

SYMPOSIUM 2

Are we barking up the wrong tree? Observations on community co-management of wild dogs in NSW, Australia

Ballard, Guy and Fleming, P. J. S.

Vertebrate Pest Research Unit, Industry & Investment NSW, UNE

Guy.Ballard@industry.nsw.gov.au

Approaches to public involvement in modern wildlife management have been described as progressive steps on a continuum where top-down / expert approaches are generally considered least desirable and community co-management approaches are preferred.

In several mainland Australian states, a recent focus of wild dog management programs has been a 'cooperative' (also known as 'strategic') approach, typically manifest through the development and implementation of 'nil-tenure' management plans.

At first glance, such initiatives may appear to fit a model of community co-management but in reality, many either rely on the wider community being coordinated and driven by managers or members of the public lobbying Government and public land managers to act.

In this paper we report on observations of real world wild dog management programs to consider the steps, if any, that could be taken to improve outcomes for all stakeholders.

A Call for Tourism Studies: Wildlife Experiences that Maximize Visitor Satisfaction and Minimize Impact on Wildlife

Isabelle D. Wolf*, and David B. Croft

School of Biological, Earth and Environmental Sciences, University of New South Wales, Sydney, NSW 2052, Australia

i.wolf@online.ms

d.croft@unsw.edu.au

The protection for wildlife of interest to tourists and visitor satisfaction with wildlife tours are both critical for the long-term sustainability of the wildlife tourism industry. To solve the dilemma between these potentially conflicting goals, research is needed on wildlife experiences that minimize impacts for wildlife and maximize visitor satisfaction. We present two studies in the Australian rangelands that showcase that less intrusive viewing behaviour allows for a more rewarding wildlife experience with closer and longer-lasting observations of a more natural wildlife behaviour.

(1) The first study compared the results of nocturnal wildlife observation achieved with different observation techniques and used a questionnaire-based survey to assess visitors' preferences for nocturnal wildlife observation in Australia. The findings from the wildlife observation and visitor survey were consolidated to recommend an optimal tour design. (2) The second study determined the typical properties of visitor approaches to Red Kangaroos (*Macropus rufus*) and Euros (*M. robustus erubescens*) and simulated these to identify the least intrusive approach behaviour under different environmental conditions with the highest potential for visitor satisfaction.

We discuss the critical factors for conceptualising such studies including the cooperation between scientists and tourism practitioners.

Nature in the backyard - a study of community attitudes and behaviours

A. E. Shaw, K. K. Miller

School of Life and Environmental Sciences, Deakin University

Urbanisation affects biodiversity by fragmenting and reducing native vegetation, typically resulting in dramatic losses of indigenous wildlife. If we are interested in conserving wildlife in urban areas, there is a need to understand the current community attitudes toward native urban biodiversity.

The available evidence suggests that private gardens can play a significant role in supporting wildlife populations. Backyard habitat has been identified as a valuable food and habitat source for a range of urban species and subsequently is seen as essential to developing wildlife corridor connectivity in urban areas. In urban areas, exotic species often make up the majority of vegetation cover and while these do provide ecological benefits, they are not usually as important as native vegetation in providing habitat for native wildlife.

This study has the aim of investigating community attitudes toward nature in their backyards and their willingness to plant native vegetation and share the urban area with native wildlife. To do this wildlife gardening program members are being surveyed and interviewed, along with the general public, to gain an understanding of what influences people to embrace urban wildlife.

The cockatoos are in plague proportions – and they're in my back yard

Temby, Ian

Department of Sustainability and Environment

ian.temby@dse.vic.gov.au

Landscape-scale habitat modification in south-eastern Australia has enabled the distributions and numbers of Long-billed and Little Corellas to expand to the extent that both species are now common urban birds in Melbourne. Thirty years ago these species were rare vagrants. Corellas feed, loaf and roost in flocks. When flocks roost in urban areas, their noise, tree pruning behaviour and damage to infrastructure such as street lights, sports grounds and solar water heating systems engenders antagonism and controversy. Local and State government agencies are often called on to “solve the problem”, by irate residents and business people. Local media articles increase the pressure for action. There are no simple solutions to these problems and a great deal of staff time is consumed in responding to complaints either directly or via ministerial correspondence. DSE has found an alternative method for defusing such situations. Highly vocal complainants were asked to arrange a public meeting, with the promise that a technical expert from the Department would address the meeting and outline possible options for action and that there would be local government representation present. Two examples will be discussed where this alternative approach has been used and complaints have declined dramatically.

Those Wicked, Wicked 'Roos

Pip Chalk

University of Western Sydney, School of Natural Sciences

p.chalk@uws.edu.au

This presentation will broaden and enhance the human dimensions of current wildlife management discourse and introduce a new and emerging issue, one often unknowingly faced by managers – wicked problems. Defined by Briggs (2007) as ‘issues highly resistant to resolution’ and based upon individual stakeholder values, the issues surrounding kangaroo management in Australia will be discussed within the criteria of this social planning paradigm. As pieces of the problem conflict and refuse to join together to form a cohesive management model, it becomes apparent that a simple solution to a wicked problem may not exist as we currently know it, but rather that stakeholders become aware of this ‘wickedness’, understand and accept its volatility and work towards a merely

'tolerable situation'. With climate change upon us demanding that wildlife managers and policy makers review their current models for natural resource management and biodiversity conservation, building awareness of managing wicked problems must be another critical component of the future planning paradigm. For the iconic kangaroo and the controversy surrounding its management, this social planning approach may finally bring some awareness and acceptance of this complexity and instability that so defines a wicked problem and provide much needed steps toward finding that elusive tolerable situation.

Hope for resurrecting a functionally extinct parrot or squandered social capital? Landholder attitudes toward the Orange-bellied Parrot *Neophema chrysogaster* in Victoria, Australia

Weston, MA¹, Miller, KK¹, Lawson, J¹, Ehmke, GS²

¹School of Life and Environmental Sciences, Deakin University, 221 Burwood Highway, Burwood, Vic. 3125, Australia
²Birds Australia, Suite 2-05, The Green Building, 60 Leicester Street, Carlton, Victoria 3052, Australia.

mike.weston@deakin.edu.au

In early 2010, after 30 years of active recovery efforts, the Orange-bellied Parrot (OBP; *Neophema chrysogaster*) was expected to be extinct in the wild in 3-5 years. Shortly before the poor breeding season which precipitated these projections, we surveyed landholders (114 responses of 783 surveys delivered) in the main non-breeding grounds, according to three classes of habitat suitability (high, medium and low) identified by a habitat model. Landholders were highly sympathetic to wetlands and birds, and the OBP. There was strong support among respondents for increasing native vegetation cover on private land, and for the retention of existing vegetation, freshwater wetlands and saltmarsh. Over half of landholders were prepared to consider changes to the way they managed their land, and sought more information regarding OBPs and land management strategies, free trees/shrubs for revegetation; and financial and human resources for further implementation of rehabilitation projects. The vast majority of landholders had heard of the OBP and would be upset if it went extinct. This study demonstrates the recovery effort had achieved high awareness and levels of empathy among key stakeholders, before the species was considered functionally extinct. The maintenance of landholder support is likely to be critical if future attempts are made to reintroduce the species to the wild.

OPEN SESSION 4

Twitching for values in the human domain: how do Australians value native birds?

Ainsworth, GB, Aslin, HJ, Garnett, ST and Weston, M

Charles Darwin University, Northern Territory

gill.ainsworth@cdu.edu.au

My research aims to understand which values society holds for Australian native birds and which of those influence conservation action for threatened birds – by government, by individuals or by society at large. To do so I am initially gathering data on bird values as expressed through a range of cultural artifacts and activities from stamps to scientific papers, from tour guides to legislative schedules and using an adaptation of Kellert's Wildlife Values typology as a values framework. Later work will be delving more deeply into paired samples of threatened birds where different values seem to have driven different outcomes for similar species.

Although research has been conducted on attitudes towards wildlife in general and towards single species, there appears to be no precedent for valuing an entire class of fauna such as birds. I propose discussing the socio-psychological methods used in this research as well as some of my findings.

Supplementary feeding of wild birds in Australia: A national pursuit!

Plant, Michelle Ms

University of Queensland, St Lucia, Queensland

michelleplant@bigpond.com

Feeding native (and introduced) birds is a common pastime across a wide range of settings in Australia. Birds are being fed in backyards, on balconies, in recreation areas and at wildlife tourism settings; in cities, suburbs, world heritage areas, even at sea! A smorgasbord of human food and bird feed products is being offered, commonly on a daily basis. Unfortunately, this all takes place with little guidance on appropriate practices, and presents a challenge to some local councils dealing with neighbour conflict, property destruction, public health issues and a resident's right to liberty in their own backyard. Supplementary feeding also takes place in direct contradiction to government wildlife management policy that in some states and territories is backed by legislation. In acknowledgement of widespread participation in this activity our national bird conservation agencies have more recently issued policy documents that encourage uptake of responsible feeding practices, as has long been commonplace in other bird feeding nations including the UK and USA. It is suggested that given the extent of supplementary feeding across Australia, it is time to move beyond the conundrum of "to feed or not to feed", and take a pragmatic approach to collectively identify:

- Where supplementary feeding should be positioned relative to other human induced threats to our birdlife's diversity, health and welfare;
- Achievable wildlife management aims;
- Appropriate practices and standards for the activity and industry, given our nations idiosyncrasies — including target species and climatic conditions;
- Opportunities to connect with and support this group of bird enthusiasts to undertake add-on conservation efforts;
- Fundamental research questions ; and
- Lessons learnt domestically (across a range of disciplines) and by overseas counterparts.

It is also important to remain responsive to a growing body of evidence that demonstrates preventative practices are required to manage stressors to bird health and behaviour. Contributions from an overarching study "Investigation of bird health and behaviour at supplementary feeding sites" including detailed review of related problems will progressively be published.

Key Words: Supplementary feeding, wild birds, Australia, wildlife management

Human-wildlife conflicts – whose behaviour is the problem?

Chapple, Rosalie

Blue Mountains World Heritage Institute, Vallentine Annexe, University of NSW

r.chapple@bmwhi.org.au

The human dimension of wildlife management is increasingly recognised by the scientific community as being an essential part of our trade. But what evidence is there that we are incorporating it into our research? In wildlife conservation, the problem is commonly construed to be ecological. But it is people's perspectives and practices that are at the core of wildlife problems so this is where we need to focus our attention as well as on ecological problems.

This paper focuses on instances of wildlife conflict, using feral horses and dingoes (wild dogs) as key examples. In Australia, wildlife conflicts commonly arise where the species presents a threat either to native species or agricultural production or in some cases, such as wild dogs, to people themselves. In seeking resolutions to human-wildlife conflicts, we need to uncover shared interests among wildlife managers, researchers, livestock producers and the wider community - much broader than focusing on animal population size and distribution, and numbers culled.

The current institutional structure and mode of operation of management appears to trap people in patterns of conflict. Political and agency leadership is important but to date, politics habitually worsens conflicts by polarising issues. How do we break out of habitual conflict and find mutually agreeable solutions? This question needs addressing urgently, as we face circumstances such as increasing human population, worsening economic downturn, climate change, increasing pressure on agriculture, and proliferating invasive species, that will only exacerbate conflicts.

Managing the communities Koala's: Koala management on Raymond Island, Gippsland

Waldegrave-Knight, Leona Ms

DSE, Bairnsdale Victoria

Leona.WaldegraveKnight@dse.vic.gov.au

Since the introduction of 42 Koalas to Raymond Island, Gippsland Victoria, in 1953 there has been a dramatic increase in the number of Koalas and subsequent management issues. In June 2003 the number of Koalas on Raymond Island peaked at 605 animals. Given the area of suitable Koala habitat on Raymond Island it was evident that the major cause of the decline in the condition of the Coast Manna Gum woodlands was due to over-browsing. A reported die off of more than 140 Koalas over the 2003/2004 summer was the catalyst for an intensive translocation and management program that upset many local residents and hit news headlines in Australia and overseas. Today Koala numbers are approximately half and management is ongoing but the most significant change is in the involvement and acceptance by the local community. This paper outlines some of important steps taken to include the community and gain their confidence in looking after "their" Koalas.

The animal ethics process for wildlife researchers: a survey of costs and perspectives

Banks, Peter B. and Bytheway, J.P.

The University of New South Wales, Evolution and Ecology Research Centre, School of Biological, Earth and Environmental Sciences

p.banks@unsw.edu.au

Gaining animal ethics approval is a generic requirement of any animal-based research in Australasia, but the costs and benefits of the approval process for wildlife management is poorly known. Approval should protect researchers from public criticism because it comes from an independent ethical assessment of whether the research aims justify any impacts on animal welfare. Yet the process adds to the bureaucratic burden facing wildlife researchers, often through requirements designed for assessing animal use in medical research with little reference to the specifics of field biology.

In this paper, we report on a web-based survey of more than 200 wildlife biologists on their perspectives of the animal ethics process. We asked researchers questions relating to three key issues: 1) their background, research interests and exposure to the animal ethics process; 2) their annual investment in gaining approval, the nature of their current approval system and the utility of codes of practice; and 3) their perspectives on the integrity of the approval process, whether they feel the system improves welfare or conservation outcomes, and whether the system facilitates or hinders research. We interpret the results as a cost-benefit analysis to guide future systems of ethical assessment in wildlife research.

STUDENT SESSION 3

Orientation to forested patches: perceptual range of the red-bellied tree squirrel (*Callosciurus erythraeus*) introduced in Argentina

Lucy Bridgman, Verónica V. Benitez, Maricel Graña Grilli, Natalia Mufato, Daniela Acosta, & M. Laura Guichón
Department of Biological Sciences, University of Waikato
lb63@students.waikato.ac.nz

Dispersal success of individuals is an important determinant of population level distribution. For introduced species, it is a key element of the invasion process. In a heterogeneous landscape, dispersal is influenced by perceptual range, which is the distance from which an animal can perceive habitat and orientate toward it. Investigating perceptual range could improve understanding of colonisation and management of introduced species. We tested the perceptual range of the red-bellied tree squirrel (*Callosciurus erythraeus*), introduced to Argentina in the 1970s. Animals were trapped, transported to agricultural land and released at four distances from a forest patch. Orientation of movement paths relative to forest were analysed. Based on previous literature we predicted that squirrels would perceive forest at 100m, may perceive forest at 200m and would be unsuccessful at 300m. Releases at 20m were carried out to test the validity of the method. Movement paths of squirrels showed significant orientation toward forest at 20m, but not greater distances, indicating a perceptual range below 100m. We compare our findings to those of other small mammal studies. Low evolutionary history in open areas is a possible explanation for the relatively short perceptual range of the red-bellied tree squirrel. Implications for management are discussed.

Like a rat up a drainpipe: A black rat bait station that protects native rodents

Zewe, Frances., Meek, P., Ford, H. and Vernes, K.
School of Environmental and Rural Sciences, University of New England
frances.zewe@uqconnect.edu.au

The control of exotic rodents is a high priority for island conservation. The eradication of black rats (*Rattus rattus*) from Muttonbird Island, New South Wales, is desirable to enhance the survival and breeding success of the wedge-tailed shearwaters (*Puffinus pacificus*) on the island. The native swamp rat (*R. lutreolus*) also exists on the island and may be at risk from black rat control measures. This study aimed to see if swamp rats could be protected on the Island by using remote camera technology to assess a vertical bait station that delivers poison baits to only black rats. We hypothesised that black rats would climb the 50 cm vertical bait station, whereas swamp rats would be excluded, due to their inability or unwillingness to climb. The results of our study found that 11 (92%) out of 12 captive black rats entered the vertical bait stations in the laboratory, and wild black rats were observed entering vertical bait stations in the field. In contrast, although four (18%) out of 22 swamp rats climbed the vertical bait stations in the laboratory, none were observed entering them in the field.

Do inter-species interactions influence the effectiveness of multi-species pest control?

Sam, Shona Mrs
Lincoln University, Christchurch, NZ 7675
2tesams@gmail.com

Mammalian control methods that simultaneously target multiple species are an important area of research for pest management. However, inter-species interaction at control devices is one aspect of pest control research that may influence the effectiveness of multi-species control. Little is known about the interactions pest species may have with each other. To investigate the influence rats may have on mouse activity at bait stations, rats were experimentally reduced in an area relative to a control block that had both rats and mice present. Camera traps were used to determine the activity of mice at bait stations before, two weeks and four months after intensive rat

reduction. Mouse activity increased significantly in the absence of rats, particularly at night, the time when rats were most active before they were removed. In the control block (with rats present) there was a significantly lower level of mouse activity at bait stations, indicating that rat presence reduces mouse activity. These species interactions are likely to diminish the success of multi-species pest control operations where rats and mice are both present, and mice are a target species.

Olfactory camouflage weakens the foraging motivation of an alien predator - a novel approach to reduce the impacts of prey switching by stoats *Mustela erminea*

Catherine J. Price and Peter B. Banks

Evolution and Ecology Research Centre, School of Biology, Earth and Environmental Sciences, University of New South Wales

Switching between primary and alternate prey can enable alien predators to drive vulnerable native prey to extinction. Switching is a particular feature of generalist predators that relies upon an individual's ability to track changes in the abundance of multiple prey species using environmental information, such as cues of prey activity. Using captive animals searching for prey within foraging matrices, we show that stoats *Mustela erminea*, an alien predator of conservation concern in New Zealand, uses olfactory cues to obtain information on both primary (rodent) and alternate prey (invertebrate) prey simultaneously. By manipulating these cues we altered a stoat's foraging motivation for both prey types independent of prey density. When costs of prey detection were increased using olfactory camouflage, stoats were unable to maintain the greater level of search effort needed to find both primary or alternate prey, and gave up searching more readily. Our results suggest that vulnerable native prey may face reduced risks from olfactory predators if the foraging costs associated with their detection can be increased. Olfactory camouflage offers a novel method of increasing foraging costs to deter alien predators that hunt using olfaction.

Quokka (*Setonix brachyurus*) recovery after 16 years of 1080 baiting to control foxes.

Dundas, Shannon J., Adams, P.J., Morris, K. and Fleming, P.A.

Murdoch University, School of Veterinary and Biomedical Sciences

S.Dundas@murdoch.edu.au

The quokka (*Setonix brachyurus*) is a 2.5 – 5kg macropod endemic to southwest Western Australia, where small mainland populations are restricted to dense riparian vegetation. The quokka is threatened by introduced predators (direct predation by foxes and possibly cats and habitat destruction by feral pigs). In WA, broad scale seasonal aerial 1080 baiting (Western Shield) is conducted to control foxes. Additionally, selected populations of quokkas are protected by more intensive monthly 1080 baiting. Previous research conducted in 1998-2000 by Hayward suggested quokkas in the northern jarrah forest were collapsing and demonstrated little response to 6 years of intensive 1080 baiting to control foxes. A decade later, the situation has changed. We have conducted subsequent trapping at Hayward's sites following 16 years of baiting. In conjunction with trapping, we are monitoring feral predator presence (foxes, feral cats and feral pigs) with a range of non-invasive techniques including remote sensor cameras, PVC tubes for collection of hair for DNA analysis, track plates and bait stations. Preliminary results show viable quokka populations exist in areas where quokkas were believed to be going extinct. We will discuss our most recent quokka trapping results and outline the use of non-invasive techniques to detect feral predators and quokkas.

Dietary delicacies: the taste preferences of two introduced predators in southwest Western Australia

Crawford, Heather¹, Fleming, Patricia², Calver, Michael¹, and Adams, Peter²

¹School of Biological Sciences, Murdoch University

²School of Veterinary and Biomedical Sciences, Murdoch University

There is an absence of data on the impact that red foxes (*Vulpes vulpes*) and feral cats (*Felis catus*) have had as predators on fauna species in the south west region of Western Australia. We compared the diet of foxes with cats by examining the stomach contents of 550 foxes and 56 cats collected from across the south west of Western Australia in association with the Red Card For The Red Fox feral control program. This 'snapshot' of dietary intake revealed that the impact each feral species has on native animals differs. Both adult and juvenile foxes consumed mostly domestic sheep as either carrion or lamb, as well as a large amount of plant matter including several varieties of fruit, vegetable and grains. By comparison cats appeared to rely on introduced rodent species, but also consumed many bird and reptile species, including four species of snake. From our results we surmise that foxes are being sustained mainly by domestic livestock, whilst cats are actively hunting a greater proportion of native species. This has implications for both farmers and conservationists; especially if active control of foxes leads to mesopredator release, as cats may have a greater impact on the south west's remaining native species. Our study provides the first insight to dietary preferences of the fox and cat in south west Western Australia.