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Gross Natural Happiness: Can we have both psychological and ecological well-being?

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Abstract

Addressing the positive links between nature and human well-being, this chapter poses two main questions, and seeks answers in a review of the research across various disciplines as well as in the author's 35 years of experience of using nature in psychotherapy. First, can nature enhance our well-being? In answer, the chapter explores the benefits of nature on our physical, psychological, social and spiritual well-being. Second, can we have both personal and ecological well-being? Though the two often appear in conflict, and are influenced by factors such as religion and culture, nature contact enhances happiness, and happiness enhances ecological responsibility.

Introduction

Let me begin by congratulating His Majesty the fourth King of Bhutan, His Majesty the fifth King of Bhutan and the new democratic government of Bhutan on their efforts to preserve the unique biodiversity of this very special part of the world. Bhutan's approach to conservation is not only a bold and advanced move but it is also one that recognises the close relationship between human happiness and our environment. And it is that relationship that I want to explore in this presentation.

Already we are aware that the loss of ecological well-being can lead to the loss of human happiness. In neighbouring Nepal, there are, unfortunately, examples of where deforestation has resulted in landslides that have wiped out many villages, taken

innumerable lives and caused a high degree of suffering. At a more global level, it is hard not to be aware of how climate change – the product of many factors including deforestation and the consumption of fossil fuels – is causing glaciers to retreat, food chains to break down, ocean levels to rise, and human suffering to increase – along with that of other living beings on this planet.

The western world has, for a long time, been aware of these problems and has approached them in terms of what David Suzuki referred to as “a matter of survival.” In pointing out the relationship between nature and happiness I believe that Bhutan has highlighted something a lot more subtle but, nonetheless, crucially important. That is: Long before the loss of nature becomes a matter of survival it will have an impact on our happiness and psychological well-being. Already many researchers and authors have claimed that the more detached people become from nature, as a result of increasing urbanisation, the more their health suffers both physically and mentally (Nesse and Williams 1996; Nesse 2005).

In this presentation I will pose two main questions: (a) Can nature enhance our well-being? And (b) Can we have both personal and ecological well-being at the same time?

Many people have hypothesised over recent decades that the distancing of the human species from nature through high urbanisation, indoor entertainment, and climate controlled homes, offices and cars, has led to a detachment of our historic and evolutionary contact with nature. Confirmation comes in studies showing that modern urban dwellers spend an average of 93% of their time indoors (Woodcock & Custovic, 1998). This in turn, it is claimed, has had a detrimental effect on our physical health, personal well-being, interpersonal relationships and relationship with our environment. And what does that mean for our levels of happiness?

Can nature enhance our well-being?

In answering this question, I will address some aspects of the theory, research and clinical data in the areas of physical, psychological, social and spiritual well-being. I will also incorporate some of the things I have learnt about using nature-based approaches to clinical psychology over the last 35 years.

In preface, let me point out that when I talk about nature I am primarily talking about positive, non-threatening interactions with nature. There are aspects of nature that, at times, are not user-friendly to human beings. Simply living on this planet puts us at risk of being swamped in a flood or tsunami, buried in a volcanic eruption or a landslide, or struck by lightening. We are also part of a food chain: to survive we must destroy – and this is true for other life forms as well. Many living organisms from lions and crocodiles down to bacteria and viruses are as happy to consume us as we might be to consume domestic animals or plants. When I speak of the human-nature relationship I am referring to interactions with non-threatening environments that have positive, emotional and aesthetic value.

Physical well-being

Evolutionary medical researchers claim that the rapid alienation from the environment in our species development has meant that natural selection has not had time to revise our bodies for coping with factors such as fatty diets, fast travel in motor vehicles, drugs, artificial lighting and air-conditioning. In other words, the natural ecology in which we evolved is a markedly different world from the modern city lifestyle that most of us, particularly in the western world, now live. Chronic diseases such as artherosclerosis, diabetes, hypertension and the complications resulting from smoking, alcohol, and over eating are ones that were rarely found in hunter-gatherer societies (Nesse and Williams 1996; Nesse 2005). In addition, communicable diseases were also much rarer in our distant ancestors due to the fact that they lived in small nomadic groups and were less likely to pass on

diseases. The contrast we see in rising rates of tuberculosis in the western world and the spread of diseases, such as the bird flu, occur where urbanised living is common. In fact, surprising as it may seem, palaeontologists tell us that our historic ancestors generally lived a healthier and more disease-free life than us, their current urbanised counterparts (Bowden et al., 1990).

If detachment from nature has a negative consequence on our health then does interaction with nature improve our physical well-being and or help prevent disease? Fortunately, research over the past few decades has enabled us to affirm this in a positive way.

First, there is the long and established body of evidence showing that contact with nature promotes healthy patterns of behaviour and thus serves a preventative role against the onset of health problems (Burns, 2005). Simple exposure to nature scenes tends to promote more health-oriented behaviours, increases pleasurable emotional states and, thus, reduces the desire for people to engage in unhealthy behaviours such as smoking and drinking. From a large and comprehensive study that included some 1400 subjects who participated in a two week long wilderness course, Greenway collated extensive data. Using approximately 700 questionnaires, 700 interviews and 52 studies that tracked participant's experiences over several years, he found that the nature-based course enabled 90% of participants to break old, unhealthy habits such as the consumption of alcohol and tobacco (Greenway, 1995).

Second, contact with nature serves a health-enhancing, disease-preventing role in that our bodies generally function more healthily in nature settings. If you look at indices such as heart rate, skin conductance, blood pressure and muscle tension, there is good evidence that measurement of all such physical responses show movements in positive physiological directions when people are exposed to nature scenes (Ulrich et al., 1991; Ottosson and Grahn, 2005b).

Third, nature contact is not just preventative, it is also healing. And these benefits may be derived from something as simple as looking out the window onto a view of trees, parks or gardens. The husband and wife team of the Kaplans have spent a lifetime researching these effects and have documented restorative benefits, both physically and emotionally, from interacting with nature (Kaplan & Kaplan, 1989; Kaplan, 2001). Hospital patients who have a view of a natural landscape rather than looking out onto a brick wall or the interior of a ward are discharged quicker, consume less painkilling medication and are rated more cooperative by the hospital staff (Ulrich 1984). There have also been documented cases where contact with nature may contribute to the treatment of patients such as those suffering with cancer (Burns 1998).

Finally, as we shall see in the next section there may also be secondary gains from nature contact in terms of physical well-being. If nature can promote psychological well-being we have good evidence that people who are psychologically robust, happy, positive and optimistic generally have higher levels of physical well-being, suffer less severe illness, live longer and - if they do become ill - have better recovery rates (Danner et al., 2001; Fredrickson & Levenson, 1998; Maruta et al., 2000; Ostir et al., 2000; Vaillant, 2004).

Psychological wellbeing

In terms of psychological well-being nature scenes evoke many responses that are conducive to happiness and contentment (Fredrickson 2000). In general we as humans show a preference to views of natural landscapes over human constructed landscapes (van den Berg, Hartig & Staats, 2007). We prefer to live and work in natural landscapes, and we tend to select nature as the environment in which we wish to holiday. Assumedly, we have these preferences because nature offers many enhancements to our well-being. Generally, these psychological benefits can be found at the emotional, cognitive and behavioural levels, and these are the three I will address here.

Emotional benefits

A long established and growing body of research, particularly in the area of environmental psychology, has demonstrated the benefits of nature contact to our emotional well-being. Greenway, whose study of 1400 subjects I have previously cited, found that some 90% of respondents reported a variety of psychological enhancements from their two weeks in nature. These included an enhanced sense of aliveness, well-being and energy. In addition, 77% reported initiating a major life change - in either a personal relationship, employment, housing or lifestyle - after returning from the wilderness (Greenway, 1995).

Gaining such positive emotional benefits seems to work in several ways. First, nature can enhance states of positive affect. Why do people pay significantly higher prices to live in homes with views of nature such as over the ocean or a lake? Why do developers create lakes and canals around which to build luxury housing estates? Why do people travel to countries like Bhutan to see the beautiful mountains, diverse forests and wildlife? Why do we spend our holidays trekking through forests, snorkelling over tropical reefs or skiing down mountain slopes? In some ways this is self-evident. We enjoy it. We get sensory-stimulation, positive emotions and pleasure from being in contact with nature.

Second, nature contact can provide a buffer against emotional distress, thus serving a preventative role in the area of mental health. Generally the happier we are, the greater our range of positive emotional responses, the less likely we are to slip into clinically unhealthy states of sadness, anxiety or anger (Fredrickson, 2005; 2008).

Third, even if we do experience distressing emotions, there has been considerable work done on the role of nature in the restoration of emotional well-being ((Kaplan, 1995, 2001; Ottosson and Grahn, 2005a, 2008). To name just a few of these benefits, interacting with nature can help reduce levels of stress, and improve parasympathetic nervous system functioning. Nature

contact can enhance feelings of self-concept, self-esteem and self-confidence, and has been used facilitate to treatment of the mentally ill. Case studies have shown the benefits of nature in therapy for depression, anxiety and post trauma disorders (Burns, 1998, 2005, 2008). Fredrickson claims – and demonstrates – that positive emotions such as we experience in nature, have an “undoing” effect on negative emotions (2005, 2008). In other words, using nature to help create emotional well-being is a way of overcoming emotional suffering.

Cognitive benefits

Does contact with nature also affect mental performance and cognitive functioning? And, if so, how? It would be easy to assume that college students who sat studying in front of a window that viewed onto nature could be easily distracted from their studies. But the opposite seems to be the case. The attentional performance of college students at examination time, was significantly better for those with a nature view than those whose window looked out onto a human-constructed scene (Tennessen & Cimprich, 1995). In another study the researcher addressed the post-operative attentional deficits commonly displayed by women recuperating from surgery for breast cancer. The control group received the normal post-operative care while the treatment group received the same standard care plus nature-based activities. These included activities (such as tending plants or sitting in a park) that were undertaken 3 times a week for a period of 3 months. The group undertaking the nature-based activities showed significant improvement in concentration as measured on standard neuro-cognitive instruments.

Does this effect hold for problems of chronic concentration difficulties as well as in the short-term areas of study and post-operative recovery? The answer seems to be that it does. If you give two groups of children suffering Attentional Deficit Disorder (ADD) identical tasks to perform, one group doing them indoors and the other in natural, outdoor settings, it is the second group that shows progress in (a) focus of attention, (b) completion of

tasks, and (c) following of the instructions (Taylor, Kuo & Sullivan, 2001; Kuo & Faber Taylor, 2004). As such, it seems that nature has the potential to serve as a nonchemical, easily accessible and inexpensive treatment for ADD. The researchers propose that natural environments assist in the recovery from "attention fatigue", because they have a restorative effect on our ability to focus and attend.

Behavioural benefits

I have already mentioned how interacting with nature can increase more health-oriented behaviours and eliminate less healthy behaviours such as those related to smoking and alcohol. Such interactions can also enhance pro-social behaviours that are basic to our ability to relate with other people and lead a psychologically healthy and functional life.

When we think of nature, we often think of the mountains, forests, oceans and such physical features, but nature is also made up of other living, sentient beings in the form of animals, birds, reptiles, insects and humans. There is a growing research and therapeutic interest in how animals can help in the treatment of mental health problems as well with the enhancement of well-being. We are seeing dolphins used in the treatment of depression, horses in riding activities for disabled children, and pets for people in geriatric care, to name just a few. Wildlife tourism, given its proclaimed benefits for human well-being, has expanded to an economically valuable growth industry (Burns, G. L, 2004, 2006).

One of the benefits of human-animal interaction is the promotion of pro-social behaviour in children. If you want your children to grow up with empathy, compassion and good social skills, you will enhance the development of those behaviours by buying them a pet or ensuring they interact with animals. Empathy and pro-social behaviours are often considered the essential building blocks in the development of psychological and social well-being among children. Following an extensive literature review on this topic, Thompson and Gullone (2003) proposed that direct contact

with animals is an optimal method for promoting the necessary pro-social behaviours for a successful adult life. Essentially this means that children who learn good relationship behaviours with animals are likely to have better relationship skills with fellow humans.

Social well-being

What happens when researchers take the top ten percent of happy people and ask, "What are the key happiness factors in these 'very happy' people?" The single most important variable to come out of that enquiry is that the 'very happy' have good social relationships with other people (Deiner and Seligman, 2002). Emmons sees "The ability to engage in close intimate relationships based on trust and affection" as "the hallmark of psycho-social maturity and a key component in psychological growth" (2003, p. 111). Reis and Gable clearly assert, "Relationships are an important, and perhaps the most important, source of life satisfaction and emotional well-being" (2003, p.129). If relationships are so important to our happiness, the next questions become, 'Does nature have a role in the facilitation of positive social relationships? If so, what sort of influence does it have? And how can we make use of this in therapy, social activities and community planning?'

Kuo and Sullivan have undertaken a series of studies that have explored these very questions and found both a positive and a preventative role of vegetated environments for social relationships. In the positive role, they found that spending time in the treed public spaces served as a significant predictor of community bonds. Their subjects were residents of urban public housing developments. Those residents who preferred and frequented treed public spaces – as compared to those who spent more time in treeless areas – spoke more to other people, communicated better, were more likely to know their neighbours by name, and reported feeling a greater sense of community (Kuo, 2001; Taylor, Wiley, Kuo and Sullivan, 1998).

On the preventative side, they discovered something that all architects and urban planners should be aware of: a view of nature can negate negative social behaviours. Domestic violence - whether toward adult partners or children - was significantly lower when families had a window view of nature (Kuo and Sullivan, 2001).

Case studies are often considered the poor cousin in the domain of scientific data that aims to show bigger population trends and, in design, is more controlled. However, case studies can highlight possibilities. If something is possible for one person, then it may also be possible for another. This preface is to say that case study material has also shown nature to be of benefit in facilitating therapy for couples presenting with marital or relationship problems (Burns, 2001, in press). Couples often begin their relationships in natural settings, courting under a full moon, watching a sunset across the ocean, or taking a drive in the countryside. As relationships develop they are often caught up in the responsibilities of looking after the house, paying the mortgage, getting ahead at work, and tending to the children. Time spent in relationship-enhancing activities in nature tends to dwindle and the relationship begins to flounder. Helping couples reconnect with nature can help the relationship flourish once again (Burns, 1998, 2001, in press).

Spiritual well-being

Spirituality has long been a shunned topic in the field of science. It is hard to define, approaches knowledge from a different route, and has not been considered readily accessible by the investigative methods of hard science. At times, science and religion have not been the most amiable of companions, even conflicting strongly over their different approaches to understand life and its meaning.

Perhaps one of the most influential figures in bridging this gap is the Dalai Lama who has organised and participated in meetings around the world for scientists and religious practitioners to engage in mutual dialogue. In these he has actively invited (a)

scientists to investigate religion, and (b) religious practitioners to be open to science (Goleman & Thurman, 1991).

Some scientists are now acknowledging that there are “compelling” empirical and theoretical reasons to ensure spirituality is included in any thorough account of human well-being (Emmons, 1999; Piedmont, 1999). Some have applied rigorous disciplines like neuroscience to the investigation of what is happening in the brain during mindfulness and meditation practise, such as with monks (Davidson, 2005).

One of the things we are discovering is that spirituality rates as one of the high correlates of a life well-lived. This relationship between religious belief and human flourishing is born out in research across gender, age, religion and nationality (Myers, 2008). If you want to experience higher levels of subjective well-being, particularly in regards to greater positive emotions and higher satisfaction with both life and marriage, then having a strong sense of spirituality will be of direct assistance (Emmons, 2003; Emmons, Chueng, & Tehrani, 1998). In summing the research in this area, Burns and Street claim “numerous researchers have found that those of us with strong spiritual beliefs are happier and better protected against depression than those who have no particular sense of spirituality. Similarly it seems that people cope better with major adversity in their life and major physical illness if they have a sense of established spirituality (2003, p.197).”

If spirituality is an important factor in human happiness, where does nature fit into the picture? From the very origins of our species nature has shaped how we live and how we perceive the world in which we live. Nature has always been a source of awe, a source of survival, a source of pleasure, and a source of fear. Nature has given us the sense of being a small speck in the universe, and of there being something bigger, more powerful than us. As such our ancestors learned to respect it, appease it, make offerings to it, and deified it. Many cultures have looked on the sun and moon as deities, or seen features of the natural landscape as the abode of various deities. Mountains and

waterfalls, animals and trees have either become gods and spirits or the home of such beings. Across all cultures we see the defining of natural places as sacred sites attributed with qualities of power and healing, as we as a species have sought to understand the processes of nature and form a relationship with them.

Regardless of whether we follow our ancestors' beliefs or not, regardless of what deity we may believe in or not, regardless of what religion we attend or not, nature can contribute much to our sense of spiritual well-being. In nature people commonly describe a sense of awe when standing at the base of a powerful waterfall, gazing up at towering tree, or sitting quietly on a clear evening looking at a canopy of sparkling stars. In nature we may experience a feeling of connectedness with forces bigger and more powerful than ourselves. In nature we may encounter experiences of transformation (Burns, 1998). Contact with nature can add to inner reflection and contemplation (Fredrickson and Anderson, 1999). It can facilitate personal growth (Burns, 1998), build a sense of spiritual well-being (Heintzman, 2000), and contribute to feelings of wholeness or belonging (Williams and Harvey, 2001).

Given that nature can contribute such well-defined enrichments to our happiness and well-being, physically, psychologically, socially and spiritually, this leads us into the next question.

Can we have both personal and ecological well-being?

In a journal of Social Indicators Research article, Brown and Kasser raised an important question: Are psychological and ecological well-being compatible? (2005). Initially contemplating their question, it seemed to me that it had an apparent cultural bias. Western cultures have long been known for the promotion and the protection of the rights of the individual. Western psychology, since the time of it's founding father, Sigmund Freud, has focussed on the inner workings of the individual. In doing so, it has not only paid less attention to the relationships and systems in which that person exists but has also actively rejected the values of interacting with nature. In fact, Freud made his views on the

ecology very clear when he declared, "Nature is eternally remote. She destroys us – coldly, cruelly, and relentlessly" (cited in Roszak 1996, p.22). This has resulted in a succession of psychotherapeutic models with a mammoth conceptual schism between person and planet. They have been based in the common-place metaphor that locates the psyche 'within' and the real world 'outside.'

This western dichotomy of mind and nature contrasts markedly with predominant eastern views. In 1992, I was both honoured and privileged to be invited to participate in a symposium with His Holiness, the Dalai Lama of Tibet, on the topic of Mindsience: A dialogue between East and West. After the Dalai Lama had spoken about Tibetan Buddhist concepts of the mind, one of the other participants, a senior professor of neurosurgery who had spent his professional career studying and operating on the physiology of the brain, asked the Dalai Lama, "Where is the mind?" The Dalai Lama pointed to his head with both hands, as if he knew that was what his audience of Western scholars might expect. "I think it is somewhere...", he said, pausing for effect. Then with a mirthful laugh he swept both arms in a broad, encompassing circle around his body, adding "here." His gesture took in not only his brain and every cell of his body but extended beyond his fingertips to the surrounding environment. It swept in the audience, the lecture theatre, and the world outside while, at the same time, sweeping away the notion that the mind resides solely in the brain. His gesture suggested that mind was part of a wider integrated knowing, part of an interconnectedness of all things.

Another aspect of the western focus on individual happiness has arisen from a philosophical trend that probably reached its peak in the 1970's but continues to permeate our consciousness. This trend was epitomised in the title of Robert Ringer's book, *Looking Out for Number One*. It seemed to imply that one needed to put one's self first, regardless of other people or the environment. Advertisers have picked up on this self-focussed route to

happiness and cunningly associated individual happiness with materialism and consumerism (Burns and Street, 2003).

Part of the popular western attitude of happiness may also arise from the west's religious background in the Jewish/Christian tradition. This tradition sees life as a linear process: you were born, live, die and go on to heaven or hell. There are many sayings that life is not a dress rehearsal and that you only live once so you need to make the most of it. If I am only here for the length of this short lifespan it doesn't matter that I destroy the trees, kill off the wildlife, or contribute to global warming. If I am not coming back I don't need to be responsible for the mess that I might leave the planet in.

From the combination of these influences, many people see individual happiness as distinct from - and maybe even in opposition to - the well-being of the ecology. They have adopted an attitude that it doesn't matter how much petrol my car guzzles, how much fossil fuel I consume in living the lifestyle I want, or where the nuclear waste is dumped for the energy I need to power the appliances in my home - as long as I get what I want, I will be happy.

At first glance, the apparent cultural bias of the question about individual well-being versus ecological well-being does not seem so relevant in the east - for several reasons. First, Buddhism advocates the protection of the life of all sentient beings and thus implies that nature needs to be protected to this end. Second, Buddhism has a cyclic concept of life in its philosophy of reincarnation. If I am going to be coming back to this planet, in whatever form, then it is wise and prudent for me to look after it.

However, in further reflecting on this question of individual versus ecological well-being, I think it holds relevance for both east and west. Who in the world wouldn't want the possessions that make life that much more comfortable and enjoyable? Indeed, shouldn't we all have equal rights to the health benefits of

refrigerators, the convenience of cars, or access to computers and larger television screens?

In broad terms, individual happiness is often perceived in terms of getting my personal needs and wants met. Ecological well-being, on the other hand, is often presented in terms of sacrifice: I have to give up my wants or possessions for the good of the ecology. Interestingly, studies that have explored this perceived dichotomy have not necessarily found that it is upheld. In both adult and adolescent populations it appears that people indicating higher levels of subjective well-being also reported more ecologically responsible behaviour (Brown and Kasser 2005). There is also evidence that people who engage in activities of environmental conservation experience less depression and greater levels of subjective well-being (Burls & Caan, 2005; Townsend, 2006)

Mindfulness seems to be one of the variables here that helps bridge the gap. People who engaged in mindfulness practice simultaneously reported high levels of both subjective well-being and behaviours that were caring of the environment. Contrary then to the dualistic thinking that, on the one hand, says *To be happy I must consume* and, on the other hand, *To look after the environment I need to make sacrifices*, the current research is offering hope that there can be a mutually beneficial relationship between personal and planetary well-being. Helping people have a greater connection with nature is also likely to have them engaging in more ecologically friendly behaviours *and* experiencing a greater level of subjective well-being (Mayer & Frantz 2004).

Again, there is nothing new about the fact that we as humans are both happier and healthier as the result of interacting with nature. Two decades ago, the Kaplans concluded, 'People with access to nearby natural settings have been found to be healthier overall than other individuals. The longer-term, indirect impacts (of 'nearby nature') also include increased levels of satisfaction with one's home, one's job and with life in general' (Kaplan and Kaplan, 1989, p. 173).

To me it seems that if we want to derive those benefits from our relationship with nature, we need to consider it in the way we do any other relationship. It needs to be dynamic, interactive and positive. If another person gives to you in the way of positive comments, positive feelings or positive behaviours, you are more likely to give back in kind. If that person is receiving similar things from you then they in turn are willing to give more - and the relationship works on a positive, caring and mutually supportive basis. Similarly, if we allow ourselves to enjoy the positive benefits that we get from nature, and acknowledge those benefits in terms of our physical, psychological, social and spiritual well-being, we are likely to want to give back in a caring, supportive way toward nature. If we, in turn, give back to nature then that helps ensure a sustainable environment that will contribute back to our well-being. In this way we all benefit.

In conclusion, let me once more applaud Bhutan in its recognition of the relationship between nature and human happiness as well as for its actions to preserve such a beautifully biodiverse part of the world for the future happiness of each and everyone of us on this planet.

I can think of no better way to draw this discussion to an end than with the words of the Lord Buddha.

The forest is a peculiar organism of unlimited kindness and benevolence that makes no demands for its sustenance, and extends protection to all beings, offering shade even to the axe man who destroys it.

References

- van den Berg, A. E., Hartig, T., & Staats, H. (2007). Preference for nature in urbanized societies: Stress, restoration, and the pursuit of sustainability. *Journal of Social Studies*, 63, 79-96.
- Bowden, S., Dovers, S., & Shirlow, M. (1990). *Our Biosphere Under Threat: Ecological realities and Australia's opportunities*. Melbourne: Oxford University Press.

- Brown, K. W., & Kasser, T. (2005). Are psychological and ecological well-being compatible? The role of values, mindfulness and life style. *Social Indicators Research*, 74, 349-368.
- Burls, A., & Caan, W. (2005). Human health and nature conservation. *British Medical Journal*, 331, 1221-1222.
- Burns, G. L. (2004). The Host Community in Wildlife Tourism. In K. Higginbottom, (Ed.), *Wildlife Tourism: Impacts, management and Planning* (pp 125-144). Gold Coast, Australia: Common Ground Publishing.
- Burns, G. L. (2006). The Fascination of Fur and Feathers: managing human-animal interactions in wildlife tourism settings. *Australian Zoologist*, 33, 4, 446-457.
- Burns, G. W. (1998). *Nature-Guided Therapy: Brief integrative strategies for health and well-being*. Brunner/Mazel, Philadelphia.
- Burns, G. W. (2000). When watching a sunset can help a relationship dawn anew: Nature-Guided Therapy for couples and families. *Australian and New Zealand Journal of Family Therapy*, 21, 4, 184-190.
- Burns, G. W. (2005). Naturally happy, naturally healthy: The role of the natural environment in well-being. In F. A. Huppert, N. Baylis, & B. Keverne, (Eds.), *The science of well-being* (pp. 405-431). Oxford: Oxford University Press.
- BURNS, G. W. (2008). NATURE-GUIDED THERAPY: EXTENDING a SYSTEMIC APPROACH TO DEPRESSION. *FAMILY THERAPY MAGAZINE*. 7, 6, 34-37.
- Burns, G. W. (in press). The path of happiness: Integrating nature into therapy for couples and families. In L. Buzzell, & C. Chalquist, (Eds.), *Ecotherapy: Healing with Nature in Mind*. Sierra Club Books.
- Burns, G. W. & Street, H. (2003). *Standing Without Shoes: Creating happiness, relieving depression, enhancing life*. Sydney, Australia: Prentice Hall.
- Danner, D. D., Snowdon, D. A., & Freisen, W. V. (2001). Positive emotions in early life and longevity: Findings from the nun

- study. *Journal of Personality and Social Psychology*, 80, 5, 804-813.
- Davidson, R. J. (2005). Well-being and affective style: Neural substrates and biobehavioural correlates. In F. A. Huppert, N. Baylis, & B. Keverne, (Eds.), *The science of well-being* (pp. 107-139). Oxford: Oxford University Press.
- Diener, E., & Seligman, M. (2002). Very Happy People. *Psychological Science*, 13, 81-84.
- Emmons, R. A. (1999). *The psychology of ultimate concerns: Motivation and spirituality in personality*. New York: Guilford Press.
- Emmons, R. A. (2003). Personal goals, life meaning, and virtue: Wellsprings of a positive life. In C. L. M. Keyes, & J. Haidt, (Eds.), *Flourishing: Positive psychology and the life well-lived* (pp. 105-128). Washington, DC: American Psychological Association.
- Emmons, R. A., Chueng, C., & Tehrani, K. (1998). Assessing spirituality through personal goals: Implications for research on religion and subjective well-being. *Social Indicators Research*, 45, 391-422.
- Fredrickson, B. L. (2000, March 7). Cultivating positive emotions to optimize health and well-being. *Prevention and Treatment*, 3, Article 0001a, Retrieved November 20, 2000, from <http://journals.apa.org/prevention/volume3/pre0030001a.html>
- Fredrickson, B. L. (2005). The Broaden-and-Build Theory of Positive Emotions. In F. A. Huppert, N. Baylis, & B. Keverne, (Eds.), *The science of well-being* (pp. 217-238). Oxford: Oxford University Press.
- Fredrickson, B. L. (2008). Promoting positive affect. In M. Eid, & R. J. Larsen, (Eds.), *The science of subjective well-being* (pp. 449-468). New York: Guilford Press.
- Fredrickson, L. M. and Anderson, D. H. (1999). A qualitative exploration of the wilderness experience as a source of spiritual inspiration. *Journal of Environmental Psychology*, 19, 1, 21-39.

- Fredrickson, B. L. & Levenson, R. W. (1998). Positive emotions speed recovery from the cardiovascular sequelae of negative emotions. *Cognition and Emotion*, 12, 191-220.
- Goleman, D., & Thurman, R. A. F. (1991). (Eds.), *MindScience: An east-west dialogue*. Boston: Wisdom Publications.
- Greenway, R. (1995). The Wilderness Effect and Ecopsychology. In T. Roszak, M. E. Gomes, & A. D. Kanner, (Eds.), *Ecopsychology: Restoring the earth, healing the mind*. San Francisco: Sierra Book Club.
- Heintzman, P. (2000). Leisure and spiritual well-being relationships: A qualitative study. *Social Leisure*, 23, 1, 46-69.
- Kaplan, S. (2001). Meditation, restoration and the management of mental fatigue. *Environment and Behavior*, 33, 480-506.
- Kaplan, R., & Kaplan, S. (1989). *The Experience of Nature: A Psychological Perspective*. Cambridge: Cambridge University Press.
- Kuo, F. E. (2001). Coping with poverty: Impacts of environment and attention in the inner city. *Environment and Behavior*, 33, 5-34.
- Kuo, F. E., & Sullivan, W. C. (2001). Aggression and violence in the inner city: Effects of environment via mental fatigue. *Environmental Behavior*, 33, 4, 543-571.
- Kuo, F. E., & Faber Taylor, A. (2004). A potential natural treatment for ADHD: Evidence from a national study. *American Journal of Public Health*, 94, 1580-1586.
- Maruta, T., Colligan, R., Malinchoc, M., & Offord, K. (2000). Optimists vs. pessimists: Survival rate among medical patients over a 30-year period. *Mayo Clinic Proceedings*, 75, 140-143.
- Mayer, F. S., & Frantz, C. M. (2004). The connectedness to nature scale: A measure of individuals' feeling in community with nature. *Journal of Environmental Psychology*, 24, 4, 503-515.
- Myers, D. G. (2008). Religion and human flourishing. In M. Eid, & R. J. Larsen, (Eds.), *The science of subjective well-being* (pp.323-343). New York: Guilford Press
- Nesse, R. M. (2005). Natural selection and the elusiveness of happiness. In F. A. Huppert, N. Baylis, & B. Keverne, (Eds.),

- The science of well-being* (pp. 3-32). Oxford: Oxford University Press.
- Nesse, R. M., & Williams, G. C. (1996). *Evolution and healing: The new science of Darwinian medicine*. London: Phoenix.
- Ostir, G., Markides, K., Black, S., & Goodwin, J. (2000). Emotional well-being predicts subsequent functional independence and survival. *Journal of the American Geriatrics Society*, 48, 473-478.
- Ottosson, J., & Grahn, P. (2005a). A comparison of leisure time spent in a garden with leisure time spent indoors: On measures of restoration in residents in geriatric care. *Landscape Research*, 30, 23-55.
- Ottosson, J., & Grahn, P. (2005b). Measures of restoration in geriatric care residences: The influence of nature on elderly people's power of concentration, blood pressure and pulse rate. *Journal of Housing for the Elderly*, 19, 229-258.
- Ottosson, J., & Grahn, P. (2008). The role of natural settings in crisis rehabilitation: How does the level of crisis influence the response to experiences of nature with regard to measures of rehabilitation? *Landscape Research*, 33, 1, 51-70.
- Piedmont, R. (1999). Does spirituality represent the sixth factor of personality? Spiritual transcendence and the Five-Factor Model. *Journal of Personality*, 67, 985-1013.
- Reis, H. T., & Gable, S. L. (2003). Toward a positive psychology of relationships. In C. L. M. Keyes, & J. Haidt, (Eds.), *Flourishing: Positive psychology and the life well-lived* (pp. 129-159). Washington, DC: American Psychological Association.
- Roszak, T., (1996). The Nature of Sanity. *Psychology Today*, 29, 22-24.
- Taylor, A. F., Kuo, F. E., & Sullivan, W. C. (2001). Coping with ADD: The surprising connection to green play settings. *Environmental Behavior*, 33, 1, 54-77.
- Taylor, A. F., Wiley, A., Kuo, F. E., & Sullivan, W. C. (1998). Growing up in the inner city: Green spaces as places to grow. *Environmental Behavior*, 30, 1, 3-27.
- Tennessen, C. M., & Cimprich, B. (1995). Views to nature: Effects on attention. *Journal Environmental Psychology*, 15, 1, 77-85.

- Thompson, K. L., & Gullone, E. (2003). Promotion of empathy and prosocial behaviour in children through humane education. *Australian Psychologist*, 38, 3, 175-182.
- Townsend, M. (2006). Feel blue? Touch green! Participation in forest/ woodland management as a treatment for depression. *Urban Forestry & Urban Greening*, 5, 111-120.
- Ulrich, R. S. (1984). View Through a Window May Influence Recovery from Surgery. *Science*, 224, 420-421.
- Ulrich, R. S., Dimberg, U., & Driver, B. (1991). Psychophysiological Indicators. In B. Driver, P. Brown and G. Peterson, (Eds.), *Benefits of Leisure*. Venture Publishing: State College, PA.
- Vaillant, G. E. (2004). Positive Aging. In P. A. Linley, and S. Joseph, (Eds.), *Positive psychology in practice*. Hoboken, NJ: Wiley and Sons.
- Williams, K., & Harvey, D. (2001). Transcendent experience in forest environment. *Journal Environmental Psychology*, 21, 3, 249-260.
- Woodcock, A., & Custovic, A. (1998). ABC of allergies: Avoiding exposure to indoor allergens. *British Medical Journal*, 316, 1075-1078.