitats of this region, and ensuring that these areas and their essential ecological processes are conserved. It is because of this long history with the region that we felt that it was important that we provide input into the Plan.

The submission focused on the ecological aspects of the Plan, while also addressing the lack of current and relevant ecological data used to make judgments and assumptions about some important aspects of the Plan. Even so, the Society commends the proposed reduction in water allocations for the region which will be more in line with current usage levels



Not a spot for trail bikes!  
Nationally endangered Grey Box Grassy Woodland,  
Belair National Park. Photos: A. Baldwin and A. Bond

## Reserves of the Yellabinna Management Plan

The Society was recently asked to provide comments and advice on the discussion paper for the Reserves of The Yellabinna Region Management Plan. This area is a unique and ecologically diverse area of Parks and Reserves in the western part of South Australia. They need structured and adaptive conservation management, sound monitoring regimes and innovative visitor management practices.

We will continue to advise members on the progress of this discussion paper and will provide notification on the website when the Draft Management Plan is released.

## Visitor Management in Public Protected Areas

Over the last few years we have invested a substantial amount of effort engaging with DENR on plans and policies relating to visitor management in protected areas. As the release of the final People and Parks Visitor Strategy and trails strategy for the Adelaide approaches, it seems like a good time to remind ourselves of how important effective management of visitors and trails is for conservation of biodiversity.

On a recent visit to Belair National Park, walking through a patch of nationally endangered Grey Box Grassy Woodland, Annie was given just the reminder she needed (see images above).

## Protected Areas on Private Land Discussion Paper

The Department of Environment and Natural Resources (DENR) recently released a discussion paper concerning protected areas on private land. Among other things, the discussion paper proposes a mechanism to establish National Parks and Conservation Parks on private land. In addition to providing permanent protection from some forms of development and resource use (but not necessarily from mining), these reserves would require private landholders to commit to active management in perpetuity. In our submission on the discussion paper, we raised a wide range of issues that we believe need to be considered in the formation of these new policies and legislative mechanisms for protected areas on private land.

For those members who are interested in recent submissions they are available on the NCSA website.

Annie Bond and Georgina Mollison  
Conservation Ecologists

Phone (08) 71 27 4630

## Life on the rocks?

### Nature destruction by Moss Rock extraction in the Eastern Mount Lofty Ranges

Every year thousands of tonnes of moss rocks continue to be removed from the Mount Lofty Ranges of South Australia, with at least 144,000 tonnes extracted per annum (Holmes 1994). The removal of moss rocks for gardening and 'landscaping' purposes constitutes an ongoing assault on our natural biodiversity and environment. Moss rock removal is a completely destructive and totally unsustainable practice. It destroys native species and their habitats (or forces species relocations), exacerbates soil erosion, and ruins landscape amenity.

The term "moss rock" is simplistic because it is in fact lichens that are usually the primary coloniser of these rocks. Moss, fungi, and algae are also colonisers of "moss rocks". Native grasses, lithophytes, and other vascular plants also can be found growing on, amongst or close to moss rocks. In heavily cleared areas rock outcrops often provide the only remaining habitat for reptiles.

Moss rock removal is euphemistically called "harvesting" which implies that the process is inherently sustainable. As the rocks don't regenerate or grow back, it patently is not. Nothing could be further from the truth; these rocks often constitute the only remaining habitat refuges in the areas from which they are collected. Their removal leaves a pitted, barren and depleted landscape, devoid of native species, habitats, and environmental heterogeneity. Once removed, the natural environment cannot regenerate any equivalent substitute to replace the habitats provided by the rocks.

There is currently no regulation or proactive management of this industry by any level of government. Even the "self regulation" offered by the Rock Carters Association is neither comprehensive nor even mandatory, given that membership is voluntary. With no government licensing or regulation of the industry, it is able to abuse and ruin the environment with impunity. Repair or restoration of removal sites is "voluntary" and the reality is that little or no action is undertaken to limit or mitigate the drastic environmental damage caused.

#### Past investigations

The issue is far from new. A comprehensive report on the impacts of the moss rock industry was prepared by Alice Holmes in 1994, with a subsequent update provided for the then Dept. for Environment, Heritage and Aboriginal Affairs (DEHAA) by Ann Aldersey in 2000. At that time, the moss rock industry made assurances that better environmental regulation was not important because there remained only another two or three years supply of rocks.

On the basis of that assurance Holmes (1994) recommended that the State Government "give consideration to gradually halting this industry taking into account the above advice". The same report also specifically determined that:

1. Alternative incomes will be and can be sought by landholders, moss rock carters and landscape contractors.
2. The environmental impacts of the industry outweigh the apparent benefits to the wider community.

Despite these findings there has been no substantive action taken by the South Australian Government to implement such recommendations. These expert opinions appear to have been totally ignored. It seems that the industry advice of only "two or three years" of rocks available was erroneous and misleading. Had this been true, moss rock removal would have ended some thirteen years ago. Significantly, not only has the practice continued, it has actually escalated due to the industry influencing the culture of landscape gardening to accept larger and larger rocks. The magnitude of the impact has therefore grown, such that it now warrants attention even more urgently than before.

#### The environmental importance of moss rocks

Moss rocks pre-date any woody native vegetation. The ecological role of lichens is critically important, carrying out a vital role as primary colonisers and stabilisers. On bare rock lichens and mosses are the most common initiators of primary succession.

Removal of these rocks has a far-reaching effect on at a micro- and macro-ecosystem level. For example, moss rocks provide a very stable and secure environment for invertebrates, especially ants and arachnids. Reptiles are often totally dependent on moss rocks for their long term habitat refuges, safe hibernation, nursery and basking sites. Dept. of Environment and Natural Resources (DENR)'s Threatened Species Profiles for the Adelaide and Mount Lofty Ranges Region list rock removal as a significant threat to the Carpet Python, *Morelia spilota* ssp. *variegata* and the Olive Snake-lizard, *Delma inornata* (Wilson & Bignall 2009). Both these species have been recorded within the Moss Rock collection zone.

Holmes (1994) listed ten species of lizards that are likely to be found in the collection areas. The same report also listed three lichen species as having a "Vulnerable" status within the study area. The removal of moss rocks is where local extinctions start, especially in areas such as the eastern Mt Lofty Ranges where tree and native vegetation coverage is already highly fragmented and modified.

#### The need for regulation

The Holmes 1994 report was triggered by advice from the then Crown Solicitor in 1991 (a Labour Government) that "moss rocks are minerals and the taking of them for commercial resale purposes is "mining" under the Mining Act 1971, and therefore subject to the provisions under the Act". This aspect of moss rock removal has been completely ignored by all State Governments since

this time despite, it would seem, an onus on them to collect royalties from extraction. Following the Holmes report, a statement was issued by the Moss Rock Carters Association stating that the Mining Act 1971 "is soon to be amended to ensure moss rock collection will be by permit only". This has never been acted upon. In fact, according to the 2000 Update report, there is "reluctance in the industry for outside regulation".

In the Guide to the Native Vegetation Act Regulations (2006), the definition of "native vegetation" is "a plant or plants of a species indigenous to SA including a plant or plants growing in or under the waters of the sea". This definition makes it clear that non-vascular plants e.g. mosses, are protected under the Act. This interpretation has been confirmed by the Native Vegetation Group. If lichen, moss, fungi and algae are not covered by the Act, it is a glaring omission. It would allow the continued destruction of these groups of organisms despite their essential role as primary colonisers. Similarly, it is unsatisfactory if invertebrates and arachnids have no formal protection from exploitation in spite of their essential role in underpinning the trophic structure of healthy terrestrial ecosystems.

#### Mounting concern

The vast diversity of native species destroyed through moss rock removal, are species covered by the Native Vegetation Act. However, successive governments, including this one, have seemingly ignored these important species in their implementation of the Act. This failure has implicitly authorised highly destructive practices, allowing the industry to continue its destruction of this native vegetation without sanction or restraint.

There has been considerable concern over biodiversity decline expressed by the Government's commendable "No Species Loss" Strategy. It identified simple, effective and economical ways to help achieve goals stated in the plan, namely habitat retention and the cessation of actions that remove or destroy habitat.

However it is significant that the Strategy contained no figures whatsoever for invertebrate species (i.e. total number described or percentage threatened). Nor was the total number of threatened non-vascular plants indicated. These are very substantial gaps in our knowledge of the biota, and should, at the very least, invoke the precautionary principle to impose a moratorium on further destruction of habitat until there is sufficient evidence upon which to allow continuation of environmentally destructive industries.

There are further concerns about the apparent disjunction between adopted policies and the consequences of actual day to day conduct, which are at odds with the "aspirational" targets expressed in the Strategy. Specifically, I am greatly concerned by the Government's refusal to regulate the moss rock industry and enforce



Moss Rock Removal at Rockleigh. Photo: A. Bond

protection against destruction of lichen, moss, fungi and algae.

To their credit Tea Tree Gully Council have a policy that wisely prevents the use of moss rocks on public or council land developments. Playford City Council has a similar policy and Salisbury Council discourages their use. These initiatives demonstrate the increasing social and scientific concern over the moss rock industry, and the ease with which the current practices can be curtailed. Failure to adopt similar measures at a state level means that the South Australian Government continues to condone activities that actively degrade the Mount Lofty Ranges. This reflects very poorly on the current government's environmental record.

In summary to the concerns raised above, the following questions remain:

1. Given the daily impacts of the extractive industry on fragile ecosystems why is an Environmental Impact Assessment not mandatory for each site prior to extraction taking place?
2. Why is moss rock extraction not prohibited by the Native Vegetation Act, given the Act was instituted to protect native species and vegetation of South Australia? If it is prohibited, why, in view of the serious and long lasting environmental consequences outlined above, is the Act not vigorously enforced in this context.

**T. Hands, NCSSA Member**

#### References

- Aldersey, A. (2000) *Moss rock removal from the Mount Lofty Ranges*. Update 2000. Compiled for the Department for Environment, Heritage and Aboriginal Affairs.
- Holmes, A. (1994) *An Environmental Impact Assessment of Moss Rock Removal Operations in the Eastern Mount Lofty Ranges of South Australia*. Background Report. Compiled for the Moss Rock Working Party.
- Willson, A. & J. Bignall (2009) *Regional Recovery Plan for Threatened Species and Ecological Communities of Adelaide and the Mount Lofty Ranges, South Australia*. Department of Environment and Heritage, South Australia.

# Conservation Biology Grant Report:

## Chasing the alien invader ~ Buffel grass *Cenchrus ciliaris* ~ across the Outback: What we've learned

Buffel grass *Cenchrus ciliaris* is a popular pasture species which has been sown widely throughout Australia since the mid 1900's. But recently concerns have arisen regarding its spread into native vegetation and potential to permanently alter the characteristic Aussie outback. Heavily infested parts of inland Australia are described by regular visitors as a desert-grassland; a very different scene to the low chenopod shrublands that country should be.

The popularity of this African grass is largely due to its tolerance heavy grazing and deep root system, which have proven to increase the carrying capacity of the land and reduce the impact of drought on farming practices. Unfortunately, it is these same characteristics which make it an apt invader of non-target environments, particularly in dry arid conditions. Buffel grass has the capacity to rapidly invade native ecosystems, increasing the frequency and intensity of natural wildfire regimes, reducing biodiversity and changing the overall function of our ecosystems.

A particularly confronting example of the adverse impacts of Buffel grass on Australian flora is that of the River red gum *Eucalyptus camaldulensis*. These characterful trees are typically seen lining dry creeks of arid Australia. Few ephemerals establish in creek bed soils, thus dry creeks can act as a blockade to prevent the spread of fire across the landscape. Buffel grass, on the other hand, seems to establish particularly well along the waterways, thus providing a heavy fuel load to transport fires down the creeks. The River red gums cannot survive repeated exposure to fire, and juvenile trees are unable to establish. Thus if Buffel grass continues to spread, we may be looking at the last of these beautiful trees.

It is clear that action needs to be taken to help prevent the spread of this ecologically hazardous grass. A first step in the effective management of biological invasions, particularly species such as Buffel grass where eradication is not necessarily possible or desired, is to prioritise areas for surveillance and control. This requires that we know the current and potential distribution of species. Presented here are the results of mapping and preliminary modelling research conducted in South Australia.

In South Australia, Buffel grass is becoming widespread, although few pastoralists in this state cultivate the grass compared with those in Queensland and the Northern Territory. Anecdotal evidence suggests that it enters the state along major highways and spreads out from the road verge where environmental conditions are appropriate.

Biosecurity SA, Rural Solutions SA and the University of Adelaide collaborated to design and conduct a roadside survey of Buffel grass across 10,000km of South Australian outback roads. The survey was designed to fill gaps in the known distribution of the grass and also to document its occurrence across a range of environmental conditions, to help determine its preferred habitat. Roads were surveyed from vehicles travelling at 50km/hour, with continuous recording of changes in Buffel grass density and extent away from the road. To help remove biases associated with roadside survey Buffel grass was mapped in two zones: 1) the disturbed areas, directly adjacent to the road, and 2) the more natural area, away from the verge of the road (Figure 1).

Results of the survey (Figure 2) showed that Buffel grass is widespread around Oodnadatta, Tarcoola, Kingoonya, Glendambo, Port Augusta, and the Gammon Ranges. It is also important to note that although common along roadsides the density was typically sparse and results showed that it tends to occur in higher densities along the major highways and near to towns.

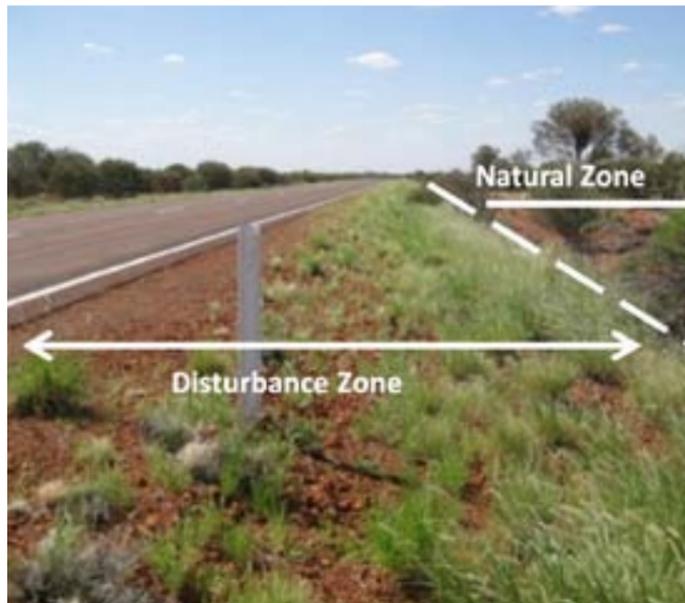


Figure 1: Buffel grass along roadside, showing our classifications of the disturbed zone and the natural zone

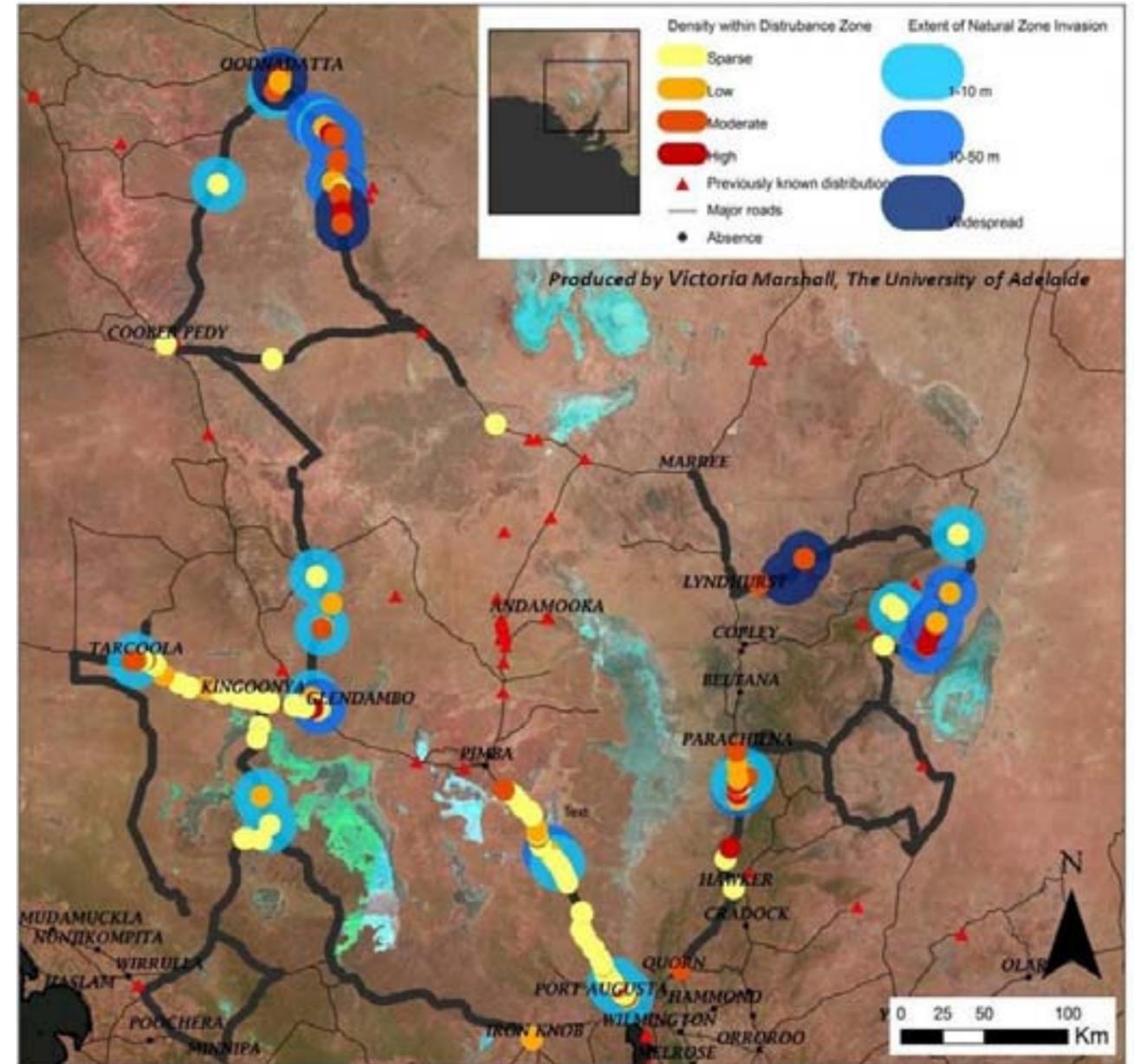


Figure 2: Buffel grass roadside survey results

My research at the University of Adelaide delved into these results a more deeply to develop habitat suitability models for the species. In time these will be used to produce maps of the probability that a particular habitat will support Buffel grass growth. In conjunction with knowledge of current distribution, likely spread paths of the grass, and local biodiversity assets, these modelling results will be applied to help identify and prioritise "at risk" areas to monitor and protect from future invasions.

Over the coming year I will be researching more efficient means of mapping Buffel grass infestations using remote sensing methods. Success with this research will lead to stronger monitoring of Buffel grass control programs over time, so that hopefully we can save some of our native vegetation from ever being invaded by this very effective weedy grass.

**Acknowledgements:**

PhD scholarship and support: Australian Postgraduate Award and Alinytjara Wilurara NRM Board;  
 Other: NCSSA Conservation Biology Grant, BSSA Field Research grant;  
 Buffel grass roadside survey: Tim Reynolds, project leader, Biosecurity SA and Ben Shepherd, consultant, Rural Solutions SA;  
 PhD supervisors: Associate Professors Megan Lewis and Bertram Ostendorf, School of Earth and Environmental Sciences, The University of Adelaide.

Victoria Marshall  
 PhD candidate  
 The University of Adelaide

# NCSSA Projects:

## Expanding on the Mt Lofty Ranges Declining Woodland Bird project

A unique study of its type in Australia, the Mt Lofty Ranges Declining Woodland Bird project has been collecting vital data at up to 160 sites for over 10 years on the population trajectories of woodland bird species in the Mt Lofty Ranges (MLR).

Until now we have only had pretty basic information on the vegetation characteristics at these sites, i.e. whether they were dominated by smooth-bark or stringy-bark eucalypts. We are now carrying out a project which aims to fill these gaps with vegetation data gathered using the NCSSA Bushland Condition Monitoring Method (BCM). This will help us to understand more specifically which aspects of habitat are the most important for different bird species and to monitor the potential impacts of development and other changes in land use, such as prescribed burning.

The bird monitoring program was begun by Hugh Possingham in 1998, when he enlisted the cooperation of a range of landholders from Gawler to Victor Harbor to allow annual bird monitoring sites to be established on their land. To date, about 80% of the sites are in reserves on public land administered by Dept. for Environment and Natural Resources (DENR), SA Water, ForestrySA, Dept. for Transport, Energy and Infrastructure (DTEI) or district Councils, and about 20% are on private property. For further information on this project you can download the MLR Woodland Birds booklet from our website <http://www.ncssa.asn.au/files/MLR%20woodland%20birds.pdf> or obtain a printed copy from the office.

BCM vegetation quadrats were set up at sites between October 2010 and April 2011, by a team including Bill New, Penny Paton, Ben McCallum, Janet Pedlar and Caroline Mussared. These 30m x 30m vegetation quadrats were established as close as possible to the middle of the 2ha bird monitoring quadrats, to ensure a tight correspondence between bird observations and vegetation characteristics. They are marked by permanent corner and photo-point pegs. BCM measurements include species diversity, weed cover and threat level, structural

diversity of vegetation layers, natural regeneration, grazing, feral animal presence, tree health, and tree habitat value.

With the cool, wet weather over the spring and summer last year, we were fortunate to record an excellent representation of native annual and ephemeral understorey, including many orchids and herbs. These persisted throughout the summer in many places. At many sites, up to 80 native species were recorded within the 30 x 30 m quadrat. The data is currently being analysed, but general observations included high recruitment levels, probably due to the extended moist conditions last summer. However, grazing was also consistently high across many sites, even where stock or rabbits were not present, indicating high pressure by native herbivores.

Of course, high species diversity is not the only indicator of good habitat for bird habitat, with many studies showing that structural diversity and the presence of certain understorey vegetation layers can be more important in providing foraging habitat, protection from predators and nesting places. Using the detailed information on these factors gathered using BCM methodology, we hope to uncover the importance of these relationships by a statistical analysis, including comparison with the bird monitoring data.

Everyone working on the BCM project has commented on what a great opportunity it has been to visit such a wide range of beautiful and diverse woodland and forest sites in the Mt Lofty Ranges, and we extend our thanks to all those organisations and land-holders who have been such enthusiastic and helpful participants. Personally, in contacting many of the owners for permission to set up the vegetation quadrats, it has been evident there is a very high degree of community, government and corporate support towards this project. This is a credit to all involved, especially our loyal ornithological team, and NCSSA's Tina Gillespie, coordinator of the project since 2005.



Field Botanist Ben McCallum demonstrating precipitation protection bush-craft at BCM quadrat in bird monitoring site at Para Wirra.  
Photo: P. Mahoney



NCSSA has secured renewed funding from the AMLR NRM Board for to continue the MLR Declining Woodland Bird project for the next 3 years. We will have the continued involvement of a dynamic and highly experienced steering committee, including Prof. Hugh Possingham (University of Queensland), Dr. Patrick O'Connor (University of Adelaide), and Dr. Tim Milne (EAC Ecological Evaluation Pty Ltd).

Future directions in the project will include collaboration with DENR and ForestrySA to

investigate the effects of prescribed burning on bird populations. This will be done by adding additional bird monitoring sites whenever a prescribed burn is planned at or near one of our bird monitoring sites. The long-term data already collected make this a unique opportunity to measure these impacts for the first time in SA.

**Peter Mahoney**

**Acting NCSSA Project Manager**

## XANTHOPUS

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

Copy deadline for the SPRING edition is 30th September 2011.  
Contributions in a variety of formats will be considered, but electronic submissions are preferred.

Editorial Team for this issue: Sue Graham, Tim Jury and Helen Vonow.