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Pathways to Health through Australian Woodlands and Forests: ‘Signposts’ from Recent Research and Practice

Mardie Townsend

Senior Lecturer, School of Health and Social Development, Deakin University, Burwood, Australia

Abstract

Health is inherently ‘ecological’ and the natural environment plays a crucial role in human health and well-being. Yet we do not necessarily design, manage or market such areas in ways that acknowledge this link. This paper draws on recent research by a Deakin University team exploring the links between use of and involvement in the maintenance of forests/woodlands, and health and well-being outcomes. Qualitative and quantitative methods have been used to collect data from forest/woodland users and from volunteers contributing to management and maintenance of such areas, concerning their perceptions of the impacts of the experience on their health and well-being. In two of the projects, samples of ‘users’ and ‘volunteers’ were compared with samples of ‘non-users’ and ‘non-volunteers’. Several of the studies included the use of scales of self-rated health, social cohesion, and frequency of use of medical services. The studies have identified a range of perceived physical, mental and social health benefits resulting from use of and/or engagement with forests/woodlands. Study findings have implications for design, management and marketing of such areas, since they identify factors influencing use of and engagement with such areas, and have the potential to promote more widespread recognition of the value of such areas and more commitment to them by individuals, communities and governments. The challenge for us is to build on this research base to more clearly signpost the mutually beneficial links between forest and woodland ecosystems and human health and well-being, creating new and better pathways to a healthy future.

Introduction

A recent paper from the Australian Bureau of Statistics\(^1\) states:

From birth to death, life enmeshes us within a dynamic culture consisting of the nat-

\(^{1}\)221 Burwood Highway, Burwood, Vic. 3125 Australia. E-mail: mardie.townsend@deakin.edu.au
ural environment ..., the human made environment ..., social arrangements ..., and human consciousness ... Well-being depends on all the factors that interact within this culture and can be seen as a state of health or sufficiency in all aspects of life.

This quote emphasizes what we have, intuitively, known for a long time — that health is inherently ‘ecological’ and that the natural environment, including forests and woodlands, plays a crucial role in human health and well-being. Yet we do not necessarily design, manage or market such areas in ways that acknowledge this link. Nor do our public health policies and practices reflect this connection.

Humans are dependent on the biosphere for sustenance, health and well-being, and no matter what wonders we as humans can produce as part of our material culture, if we don’t meet the biologically determined health requirements of the biosphere and of human bodies, we cannot live. We only need to look back to the Boxing Day 2004 tsunami to recognize just how much the natural environment impacts on human health and well-being.

The Biophilia Hypothesis, developed by Harvard biologist E.O. Wilson in 1984, suggests that the historical advantage to humans flowing from a knowledge of and respect for nature (especially plants and animals) is part of our evolutionary heritage. Wilson and others believe that modern city-dwelling humans still possess this innate tendency to associate with nature, but that the process of human development over the past 2 centuries in particular, has separated us from nature with detrimental outcomes (both for nature and for humans). “We live in an environment so different to that from which we evolved that natural selection has not had time to revise human bodies for coping with many aspects of modern life.” This detriment is experienced by some as a spiritual famine. It has been suggested by some theorists that “alcohol, food, and drug addictions are taken up as futile attempts to fill the spiritual void that has arisen from a loss of contact with nature.”

The inherent need of humans for contact with nature was recognized by the early city planners. For example, Frederick Law Olmsted, a famous 19th century American landscape architect, believed in the restorative quality of green nature that operates “by an unconscious process to produce relaxing and ‘unbending’ of faculties made tense by the strain, noise and artificial surroundings of urban life.” If you have the good fortune (as I did last year) to visit the city of Atlanta, Georgia and to drive down Ponce De Leon Avenue in the Druid Hills area (the design of which was undertaken by Olmsted), you will see evidence of this understanding. But somewhere along the way, we seem to have lost our understanding of the connection between nature and human health.

In recent times, when people in the field of public health have considered ‘environment’, very often it has tended to be in terms of how environments which are degraded or polluted impact detrimentally on health. Typically, the profession known as ‘environmental health’ has been equated with the local Council officer who goes around checking on the cleanliness of food outlets, eradicating vermin such as rats, ensuring that sewerage and water supply systems are functioning appropriately, and the like.
Other concerns about environmental impacts on health have surrounded specific events or disasters (natural or human-made) such as: the leakage of methyl isocyanate from a chemical plant at Bhopal in India in 1984; the mercury pollution of Minamata Bay in Japan between 1953 and 1964; and (in the Asia-Pacific region lately) the effects of pollution associated with destruction of water and sewerage systems in tsunami-affected countries.

More recently, public health experts have begun to recognize another way in which environment affects health – threats to ecological sustainability. Issues such as "ozone depletion, global warming ... and biodiversity depletion are bringing serious and increasing risks to sustainability of the planet’s life-support systems and so to human health and well-being."

Overall, however, we have tended to see forests and woodlands largely as resources to be exploited for economic gain, and to see health in terms of a 'medical model'. The potential for capitalizing on the mutually beneficial links between human health and well-being and ecosystems such as forests and woodlands has been (until recently) largely ignored.

**Australia as a ‘case study’**

Australia is a prime (but certainly not the only) example of this failure to understand and act upon the links between the natural environment and human health and well-being. Both in environmental management terms, and in terms of human health and well-being, our record over recent decades has been dubious.

The recent Living Planet Report 2004 indicates that on a per capita basis, Australia ranks 4th in the world in terms of its ecological footprint – outstripped only by the United Arab Emirates, the United States of America and Kuwait. Important in the context of this conference is Australia's poor record in relation to land clearing. A report prepared for the Australian Conservation Foundation by Dr. Peter Christoff notes that the area of land cleared each year in Australia is exceeded only by the area cleared in Brazil, Indonesia, the Democratic Republic of Congo and Bolivia. According to Christoff, this permanent clearing of native vegetation poses the single greatest threat to the nation's terrestrial biodiversity.

In human health terms, while Australians generally enjoy good health and can expect to live longer than people from all but a handful of countries, this good health is not evenly distributed throughout the population, and some groups (notably Indigenous Australians) suffer significantly poorer health than the population as a whole. Moreover, the incidence of some specific lifestyle-related health conditions has been increasing over recent years. For example, there has been a 250% increase in the incidence of obesity from 1980 to 2000; a rise in the proportion of the adult population experiencing moderate or higher levels of psychological distress (from 26% in 1997 to 36% in 2001); and a four-fold increase in the onset of Type 2 diabetes over the past 20 years, including its emergence in children as young as 10 years of age.
Underpinning these health issues are a number of recent trends affecting population distribution, employment patterns, household structures and civic engagement.

Apart from city-states such as Singapore, Australia is one of the most highly urbanized societies in the world. In 1911, 43% of the population was classified as ‘rural’. By 1976 this had declined to 14%, and by 2001 had declined to 13%10. Perhaps more importantly, recent approaches to urban planning have resulted in increasing urban density. Australian culture, built as it has been around the ‘Great Australian Dream’ of owning a quarter acre block in the suburbs, is facing unprecedented challenges. Whereas in many parts of the world (for example, densely populated cities in Europe) the culture is built around shared use of public open spaces, Australians have been used to having access to their own private open space in the form of a large ‘back yard’.

Recent changes in employment patterns in Australia have created stress in a number of ways. Women's increased involvement in the paid workforce has led to stress for many as they try to balance the competing demands of paid work and family life9. Declining job security has resulted in increased stress for workers, with recent data indicating that people are likely to change career five times during their working life. ‘Casualization’ of the workforce10 has resulted in many workers being unable to plan for their everyday lives, since there is no ‘everyday’ pattern. Moreover, polarisation has occurred within the workforce, with increasing numbers of workers being required to work more hours each week than they want, while others work fewer hours than they want.

Between 30 and 40% of marriages in Australia now end in divorce, and this figure does not take account of the breakdown of de facto relationships, which form an increasing proportion of family households. Research indicates that children whose birth parents separate are at increased risk of adverse educational, health and behavioural outcomes11.

Perhaps even more crucially, in a nation with a landmass similar to the United States of America, but a population of just 20 million, research undertaken by the Australian Institute of Family Studies12 indicates that key elements of social capital – civic engagement through volunteerism, and social trust – have declined in Australia. Such a decline poses a serious threat to Australia’s capacity to sustain crucial environmental and social services, and thereby threatens the ongoing well-being of the population. Furthermore, in light of evidence which shows that people who are socially isolated are 6.59 times less likely to survive a stroke, 3.22 times more likely to commit suicide, and 1.59 times less likely to survive coronary heart disease13, any decline in social capital may exacerbate existing health problems.

Taken together, these facts about environmental management, human health and well-being, and social trends appear as a warning sign. They flag the need for a change in direction – the need for a new pathway to be followed.

In 2001, one of the key environmental management organizations in Australia (Parks Victoria) launched its new slogan – ‘Healthy Parks, Healthy People’. Underpinning this move was the recognition that, while people generally “support the no-
tion of land being set aside for parks...for most of the population their importance is only top of mind when the integrity of a well known park is threatened" (http://www.parkweb.vic.gov.au/). The challenge for Parks Victoria was to promote support for parks by fostering recognition that “spending active recreation time in a well-cared for park environment leads to greater health and fitness of both individuals and society” (http://www.parkweb.vic.gov.au/).

A team of researchers from Deakin University in Melbourne was commissioned by Parks Victoria to undertake an initial study of existing data on the relationship between nature (including parks) and human health. The results of that study were published as the ‘Healthy Parks, Healthy People’ literature review, which can be accessed via the Parks Victoria website (http://www.parkweb.vic.gov.au/resources/mhp.php/pv1.pdf).

Much more recently, the Victorian Health Promotion Foundation (VicHealth) has begun exploring links between human and ecosystem health and their significance for the future of health promotion, and has convened a roundtable discussion in Melbourne in late June 2005.

The Deakin University ‘NiCHE’ research team (which I lead) has undertaken a number of research projects exploring the links between contact with nature and human health and well-being. This paper draws on the findings of four of those projects which focus on forests or woodlands, as well as on other Australian research. In presenting the findings of this research, I will specifically address the foci of four of the five COST Action Working Groups.

‘Signposts’ from recent research and practice in Australia

The research program being undertaken by the Deakin University ‘NiCHE’ team includes a wide range of projects, a number of which focus on or relate to forest or woodland settings.

Project 1: Friends of Damper Creek Reserve Inc.

Friends of Damper Creek Inc. is a voluntary organization located within the City of Monash in Melbourne’s eastern suburbs. The Group was established approximately 11 years ago for the purpose of promoting enhancement of the vegetation in the Damper Creek Reserve (a small linear park in Mount Waverley within the City of Monash) and protecting the habitat for wildlife. Damper Creek Reserve covers an area of approximately 11 hectares, and includes natural bushland, a walking track, a playground, and an ‘off-leash’ area for dogs. The Group has approximately 75 financial members, half of whom are ‘active’ members (in terms of coming to monthly meetings and/or working bees). Activities undertaken by the Group include planting, weeding and maintenance, and community education (for example, through the erection of signs giving visitors information about plants and wildlife, and through the involvement of Year 9 Information Technology students from Mount Waverley Secondary School in developing a website for the Group). In addition, the Group partic-
ipates in and promotes more broadly-based community activities such as Greening Australia’s Spring Planting Festival, Clean Up Australia Day, Active Australia Day, and offers tours of the Reserve (http://home.vicnet.net.au/~damper/1.html).

In late 2002, a small pilot project was undertaken with members of the Friends of Damper Creek Inc. (a group of volunteers involved in the management and maintenance of Damper Creek Reserve). The project involved a review of written information about the Friends of Damper Creek Inc., as well as face-to-face interviews with members of the group to identify the motivations of group members for joining Friends of Damper Creek Inc. and the perceptions of group members concerning the benefits (both direct and indirect) they gain through membership of the group.

**Project 2: Truganina Explosives Reserve Preservation Society (TERPS)**

Truganina Explosives Reserve Preservation Society (TERPS) is a voluntary organization located within the City of Hobsons Bay, some 10 kilometres west of central Melbourne. The City of Hobsons Bay covers an area of approximately 66 square kilometres, and open space accounts for 24% of the land area of Hobsons Bay – a relatively high proportion for a metropolitan municipality. Hobsons Bay has over 20 kilometres of bay frontage, and contains extensive areas of coastal reserves and conservation areas, including rare intertidal and bird habitats of state, national and international significance. Truganina Explosives Reserve is a 17 hectare area of land at the mouth of Laverton Creek in Altona. From 1901 to 1962 the site was used for the handling and shipping of explosives. The Reserve’s significance – it is recognized as having significance from a range of perspectives, including archaeological, historical, cultural and environmental - is enhanced by its role as part of a continuous stretch of parkland which is being created from Point Cook to Point Gellibrand along the inner west coast of Port Phillip Bay (the Williamstown-Altona Coastal Parklands). In May 2000, following a long campaign by the Council and a group of local residents (the Truganina Explosives Reserve Preservation Society) to save the site from commercial sale for residential development, the State Government handed the local council responsibility for transforming the Reserve into a park. Local community involvement in the Reserve has continued, with local residents actively involved in the planning, development and maintenance of the new park.

Using the findings of the Damper Creek study as its basis, a study of the TERPS group was undertaken in the first half of 2004. The project had four key objectives:

To identify the range of motivations for joining Truganina Explosives Reserve Preservation Society;

To document members’ perceptions of the benefits they gain either directly or indirectly from membership of the group (including health and well-being benefits);

To measure the social capital/social connectedness of group members;

To collect from members basic information about their self-rated health and their level of health service usage.
Project 3: The ‘Trust for Nature’ Project

Trust for Nature (TFN) is a community-based conservation organization that focuses on the protection of private land of high conservation value. The Trust works throughout Victoria and currently owns 56 properties, covering an area of 35,898 hectares. The majority of these properties are located in rural areas and are managed by a local Committee of Management and/or a Friends group. The Trust works through locally based Regional Coordinators to establish community partnerships for the management of the properties.

This study sought to explore the extent of the health and social capital benefits arising from involvement in the community management of six Trust for Nature properties, located in a range of different regions within the state. Utilizing both qualitative and quantitative methods, information was collected from the members concerning their motivations for joining the group, the social connectedness of members, perceptions of the benefits they gain from membership of the group, including health and well-being benefits, and basic information about their self-rated health status and their level of health service usage. The study also compared the health, well-being and social capital status of members with that of local community members who are not involved in conservation groups. There were a total of 102 participants in the study: 51 members of TFN groups and 51 controls that were matched to the TFN members by approximate age and gender. A face-to-face interview was conducted with all the participants, wherein they responded to questions relating to their health and well-being, the extent of their community involvement, and the degree to which they feel connected to their local community. A final component of the questionnaire required all participants to respond to an adapted version of Buckner’s Neighbourhood/Community Cohesion Scale.

Project 4: City of Knox project

The City of Knox is a metropolitan municipality situated in the outer eastern suburbs of Melbourne. The recently developed Open Space Plan for the City of Knox alludes to the potential health and well-being benefits of the City’s open space areas, saying: “Open space areas are among the most important community places for socializing, family activities, sports, informal exercise and nature appreciation.” Nevertheless, no data had been collected on the health and well-being benefits of the City’s open space. In response to this gap in information, the City of Knox commissioned the Deakin ‘NiCHE’ team to undertake a research project including three key components: collection of data from users of selected open space area/s within the City of Knox; collection of data from non-users of the open space area/s; and the development of a set of indicators which can be monitored by the Council over time. The open space areas selected for study were: the Tim Neville Arboretum; Peregrine Reserve; and Liberty Reserve.

Data collection was undertaken between June and November 2004 and entailed: 150 face-to-face surveys of users of selected areas of open space within the City
of Knox;

150 face-to-face surveys of visitors to selected shopping centres within the City of Knox who identified themselves as ‘non-users’ of open space areas within Knox;

3 focus groups – one with a sample of users and non-users; one with young people aged 12-17; and one with people with disabilities.

In addition to the research data emerging from the Deakin ‘NiCHE’ projects, evidence from practice also indicates that exposure to forest and woodland environments may have positive health and well-being outcomes.

**Project 5: The Women’s Wilderness Quest (The Outdoor Experience program of Jesuit Social Services)**

The Outdoor Experience (TOE) program of Jesuit Social Services provides bush adventure therapy experiences for young people struggling with difficult life circumstances. Funded through the Drug Treatment Service (Department of Human Services, Victoria, Australia) TOE conducts programs for young people aged 15-24, in partnership with youth and community agencies. Within the intervention experience, development of ‘healthy’ dependencies, including on self, others, nature and adventure are seen to replace unhelpful dependencies typical of those misusing drugs and/or alcohol. It is under these conditions that contact with nature is seen to provide a powerful influence on ‘relationship-restoration’ for participants’. TOE programs consider ‘contact with nature’ a key characteristic of the intervention experience for participants, with ‘wilderness’ or ‘bush’ seen not only as the therapeutic medium, but also as the primary therapeutic tool.

The Women’s Wilderness Quest program, conducted in the Spring of 2003, was tailored for young women experiencing difficulties associated with drugs and/or alcohol misuse, including those undertaking Methadone or Buprenorphine pharmacotherapy treatments. In close collaboration with referring workers and participants’ doctors, staff selected a group of 7 young women aged 17-24 who, although highly chaotic and experiencing multiple serious life difficulties, showed high levels of ‘readiness for change’. The 12-day journey involved a remote trek along the wilderness coast of New South Wales, Australia. In collaboration with staff of Jesuit Social Services, members of the Deakin ‘NiCHE’ team have analysed the outcomes of the program to assess the impacts on participants’ health and well-being.

**Working Group 1: Physical and mental health and well-being**

What does Australian research and practice have to say about the ways in which forests and trees contribute to physical and mental health and well-being? All of the studies we have undertaken indicate that the contact with nature people gain through their engagement with the forests/woodlands is beneficial both to physical and mental health and well-being.

For example, both the Damper Creek study and the Hobsons Bay study identified physical health benefits related particularly to:
the opportunities provided through membership of the Friends Group for physical activity/exercise, contributing to cardio-vascular benefits and assisting with management of weight;

the opportunity to breathe ‘fresh air’ – the parks were seen as unpolluted environments with associated respiratory health benefits.

Both studies also identified mental health benefits. In the Damper Creek study, they were described in these ways:

The spiritual well-being of members was seen as benefiting from the sharing of fun with other members – as one person put it, “a good laugh lifts the spirits”. Another commented: “You become part of what is around you; you see people enjoying themselves and you benefit from that vicariously”.

The mental relaxation derived from the serenity of the bushland environment, including the sounds of birds and water, was another important mental health benefit. As one person commented: “Being in nature is mentally beneficial, calming”. Another person noted that participation in the Group “provides a break in the fast pace of life” and “provides peace”.

A third mental health benefit identified through the study was the fact that membership of the Group provided a source of support or help if any member had a problem relating to the park, and this reduced the level of stress that might otherwise be felt.

Similar findings emerged from the TERPS study in relation to both physical and mental health benefits.

One person commented that TERPS improved their health “because I enjoy what I am doing, and I enjoy doing it with the people I do it with...if I wasn’t involved in anything I certainly wouldn’t be happy”.

Another observed: “Just working with nature in general has to be good for your health. I always feel good about it”.

In an attempt to verify the claims being made about health benefits, in the follow-up study we asked respondents to provide data on the average number of visits they make to a general medical practitioner (GP) in a year. This was then compared to data from the Australian Institute of Health and Welfare on general practice (GP) service usage. We found that TERPS members make fewer visits to a GP in a year than do Australians overall (in the range of 1 to 4 visits per year by TERPS members, compared with a population mean of 4.9 visits in 2002-2003).

In terms of the mechanisms or processes by which these physical and mental health benefits are gained, social, psychological, behavioural and physical processes were identified.

For example, a key social process highlighted by both studies was the creation of an increased sense of community or belonging. Almost unanimously, members highlighted the benefits they had gained from membership of the Group in terms of new friendships, opportunities for fun, and an increased sense of belonging to the local community. One respondent noted that this sense of community and belonging resulted in a greater sense of security within the neighbourhood. Another noted that
there wasn’t much need for ‘Neighbourhood Watch’ in her street, as since everyone knows one another through the Group, they all keep an eye out for each other’s properties anyway.

A related social process was the widening of people’s social circles. In an era when children are constantly warned about ‘stranger danger’ and parents are afraid to allow their children to leave their home environment unsupervised, the social world of children shrinks. A number of respondents commented on benefits experienced by their children as a result of parents’ membership of the Group. Several people commented on the benefits of the widening of their children’s (indeed their families’) social circle, while one person specifically highlighted the increase in confidence in her children as a result of interaction with other people in the community.

Psychological processes identified related to development of identity and self-esteem, and to acquisition of knowledge. In both studies comment was made about members gaining a sense of satisfaction from work done in the Group. Perhaps it was reflective of the nature of modern society that provides limited opportunities for people to see the outcomes of their work that a high proportion of respondents noted their sense of satisfaction at seeing what they had achieved through the Group. The points of satisfaction included very ‘concrete’ outcomes such as being aware of the contribution made to environmental restoration, evidenced by the return of wildlife and the increase in species diversity, and seeing the area ‘improved’ aesthetically and in terms of accessibility (improvements which were recognized as having flow-on effects on property values). As well, there were more ‘emotional’ benefits, expressed in terms of the “warm feelings” gained as a result of contributing to the community and the environment, and as enjoyment of the “scents of the wildflowers and wattles”.

Both in terms of increased environmental, botanical and zoological knowledge and increased knowledge/understanding of the workings of local government, membership of the Group was seen as providing learning opportunities for its members and for the local community. Several respondents commented on the knowledge they gained from guest speakers at monthly meetings. This increased knowledge and the familiarity with the Reserve and its ecosystem, which then enabled Group members to introduce other people to the Reserve, providing a sense of satisfaction.

Behavioural processes related particularly to physical activity as an influence on health. The opportunities afforded to members of the Group for physical activity through working bees and the like were highlighted by most of the respondents as an important benefit contributing to better health. Many respondents noted that membership of the Group promoted physical activity. One respondent commented that membership of the Group “forced” members to exercise, and that this was beneficial in terms of weight control. Another noted that having a pleasant and well-maintained environment in the Reserve encouraged people (including Group members) to use it for running, walking or exercising their dog.
Physical processes were evident, related to the improved or better maintained environment. Many of the respondents highlighted the direct environmental benefits gained through the Group, in terms of cleaner air and the return of native flora and fauna, as well as the indirect benefits for themselves and for their neighbours in having such a pleasant area to utilize for recreation. The Group was seen as a strong interest/advocacy group – a “collective voice which demonstrates to Council what ratepayers want”.

It might be argued that all of these processes are independent of the existence of forests and trees. But in the subsequent Trust for Nature study, we used a control group to attempt to identify if the benefits related just to being part of a group or if they related specifically to being part of a group operating in the natural environment. The findings of that study showed a statistically significant difference between the members of the Trust for Nature groups and the controls, in terms of TFIN members claiming both better self-rated health and fewer GP visits.

**Working Group 3: Therapeutic aspects including rehabilitation and outdoor education**

The healing power and therapeutic aspects of forests, trees and related green spaces is evident particularly in Project 5 – The Women’s Wilderness Quest. Interviews conducted at the end of the journey provided participants with the opportunity to reflect on their experience, gain feedback from staff, highlight newfound strengths, list future goals, and plan strategies for a safe landing back in ‘normal life’. Participants appeared surprised by the strength and persistence they had found in themselves, and all appeared to view themselves more positively than prior to the journey. By this point, along with the group environment and physical challenges, ‘contact with nature’ was recognized by most participants to be an integral part of the experience, with obvious health and well-being benefits for all involved. As well as displaying the appearance of having gained improvements in physical health, all participants displayed signs of improved sense of well-being. Perhaps due to the intensity of the journey, participants also appeared to have experienced a transformational learning experience, evident in language and stories reflecting what may be described as newfound personal identities.

The following table (Table 1) sets out the health and well-being outcomes for participants in the Women’s Wilderness Quest. The protective rating refers to the percentage of program participants who displayed significant improvements in health and well-being, including those factors protective of health.

Another current project in which the Deakin ‘NiCHE’ team is involved is the ‘Feel Blue, Touch Green’ project involving the engagement of people suffering from depression, anxiety and/or social isolation in volunteer activities with an established Friends group. Although the final results of that research are not available at the time of going to print, the indications are that it is beneficial as a therapeutic intervention.
Table 1. Health and Wellbeing Outcomes for Women's’ Wilderness Quest Participants

<table>
<thead>
<tr>
<th>Health and Wellbeing Outcomes</th>
<th>Protective Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contextual Issues</strong></td>
<td></td>
</tr>
<tr>
<td>Two were able to remove themselves from inappropriate living arrangements and moved into supported accommodation</td>
<td>Identified improvements in living circumstances and family relationships</td>
</tr>
<tr>
<td>One carried a shell home for their family who they had not spoken to for 5 years</td>
<td></td>
</tr>
<tr>
<td><strong>Physical Health</strong></td>
<td>100%</td>
</tr>
<tr>
<td>Five had managed their personal physical health issues throughout the many challenges of the wilderness journey, including heavy backpacks, demanding terrain, long days, and extreme weather conditions, and came back feeling, speaking of, and looking healthy</td>
<td>Identified improvements in self-management of physical illness health issues</td>
</tr>
<tr>
<td><strong>Drug/Alcohol Misuse</strong></td>
<td>100%</td>
</tr>
<tr>
<td>All five who completed the entire program were able to decrease their drug use and/or stabilize their pharmacotherapy treatment</td>
<td>Identified improvements in drug/alcohol use</td>
</tr>
<tr>
<td>One chose to commit to a long-term residential rehabilitation program</td>
<td></td>
</tr>
<tr>
<td>Two have progressed into a reduction in their pharmacotherapy program</td>
<td></td>
</tr>
<tr>
<td><strong>Mental Health</strong></td>
<td>100%</td>
</tr>
<tr>
<td>Six (including the young woman who pulled out after the pre-trip program) learnt skills in self-managing their mental illnesses such as managing anxiety attacks and dissociative states</td>
<td>Identified improvements in self-managing symptoms of mental illness health and mental disorders</td>
</tr>
<tr>
<td>Four developed cognitive behavioural therapeutic techniques such as positive self-talk and relaxation methods</td>
<td></td>
</tr>
<tr>
<td>Five had completed the six weeks without verbalizing or acting upon ideas of self harm or suicide</td>
<td></td>
</tr>
<tr>
<td>Three were able to attain appropriate diagnosis and treatment for mental health concerns</td>
<td></td>
</tr>
<tr>
<td>Two chose to commit to a medium term plan for counselling</td>
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*continued*
Table 1. Health and Wellbeing Outcomes for Women’s’ Wilderness Quest Participants’

(continued)

<table>
<thead>
<tr>
<th>Social Connection</th>
<th>100%</th>
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<tbody>
<tr>
<td>Six had developed social skills during the program which they found to be transferable to other social settings and interpersonal relationships outside of the program, and spoke of greater confidence (reflected in the ability to look people in the eyes when talking with them, or being able to phone a service and request assistance, for two examples) Five developed social and emotional competencies and life skills such as problem solving and conflict resolution.</td>
<td>Identified improvements in social skills and capacity for social connection</td>
</tr>
<tr>
<td>Six have since been in contact with staff, with three having chosen to become Gateway participants, predominantly for reasons of social interaction with other young people, counselling, referral, and support towards educational goals (Gateway is an initiative of Jesuit Social Services assisting at risk young people towards economic participation in the community by tailoring supported pathways in a range of interest areas, including arts, music, creative industries, outdoor recreation, hospitality and accredited training).</td>
<td></td>
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<table>
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<tr>
<th>Economic Participation</th>
<th>50%</th>
</tr>
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<tbody>
<tr>
<td>Three planned to undertake study/training in an area they had discovered or developed interest in during the course of the program</td>
<td>Identified development in economic participations aims</td>
</tr>
</tbody>
</table>

*Spring 2003

Working Group 4: Evaluation in terms of best practice and economic contribution

The outline of the work of Working Group 4 states that “we need to know with certainty if the costs and benefits in using the forest as a basis for rehabilitation are favourable to the use of institutionalised procedures”.

Estimates suggest that by the year 2020, mental health disorders will account for 15% of the total global burden of disease. The costs to the Australian economy in terms of lost productivity from depression alone equates to $3.3 billion each year. A total of 5.9 million person days per month out of role are attributed to anxiety disorders, affective disorders and substance abuse disorders. If we add to that the direct health care costs associated with mental health disorders – 7% of the total health budget (approximately $3 billion annually), it becomes clear that mental health dis-
orders are a very costly burden. Such figures are conservative, with another source noting:

the treatment and rehabilitation of individuals affected by brain disorders already accounts for well over 30% of the total health care budget in developed countries. In Australia, this amounts to over $4 billion in health system costs. Without new, cost-effective strategies to prevent, reduce or contain the chronic and debilitating consequences of brain related disorders, Australia risks both a blowout in health and aged care costs and indirect welfare and social security payments as well as a decreased revenue base over the next 40 years.

Both the Women’s Wilderness Quest project (discussed above), and preliminary work we are undertaking with the Royal Talbot Rehabilitation Centre in Melbourne in the area of nature-based therapies for patients with acquired brain injury, indicate that there may be significant benefits in using forest and woodland environments as a basis for rehabilitation of a wide range of target groups.

But rehabilitation doesn’t just apply to people with mental health problems and acquired brain injuries – it is relevant also to people who experience injury or chronic physical illnesses. In the Hobsons Bay study, one member, who suffers from a disease that affects her immune system and who has frequently undergone surgery and other debilitating treatments, noted that TERPS has become a central part of her life. She highlighted the ways in which membership of TERPS improved her well-being and enabled her to cope better with her relatively poor health. She commented: “and I think that is why I love doing all this because it takes me away from all these other issues. ... Sometimes I’ve been out madly planting because I know I’m going in the next morning for surgery ... and I don’t even think about the surgery ... I’m doing something I want to do ... it gives me something to focus on”.

**Working Group 5: Physical activity, well-being, and prevention of illness**

Working Group 5 focuses on “identifying ... mechanisms linking natural settings to human health and well-being by way of physical activity”. However, just as the focus of Working Group 4 on rehabilitation has potential economic as well as health consequences, so too does the work of this Group.

Physical inactivity accounts for 7% of the total burden of disease in Australia, and data from the Commonwealth Department of Health and Aged Care and the Australian Sports Commission indicates that the direct health care costs of physical inactivity in Australia amount to $377 million per annum. This figure does not include indirect costs such as loss of productivity.

Australian research indicates that aesthetics play a role in encouraging participation in physical activity in the form of walking, and that the planting of trees by local Councils “may support more active lifestyles”. This appears to be supported by data from the City of Knox study of park users and non-users, which showed that park users were more likely than non-users to participate in moderate to intense physical activity at least once per week.

The effect of natural settings on those participating in physical activity is another
issue of relevance to this Working Group. No doubt Professor Jules pretty will address this topic in more detail in his keynote address. But, briefly, a very small student project I supervised in 2004 involving a comparison of a sample of secondary school students’ perceptions of the level of effort involved in set physical activity tasks indicated that those perceptions varied according to the environment in which the activity tasks were undertaken. Based on pulse rates measured before and after the activity, students exercising outdoors actually worked harder than when they exercised indoors, but perceived themselves as having put in the same level of effort in both settings.

Taken together with the qualitative data from the Deakin ‘NiCHE’ group projects focusing on Friends groups, in which many respondents indicated that the physical environment, the physical activity and the positive physical (and mental) health outcomes are interrelated, these findings indicate an important role for forests and woodlands in promoting physical activity. As one respondent put it, “you go for a trot out in the bush and come back all revitalized”.

Conclusions

A wealth of literature and all of the studies we have undertaken indicate that contact with nature (whether through forests, woodlands or other mechanisms) is beneficial for human health and well-being. People become more physically active and more socially engaged, both of which are key determinants of health. But while these findings, together with those of other researchers such as Professor Jules Pretty and Professor Howard Frumkin, offer a signpost to new directions in public health and environmental policy, it is a signpost not seen or recognized by many key decision-makers. Consequently, the shared pathway to health and sustainability remains largely unused.

The EU has clearly set off down this pathway, with the establishment of COST Action E39. Other individuals such as Jules, Howie and me, and (more latterly, institutions such as VicHealth) are out there doing what we in Australia would call ‘bush bashing’ — hacking out a pathway through the forest. But it’s tough going, and the tools we have available to us (funding for research, for example) are limited.

This conference offers an opportunity for worldwide collaboration across the continents and across the disciplines. Let us work together to put up larger signposts and clear broader pathways to promote human health and well-being and ecological sustainability.

If we did, it would be (as one TERPS volunteer said), both for the environment and for people, “better than a dose of medicine!”

Literature cited


Centre for Psychiatric Nursing Research and Practice (undated). Submission: Senate Select Committee on Mental Health. CPNRP, Carlton.


Zimmet, P. 2005. Occasional address at the Deakin University Faculty of Health and Behavioural Sciences Graduation Ceremony, April, Melbourne Convention Centre, Melbourne.

References


University Press, Baltimore.


17 Zimmet, P. 2005. Occasional address at the Deakin University Faculty of Health and Behavioural Sciences Graduation Ceremony, April, Melbourne Convention Centre, Melbourne.


23 Baum, F. 1999. The role of social capital in health promotion: Australian perspec-
32 Centre for Psychiatric Nursing Research and Practice (undated). Submission: Senate Select Committee on Mental Health. CPNRP, Carlton.