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ALCOA FOUNDATION'S CONSERVATION AND SUSTAINABILITY FELLOWSHIP PROGRAM

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Harnessing local, place-based knowledge for sustainable outcomes

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Beyond conceptual elegance: Local participation and the 'model' Fitzgerald Biosphere Reserve

ALCOA FOUNDATION'S CONSERVATION AND SUSTAINABILITY FELLOWSHIP PROGRAM

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Contents

OVER THE LAST DECADE, THERE HAS BEEN GROWING SENTIMENT THAT CONSERVATION OBJECTIVES ARE BETTER ACHIEVED WITH LOCAL PEOPLE RATHER THAN WITHOUT THEM. HOWEVER, THE EMERGENCE OF PEOPLE, PARTICULARLY COMMUNITIES, IN THE CONTEXT OF CONSERVATION GENERATES SOME DIVERGENT VIEWS. WHILE COMMUNITY IS A DYNAMIC AND FLUID CONCEPT, IT IS OFTEN RHETORICALLY APPLIED. THIS STUDY ADOPTS A FRAME OF REFERENCE THAT RECOGNISES THE IMPORTANCE OF 'PLACE' NOT ONLY SPATIALLY, BUT AS AN ESSENTIAL ASPECT OF SOCIAL IDENTITY, ATTACHMENT AND 'SENSE OF COMMUNITY'. OVERALL, THE FELLOWSHIP PROJECT AIMS TO CONTRIBUTE TO THE FOUNDATION PROGRAM BY INVESTIGATING THE SOCIAL COMPLEXITIES OF ENVIRONMENTAL MANAGEMENT.

EXPLORED IN THIS PAPER IS UNESCO'S MAN IN THE BIOSPHERE (MAB) PROGRAM, ITS CORE PRINCIPLES AND APPLICATION WITHIN THE AUSTRALIAN CONTEXT. SPECIFICALLY, IT PROFILES THE FITZGERALD BIOSPHERE RESERVE, SITUATED ON THE SOUTH COAST OF WESTERN AUSTRALIA. AN IMPORTANT GOAL OF UNESCO'S BIOSPHERE MODEL IS LOCAL ENGAGEMENT IN MANAGEMENT OF BOTH THE CONSERVATION AND SUSTAINABLE USE OF NATURAL RESOURCES. THIS PAPER OUTLINES THE RESULTS OF A BASELILNE SURVEY ABOUT ATTITUDES, PERCEPTION, ACTIVITIES AND KNOWLEDGE OF THE NATURAL ENVIRONMENT OF PEOPLE LIVING IN WESTERN SIDE OF THE FITZGERALD BIOSPHERE RESERVE.

Dr Amma Buckley is interested in developing and adapting social methodologies to engage and strengthen community capacity through local participation. She has conducted research with a range of 'difficult to reach' research participants including newly arrived refugee and migrant populations, Indigenous Australians and people in rural and remote communities. Her two year Fellowship concludes in mid-2008.

Alcoa Foundation Advancing Sustainability

Curtin University of Technology

Series Editors: Professor Jonathan Majer & Professor Daniela Stehlik

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> The Biosphere Reserve Program is conceptually elegant, but remains a long way from widespread implementation. … Man in the Biosphere (MAB) program will truly distinguish itself in the efforts to integrate the social and biological sciences. There is little hope for us all unless we are successful in these efforts (Thomas Lovejoy, Chair of the US MAB program cited in Parker 1993).

SECTION ONE – INTRODUCTION AND OVERVIEW

1.1 Background

This Alcoa Foundation Conservation and Sustainability Fellowship project broadly seeks to better comprehend local people's involvement in environmental management. Outlined in this paper are the findings of a baseline community study undertaken in conjunction with Greening Australia's Biodiversity Awareness Project – a South Coast Natural Resource Management (SCNRM previously SCRIPT) funded initiative. The project pilot area – located on the western side of Fitzgerald Biosphere Reserve – was selected due to its diversity (land use and people), significance as an international biodiversity hotspot and strong history of active community participation thereby providing an ideal site to commence investigating the broader topic. This contribution establishes, first, the purpose of the research and the processes used to engage with the local community before exploring relevant conceptual, environmental and social aspects through associated literature; and second, through the analysis of a selection of survey data, another dimension is added to the picture of local people living in a unique natural setting. The full report of findings – *A Baseline Survey: South Coast Biodiversity Awareness Project* (Buckley 2006) – is available electronically[1].

1.2 Research aims and methodology

The purpose of the project was to collect baseline data about attitudes, aspirations, activities and knowledge of the natural environment from residents living in the pilot site. This was accomplished by using a methodology that built capacity through the training and support of a locally sourced group of residents.

Informed by a participatory action research (PAR) orientation, the study's research methodology models a 'community-as-researcher' approach (Stehlik & Buckley 2007). Previously applied to both rural and urban settings, this framework has particular merit with 'hard to reach' sectors of the community. Such sectors have

[1] Available http://strongercommunities.curtin.edu.au/publications_new.htm

Included culturally and linguistically diverse (CALD), Aboriginal, and rural and remote communities. Data collection occurred during July-August 2006 when the survey instrument was administered by community researchers to 104 people aged 18 and over using social network or respondent-driven sampling (Salganik & Heckathorn 2004).

Included in the survey schedule were both prompted and unprompted questions themed around the following:

- connection to place
- activities in place
- specific environmental activities
- biodiversity and environmental awareness
- attitudes to the environment
- sources of environmental information

Results of selected questions are tabulated and presented in Section 2. Some questions are accompanied by demographic highlights, with cross-tabulations to sex, age, location and education.

1.3. Literature Review

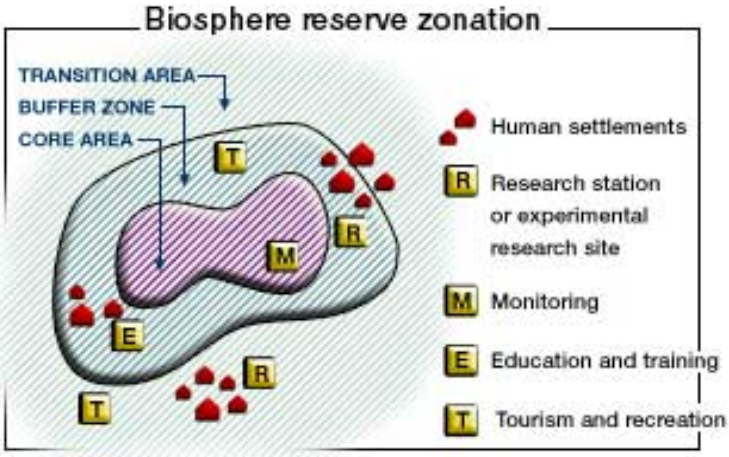
Background to Biosphere Reserves

In 1970, the UNESCO Man in the Biosphere (MAB) Program commenced the establishment of an international framework and worldwide network of the main terrestrial and coastal ecosystems of the planet. Commencing with less than 100 Biosphere Reserves in 1970, there are now 507 reserves in 102 countries (UNESO 2007a). Visionary in its approach, the program's primary concern remains whole-of-landscape processes across a variety of land tenures and uses (Brunckhorst 2001). These 'living laboratories' have the potential to conserve genetic resources while fulfilling the tripartite functions of conservation (biodiversity and landscape); development (human and economic) and logical support (research, monitoring and training) (UNESCO 2007b). Indeed, this initiative foreshadowed the present day principle that sustainability in conservation requires integration that the 'whole' is greater than the sum of its parts.

The biosphere reserve model contains three interrelated zones forming a concentric structure. These zones include a core area, chiefly a nature reserve or national park.

Surrounding or abutting this, is an identified buffer zone with compatible conservation objectives. An outer transition area or 'zone of cooperation' has the greatest variability in land use (farms and townships) and is the site for the promotion and development of sustainable resource management practices.

Figure 1.1: Schematic diagram of the three zones



Source: UNESCO 2007 (http://www.unesco.org/mab/faq_br.shtml)

The biosphere reserve program in Australia

During the period 1977 to 1982, Australia established 12 biosphere reserves in all States except Queensland. Since this time, there has been one newly designated reserve and one reserve delisted[2]. Land tenure representation across the biosphere reserves includes crown, public land (State-owned) and private, as well as a mix of these configurations (Matysek, Stratford & Kriwoken 2006). With one exception, the administrative jurisdiction of the Australian Biosphere Reserve Program rests with a State government conservation agency. Somewhat at odds with the zonation outlined above, nine of the twelve biosphere reserves remain almost entirely protected or 'core' areas dependant on direct government support (Department of Environment and Heritage 2001) – essentially nature reserves.

Some three decades since the initial flurry of biosphere establishment, latency characterises the Australian Biosphere Reserve Program. This is based on a broader claim by Davis and Drake (1983) that the model from the outset had been characterised by problems in perception and application. Some specific explanations for this dormancy range from: competing national and international privileging of 'wilderness' and World Heritage over the MAB program (Brunckhorst, Bridgewater &

[2] Morning Peninsula-Western Port (Vic) designated in 2002 and South-West National Park (Tas) de-listed in 2003.

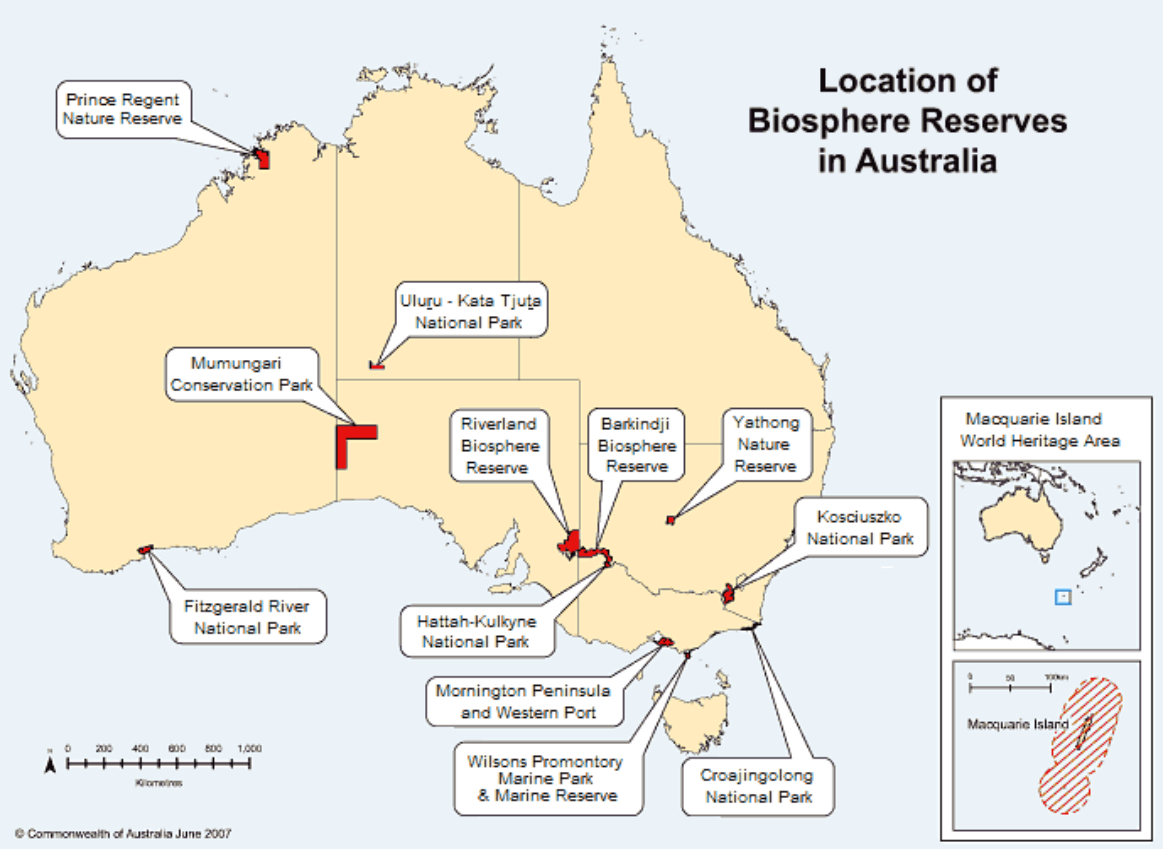
Parker 1996); resource competition and 'siloed' or compartmentalised approaches at both Commonwealth and State environmental tiers (Matysek et al 2006); to devolution of responsibility at the local level without commensurate resourcing (Parker 1993). More specific problems at the local level are related to geography and the remote location of most reserves (see Figure 1.2), as well as divergence in local governance, land use, population size and characteristics (Davis & Drake 1983; Parker 1993). Early in the life of the program, Kellert (1986) argued that there had been little public understanding or appreciation about the concepts and the opportunities offered by biospheres. More recent developments indicate renewed interest, which Cochrane and Muldoon (cited in Matysek et al 2006) outline in terms of complimentary activities such as greater private sector involvement and philanthropic partnerships in some reserves leveraging off the concept and opportunities offered by the biosphere model. While these initiatives have merit, Matysek et al (2006) conclude in a recent review of the Australian program that there has been 'a multi-jurisdictional failure to foster *local* participation and stewardship, and *regional* and *national* leadership and management' (2006 p. 92, emphasis in original). This assessment is not solely confined to social and institutional dimensions of the biospheres reserve program, as Stratford and Davidson (2002) argue, such failures are characteristic of natural resource management in Australia more generally.

Following the second review of the program in the early 1990s, actions identified to fulfil the requirements of the MAB Program and advance the biosphere concept, led to the selection of two sites to be resourced by Commonwealth and State authorities as benchmark reserves (Maysek et al 2006). These reserves, the Riverland Biosphere Reserve (then Bookmark) in South Australia and the Fitzgerald River Biosphere Reserve in Western Australia, were considered to be salient examples of an integrated protective framework, interpreted locally and evolving in application (Brunckhorst 2000).

Soon after its designation as a Biosphere Reserve, the Fitzgerald River had made significant in-roads into fulfilling some of the central functions of conservation, development and logistical support. To a great extent, the enhanced conservation values of the Fitzgerald were arguably about the limited population and tourism pressures placed on the area due to its relative isolation (Watson & Sanders 1997). However, Thomas (1989) contends that this was further assisted by the closure or quarantining of parts of park as a measure to control *Phytophthora cinnamomi*

(dieback) (Watson, Lullfitz, Sanders & McQuoid 1996). Recognition of the human or development component of the model was due to the long involvement by a local conservation group, the Fitzgerald River National Park Association (FRNPA) and its associated awareness and promotional activities (Switzer 1988). Research and educational activities were acknowledged due to the provision of a field study centre (old quarry house) located within the Fitzgerald River National Park (Watson & Sanders 1997). While these aspects were seen to elevate the status of Fitzgerald Biosphere Reserve to a 'benchmark' reserve, the significance of its natural features remain critical for preservation amid mounting environmental pressures.

Figure 1.2 Locations of Biosphere Reserves in Australia



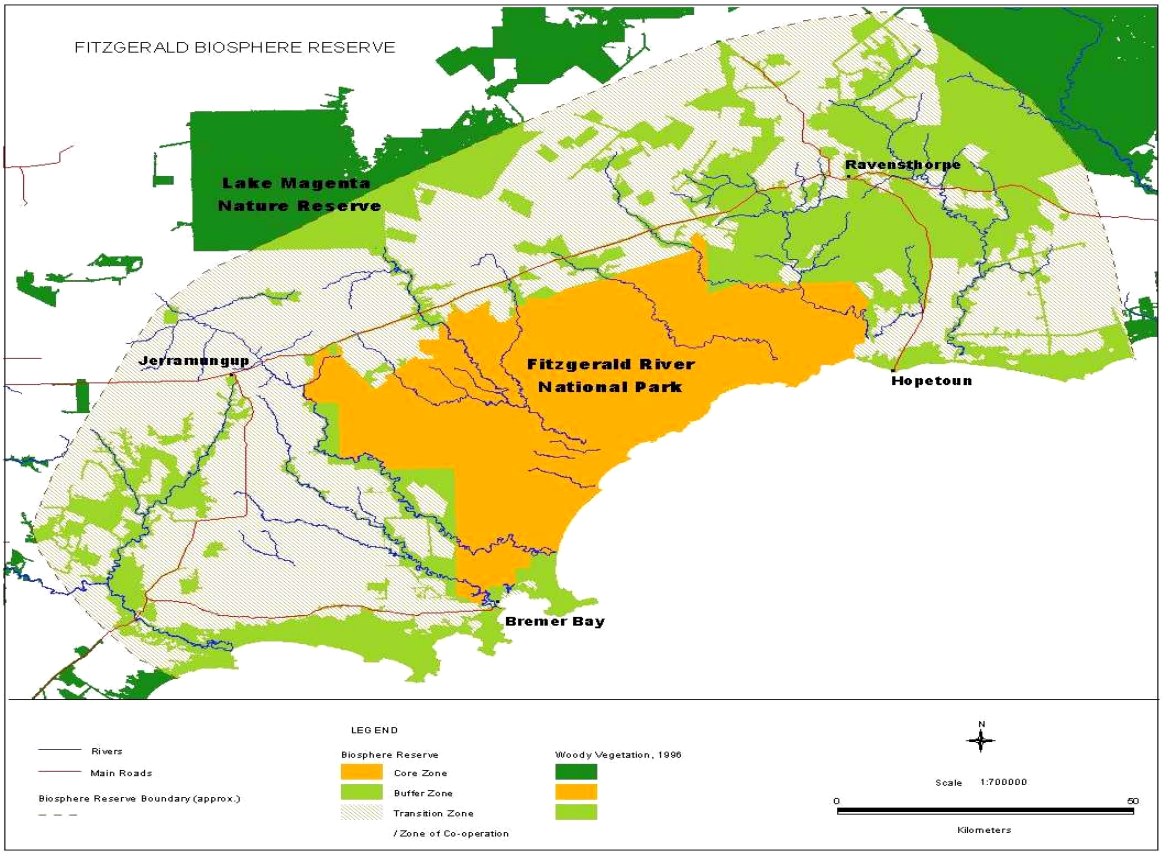
Source: Commonwealth of Australia 2007
(http://www.environment.gov.au/parks/biosphere/map.html)

Natural features of the Fitzgerald Biosphere Reserve

As a focus of this paper, the Fitzgerald Biosphere Reserve (FBR) is situated on southern coast of Western Australia, 170 km east of Albany, between the towns of Bremer Bay and Hopetoun (Figure 1.3). Its gazetted area or 'core' covers 243,000 ha, however notionally the full Fitzgerald Biosphere Reserve is 1.3 million ha (Watson & Sanders 1997). Lying in the heart of one of the world's 34 biodiversity

hotspots (Conservation International 2007), the FBR is considered the most important Mediterranean ecosystem reserve on the globe (von Droste 1989 cited in Muldoon 2004). Its biological richness is attributed to ancient geological systems, long and variable climatic history and Gondwanan heritage. Ancient rock formations underlying the FBR reflect geological systems influenced by the once close connection to Antarctica as part of the southern super-continent (McQuoid 2006). The impressive plant endemism in Southwest Australia is also attributed to the biogeography of millions of years of isolation from the rest of Australia by the vast central deserts (Conservation International 2006). Alongside these archaic factors, extreme climate shifts and infertile soils have played their part in the complex mosaic of specialised flora (McQuoid 2006).

Figure 1.3 Map of Fitzgerald Biosphere Reserve



Source: Map courtesy of Greening Australia Western Australia (GAWA).

Environmental threats

Globally, there is mounting evidence that the underlying causes of most environmental change is increasing population and consumption and climate change (Environment Protection Authority 2006). In making predictions about likely impacts

on Australia for climate change, Pittock (2003) reports on possible increases in temperature and variable rainfall in specific regions, including the south-west region. At a location-specific level, there are also existing pressures, aside from predicted global climatic impacts. Specifically, the *South Coast Regional Strategy for NRM* which includes the FBR as a sub-region – outlines some existing threats including: degradation of soils (due to salinity, run off, water erosion, structural decline including reduced fertility and wind erosion); altered hydrology (due to salinity, nutrient enrichment, sediment, fertilising practices and pollution from urban/rural users); loss of habitat and ecological communities (due to land clearing and development, dieback *Phytophthora*, agricultural practices, pests and animals); altered fire regimes; and degradation of waterways and wetlands (SCRIPT 2005, pp. 35-48). While remedial measures, namely recovery, containment and adaptation are directed at the FBR as part of this broader regional management strategy, the involvement of local people – a key Biosphere concept – is acknowledged as critical for successful outcomes.

Local participation

As Bradby (1989, p.15) argues, the listing of the landscape as an international biosphere reserve was never meant to be 'a passive title bestowed on a protected natural area'. Two purposes were intended, first, the inclusion of local people in an active program of governance and second, the monitoring, research, education and training on a range of landscapes in varying stages of modification by humans. For Brunckhorst et al (1996, p 4-5) this was an invitation to depart from 'managing one's own 'patch' in isolation and/or being excluded from ownership and responsibility for local public land'. In fact, the Biosphere Reserve concept challenges local communities with new responsibilities for their own sustainable future by calling for greater public involvement and support (Thomas 1989) in the stewardship of the landscape.

There has been a long reported tradition of community involvement in environmental issues across the three FBR zones (see Figure 1.3) with strong networks of groups and individuals championing for the protection and restoration of the natural environment (Watson & Sanders 1997; SCRIPT 2005). Indeed from UNESCO's perspective 'the involvement and support of the local communities in the [Fitzgerald] Biosphere Project is without parallel' (von Droste 1989 cited in Muldoon 2004). Equally reported is the sporadic nature of community participation which is described as peaking in the 1980s, mostly galvanised around opposition to land releases for

mining or agricultural purposes (Watson & Sanders 1997; SCRIPT 2005). Watson and Sanders (1997) contend that it was not until the mid-1980s that local community awareness and acceptance of the FBR buffer zone and zone of community cooperation occurred. This led to subsequent community involvement in the formal processes of developing a management plan in early 1990s. West (2001) reports on the narrowing of division between the minority 'green' and 'production' sectors of the Fitzgerald Biosphere community due to the broader agricultural sector support for landcare programs. While this concerned core of local people was highly effective during the mid to late 1980s, the extent of continued involvement of this sector and the broader community are infrequently reported (Watson, Lullfitz, Sanders & McQuoid 1996); Watson & Sanders 1997). Overall there are limited discussions in the literature about the perceptions and achievements of local people living in the FBR. The following report of results of a recent community survey is a contribution in that direction.

SECTION TWO – SURVEY FINDINGS

The study was undertaken between June and September 2006 and represents results of data collected from 104 survey respondents within eight collection areas.

2.1 Demographics

The pilot site for this study is situated within the Shire of Jerramungup. This local government covers 6541 sq km and includes the townships of Jerramungup and Bremer Bay and the districts of Needilup, Jacup, Gairdner and Boxwood Hill. Over 64% of the Shire's area is designated agricultural land (Shire of Jerramungup 2006). At the time of the 2006 Australian Bureau of Statistics Census, the population of the Shire was 1128, indicating a 6.6% population decline since the 2001 census (ABS 2001, 2006). As identified in Table 1.1, a declining trend in population numbers continues to occur.

Table 1.1 Population change in the pilot area

LGA	1996	2001	2006	% Change 1996-2001	% Change 2001-2006
Jerramungup	1332	1244	1204	-6.6	-6.6

Source: ABS 1996, 2001 and 2006.

Age: Across the survey sample, the most reported age group was 36-45 years (31%), followed by the 46-55 years (27%). The age range 26-35 years was identified

by 18% of the sample with 10% aged between 56-65 years. Remaining age ranges included: 2% below 25 years and 13% over 66 years.

Sex: Female respondents were in the majority with 54% completing the baseline survey. Males comprised 46% of the sample.

Main language spoken at home: All respondents indicated that English was the primary language spoken at home.

Highest level of education: A quarter of respondents (25%) had a university degree and 3% a post-graduate qualification. Some 22% of respondents had some secondary education with a further 22% completing Year 12. For 21% of the sample, the highest education level was a Trade or TAFE qualification. Finally, 2% reported the highest education level as primary school and 1% had no formal schooling.

Employment descriptions: The majority of the sample (52%) reported being self employed, followed by full-time waged (14%). Other categories included home duties (13%), part-time waged (11%) and retired (10%).

Children: Of those surveyed, 83% identified having children.

Location: This is classified based on town block, peri-urban (less than 20 hectares) and rural (larger than 20 hectares) holdings. The majority of respondents resided in rural (65%), followed by urban (25%) and peri-urban properties (10%).

Time in current location: Close to half the sample have lived in their current location for more than 16 years (45%), however a quarter have arrived in the past three years. Within specific location type, 30% of urban property owners had more recently (in the past 5 years) moved to their current location compared with 14% of rural landholders. At the other end of the scale, some 75% of rural landholders have lived in their current location for over 16 years.

In summary, the majority of respondents were aged between 36 and 55 years and possessed Year 12 and above education. There was a high level of self-employment, which was not an unusual finding given the farming nature of the area. While survey respondents had mostly resided for a significant period in the area, there was evidence of mobility, particularly in urban areas.

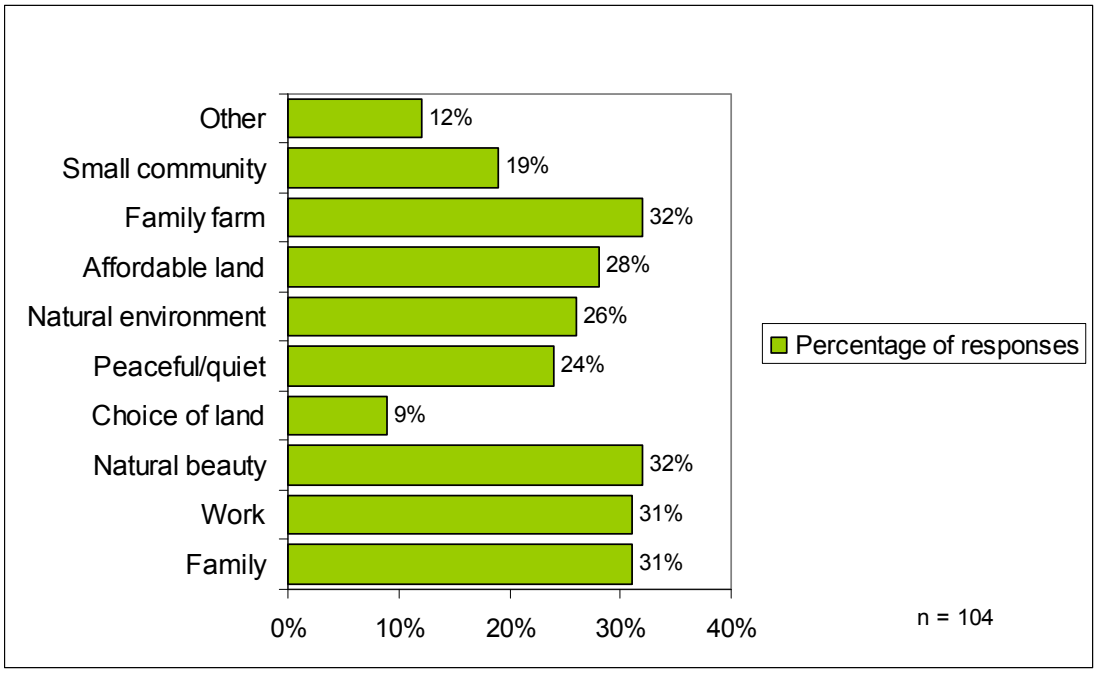
2.2 Connection to place

Attraction to the area

For those who responded to the survey, the most nominated attraction to the area involved family (63%); due either to the family property (32%) or the presence of family (31%) in the area. Place was highlighted either for the area's natural beauty

(32%) or because of the natural environment (26%). Access to work was also a prominent attraction for survey respondents (31%), as was land acquisition either affordability (28%) or choice (9%). The remaining attractions included peacefulness (24%) and smallness of community (19%). Responses to category 'other' were associational attraction, primarily due to a marriage or intimate relationship.

Figure 2.1 Attraction to the area



Box 1 Demographic highlights of attraction to the area

Attraction to the area

Sex

Female: Family was the greatest attractor for women (65%). Women dominated in categories of attraction for aesthetic or quality of life reasons: reasons related to peaceful (70%), natural environment (68%) and size of community (65%).
Attraction to the area for work was dominantly a female phenomenon (60%).
Male: Familial attraction for men was chiefly related to family property (65%).
Land acquisition, namely affordable land (59%) and land options (54%) were dominantly male responses.

Location (urban, peri-urban and rural)

Rural: Some 96% of rural respondents identified the family farm as the chief attractor.
Urban: Town participants were most attracted to the smallness of community (55%).

Age

26-35 years: The family farm (33%) was the dominant attraction.
36-45 years: Work (33%) and affordable land (33%) dominated.
46-55 years: The natural environment (40%) and family (38%) were highly attractive.

Educational attainment

Tertiary: Work (37%) and the natural environment (36%) were the greatest attractors for respondents holding tertiary qualifications.
Year 12: Family (38%) and family farm (33%) were most noted by respondents with Year 12 education.
Some secondary: Land options (38%) and affordability (33%) were highest for respondents with some secondary education.

Personal priorities

The question was about personal priorities placed on a range of life issues (shown in Table 2.1) which was adapted from a Department of Environment and Conservation NSW triennial survey – *Who cares for the Environment* (DEC 2004; 2007). For the purposes of interpretation, 'very important' and 'somewhat important' scales for personal priorities were combined, as were 'not very important' and 'not at all important' categories. Disaggregated data by scale is outlined in Table 2.1.

All respondents rated family (100%) as the most importance personal priority. Almost as many (99%) rated friends and income (99%) as equally important in combined scale ranking. The environment was the fourth most important priority in the lives of 97% of respondents. However, when 'very important' alone was compared, the 'natural environment' ranked third. In comparing results with the DEC 2006 triennial study, NSW respondents also ranked the environment third, after family and friends, indicating concordance in findings across the two studies.

Table 2.1 Personal priorities

Statements	% Very important	% Somewhat important	% Not very important	% Not at all important	Ranking 1-10
Family	97	3			1
Friends	75	24	1		2
Leisure time	46	44	7	3	7
Politics	15	46	29	10	9
Natural environment	70	27	2	1	4
Work	58	36	5	2	6
Religion	11	24	33	33	10
Service to others	42	46	6	5	8
Community	51	44	3	1	5
Income	60	39	1		3

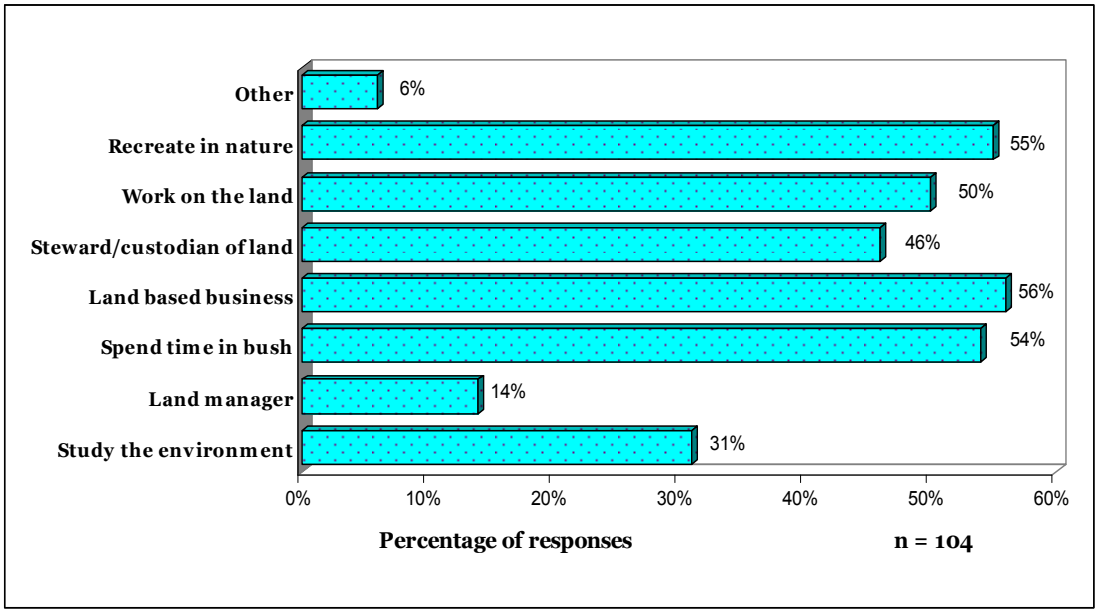
Box 2 Demographic snapshot of personal priorities

Personal Priorities	
Sex Women are more likely than men to rate the following as highly important in their lives: ▪ family (98% compared to 94%) ▪ the environment (98% compared to 94%) ▪ leisure time (92% compared to 86%) ▪ service to others (95% compare to 80%) ▪ community (96% compared to 93%) ▪ religion (39% compared to 31%) **Location** Urban and peri-urban respondents rated the environment as more important than their rural counterparts.	**Age** When importance is combined there are few differences related to age. However, when scales are read separately, the age group 46-55 years rated the importance of the environment highly (82%), a trend that continued and increased in older age groups. **Educational attainment** More people with trade, technical and tertiary qualifications reported the environment as more important than other groups. Respondents with Year 12 educational attainment rated the importance of the environment lowest.

Relationship with the environment

Survey respondents were asked what best described their relationship with the local environment (shown in Figure 2.2). Multiple relationships were clearly evident. Land based businesses were the most commonly described relationship with the local environment (56%), followed closely by recreating in nature (55%), spending time in the bush (54%) and working on the land (50%). Ratings of other relationships include steward/custodian (46%), study of the environment (31%) and land manager (14%). Analysis highlighted that business and custodian relationships were predominantly reported by agriculturalists. Other non-categorised relationships reported broadly followed the theme of appreciation for the natural beauty of the area.

Figure 2.2 Relationship with the local environment



2.3 Activities in place

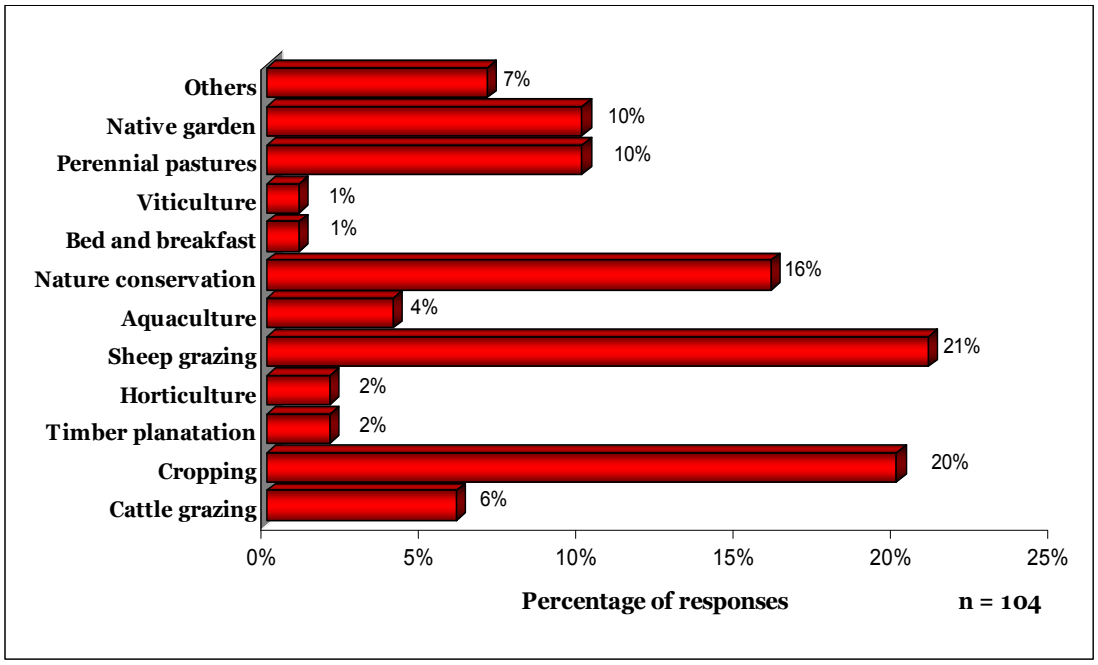
Size of property

As discussed in the demographic section, the land use classification adopted for the survey was based on town block, peri-urban (less than 20 hectares) and rural (larger than 20 hectares) categories. Across the sample, the smallest land holding was 900 sq metres and largest 10,000 hectares. Urban properties largely complied with the '¼ acre block' description, although there were both larger and smaller urban holdings identified by survey respondents. The average peri-urban holding was 5.2 hectares, much smaller than the adopted classification. For rural broad-acre, the majority of properties (58%) ranged between 1000 – 3000 ha.

Activities on landholder properties

The dominant activity on properties within the research site was 'animal grazing' (27%) – sheep (21%) and to a lesser degree cattle (6%) – followed by broad acre cropping (20%). Some 16% of respondents identified involvement in 'nature conservation' activities including over half of rural property owners. In an associated question, 44% of rural landholders were revegetating their property, ranging in area revegetated from 9 to 480 hectares. Establishing a 'native garden' was mainly an activity on urban and peri-urban properties. Less reported – fewer than five percent of the sample – were activities related to aquaculture, horticulture, timber plantation or viticulture. Unprompted activities noted were harvesting sandalwood, a cattle feed-lot, horse agistment and operating a tourist park.

Figure 2.3 Activities on landholder properties



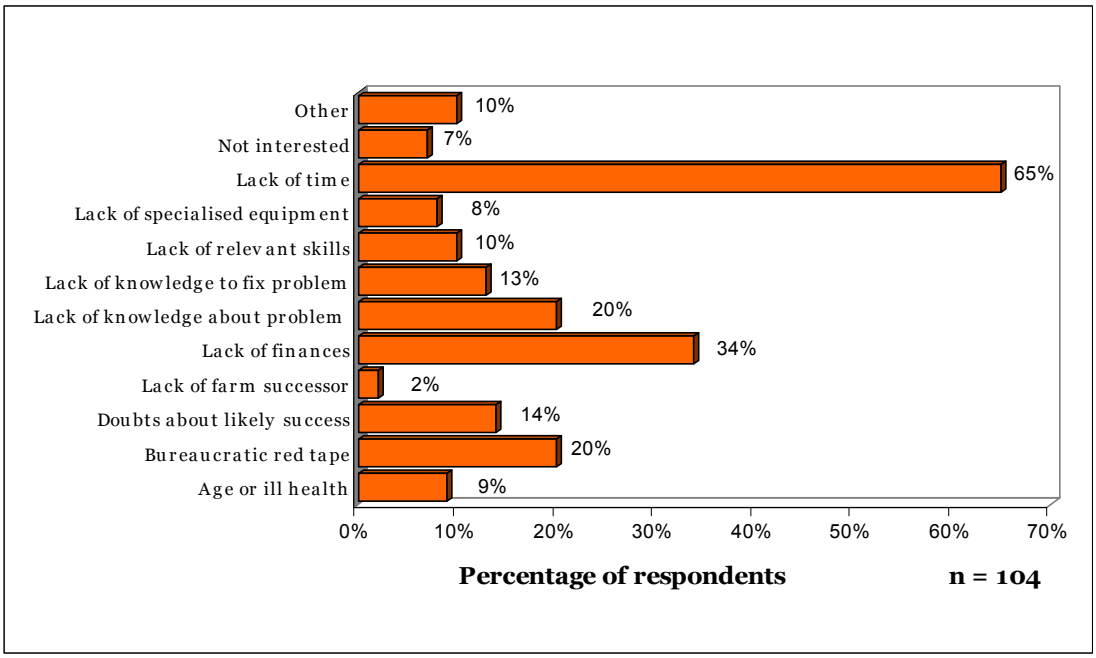
2.4 Environmental activities

Involvement and impediments

A section of the survey sought information about respondents' engagement in environmental organisations and environmental activities. Some 45% of respondents confirmed active membership of a Natural Resource Management (NRM) organisation, varying from short to long term associations, dependent upon the length of time spent in the area and the status of these organisations. The majority of respondents were actively involved with the Fitzgerald Biosphere Group and/or local catchment/landcare groups. When asked about barriers to participation in

NRM/landcare activities (see Figure 2.4), most respondents (over two-thirds) identified a 'lack of time'. The next greatest impediment highlighted was financial limitations (34%) confirming that for landholders, environmental management is not cost neutral. However, bureaucratic processes or 'red tape' (20%) were also viewed as significant barriers to participation. Deficiencies in knowledge about environmental problems (20%) and how to remedy them (13%) were cited, as were insufficient skills (10%) and lack of specialised equipment (8%). Personal reasons such as age or ill health (9%) and lack of a farm successor (2%) were infrequently reported. Other reasons given for inactivity included: leasing/renting the property, rising fuel costs, proposed NRM work not approved by local council and conflicts of interest e.g. neighbours or work. Overall, a lack of interest (7%) was not a strongly identified barrier, although reported was an eroded enthusiasm (14%) about the success of such endeavours, based on their previous experience.

Figure 2.4 Barriers to environmental work

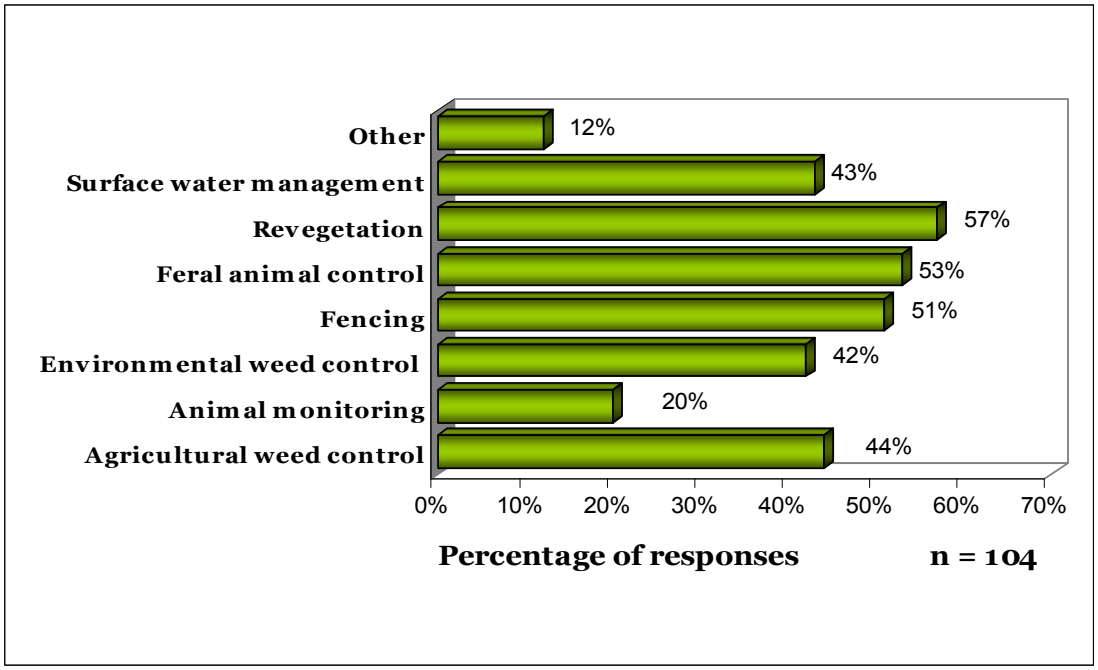


Land management practices

Of the possible land management practices being undertaken to benefit the natural environment (shown in Figure 2.5), revegetation was most common (57%). For rural landholders, practices such as feral animal control, fencing, agricultural weed control and surface water management on their land were highly reported. For urban and peri-urban participants the focus was on environmental weed control and animal monitoring within their local area. Other identified practices occurring within the rural

sector included investigating/researching land management practices, no till practices, perennial pastures and agricultural trials. For urban dwellers, re-cycling and waste disposal were also important. A number of respondents noted their intention to incorporate more of these latter activities into their current practices.

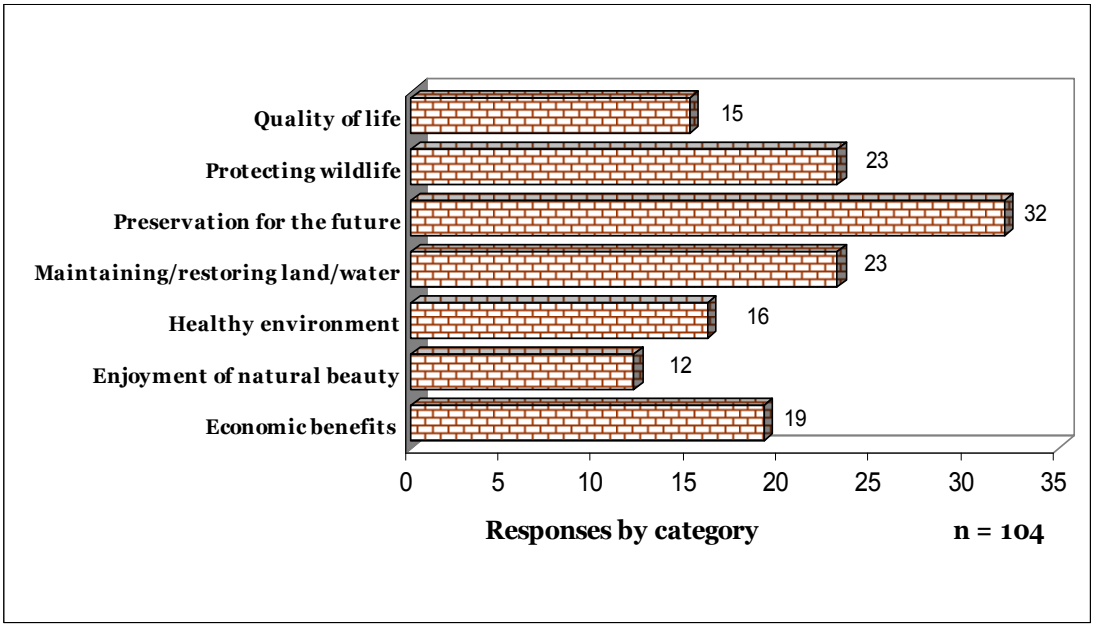
Figure 2.5 Adopted land management practices



Benefits of environmental protection

As part of this section on environmental activities, respondents were asked about the benefits of protecting biodiversity either on their property or in the area (see Figure 2.6). These were then arranged into key themes according to number of times stated. Unprompted responses rated 'preservation for the future' (32) as the greatest benefit, followed equally by 'maintaining/restoring land/water' (23) and 'protecting wildlife' (23). Other benefits were economic (19) in terms of increasing and improving productivity to maximise yields and maintaining the (re-sale) value of the land. Respondents also mentioned maintaining and rejuvenating the natural bush – namely a 'healthy environment' (16). 'Quality of life' (15) aspects included living in pleasant environment, considered essential for tranquillity, peace of mind and enjoyment. Their 'enjoyment of the natural beauty' (12) was also considered as an important benefit of maintaining biodiversity.

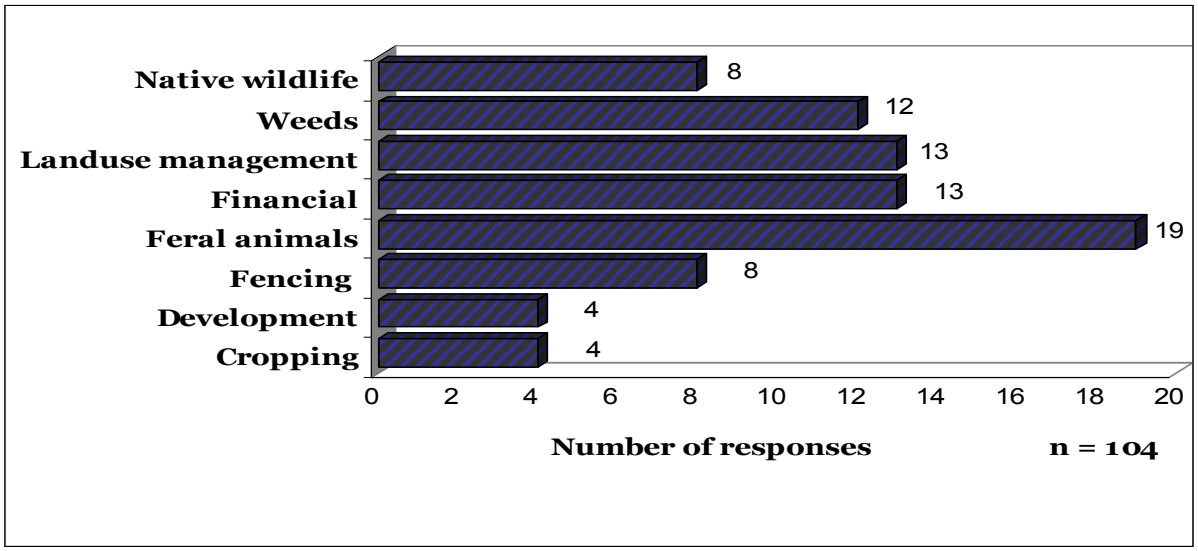
Figure 2.6 Benefits of protecting natural environment



Biodiversity challenges

At the same time protecting the environment and its biodiversity had associated draw backs (see Figure 2.7) and respondents raised concerns about the impact of increased 'feral and native animal' (27) numbers on primary production. Protecting the environment involved 'financial' outlay (13) and was therefore not seen as the 'core business' of the land-holder. There were 'land management' (13) implications in terms of potential loss of arable land for production due to revegetation as well as concerns about bureaucratic control over the 'family farm' from agriculturalists. Maintaining biodiversity had the potential to impact on 'weed eradication' (12) due to increases in native poison plants and unwanted species. Other identified themes included the necessity to maintain 'fencing' (8) and the impacts on 'cropping' (4) due to increases in native flora and fauna. For the urban and peri-urban sectors, protecting biodiversity had the potential to impact on 'development' (4) by restricting land releases and building permits.

Figure 2.7 Problems arising from protecting biodiversity



2.5 Environmental attitudes

Exploring attitudes

Attitudes about the environment were explored in the survey through a range of positive and negative statements about the local environment and landholder actions on their properties.

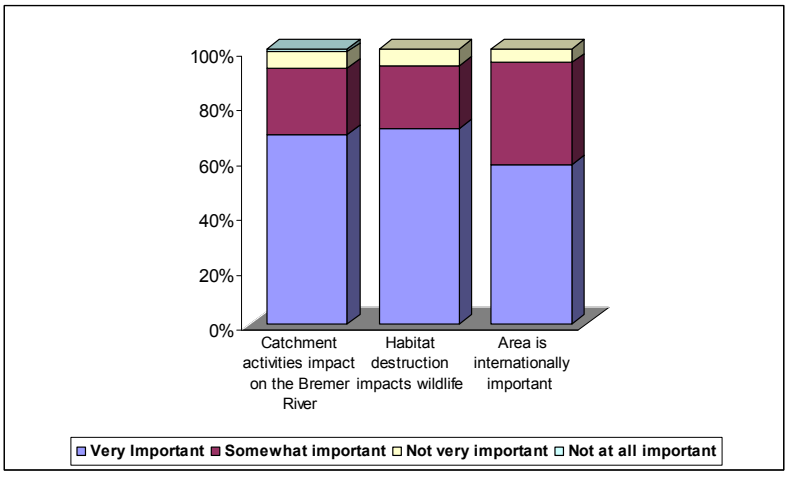
On statements about the local environment (shown in Table 2.2), there was strong agreement about recognising and protecting biodiversity. Some 85% of participants agreed that 'every bit of nature is important' while 82% concurred that 'biodiversity on my property is an important part of the broader landscape'. Statements eliciting the most disagreement were 'technology will fix the problems' (78%); 'the bush here is unattractive' (69%) and 'the problems are so big there is not much that one person can do to help' (62%). Further, across the 10 possibilities, the statement with the strongest ambivalence (neither agree nor disagree) was 'the areas' biodiversity is well-enough protected in existing national parks and reserves' (29%).

Table 2.2 Statements about the local environment

Statements	% Agree	% Neither agree nor disagree	% Disagree
a. The area's biodiversity is well-enough protected in existing national parks and reserves	34	29	36
b. The problems are so big there is not much that one person can do to help	23	15	62
c. It's the government's responsibility to protect and manage the natural environment	26	19	55
d. Technology will fix the problems	7	15	78
e. Every bit of nature is important	85	9	6
f. Biodiversity on my property is an important part of the broader landscape	82	17	1
g. The natural environment is an integral part of my property	72	18	10
h. The bush here is unattractive	9	12	69
i. Most of us take the natural environment for granted	74	13	13
j. Biodiversity in my local area is under increasing threat and we could all contribute to its protection and management	71	18	11
k. Wildlife are an important part of my life	77	18	5

Of the three statements about action on respondent's property or in the local area, 'destruction of habitat results in the loss of wildlife' attracted by a small margin the higher agreement (71%). This was followed by the statement 'what happens in the catchment could lead to a loss of water quality and fish numbers in the Bremer River' (69%). In particular, this statement had the highest resonance for urban participants. While the statement, 'the local area has tremendously high levels of biodiversity and is one of the world's most important and endangered environments' was well support (58%), overall it lacked the strength of agreement across the three statements. Clearly the international significance of the area requires more prominent emphasise.

Figure 2.8 Actions on property or in the local area



2.6 Environmental education/awareness

Preference in delivery

Environmental education was explored by asking questions about the preferred mode of educational/awareness delivery, preferred environmental activities and whether research participants actively source information about the environment. Survey respondents ranked a list of delivery modes from most to least effective. According to mean score, the ordering of educational approaches favoured practical participation evident in the first five ranked approaches, namely 'hands on learning', 'field days', 'bush visits with experts', 'workshops' and 'assisting in field research'.

Results from the 'preferred delivery mode' were cross referenced with findings about 'preferred biodiversity activities'. Strongly correlated were the top five activities (see Table 2.3). Clearly 'learning by doing' delivered at a local level by local experts was strongly favoured. Further, over half the survey sample confirmed that they actively sought environmental information. This information was predominantly sourced from mainstream print and electronic media outlets.

Table 2.3 Comparing biodiversity activities with preferred approach

Biodiversity conservation activities	%	Ranking of preferred educational approaches
Local experts	65	3
Hands on learning	46	1
Field days	41	2
Field research	36	5
Workshops	36	4
Skills to protect biodiversity	32	
School based education	26	
Visiting other biodiversity programs	16	
Organising stories	14	
Seeing art exhibits	13	

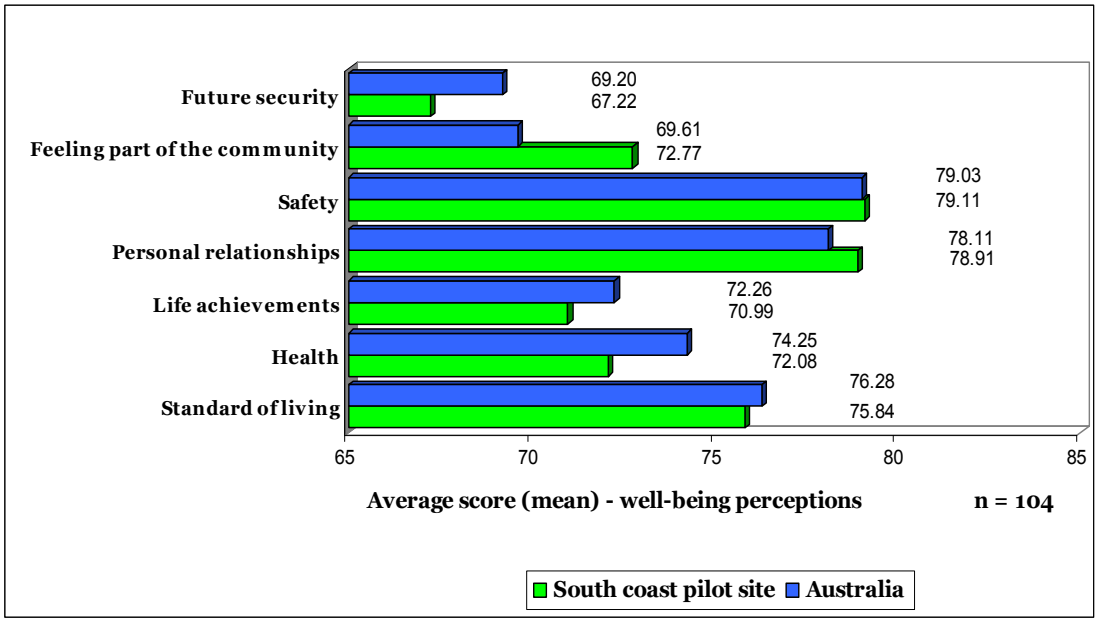
2.7 Comparative well-being

Profiling well-being

The final section analysed wellbeing. Respondents self assessed their well-being against a range of statements outlined (shown in Figure 2.9). Averages across well-being variables were then compared with national well-being data sourced from the Australian Unity Wellbeing Index developed by Deakin University, Victoria.

As national averages are compiled in 2006[3], current issues are factored into the assessment e.g. national political and economic climate and world events. This comparison established that at a local level, survey respondents reported a substantially higher level of satisfaction in regard to 'feeling part of the community' and higher level of satisfaction about 'personal relationships' compared with average Australians. A slightly higher level of satisfaction was identified for 'how safe you feel' for the survey sample when compared to fellow Australians. Self assessed satisfaction in regard to 'health' is significantly lower than the Australian average (more than 2 mean points below). Likewise, lower levels of satisfaction were evident for 'standard of living' 'life achievement' and 'future security' (all less than 2 mean points).

Figure 2.9 Well-being: Pilot area compared with average Australia



Source: Australian Unity Well-being Index, Deakin University (2006) and Buckley (2006)

An analysis of well-being indicators for respondents of the South Coast survey confirmed somewhat lower levels of well-being when compared to the Australian average. Across the seven self-reported areas, three were above the Australian average – 'personal relationships' 'safety' and 'feeling part of the community'. Lower levels of self-reported satisfaction were reported in relation to 'standard of living', 'health', 'life achievement' and 'future security' compared with the average level of satisfaction for fellow Australians. Of relevance, a recent report on city and country

[3] Australian Centre on Quality of Life, Deakin University 2006, Australian Unity Index Satisfaction Survey (No. 15), retrieved September 11, http://www.australianunity.com.au/au/info/wellbeingindex/#glance

living by the Australian Centre on Quality of Life (Cummins, Davern, Okerstron, Lo & Eckersley, 2005; Gittins 2005) identified a linkage between a high degree of community connection (social capital) and a greater sense of safety. A less positive finding by Horwitz, Lindsay and O'Connor, (2001) associates the degradation of the environment, namely poor soil and water quality with declines in psychological health of rural dwellers. A comparative assessment of well-being across landholder type (see Box 3), evidenced overall lower satisfaction for rural landholders, adding credence to this associational claim. This self-assessment of the 'lived experience' of rural landholders is concerning and is clearly an area that needs greater attention in the overall understanding of people's relationship with their landscape.

Box 3 Comparing landholder well-being with average Australia

Comparative Wellbeing	
Rural Rural respondents rated themselves lower than both urban and peri-urban dwellers in all areas except safety, where they felt slightly safer than urban dwellers. **Peri-urban** Across all responses, peri-urban respondents rated their wellbeing highest overall, particularly in safety, personal relationships, life achievements and health indicators. **Urban** Urban dwellers rated themselves highest in future security, feeling part of the community and standard of living.	**Australia** Survey respondents rated themselves higher than the Australian average in: ▪ Standard of living (urban & peri-urban) ▪ Life achievement (peri-urban) ▪ Personal relationships (peri-urban) ▪ Safety (urban, peri-urban and rural) ▪ Feeling part of community (urban, peri-urban and rural) ▪ Future security (urban) Survey respondents rated themselves lower than the Australian average in: ▪ Health (urban, peri-urban and rural) ▪ Standard of living (rural) ▪ Life achievement (urban and rural) ▪ Personal relationships (urban and rural)

CONCLUSION

As the title of this working paper suggests, the Biosphere Reserves Program is conceptually well-designed and the notion of working landscapes increasing supported. This paper has outlined the background of Biosphere Reserves, both internationally and nationally, with a specific focus on the Fitzgerald Biosphere Reserve in Western Australia. While the FBR is considered a 'model' reserve in terms of conservation, development and research, some aspects of these functions remain emergent. As the paucity of social literature attests, there are significant gaps in understanding about the overall contributions made by local people to the FBR endeavour. This study commenced a social profiling of the western Fitzgerald

Biosphere Reserve with a snapshot of the attitudes, perceptions and activities of a mix of landholders.

As evidenced by survey results there are encouraging levels of appreciation, awareness and activity related to the natural environmental in the pilot site. Survey findings were benchmarked against national data in the areas of personal priorities and wellbeing. Personal priorities at the local level mostly matched national findings, with family the lead priority and the environment ranked third. For wellbeing, self assessed categories for standard of living, life achievement, health and future security were significantly below national averages. Study respondents, mostly rural land managers, described varied relationship with the land, alongside considerable levels of reported landcare involvement. While revegetation was the most identified environmental activity undertaken by landholders, additional environmental work was impeded by a 'lack of time'. In establishing the benefits and challenges of protecting the natural environment, the most significant advantage given by survey respondents was preserving the environment for future generations. The greatest disadvantage or concern was the impact of uncontrolled feral and native animal populations on primary production.

Overall, survey respondents indicated a strong preference for increasing their awareness about natural resource management through activities that are delivered in practical modes by local experts with local knowledge. These more participatory or collaborative modes of engaging in the 'science' of environmental management are considered essential for increasing community involvement in NRM leadership and governance. The aspect will be an important focus of the next stage of the Fellowship project, centring on local participation in environmental management within the Fitzgerald Biosphere Reserve.

REFERENCES

Australian Bureau of Statistics (ABS) 1996, Census of Population and Housing Selected Characteristics for Urban Centres and Localities, Commonwealth of Australia, Canberra.

--- 2001, Census of Population and Housing Selected Characteristics for Urban Centres and Localities, Commonwealth of Australia, Canberra.

--- 2007, *Census QuickStats: Jerramungup (Local Government Area)* Commonwealth of Australia, Canberra. Retrieved 9 August from http://www.censusdata.abs.gov.au/ABSNavigation

Bradby, K 1989, *A Park in Perspective*: *A report on the past, present and future of Fitzgerald River National Park*. Fitzgerald River National Park Association, Jerramungup.

Brunckhorst, D 2000, *Bioregional Planning: Resource Management Beyond the New Millennium*, Harwood Academic Publishers, Singapore.

--- 2001, 'Building capital through bioregional planning and biosphere reserves', in *Ethics in Science and Environmental Politics*, pp. 19-32.

Brunckhorst, D, Bridgewater, P & Parker, P 1996, 'The UNESCO Biosphere Reserve program comes of age: Learning by doing, landscape models for a sustainable conservation and resource, 'in *Conservation Outside Reserves Conference*, University of Qld, Brisbane, February 1996.

Buckley, A 2006, *South Coast Biodiversity Awareness Project – Baseline Survey Report*, prepared for Greening Australia by Alcoa Research Centre for Stronger Communities, Curtin University of Technology, Perth. Available from http://strongercommunities.curtin.edu.au/publications_new.htm

Conservation International 2006, *Biodiversity Hotspots: Southwest Australia*. Retrieved 23 June 2007 from http://www.biodiversityhotspots.org/xp/Hotspots/australia

--- 2007, *Biodiversity Hotspots*, Retrieved 24 May, from http://www.biodiversityhotspots.org

Cummins, R, Davern, M, Okerstron, E, Lo, SK & Eckersley, R 2005, *Special Report on City and Country Living*, Australian Centre on Quality of Life, Deakin University, Retrieved 10 September 2006 from http://acqol.deakin.edu.au/index_wellbeing/Survey_12.1.pdf

Davis, B & Drake, G 1983, *Australia's Biosphere Reserves: Conserving ecological diversity*, Australian National Commission for UNESCO, Canberra.

Department of Environment and Conservation 2004, *Who cares about the environment in 2003: A survey of NSW people's environmental knowledge, attitudes and behaviours*, Department of Environment and Conservation, Sydney. Retrieved 30 June 2006, from www.epa.nsw.gov.au

--- 2007, *Who cares about the environment in 2006: A survey of NSW people's environmental knowledge, attitudes and behaviours* Department of Environment and Conservation, Sydney. Retrieved 30 June, from www.epa.nsw.gov.au

Department of Environment and Heritage 2001, *Report on the operation of the Environment Protection and Biodiversity Conservation Act 1999*, Environment Australia, Canberra.

Environment Protection Authority 2006, *State of the Environment Report, Western Australia (draft)*, Government of Western Australia, Perth.

Gittins, R 2005, 'Why country people are more satisfied', *SMH*, 20 July 2005.

Horwitz, P, Lindsay, M & O'Connor, M 2001, 'Biodiversity, Endemism, Sense of Place and Public Health: Inter-relationships for Australian Inland Aquatic Systems', *Ecosystem Health,* vol. 7, no. 4, pp. 253-65.

Kellert, S 1986, 'Public understanding and appreciation of the biosphere reserve concept', *Environmental Conservation,* vol. 13, no. 2, pp. 101-05.

Matysek, K, Stratford, E & Kriwoken, L 2006, 'The UNESCO Biosphere Reserve Program in Australia: constraints and opportunities for localized sustainability development', *Canadian Geographer,* vol. 50, no. 1, pp. 85-100.

McQuoid, N 2006, *Reasons for Richness: The nature of the Fitzgerald Biosphere Flora*, Gondwana Link Coordination Unit, Albany, WA.

Muldoon, J 2004, *Australian Biosphere Reserve News - December Edition* Retrieved 23 October 2006, from www.deh.gov.au/parks/biosphere/working/pubs/bionews-dec2004.pdf

Parker, P 1993, *Biosphere Reserves in Australia: A Strategy for the Future*, Australian Nature Conservation Agency, Canberra.

Pittock, B (ed.) 2003, *Climate Change: An Australian Guide to the Science and Potential Impacts*, Australian Greenhouse Office, Canberra.

Salganik, MJ & Heckathorn, DD 2004, 'Sampling and Estimation in Hidden Populations Using Respondent-Driven Sampling', *Sociological Methodology* vol. 34 no. 1, pp. 193-240.

SCRIPT 2005, *South Coast Strategy for NRM*, South Coast Region Initiative Planning Team, Albany.

Shire of Jerramungup 2006, *Welcome to the Shire of Jerramungup*. Retrieved 11 September, from http://www.jerramungup.wa.gov.au

Stehlik, D & Buckley, A (n.d), 'Participative inquiry for evidence-based research: The 'Balingup' model: a 'community-as-researchers' approach', *Qualitative Inquiry* (in review).

Stratford, E & Davidson, J 2002, 'Capital assets and intercultural border lands: socio-cultural challenges for natural resource management?' *Journal of Environmental Management,* vol. 64, pp. 1-12.

Switzer, C 1988, *The Fitzgerald River National Park International Biosphere Reserve Project: Case study of a locally based policy making initiative in environmental management*, Honours Thesis, Murdoch University, Perth.

Thomas, A 1989, *Trembling horizon: the story of an important place-the Fitzgerald Biosphere Project area.* The Project, Jerramungup W.A.

UNESCO 2007a, *Listing of Biosphere Reserves*. Retrieved 22 March 2007, from http://www.unesco.org/mab/BRs/BRlist.shtml

UNESCO 2007b, *What is a biosphere?* Retrieved 23 June, from http://www.unesco.org/mab/faq_br.shtml#

Watson, J, Lullfitz, W, Sanders, A & McQuoid, N 1996, 'Networks and the Fitzgerald River National Park Biosphere Reserve, Western Australia', in D Saunders, J Craig & E Mattiske (eds), *The Role of Networks*, Surrey Beatty and Sons, NSW.

Watson, J & Sanders, A 1997, 'Fitzgerald River National Park Biosphere Reserve 1978-1997: the evolution of integrated protected area management', *Parks,* vol. 7, no. 1, pp. 9-19.

West, G 2001, 'Biosphere Reserves for developing quality economies: the Fitzgerald River Biosphere Reserve, Australia', *Parks,* vol. 11, no. 1, pp. 10-7.

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ALCOA FOUNDATION'S CONSERVATION AND SUSTAINABILTY PROGRAM

Sustaining Gondwana is a strategic initiative of Curtin University of Technology that has been funded by the Alcoa Foundation's Conservation and Sustainability Fellowship Program and by the University. Its aim is to research conservation and sustainability issues along the south coast of Western Australia, from Walpole to just east of Esperance. The vegetation and fauna of this area is so diverse that it is considered to be one of the world's bio-diversity hotspots. The five year program, which is connected internationally with other Universities and Sustainability Institutes, was launched in November 2005.

The initiative is co-ordinated by four cabinet members, professors Daniela Stehlik, Jonathan Majer, Fiona Haslam McKenzie and Dong-ke Zhang. Six postdoctoral fellows are being appointed to work on issues related to this region, and their research will be augmented by activities of the cabinet members themselves as well as their graduate students. It is anticipated that the findings will be published in journals, conference proceedings and books. However, there is a need to communicate early findings, data sets and activities of group members in a timely manner so that stakeholders can benefit from outputs as soon as they become available. This is the aim of the *Sustaining Gondwana Working Papers* Series, which will be produced on an occasional basis over the life of the initiative.

The papers are not subject to peer review, but are edited by cabinet members in order to maintain standards and accuracy. Contributions from researchers and practitioners who are active in the region of focus can also be considered for publication in this series.

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