



Senior Australians and Benefits in Botanic Gardens: Growing plants, growing people

Prepared for: National Seniors Productive Ageing Centre
23 Torrens St
Braddon
ACT 2612

Prepared by: Dr Emily Moskwa, Dr Gary Crilley & Jessica Clark
Centre for Tourism and Leisure Management (CT&LM)
University of South Australia

Contact for this report: Emily Moskwa
Telephone: (08) 8302 3319
Fax: (08) 8302 5255
Email: emily.moskwa@unisa.edu.au

Date of Issue: November 2009

This report was produced by the CT&LM, University of South Australia. Enquiries about the report should be directed in the first instance to the authors of this report. More information regarding CT&LM can be obtained via the website: <http://unisa.edu.au/tourismleisure/>.

Contents

1. Study Overview.....	1
1.1 Brief Summary.....	1
1.2 Study Aims & Key Research Questions.....	1
1.3 Methods.....	2
1.3.1 Focus Groups.....	2
1.3.2 Interviews.....	3
1.3.3 Questionnaires.....	3
1.4 Relevance of the Study to NSPAC.....	4
1.5 Study Motivations.....	5
1.6 Confidentiality.....	5
1.7 Acknowledgements.....	6
2. Literature Review.....	7
2.1 Seniors' Lifestyle	7
2.2 Volunteering as Freely-chosen Leisure.....	8
2.3 Seniors and Volunteering	9
2.4 Botanic Gardens and Gardening.....	10
2.5 Interaction with Plants.....	12
2.6 Summary of Literature Review.....	13
3. Participants' Profile.....	14
3.1 Volunteering Patterns in Australian Botanic Gardens.....	14
3.2 Demographic Profile of Volunteers in the Study.....	17
3.3 Profile of Interview Participants.....	19
4. Study Results.....	20
4.1 Written Questionnaires.....	20
4.1.1 Satisfaction with Volunteering.....	21
4.1.2 Relationship to Garden.....	22
4.1.3 Benefits of Volunteering	23
4.1.4 Lifestyle and Well-being.....	26

4.2 Focus Groups.....	29
4.2.1 Roles of Volunteers.....	29
4.2.2 Volunteers assisting the Gardens.....	30
4.2.3 Volunteers assisting Others.....	31
4.2.4 Personal Benefits of Volunteering.....	33
4.2.5 Other Benefits.....	35
4.3 Interviews.....	35
4.3.1 Staff Perceptions.....	36
4.3.2 Issues to Note.....	36
4.3.3 Benefits Identified.....	37
4.4 Further analysis.....	38
4.4.1 Integration to New Communities.....	39
4.4.2 Motivations for Volunteering.....	39
4.5 Discussion and Implications.....	40
5. Study Development.....	43
5.1 Outputs and Knowledge Management.....	43
5.2 Improving Volunteer Management.....	44
5.3 Extensions to the Study	45
5.3.1 Well-being Research.....	45
5.3.2 Senior Volunteers as Mentors.....	46
5.4 CT&LM Contact Details	47
6. Summary.....	48
7. References.....	50

Appendices

Appendix 1: Focus Group Question Guide

Appendix 2: Interview Schedule

Appendix 3: List of Participating Botanic Gardens

Appendix 4: CT&LM Research Team

1. Study Overview



1.1 Brief Summary

This study involved research into seniors' engagement in valued community-based activities within the scope of productive ageing through voluntary work. In particular, it explored volunteering at botanic gardens.

The Australian Bureau of Statistics (ABS, 2008) reported that botanic gardens attracted in excess of 5.3 million Australian visits in 2005-06, indicating a 33.7% attendance rate of the Australian population. This attendance rate is comparable with attendance rates at zoological parks and aquariums (35.6%), and higher than attendance rates at other public sector leisure venues such as art galleries (22.7%) and museums (22.6%). Visits to botanic gardens by visitors aged 55+ increased by 384,700 from 1999 to reach 1,578,400 in 2005-06 (ABS, 2007a).

This study collected qualitative and quantitative data on benefits Australian seniors gain from their engagement with botanic gardens. Methods included on-site, and telephone interviews with staff of gardens (usually local councils/state government departments) and focus groups with senior volunteers from 'Friends of Gardens' organisations or other independent garden volunteer groups. This provided input for the development of a self-completion questionnaire for use as an instrument in a survey, carried out at 16 members of the association, Botanic Gardens of Australia and New Zealand (BGANZ) gardens.

The premise behind the research was that if the levels of engagement that seniors have with botanic gardens was better defined, then initiatives could be considered to maximise personal, organisational, and community benefits. Furthermore, when recorded systematically, it is likely to enable this to be replicated within a range of gardens and communities. Additionally, it is more likely to be useful for ongoing monitoring of the benefits seniors and botanic gardens provide for each other, and their wider communities.

The study commenced in September 2008, with data collected between March and October 2009.

1.2 Study Aims and Key Research Questions

AIMS

1. Identify, and quantify the benefits seniors seek from volunteering at botanic gardens.
2. Identify the benefits attributed to botanic garden organisations from seniors' engagement in the core roles of botanic gardens.

3. Identify local community and organisational initiatives that build the capacity to generate multiple benefits by effectively engaging seniors with botanic gardens.

KEY RESEARCH QUESTIONS

1. What is the current range of volunteer engagement roles seniors have with Australian botanic gardens?
2. What are the key personal benefits seniors seek, and attain from visits to botanic gardens?
3. What are the personal and social benefits seniors seek, and attain from engagement with botanic gardens as a volunteer?
4. What are the benefits for gardens as organisations of having seniors volunteer with them?
5. What are the benefits for the local community from seniors volunteering at botanic gardens?

1.3 Methods

This study comprised three phases of data collection: focus groups, interviews and a survey using a self-administered questionnaire. This ensured thorough analysis of the research topic, including descriptive and multivariate analysis of seniors' roles, personal benefits attained, perceived benefits for the organisation (from organisational representatives), and wider community benefits (from local community representatives).

1.3.1 Focus Groups

Seven focus groups (including one pilot focus group) were conducted at six botanic gardens (in five different Australian states) to identify benefits from structured programs involving seniors associated with gardens (e.g. 'Friends of Gardens', volunteer groups, council representatives). The botanic gardens were all members of BGANZ (the professional association of botanic gardens of Australia and New Zealand).

The focus groups were designed to consist of approximately 7 to 12 people per group, and were conducted on-site at the gardens where the participants volunteer. Participants were selected in cooperation with local garden staff to ensure representative samples of the volunteers in gardens were involved. These were identified as a combination of volunteers only recently engaging with the gardens (e.g. in the last 12 months) and those longer-standing volunteers, and volunteers participating in a variety of roles (e.g. tour guiding, administration, physical gardening). As well as fulfilling these requirements, focus group members were in a range of ages from 50 years and over, further ensuring the participants were demographically characteristic of the larger volunteer population.

A question guide was used to provide direction for the group to discuss openly, but with a focus on senior volunteers at botanic gardens. This guide is provided as Appendix 1. Proceedings were recorded when agreed to by all participants, with written notes taken to supplement the recording. A small trial group were asked the questions prior to the first garden focus group, resulting in minor changes and clarifications of the questions.

As an acknowledgement and incentive for gardens to be involved in the study, an offer was made to reimburse hospitality costs associated with the running of focus groups. Additionally, a small discount was made to gardens involved in a UniSA-BGANZ Visitor Service Quality survey during 2009 (Crilley & Moskwa, 2009).

1.3.2 Interviews

Interviews were conducted with key garden staff involved with volunteer management to further explore organisational benefits, plus gauge an understanding of the wider community benefits arising from seniors and volunteer engagement. An interview schedule with a combination of structured and semi-structured questions, taking approximately half an hour to administer, was used for the study. In some instances, telephone interviews were conducted due to practicalities of distances between researchers and garden sites. The interview data collected was collated and coded using the research software *nVivo*, a computer program that assists researchers to conduct qualitative data analysis (Xiao & Smith, 2006).

The interview schedule is included as Appendix 2. It was designed to provide data covering a number of areas including:

- Staff involvement and interaction with volunteers;
- Volunteer management;
- Volunteering roles, motivations and benefits;
- Organisational benefits gained through volunteer engagement; and
- Community benefits gained through volunteer engagement.

1.3.3 Questionnaires

Additional to their independent value, the focus groups were deemed appropriate to form part of the research process that enabled the researchers to explore, define and generate ideas for the questionnaire that was later distributed to volunteers of the botanic gardens that had participated in the focus groups, and an additional number of botanic gardens. (The questionnaire is available from the researchers upon request.)

In total, 580 questionnaires were distributed to volunteers. In consultation with garden staff, suitable numbers of questionnaires were mailed to a contact person at each garden, who then distributed them to active members of their volunteer group for self-completion. Volunteers were provided with self-addressed reply-paid envelopes to return the questionnaire directly to the researchers, in confidence. Where questionnaires were distributed directly through 'Friends of

Gardens' groups, a small donation was offered to the gardens by the researchers for their administrative assistance.

The use of the written questionnaire provided researchers with a relatively low cost, confidential instrument and method that had the ability to reach geographically dispersed segments. Although the speed of data collection was most likely slower than a personally administered, telephone or internet questionnaire, it avoided any interviewer bias, and gave an acceptable response rate of 57%. Additionally, it facilitated brief, but positive, indirect interface between volunteers, representatives of the botanic gardens, and the researchers.

The practicalities of obtaining access to the population of senior volunteers at botanic gardens was largely determined from whom the information was collected. The sample frame of possible respondents was determined to be all presently active volunteers at participating botanic gardens, who were 50 years of age or older at the time of surveying. Selection of botanic gardens was determined by invitation to a number of gardens with which researchers held existing working relationships, as well as an invitation to additional gardens in a number of states and territories of Australia. The invitation for gardens to participate was to include a cross section of gardens by size, location, and known involvement with senior volunteers.

1.4 Relevance of the Study to National Seniors Productive Ageing Centre

This study is multi layered. Firstly, it involves understanding seniors as volunteers with, and visitors to, Australian botanic gardens.

Second, it identifies the benefits senior volunteers provide to botanic gardens as organisations amongst the top four most visited cultural and recreational sites for Australians (ABS, 2007a).

Third, the study also identifies the benefits that individual seniors gain from their involvement with the botanic gardens as volunteers, and as visitors. These outcomes provide assistance with improving our understanding of healthy ageing for seniors in their volunteering roles, and as participants in active recreational activities such as walking, photography and incidental (free-choice) learning in botanic gardens. Furthermore, the research enables the promotion of related positive images of senior Australians contributing to their local community. The Office for Volunteers (South Australia) has similarly recognised a value in further research into older people and volunteering, as demonstrated for example by commissioned research (Gill, 2006).

With this refined knowledge on the range of benefits being sought, and attained, by seniors engaged with botanic gardens, consolidation of good practice programs and service delivery within the BGANZ network can be encouraged. Additionally, through the development of initiatives associated with the gardens and local communities, benefits delivered will further support the goals and objectives of advocates for healthy ageing in Australia.

1.5 Study Motivations

This research was intended as a means of contributing to the sharing of good practice examples of engagement and retention of volunteers, and visitors to botanic gardens. This shared learning may increase the uptake of successful practices in volunteer benefits-marketing, recruitment, retention and reporting of visitors and volunteers to botanic gardens, and address the research gap identified by Dolnicar and Randle (2004), that is to integrate core strategic, marketing research.

Furthermore, a second motivation was for individual gardens to be able to reassess and strengthen the relationships they have with their seniors as visitors and volunteers, ensuring continued participation by seniors and engagement of valued activities which contribute to productive ageing.

Additionally, the research may enable seniors who are not currently involved in 'intense' engagement with botanic gardens to be more suitably targeted for refined, mutual capacity building potential, with a focus on targeting seniors through promoting reported benefits from seniors involved with botanic gardens (as per Dann & Warburton, 2006). While some existing research on volunteering has investigated attitudinal factors (e.g. Reed & Selbee, 2000), the majority concentrate on demographic groupings, and applications of benefits styled segmentation is limited to the categories of donating and fundraising (Harvey, 1990).

Finally, given that this study is complementary to current visitor service quality surveys in selected BGANZ gardens (Crilley, 2009), the potential was identified for considerable research project development with the three parties involved: the National Seniors Productive Ageing Centre (NSPAC), staffs of BGANZ, and researchers from CT&LM at the University of South Australia.

1.6 Confidentiality

The information contained in this report is the shared property of the University of South Australia (UniSA) and NSPAC, and may not be reproduced or transmitted in any form without their consent. UniSA reserves the right to use information gathered for further research and education, but is committed to do so whilst protecting the confidentiality of the research partners (Appendix 3) and all respondent participants. Outcomes of research efforts are reported in professional association journals or forums, including as industry conferences. More information is available on the website: <http://unisa.edu.au/tourismleisure/>.

1.7 Acknowledgements

The financial support of the National Seniors Australia Productive Ageing Centre and the Commonwealth Department of Health and Ageing is greatly appreciated for enabling this research to be conducted. The authors would also like to express sincere thanks to all the individuals who volunteered their time to participate in this research, be this in focus groups, interviews or in completing survey questionnaires. Thank you to the garden staff for their assistance with organising the various components of the research, and to all the generous volunteers at botanic gardens throughout Australia for their involvement in various stages of the research.

2. Literature Review



2.1 Seniors' Lifestyle

A central theme to this study is lifestyle in the time leading up to, and during, the retirement years (or the period of time previously referred to as the retirement years¹).

Five factors, as identified by Earle and Howat (1986), are typically sought after in life: involvement, satisfaction, autonomy, integration and creativity. These factors can be seen as especially crucial for seniors because they facilitate options and choice at a time when this is particularly necessary. It has been argued individuals need to pursue these five factors in work and non-work pursuits to provide a productive lifestyle. If an individual is no longer in paid full-time employment then their non-work activities will consequently have more influence in satisfying these factors. It is within this context that the range of benefits from volunteering at botanic gardens are explored in this study, with volunteering perceived to be an important lifestyle activity of choice for Australian seniors.

Three prominent theories were considered in a literature review of the lifestyle of seniors. The Disengagement Theory (Cumming & Henry, 1961) argues that people disengage from society as they age, in terms of the size of their social network and their participation in activities (and that this is a positive process). In contrast, the Activity Theory espoused by Havinghurst (1968) rejects the Disengagement Theory and instead proposes that older people do not want to disengage, but would rather remain active. It suggests that obstacles that hinder older people's continued participation need to be overcome by policy and planning to help seniors age actively. The third theory, the Modernisation Theory (Cowgill, 1974), claims that the process of modernisation has caused a reduction in the status of seniors, contributed to by such factors as technology, education and urbanisation. The theory offers a basis for explaining the less than successful ageing of many older people, through the difficulties they face in modern societies.

This study acknowledges that many older members of society are unable to participate as desired due to a range of difficulties holding them back, while others simply lose the will to pursue their leisure interests as they reach their senior years. It also acknowledges that many older people continue to engage in society and remain active. In addressing the activity levels of seniors, Earle (1992) proposed four characteristics important to successful ageing:

1. the capacity to maintain levels of satisfactory role continuity;
2. the degree to which partners can merge roles (in household management);
3. the establishment of expressive behaviour (companionship, love and support) among partners; and
4. access to family and friends.

¹ The term the 'retirement years' was typically used before the age discrimination amendment (1991) to the South Australian Equal Opportunities Act of 1984, which meant employers could no longer force employees to give up work when they reached 65 years.

These four characteristics appear to involve a combination of elements related to mental, physical and emotional well-being and stimulation. Accordingly, volunteering is explored in this study for its potential to contribute to healthy ageing with these elements taken into consideration.

2.2 Volunteering as Freely-chosen Leisure

It is sometimes questioned whether volunteering should be categorised as a form of leisure or not. To try to find the answer, the definition of leisure needs to be examined. The two key attitudinal dimensions of leisure can be described as an intrinsic motivation and a perceived freedom. From a psychologist's perspective, leisure is typically perceived as an activity undertaken for its own sake (as opposed to work or personal/domestic maintenance activities that are carried out to earn money or to maintain domestic health and cleanliness) (Iso-Ahola, 1989). As conceived by Aristotle, leisure is an enduring state of being free from the necessity of labour (de Grazia, 1962:5). Similarly, Roberts (1978:3) described leisure as '...relatively freely undertaken non-work activity'. Therefore, with volunteering in many instances involving the carrying out of work-like activities, one may question whether it can indeed be considered leisure.

This debate may best be answered by asking individuals involved in volunteering why they choose to volunteer. An exploration of the types of volunteering undertaken, and the benefits gained from such volunteering, can help reveal the underlying nature of volunteering. This study consequently comprises an evaluation of volunteer motivations, behaviours, and benefits in botanic gardens as a contextual case study.

If, as according to Aristotle's definition, leisure *must* be free from work and other obligations, volunteering may not strictly be a form of leisure. If, on the other hand, it is the aspect of freedom that defines leisure as per Wearing and McArthur (1988), and volunteering is clearly self-assigned, participants may be seen to be 'doing their own thing', with freedom of choice, freedom of constraints and a sense of freedom, volunteering may in fact be viewed as a leisure activity.

Because freedom is relative, complete freedom is not a pre-requisite for leisure. Greater freedom is likely to result in greater enjoyment of a leisure activity, but not necessarily for all people all of the time. For example, a person may obtain greater enjoyment or satisfaction from satisfying someone else's needs (or for example the needs of their favourite botanic garden) than purely benefiting themselves. In this sense freedom is traded for other forms of satisfaction (Veal & Lynch, 2001). Some people (i.e. volunteers) willingly give up their freedom (e.g. restrictions of economic nature, time limitations) of action in return for spiritual, environmental, social, physical and mental health benefits and satisfaction. Indeed Driver and Bruns (1999) identified 101 categories of benefits that demonstrate the significance and diversity of the leisure benefit phenomenon, including both immediate short-term benefits, and longer-term, possibly indirect benefits.

Freedom is clearly a relevant concept in any discussion of leisure at the individual level. So too is a sense of enjoyment or satisfaction. This study not only attempts to identify volunteering motivations, behaviour, and benefits, but overall satisfaction levels including enjoyment, loyalty,

and recommendations to others of their volunteering. Leisure becomes inextricably mixed with other activities and responsibilities and is a component of lifestyle not purely a means of recuperation, restoration, or entertainment. When needs for a leisure activity are satisfied, benefits are accordingly deemed to have been produced, and leisure may be viewed as more than a luxury or something to do to fill in idle time, but as an important social service sector. As per Driver and Bruns (1999), this supports the argument for more work to be done on identifying and evaluating the benefits of a range of leisure activities at the individual level, including volunteering as freely-chosen leisure.

2.3 Seniors and Volunteering

With older and retired people tending to volunteer more of their time (Onyx & Warburton, 2003) and Australians aged over 45 years volunteering in significant numbers, a number of recent publications (e.g. ABS, 2007b; Gill, 2006) have accordingly expressed the importance of understanding these volunteers' particular requirements, motivations and benefits gained.

Indeed the most popular retirement activities for Australians are travel, hobbies and volunteer work (AXA, 2008), and volunteering by senior Australians has increased steadily over the past decade. The volunteering rate (the number of volunteers in an age group expressed as a percentage of the total population in that age group) for older age groups (65 plus) has increased to a greater extent than younger age groups. In 2006, 29.7% of older Australians (almost 1.5 million people) participated in voluntary work (ABS, 2007b).

National Seniors Australia (NSA, 2009) estimated the economic contribution of older Australians who were working as volunteers to be \$2 billion dollars in 2006, based on an average of two volunteer hours per week per volunteer. The results were calculated on a typical hourly rate of \$13.73, but are considered conservative as they do not include the volunteering value to the individual or to other seniors. (The figure also excludes the economic contribution of seniors who provided unpaid care to a person with a disability, or provided unpaid child care, at an additional \$3.9 billion and \$911 million per year respectively.)

NSA (2009) also reported there are still significant barriers to older Australians wanting to work or volunteer. From a volunteering perspective, some barriers include the need to meet strict criteria at many organisations, the need to complete a minimum number of shifts, and having to pay out-of-pocket expenses. With these barriers in mind, as well as the knowledge of the high economic contribution of older volunteers and the increasing popularity of volunteering for seniors, it is appropriate to try to develop a greater understanding of the issues related to seniors and volunteering, to assist at the level of both the organisation and the individual volunteer.

2.4 Botanic Gardens and Gardening

Botanic gardens serve many purposes. While traditionally designed to play a key role in plant taxonomic research and to trial new landscaping techniques, they were also concerned with the cultivation of plants with healing properties. In more recent times, botanic gardens have articulated plant conservation as one of their major goals (Crilley, 2009; Hurka, 1994). They contribute in various ways to society's conservation efforts, including the influencing of broad public opinion, creating educational programs, establishing collections of local native plants, propagating seeds, and providing plant material for reintroduction programs. They often work closely with research institutions and conservationists, and are increasingly viewed as public parks rather than the traditional or formal botanic garden. Indeed Hurka (1994:377) referred to the 'identity crisis' faced by many botanic gardens in their varied roles, including a heightened visitor focus in recent years (Ballantyne, Packer & Hughes, 2006; Connell & Meyer, 2004). Of note, Crilley (2009) revealed a noticeably higher proportion of visitors attending botanic gardens for activities commonly regarded as recreational or leisure opportunities (e.g., picnics, reading, attending special events) rather than learning or education. The most desirable benefits for visitors (ranked in order from highest to lowest) were: 'relaxation', 'time with family/friends', 'improving physical health', 'learning more about nature', and 'being more productive'. Ballantyne et al. (2006) similarly found that botanic gardens were perceived largely as sites for enjoyment, admiring garden scenery and spending time with family and friends, rather than sites primarily for educational, conservation or research purposes.

As previously mentioned, 33.7% of adult Australians visited a botanic garden in 2005-06 (ABS, 2008). Whilst the visitation rates for zoological parks and aquariums were higher at (35.6%), the specific rates for senior Australians (Table 2.1) showed higher attendance at botanic gardens.

Table 2.1 Attendance rates at selected leisure sites (%), by age category (years)

	45-54	55-64	65-74	75+	Total
Zoological parks & aquariums	32.0	31.0	22.7	11.0	35.6
Botanic gardens	35.2	37.4	34.9	23.5	33.7
Libraries	33.6	30.3	33.6	29.9	34.1
Art galleries	26.6	25.8	21.5	15.6	22.7
Museums	25.1	24.9	19.2	11.0	22.6

* Source: ABS, 2008.

The results of Crilley and Moskwa (2009) are also of particular significance to this study in that the data collection was conducted primarily by volunteer survey administrators from botanic gardens involved in an on-going program of national surveys to collect demographic data and measure visitor perceptions of service quality. In 2008, 2183 visitors to eight botanic gardens in Australia and New Zealand were surveyed. Almost half were seniors (aged 50 years and over), with almost 60% female. While only 4.9% of visitors aged under 50 identified themselves as having an ongoing illness or permanent disability, 14.4% of seniors did. The results showed seniors visited largely for viewing plants (39.8%) and for walking or exercise (14.9%). When compared to younger visitors, higher proportions of seniors visited to view and learn about plants and go on guided walks (Table 2.2), which may be of interest to the above-mentioned findings of Ballantyne et al. (2006) and Crilley (2009).

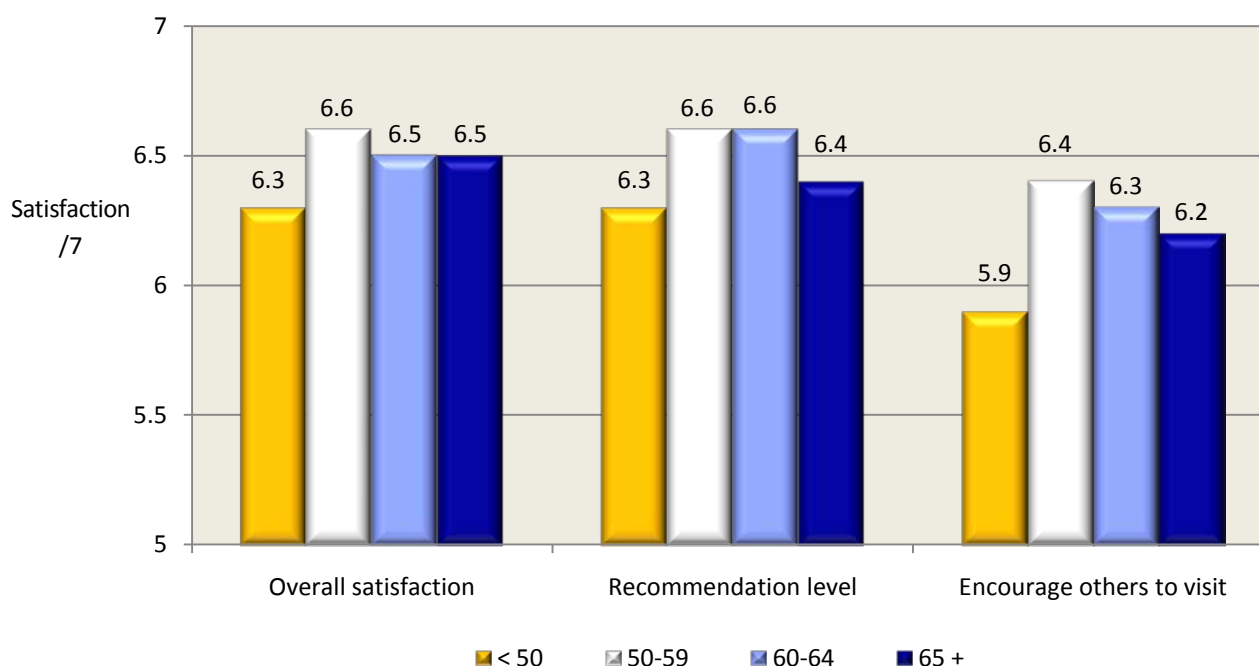
Table 2.2 Main activity undertaken at botanic gardens (%), by age category (years)

	< 50	≥ 50	Total
View plants	27.8	39.8	33.5
Walk or exercise	26.6	14.9	21.0
Family outing	16.5	6.7	11.9
Relax or read	14.1	6.4	12.0
Picnic	7.7	2.1	5.0
Learn about plants	6.5	9.2	7.2
Guided walk	4.3	5.2	4.7
Meet people	3.1	2.0	2.5
Visit kiosk or cafe	2.7	3.7	3.2
Visit specific display	1.7	1.5	1.6
Other	6.4	4.2	5.2

* Source: adapted from Crilley & Moskwa, 2009.

Senior visitors reported higher overall satisfaction with their visits to botanic gardens than visitors less than 50 years of age (on a scale where 1=very low satisfaction and 7=very high satisfaction; Figure 2.1). They were also more likely to recommend the gardens and encourage others to visit the gardens than younger visitors were. Further analysis of data from Crilley and Moskwa (2009) also revealed seniors were more satisfied than younger visitors with the opportunities to learn about plants, the exhibition of a wide diversity of plants, the special collections on display, and the informative and interesting signs at the gardens. They were however less satisfied with the labelling of individual plants.

Figure 2.1 Overall satisfaction and recommendation levels for visitors to botanic gardens



Not only is visiting botanic gardens a popular leisure activity, but so too is gardening, particularly among older Australians. Earle (1992) identified this popularity to be largely because each of the five elements of a productive lifestyle relate to gardening (involvement, satisfaction, autonomy,

integration and creativity). In Earle's (1992) study, of those seniors with access to a garden (86.5%), all but 11.1% participated in gardening as a form of leisure, with more than 43% involved in more than one hour per day on average.

It is also widely acknowledged that gardening (and engaging or connecting with nature), particularly for seniors, brings both physical and mental health benefits (e.g. Maller et al., 2002). Despite widespread public interest in gardens and gardening, the specific benefits associated with them have been subject to relatively little research until the past decade, when their role in health and well-being and their broader social meaning began to be studied. For example, Browne (1992) described a range of aspects including psychological well-being through aesthetics, motivation for physical exercise, and self-expression. O'Brien (2004) reported on the significant evidence on the emotional and psychological benefits people gain from viewing and/or exploring nature. Kaplan (1995) for example, referred to nature's restorative characteristics, which may be related to native bushland and national parks as well as urban parks and gardens.

Gardening is one of the most popular leisure activities in developed countries, for example with private gardens comprising the most heavily used type of outdoor space in Britain (Dunnett & Qasim, 2000). Hence for many people, gardens represent the most frequent contact with nature. Dunnett and Qasim's (2000) study of British private gardeners concluded the two most popular aspects of the garden were the creation of a pleasant environment, and the promotion of relaxation (identified by more than 75% of respondents). More than 50% of respondents also valued the health benefits of fresh air and exercise (an option favoured most by those 55 years and over, and least by those under 35 years). More people aged 55 years and over ranked gardening first as a leisure activity than they did in younger age groups. Additionally of note, women tended to value the opportunity to meet neighbours and make friends through gardening more so than men.

The literature review of papers published in English for this study suggests there are a range of clearly recognised aesthetic, spiritual and psychological benefits of gardening as an activity and of involvement with the garden as a place, additional to their specific natural values, and contribution to important urban biodiversity. Accordingly, this investigation of the benefits from volunteering in a botanic garden setting, from a socio-ecological approach, is both appropriate and timely.

2.5 Interaction with Plants

In this study, botanic gardens are considered natural areas (as per Ballantyne et al., 2006) offering restorative aspects of the environment and outdoor sensory experiences. Visitors and volunteers are able to absorb the atmosphere of a botanic gardens' environment and gain an opportunity to connect or interact with plants (and nature).

In an increasingly urbanised world, it is of concern to many that people are spending less time in physical contact with plants and animals, with unknown consequences (Maller et al., 2002). Historically plants are associated with healing. Today, this therapeutic use is widely acknowledged to include both medicinal treatment and mental health rehabilitation (Lewis, 1996; O'Brien, 2004). Restorative and therapeutic benefits of gardening are used in a variety of settings such as hospitals,

aged care centres, schools, and prisons (Maller et al., 2002). In residential settings for people with mental health problems, Parker's (2004, in Maller et al., 2002) study found the benefits of horticultural therapy to include social interaction, opportunities for creativity, and increased self-esteem or confidence. In relation to aged care, Browne's (1992) study not only identified the strong preference for natural landscapes or pleasantly landscaped grounds in choosing retirement homes, it similarly described the positive effect on contact with plants (and nature) on well-being. The five key benefits to seniors identified were:

1. psychological well-being,
2. environmental stimulation,
3. self-expression and personalisation,
4. motivators for physical exercise, and
5. social interaction and networking.

The benefits gained through our exposure to nature, or more specifically to plants, relate to our emotional responses to the natural world. The research literature discusses the innate connection humans have with living nature, and the positive feelings evoked by plants, and draws attention to the benefits particularly for people with disabilities and the elderly (Maller et al., 2002). However, the literature largely focuses on so called horticultural therapy in terms of physical gardening, the use of sensory gardens, and the use of healing gardens. It is therefore warranted to focus this study on a broader association with gardening or gardens (in this case, botanic gardens) as it is unknown if many of the benefits of horticultural therapy are also experienced by many more people, including volunteers engaging with botanic gardens in a range of ways (e.g., tour guiding, trail development, fund-raising, and committee participation).

2.6 Summary of Literature Review

This literature review has introduced the reader to a number of themes and concepts of central importance to the study. These themes and concepts provide an overview of some of the current topics of discussion regarding healthy and successful ageing. They include lifestyle and leisure choices by older and retired people (with an emphasis on volunteering as leisure), and the benefits of interaction with nature (particularly in regard to plants and gardens). This overview is also provided to demonstrate the relevance of the study to healthy and successful ageing in Australia, and to provide background information revealing the researchers' interests in pursuing the study and enabling in-depth data collection concerning seniors and volunteering at botanic gardens.

3. Participants' Profile



Volunteers participated in the study in two key ways; as focus group participants, and as respondents to self-completion hard-copy questionnaires. In total, 382 volunteers over 50 years of age were directly involved in the study (59 participated in focus groups in five Australian states, and 323 completed the questionnaires). The majority of volunteers involved in the study were women (76%).

In total, 199 respondents to the questionnaire (62%) volunteered with botanic gardens located in the capital cities of four Australian states and one territory. The remaining 124 respondents (38%) volunteered with regional botanic gardens located in three states (volunteers from six states and one territory were involved in the study).

Tables 3.1 through to 3.14 provide an overview of the volunteering patterns and demographic profile of survey participants. Note that the figures in the tables have been rounded to one whole figure, explaining why the figures may not total 100 per cent in all instances. Some tables are provided to include detailed information on the participants' profiles, while others are provided to enable further clarification and to relate to the Study Results (Section 4). The addition of figures allows for visual representation of results readers may find particularly interesting.

3.1 Volunteering Patterns in Australian Botanic Gardens

Over 60% of volunteers recorded an investment of 80 hours or more to their botanic gardens in the past 12 months, the equivalent to more than one and a half hours per week. More than one quarter of volunteers (28%) indicated they dedicated between 20-79 volunteer hours in the past 12 months, while less than 10% volunteered up to 20 hours of their time in the 12 months. In the questionnaire, volunteers were guided by calculation notes indicating that 160 hours would equate to an average of three hours per week for a year.

Table 3.1 How many hours have you given to these gardens in the past 12 months?

	%
Less than 20 hours	9
20-39 hours	12
40-79 hours	16
80-159 hours	35
160 hours or more (=3 or more hours/week)	29

The most common role for volunteers was as a tour guide (42%), with a further 25% involved in hands-on gardening. In total, 14% of volunteers surveyed were committee members. Other roles nominated by volunteers included volunteering at an Information Centre or coffee shop, fundraising and promotion, and general administrative tasks.

Table 3.2 What are your main three roles as a volunteer at these gardens?

	1 st role %	2 nd role %	3 rd role %
Garden guide	39	3	-
Gardening	23	2	-
Committee member	12	2	-
Visitor Information Centre	6	1	1
Fundraising or promotion	4	-	1
Cafe or kiosk attendant	4	1	1
General administration	3	3	1
Plant education or research	3	2	1
Special events or displays	1	1	1
Other	5	3	-

Volunteers were typically motivated by a love of gardens (including gardens in general, or the specific botanic garden at which they volunteered). Approximately one-third of volunteers were primarily motivated by their desire to contribute to society, or give back something to their local community. The development of social networks (meeting new friends, staying in touch with existing friends, meeting visitors and the opportunity to interact with like-minded people) was an equally strong motivator.

Table 3.3 What are your main motivations for volunteering at these gardens?

	1 st motivation %	2 nd motivation %
Love of gardens	42	15
Contribute to society/give to community	19	12
Develop social networks	9	22
Environmental advocacy	8	15
Learn about plants and gardening	6	18
Personal satisfaction	5	8
Keep active during post-retirement	4	2
Environmental preservation	2	4
Maintain horticultural connection	2	1
Historical appreciation	1	2
Other	2	2

Almost two-thirds of study participants also volunteered for other organisations. These included animal welfare groups (38%), disadvantaged or minority groups (14%), environmental organisations (13%), and educational groups (10%). It is noteworthy that while 64% of volunteers in the study contributed more than 80 hours to their botanic garden (in the past 12 months), only 39% of those who volunteered elsewhere contributed this number of hours to the other organisation.

**Table 3.4 Have you volunteered elsewhere in the past 12 months?
If so, how many volunteer hours have you given (in the past 12 months)?**

	%
No	37
Yes	64
Less than 20 hours	15
20-39 hours	23
40-79 hours	23
80-159 hours	20
160 or more hours	19

Table 3.5 What is the main role of the other organisation?

	%
Animal welfare	38
Disadvantaged or minority group	14
Environmental organisation	13
Educational group	10
Medical assistance	8
Disability assistance	8
Scientific organisation	4
Social or cultural group	3
Religious group	2

It is noted that the biophilia hypothesis (Wilson, 1984) suggests an instinctive bond between humans and other living systems, and that humans will subconsciously seek connections with living things in nature. Considering the results of Table 3.5, with more than half of the respondents who volunteered with other organisations identifying them as animal welfare or environmental groups, the volunteers in this study appear to have a high affinity to plants and animals, and support the biophilia hypothesis.

3.2 Demographic Profile of Volunteers in the Study

Almost half (48%) of the volunteers surveyed were aged 60-69 years, with all age groups 55-59 through to 75+ relatively evenly represented. The exceptions were the 50-54 years age group and the 'other' age group, represented by only 3% and 5% of respondents respectively. (Those selecting 'other' generally commented that they were in their 'late forties'.)

Table 3.6 Age group

	%
50-54 years	3
55-59 years	14
60-64 years	24
65-69 years	24
70-74 years	16
75 + years	13
Other	5

Table 3.7 Gender

	%
Female	76
Male	24

Table 3.8 Residential state or territory

	n*	%
Queensland	4	25
South Australia	1	22
Victoria	3	20
New South Wales	5	13
Australian Capital Territory	1	11
Tasmania	1	5
Western Australia	1	5

* Number of botanic gardens from individual state/territory.

In total, 58% of volunteers in the study had lived in their local area for more than 20 years, with a further 16% living in their local area for 11 to 20 years. Only 10% of volunteers were relatively new to their community, having lived there for less than 4 years.

Table 3.9 How long have you lived in this area, or nearby?

	%
Less than 1 year	4
1 to 3 years	6
4 to 10 years	16
11 to 20 years	16
More than 20 years	58

Table 3.10 Is English the main language you speak at home?

	%
Yes	98
No	3

Almost two-thirds of volunteers had completed a tertiary (university) level of education (Table 3.11), and 70% had retired from paid employment (Table 3.12). The demographic questions also revealed that while 41% of volunteers described their household composition as 'family – no child(ren) living at home', families with children still living at home, couples (with no children), and single person households were also well represented (Table 3.13).

Table 3.11 What is the highest level of education you have completed?

	%
Some secondary	7
Secondary	18
Vocational/Technical	11
Tertiary/University	64

Table 3.12 Which category best describes your present commitments?

	%
Unemployed, seeking work	3
Unemployed, not seeking work	5
Employed (part time)	12
Carer/home duties	4
Retired	70
Other	6

Table 3.13 Which category best describes your household or family?

	%
Single	24
Family - child(ren) living at home	13
Family - no child(ren) living at home	41
Couple (no children)	21
Share house	1

In total, 16% of volunteers identified themselves as having a chronic illness or permanent disability. This may be compared with the commonly reported level of people with a disability in the general community of 19% (ABS, 1999), suggesting volunteering at botanic gardens is relatively inclusive and accessible for the wider population.

Table 3.14 Do you have a chronic illness or permanent disability?

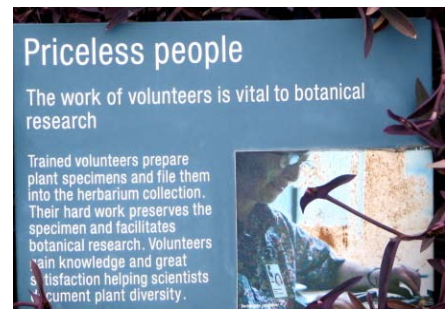
	%
No	84
Yes*	16
None/mild support	12
Moderate support	4
High support	-

*Of those who indicated 'yes', volunteers were asked to indicate their level of support needs for activities of daily living.

3.3 Profile of Interview Participants

A number of garden staff and community representatives participated in the study through interviews with the researchers, assistance in questionnaire distribution, and focus group organisation. Garden staff interviewed (n=9) worked at six different botanic gardens in Australia, including capital city and regional gardens. Some represented relatively newly established gardens whilst others represented older botanic gardens. The staff members' roles ranged from horticultural botanists and collection managers, to volunteer officers/volunteer program coordinators and community education managers. In the context of this report, interviewees remain anonymous, with aggregate results of the interviews presented and discussed in Section 4.3.

4. Study Results



The research findings are summarised in this section through the combination of tables and graphs, with specific details and a general synopsis provided. It is noted that the data collected in this study will also be used by the authors for future analysis of the research topic and in other follow-on research projects (e.g. Section 5.4). Additionally, it is hoped that the research findings might serve as motivators for others to pursue research in related fields from leisure transitions across the life course to volunteering for social inclusion, healthy ageing, or a multitude of other research themes with clear outcomes and benefits for seniors and the general public.

4.1 Written Questionnaires

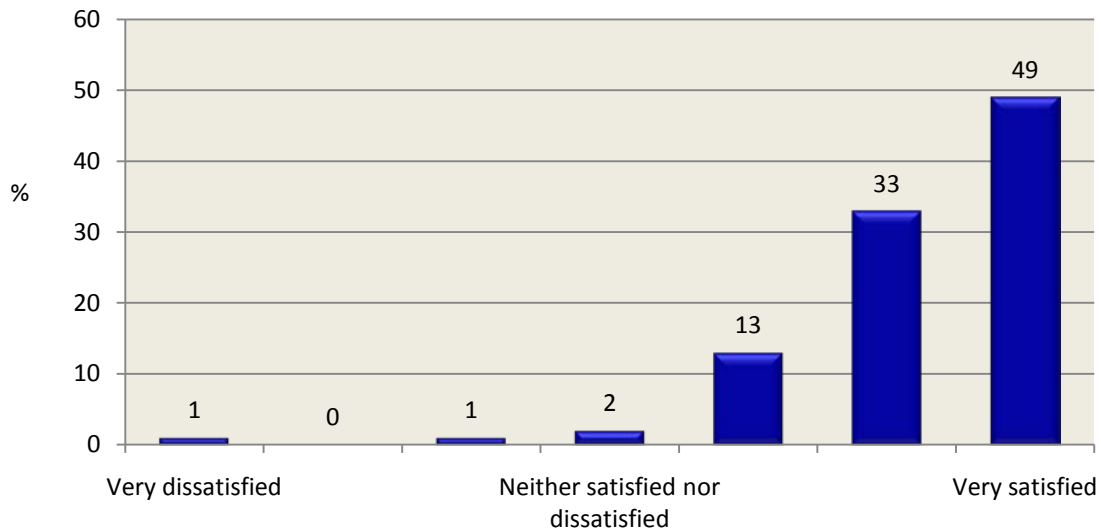
Questionnaires were distributed to 16 Australian botanic gardens (Appendix 3), with a total of 323 volunteers choosing to participate. The response rate for volunteers was approximated to be 57%, although precise calculations were difficult to obtain as in some instances, additional photocopied questionnaires were distributed onsite and returned to the researchers. Response rates from the volunteers at individual gardens participating in the research varied greatly from 5% to 93%, with eight botanic gardens giving response rates of 50% or more (for their volunteers who were invited to participate by being supplied with a questionnaire).

A copy of the questionnaire used may be obtained by contacting the CT&LM research team at the University of South Australia (Appendix 4).

4.1.1 Satisfaction with Volunteering

High levels of satisfaction with volunteering were evident. In total, 95% of volunteers were satisfied with their volunteering experiences at the botanic garden, with almost half ‘very satisfied’.

Figure 4.1 Overall, how satisfied are you with volunteering at this garden?



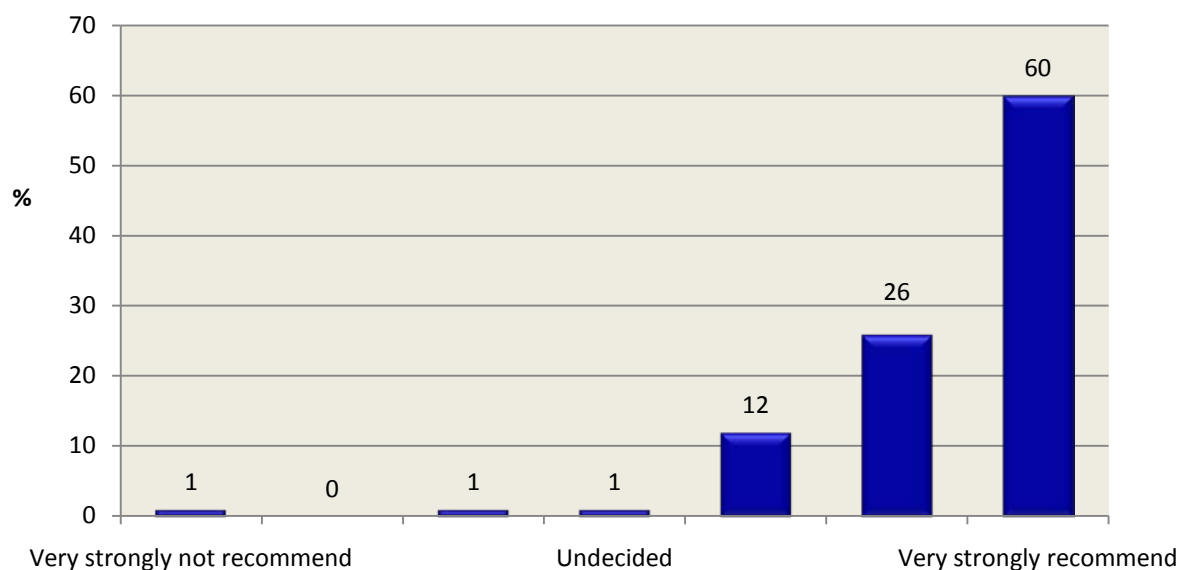
Whilst there were no notable differences between the mean satisfaction levels of males and females, and satisfaction did not correlate with age of volunteers, a relationship was present between satisfaction levels and the number of volunteer hours given to the garden in the past 12 months. On a scale from 1 ‘very dissatisfied’ to 7 ‘very satisfied’, the mean overall satisfaction with volunteering was 6.2, with the mean for those volunteering less than 20 hours being 5.6, compared to 6.5 for those volunteering over 160 hours (in the past 12 months). Higher levels of volunteering was accordingly associated with higher satisfaction of volunteering at botanic gardens, with a Mann-Whitney *U* test indicating a significant difference between individuals volunteering either more or less than 160 hours per year in their satisfaction ratings ($U = 8653.5, z = -2.781, p < .01, n=322$).

Table 4.1 Mean overall satisfaction, by volunteering commitment (hours)

	Mean
Less than 20 hours	5.6
20-39 hours	6.1
40-79 hours	6.2
80-159 hours	6.2
160 or more hours	6.5
All volunteers	6.2

Volunteers also recorded high levels of recommendation for volunteering at their garden. With 60% willing to ‘very strongly recommend’ the garden, a total of 98% of volunteers would recommend the garden to potential volunteers. On a scale from 1 to 7, the mean recommendation level (6.4) was even higher than that of the overall satisfaction mean.

Figure 4.2 To what extent would you recommend this garden to potential volunteers?



Recommendation levels did not show a significant relationship with gender or age, but as with satisfaction levels, they were notably higher for those volunteers contributing more than 160 hours over the past 12 months (mean of 6.7) than those volunteering for less than 20 hours (mean of 6.1). A Mann-Whitney *U* test indicated a significant difference between individuals volunteering more or less than 160 hours per year in their recommendation levels ($U = 8344.5$, $z = -3.377$, $p = .001$, $n=322$).

4.1.2 Relationship to Garden

Volunteers were asked to rate their level of agreement with a series of statements relating either to ‘place identity’ or ‘place dependence’, both of which refer to the relationship between people and their local environment.

Place identity is a term concerning the significance of places to their inhabitants or users, in the context of how the human psyche connects to certain places and helps create a sense of belonging. Place dependence is a term that relates to how one place compares to other alternative places, and the quality of the place in reference to the availability of social and physical resources (Pretty, Chipuer & Bramston, 2003).

The results showed higher place identity (3.9 mean of means) than place dependence (3.5 mean of means). The item with the highest mean was ‘I am very attached to this botanic garden’ (4.5), followed by ‘this botanic garden means a lot to me’ (4.4). Over 90% of volunteers had ‘high’ or ‘very high’ levels of agreement with these two statements.

Table 4.2 Place identity and place dependence

	Mean*
Place Identity (mean of means)**	3.9
I am very attached to this botanic garden	4.5
This botanic garden means a lot to me	4.4
I feel this garden is a part of me	3.4
I identify strongly with this botanic garden	4.1
I feel happiest when I am at this garden	3.4
I really miss this garden when I am away from it for too long	3.3
Place Dependence (mean of means)**	3.5
No other botanic garden can compare to this one	3.1
This garden is the best for what I like to do	3.8
I get more satisfaction visiting this garden than any other	3.3
I wouldn't substitute other volunteering for doing the things I do at this garden	3.7

*Measured on a scale where 1=very low and 5=very high.

**The mean of means refers to the 'group' mean, i.e. the average of all ratings by all volunteers for the combined statements comprising each group (with 'place identity' one group, and 'place dependence' another).

Significantly higher place attachment was evident when volunteers contributed more volunteer hours to their botanic garden. A one-way ANOVA indicated there was a significant difference in place identity between time commitment levels, $F(4, 316) = 6.229, p = .000$. Bonferroni's post-hoc tests indicated this difference was due to significantly higher place identity amongst those volunteering more than 160 hours in the past 12 months, compared to those contributing up to 80 hours.

Similarly, a one-way ANOVA indicated significant difference in place dependence between time commitment levels, $F(4, 316) = 4.343, p = .002$. As suggested by Bonferroni's post-hoc tests, this difference was largely related to higher place dependence means among volunteers contributing more than 160 hours, compared to those contributing 20 to 80 hours in the past 12 months. These results may be compared to the similar patterns evident for satisfaction and recommendation levels in relation to the amount of time spent volunteering at botanic gardens.

4.1.3 Benefits of Volunteering

A key focus of the questionnaire was personal benefits both sought and gained from volunteering with a botanic garden. The benefits sought most related to contributing to a good cause, and plants and the natural environment. For example, they included 'enjoying the aesthetics of plants and gardens' and 'connecting with' and 'learning about plants and the natural environment'. These benefits can be related to the most common motivation for volunteering being a 'love of gardens'. Those benefits sought to a lesser extent included 'enhancing my professional abilities' and 'escaping the pressures of daily life and relaxing'.

Table 4.3 Volunteering benefits sought, ordered by means

	Mean
Enjoying the aesthetics of plants and gardens	4.4
Making a contribution to a good cause	4.4
Connecting with plants and the natural environment	4.3
Learning about plants and the natural environment	4.3
Meeting people and socialising	4.1
Challenging myself to do new or different things	4.1
Improving my general health and well-being	3.9
Escaping the pressures of daily life and relaxing	3.5
Enhancing my professional abilities	3.3

*Measured on a scale where 1=very low and 5=very high.

The benefits reported as most gained by volunteers corresponded to those that were most sought after by volunteers. In the same way, the benefits that were sought to a lesser extent by volunteers received lower 'benefits gained' means.

Table 4.4 Volunteering benefits gained, ordered by means

	Mean
Enjoying the aesthetics of plants and gardens	4.4
Making a contribution to a good cause	4.4
Connecting with plants and the natural environment	4.3
Learning about plants and the natural environment	4.3
Meeting people and socialising	4.2
Challenging myself to do new or different things	4.1
Improving my general health and well-being	3.9
Escaping the pressures of daily life and relaxing	3.7
Enhancing my professional abilities	3.4

*Measured on a scale where 1=very low and 5=very high.

Table 4.5 depicts the 'gap' between benefits sought by volunteers, and benefits gained. The gap is described as the extent to which the benefits sought by volunteers are matched by the perceived benefits gained. The gap figure is generated by subtracting the 'mean of benefits sought' from the 'mean of benefits gained'. Identifying a difference (or gap) between the benefits a person regards as a priority or motivator, and what is actually achieved, is indicative of a person's fulfilment or goal attainment. This in turn will reflect a person's self assessment of personal benefits or achievement.

Table 4.5 results suggest senior volunteers in the study, on average, are consistently meeting their own expectations on nine items, or benefits, which are associated with involvement in botanic gardens and a person's general health. No negative 'gaps' were recorded, with the benefit 'escaping

the pressure of daily life and relaxing' (+0.2) identified as the benefit that most surpassed the level sought after by volunteers.

Table 4.5 'Gap' between benefits sought and benefits gained

	Mean of benefits sought*	Mean of benefits gained*	Gap between benefits sought & gained**
Enjoying the aesthetics of plants and gardens	4.4	4.4	0.0
Making a contribution to a good cause	4.4	4.4	0.0
Connecting with plants and the natural environment	4.3	4.3	0.0
Learning about plants and the natural environment	4.3	4.3	0.0
Meeting people and socialising	4.1	4.2	+0.1
Challenging myself to do new or different things	4.1	4.1	0.0
Improving my general health and well-being	3.9	3.9	0.0
Escaping the pressures of daily life and relaxing	3.5	3.7	+0.2
Enhancing my professional abilities	3.3	3.4	+0.1

* Measured on a scale where 1=very low and 5=very high.

** Maximum low= -5.0, maximum high= +5.0. In interpreting the table, the 'mean of benefits sought' can be taken as indicative of the volunteers' priority for the benefit. Therefore a gap of 0.0 indicates the benefits gained by volunteers' are equally matched to their priorities or motivators to volunteer.

Statistical analysis using ANOVAs did not show significant differences between the level of benefits gained and the number of hours spent volunteering over the past 12 months (e.g., for the benefit 'meeting people and socialising', $F(4, 306) = 1.679, p > .05$). This suggests that volunteers gain a wide range of benefits regardless of the time commitment they have with their botanic garden.

Statistical testing did however reveal that there was a significant difference between volunteers who were garden guides and those who were not. Based on their performance ratings, guides received higher levels of the following benefits:

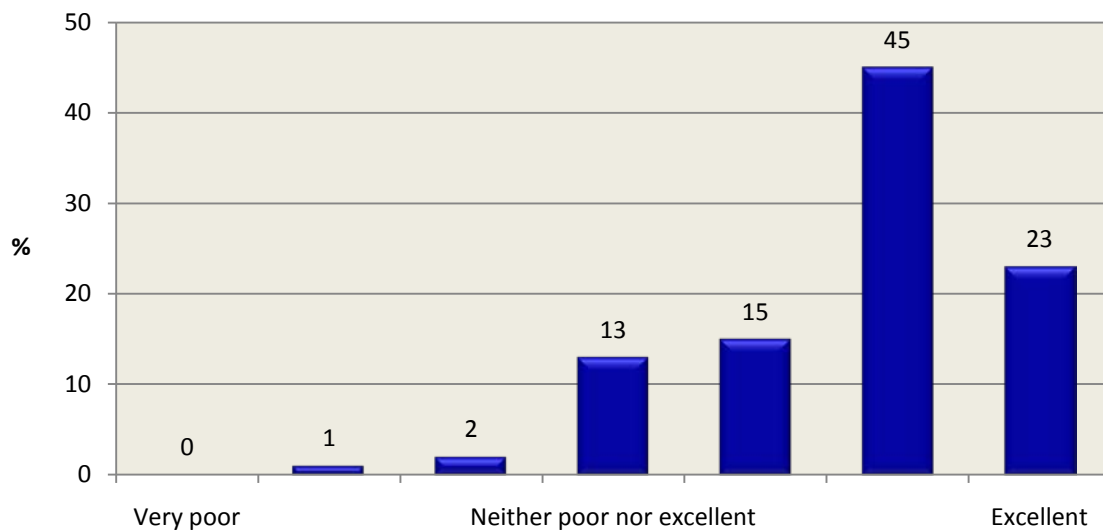
- Enjoying the aesthetics of plants and gardens;
- Connecting with plants and the natural environment;
- Learning about plants and the natural environment;
- Challenging myself to do new or different things; and
- Enhancing my professional abilities.

In contrast, and of particular note, there was no significant difference between the level of benefits gained for 'making a contribution to a good cause' and 'meeting people and socialising', suggesting a wide range of volunteer roles provide volunteers with these types of benefits.

4.1.4 Lifestyle and Well-being

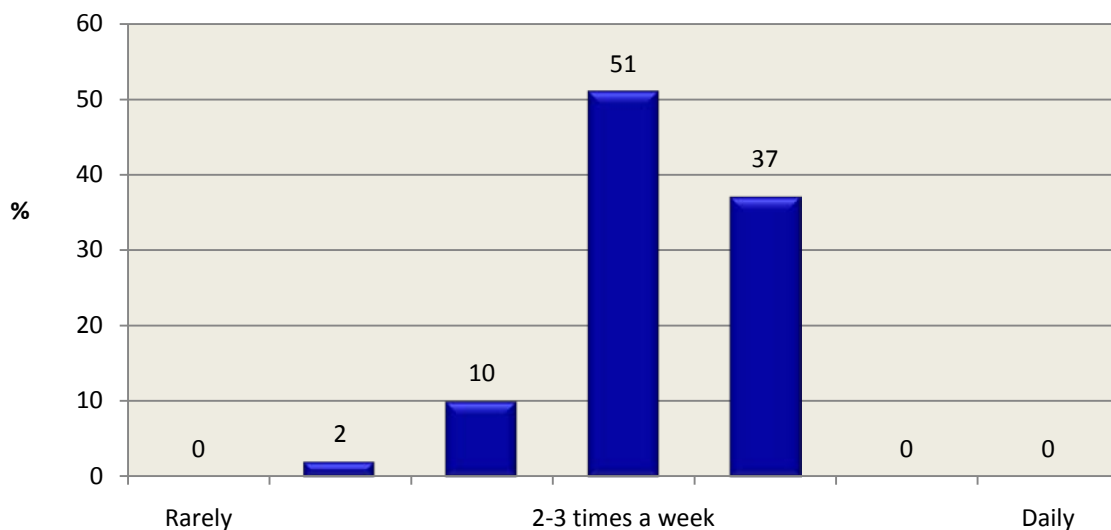
On a scale from 1 (very poor) to 7 (excellent), the mean self-assessment of present overall health was 5.7. The mean was slightly higher for women (5.7) than men (5.6), and varied considerably within age groups. It did not differ significantly between those residing in capital cities or regional parts of Australia, but the mean was slightly higher for volunteers contributing more than 160 hours of their time (mean of 5.8). In total, 83% of senior volunteers in the study rated their overall health as positive, compared to 13% who selected 'neither poor nor excellent' and 3% who rated it poorly.

Figure 4.3 How would you rate your overall health at the present time?



The majority of volunteers (88%) visit friends or family two to three times a week or more. No volunteers considered that they 'rarely' visited friends or family, nor did any volunteers visit them 'daily'. On a scale from 1 (rarely) to 7 (daily), the mean was 4.2.

Figure 4.4 On average, how often do you visit friends and or family?



In contrast to the results for visiting friends and family on a daily basis, almost one-quarter of volunteers phone or email family and/or friends on a daily basis. In total, 78% communicate with family and/or friends two to three times a week or more and on a scale from 1 (rarely) to 7 (daily), the mean was 4.9.

Figure 4.5 On average, how often do you phone or email family and/or friends?

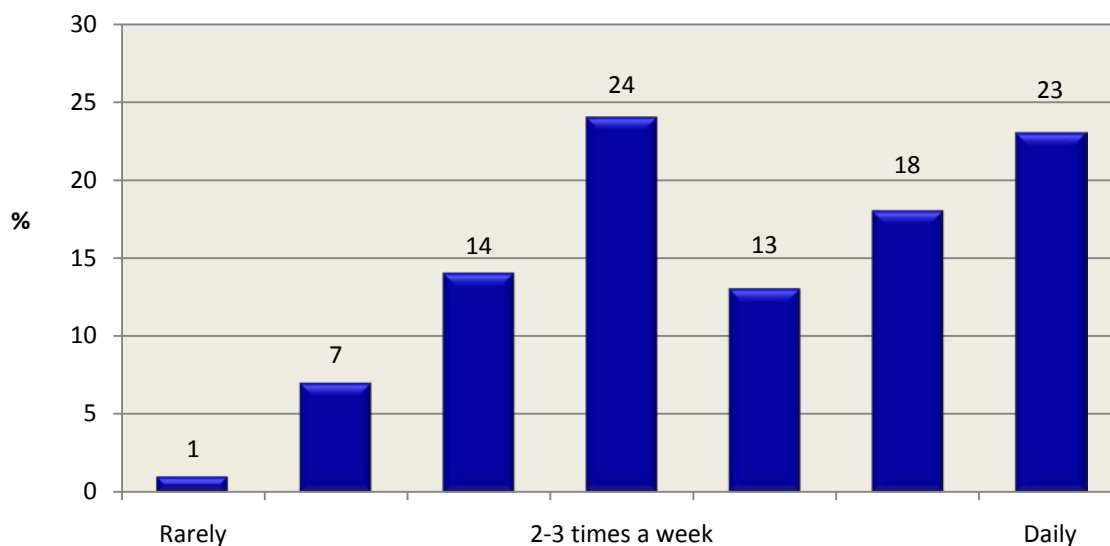


Table 4.6 presents the mean results of a series of lifestyle and well-being statements with which volunteers were requested to indicate their level of agreement.

Table 4.6 Please indicate your level of agreement with the following items:

	Mean
I am confident I get the success I deserve in life	3.9
Sometimes I feel depressed**	2.7
When I try, I generally succeed	4.1
Sometimes when I fail I feel worthless**	2.4
I complete tasks successfully	4.1
Sometimes, I do not feel in control of my commitments**	2.7
Overall, I am satisfied with myself	4.0
I am filled with doubt about my competence**	2.0
I determine what will happen in my life	3.8
I do not feel in control of my success in my volunteering/career**	2.1
I am capable of coping with most of my problems	4.2
There are times when things look pretty bleak and hopeless to me**	2.0

* Measured on a scale where 1=strongly disagree and 5=strongly agree.

** Negative items (i.e. where 1=most desirable response rather than 5).

Items adapted from Judge, Erez, Bono & Thoresen (2003).

In considering the items in Table 4.6, an overall self-assessment mean was calculated for the volunteers. The mean for volunteers in the study was 3.9 (with the negative items inverted to compensate for the reverse-scale), with a minimum of 2.4 and maximum of 5.0 for individual seniors. As with Table 4.5, the relatively consistent high means for these items suggest these volunteers rate their health and well-being relatively favourably.

Figures 4.6 and 4.7 suggest that the volunteers in the study were reasonably confident in their ability to cope with their problems and complete tasks successfully, and that they are of the opinion they generally succeed when they try. It also suggests that while there are some doubts about their competence and times when things look bleak, it cannot be overlooked that they sometimes feel depressed and not in control of their commitments.

Figure 4.6 Level of agreement with selected negatively-worded statements, by %

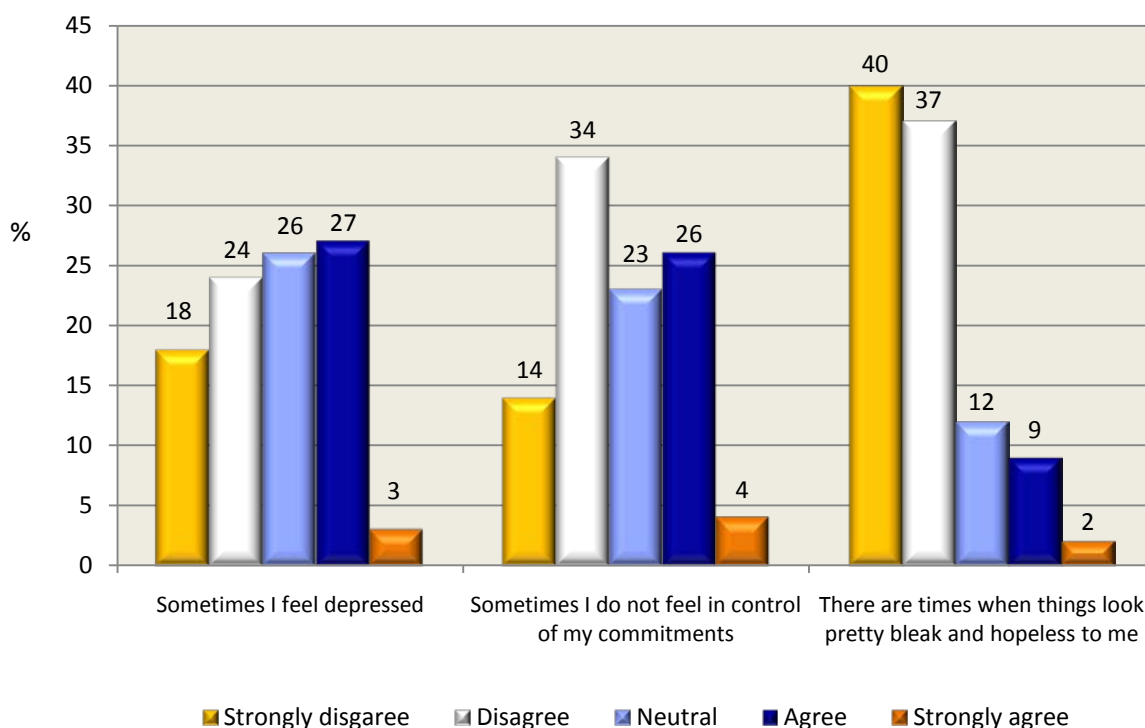
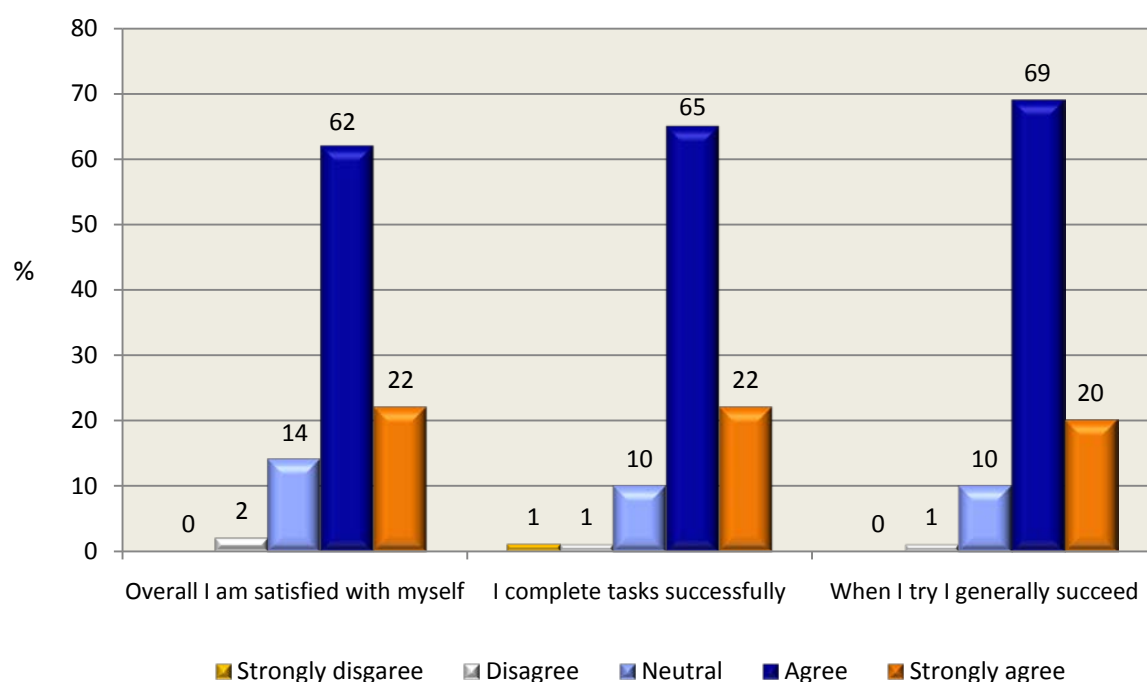


Figure 4.7 Level of agreement with selected positively-worded statements, by %



4.2 Focus Groups

The analysis of the focus groups is summarised in this section. The main purpose of the summary is to show trends and patterns that reappeared both within single focus groups and across the various focus groups. The content analysis included both an examination of the words used and the weight that was given to, or the power of the volunteers’ comments, along with the consistency of comments. The computer software NVivo facilitated the ease of coding for the analysis.

Including the pilot focus group, seven focus groups were conducted at six Australian botanic gardens, with a total of 59 participants. Participants were asked a series of questions with the responses providing support for questionnaire development, as well as providing a qualitative component of the research to contribute to a detailed analysis of volunteering benefits. The following results are a summary of the key themes arising from the discussions held in the focus groups, with examples of quotes provided to demonstrate volunteers’ perceptions and insight into the research subject.

4.2.1 Roles of Volunteers

The research design ensured the focus groups involved volunteers with a variety of roles in botanic gardens. Whilst many volunteers at Australian botanic gardens are garden guides, the researchers were aware of a range of other roles, and also wanted these roles to be represented by the focus groups. These included for example those volunteers undertaking hands-on gardening, committee

members, visitor information centre front of house, café or kiosk attendants, library volunteers, herbarium volunteers, and fundraising and/or event coordinators.

Volunteers described their roles with feeling (e.g. *I enjoy all aspects of the process*). When they spoke of guiding, they did not merely refer to the physical act of conducting a guided educational walk, but of enjoyable and exciting interaction with the public, pride in *representing the garden in a friendly way, making connections [between plants and buildings] throughout history to interest visitors, being in a great position to tell about plants*, and personalising their tours to meet the requirements and/or interests of visitors.

The volunteers are the face of the garden. The public come to us with their questions or to ask for directions, we either answer those questions or refer people to the appropriate staff member. In addition we give 'soul' to the garden through our interpretive walks. Most people can walk through a botanic garden and actually see/understand very little. We open their eyes (educate them) in the ways of nature and man's interaction with the plant world.

Similarly, for volunteers not involved in guiding, they spoke of *find[ing] a niche within an organisation that gives a purpose*, being part of growing groups, *putting ideas forward, encouraging visitors to respond to surveys*, using their skills to create and sell crafts, and having *serious versus less serious* roles (referring to how some of their roles require a large amount of planning and professionalism, compared to others that enable activities to be undertaken in a more relaxed way).

When describing their roles as volunteers, the majority of volunteers also referred to information collation and/or dispersion, whether this was through an interpretive guided walk, helping at a visitor information centre, work in the library, publicising the role of the garden, collecting and identifying plant species, or collecting visitor survey data. To this effect, many roles were also seen as educational in character.

In reviewing the focus groups, an 'ambassador' role is the most appropriate term to use to summarise the majority of the volunteers' perceptions of their main role at gardens. To use the words of volunteer guides, they are *enlighteners* for visitors and *the friendly face of the gardens*. They are enlighteners through their input in plant and environmental knowledge, and friendly faces through their personal contact with visitors. Indeed several volunteers commented on their pleasure in knowing that the Director of their garden also agrees that the volunteers are not there merely to raise funds and save money for the gardens, but to be representatives of the gardens.

4.2.2 Volunteers assisting the Gardens

Volunteers were asked to indicate how they felt their volunteering has assisted the gardens over the last 12 months. The two key components of being ambassadors (to enlighten and be the friendly face) also best reflect the way that volunteers perceive they contribute most to the gardens:

The gardens benefit I believe from having a 'human face'. Visitors have the opportunity to have someone local who can interpret the gardens for them.

Friendly face says hello. Good-day to strangers visiting.

Imparting/teaching skills to participants who can then be more knowledgeable re the plants and therefore the botanic gardens which feeds back through networking/promoting gardens.

It is the enthusiasm of the volunteers that enables them to successfully fulfill these roles. They offer innovative ideas, help with garden presentation, and *add a personal touch to the gardens [to give them] just a little bit more and have a friendly people-place that they can visit.*

It is noted however that the benefits to gardens that volunteers discussed were equally, in fact, benefits to the public, or the visitors of the garden (as opposed to directly related to the garden itself). Whilst numerous benefits of fundraising and promotions were recognised, these were generally targeted at visitors. For example, one volunteer organises an annual music program *for people of [the city] and visitors*. The money raised is reinvested into the gardens, but the emphasis fell on the public, or the people who enjoy the event. In the same way, for one committee member, the benefit for the garden was input from volunteers regarding *the direction/philosophy of the garden and the vital role it plays in the community*, again emphasising the benefits to the public. The volunteers help the garden serve a wide range of visitors by *doing lots of good things* such as helping them *spread the word on conservation* and *making it more accessible to the public*.

To a lesser extent, the garden overall was seen to benefit in saving money by having volunteers instead of paid staff, the ability to undertake extra programs/events/services *that would not otherwise be done by paid staff*, and simply *fulfilling an area of need*. In summary however, volunteers perceived the greatest benefits to the garden to be through assisting the garden interact with the public and interpret the environment for their visitors.

4.2.3 Volunteers assisting Others

Volunteers were also asked if they thought their volunteering had assisted any other person(s), group or organisation outside of their garden in the past twelve months. Table 4.7 shows the wide range of 'others' that volunteers believed their volunteering also assisted.

Table 4.7 Benefits to others (% of total 'others')

	%
Specific community groups (e.g. youth groups, church groups)	23
The public/wider community in general	14
Schools or Universities	8
Other volunteers/members of 'Friends of Garden' groups	8
The environment	7
Volunteers' partner or spouse	7
Volunteers' other family members	7
The city/local council	7
Tourists	6
Volunteers' friends	4
Coach tours	3
Garden staff members	3
Other tourist venues	3
Australian/Aboriginal culture	2

Volunteers typically identified specific clubs or community groups as benefiting, or referred to the public/community in general (hence reinforcing the volunteers' perceptions of the way in which the garden benefits being largely focused on helping its visitors).The following quotes provide example of how volunteers see the individuals or groups benefiting:

Community in general benefits because without volunteers such as me programs would be non-existent – no one to administer them, no one providing the income.

I am a member of a land rovers owners club and have not only taken the group through the gardens but also help identify plants and trees on our off road trips.

When I am in the Info Centre I promote other tourist venues to overseas visitors in particular.

Environment benefits by our raising awareness of importance of plants to life.

Carers often bring their patients for a cuppa as it is a friendly place.

Made newsletter interesting for other volunteers.

My friends will come more often.

My friends – I give them suggestions of places to go to visit each garden, they ask my advice, I take them for walks for pleasure.

My healthy attitude helps relationships with friends and family.

My husband and I because we have a day apart and when we meet over dinner we have lots to talk about.

In most instances, the volunteers were light-hearted and positive when considering who else benefited, such as their spouses by spending some time apart. Indeed many had not directly considered the wide range of people and organisations receiving benefits from the interaction. In a few cases there was a small amount of angst when volunteers perceived particular commercial groups to *take advantage of* the free services, but clarified it was not the individuals themselves they had any concerns with so they accepted it was still serving their goals in their ambassador role.

4.2.4 Personal Benefits of Volunteering

Unexpected by the researchers, on several occasions volunteers participating in the focus groups commented that they enjoyed contemplating the personal benefits they received, because it was not something they normally considered. For some, it was difficult to put into words but they appreciated the opportunity to evaluate why it is they volunteer, and the personal benefits they gain as a result.

It was apparent that many types of benefits gained could not be separated from each other. The majority of roles volunteers perform involve communication and the sharing of knowledge with other people (whether they be visitors, staff, or other volunteers). Volunteering was accordingly seen as equally contributing to seniors' mental and social well-being. For example, one volunteer guide referred to enjoying the (mental) challenge of adapting guided tours to suit individual people's needs (their plant interests), whilst very much appreciating that their guiding enabled them to meet interesting members of the public. Another volunteer said that *the most important benefit is keeping your brain going*, but at the same time, spoke of the vital friendships with other volunteers. One participant responded simply that *it helps seniors a lot*.

The following quotes further demonstrate the views of the volunteers related to both mental stimulation and learning, and social interaction benefits:

It's a way to do two things at once – meet up with friends while helping the gardens.

Interaction, ideas and knowledge, people, staff, friends.

To meet people from all walks of life and try to make the botanical world interesting to them.

Connecting with people is so rewarding.

Extending knowledge for self and others.

Meeting visitors and learning from them.

Sharing with others. Guiding gives me an opportunity to share/educate/interpret the plant world.

I researched (with another guide) and produced a...document of Aboriginal plants...this involved meaningful interaction with the local [Aboriginal] group as well as in-depth research with opportunities to produce new documents/walks/CD Rom.

Also highly beneficial was the satisfaction of making a contribution to a worthy cause and the pleasure received from, for example, growing plants or making craft items to sell, helping visitors, or the gratification of learning more about plants, the garden, and the environment:

Achievement, making a difference.

The stimulation and the sense of achievement when finishing specific projects.

The challenge of finding a way to achieve what sometimes seems impossible.

Leaving each session at the gardens with a sense of accomplishment.

Satisfaction for having given people an interesting walk.

Sense of value as a person from visitor interaction.

Sense of belonging, doing worthwhile work, having fun, laughing, learning about plants.

A sense of giving and putting back into the community.

I feel I am contributing to the community and it makes me feel good.

To encapsulate the full range of benefits identified by volunteers, three major benefits categories are suggested:

- intellectual/mental stimulation (and increased knowledge),
- social interaction and friendships (leading to a sense of belonging to a group), and
- positive emotional state (e.g. feeling of worth and achievement/satisfaction of contributing).

Additional to these benefits are the benefits of general well-being that relate to volunteering with botanic gardens (including the physical activity of walking tours and hands-on gardening, and relaxation from being in a peaceful and beautiful environment). Throughout the focus groups it became evident that the location of the volunteering was very important to the seniors in the study. An underlying theme enabling the three major benefits to be experienced was that of the garden environment. Many volunteers discussed the importance of *being out in the open* and amongst a *pleasant garden environment*, or the *privilege to be in beautiful surrounds*:

I love working in the beautiful and peaceful gardens so I get a feeling of well-being when I spend a day volunteering in the tea house.

Pleasure of being in the garden, and with nature.

I enjoy being outside, communing with nature. I am an outdoors person.

As several volunteers commented, they share a common thread to enjoy the gardens:

The common thread of “love of garden” is one that holds tight. Even if our hands are incapable of digging – we can always boil a kettle!

The location of the volunteering was also important however as many volunteers not only had a particular interest in plants or gardening, but in caring for the environment. Common themes were the desire to *spread the word on conservation* and *protect the environment for the future*. Although botanic gardens are typically landscaped, structured gardens as opposed to places of remnant vegetation, many volunteers referred to their involvement as ‘environmental volunteering’:

It’s bigger than just gardens, it’s preserving the earth.

4.2.5 Other Benefits

Volunteers were also asked if there were any other benefits that they obtained from volunteering that had not previously been discussed in the focus group. These benefits largely related to material benefits such as various resource use and financial benefits. Specifically, volunteers identified access to libraries, plant collections and the broader knowledge base at the gardens, as well as free car parking, discounts at garden shops, and discounted or free entry to special events they may be involved in. Each of these categories (resources use and financial benefits) were discussed in only three focus groups, and financial benefits were primarily considered ‘bonus benefits’ rather than motivators for volunteering.

4.3 Interviews

This section summarises the analysis of the interviews with nine staff of botanic gardens in Australia, who work with garden volunteers (primarily aged 50 years and over). Both the words that interviewees used and the intensity of their responses are considered.

The professional positions of the botanic garden staff members interviewed comprised a range of different job descriptions, indicating the wide range of interactions between staff and volunteers. Their positions included volunteer managers/coordinators, marketing/project officers, a botanist, a community education manager and a collections manager. Within these positions, direct contact or liaison with volunteers varied from approximately half a day per week to three full days per week.

The interviewees referred to their positions as not only working with, but being *responsible* for volunteers. The majority of volunteer programs have volunteer policies associated with them; in this way there are important management considerations for staff members. They find themselves trying to *ensure the smooth running of the [volunteer] program* by addressing any issues that arise, by being key liaisons not only with volunteers directly but between the volunteers and the gardens’

higher level management (e.g. boards/authorities/directors), and ensuring adequate induction is provided to new volunteers. For example, volunteers are often required to agree to a code of conduct and follow volunteer principles outlined in various policy documents.

4.3.1 Staff Perceptions

As well as describing their involvement with volunteers, the interviewees described their perceptions of the roles that volunteers perform with botanic gardens. In contrast to the descriptions given by volunteers (verbally in focus groups and via written word on questionnaires), the staff members described the volunteer roles in a factual way. Where volunteers used phrases referring to their ambassador roles, their welcoming greeting to visitors, and their contribution to the dispersion of knowledge, staff members described how volunteers *provide twice-daily walks, guiding on demand, prepare herbarium specimens, provide customer service in the visitor information centre, develop special exhibitions, and fundraise for example.*

Although their descriptions of volunteer roles were more literal and less emotive than those given by the volunteers, their examples of positive experiences with volunteers showed a great appreciation of volunteers. Their efforts were commonly described as *enthusiastic* and *particularly useful*, carrying out *meaningful work*. One staff member proclaimed that because the vast majority of experiences have been positive, a single story could not even be singled out to share with the researchers. Other staff declared that various facilities and/or services would *basically not exist if the volunteer group did not exist*, not only in reference to the ability to offer guided walks to visitors, which clearly would not be feasible without volunteers, but in relation to plant identification services for the public, various recreational events within the gardens, and other education services for visitors. *Volunteers help get things happening* and bring a *wider range of ideas* to gardens, not to mention their assistance with gardens promotion.

In referring to the guides, one staff member especially valued their *great position 'at the coal face' to provide feedback from visitors*, as this can be particularly useful for garden managers considering the varied purposes of botanic gardens not only being for conservation and plant education, but to serve visitors for an enjoyable and satisfying garden experience. The key theme of the staff members' responses was how the volunteers' enthusiasm and eagerness to contribute resulted in their generation of *terrific ideas, valuable assistance, trouble-shooting, and constant helpful input.*

4.3.2 Issues to Note

At the same time, staff members were asked if there were any less positive examples of volunteer experiences. Whilst one staff member was slightly concerned with the intention of the question as the response may be sensitive, several other staff members did not have stories to offer (*can't think of one off hand, there are rarely problems*). Others primarily referred to problems with a lack of resources (e.g. inability to put all volunteer ideas into action, or inability to offer all services to all volunteers). One staff member also referred to the need to constantly *keep ahead of volunteers to ensure that work is ready for them.*

In two instances more considerable issues were evident, leading to longer discussions in the interviews. Although the staff members conveyed sincere appreciation of volunteers and their support, they also expressed problems where volunteers were seen to become too involved (*so deeply involved it's almost too much*). They were of the opinion it may largely relate to many volunteers having the time to put more effort into their volunteering projects, compared to the staff members themselves finding it difficult when they are *really busy all the time with so much to do and limited resources*. Timelines may be judged differently between staff and volunteers, and staff members also have to work with competing priorities and are not always able to act as quickly as volunteers would like. On occasion, volunteers have tried to resolve such issues by going to third parties (either within the organisational hierarchy or external public sector/political representatives). As a result, these may be viewed as management issues for development by gardens as organisations.

4.3.3 Benefits Identified

Staff members identified many benefits for volunteers, themselves, and for the botanic gardens that they are associated with. For the volunteers, staff perceived the key benefits to be:

- intellectual stimulus from learning more about plants and the ability to carry out mentally stimulating and/or challenging tasks,
- social engagement, companionship and friendship, and
- the feeling of worth from volunteering and the rewarding nature of the experience itself.

These benefits largely concur with those identified by volunteers themselves, therefore confirming the three major benefit categories suggested in Section 4.2.4. It also implies interviewed staff members have a sound understanding of the benefits volunteers gain from engaging with gardens.

Staff further discussed that while volunteers benefit from friendships (*a little social pottering*) and *obviously enjoy working together*, they are also a *group of like-minded people* who sometimes go out of their way to help each other. In this way volunteers do not only help the gardens and gain personal benefits, but they bring benefits to each other too:

One member of the group has taken on the role of assisting older members with their work and this has meant some of the less physically able members are still able to come.

It became apparent that many of the benefits are closely linked to each other and interviewees were unable to view them completely independently of each other. For example, the feeling of worth was seen to largely arise from the ability for seniors to share their knowledge with others (staff members, visitors and other volunteers) hence contribute to interpretation or educational aspects of the garden. The social benefits accordingly largely arose indirectly from the sharing of knowledge, whether teaching people about plants and the environment on guided tours, attending monthly volunteer meetings to listen to guest speakers, attending *social meetings to an area of interest away from the Gardens*, or involvement in various team projects such as coordinating special events and targeted fundraising. Successful outcomes of such activities in turn provide increased benefits relating to the feeling of worth and a *sense of purpose for them*.

An underlying idea visible from the interviews was how the range and extent of benefits the volunteers received was an effect of their high levels of interest, enthusiasm and passion (*because the [volunteers] are positive about their contribution, this is undoubtedly passed on to others*). In the same way that their eagerness to contribute resulted in their valuable input and benefits for the garden, it appeared to also result in immense benefits for the individual. Through *sharing their enthusiasm with the public and with like minded people, they gain long lasting friendships with other volunteers and staff, they enjoy the intellectual stimulus to be found in learning about and talking about plants and a feeling of worth and contributing to a place they love*.

The gardens in return gain a variety of benefits. From the interviewees' perspective, the benefits are shared equally between the staff members working at the garden, and the visitors for which the garden serves. (This is in contrast to the volunteers' perspective, which saw greater benefits being identified to the visitors or the wider public than to the individual staff members.) Examples of comments relating to benefits for individual staff included how volunteers:

Enabl[e] me to continue with work that otherwise could not be completed.

Make my life easier by...contributing to new fundraising projects.

Give me a sounding board for things I'm not sure of.

Free my time for other work [by conducting visitor surveys for us in the garden].

Gives me that political or external support if I need it to put pressure on senior management.

In many ways (such as obtaining feedback from visitors through formal or informal surveys, offering guided tours, staffing visitor centres or providing a public voice in council), garden staff considered volunteers the *direct interface* between the garden and the public. This contact is acknowledged as being essential for gardens to deliver quality visitor service. Having visitors with higher satisfaction is likely to be reflected in staff/organisational performance appraisals, and may help gardens obtain further funding; therefore while volunteers did not generally identify benefits from their contribution to individual staff members, it is apparent that this is an important benefit from the gardens' perspective. Volunteers discussed an overall benefit to the gardens through enhancing garden-visitor interaction, but it could be suggested that gardens remind volunteers about their invaluable assistance to individual staff as well as to the garden as an organisation.

4.4 Further Analysis

This section summarises some key analyses of particular interest to the research team not previously discussed throughout the Study Results section. It also serves as an introduction to the types of analyses the researches would like to conduct for further Study Developments (Section 5).

4.4.1 Integration to New Communities

In addition to their home post code, volunteers responding to the written questionnaire were asked how long they had lived in their local area. This question was included to consider any relationship between volunteering and a sense of integration rather than isolation for individuals moving into a new area. For example in a study examining the relationship between migrants and contact with nature, Wong (1997, in Rohde & Kendle, 1997) noted an increased sense of identity and ownership of the country they lived in when migrant contact with nature was higher. Such contact offered migrants a reunion with nature, and brought restorative benefits, relief and empowerment.

Preliminary analysis of the data in this study does not appear to reveal significant differences between the length of time an individual has lived in their present local area with their volunteering input (hours spent volunteering per year), their overall satisfaction with volunteering at the botanic garden, or their levels of recommendation for volunteering at the garden. It may be of interest however that although not statistically significant, those volunteers living in their area for less than one year had the highest overall satisfaction (6.6 compared to an overall mean of 6.2) for volunteering at the garden.

There were also no significant differences between length of time living in the local area with place identity and place dependence means. In fact place dependence means were slightly higher for those individuals moving into the region in the previous three years than they were for longer-term residents (mean of 3.7 compared to 3.4).

It is noted that a strong personal community of associations (e.g. family, friends, those with which close relationships have developed through work or through leisure activities, and even pets) is crucial to successful ageing (Earle, 1992). It is suggested that if seniors have stronger personal communities, they are more likely to be involved in leisure activities outside the home (such as volunteering). The higher place dependence means for newer community members may be a reflection of the value they place on their volunteering at a botanic garden in helping them feel part of a group and have a stronger personal community of associations in a new location.

Furthermore, the focus group analysis clearly showed a wide range of benefits related to social integration and networking, including meeting new friends, staying in contact with existing friends, and feeling a sense of belonging. The combined findings emphasising this sense of place may be of value for botanic gardens when considering ways to recruit new volunteers (e.g. targeting new residents), in their volunteer management planning, and in the way in which they reward their volunteers.

4.1.2 Motivations for Volunteering

Volunteers who were motivated by a love of gardens had significantly higher desires to 'learn about plants and the environment' than those primarily motivated by contributing to society or social/networking reasons (with a one-way ANOVA test result of $F(3, 293) = 3.78, p = .011$). A one-way ANOVA also indicated there was a significant difference in the perceived benefits gained in

relation to 'learning about plants and the environment' by volunteers with different main motivations for volunteering, $F(3, 296) = 3.699, p = .012$. Bonferroni's post-hoc tests indicated this difference was due to significantly higher perceived levels of learning by those volunteers motivated by a love of gardens, compared to those motivated by the desire to contribute to society or for social/networking reasons.

In the same way that understanding the relationship between volunteering and sense of place (or place attachment) may be of value to botanic gardens in targeting new residents as volunteers, understanding how motivations may relate to the benefits gained may be useful in designing and managing volunteer activities and programs, recruiting new volunteers, and rewarding existing volunteers. For example, the types of activities that may be most suited to volunteers motivated by a love of gardens may best be activities that foster learning about plants and the environment such as preparing newsletter articles, researching interpretive materials for visitors, or conducting guided tours on specific topics. In contrast, activities that may be more suitable for volunteers driven by the desire to contribute to society need not necessarily focus specifically on plants and the environment, and may include roles such as fundraising or organising special community events or displays. For volunteers motivated by social/networking reasons, activities such as conducting guided walks and staffing a visitor information centre, cafe or kiosk may be particularly beneficial considering their stronger desire to meet people and socialise.

4.5 Discussion and Implications

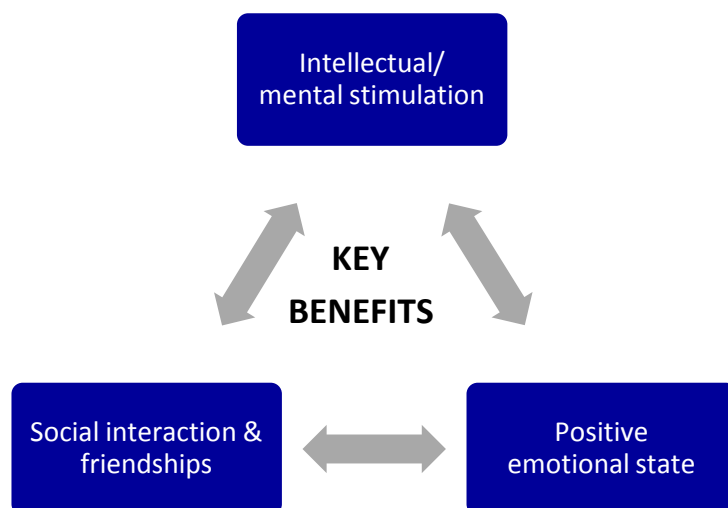
Volunteers from botanic gardens in seven states or territories in Australia were represented in the study, with 76% being female participants and almost half of the volunteers aged 60-69 years. A large majority (70%) were retired, with 61% of volunteers having completed a tertiary education. Overall, respondents were highly satisfied with their volunteering and were very likely to recommend volunteering to others. The study suggests volunteers have high place attachment with the botanic gardens they volunteer at. They have high contact (in person and via email or telephone) with family and friends and generally consider their overall health and well-being to be relatively good.

The data collected in the study explores how engagement with voluntary organisations can enable seniors to gain personal benefits such as meeting others, feeling valued, and keeping an active mind. This is conducted within the context of volunteering at botanic gardens, and the well-being benefits of contact with nature are considered fundamental to the study.

Analysis from the questionnaires, focus groups and interviews suggests three major benefit categories, as illustrated in Figure 4.8. Benefits are wide and varied, but closely interrelated with each other. The setting of the botanic gardens appear to play a key role in enabling many of the benefits (e.g., positive emotional state through 'enjoying the aesthetics of the garden', or intellectual/mental stimulation through 'learning about plants and the environment'). Volunteers also felt they contributed to a good cause and enjoyed the benefits of meeting people and socialising with a group of like-minded individuals (e.g., *It's a way to do two things at once – meet up with friends while helping the gardens*). It is clear that there are a wide range of benefits that volunteers gain from their engagement with botanic gardens regardless of their motivations,

activities undertaken, sense of attachment or place dependence on the garden, and the time commitment they are able to give to their volunteering.

Figure 4.8 Interaction of benefits



Considering it is the setting of the botanic garden that largely facilitates the volunteering benefits to be attained, a discussion of contact with nature and overall health and well-being is therefore appropriate. The Literature Review (Section 2) demonstrated a range of benefits of contact with nature (e.g. Kaplan, 1995; Lewis, 1996), including a focus on the benefits for seniors (e.g. Browne, 1992). Merely viewing nature has revealed clear evidence of benefits (Maller et al., 2005), with psychological responses to nature involving a range of feelings including those of pleasure, greater interest/attention, 'relaxed wakefulness', and a reduction of negative emotions such as anger or anxiety (Rohde & Kendle, 1994). Yet in a summary of empirical, theoretical and anecdotal evidence drawn from a literature review of the human health benefits of contact with nature, Maller et al. (2005) refer to the lack of this value of contact with nature in health promotion publications. It is accordingly suggested that there is the need for greater collaboration between researchers and social services and the environmental sector to help maximise the use of contact with nature in promoting population health. Particularly in reference to the influence on helping reduce or avoid mental, behavioural and social health problems (which are seen to be an increasing health burden in all parts of the world; Desjarlais et al., 1995).

Over the last few hundred years, there has been wide scale disengagement of humans with the natural environment (e.g. Katcher & Beck, 1987). Volunteering at a botanic garden appears to present itself as one way to enable people to successfully engage with the natural environment. Volunteers participating in this study expressed a great deal of pleasure related to their association with botanic gardens (and nature). They also expressed a variety of benefits relating primarily to their mental and social well-being, but also to their physical well-being. For this reason, the researchers propose that future research may include a closer examination of the role of the volunteer setting and to reconsider the interdependence between people, their health, and their physical and social environments. Through such a socio-ecological approach to health and well-being, volunteering may be further explored in respect to active ageing in Australia.

At the same time, the value of researching the economic and social contributions of the volunteering activity of older Australians has been increasingly recognised in recent years (e.g. NSA, 2008; Productivity Commission, 2005). This is in part due to the ageing population, and also in part due to a heightened desire to encourage governments, businesses and the community to maximise the potential for engaging seniors in their contributions to Australia's economic and social well-being. It also is a way to encourage people to consider seniors as 'assets' rather than a 'burden' (NSA, 2009).

This study has consequently identified benefits to gardens and the wider community as well as benefits to senior volunteers. Benefits to the gardens include the gardens as an organisation (and the state government /local council to which they belong), individual staff members of gardens, and importantly, visitors to gardens. The wider community benefits not only include these visitors (whether international or domestic tourists, school or university students, coach tours, or local residents), but also those with closer relationships to the volunteers (e.g., their partner or spouse, grandchildren, neighbours and friends).

Interaction, ideas and knowledge, people, staff, friends.

Connecting with people is so rewarding.

My healthy attitude helps relationships with friends and family.

My husband...because we have a day apart and when we meet over dinner we have lots to talk about.

Give [garden staff] a sounding board for things [they are] not sure of.

Community in general benefits because without volunteers such as me, programs would be non-existent.

The gardens benefit I believe from having a 'human face'. Visitors have the opportunity to have someone local who can interpret the gardens for them.

While the study has not attempted to measure the economic contributions to the community, it delivers insight into the range of social contributions gained through offering volunteering at botanic gardens, which may further be of value to volunteer managers in their management of volunteering activities at gardens, and in recruitment and retention by demonstrating to volunteers their widespread and successful contribution to society. Although the key benefits for botanic gardens relate to the 'ambassador' role of volunteers, for example through promoting the gardens, welcoming visitors, and interpreting the garden environment for visitors, it may be beneficial to reinforce to volunteers the wide variety of people, groups and organisations their volunteering assists.

5. Study Development

5.1 Outputs and Knowledge Management

The outputs arising from this study are relevant to a diverse range of people including seniors, healthy ageing advocates, botanic gardens' managers, volunteer managers, local/state governments, academic researchers and the broader community. The following summarises the outputs to date:

1. This consolidated technical report for NSPAC (and with approval, for distribution to BGANZ and participating research partner gardens).
2. A user-friendly report on the study. This final report will be edited and available in PDF file format for easy distribution and access for seniors, garden staff and volunteers and other interested people, available for upload onto a number of relevant websites (e.g. the Association of Friends of Botanic Gardens Incorporated and the National Seniors Productive Ageing Centre).
3. Snapshot reports distributed to participating gardens (typically two pages, A4 format; full colour and with mixed graphics for non technical reporting and easy to display locally), with a focus on each individual garden where sample sizes allow.
4. Abstract submitted to present at the International Federation on Ageing 10th Global Conference (Melbourne, May 2010), under the 'healthy ageing' stream).
5. Articles published in the Office for Volunteers (Government of South Australia) E-Bulletin 'The State of Volunteering On-line' and similar newsletters produced by other state or territory governments. (*Interim results* article published in 'The State of Volunteering On-line' Edition 115, Friday 4 September 2009, with *final results* article forthcoming.)
6. Confirmed presentation at the Friends of Botanic Gardens Incorporated 2010 Association Conference (Mildura, May 2010). A number of Friends organisations would also like to print summaries of the study in their local magazines/newsletters (e.g. the Friends of the Botanic Gardens of Adelaide's *Gazette*).
7. Seminar session planned for the University of South Australia's 'Successful Ageing' seminar series in early 2010. (This program involves a number of free seminars featuring topical issues relevant to more senior alumni and friends in the university community. They aim to provide access to the latest research on a range of health and lifestyle issues.)
8. Abstract to be submitted to present at Volunteering Australia's 2010 National Conference on Volunteering (Melbourne, October 2010).
9. Expectation to present selected results at the BGANZ annual conference in 2010 (NSW).
10. Professional journal publications are to be submitted (e.g. *Tourism Management*; *ANNALS of Leisure Research*; *Australian Journal on Volunteering*).

5.2 Improving Volunteer Management

The design of this research enabled the exploration of volunteering benefits from three key perspectives: for individual senior Australian volunteers, botanic gardens and their staff, and the wider community. In this respect, there are several ways in which the research may be used to improve volunteer management. Knowledge about the specific benefits gained by volunteers of gardens may assist with future volunteer recruitment and retention. Promoting the benefits that present volunteers gain may inspire potential volunteers to be involved through demonstrating the potential benefits of volunteering commitment.

Knowledge about the benefits sought by volunteers, and the 'gap' between benefits sought and attained, may also help volunteer managers and other botanic gardens staff members provide better services and programs specifically aimed to their volunteers. An understanding of the relationship between motivation, benefits and satisfaction will also contribute to the effective management of volunteers and volunteer programs in botanic gardens, and assist management to create more positive outcomes for volunteers. Specific ways in which botanic gardens may address some of these issues of management include:

- Acknowledging individuals have different motivations for volunteering, with the most common reasons being a love of gardens, to contribute to society, and develop social networks (Table 3.3). Comparisons of benefits sought and attained reveal differences between these groups, and managers may be able to use this information to match individuals with particular volunteer roles in line with these findings (see Section 4.1.2).
- With the opportunity to gain a wide range of personal benefits from volunteering at botanic gardens (e.g. Table 4.4 and Section 4.2.4), managers may choose to advertise specific benefits in their promotional materials when volunteer numbers are low in particular areas. For example, if more volunteers are required to staff an information or visitor centre, recruiters could promote the benefits related to social interactions and friendships. If, on the other hand, volunteers are required to develop self-guided walks, recruiters could promote the benefits related to intellectual or mental stimulation.
- For recruitment and retention purposes, managers should acknowledge that although volunteers contributing an average of 3 hours or more per week had higher overall satisfaction and recommendation levels, and higher levels of place attachment to the gardens, there were no significant differences in relation to the average levels of individual benefits gained from volunteering. This suggests that all volunteers attain a range of benefits, and even those individuals who volunteer less than 20 hours per year gain the same level of benefits as those contributing more hours to a garden (Section 4.1.3).
- In considering the above suggestions, managers should also remember the interrelated nature of the personal benefits from volunteering. If retention levels fall or there is evidence of lower satisfaction with volunteering, it may indicate that particular types of benefits require attention. Focus group discussions with volunteers may help managers identify any areas for further consideration. It may be beneficial for volunteers to expand on their range

of activities undertaken for example, to ensure all types of benefits have the potential to be satisfactorily met.

- The study identified a large proportion of volunteers who also volunteered with other environmental organisations or animal welfare groups (Table 3.5). When recruiting, managers could consider developing programs in partnership with such organisations to maximise these individuals' connection with living things in nature (the biophilia hypothesis), as well as maximise the shared interest between these types of organisations.
- An understanding of the demographic profiles of volunteers at botanic gardens (Section 3.2) is useful for managers to consider, including their educational background, work commitments and household structure, to assist in volunteer program planning and development (e.g., to consider needs for program flexibility or disability support for volunteers). It is also worth considering how long an individual has lived in their local area, as volunteers more recently moving into their local area had higher overall satisfaction with their volunteering, and higher place dependence on their botanic gardens. Managers could therefore actively try to recruit new community members by promoting the high value newer residents place on volunteering, helping them to feel part of a group (a stronger sense of belonging) as well as gain social/networking benefits in a new location.
- Botanic gardens may also use the research to assist with the way in which staff view volunteers. For example, by viewing them as motivated individuals who seek not only individual benefits but look for ways to contribute to their community (e.g. through educating the public, providing an ambassador role at gardens or a 'friendly welcome' to visitors, and strengthening local community networks), volunteers are likely to respond in a correspondingly positive manner. Volunteers who feel that they have made a worthwhile contribution are more likely to continue to contribute in the future (Australian Sports Commission, 2000). Reminding volunteers of the numerous ways in which their volunteering benefits not only botanic gardens as organisations and their visitors, but the wider community, is also recommended.

5.3 Extensions to the Study

To date, there are two main extensions to the study. The first extension (detailed in Section 5.3.1 below) will be completed in November 2009, and the second extension (detailed in Section 5.3.2 below) is scheduled to commence in 2010 (subject to funding).

5.3.1 Well-being Research

Jessica Clark completed a Bachelor of Sport and Recreation Management degree in 2007 and is now undertaking her Honours year with the School of Management at the University of South Australia. Her study (Clark, 2009) aims to identify if the well-being benefits of volunteering for older volunteers

differ from those experienced by younger volunteers, and if volunteering among older people is in anyway unique in its benefits. The study will attempt to do this by examining the differential benefits of volunteering across the life course by examining the involvement that Australians under the age of 60 years (<60) and over the age of 60 years (≥60) have with Australian botanic gardens.

Jessica's study recognises that the world's population is ageing at an extraordinary rate. Given trends of earlier retirement, a longer non-working life, and the cost of aged-care, there are concerns that society may soon collapse under the strains (Ranzijn, Harford & Andrews, 2002). Therefore, it is not surprising that policy makers in many regions have turned their attention to the implications of population ageing (Dupuis & Alzheimer, 2008). Her study proposes that if we can understand at an earlier age the engagement Australians have with botanic gardens and the consequent positive well-being outcomes, initiatives may be developed to maximise a range of benefits, potentially reducing well-being problems later in life such as distress and negative moods (Karademas, 2007).

It is anticipated the study will provide an improved understanding of Australians' involvement with botanic gardens at several levels. It will identify benefits for Australian volunteers of distinct age groups at the studied gardens, namely volunteers under 60 years of age and those 60 plus. These outcomes will provide a better understanding of well-being and how to best engage Australians with botanic gardens in order to maximise the benefits for all involved.

5.3.2 Senior Volunteers as Mentors

A second extension to the study relates to a detailed exploration of the way in which seniors act as mentors to younger and/or newer volunteers. Many aspects of volunteering can be related to mentoring and/or leadership, with influence extending to communication, motivation, task achievement and volunteer satisfaction (Australian Sports Commission, 2000). A series of case studies will be conducted in a range of leisure-based settings including botanic gardens and arts and cultural organisations (e.g. museums and libraries). The research aims to identify the benefits seniors attain through embracing a mentoring role in a volunteering context, and to identify local community and/or organisational initiatives that will build the capacity to generate multiple benefits for senior volunteers. This mentoring role will be explored from a 'healthy ageing' perspective and as a context for empowering older adults, particularly those individuals no longer working full time. The study considers Havinghurst's (1968) Activity Theory that proposed seniors would like to remain active in society. Acknowledging that there are a range of obstacles that need to be overcome by policy and planning to help seniors age actively and continue to participate in society, the mentoring benefits will be related to the key characteristics of successful ageing (e.g. Earle, 1992) and to the results of the present study on volunteers' benefits at botanic gardens.

5.4 Centre for Tourism & Leisure Management Contact Details

In the first instance for general enquiries, please contact Raylene Jones at the CT&LM office:

Telephone: +61 8 8302 5321

Facsimile: +61 8 8302 5255

Email: raylene.jones@unisa.edu.au

Summary profiles and email contact details for the research staff involved in the study are provided in Appendix 4.

More information regarding the CT&LM can also be obtained via our website at:

<http://unisa.edu.au/tourismleisure>

6. Summary



Research was conducted into seniors' engagement with botanic gardens in a volunteer capacity through the undertaking of questionnaires and focus groups with volunteers, and interviews with garden staff. The benefits that seniors seek and attain from volunteering at botanic gardens were quantified to help identify organisational initiatives that will build the capacity to generate multiple benefits not only for individuals but for the wider community by effectively engaging seniors with botanic gardens.

The majority of volunteers participating in the study (61%) volunteered an average of at least 1 ½ hours per week over the past 12 months. Many (62%) identified their main role to be a garden guide or participation in hands-on gardening, with the three main motivations for volunteering being a love of gardens, the desire to contribute to society, and social networking purposes.

Gardens in seven states or territories in Australia were represented, with almost half (48%) of the volunteers surveyed aged 60-69 years, and 76% female. In total 70% were retired and 61% had completed a tertiary education. The vast majority (98%) spoke English as their main language at home. Overall, volunteers were highly satisfied with their volunteering, and were very likely to recommend volunteering to others (6.2 and 6.4 respectively, where 1 = very low and 7 = very high).

The results suggest high place attachment between volunteers and the botanic gardens for which they volunteer. They also suggest volunteers have high contact (in person and via email or telephone) with family and friends. Additionally, volunteers in the study generally consider their overall health and well-being to be relatively good (5.7 out of 7, where 4 = neither poor nor excellent).

The study complements other studies of volunteers and volunteering in describing how engagement with voluntary organisations can enable seniors to gain personal benefits such as meeting others, feeling valued, and keeping an active mind. It explores these benefits within the context of volunteering for botanic gardens, with the well-being benefits of contact with nature considered fundamental to the study.

It also supports Maller et al.'s (2005:46) argument for promoting the use of human contact with nature as an 'effective and affordable health promotion intervention' for populations, using volunteering in botanic gardens as one way to 'look outside' for solutions to some of the global health issues of today. This argument is maintained by reviewing the three major benefit categories for volunteers of botanic gardens, as perceived by both the volunteers and the garden staff who work with them:

- intellectual/mental stimulation (and increased knowledge),
- social interaction and friendships (leading to a sense of belonging to a group), and

- positive emotional state (e.g. feeling of worth and achievement/satisfaction of contributing).

Combined these benefits contribute to senior volunteers' mental health and well-being as well as their social well-being (but the physical health benefits such as walking in gardens and gardening also cannot be overlooked). One focus group participant claimed volunteering at a garden enabled them to 'retire *to* something, not retire *from* something'. Many referred to personal benefits related to their health and well-being as related to active and healthy ageing. It became apparent that volunteering at botanic gardens should be viewed as facilitating important benefits to the overall health and well-being of seniors in Australia.

Maller et al. (2005:49) claimed that 'public owned natural spaces are an ideal resource to support ... human health and well-being'. Botanic gardens therefore appear to be model settings for the integration of environment, society and health by promoting a socio-ecological approach to health and well-being. This promotion may be based on human contact with nature through volunteering participation as a contribution to active ageing for senior Australians, as well as contribution through a range of benefits to the wider community.

7. References



- Australian Bureau of Statistics (1999). *Disability, Ageing and Carers: Summary of Findings, Australia 1998*, Cat. No. 4430.0. Canberra: ABS.
- Australian Bureau of Statistics (2007a). *Attendance at Selected Cultural Venues and Events, Australia 2005-06*, Cat. No. 4114.0. Canberra: ABS.
- Australian Bureau of Statistics (2007b). *Voluntary Work, Australia, 2006*, Cat. No. 4441.0. Canberra: ABS.
- Australian Bureau of Statistics (2008). *Arts and Culture in Australia: A Statistical Overview, 2nd Ed.*, Cat. No. 4172.0. Canberra: ABS.
- Australian Sports Commission (2000). *Volunteer Management: A Guide to Good Practice*, Australian Government Sports Commission.
- AXA (2008). *Retirement Scope 2008: Results for Australia with International Comparisons, Wave 4*.
- Ballantyne, R., Packer, J. & Hughes, K. (2006). 'Exploring visitors' motives, expectations and experiences in Brisbane Botanic Gardens', *The Nature of Success: Success for Nature*, Brisbane: University of Queensland.
- Browne, C. A. (1992). 'The role of nature for the promotion of well-being in the elderly', in D. Relf (ed.) *Role of Horticulture in Human Well-being and Social Development: A National Symposium*, Arlington, Virginia: Timber Press, pp. 75-79.
- Clark, J. (2009). *An Exploratory Examination into the Wellbeing and Successful Ageing of Volunteers at Australian Botanic Gardens*, unpublished Honours thesis. Adelaide: School of Management, University of South Australia.
- Connell, J. & Mayer, D. (2004). 'Modelling the visitor experience in the gardens of Great Britain', *Current Issues in Tourism*, Vol. 7, No.3, pp. 183-216.
- Crilley, G. (2009). 'Visitor service quality attributes at Australian Botanic Gardens: Their use in predicting behavioural intentions', *Annals of Leisure Research*, Vol. 11, No. 1&2, pp. 20-40.
- Crilley, G. & Moskwa, E. (2009). *Perceptions of Service Quality at 8 Australian and New Zealand Botanic Gardens, 2008*, technical report for BGANZ. Adelaide: University of South Australia.
- Cowgill, D. (1974). 'Ageing and modernisation: A revision of the theory', in I.F. Gubrium (ed.) *Late Life Communities and Environmental Policies*. Illinois: Charles Thomas.
- Cumming, E. & Henry, W. (1961). *Growing Old: The Process of Disengagement*. New York: Basic Books.

- Dann, S. & Warburton, J. (2006). 'Volunteering by seniors: Exploring the barriers and incentives to volunteering in later life', *Proceedings of Inaugural Research Symposium on Volunteering*, 7-8 March, Melbourne, pp. 115-129.
- De Grazia, D. (1962). *Of Time, Work, and Leisure*. Garden City, NY: Anchor Books.
- Desjarlais, R. Eisenberg, L., Good, B. & Kleinman, A. (1995). *World Mental Health: Problems and Priorities in Low-income Countries*. New York: Oxford University Press.
- Dolnicar, S. & Randle, M. (2004). 'What moves which volunteers to donate their time? An investigation of psychographic heterogeneity among volunteers in Australia', paper presented at Australia and New Zealand Marketing Academy (ANZMAC) Conference CD Proceedings. Wellington, New Zealand.
- Driver, B.L. & Bruns, D.H. (1999). 'Concepts and uses of the benefits approach to leisure', in E.L. Jackson & T.L. Burton (eds.) *Leisure Studies: Prospects for the Twenty-First Century*. State College, PA: Venture, pp. 349-370.
- Dunnett, N. & Qasim, M. (2000). 'Perceived benefits to human well-being of urban gardens', *HortTechnology*, Vol. 10, No. 1, pp. 40-45.
- Dupuis, S. L. & Alzheimer, M. (2008). 'Leisure and ageing well', *World Leisure*, No. 2, pp. 91-106.
- Earle, L. (1992). *Social Network Needs Among Older People*. Adelaide: Recreation for Older Adults S.A. Inc. & the University of South Australia.
- Earle, L. & Howat, G. (1986). 'Leisure Dilemma in Australia: Rationale for a New Approach', *ACHPER National Journal*, September 1986.
- Gill, Z. (2006). *Older People and Volunteering*. Adelaide: Office for Volunteers.
- Harvey, J.W. (1990). 'Benefit segmentation for fundraisers', *Journal of the Academy of Marketing Science*, Vol. 18, pp. 77-86.
- Havinghurst, R.J. (1968). 'Personality and patterns of aging', *The Gerontologist*, Vol. 8, pp. 20-23.
- Hurka, H. (1994). 'Conservation genetics and the role of botanical gardens', in V. Loeschcke, J. Tomiuk & S.K. Jain (eds.) *Conservation Genetics*. Switzerland: Birkhauser Verlag Basel, pp. 371-380.
- Iso-Ahola, S.E. (1989). 'Motivations for leisure', in E. Jackson & T. Burton (eds) *Understanding Leisure and Recreation: Mapping the Past Charting the Future*. State College, PA, Venture Publishing, pp. 247-280.
- Judge, T. A., Erez, A., Bono, J.E., & Thoresen, C. J. (2003). 'The Core Self-Evaluations Scale: Development of a measure', *Personnel Psychology*, Vol. 56, pp. 303-331.
- Kaplan, S. (1995). 'The restorative benefits of nature: toward an integrative framework', *Journal of Environmental Psychology*, Vol. 15, pp. 169-182.
- Karademas, E. (2007). 'Positive and negative aspects of well-being: Common and specific predictors', *Personality and Individual Differences*, Vol. 43, pp. 227-287.

- Katcher, A. & Beck, A. (1987). 'Health and caring for living things', *Anthrozoos*, Vol. 1, pp. 175-183.
- Lewis, C. A. (1996). *Green Nature/Human Nature: the meaning of plants in our lives*. Urbana, Chicago: University of Illinois Press.
- Maller, C., Townsend, M., Pryor, A., Brown, P. & St. Leger, L. (2005). 'Healthy nature healthy people: "contact with nature" as an upstream health promotion intervention for populations', *Health Promotion International*, Vol. 21, No. 1, pp. 45-54.
- Maller, C., Townsend, M., St Leger, L., Henderson-Wilson, C., Pryor, A., Prosser, L. & Moore, M. (2002). *Healthy parks healthy people: the benefits of contact with nature in a park context*. Social and mental health priority areas, Vol. 1, Faculty of Health & Behavioural Sciences, Deakin University, Melbourne.
- National Seniors Australia (2008) *AdvantAGE Australia: Maximising the potential of an ageing population*, NSPAC, August 2008.
- National Seniors Australia (2009) *Still putting in: Measuring the economic and social contributions of older Australians*, NSPAC, May 2009.
- O'Brien, L. (2004). 'Feeling good in the woods', *Green Places*, July/August, pp. 22-24.
- Onyx, J. & Warburton, J. (2003). 'Volunteering and health among older people: a review', *Australasian Journal of Aging*, Vol. 22, No. 2, pp. 65-69.
- Pretty, G., Chipuer, H. & Bramston, P. (2003). 'Sense of place amongst adolescents and adults in two rural Australian towns: The discriminating features of place attachment, sense of community and place dependence in relation to place identity', *Journal of Environmental Psychology*, Vol. 23, No. 3, pp. 273-287.
- Productivity Commission (2005) *Economic Implications of an Ageing Australia*, Australian Nursing Federation, March 2005.
- Ranzijn, R., Harford, J. & Andrews, G. (2002). 'Ageing and the economy: Costs and benefits', *Australasian Journal on Ageing*, Vol. 21, No. 3, pp. 145-151.
- Reed, P.B. & Selbee, L.K. (2000). 'Distinguishing characteristics of active volunteers in Canada', *Nonprofit and Voluntary Sector Quarterly*, Vol. 29, pp. 571-592.
- Rohde, C.L.E. & Kendle, A.D. (1994). *Report to English Nature – Human Well-being, Natural Landscapes and Wildlife in Urban Areas: A Review*, Department of Horticulture and Landscape and the Research Institute for the Care of the Elderly. Bath: University of Reading.
- Rohde, C.L.E. & Kendle, A.D. (1997). 'Nature for people', in A.D. Kendle & S. Forbes (eds.) *Urban Nature Conservation – Landscape Management in the Urban Countryside*. London: E & F.N. Spon, pp. 319-335.
- Roberts, K. (1988). *Contemporary Society & the Growth of Leisure*. London: Longman.
- Veal, A.J. & Lynch, R. (2001). *Australian Leisure*. 2nd edn. Frenchs Forest, NSW: Longman.

Wearing, B.M. & McArthur, M. (1988). 'The family that plays together stays together: or does it?', *Australian Journal of Sex, Marriage and the Family*, Vol. 9, No. 2, pp. 150-158.

Wilson, E.O. (1984). *Biophilia*. Cambridge: Harvard University Press.

Wilson, L., Spoehr, J. & McLean, R. (2005). 'Volunteering in not-for-profit organisations and the accumulation of social capital in South Australia', *Australian Journal of Volunteering*, Vol. 10, No. 1, pp. 32-41.

Xiao, H. & Smith, S.L.J. (2006). 'The making of tourism research: Insights from a social sciences journal', *Annals of Tourism Research*, Vol. 33, No. 2, pp. 490-507.

Appendix 1

Focus Group Question Guide

Focus Group Question Guide:

1. No one needs to be identified, records are confidential
2. Everyone's ideas are of equal value
3. Consensus on the meaning of results to the questions are desired but not essential
4. The core of the focus group is 5 key questions; you write answers to them that others can read to consider as they complete their own responses
5. One written idea, or response per car is needed – multiple cards exist

Question 1: In large font – to be read at 3m

In 3 words or less: What is your main volunteer role at these gardens?

If need be, refer to the past 12 months or less – not multiple roles over longer periods.

In smaller font – give a brief example or story that explains this role.

Question 2: In large font – to be read at 3m

In 5 words or less: How has your volunteering helped these gardens in the past 12 months?

If need be, for the past 12 months or less – not multiple roles over longer periods.

In smaller font – give a brief example or story that explains these benefits your volunteering provides to the gardens.

Question 3: In large font – to be read at 3m

Has your volunteering helped any other person/persons/groups/or organisation outside of the gardens in the past 12 months?

If need be, for the past 12 months or less – not multiple roles over longer periods

In smaller font, if you wrote Yes or Unsure – give a brief example or story that explains these benefits your volunteering provides to the person/s or group.

Question 4: In large font – to be read at 3m

In 3 words or less: What are the personal, day-to-day benefits you get from volunteering at these gardens?

In smaller font – give a brief example or story that explains these regular benefits you get from being a volunteer at the gardens.

Question 5: In large font – to be read at 3m

In a word or two: What are the other benefits you have gained from volunteering that have not been posted yet?

These need to be from the past 12 months or less.

In smaller font – give a brief example or story that explains each of these benefits you gained from volunteering.

Appendix 2

Interview Schedule

Interview Schedule:

Thank you so much for participating in our research exploring the benefits that seniors, botanic gardens, and the wider community gain through volunteer engagement. We have 8 short questions that should take no longer than 30 minutes to complete.

Your role within the Gardens

1. Can I confirm your professional position at the Botanic Gardens?
2. a) What is your involvement with volunteers?
b) What portion of your time is spent working with volunteers in an average month?

Volunteers' role within the Gardens

3. What are the key services that volunteers provide to your Gardens?
4. Is there a volunteer engagement policy in place? If so, please describe the essentials briefly.

Experiences with volunteers

5. Please share a short story about your interactions with the volunteers:
 - a) A time when volunteers have contributed in a very positive or helpful manner.
 - b) A situation where there may have been a problem arising.

Benefits gained from volunteering

6. What **do you think** are the **main benefits** volunteers gain from engaging with the Gardens?
7. What **do you think** are the **main benefits** the Gardens receive from having volunteers?
8. What **do you think** are the **main benefits** to the wider community?

Thanks again. I really appreciate the time you have taken for this interview. I look forward to relating this information to the rest of the research and appreciate your time and thoughts to help us investigate the benefits gained through the relationship between botanic gardens, staff and senior volunteers.

Appendix 3

List of Participating Botanic Gardens

List of Participating Botanic Gardens

Australian Inland Botanic Gardens (Mildura)
Australian National Botanic Gardens (Canberra)
Botanic Gardens of Adelaide
Booderee Botanic Gardens (Jervis Bay)
Brisbane Botanic Gardens Mount Coot-tha
Geelong Botanic Gardens
Gold Coast Regional Botanic Gardens
Kings Park and Botanic Garden (Perth)
Mackay Regional Botanic Gardens
Maroochy Regional Bushland Botanic Garden (Sunshine Coast)
North Coast Regional Botanic Garden (Coffs Harbour)
Orange Botanic Gardens
Royal Tasmanian Botanical Gardens (Hobart)
Warrnambool Botanic Gardens
White Hills Botanic Gardens (Bendigo)
Wollongong Botanic Gardens

Appendix 4

CT&LM Research Team

CT&LM Research Team

Dr Emily Moskwa

Emily Moskwa is a Senior Researcher working for the Centre of Tourism and Leisure Management. She has conducted research in a range of areas including ecotourism management, environmental interpretation at botanic gardens, and customer service quality at leisure sites including museums, botanic gardens and aquatic centres.

Email: Emily.Moskwa@unisa.edu.au

Dr Gary Crilley

Dr Crilley is a Senior Lecturer in the School of Management at the University of South Australia. Gary has published widely and presented at a range of conferences in the areas of service quality, management performance and in applications of visitor studies research (CERM Performance Indicators) to a range of leisure services and facilities including botanic gardens, museums and zoos.

Email: Gary.Crilley@unisa.edu.au

Jessica Clark

Jessica Clark completed a Bachelor of Sport and Recreation Management and is now undertaking her Honours year with the School of Management at the University of South Australia. Her project explores the different well-being benefits for volunteers aged 60 years and older and volunteers under the age of 60 years at Australian Botanic Gardens. She is also employed part time as a Research Assistant with the Centre of Tourism and Leisure Management.

Email: Jessica.Clark@unisa.edu.au