Green Care:
A Conceptual Framework

A Report of the Working Group on the Health Benefits of Green Care

COST 866, Green Care in Agriculture

Editors:
Joe Sempik
Rachel Hine
Deborah Wilcox

cost

Green Care:
A Conceptual Framework

A Report of the Working Group on the Health Benefits of Green Care

COST 866, Green Care in Agriculture

Editors: Joe Sempik, Rachel Hine and Deborah Wilcox

Acknowledgements:

The editors would like to thank Debi Maskell-Graham for her expert help and advice in the preparation of this document.

Sempik, J., Hine, R. and Wilcox, D. eds. (2010) *Green Care: A Conceptual Framework, A Report of the Working Group on the Health Benefits of Green Care, COST Action 866, Green Care in Agriculture,* Loughborough: Centre for Child and Family Research, Loughborough University.

Publisher: Loughborough University

Published: April 2010

ISBN: 978 1 907382 23 9

COST *– the acronym for European Cooperation in Science and Technology – is the oldest and widest European intergovernmental network for cooperation in research. Established by the Ministerial Conference in November 1971, COST is presently used by the scientific communities of 35 European countries to cooperate in common research projects supported by national funds.*

The funds provided by COST – less than 1% of the total value of the projects – support the COST cooperation networks (COST Actions) through which, with EUR 30 million per year, more than 30.000 European scientists are involved in research having a total value which exceeds EUR 2 billion per year. This is the financial worth of the European added value which COST achieves.

A "bottom up approach" (the initiative of launching a COST Action comes from the European scientists themselves), "à la carte participation" (only countries interested in the Action participate), "equality of access" (participation is open also to the scientific communities of countries not belonging to the European Union) and "flexible structure" (easy implementation and light management of the research initiatives) are the main characteristics of COST.

As precursor of advanced multidisciplinary research COST has a very important role for the realisation of the European Research Area (ERA) anticipating and complementing the activities of the Framework Programmes, constituting a "bridge" towards the scientific communities of emerging countries, increasing the mobility of researchers across Europe and fostering the establishment of "Networks of Excellence" in many key scientific domains such as: Biomedicine and Molecular Biosciences; Food and Agriculture; Forests, their Products and Services; Materials, Physical and Nanosciences; Chemistry and Molecular Sciences and Technologies; Earth System Science and Environmental Management; Information and Communication Technologies; Transport and Urban Development; Individuals, Societies, Cultures and Health. It covers basic and more applied research and also addresses issues of pre-normative nature or of societal importance.

Web: www.cost.esf.org

Authors

Bente Berget	Postdoctor, Department of Animal and Aquacultural Sciences, Norwegian University of Life Sciences, P.O. Box 5003, NO-1432 Ås, Norway.
Bjarne Braastad	Professor of Ethology, Department of Animal and Aquacultural Sciences, Norwegian University of Life Sciences, P.O. Box 5003, NO-1432 Ås, Norway.
Ambra Burls	Deputy Chair of the UK UNESCO Man and Biosphere Urban Forum and ecotherapy researcher and practitioner, UK.
Marjolein Elings	Scientist Agriculture, Care, Health, Plant Research International, Agrosystems Research, Wageningen University and Research Centre, P.O. Box 616, 6700 AP Wageningen, The Netherlands.
Yolandé Hadden	Community Development Worker, Thames Valley Axis Two Institute, UK.
Rex Haigh	Consultant Psychiatrist in Psychotherapy, National Personality Disorder Development Programme and Thames Valley Axis 2 Institute, UK.
Jan Hassink	Researcher Agriculture and Care, Plant Sciences Group, Wageningen University and Research Centre, P.O. Box 616, 6700 AA Wageningen, The Netherlands.
Dorit Haubenhofer	Scientist Agriculture, Care, Health, Plant Research International, Agrosystems Research, Wageningen University and Research Centre, P.O. Box 616, 6700 AP Wageningen, The Netherlands.

John Hegarty	Senior Lecturer in Psychology, Keele University, Keele, Staffordshire ST5 5BG UK.
Rachel Hine	Assistant Director, iCES – Interdisciplinary Centre for Environment and Society, University of Essex, Wivenhoe Park, Colchester CO4 3SQ UK.
Konrad Neuberger	Psychotherapist, Association for Horticulture and Therapy, (GGuT), Wuppertal, Germany.
Erja Rappe	Project Manager, Gardening and the Environment, Martaliitto ry, the Martha Institute, Helsinki, Finland.
Joe Sempik	Research Fellow, Centre for Child and Family Research, Loughborough University, Leicestershire LE11 3TU UK.
Marianne Thorsen Gonzalez	Master in Nursing Sciences (MNS), Clinical specialist in psychiatric nursing (RMN), Group Analyst and PhD student, Department of Plant and Environmental Sciences, Norwegian University of Life Sciences P.O. Box 5003, NO-1432 Ås, Norway.
Deborah Wilcox	Project Manager & NCFI National Coordinator, Harper Adams University College, Newport, Shropshire, TF10 8NB UK.

Contents

PAGE CHAPTERS

1 Why does ‘green care’ matter? Our value base and position statement

This document seeks to provide a conceptual framework for green care. In tackling such a task it is important that we, the authors, clearly state our view of the importance of nature to human health and its potential in a therapeutic context. We have therefore summarised our position as follows:

VALUE BASE

- Contact with nature is important to human beings.
- The importance of this is often overlooked in modern living conditions.
- People can find solace from being in natural places, being in contact with nature and from looking after plants and animals.
- In addition to this solace, contact with nature has positive effects on well-being, with physical, psychological and spiritual benefits.
- Existing or new therapeutic programmes could be improved by incorporating these ‘green’ elements.
- The planning, commissioning and delivery of all health services would be enhanced by consideration of potential ‘green’ factors.

POSITION STATEMENT

- “Green care” is a useful phrase summarising a wide range of both self-help and therapy programmes.
- Research to date has demonstrated correlations of well-being in green care settings.
- Research that would demonstrate *cause-and-effect relationships* between green care interventions and improvements in health and well-being has not yet been carried out.
- The present document and process is a way forward in attempting to understand the therapeutic potential of green care.

2 Introduction

2.1 This conceptual framework

The creation of a conceptual model and theoretical framework for 'green care' is one of the first 'milestones' for the working group on the health benefits of green care within COST Action 866 (*Green care in Agriculture*). This report brings together work from many researchers from across Europe in a published volume under the imprint of COST. It is the result of over two years of cooperation and deliberation. It puts green care into the wider context of social and psychological theory and enquiry and provides a number of different viewpoints from which to look at the field.

The need for a theoretical framework

Green care is an inclusive term for many 'complex interventions', such as care farming, animal-assisted therapy, therapeutic horticulture and others. What links this diverse set of interventions is their use of *nature* and the *natural* environment as a framework in which to create these approaches.

It is important to remember that green care is an intervention i.e. an *active* process that is intended to improve or promote health (physical and mental) and well-being not purely a passive experience of nature. In other words, the natural environment is not simply a backdrop for green care and whilst the health benefits of experiencing nature are increasingly being recognised, ***everything that is green is not 'green care'***.

Green care has many different dimensions and elements that address the varied needs of its diverse client group. For example, two clients receiving the same approach may benefit in different ways. There is a need, therefore, to describe the processes involved in order to define the intervention; to show how the different dimensions and processes are related; and to show how the different approaches within green care are interconnected and how they all relate to existing theories and frameworks. This will increase our understanding of green care as a broad area, and enable us to see it within the larger context of health and well-being.

A model of green care requires both specificity and generalisability. Although at first this may sound like a contradiction in terms, both of

these attributes are necessary for an effective model. It needs to be specific to green care so that it will be distinguishable from other, adjacent or overlapping fields or therapeutic approaches (that may have some similar benefits or involve similar processes). It must also be generalisable to the whole field, so that the model is relevant to all of green care and does not only explain or predict a small part of the processes or mechanisms inherent in the field. For example, a model that relates only to therapeutic horticulture may be useful, but it becomes limited if some of it cannot also be applied to care farms. There will inevitably be specific parts of interventions that require specific dimensions of a model (or possibly even a separate model) but there should be a core that is applicable to (and describes) green care in general.

A model of green care will:

- ***define the general paradigm of green care*** and will list those specific approaches and activities that fall under its umbrella. In doing so, it should also be capable of identifying those interventions or activities that fall outside of the definition of green care. As stated above, not all 'green' approaches are necessarily green care. Researchers within the field will at some stage need to make decisions (and to reach a general consensus) about what *should* be classed as green care and what should not.

- ***describe the benefits*** – there are likely to be specific benefits of green care. These may be related both to particular approaches and target groups. A model of green care will identify and categorise those benefits and relate them to the processes and mechanisms of green care.

- ***explore the mechanisms*** – these can be considered to be series of events that are specifically triggered by the intervention (or specific part of the intervention) and lead to another event, process or modification of a system or processes which is the outcome.

- ***link with existing theories, frameworks and models*** – mechanisms invariably invoke established theories (or other known mechanisms) as ways of grounding them in a greater body of knowledge and understanding and so contextualising them. Various interventions within green care (for example, therapeutic horticulture) have long used

two established theories as their foundations i.e. the Kaplan's *Attention Restoration Theory* (see Kaplan and Kaplan, 1989; Kaplan, 1995) and Roger Ulrich's work on recovery from stress (see Ulrich et al, 1991). These, together with the concept of Biophilia (Kellert and Wilson, 1993) are used to explain why the natural environment is such an important element. However, there are other, relevant theories that also need to be considered and included within a conceptual framework of green care. A model of green care must, therefore, engage with relevant current theories or concepts and not exist in isolation.

- ***link with other approaches or interventions*** and introduce theories and frameworks from those approaches that are useful and relevant to green care. For example, care farming and social and therapeutic horticulture can involve the creation of communities centred around a farm or garden. The dynamics of these communities can have much in common with those of Therapeutic Communities, which are used as an approach in the treatment of people with mental health problems, particularly those with personality disorders (see Campling, 2001).

- ***summarise*** the field in a structured way that makes it easier to visualise the whole collection of activities, processes and interactions that make up green care.

2.2 A short history of nature-based approaches for promoting health and well-being

Using nature to nurture good health is not a new idea. Prisons, hospitals, monasteries and churches have historically been associated with having different outdoor therapeutic spaces. Frumkin (2001) points out that *"hospitals have traditionally had gardens as an adjunct to recuperation and healing"*. During the Middle Ages many hospitals and monasteries looking after the sick traditionally incorporated arcaded courtyards to provide outside shelter for patients and created beautiful gardens in their surroundings (Bird, 2007; Nightingale, 1860, 1996; Gerlach-Spriggs et al, 1998).

The earliest recognisable 'care programmes' that used what may be called 'green care principles' were at Geel in Flanders in the 13th century. Here, 'mentally distressed pilgrims' came to worship at the holy shrine

of St Dympna and stayed in a 'therapeutic village' where they were sympathetically cared for by the residents (and pilgrims were regularly weighed to demonstrate progress!) Bloor (1988) has described this as the first example of a 'Therapeutic Community'.

Oliver Sacks eloquently describes the history in his Foreword to Eugene Roosens and Lieve Van de Walle's anthropological illustration of Geel's current state:

> *"In the seventh century, the daughter of an Irish king fled to Geel to avoid the incestuous embrace of her father, and he, in a murderous rage, had her beheaded. Well before the thirteenth century, she was worshipped as the patron saint of the mad, and her shrine soon attracted mentally ill people from all over Europe. Seven hundred years ago, the families of this little Flemish town opened their homes and their hearts to the mentally ill – and they have been doing so ever since."* (Roosens and Van de Walle, 2007, p. 9)

This was a rural agricultural setting, and the main work activity for everybody was to work on the land. A range of structures and procedures were in place for taking care of these individuals in the context of local families and wider village life. The tradition of caring in this way still continues at the original town of Geel, 60km north-east of Brussels in modern-day Belgium (see Roosens, 1979, 2008).

The literature contains a number of references to early observations of the mental benefits of agriculture. For example, Benjamin Rush, an American physician of the early nineteenth century, is often credited as being the 'father' of modern therapeutic horticulture through his apparent observations that working on the asylum farm was beneficial. The following passage appears in many modern texts:

> *"It has been remarked, that the maniacs of the male sex in all hospitals, who assist in cutting wood, making fires, and digging in a garden, and the females who are employed in washing, ironing, and scrubbing floors, often recover, while persons, whose rank exempts them from performing such services, languish away their lives within the walls of the hospital."* (Rush, 1812, p. 226)

In reality, this is a comment on the general usefulness of some form of occupation for the patients. There are few other references to outdoor activities in his book and most of his remedies for "madness" such as blood letting are old fashioned even for his day. More detailed and thorough observations are to be found in the records of the old Victorian asylums, most of which had their own farms and market gardens. Farm work was considered a useful way of keeping the patients out of mischief and of providing them with an interesting pastime. It also allowed them the opportunity for a variety of different sensory experiences that were considered to be therapeutic. The following is an extract from the Report of the Commissioners of the Scotch Board of Lunacy of 1881:

> *"It is impossible to dismiss the subject of asylum farms without some reference to the way in which they contribute to the mental health of the inmates by affording subjects of interest to many of them. Even among patients drawn from urban districts, there are few to whom the operations of rural life present no features of interest; while to those drawn from rural districts, the horses, the oxen, the sheep, and the crops are unfailing sources of attraction. The healthy mental action which we try to evoke in a somewhat artificial manner, by furnishing the walls of the rooms in which the patients live, with artistic decoration, is naturally supplied by the farm. For one patient who will be stirred to rational reflection or conversation by such a thing as a picture, twenty of the ordinary inmates of asylums will be so stirred in connection with the prospects of the crops, the points of a horse, the illness of a cow, the lifting of the potatoes, the growth of the trees, the state of the fences, or the sale of the pigs."* (Tuke, 1882, pp. 383-384)

Fresh air itself was (and still is) considered to be 'therapeutic'. For example, In her exploration of mental health and "nature work", i.e. gardening and tending allotments, Parr (2007) quotes from the annual report of the Nottingham Borough Asylum for 1881:

> *"We find that the patients derive more benefit from employment in the garden than anywhere else, and this is natural, because they have the advantage of fresh air as well as occupation."* (Nottingham Borough Asylum, 1881, p. 11, quoted by Parr, 2007, p. 542)

The treatment of tuberculosis during the 18th and 19th centuries also invoked the use of fresh air and sunlight as curative agents (Bird, 2007). Typical Victorian asylums included outside design features called 'Airing Courts' (walled areas which adjoined the house and were divided into sections for patient use), grounds for leisure, sports grounds, fields and sometimes as estate farm. An ethos of asylum regimes featured exercise and work out of doors and remained so until the mid 20th century (Bird, 2007).

In the same vein, hospitals for more general physical diseases were also designed with grounds for aiding patient convalescence. Gardening work was seen as a way of helping people who were recovering from physical injuries to strengthen and build up damaged bones and muscles. In his book, *The Rehabilitation of the Injured*, Colson (1944) describes different gardening activities that may be used as therapy and lists specific activities to develop movement in particular joints (pp. x-xvi).

As rehabilitative medicine and care developed, gardening was used to 'treat' not only the physically injured but also those with mental health problems and learning difficulties. It became one of the 'specific activities' of occupational therapy as the discipline developed in the 1950s and 60s and it is still used today. However, the activities used in occupational therapy have tended to vary according to the availability of facilities and changing attitudes and it is not known how many occupational therapists in the UK currently use gardening.

During the 1940s several *Therapeutic Communities* were established in rural, farm settings, where the benefits of nature were recognised as being integral to the therapeutic experience. Therapeutic communities (TCs) are group-based treatment programmes (i.e. providing group psychotherapy) which first came to existence in the UK during the Second World War and now exist in a variety of settings, such as the National Health Service, the educational and criminal justice systems and the voluntary sector (Association of Therapeutic Communities, 2009). The Therapeutic Community movement has grown and whilst not all TCs use natural settings, many still use farms or gardens as a focus to their work (see, for example, Hickey, 2008).

Another form of therapeutic communities often in rural settings are the Camphill Communities founded by Dr Karl König. Konig, inspired by Rudolf Steiner's philosophy of anthroposophy (see for example, Steiner,

1925[1]), wanted to make a difference to the lives of marginalised people and so established the first Camphill community for children with special needs in Camphill House near Aberdeen, Scotland in 1940 (Association of Camphill Communities in Great Britain, 2009). Since then, Camphill has grown into a world-wide network of more than 100 communities in over 20 countries where over 3,000 children and adults with learning disabilities, mental health problems and other special needs live and work together in a therapeutic community, many of which are in countryside settings.

During the 1950s and 60s in the UK hospital farms and gardens gradually closed. This came about because of changes in health policy, disquiet about hospitals operating large farms, disquiet, also, about the use of patients as unpaid labour in hospitals. Such a pattern of systematic closure was not uniformly repeated across Europe but nonetheless hospitals' reliance on farming and gardening generally waned for a while. However, interest in the therapeutic potential of the natural environment is once again growing as this conceptual framework shows. Perhaps one important turning point in promoting this growth was Ulrich's observation that patients recovering from cholecystectomy (gall bladder surgery) fared better if they had a view of trees from their hospital bed than if that view was of a brick wall (Ulrich 1984). This also showed that the power of nature in promoting health could be studied and measured.

The use of nature-based activities as a form of intervention for promoting health and well-being has not disappeared but a variety of approaches have evolved, which under the umbrella of green care, are the subject of this work. What is particularly interesting is that these approaches provide services for the same client groups as the old hospital and asylum farms and market gardens, namely those with mental health problems and learning difficulties. However, the client base has also widened to include almost all vulnerable and excluded groups.

2.3 Disconnection and reconnection from nature

An important aspect of a conceptual framework for green care is understanding what conditions must be met for people to benefit psychologically from belonging to a green care program. The idea that we may be connected to, or feel a sense of connectedness with, natural things occurs frequently in the academic and more popular literature on

[1] Much of Steiner's writings are available on the internet from the Rudolph Steiner Archive: www.rsarchive.org

sustainability and ecology (see for, example, Pretty, 2002), and could be key to the understanding of the therapeutic efficacy of green care. The converse state, of 'disconnectedness from nature' therefore may correlate with, or even cause, mental and physical ill-health.

2.3.1 Changes in connection to nature over time

Humans appear to have developed positive relationships with nature as they have co-evolved. Natural and amended ecosystems have provided sustenance and recent evidence indicates that they also improve quality of life. The value and importance of this relationship has in the past often been overlooked, yet it does appear that contact with nature does result in enhanced human health and well-being (Maller et al, 2002; Frumkin, 2003; Health Council of the Netherlands, 2004; Pretty et al, 2005a; Maas et al, 2006; Bird, 2007; Van den Berg et al, 2007).

However, society is becoming increasingly urbanised and throughout the 20th and 21st centuries the number of people living in an entirely urban setting has increased. More than half of the world's population currently live in urban areas (UNFPA, 2007) and this proportion is still set to increase (Pretty, 2007) and with ongoing urban and sub-urban sprawl, often access to nature and green spaces is becoming limited. As a result, many people are becoming 'disconnected' from nature, losing their familiarity with the countryside and the natural world. This disconnection from nature can impose new health costs by affecting psychological health and wellbeing and reducing the opportunity for recovery from mental stresses or physical tensions (Pretty et al, 2004).

In addition, according to Pretty (2002) many of us worldwide have become disconnected from the way in which land is farmed and food is produced, resulting in the loss of important parts of our culture that arose from agriculture and the countryside:

> *"In the pursuit of improved agricultural productivity .... We are losing the stories, memories and language about land and nature. These disconnections matter, for the way we think about nature ... fundamentally affects what we do in our agricultural and food systems."* (p. xiv)

2.3.2 Benefits of contact with nature

There is a growing body of evidence on the positive relationship between exposure to nature (incorporating a variety of outdoor settings, from the open countryside, fields and forests, to street trees, allotments and gardens) and an individual's health (Pretty et al, 2004, 2005a, 2005b, 2007; Peacock et al, 2007; Mind, 2007; Bird, 2007; Burls, 2007).

The key message emerging is that contact with nature improves psychological health by reducing pre-existing stress levels, enhancing mood, offering both a 'restorative environment' and a protective effect from future stresses (Kaplan and Kaplan, 1989; Kaplan, 1995, Hartig et al, 1991, 2003; Louv, 2005). Contact with nature also improves health through encouraging physical exercise, facilitating social contact and providing opportunities for personal development (Health Council of the Netherlands, 2004). Research has also shown that there is a direct link between the amount of accessible local green space and psychological health (Takano et al, 2002; De Vries et al, 2003; Grahn and Stigsdotter, 2003).

2.3.3 Connection and disconnection to nature

In his work introducing the concept of 'Biophilia', Wilson suggests that our desire for connectedness to nature is innate and as powerful as other instincts. He describes *"the innate tendency to focus on life and lifelike processes"* (Wilson, 1984, p.1). This implies that we have an instinctive need to make contact with nature which has driven our evolution as a species. Charles Lewis, a noted horticulturalist, alludes to a similar motivation within us when he writes about the meaning of plants in our lives:

> *"When we garden, grow plants or find tranquillity in park or forest, the ancient processes are at work within us. It is time to acknowledge them and explore their significance for our continued existence. They point the way to a new appreciation of ourselves as strands in the fabric of life woven throughout the world."* (Lewis, 1996, p. 152)

Connection to nature is considered to be an important predictor of ecological behaviour and subjective well-being. Mayer and Frantz (2004) write:

> *"The importance of feeling connected is an early theme in the writing of both ecologists [references are cited] and ecopsychologists [references are cited]. They have argued that this connection to nature is a key component of fostering ecological behavior. For example, the influential ecologist Leopold (1949) wrote years ago: 'We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect."* (p. 504)

Mayer and Frantz have also developed a 'Connectedness to Nature Scale' (CNS), which is a *"new measure of individuals' trait levels of feeling emotionally connected to the natural world"* (Mayer and Frantz, 2004, p. 460). In recent research (Hine et al, 2008), connectedness to nature has also been shown to be related to an increase in both awareness of environmental issues and in environmentally friendly behaviour.

Given that 'connectedness' to nature is both desirable and beneficial, then it follows that a disconnection from nature is likely to have negative effects both on the psychological health of individuals and on the way populations value and conserve our natural environment.

It also follows that many people who are ill or distressed would benefit from a reconnection to nature and this premise forms the basis of green care.

The key element in all the different forms of green care is to use nature to produce health, social or educational benefits to a wide range of vulnerable people.

2.3.4 Using nature-connectedness in therapy

There are some published examples of the "greening" of counselling and psychotherapy in which a natural element is introduced into a more traditional therapy relationship. Burns' (1998) approach to hypnosis makes extensive use of nature-based exercises. Linden and Grut (2002) describe psychotherapeutic work during allotment gardening with victims of torture. Berger's "nature-informed therapy" uses the relationship with nature as the key reference point for therapy (Berger and McLeod, 2006). Hegarty (2007) describes imaginal and in-vivo nature-based therapy.

Neuberger (2007), working with psychiatric patients, gives examples (pp.157-158) of specific horticultural activities that produce what he calls "correlating personal experiences". For example, soil preparation may induce the psychic experience of a new beginning, a fresh start. In each of these approaches to therapy, the aim is to encourage clients to connect with nature and the role of the therapist is to facilitate the client to make that connection and to perceive it as valuable therapeutically. There is a therapeutic triangle here: the therapist, the client and connection with the natural environment are part of the therapy process. In a later section in this volume, the importance of the quality of the relationship between people in green care settings will be examined further.

2.4 Defining the construct of care

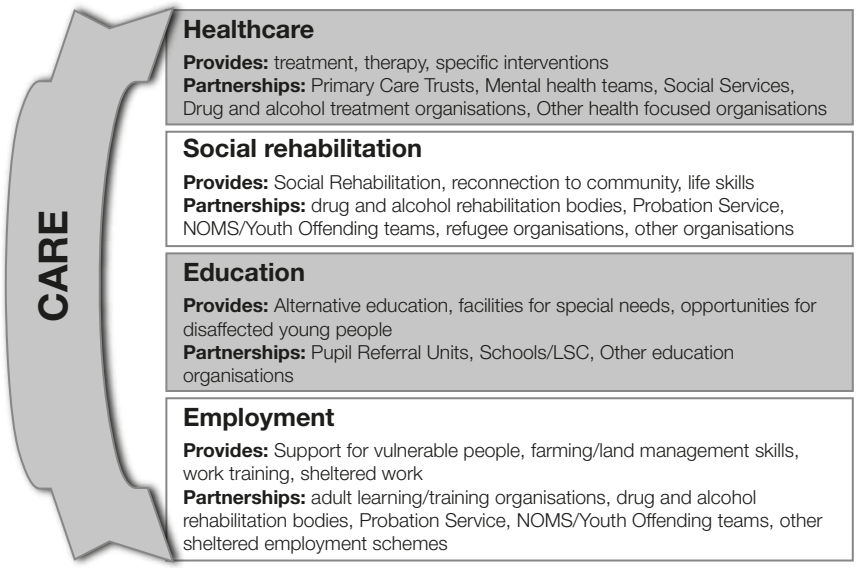
One of the distinctions that can generally be made between green care and other activities that people undertake within the natural environment (walking, rambling, canoeing, mountain biking and so on) is that green care is intended to provide a range of (sometimes specific) benefits for particular client groups. Other activities within nature may contribute to people's health and well-being in a general way but even if they are organised there may often be little or no emphasis on 'care' and therapeutic outcomes. Once such activities become focused on helping vulnerable people achieve specific outcomes they move into the realms of green care.

Green care in all its forms focuses on providing nature-based benefits for various groups of vulnerable or socially excluded people. There are, however, differences in the level of 'care' provided by different green care options. Some operate as structured therapy programmes (for example, horticultural therapy and animal assisted therapy) with clearly stated patient-orientated goals whilst others aim to deliver more wide-ranging benefits. However, these too are aimed at specific groups and individuals rather than at casual participants who may be unaware of the 'therapeutic' intent.

Ostensibly, the same medium or environment may be used for both the specific therapies and for the promotion of broader aims. Animal assisted therapy, for example, uses contact with animals as a tool for the therapist to work with individual clients and address particular areas of difficulty, whilst care farms use animals in the farm setting for wider benefits resulting from meaningful occupation, opportunities to nurture and so on.

The natural environment can be used to provide many different and sometimes specific aspects of 'care'. In this document, the word 'care' in green care is taken in its broadest sense, that is, comprising elements of healthcare, social rehabilitation, education or employment opportunities for various vulnerable groups. This broad understanding of care is summarised in Figure 2.1, below.

Figure 2.1: Different elements of care within 'green care'.



References (Section 2)

Association of Camphill Communities in Great Britain. (2009) http://www.camphill.org.uk/about/camphill-history. Accessed 17.11.09.

Association of Therapeutic Communities. (2009) http://www.therapeuticcommunities.org/info-tcuk.htm Available at: http://www.mind.org.uk/assets/0000/2138/ecotherapy_report.pdf

Berger, R. and McLeod, J. (2006) 'Incorporating nature in therapy: a framework for practice'. *Journal of Systemic Therapies*, 25(2), 80-94.

Bird, W. (2007) *Natural Thinking: Investigating the links between the Natural Environment, Biodiversity and Mental Health*. Royal Society for the Protection of Birds. Available from website: http://www.rspb.org.uk/Images/naturalthinking_tcm9-161856.pdf

Bloor, M. J., McKeganey, N. P. and Fonkert, J. D. (1988) *One Foot in Eden: A Sociological Study of the Range of Therapeutic Community Practice*. London: Routledge.

Burls, A. (2007) 'People and green spaces: promoting public health and mental well-being through ecotherapy'. *Journal of Public Mental Health*, 6(3), 24-39.

Burns, G. W. (1998) *Nature Guided Therapy: Brief Integrative Strategies for Health and Well Being*. Brunner-Mazel.

Campling, P. (2001) 'Therapeutic communities'. *Advances in Psychiatric Treatment*, 7, 365-372.

Colson, J. H. C. (1944) *The Rehabilitation of the Injured*. Cassell.

De Vries, S., Verheij, R. A., Groenewegen, P. P. and Spreeuwenberg, P. (2003) 'Natural environments -- healthy environments? An exploratory analysis of the relationship between greenspace and health'. *Environment and Planning* A, 35, 1717-31.

Frumkin, H. (2001) 'Beyond toxicity. Human health and the natural environment'. *American Journal of Preventative Medicine*, 20(3), 47-53.

Frumkin, H. (2003) 'Healthy places: exploring the evidence'. *American Journal of Public Health*, 93, 1451-1456.

Gerlach-Spriggs, N., Kaufman, R. E. and Warner, S. B. (1998) *Restorative Gardens: The Healing Landscape. New Haven*, CT: Yale University Press.

Grahn, P. and Stigsdotter, U. A. (2003) 'Landscape planning and stress'. *Urban Forestry & Urban Greening*, 2, 1-18.

Hartig, T., Evans, G., Jamner, L. D., Davis, D. S. and Garling, T. (2003) 'Tracking restoration in natural and urban field settings'. *Journal of Environmental Psychology* ,23, 109-123.

Hartig, T., Mang, M. and Evans, G. W. (1991) 'Restorative Effects of Natural Environment Experiences'. *Environment and Behaviour*, 23, 3-26.

Health Council of the Netherlands. (2004) *Nature and Health. The Influence of Nature on Social, Psychological and Physical Well-being*. Netherlands, The Hague: Health Council of the Netherlands and Dutch Advisory Council for Research on Spatial Planning, Nature and the Environment.

Hegarty, J. R. (2007) 'Nature-connectedness and ecopsychology: Going green in the consulting room: Reflections and exercises on how nature-awareness could be brought into the consulting room as a medium for psychological healing', *Things Unsaid: Keele Counselling Conference*, May 12 & 13, 2007. http://www.keele.ac.uk/depts/ps/cs/conference/Ecopsy.pdf downloaded June 9 2008.

Hickey, B. (2008) 'Lothlorien Community: A holistic approach to recovery from mental health problems'. *International Journal of Therapeutic Communities*, 29(3), 261-272.

Hine, R., Peacock, J. and Pretty, J. (2008) *Evaluating the impact of environmental volunteering on behaviours and attitudes to the environment*. Report for BTCV Cymru, University of Essex. http://www2.btcv.org.uk/hine_peacock_pretty_2008.pdf

Kaplan, R. and Kaplan, S. (1989) *The Experience of Nature: A Psychological Perspective*. New York: Cambridge University Press.

Kaplan, S. (1995) 'The restorative benefits of nature: towards an integrative framework'. *Journal of Environmental Psychology*, 15, 169-182.

Kellert, S. R. and Wilson, E. O. (eds) (1993) *The Biophilia Hypothesis*. Washington DC: Island Press.

Lewis, C. A. (1996) *Green Nature Human Nature: The Meaning of Plants in our Lives. Urbana*, Chicago: University of Illinois Press.

Linden, S. and Grut, J. (2002) *The Healing Fields: Working with Psychotherapy and Nature to Rebuild Shattered Lives*. London: Frances Lincoln.

Louv, R. (2005) *Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder*. North Carolina: Algonquin Books.

Maas, J., Verheij, R. A., Groenewegen, P. P., De Vries, S. and Spreeuwenberg, P. (2006) 'Green space, urbanity, and health: how strong is the relation?'. *Journal of Epidemiology and Community Health*, 60, 587-592.

Maller, C., Townsend, M., Brown, P. and St Leger, L. (2002) *Healthy Parks Healthy People: The Health Benefits of Contact with Nature in a Park Context*, Melbourne, Austrailia: Deakin University and Parks Victoria.

Mayer, F. S. and Frantz, C. M. (2004) 'The connectedness to nature scale: a measure of individuals' feeling in community with nature', *Journal of Environmental Psychology*, 24, 503-515.

MIND. (2007). *Ecotherapy: The Green Agenda for Mental Health*. London: MIND.

Neuberger, K. (2007) 'The correlation effect of horticultural activities – the influence of working with plants on human experiences.' In C. Gallis (ed.), *Green care in Agriculture: Health Effects, Economics and Policies*. Thessaloniki: University Studio Press.

Nightingale, F. (1860) *Notes on Nursing (Revised with Additions)*, (1996). London: Balliere Tindall.

Parr, H. (2007) 'Mental health, nature work, and social inclusion'. *Environment and Planning D: Society and Space*, 25, 537-561.

Peacock, J., Hine, R. and Pretty, J. (2007) *Got the Blues? Then find some Greenspace: The Mental Health Benefits of Green Exercise Activities and Green care*, University of Essex report for Mind Week.

Pretty, J. (2002) *Agri-culture: Reconnecting People, Land and Nature*. London: Earthscan.

Pretty, J. (2004) 'How nature contributes to mental and physical health'. *Spirituality and Health International*, 5, 68-78.

Pretty, J. (2007) *The Earth only Endures: On Reconnecting with Nature and Our Place In It*. London: Earthscan.

Pretty, J., Peacock, J., Sellens, M. and Griffin, M. (2005a) 'The mental and physical health outcomes of green exercise'. *International Journal of Environmental Health Research*, 15(5), 319-337.

Pretty, J., Griffin, M., Peacock, J., Hine, R., Sellens, M. and South, N. (2005b) *A Countryside for Health and Wellbeing; the Physical and Mental Health Benefits of Green Exercise*. Sheffield: Countryside Recreation Network.

Roosens, E. and Van de Walle, L. (2007) *Geel Revisited: After Centuries of Mental Rehabilitation*. Antwerp: Garant.

Roosens, E. (1979) *Mental Patients in Town Life: Geel, Europe's First Therapeutic Community*. Beverly Hills: Sage Publications.

Roosens, E. (2008) 'Geel revisited. After centuries of mental rehabilitation.' In J. Dessein (ed.) *Farming for Health: Proceedings of the Community of Practice Farming for Health*, November 2007, Ghent, Belgium, Merelbeke, Belgium: ILVO, 179-190.

Rush, B. (1812) *Medical Inquiries and Observations upon Diseases of the Mind*, reproduced in facsimile as: The History of Medicine Series, No 15, New York: Hafner Publishing Company, 1962.

Takano, T., Nakamura, K. and Watanabe, M. (2002) 'Urban residential environments and senior citizens' longevity in megacity areas: the importance of walkable green spaces'. *Journal of Epidemiology and Community Health*, 56, 913-8.

Tuke, D. H. (1882) *Chapters in the History of the Insane in the British Isles*, first published London 1882, reprinted 1968. Amsterdam: E.J. Bonset.

UNFPA. (2007) *State of the World Population 2007: Unleashing the Potential of Urban Growth*. New York, US, United Nations Population Fund.

Ulrich, R. S. (1984) 'View through a window may influence recovery from surgery'. *Science*, 224, 420-421.

Ulrich, R. S., Simons, R. F., Losito, B. D., Fiorito, E., Miles, M. A. and Zelson, M. (1991) 'Stress recovery during exposure to natural and urban environments'. *Journal of Environmental Psychology*, 11, 201-230.

Van den Berg, A. E., Hartig, T. and Staats, H. (2007) 'Preference for nature in urbanised societies: stress, restoration and the pursuit of sustainability'. *Journal of Social Issues*, 63, 79-96.

Wilson, E. O. (1984) *Biophilia: The Human Bond with Other Species*. Cambridge, MA: Harvard University Press.

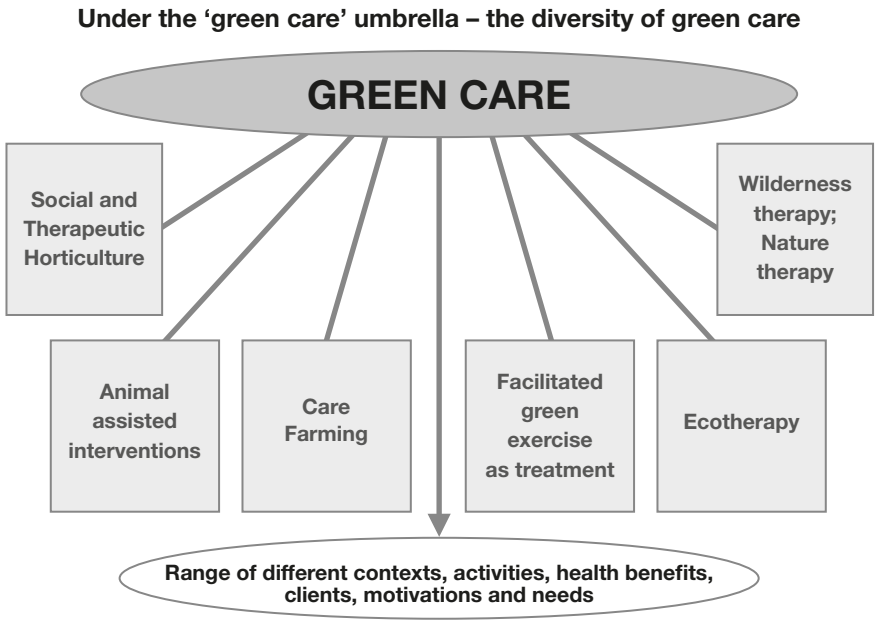
3 Defining the concept of 'green care'

In this section we will define what we mean by the general concept of green care and explore how the 'natural component' fits within it and is essential to it; how green care differs from employment and how it is linked with models of psychotherapy.

3.1 Broad divisions of green care

There is a growing movement towards green care in many contexts, ranging from social and therapeutic horticulture, animal assisted therapy, care farming, facilitated green exercise interventions, ecotherapy, wilderness therapy and others. Although there is much diversity under the broader umbrella of 'green care', the common linking ethos is essentially to use nature to produce health, social or educational benefits. Figure 3.1 (Hine et al, 2008) briefly summarises the activities that fit under this umbrella. They are described in more detail in Section 4 of this report.

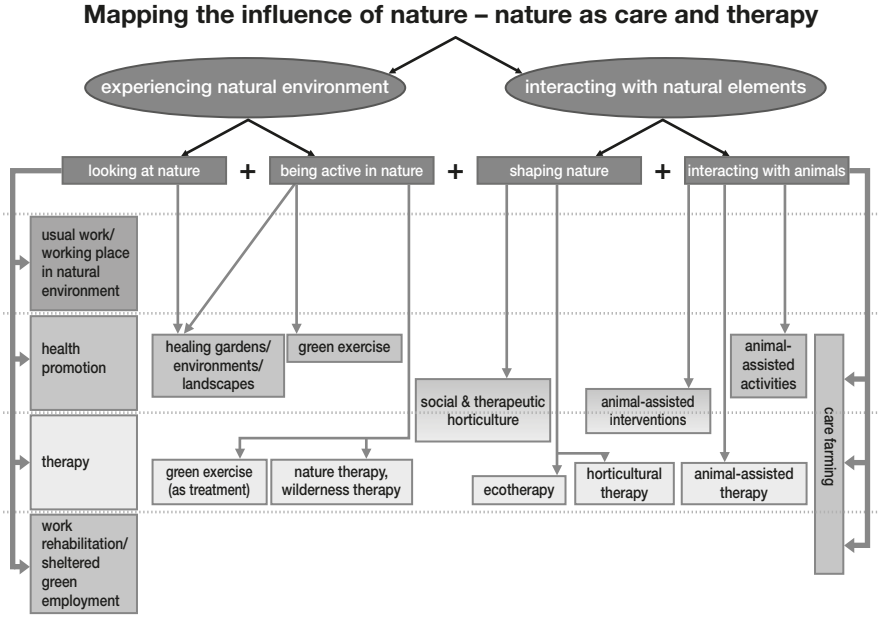
Figure 3.1: the 'green care umbrella'.



3.2 Mapping the influence of nature: nature as care and nature as therapy

Figure 3.1, above, shows the broad definitions of green care, however, interactions with nature can be further subdivided according to how nature is used or experienced. This provides us with a model which maps the role of nature within green care itself (Haubenhofer et al, forthcoming). This is shown in Figure 3.2, below.

Figure 3.2: Green care – mapping the influence of nature.



(adapted from Haubenhofer et al, forthcoming)

The model positions some of the most common green care interventions that are the subject of this report. The mapping refers to the interventions' relationships towards each other; and furthermore, to each intervention's own nature-based origin.

The natural environment may be experienced in a number of different ways but broadly this may be divided into two categories – a 'passive' experience of nature (which paradoxically may involve physical activity) or an interaction with its elements that is fundamental to the activity. Both of these categories may each be divided into two further options. A natural

environment may be experienced by either (1a) sensory means including the views, smells, textures and so on (labelled ***'looking at nature'*** in the figure above); or by (1b) being physically active within it but without directly interacting with its natural elements or attempting to shape it (for example, by biking through a park or walking along a country road), labelled as ***'being active in nature'.*** The main purpose here is not the interaction with natural elements, but the activity itself (walking, jogging, biking, etc.) that someone performs while being in the natural environment.

Interactions with natural elements, on the other hand, focus on either (2a) activities ***shaping nature*** (planting a wood, designing a flowerbed, cutting a hedge, building up a stone wall, etc.) or (2b) on ***interactions with animals.***

These four sub-categories (1a, 1b, 2a, 2b), in turn, define four layers of activity in the model above in which nature is involved. In the first layer, the natural environment may be part of the usual setting but there is no overt therapeutic or health-promotional intent. The individual may indeed benefit from their surroundings but these do not represent green care. The health benefits of natural elements within the working environment and of the exposure to nature have been extensively studied within environmental psychology.

Within the second layer of the model there are health promoting interventions which involve both *looking at nature* and *being active in nature* but which do not shape nature and which do not require participants to 'work in partnership' with nature. These include healing gardens and certain forms of green exercise.

Within the third layer (labelled ***'therapy'***) there is a range of interventions that extends from those activities that involve *looking at nature* and *being active in nature* through to those that require *shaping nature* and *interacting with animals.* This set of therapies ranges from green exercise (when used as a specific treatment, for example, in depression) and nature/ wilderness therapy through to ecotherapy, horticultural therapy (originating in *shaping nature*), and animal assisted therapy, AAT (which shares its roots of *interacting with animals* with animal assisted interventions, AAI; for a description of the differences between AAT and AAI see Section 4).

Some approaches do not sit entirely within one layer but straddle a number of them. Social and therapeutic horticulture and animal assisted interventions are used both in the health promotion context and also

as interventions/therapies. Care farming, because of its broad range of approaches and activities, extends in the model from *health promotion,* through *therapy,* to *work rehabilitation/ sheltered green employment* (the bottom layer). In reality, the boundaries between layers, activities and the sub-categories are not always distinct. However, by classifying them in this way it is hoped that the reader will get a better idea of the complexity of green care and how different approaches and interventions are connected.

3.3 The essentials of green care: 'common' and 'natural' dimensions

Green care interventions, for example, care farming and therapeutic horticulture enable clients to participate in activities that are meaningful and productive and that have many attributes in common with paid employment. These include physical activity, daily routine, social interaction and opportunities and so on. It could be argued that many forms of sheltered employment in factories or workshops would provide the same benefits as green care, albeit in a different environment. Sempik et al (2005) have shown that social and therapeutic horticulture (STH) enables clients to be productive in an environment that is not pressured; to develop a sense of identity and competence around 'being a gardener' or a 'worker' rather than a patient; it enables them to engage in social interaction; to develop daily routine and structure; to participate in the running of their project; sometimes to be paid for their work or on occasions to be helped to find paid employment. All of these aspects can be supplied by approaches and interventions that do not use a natural setting. Indeed, Sempik et al (2005) reported that the managers of one STH project were ambivalent to the natural dimension and suggested that their clients would have been just as happy and motivated manufacturing "double glazing units". The clients were very firmly of the opposite opinion. They clearly valued nature and considered it to be a powerful influence on their health and well-being. Such a view of nature is present throughout the literature. Indeed, there is evidence of the psychological benefit of the natural environment in aiding recovery from stress (see Section 6.4) or restoring the ability to focus attention (see Section 6.3).

Activities and processes within green care can be categorised as those that are 'common', i.e. that occur in common with other circumstances and approaches and do not necessarily involve or require a natural environment.

These have been mentioned above and are summarised in Table 3.3 (below). Such processes can occur within the context, for example, of sheltered employment or occupational therapy.

Within green care these 'common processes' take place in or are expressed in the context of natural components or environments – plants, animals and landscapes. They give rise to a number of 'themes' or 'dimensions' that have been collected and described by many authors and are summarised in Tables 3.3 and 3.4 (below), for example, the opportunity to nurture and look after plants and animals. The backdrop of a natural dimension to a common activity is thought to confer additional benefits. Pretty et al (2005, 2007), for example, showed that 'green exercise', i.e. physical activity within a natural environment caused significant improvements in mood and self-esteem. But nature is not just a backdrop in many forms of green care – it is an essential ingredient. Farming and horticulture require participants to actively engage with the natural environment. Without this those activities would not be possible. The need to interact with nature and to shape it (as all such activities invariably do) distinguishes activities such as farming from those that use the natural environment as a backdrop (for example, green exercise).

Table 3.3: Examples of 'common' dimensions in green care

- Development of a daily routine and structure
- Participation in production through meaningful activities (but not in a pressured environment)
- Social interaction and opportunities for social contact
- Working with others for a common purpose
- Opportunities to be involved and 'to have a say' in the running of activities
- Development of skills, competence and identity; and the development of self-esteem and the esteem of others
- Opportunities for physical activity
- Association with work, occasional receipt of nominal pay or expenses
- Possible opportunities for paid employment
- Potential access to products and outputs of the farms or garden

Table 3.4: Examples of 'natural' dimensions in green care

- Sense of connectedness with nature, possibly fulfilling a spiritual need
- View of nature as inherently peaceful and exerting a calming effect
- Sense of well-being through the belief that nature and fresh air are inherently healthy
- 'Fascination' with nature i.e. being able to engage with it without great effort
- Opportunity for nurturing plants and animals and the satisfaction and fulfilment that ensues
- Protecting nature – fulfilment of the desire to protect the environment from damage from pesticides and other chemicals
- Working together with nature in order to maintain or improve it
- Engagement with a dynamic system i.e. through changing seasons and weather
- Being governed by the needs of the environment through the need to plant or harvest at appropriate times – the environment as demanding of labour

3.4 The therapist (or facilitator) in green care

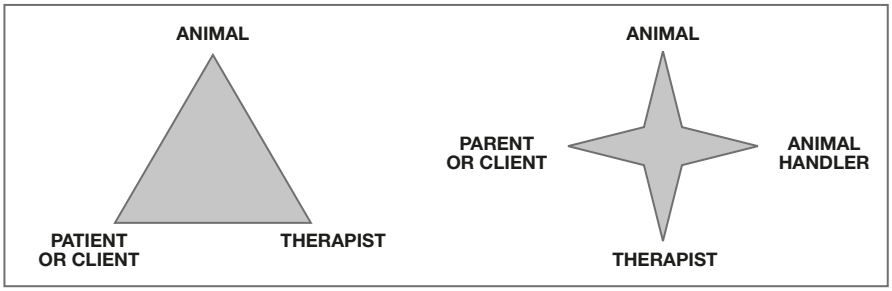
The role of therapists in green care varies with the purpose of the therapy, and the setting. This is well exemplified in equine assisted therapies. A particularly specific example is hippotherapy, where the movement of the horse and the patient-rider's muscular response to it help people who have suffered a stroke or have a neurological deficit to better regain muscular co-ordination (see, for example, McGibbon et al, 2009). The therapist's role is to accomplish that safely and effectively.

A very different but equally specific therapist role is in equine psychotherapy (see Karol, 2007). This need not involve mounting or riding a horse, but has as its task the establishment and facilitation of a relationship between the patient and the horse, which is the focus of further therapy. Through this process, emotional difficulties will be directly expressed (in how the patient relates to the horse), or apparent to the trained therapist through the reactions of the horse. The therapist may allow this to emerge naturally, or make interpretations to help the patient become

aware of it. This is very similar to using the transference in psychoanalytic psychotherapy. The process also works by the development of a safe and trusting relationship, in which emotional intersubjectivity and validation is experienced; for some people this may not be possible with other humans. The process itself, with or without analysis, can be experienced as healing and promoting of personal growth.

In the overall field, two models are generally described: triangular and star shaped (see Fine, 2006). These are shown in Figure 3.5. The star shape involves four participants: patient, therapist, animal handler and the animal, whilst in the triangular model, there is the patient, the animal and the therapist (who is also the handler).

Figure 3.5: Models of therapist involvement in animal assisted interventions



(Adapted from Fine, 2006)

In horticultural therapy the therapist works with the client to achieve specific goals. These may be the development of particular motor functions, work skills or psychological well-being through the use of horticulture. The UK charity Thrive uses the following definition of horticultural therapy agreed by practitioners in 1999. This also highlights the key role of the therapist.

> *"Horticultural therapy is the use of plants by a trained professional as a medium through which certain clinically defined goals may be met."*

Horticultural therapy has a pre-defined clinical goal similar to that found in occupational therapy. This distinguishes it from *therapeutic horticulture* which is directed towards improving the well-being of the individual in a more generalised way (see Sempik et al, 2003, p. 3). The horticultural therapist enables the client to carry out tasks successfully and so has to

have a working knowledge of both horticulture and the 'care' of vulnerable people. Whilst the therapist may listen to clients' difficulties and problems and help them to talk through such issues (offering advice as appropriate), formal psychotherapy or counselling is not usually part of their role. However, in specific circumstances the natural environment can serve as an ideal 'consulting room', free from the constraints and inhibitions imposed by being indoors. This is the approach taken by Sonja Linden and Jenny Grut (2002) in their work with the Medical Foundation for the Care of Victims of Torture.

> *"Through gardening and contact with nature, the Natural Growth Project seeks to help refugee torture survivors put down roots in the host community, both literally and metaphorically. It is aimed primarily at those clients of the Medical Foundation whom a natural setting may help to engage in the therapeutic process and who otherwise may find this difficult."* (Linden and Grut, p. 33)

Care farming is a much more diverse activity and the role of therapist is generally separate from that of farm worker, although the therapist may, as part of the programme, be engaged in farming work alongside clients or patients. This arrangement is similar to the 'star model' for animal assisted interventions. Using this description for ecotherapy, where for example the clients or patients are undertaking canal restoration or hurdle-making, the model is triangular (the therapist and 'trainer' are the same person); this would normally be the same for bushcraft and wilderness therapy (where the therapist may also be a 'guide'). The models of intervention vary across these types of green care. In some, the experience of contact with nature is the main focus; reflection about the participants' behaviour and thinking is not specifically relevant, nor is the relationship with the therapist and its examination. In others, however (i.e. contemporary ecotherapy), purposeful reflection on thinking and behaviour patterns is formulated alongside the conservation/restoration work with nature and the confluence of the triad of client-therapist-nature is used to draw metaphorical therapeutic meaning (Burns, 2007; Burls, 2008) and can be integrated with other approaches such as CBT and solution-based therapies.

References (Section 3)

Burls, (Pedretti) A. (2008) Seeking Nature: A Contemporary Therapeutic Environment. *Therapeutic Communities,* 29, 3, 228-244.

Burns, G.W. (ed.) (2007) *Healing with Stories: your casebook collection for using therapeutic metaphors.* New Jersey: Wiley & Sons

Fine, A. H. (2006) *Handbook on Animal Assisted Therapy: Theoretical Foundations and Guidelines for Practice (Second Edition).* San Diego: Elselvier.

Haubenhofer, D. K., Elings, M., Hassink, J., and Hine, R. E. (Forthcoming) 'The development of green care in Western-European Countries'.

Hine, R, Peacock, J. and Pretty, J. (2008) 'Care farming in the UK: contexts, benefits and links with therapeutic communities'. *International Journal of Therapeutic Communities,* 29(3), 245-260.

Karol, J. (2007) 'Applying a traditional individual psychotherapy model to Equine-facilitated Psychotherapy (EFP): theory and method'. *Clinical Child Psychology and Psychiatry,* 12(1), 77-90.

Linden, S. and Grut, J. (2002) *The Healing Fields: Working with Psychotherapy and Nature to Rebuild Shattered Lives.* London: Frances Lincoln.

McGibbon, N. H., Benda, W., Duncan, B. R. and Silkwood-Sherer, D. (2009) 'Immediate and long-term effects of Hippotherapy on symmetry of adductor muscle activity and functional ability in children with spastic cerebral palsy'. *Archives of Physical Medicine and Rehabilitation,* 90(6), 966-974.

Pretty, J., Griffin, M., Peacock, J., Hine, R., Sellens, M. and South, N. (2005) *A Countryside for Health and Wellbeing; the Physical and Mental Health Benefits of Green Exercise.* Sheffield: Countryside Recreation Network.

Pretty, J., Peacock, J., Hine, R., Sellens, M., South, N. and Griffin, M. (2007) 'Green exercise in the UK countryside: effects on health and psychological well-being, and implications for policy and planning'. *Journal of Environmental Planning and Management,* 50(2), 211-231.

Sempik, J., Aldridge, J. and Becker, S. (2003) *Social and Therapeutic Horticulture: Evidence and Messages from Research.* Reading: Thrive and Loughborough: CCFR.

Sempik, J., Aldridge, J. and Becker, S. (2005) *Health, Well-being and Social Inclusion, Therapeutic Horticulture in the UK.* Bristol: The Policy Press.

Image courtesy of National Care Farming Initiative (UK)

4 A brief overview of ‘green care’ approaches

This section briefly explores and defines some specific green care approaches.

4.1 Care farming

Care farming (also called ‘social farming’ or ‘green care farming’) can be defined as the use of commercial farms and agricultural landscapes as a base for promoting mental and physical health, through normal farming activity (see: Hassink, 2003; Hassink and van Dijk, 2007; Hine et al, 2008) and is a growing movement to provide health, social or educational benefits through farming for a wide range of people. These may include those with defined medical or social needs (e.g. psychiatric patients, those suffering from mild to moderate depression, people with learning disabilities, those with a drug history, disaffected youth or elderly people) as well as those suffering from the effects of work-related stress or ill-health arising from obesity. Care farming is therefore a partnership between farmers, health and social care providers and participants.

All care farms offer some elements of ‘farming’ to varying degrees, be that crops, horticulture, livestock husbandry, use of machinery or woodland management. Similarly all care farms offer some element of ‘care’, be that health or social care or educational benefits. However, there is much variety in care farms, with differences in the extent of farming or care that they offer, the context, the client group and the type of farm. Many care farms offer therapeutic contact with farm livestock but some provide specific animal assisted therapy. Many farms offer participation in the growing of crops, salads or vegetables for example but some also offer horticultural therapy in addition or instead.

The distinction between social and therapeutic horticulture projects and care farms is that horticultural therapy projects do not usually focus principally on commercial production activities whereas many care farms are primarily focused on production on a commercial level.

For some care farms it is the noticeable absence of a 'care' or 'institutional' element and the presence of a working, commercial farm with the farmer, farmer's family and staff that are the constituents of successful social rehabilitation for participants (Hassink et al, 2007). Yet the situation at other care farms may be more 'care' and 'carer' oriented with the farming element present primarily to produce benefits for clients rather than for commercial agricultural production.

4.2 Animals in green care

Animal-Assisted Interventions (AAI) is the general term used for a variety of ways of utilising animals in the rehabilitation or social care of humans (Kruger and Serpell, 2006). This could involve pure therapy or including the animals in various activities. *Animal-Assisted Therapy (AAT)* is the term used for a goal-directed intervention in which an animal that satisfies certain criteria is an integral part of the treatment process for a particular human client, a process which is directed, documented and evaluated by professionals. *Animal-Assisted Activities (AAA)* is used for a less controlled service that may have a therapeutic effect, but which is not a true therapy in a strict sense. Both health personnel and lay persons can be involved.

The therapeutic role of ***companion animals*** is well established for physically ill people, those with psychiatric disorders, emotionally disturbed people, prisoners, drug addicts, the elderly and children. The evidence has recently been reviewed by Fine (2006). Contact with companion animals is associated with positive changes in cardiovascular functioning and concentration of various neurotransmitters, reduction in psychosomatic disorders and afflictions and fewer visits per year to the doctor amongst the elderly. Friedmann et al (1980) revealed a relationship between owning a dog or cat and increased probability of survival one year after myocardial infarctions or severe angina pectoris. While 28% of non-owners died within one year, only 5.7% of pet owners died. Later research has confirmed this (Friedmann and Thomas, 1995).

It is hypothesized that social support (defined by Cobb (1976) as an interpersonal relationship that leads to "the person's belief that he is cared for, loved, esteemed, and a member of a network of mutual obligations" p. 300) acting as a buffer against stress responses or illness can be derived not only from human relationships, but also from a human-animal

relationship. According to McNicholas and Collis (2006) social support from pets may be a replacement for lacking human support, providing a release from relation obligations, enhancing reorganization, re-establishing routines, and "topping up" existing human support. Bernstein et al (2000) demonstrated that geriatric persons subjected to Animal-Assisted Therapy were more likely to initiate and participate in longer conversations than a control group receiving Non-Animal Therapy (NAT) like arts, crafts and snack bingo. Similar effects were found in a 12-month controlled study of elderly schizophrenic patients where contact with a pet, either a dog or a cat, resulted in significantly improved conversational and social skills in the experimental group compared with the controls (Barak et al, 2001). This and other studies have demonstrated the robustness of the effects of companion animals as catalysts for social interaction between people.

During the last decades, within the concept of green care, the therapeutic role of horses and ***farm animals*** has been widely implemented for people with physical, psychiatric or social problems (Bokkers, 2006). Animal-assisted interventions on farms may be offered as a specialised service or as part of a wider service with varied work or activities on the farm. The clients may care for and ride horses or donkeys, or work with cattle, sheep, goats, rabbits, guinea pigs or chickens. Often dogs or cats are present on the farms, and the clients typically favour interacting with these.

The health effects of animal-assisted interventions with farm animals are not well documented. Research has been done on children interacting with cows at Green Chimneys Educational Farm (Mallon, 1994), on deaf and or people with multiple disabilities interacting with goats (Scholl, 2003; Scholl et al, 2008), and on people riding a horse (Fitzpatrick and Tebay, 1997). The only randomized controlled trial with farm animals has been done on psychiatric patients working with dairy cows (Berget, 2006).

Animals may positively affect human physical/physiological health in two directions, both involving psychological components: (i) by stimulating exercise and physical condition, also resulting in reduced stress and enhanced mental well-being, and (ii) by stimulating psychological mechanisms, leading in turn to improved protection against psychosomatic diseases and afflictions.

4.3 Horticulture as therapy

Horticulture, in many different forms, has been used as a therapy or as an adjunct to therapy in the treatment of disease. It has also been used to achieve social and psychological benefit for disadvantaged individuals and communities and to promote health, and physical and psychological well-being. Horticulture and gardening are still used by many occupational therapists both to promote the development of motor skills and also to develop social skills and provide social opportunities, particularly for those with mental health problems.

Alongside the use of horticulture in occupational therapy, the practices of 'horticultural therapy' and 'therapeutic horticulture' (see Sempik et al, 2003) have developed. These approaches have a recognised format and structure, pedagogy and in some countries (for example, the US) a professional organisation. The terms 'horticultural therapy' and 'therapeutic horticulture' are frequently used in the literature, sometimes interchangeably, to describe the process of interaction between the individual and the plants or gardens and (in most cases) facilitated by a trained practitioner. The UK charity Thrive uses the following definitions of Horticultural Therapy and Therapeutic Horticulture which were agreed by UK practitioners at a conference on Professional Development held in September 1999:

> *"Horticultural therapy is the use of plants by a trained professional as a medium through which certain clinically defined goals may be met."*
>
> *"Therapeutic horticulture is the process by which individuals may develop well-being using plants and horticulture. This is achieved by active or passive involvement."* (Growth Point, 1999, p. 4)

The distinction is that horticultural therapy has a pre-defined clinical goal similar to that found in occupational therapy whilst therapeutic horticulture is directed towards improving the well-being of the individual in a more generalised way. Recently the term 'Social and Therapeutic Horticulture' (STH) has become widely used (particularly in the UK) since *social* interactions, outcomes and opportunities are an important part of the activities and processes of therapeutic garden projects. Sempik and

Spurgeon (2006) have described STH:

> *"…as the participation by a range of vulnerable people in groups and communities whose activities are centred around horticulture and gardening. STH is distinct from domestic gardening because it operates in an organised and formalised environment."*

4.4 Facilitated green exercise as a therapeutic intervention

Historically, the beneficial effects of physical activity on physical health have been widely accepted. More recently, over the last 20 years, the positive effects on psychological health resulting from exercise have been examined. During this time there have been a number of research studies investigating the relationship between physical activity and mental health. For example, Dunn et al (2005) showed that a programme of aerobic exercise was effective in mild to moderate depression; and Sims et al (2009) found that exercise reduced symptoms of depression in stroke patients. A meta-analysis of 11 treatment outcome studies conducted by Stathopoulou et al (2006) demonstrated the beneficial effects of exercise. Also, Diaz and Motta (2008) found exercise to be useful in post traumatic stress disorder in a group of adolescents. These and other similar observations have led to the recognition of the potential of exercise as a therapeutic intervention, particularly for those suffering from clinical depression and anxiety (see, for example, Mental Health Foundation, 2005, 2009).

Around 21% of General Practitioners (GPs) in the UK now offer exercise therapy as one of their three most common treatment responses, in comparison to 94% who commonly prescribe antidepressants. For 45% of GPs antidepressants are their first response compared to 4% whose first response is to prescribe exercise therapy (Mental Health Foundation, 2009). Whilst the use of exercise therapy remains relatively low, the current figures show a large increase in the past five years. Data published in 2005 (Mental Health Foundation, 2005) showed that then only 5% chose exercise as one of their three most favoured options and less than 1% would consider it as their first response. Hence, the use of exercise therapy is slowly gaining ground in the UK.

There is also a growing body of evidence on the positive relationship between exposure to nature (incorporating a variety of outdoor settings, from the open countryside, fields and forests, to street trees, allotments and gardens) and an individual's mental health (see, for example, Bird, 2007; Hartig et al, 2003; Mind, 2007). The key message emerging is that contact with nature improves psychological health by reducing pre-existing stress levels, enhancing mood, offering both a 'restorative environment' and a protective effect from future stresses.

Combining the effects of physical activity and contact with nature on psychological health, recent studies have found that 'green exercise' (the *synergistic* effect of engaging in physical activities whilst simultaneously being directly exposed to nature) results in significant improvements in self-esteem and mood measures, as well as leading to significant reductions in blood pressure (Pretty et al, 2005a & 2005b, 2007; Peacock et al, 2007; Hine et al, 2008).

Recent research also suggests that therapeutic applications of facilitated green exercise activities (particularly walking) as 'green exercise therapy' may prove to be an even more effective treatment response than exercise alone in mild to moderate depression as it encourages people to re-connect with nature and experience the additional positive health benefits that are associated with this (Peacock et al, 2007; Mind, 2007). In Australia there has also been some research initiated into the participation in forest and woodland management as a treatment for depression (Townsend, 2006). The pilot project engages people experiencing depression in nature-based activities in a woodland environment. The project is on-going but initial findings suggest encouraging improvements to physical and mental health, along with a reduction in social isolation. Using green exercise as a treatment for mild to moderate depression can be considered a form of green care.

4.5 Ecotherapy

Ecotherapy as an approach has been proposed as a form of practice since the mid nineties (Roszak, 1995; Clinebell, 1996; Burns, 1998). George W. Burns, an Australian clinical psychologist and hypnotherapist developed what he termed 'ecopsychotherapy' and 'nature-guided therapy'. His primary thesis was that a positive relationship with the natural world is

health-giving and that people seeking help benefit from being guided (with the help of the therapist and nature-based exercises) towards such a relationship.

Since the nineties however, Burns (2009), together with others (Buzzell and Chalquist, 2009; Fisher 2009) have acknowledged the social context of ecotherapy. Burns (2009) contends that ecotherapy "fits within the definition of a "third wave" approach in that it is a therapy that is more solution-based" (p. 95).

This is also reflected in further research on the applications of 'ecotherapy', both in practice and education (Burls and Caan, 2005; Burls, 2007) and a description of a *contemporary* model of ecotherapy for the 21st century (Burls, 2008) has been developed. Contemporary ecotherapy can be described as taking the "third wave" therapy model one stage further as it adopts an 'ecosystem health' approach with a broad focus of transdisciplinarity. This emphasises social attitudes as well as research and activities which imply an element of reciprocity between human and nature and promote positive action on the environment that improve community well-being.

The paradigm of contemporary ecotherapy outlines two levels of involvement: the micro-level of the therapeutic process and the macro-level of the wider social processes. This process broadens a view of the self as part of a 'larger whole', which individuals come to appreciate and nurture, thus engendering reciprocity towards their ecosystem. The powerful effects of this dimension radiate out from the personal 'microcosm' towards the exterior 'macrocosm' of social parameters. Fisher (2009) contends that people are 'social animals', therefore their psychological dimension also 'dwells in society'.

Ecotherapy brings about the enlightenment that nature not only helps us to find a personal healthy bio-psychological equilibrium, but that the health of our ecosystem is an inextricable element of our community and social system. Ecotherapeutic practice cannot therefore bypass social issues, nor can it bypass public health, political and policy issues. Ecotherapeutic spaces and projects can also be used by the community for the benefit of the public at large and for that of the ecosystem; they also help the public reconnect with nature and can lead to behavioural and social changes. Ecotherapeutic spaces are therefore multi-functional spaces. Although

ecotherapy has its legitimate origins in ecopsychology, it sits better within the more radical concept of ecohealth. The framework of ecohealth aims to achieve consensus and cooperation across all stakeholders, promoting approaches which are less costly than many medical treatments or primary health care interventions (Lebel, 2003) and which influence the broad spectrum of social systems, from community dwellers to decision-makers, about the value of ecosystem health as a crucial factor in public health.

Contemporary ecotherapy can, therefore, be defined as an umbrella term for all nature-based methods aimed at the re-establishment of human and ecosystem reciprocal well-being; a transdisciplinary and eco-systemic approach aimed at the collaborative enhancement of physical, psychological and social health for people, communities and ecosystems. These outcomes are achieved through the development of a close personal and collective relationship with the natural ecosystem. The praxis of ecotherapy is based on a range of active interactions within multi-functional green spaces.

4.6 Wilderness therapy

Turning to nature and the wilderness for opportunities for personal awareness and personal change is not a new idea; the process has been in existence in human cultures for thousands of years. However, in more recent times the outdoors has been increasingly used to provide a range of personal development and wellbeing opportunities through immersion in natural, wild, and wilderness settings. Although the term 'wilderness therapy' is a relatively new concept in Europe, it has been in existence in the US for many years. Multiple definitions have evolved as the concept has gained popularity, but they all acknowledge a therapeutic process which is inherent in wilderness expeditions (Peacock et al, 2008).

Davis-Berman and Berman (1994) initially defined wilderness therapy as *"the use of traditional therapy techniques, especially for group therapy, in an out-of-doors setting, utilising outdoor adventure pursuits and other activities to enhance personal growth"* (p.13). Crisp and O'Donnell (1998) define wilderness therapy as: *"generic group therapy and group system models, inter-personal behavioural models, the experience of natural consequences, and modified group psychotherapy applied into a wilderness setting"* (p.59). In more recent years, Connor (2007) has provided a more

concise definition stating that wilderness therapy *"is an experiential program that takes place in a wilderness or remote outdoor setting"*. Essentially, wilderness therapy uses the 'wilderness as co-therapist' in addition to any professional therapy that might take place whilst out in the wilderness.

Wilderness therapy is an emerging treatment intervention which uses a systematic approach to work largely with adolescents with behavioural problems. Although this is not the only cohort that can benefit from wilderness therapy, it is most often used with this group to help them address any emotional, adjustment, addiction or psychological problems (Hobbs and Shelton, 1972; Bandoroff, 1989; Russell, 1999; Russell and Phillips-Miller, 2002; Caulkins et al, 2006; Russell, 2006a; Bettmann, 2007). Programmes typically provide healthy exercise and diet through hiking and physical activity, individual and group therapy sessions, educational curricula, primitive skills, group-living with peers, opportunities for solo time and reflection leadership training and challenges resulting from 'back-to basics' living.

The rationale for wilderness interventions involves separating participants from daily negative influences and placing them in safe outdoor environments. Spending time in a natural setting enables participants to access those aspects of their self that may elude them in more conventional personal development or therapeutic settings.

The key therapeutic factors emerging from several reviews of the wilderness therapy literature (Hans, 2000; Wilson and Lipsey, 2000; Russell and Phillips-Miller, 2002; Russell, 2006b) which facilitate a positive behavioural change include personal and interpersonal development, restructuring of staff-youth relationships and reduced recidivism rates.

Wilderness therapy programmes facilitate self-awareness, communication, cooperation and contribution to the wellbeing of the group whilst allowing participants to discover what they have taken for granted (Connor, 2007). Participation in wilderness therapy also helps to address problem behaviours by fostering personal and social responsibility and providing the opportunity for emotional growth (Russell, 1999).

4.7 The language of green care

The terms used in relation to green care in different countries and the context in which they are used provide some information on the state of development of the different approaches in those countries. In general, although this is not a rule, the greater the degree of development of green care interventions the greater the sophistication of the terminology. As practices and procedures develop so the terms are created or appropriated from other fields and pass into general use. The terms used may reflect the structure and organisation of green care in that country. The Farming for Health Community of Practice has produced an International Glossary of Terms for care farming. The scope of the glossary is broad and encompasses much of the general field and principles of green care. The glossary can be accessed from the Community of Practice website: http://www.farmingforhealth.org/

References (Section 4)

Bandoroff, S. (1989) *Wilderness-Adventure Therapy for Delinquent and Pre-Delinquent Youth: A Review of the Literature.* University of South Carolina.

Barak, Y., Savorai, O., Mavashev, S. and Beni, A. (2001) 'Animal-Assisted Therapy for Elderly Schizophrenic Patients: A One-Year Controlled Trial. *American Journal of Geriatric Psychiatry,* 9(4), 439-442.

Berget, B. (2006) *Animal-assisted therapy: effects on persons with psychiatric disorders working with farm animals,* Philosophiae Doctor Thesis 2006, 20: Norwegian University of Life Sciences.

Bernstein, P. L., Friedmann, E. and Malaspina, A. (2000) 'Animal assisted therapy enhances resident social interaction and initiation in long term care facilities'. Anthrozoos, 13, 213-224.

Bettmann, J. (2007) 'Changes in adolescent attachment relationships as a response to wilderness treatment'. *Journal of the American Psychoanalytic Association,* 55, 259-265.

Bird, W. (2007) N*atural Thinking: Investigating the links between the Natural Environment, Biodiversity and Mental Health,* Report for the Royal Society for the Protection of Birds, UK. Available from website: http://www.rspb.org.uk/Images/naturalthinking_tcm9-161856.pdf

Bokkers, E. A. M. (2006) Effects of interactions between humans and domesticated animals. In J. Hassink and M. van Dyke (eds.) *Farming for Health. Green-Care Farming Across Europe and the United States of America,* pp. 31-41, Wageningen UR Frontis Series, Vol. 13. Springer Dordrecht: Wageningen.

Burls, (Pedretti) A. (2008) 'Seeking nature: a contemporary therapeutic environment. *Therapeutic Communities,* 29, 3, Autumn.

Burls, A. (2007) 'Promoting public health and mental well-being through ecotherapy'. *Journal of Public Mental Health,* 6(3).

Burls, A. and Caan, A. W. (2005) Editorial: human health and nature conservation. *British Medical Journal,* 331, 1221–1222.

Burns, G. W. (1998) *Nature-guided Therapy: Brief Integrative Strategies for Health and Well-being.* Philadelphia, PA: Brunner/Mazel.

Burns, G. W. (2009) The Path to happiness: Integrating Nature into Therapy for Couples and Families; in Buzzell, L. and Chalquist, C. (2009) *Ecotherapy. Healing with nature in mind.* San Francisco Sierra Club Books

Buzzell, L. and Chalquist, C. (2009) Ecotherapy. *Healing with nature in mind.* San Francisco Sierra Club Books

Caulkins, M. C., White, D. D. and Russell, K. C. (2006) 'The role of physical exercise in Wilderness Therapy for troubled adolescent women'. *Journal of Experiential Education,* 29, 18-37.

Clinebell, H. (1996) *Ecotherapy: Healing Ourselves, Healing the Earth: A Guide to Ecologically Grounded Personality Theory, Spirituality, Therapy and Education.* Minneapolis, MN: Fortress.

Conner, M. (2007) *'What is Wilderness Therapy and a Wilderness Program?'* Website: http://www.wilderness-therapy.org/Wilderness/WhatIsWilderess.htm

Cobb, S. (1976) 'Social support as a moderator of life stress'. *Psychosomatic Medicine,* 38, 5, 300-314.

Crisp, S. (1998) 'International Models of Best Practice in Wilderness and Adventure Therapy', *Exploring the Boundaries of Adventure Therapy: International Perspectives,* Proceedings of the International Adventure Therapy Conference, Perth, Australia.

Davis-Berman, J. and Berman, D. S. (1994) *Wilderness Therapy: Foundations, theories and research.* Dubuque, IA: Kendall/Hunt Publishing.

Diaz, A. and Motta, R. (2008) 'The effects of an aerobic exercise program on post traumatic stress disorder symptom severity in adolescents'. *International Journal of Emergency Mental Health,* 10(1), 49-60.

Dunn, A. L., Trivedi, M. H., Kampert, J. B., Clark, C. G. and Chambliss, H. O. (2005) 'Exercise treatment for depression'. *American Journal of Preventive Medicine,* 28(1), 1-8.

Fine, A. H. (Ed.) (2006) *Handbook on Animal-Assisted Therapy. Theoretical Foundations and Guidelines for Practice,* Second Edition. San Diego: Academic Press.

Fisher, A. (2009) 'Ecopsychology as radical praxis', In L. Buzzell and C. Chalquist (eds.) *Ecotherapy. Healing with Nature in Mind.* San Francisco: Sierra Club Books.

Fitzpatrick, J. C and Tebay, J. M. (1997) 'Hippotherapy and therapeutic riding', In C.C. Wilson and D. C. Turner (eds.) *Companion Animals in Human Health* (Eds), pp. 41-58, London: Sage Publications.

Friedmann, E. and Thomas, S. A. (1995) 'Pet ownership, social support, and one-year survival after acute myocardial infarction in the Cardiac Arrhythmia Suppression Trial (CAST)'. *American Journal of Cardiology,* 76, 1213-1217.

Friedmann, E., Katcher, A. H., Lynch, J. J and Thomas, S. S. (1980) 'Animal companions and one-year survival of patients after discharge from a coronary care unit'. *Public Health Reports,* 95, 307-312.

Growth Point, (1999) 'Your future starts here: practitioners determine the way ahead'. *Growth Point,* 79, 4-5.

Hans, T. A. (2000) 'A meta-analysis of the effects of adventure programming on locus of control'. *Journal of Contemporary Psychotherapy,* 30(1), 33-60.

Hartig, T. , Evans, G. W. , Jamner, L. D., Davis, D. S. and Garling, T. (2003) 'Tracking restoration in natural and urban field settings'. *Journal of Environmental Psychology,* 23, 109-123.

Hassink, J. (2003) *Combining Agricultural Production and Care for Persons with Disabilities: a New Role of Agriculture and Farm Animals.* Netherlands: Wageningen University.

Hassink, J. and van Dijk, M. (eds.) (2006) *Farming for Health: Green-care Farming across Europe and the United States of America.* Dordrecht: Springer. Available at: http://library.wur.nl/frontis/farming_for_health/

Hassink, J., Zwartbol, C., Agricola, H., Elings, M. and Thissen, J. (2007) 'Current status and potential of care farms in the Netherlands'. *Wageningen Journal of Life Sciences,* NJAS, 55(1), 21-36.

Hine, R., Peacock, J. and Pretty, J. (2008) *Green Spaces: Measuring the Benefits,* Report for the National Trust. Available at: http://www.nationaltrust.org.uk/main/w-green-lung-1a2.pdf

Hine, R., Peacock, J. and Pretty, J. (2008) 'Care farming in the UK: Contexts, benefits and links with therapeutic communities'. *International Journal of Therapeutic Communities,* 29(3), 245-260.

Hobbs, T. R. and Shelton, G. C. (1972) 'Therapeutic camping for emotionally disturbed adolescents'. *Hospital & Community Psychiatry,* 23, 298-301.

Kruger, K. A. and Serpell, A. (2006) 'Animal-assisted interventions in mental health'. In A. H. Fine (ed.) *Handbook on Animal-Assisted Therapy. Theoretical Foundations and Guidelines for Practice, Second Edition,* Academic Press: San Diego.

Lebel, J. (2003) *Health: an ecosystem approach* Ottawa, Canada: International Development Research

Mallon, G. P. (1994) 'Cow as co-therapist: utilization of farm animals as therapeutic aides with children in residential treatment'. *Child and Adolescent Social Work Journal,* 11, 455-474.

McNicholas, J., & Collis, G. M. (2006). 'Animals as social supports: insights for understanding animal-assisted therapy'. In A. H. Fine (Ed.) *Handbook on animal-assisted therapy* (2nd ed., pp. 49–71). San Diego, CA: Elsevier.

Mental Health Foundation. (2005) *Up and Running? Exercise Therapy and the Treatment of Mild or Moderate Depression in General Practice.* London: Mental Health Foundation.

Mental Health Foundation. (2009) *Moving on Up.* London: Mental Health Foundation.

MIND. (2007) *Ecotherapy: The Green Agenda for Mental Health,* London: MIND.

Peacock, J., Hine, R. and Pretty, J. (2007) *Got the Blues? Then find some Greenspace: The Mental Health Benefits of Green Exercise Activities and Green care,* University of Essex report for Mindweek.

Peacock, J., Hine, R, and Pretty, J. (2008) *The Turnaround 2007 Project. Report for the Wilderness Foundation,* Available on request from the Wilderness Foundation at: http://www.wildernessfoundation.org.uk/contact-us/

Pretty, J., Griffin, M., Peacock, J., Hine, R., Sellens, M. and South, N. (2005b) *A Countryside for Health and Wellbeing; the Physical and Mental Health Benefits of Green Exercise.* Sheffield: Countryside Recreation Network.

Pretty, J., Peacock, J., Hine, R., Sellens, M., South, N. and Griffin, M. (2007) 'Green exercise in the UK countryside: effects on health and psychological well-being, and implications for policy and planning'. *Journal of Environmental Planning and Management,* 50(2), 211-231.

Pretty, J., Peacock, J., Sellens, M. and Griffin, M. (2005a) 'The mental and physical health outcomes of green exercise'. *International Journal of Environmental Health Research,* 15(5), 319-337.

Roszak, T., Gomes, M. and Kanner, A. D. (eds.) (1995) *Ecopsychology: Restoring the Earth, Healing the Mind.* San Francisco, CA: Sierra Club Books.

Russell, K. C. (1999) *Theoretical Basis, Process and Reported Outcomes of Wilderness Therapy as an Intervention and Treatment for Problem Behaviour in Adolescents.* Idaho: University of Idaho, College of Graduate Studies.

Russell, K. C. (2006a) 'Evaluating the effects of the Wendigo Lake Expeditions program on young offenders'. *Journal of Juvenile Justice and Youth Violence,* 4, 185-203.

Russell, K. C. (2006b) 'Brat camp, boot camp, or...? Exploring wilderness therapy program theory'. *Journal of Adventure Education and Outdoor Learning,* 6, 51-68.

Russell, K. C. and Phillips-Miller, D. (2002) 'Perspectives on the wilderness therapy process and its relation to outcome'. *Child and Youth Care Forum,* 31, 415-437.

Scholl, S. (2003) Tiergestützte Therapie und Pädagogik am Bauernhof. Vortrag bei der 56. Sitzung der Arbeitsgemeinschaft ländliche Sozialforschung, Wien 7.11.2003.

Scholl, S., Grall, G., Petzl, V., Röthler, M., Slotta-Bachmayr, L. and Kotrschal, K. (2008) 'Behavioural effects of goats on disabled persons'. *International Journal of Therapeutic Communities,* 29(3), 297-309.

Sempik, J., Aldridge, J. and Becker, S. (2003) S*ocial and Therapeutic Horticulture: Evidence and Messages from Research.* Reading: Thrive and Loughborough: CCFR.

Sempik, J. and Spurgeon T. (2006) 'Towards a rigorous approach to studying social and therapeutic horticulture for people with mental health problems', *Growth Point,* 107, 4-7.

Serpell, J. A. (1991) 'Beneficial effects of pet ownership on some aspects of human health'. *Journal of the Royal Society of Medicine,* 84, 717-720.

Sims, J., Galea, M., Taylor, N., Dodd, K., Jespersen, S., Joubert, L. and Joubert, J. (2009) 'Regenerate: assessing the feasibility of a strength-training program to enhance the physical and mental health of chronic post stroke patients with depression'. *International Journal of Geriatric Psychiatry,* 24(1), 76-83.

Stathopoulou, G., Powers, M. B., Berry, A. C. and Smits, J. A. J. (2006) 'Exercise Interventions for Mental Health: A quantitative and qualitative review'. *Clinical Psychology: Science and Practice,* 13(2), 179-193.

Townsend, M. (2006) 'Feel blue? Touch green! Participation in forest / woodland management as a treatment for depression'. *Urban Forestry and Urban Greening,* 5, 111-120.

Wilson, S. J. and Lipsey, M. W. (2000) 'Wilderness challenge programmes for delinquent youth: A meta-analysis of outcome evaluations'. *Evaluation and Programme Planning,* 23, 1-12

5 Green care and its links with other interventions and approaches

This section explores the similarities and links between green care, occupational therapy and therapeutic communities as psychosocial approaches to promote health and well-being.

5.1 Occupational therapy and green care

Occupational therapy is based on an assumption that a pleasant and an appropriate occupation can promote health and well-being. According to Kielhofner (2002), human beings share an innate occupational nature. Human occupation "refers to the doing of work, play, or activities of daily living within a temporal, physical, and sociocultural context that characterizes much of human life (p. 1)." It is an interesting notion that time becomes actually evident by doing, temporal cycles mark daily living. Green care is full of activities that have to be done in time and often at set times, such as the feeding of cattle, so green care interventions can be used to structure the stream of time.

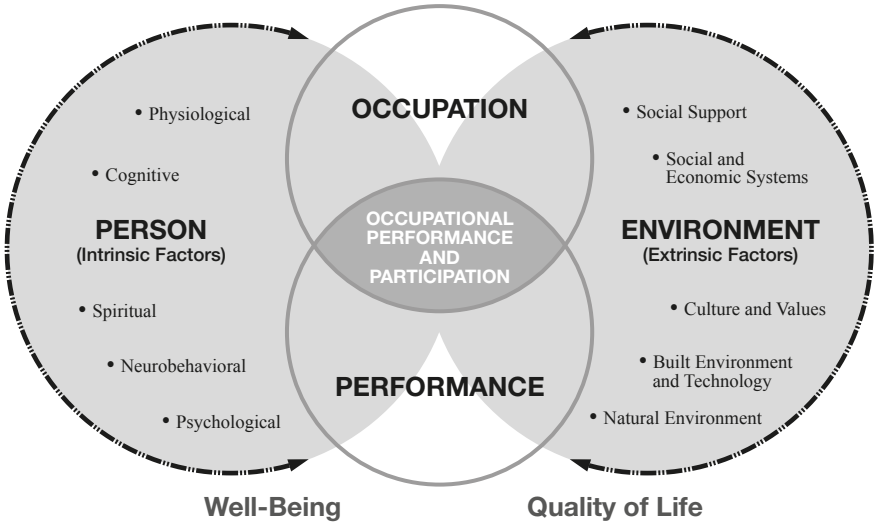
The main goal in occupational therapy is to help patients to live satisfying and productive lives when their occupational performance or participation is restricted by providing the means to manage and to adapt to the new situation. A person's daily occupation can be limited as a result of health problems, a poorly designed environment, or problems in their social life (Christiansen et al, 2005). The affordances and restrictions of an environment define the occupational performance, which in turn modify one's self-concept and social identity. Individuals both adapt to their environment and try to change it according to their personal objectives. Personally meaningful activities motivate and promote the development of physical and social skills which in turn leads to feelings of capability and competence. In occupational therapy the patient's engagement is essential for successful outcomes (Holvikivi, 1995).

Through occupational performance individuals are connected to roles and their socio-cultural context. There are several models connecting person, environment, occupation, and performance, for example, the person-environment-occupation-performance model (PEOP) proposed by

Christiansen et al (2005) and Kielhofner's model of human occupation (MOHO) (Kielhofner, 2002). The relationships between people, environments, and occupations are dynamic and complex. Each person has her or his personal characteristics; environments are unique, and the meanings and value of occupations vary (Christiansen et al, 2005).The PEOP model can be used to describe the interaction of these elements within green care interventions.

PEOP is a client-centred model aimed at improving the everyday performance of necessary and valued occupations and meaningful participation. The model identifies factors relevant to occupational performance and participation and can therefore be used to target areas for therapeutic intervention. The model consists of four elements: what people want or need to do in their daily living (occupation), the act of doing the occupation (performance), and the personal (person) and environmental (environment) factors which support, enable, or restrict the performance of the activities, tasks, and roles. All of these elements put together lead to occupational performance and participation (Figure 5.1).

Figure 5.1: The Person-Environment-Occupation-Performance model (PEOP)



(Christiansen et al, 2005)

The model is based on a belief that people will demonstrate mastery (human agency) within their world. To meet their personal needs, individuals must be competent enough to effectively use the available resources within their living environment. Another postulate of the

model is that people develop self-identity and derive a sense of fulfilment through daily occupations. Meaningful and successful experiences develop confidence and feelings of mastery which motivate them to meet new challenges. Occupational therapy interventions may include building personal capabilities, modifying environments, or reconsidering occupational processes and goals (Christiansen et al, 2005). These too are outcomes which green care programmes aim to achieve.

5.2 Therapeutic communities as green care communities

Therapeutic communities for adults, in specific mental health settings, came about as a result of two British war time experiments, at Northfield Military Hospital in Birmingham and Mill Hill in London (Kennard, 1998). Both were innovative group based programmes for aiding the recovery of battle shocked soldiers, based on psychoanalysis and social learning theory; they included little horticultural or agricultural activity. From these, the modern therapeutic communities in the British National Health Service have evolved. However, although they are often identified as the origin of therapeutic communities, their work was predated by important movements in mental health generally called 'moral treatment', more than a century beforehand. For example, Samuel Tuke founded the Retreat Hospital in 1796, as a reaction by the Quakers against the poor conditions then existing for the treatment of mental illness. In these more humane settings of care, hospital farms were an important part of the therapy and ideas of self-sufficiency were included.

Since the middle of the twentieth century, specialised therapeutic communities have also developed in British prisons, using a democratically structured programme of group therapy. These have limited but variable access to therapeutic horticultural activities.

Illich (1976) strongly criticised the way in which people's bodily condition was made pathological and often worse by over-zealous medicalisation and "expropriation of their health". Therapeutic communities, although often residing in old-fashioned institutional settings, espoused a very different view to the traditional medical one: rather than health and its care being expropriated by irresistible and powerful external forces, healing is substantially the responsibility of the individuals concerned and their

communities. In this, much of health and its maintenance is a mysterious and indefinable process, requiring a 'leap of faith' that would not be openly accepted by much of medical orthodoxy. In this context, for the final few decades of the twentieth century, "scientific psychiatry" was much in ascendancy, with widespread use of medication and little consideration given to other treatments. The parallel quick fix in agriculture was the introduction of pesticides, insecticides and fertilisers in the second half of the twentieth century. There is now an appreciation that these "modern methods" are somewhat limited in their ability to solve complex problems.

Values

A core value of therapeutic communities that is often misunderstood and therefore under threat, is that of the judicious non-use of medication in affecting change in mental activity, perception or behaviour. Although medication can alleviate symptoms, it can be a hindrance to treatment – and could be likened to spraying ground containing healthy desired plants and weeds with weed killer, thus killing off both wanted and unwanted growth. Therapeutic community treatment works in enabling people to live in a community "untainted" by artificial means of elevating mood or suppressing other symptoms: the principal therapeutic tool is people's relationships with each other and with the whole community.

A clear parallel between green care and therapeutic communities is the expectation of change, growth and transformation. Apart from the direct analogy between botanical and human emotional development, the metaphorical meaning of 'growth' is true for both. It is clear that green care projects which are not specifically set up as therapeutic communities are often experienced as a transformational process, by those participating in them both as clients and staff.

Culture

The culture of a therapeutic community has been described in several different theoretical frameworks. Rapoport, working at Henderson Hospital in the heyday of 'social psychiatry' in the 1950s, described the essential themes as *democratisation, reality confrontation, communalism and permissiveness* (Rapoport, 1959).

Main described the crucial importance of a *"culture of enquiry"* in which everything that happens within the community – from behaviour, to management matters, to emotional experiences – is always open to scrutiny and question by any of the members in the community (Main, 1946). One of the more challenging aspects of a TC often pointed out by members undergoing treatment in one is that "there is no place to hide!" In Haigh's developmental model for therapeutic community (Haigh, 1998), the first task when people join is for *attachment,* or 'a sense of belonging' to be engendered, and as they remain engaged the emotional culture needs to feel safe enough to do so – using psychoanalytic ideas of *containment.* A culture of enquiry requires also a culture of openness in order to function, so people can find their voice and be able to express material that is often difficult and painful: this is a principle about *communication.* Once members have found their voice they will be better engaged in the shared purpose of the community, will be able to find their place amongst others, and experience a sense of *inclusion* in it. Through the overtly democratic processes of a therapeutic community a strong sense of empowerment for the members is engendered. This is through a process of personal *agency:* members taking ownership of all the processes within the community and taking responsibility for themselves and each other.

Theory

There is an uncertain line between therapy and learning, and this means that therapy can sometimes be seen as an educational, or 'personal development' activity – while learning can sometimes, of itself, be therapeutic in the sense of 'personal growth'. Therapy can be an opportunity to put learning into practice, and learning is crucial to therapy. Therapeutic factors are crucial to learning as one cannot learn any more than simple facts unless in a satisfactory relationship with one's teacher. The therapeutic process, when seen through the medical lens of pathology, is one in which the best that can be achieved is "learning to be less troubled, or distressed, or sick". But when seen through an educational lens, therapy is a process of growth, development and emancipation – and should be recognised as such.

On a high tide of individuality, Western culture does not highly value communal and group living. For example, some local authorities prevent residential care homes for learning disabled residents having washing-up

rotas, on the grounds that they are "coercive". Group theory takes a starkly and radically different view to this. Foulkes explains how the primary social experience of people is one's place amongst others, rather than as an isolated individual:

> *"Each individual – itself an artificial, though plausible abstraction – is centrally and basically determined, inevitably by the world in which he lives, by the community, the group of which he forms a part. The old juxtaposition of inside and outside world, constitution and environment, individual and society, fantasy and reality, body and mind and so on, are untenable. They can at no stage be separated from each other, except by artificial isolation."* (Foulkes, 1964)

Practice

Therapeutic communities are not mainstream. They are a minority interest in mental health; only serving a small proportion of the prison population; very few schools are run therapeutically; and most addiction treatment is using a harm reduction model. It is probably true that 'small is beautiful' in therapeutic communities, in that each needs to grow and develop 'in its own soil', so that it can be duly owned and nurtured by those who know it best.

Programmes in therapeutic communities frequently work to the seasons; a typical length of stay in a British National Health Service facility would be eighteen months: the first three months of this is a 'settling-in' period, and the last three months as 'getting ready to leave'. This allows for the passage of the seasons in a period of maturation.

As well as being beholden to the rhythm and cycle of the seasons, other commonly used horticultural and agricultural concepts are relevant.

- *Pruning* needs to be undertaken in order to cut back unhealthy or outdated coping mechanisms and keep the work within safe boundaries.
- Sometimes work in a therapeutic community becomes arid and dry and needs *irrigation.* The psychological equivalent of this is having a range of different activities within the treatment programme.
- Also, little growth is possible without suitable *nourishment,* and this "fertiliser" can either be found in developing relationships

between members of the community itself or with staff. Often this is accomplished by people who have moved on through the programme coming back and helping to nurture those earlier on in the process.

- Crops thrive best when subject to *rotation* or mixed planting in small domestic settings: therapeutic community programmes often benefit from 'refreshing' by changing the therapy ingredients (the mixture of types of groups); different talents can be used from individual members to contribute to the health and well being of the whole community.

Green care covers a wide range of projects, from gentle exposure to animals or agriculture to intensive programmes of gruelling physical and psychotherapeutic group activities. Therapeutic communities are much closer to the 'hard end' of this spectrum, being essentially challenging and never solely supportive. They are nearly always places where conflict is expressed, explored and understood rather than avoided; this strong challenging element is often known as "tough love".

5.3 The natural setting for green care

Throughout this document it has been stressed that green care is a broad concept that includes a range of different approaches, all of which utilise the natural environment. Within the scope of that natural environment there are many different individual settings that have been used for green programmes, in fact, it is difficult to imagine a setting that has not been used for one.

Whilst care farms and therapeutic gardens are clearly defined as areas for green care others such as allotments or community gardens can be overlooked. In fact, it is quite likely that some organised programmes on allotments and community gardens are not seen as green care by their workers or participants. It is also likely that many of those have not yet heard of green care. Hence, it is useful to consider different approaches to how green space can be used, particularly within the urban environment.

5.3.1 Accessible green space

Access to nature and greenspaces is essential for green care. There are many reasons why people find it difficult to engage with nature, both

in urban and rural areas, and often it is those who do not access nature who could benefit from it the most. These barriers are varied and recent studies have shown that there are physical, social and cultural reasons why people do not access nature, even if there are local greenspaces present (see: Countryside Recreation Network. 2001; Pretty et al, 2005). When deciding on or developing a greenspace to be used for green care activities, maximum accessibility and inclusion will be achieved when these barriers are addressed.

Accessibility is therefore a factor of person-environment fit and refers to the degree to which people with different abilities are able to access the environment. Physical accessibility is often emphasized due to planning norms or regulation in different countries; cognitive accessibility refers to the environment in which the information needed to move and act is understandable to the users; and social accessibility includes welcoming atmosphere and the feelings of security and safety.

In green care environments different levels of accessibility can be implemented depending on the functional abilities and needs of clients and the targets of interventions. The norms for physical accessibility are relatively universal, so they can be applied rather broadly in different environments and concern the dimensions, inclination and deviation of pathways, paving materials, and colours, the placement of signing and resting places and what kind of furnishing to use (for example, SuRaKu, 2008). Practical considerations regarding vegetation would preclude poisonous, thorny and common plants causing allergic reactions; plants which drop their fruits or berries on the pathways; dense vegetation which may obstruct movement and visual exploration. In addition to practical considerations, participants must also feel welcomed and safe, in a culturally sensitive environment and at ease in the chosen natural environment. Physical, cognitive and social accessibility are particularly important considerations for green care where greenspaces are targeted for use by vulnerable people.

5.3.2 Urban greening

In addition to providing accessible greenspaces for urban populations, and for use in green care settings, the ‘greening’ of our cities can bring varied environmental, health, economic and social benefits and so can contribute

to sustainable development in urban areas (Relf and Lohr, 2003; Brethour et al, 2007).

In addition to contributing to biological diversity and providing habitats for various plants, animals and insects, the ecological services and environmental benefits provided by urban and rural greenspaces include effects on microclimate, pollution and water dynamics and provide attractive views (Relf and Lohr, 2003; Brethour et al, 2007). Trees in cities can moderate the 'heat island' effect and can help to reduce climate extremes. Green infrastructure can provide shelter against wind and noise, and can reduce glare and reflection from buildings. Plants act as a sink for carbon and produce oxygen. Air quality improvements can occur from the removal of pollutants (both gaseous and particular contaminants) by urban trees. Plants have also been used to remove contaminants from soil. Green, natural areas reduce surface water run-off in built up areas, improving flood control and enabling the recharge of groundwater stocks.

As previously highlighted in this report, nature and plants can provide stress reduction, decrease discomfort, introduce calming effects, increase positive emotions, reduce aggression, improve concentration, and encourage active and healthy lifestyles. Rural areas and urban greenspaces can provide areas in which city dwellers can relax and unwind and the health benefits associated with urban greening can range from the individual to the community and population level.

Urban greening also provides economic benefits in terms of reduced heating and cooling costs for buildings, improved property values, enhanced beauty and improved privacy and security of buildings and communities (Relf and Lohr 2003; Brethour et al, 2007).

Urban greening can bring about social benefits by raising the quality of neighbourhoods which in turn fosters civil behaviour and responsibilities. Increased social benefits are gained when citizens are actively involved in urban 'community' greening. Urban community greening refers *"to the leadership and active participation of city residents who take it upon themselves to build healthier sustainable communities through planning and caring for "socio-ecological spaces"* and the associated flora, fauna, and structures" (Tidball and Krasny, 2006). Communities have used urban greening projects successfully to combat against neighbourhood crime and other social problems. Urban community greening can therefore be a tool

for community development, neighbourhood empowerment and social reform, revitalizing communities (Westphal, 1999).

Urban community greening includes establishment of community gardens, urban agricultural projects, tree planting and other plant-related activities. Urban community greening can contribute to social capital and community capacity building as residents get to know each other while sharing experiences (Westphal, 1999). Community greening encourages feelings of connectedness and empowerment, fosters an increased sense of ability, and provides sense of accomplishment, pride and ownership. Resident involvement has a positive impact on neighbourhood attachment, residential satisfaction, political awareness and ties to community resources strengthen (Armstrong, 2000).

Tidball and Kransy (2006) have introduced the idea that community greening can create resilience within urban socio-ecological systems. Systems which lack resilience are susceptible to disturbance whereas diversity in functional and structural controls develops urban resilience. Urban community greening builds up social and human capital in cities by engaging diverse stakeholders, promoting self-organization to learn from and adaptively apply different types of knowledge. In the same way, the process of 'community' greening is a prevalent theme in many green care approaches, where health and social benefits are derived from nurturing greenspaces together with others.

5.3.3 Food production in urban areas: Allotment gardening and urban agriculture

Individual and collective approaches to growing food in urban areas link closely with many examples of green care. Green care initiatives such as STH, and care farming can often include vegetable and fruit cultivation for both therapeutic and consumption purposes. The objectives of allotment and community gardening and urban agriculture initiatives can vary according to settings and circumstances. In developing countries such initiatives are often primarily for food production and poverty mitigation, whereas in more developed countries, although historically they have been important for food production, recreation and leisure are now key considerations.

Ecotherapy is more about urban green space access and conservation of biodiversity, however some of its by-products can include permaculture and organic food production or the proliferation of wild plants for urban gardens.

Allotment gardening

Allotments or 'allotment gardens' are small parcels of land which are rented out to tenants for the main purpose of cultivating food. Fields of allotments are a familiar sight in many European countries, for example, in the UK, Germany and the Netherlands. They enable city dwellers with little or no land around their houses to grow their own produce and also, very importantly, to engage with others doing the same. Thus, they serve not only the green but also the social agenda and in some cases are settings for green care programmes.

Gardens and allotments used to be vital sources of food for the population in several European countries. In the UK, for example, in the early 20th century one and a half million hectares of allotments produced about half of all fruit and vegetables consumed domestically (Pretty, 2002). The prominence of allotments in urban landscapes appeared after the industrial revolution and peaked during the two World Wars when people were encouraged to grow food in the time of shortage which lasted into the 1950s.

Allotments achieved a unique place in the culture of urban life which is eloquently described by Crouch and Ward (1997). However, their popularity declined during the times of plenty in the 1960s and as a result many sites were sold off by local authorities. Vacant allotment plots have also been rented to community groups for use as community gardens and for social and therapeutic horticulture. Hence they serve as settings for green care.

Recently, the area under allotments in the UK has fallen to less than fifteen thousand hectares (Pretty, 2002) but still three hundred thousand families garden these allotments. One estimate in 1996 showed production in excess of two hundred thousand tonnes of fresh produce each year, worth five hundred and sixty million pounds (Garnett, 1996). However, the popularity of allotment gardening has once again increased, particularly among young people. This has been aided by low rental costs and in some places there are long waiting lists

Although allotments have different histories, they are present in many European countries. In Germany, for example, allotments were also originally provided by some municipalities in the nineteenth century for the poor to grow food and have subsequently evolved into recreational gardens. One term sometimes used for allotments is 'Schrebergaerten' after Doctor Daniel Gottlob Moritz Schreber who in the mid nineteenth century promoted the use of such gardens, particularly for children and young people from cities to enable them to experience fresh air, exercise and useful occupation. However, Schreber's rigid and disciplinarian attitudes towards child care and pedagogy have overshadowed his views on the benefits of nature for human health. There are currently around 1.4 million allotment plots in Germany organised in groups of 'garden colonies'. These are of similar size to UK allotment plots and typically measure around 200 to 400 m^2. They too were once primarily a source of food and have since become a recreational resource. They have also suffered a decline, for example, there are currently around 80,000 plots in Berlin, down from a peak of 200,000 immediately after the Second World War. However, as in the UK, they have experienced resurgence particularly among the young. Kleingaerten are now seen as a valuable social, ecological and educational resource – some have been used as school gardens and for disabled communities (for a brief history of German allotments see Drescher, 2001).

Urban agriculture

Urban (or peri-urban) agriculture broadly describes agricultural livelihoods (including crops, livestock, fisheries, and forestry activities) within or surrounding the boundaries of cities (Urban Harvest, 2009). The land used may be private residential land (private pieces of land, or building balconies, walls or roofs), public roadside land, or river banks. Urban agriculture is an industry located within (intra-urban) or on the fringe (peri-urban) of a town or city, which grows, processes and often distributes a diversity of food and non food products to the urban area (Mougeot, 2006).

As with rural agriculture, urban farming is practiced for income-earning or food-producing activities. It contributes to food security in two ways, firstly it increases the amount of food available to people living in cities, and secondly, it allows fresh vegetables and fruits to be made available to urban consumers. Urban agriculture projects as with rural farms are often able to offer facilitated green care services or sheltered employment to green care clients.

5.3.4 Food production in urban areas: city farms and community gardening

Community gardening has been a success in the US for many years and involves communities getting together to transform derelict spaces and to mainly (but not exclusively) grow food. In New York, Green Thumb is the city's community gardening programme, promoted from within the municipal authority, and aimed at turning vacant lots blighted with rubbish, rats and abandoned cars into thriving community gardens (Pretty, 2002). In 1995, about twenty thousand households were actively involved in managing seven hundred community gardens in New York (Weissman, 1995).

In the 1960s UK community groups were inspired by the community gardening movement in the US and decided that derelict land in the neighbourhood should be used as a community garden – a place that is run by the community to meet their own needs. Over the years the number of community gardens has increased and then the city farm concept in the UK took off in 1972, when Kentish Town City Farm was established in Kentish Town, London (Folkes, 2005). The local people that had formed a community group decided to create a larger project, which included not only gardening space, but also farm animals. The concept of introducing farm livestock was also influenced by the children's farm movement in the Netherlands.

City farms and community gardens are community-managed projects in urban areas, working with people, animals and plants. They range from tiny wildlife gardens to fruit and vegetable plots on housing estates, from community polytunnels to large city farms (FCFCG, 2009). Although some city farms have paid employees or operate in partnership with local authorities, most rely heavily on volunteers. The aim of city farms is to improve community relationships and offer an awareness of horticulture and farming to people who live in built-up areas.

City farms can give urban residents the opportunity to interact with farm animals and crops. For some people who may never visit a rural farm this provides a chance to see how farm animals are raised and to make the link between 'agriculture' and 'food'. City farms provide a focus for educational, environmental and conservation activities and many city farms also offer structured green care activities for a range of vulnerable people.

5.3.5 Food production in rural areas: community supported agriculture and box schemes

Another model of food production relevant to green care is that of community supported agriculture or CSA. Community-supported agriculture (also known as "community sponsored agriculture") is a relatively new socio-economic model of food production, sales, and distribution aimed at both increasing the quality of food while substantially reducing potential food losses and financial risks for the producers. Over the last 20 years in the US and Canada, CSA has become a popular way for consumers to buy local, seasonal food directly from a farmer, with over 1000 CSAs in existence (Pretty, 2002). Typically a farmer offers a certain number of 'shares' to the public and these usually consist of a box of vegetables (but other farm products such as meat, flowers herbs etc. may be included). Interested consumers purchase a share and in return receive a box (bag, basket) of seasonal produce weekly throughout the farming season.

Like many green care programmes, CSA operates with a much greater-than-usual degree of involvement of consumers and other stakeholders, which results in a stronger than usual consumer-producer relationship. The core design includes developing a cohesive consumer group that is willing to fund a whole season's budget in order to get quality foods.

In the UK, box schemes outnumber CSAs. These schemes began in the early 1990s and now over 550 schemes supply households weekly. Farmers contract to supply basic vegetables and add other produce depending on the season. Over time, box schemes also increase on-farm biodiversity as in response to consumer demand, many farmers have increased the diversity of crops grown.

A central rationale for both CSAs and box schemes is that they emphasise that payment is not just for the food, but for support of the farm as a whole. It is the linkage between farmer and consumer that guarantees the quality of the food. This encourages social responsibility, increases the understanding of farming issues amongst consumers, and results in greater diversity in the farmed landscape (Pretty, 2002). Many of these farms either already provide green care services in conjunction with food production or are often ideally suited to do so as they employ more people per hectare, and provide livelihoods on a much smaller area than conventional farming.

5.3.6 Community owned farms

A slightly different but nevertheless related concept to CSA is the idea of community owned farms. Most farmland in developed countries is owned by individuals or companies, who either farm the land themselves, pay others to do it for them, or rent the land to tenants. However, the notion that farmland can indeed be 'owned', as other commodities are owned, has been questioned on the basis that land should be for the common good, not for private profit.

An alternative model of ownership, pioneered in the UK is 'community land trusteeship' (see Community Land Trust, 2008) where

> *"Land is taken out of the market and separated from its productive use so that the impact of land appreciation is removed, therefore enabling long-term affordable and sustainable local development."*

If green care services are to be offered by farms, then these farms need to be financially secure. Community farm ownership is one way to revitalise a farm by involving many other people, including non-farmers. Their involvement brings money, skills, enthusiasm, new ideas and support – financial and social capital – to a farm enterprise.

Community land trusts in the United Kingdom are rare, doubtless because of the considerable effort required to create them. A case study of one, recently-created farm (Fordhall Farm), together with research into the motivations of shareholders for supporting it financially, is given by Hegarty (2008) and Hollins and Hollins (2007).

References (Section 5)

Armstrong, D. (2000) 'A survey of community gardens in upstate New York. Implications for health promotion and community development'. *Health and Place,* 6(4), 319-327.

Brethour, C., Watson, G., Sparling, B., Bucknell, D. and Moore, T-I. (2007) *Literature Review of Documented health and environmental benefits derived from Ornamental Horticulture Products. Final Report.* Agriculture and Agri-Food Canada Markets and Trade, Ottawa, Ontario.

Christiansen, C. H., Baum, C. M. & Bass-Haugen, J. (eds.) (2005) *Occupational Therapy: Performance, Participation and Well-being,* 3rd Edition. Thorofare NJ: SLACK Incorporated.

Community Land Trust. (2008) Website: http://www.communitylandtrust.org.uk/

Countryside Recreation Network (2001) *Removing Barriers, Creating Opportunities: Social Inclusion in the Countryside,* Sheffield: Countryside Recreation Network.

Crouch, D. and Ward, C. (1997) *The Allotment: Its Landscape and Culture:* Nottingham: Five Leaves Publications.

Drescher, A. V. (2001) 'The German Allotment Gardens – a model for poverty alleviation and food security in Southern African cities?', Proceedings of the Sub-Regional Expert Meeting on Urban Horticulture, Stellenbosch, South Africa, January 15-19, FAO/University of Stellenbosch. Available at: http://www.cityfarmer.org/germanAllot.html

Federation of City Farms and Community Gardens. (2009). Website: http://www.farmgarden.org.uk/farms-gardens

Folkes, J. (2005). A comparison of city farms in London and Vienna. TAT- Universitätslehrgang "Tiergestützte Therapie und tiergestützte Fördermaβnahmen", Vienna, Austria.

Foulkes, S. H. (1964) *Therapeutic Group Analysis.* London: Allen & Unwin.

Garnet T. (1996) *Growing Food in Cities: A Report to Highlight and Promote the Benefits of Urban Agriculture in the UK.* Safe Alliance and National Food alliance, London.

Haigh, R. (1998) 'The quintessence of a therapeutic environment'. In P. Campling and R. Haigh (eds.) *Therapeutic Communities: Past Present and Future,* London: Jessica Kingsley Publishers.

Hegarty, J. R. (2008) 'Community farm ownership: a way to increase involvement in care-farming?' In J. Dessein (ed.). *Farming for Health: Proceedings of the Community of Practice Farming for Health,* 6-9 November 2007, Ghent, Belgium. Merelbeke, Belgium: ILVO.

Hollins, B. and Hollins, C. (2007) *The Fight for Fordhall Farm.* London: Hodder and Stoughton.

Holvikivi, J. (ed.) (1995) Toimintaterapia *(Occupational Therapy).* Opetushallitus: Helsinki.

Illich, I. (1976) *Medical Nemesis: the Expropriation of Health. Harmondsworth:* Penguin.

Kennard, D. (1998) *Introduction to Therapeutic Communities.* London: Jessica Kingsley Publishers.

Kielhofner, G. (2002) *Model of Human Occupation.* 3rd edition. Baltimore and Philadelphia: Lippincott Williams & Wilkins.

Main, T. F. (1946) 'The hospital as a therapeutic institution'. *Bulletin Menn Clinic,* 66-70.

Mougeot Luc J. A. (2006) Growing Better Cities: Urban Agriculture for Sustainable Development. Canada: International Development Research Centre.

Pretty J. (2002) Agri-Culture: Reconnecting People, Land and Nature. London: Earthscan.

Pretty, J., Griffin, M., Peacock, J., Hine, R., Sellens, M. and South, N. (2005) *A Countryside for Health and Wellbeing: the physical and mental health benefits of green exercise,* Sheffield: Countryside Recreation Network.

Rapoport, R. N. (1959) *Community as Doctor.* London: Tavistock.

Relf, D. and Lohr, V. (2003) 'Human issues in horticulture'. *HortScience,* 38, 984-993.

SuRaKu 2008. 'Planning guidelines for an accessible environment'. Accessibility criteria and instruction cards available at: http://www.hel.fi/helsinkikaikille/

Tidball, K. G. & Krasny, M. (2006) 'From risk to resilience: What role for community greening and civic ecology in cities?' In A. Wals (ed.) *Social Learning Towards a more Sustainable World,* Wageningen: Wageningen Academic Publishers.

Urban Harvest. (2009) Website: http://www.urbanharvest.org/index.html

Weissman J. (ed.) (1995). City Farmers: *Tales from the field.* New York: Green thumb.

Westphal, L. M. (1999) Growing Power?: Social Benefits from Urban Greening Projects. PhD Thesis. Graduate college of the University of Illinois and Chicago.

6 Theories and constructs used in conjunction with green care

In this section we will briefly review the concepts, theories and models that have been used in conjunction with various green care approaches. Some, such as Attention Restoration Theory (ART) are closely tied to specific interventions (therapeutic horticulture in the case of ART) whilst others have been used more generally or have not been used in the context of green care but we consider them to be relevant. The purpose of these short descriptions is to act as signposts to the relevant literature. References are given at the end of each subsection.

6.1 Multifactorial mechanisms

The beneficial effects of green care services on human health and well-being may be mediated by a number of different mechanisms – psychological, social and physiological. Animals, for example, may be beneficial to humans because they are part of nature; are nice to touch and stroke; are a subject to care for; serve as a social companion or even a social catalyst; or serve as the subject for work that a person manages to accomplish successfully which results in enhanced self-efficacy and coping ability. Working with and experiencing plants, gardens or other aspects of a farm environment may have similar effects. It is likely that several mechanisms may be operating, either simultaneously or sequentially, representing different ways in which nature positively impacts on human health and well-being. Such mechanisms may depend on aspects of the target group and the type of nature or service offered to the clients. Everything else being constant, pronounced individual variation is to be expected as to which mechanism is the predominant one. This all poses a great challenge to research and may explain the occurrence of conflicting results between some studies.

6.2 The Biophilia hypothesis

The Biophilia hypothesis proposes that human beings have an instinctive attachment to the natural world. The naturalist E. O. Wilson is the most frequently-cited proponent of this concept and his book ‘Biophilia’

(Wilson, 1984) has been highly influential. The idea has been developed in a collection of essays entitled, 'The Biophilia Hypothesis' edited by Kellert and Wilson (1993).

Wilson described biophilia as "the innately emotional affiliation of human beings to other living organisms. Innate means hereditary and hence part of ultimate human nature. Biophilia, like other patterns of complex behaviour, is likely to be mediated by rules of prepared and counter-prepared learning – the tendency to learn or to resist learning certain responses as opposed to others. From the scant evidence concerning its nature, biophilia is not a single instinct but a complex of learning rules that can be teased apart and analysed individually" (Kellert and Wilson, 1993, p. 31).

The biophilia hypothesis tries to explain how and why "the innate tendency to focus on life and lifelike processes" (Wilson, 1984, p. 1) may be a primal biological need of our species. Wilson further underlines that this need does not only have an impact on our material and physical maintenance, but also on the human craving for aesthetic, intellectual, cognitive, and even spiritual meaning and satisfaction (Kellert and Wilson, 1993).

Kellert and Wilson (1992) conclude that the biophilia hypothesis is:

- inherent (that is, biologically based)
- part of our species' evolutionary heritage
- associated with human competitive advantage and genetic fitness
- likely to increase the possibility for achieving individual meaning and personal fulfilment
- the self- interested basis for a human ethic of care and conservation of nature, most especially the diversity of life.

The biophilia hypothesis theorises that humans attune selectively to the presence and condition of animate natural elements (i.e. plants and animals). Animals can serve as human informants about the environment. An animal at rest or in a non-agitated state may, for instance, signal well-being and safety because no danger is around and thus may also lead to a relaxed state of a human presence (Melson, 2000). Parks contain healthy plants and flowers in appealing surroundings, encouraging the relaxed feeling of being in a safe environment.

More broadly, biophilia is one of a number of psychological constructs that helps us to understand how people are motivated to interact with nature and, in the case of green care, gain healing benefit from it.

References

Kellert, S. R., and Wilson, E.O. (eds.) (1993) *The Biophilia Hypothesis.* Island Press.

Wilson, E. O. (1984) Biophilia. *The Human Bond with Other Species,* Harvard University Press.

Melson, G. F. (2000) 'Companion animals and the development of children: Implications of the Biophilia Hypothesis', In A. Fine (ed.) *Handbook on Animal-Assisted Therapy – Theoretical Foundations and Guidelines for Practice,* 376-383, San Diego: Academic Press, Elsevier Science.

6.3 Attention restoration theory

One theory used in connection with Green care, particularly therapeutic horticulture, is that of *Attention Restoration* by outdoor environments. Kaplan and Kaplan (1989) examined the preference for different landscape images and developed the concept of a *'restorative environment'* which plays an important role in recovery from mental fatigue.

They propose that mental fatigue arises as a result of the effort involved in inhibiting competing influences when attention is directed towards a specific task. The view or experience of nature which is inherently interesting or stimulating (i.e. has fascination) invokes involuntary attention which requires no effort and is therefore restorative. Restorative experiences have the following components:

Being away is the sense of escape from a part of life that is ordinarily present and not always preferred. This involves a conceptual change and not necessarily a physical change.

Fascination is the ability for something to hold attention without effort thus allowing directed attention to rest. Fascination can be derived from *process* – the act of carrying out an activity; or from *content* – the intrinsic substance of what is experienced (for example, from the landscape itself).

Extent is the property of an environment that provides the feeling of being "in a whole other world" that is meaningful and structured.

Compatibility is the affinity of an individual with the environment or activity so that directed attention is not required in order to engage with it.

Kaplan and Kaplan (1989) suggest that recovery of directed attention is not the only benefit of restorative environments. Different restorative settings can also provide varying degrees of attention recovery and opportunities for reflection, depending on the nature of the fascination involved. They propose (Kaplan, 1995) that fascination can range in quality from 'hard' to 'soft'. 'Hard' fascination is so intense that it entirely dominates attention and leaves little or no room for thinking, whilst 'soft' fascination exerts a moderate hold on attention and so allows opportunity for 'reflection'. Herzog et al (1997) suggest 'amusement parks, rock concerts, bars, video games and parties' as examples of settings for hard fascination whilst natural environments are settings for soft fascination (Kaplan, 1995; Herzog et al, 1997).

"Attentional fatigue" can also occur in major illnesses such as cancer. Work carried out by Unruh, Smith and Scammell (2000) with a small group of women with breast cancer suggests that they experienced gardening and the natural environment as being 'restorative'.

References

Herzog, T. R., Black, A. M., Fountaine, K. A. and Knotts, D. J. (1997) 'Reflection and attentional recovery as distinctive benefits of restorative environments'. Journal of Environmental Psychology, 17, 165-170.

Kaplan, S. (1995) 'The restorative benefits of nature: toward an integrative framework'. Journal of Environmental Psychology, 15, 169-182.

Kaplan, R. and Kaplan, S. (1989) The Experience of Nature: A Psychological Perspective. New York: Cambridge University Press.

Unruh, A. M., Smith, N. and Scammell, C. (2000) 'The occupation of gardening in life-threatening illness: a qualitative pilot project'. Canadian Journal of Occupational Therapy, 67(1), 70-77.

6.4 Nature and recovery from stress

An alternative model to that of Kaplan and Kaplan (outlined in 6.3) which has been used to explain the benefits of the natural environment is Roger Ulrich's model of recovery from stress. Ulrich's view is that the effect of the natural landscape and nature itself is evolutionary in origin and not predominantly cognitive or reasoned as the work of the Kaplans suggests. He sees compatibility, for example, as an elaborate and complex function dependent on an individual's inclinations and experience and not an innate, instinctive response. Ulrich argues that since the process of evolution took place in a natural environment it favoured those individuals who

positively responded to that environment, hence rapid recovery in the natural (restorative) setting from the effects of stressful stimuli would be an evolutionary advantage.

In a much cited study, Ulrich showed that patients recovering from cholecystectomy (gall bladder surgery) fared better if they had a view of trees from their hospital bed than if that view was of a brick wall (Ulrich, 1984). Subsequently (Ulrich et al, 1991) he observed that subjects' heart rate and EMG (electromyogram) recovered more rapidly from the effects of watching a stressful film with scenes of simulated injury if they viewed a video of natural scenes rather than scenes of traffic or a pedestrian mall. This was consistent with earlier work which suggested that the initial response to a natural environment is the result of rapid changes in the physiological and psychological state (Ulrich, 1983).

Kaplan (1995) proposed a model which integrated attention fatigue within the stress mechanism. In this model attention fatigue can lead to the stress response; it can occur as a result of the stress response or it can occur alongside the stress response as a result of an aversive stimulus. It is likely, therefore, that a number of complex psychological mechanisms are involved during the process of stress and attention fatigue and are at work within 'restorative environments' and experiences. These mechanisms may explain why horticulture and gardening, for example, are popular in rehabilitation even though other activities may well provide opportunities for the development of manual dexterity, group and social skills. Thus the preference for a natural environment and interaction with it in the form of agriculture, horticulture, gardening or other forms of green care may stem from evolutionary origins in addition to culturally-modified learned behaviour.

References

Kaplan, S. (1995) 'The restorative benefits of nature: toward an integrative framework'. *Journal of Environmental Psychology,* 15, 169-182.

Ulrich, R. S. (1983) 'Aesthetic and affective response to natural environment'. In I. Altman and J.F. Wohlwill (eds.) *Human Behaviour and Environment: Behaviour and the Natural Environment,* 85-125, New York: Plenum Press.

Ulrich, R. S (1984) 'View through a window may influence recovery from surgery'. *Science,* 224, 420-421.

Ulrich, R. S., Simons, R. F., Losito, B. D., Fiorito, E., Miles, M. A. and Zelson, M. (1991) 'Stress recovery during exposure to natural and urban environments'. *Journal of Environmental Psychology,* 11, 201-230.

6.5 Therapeutic landscapes and green care

There has been much research into the notion that particular landscapes or environments promote health and well-being and the construct of a 'therapeutic landscape' has been put forward by Gesler (1992,1993) as a way of studying and understanding places that are associated with treatment or healing.

Gesler (1992) drew on a number of themes to describe his construct of therapeutic landscapes, these he categorised as "inner/meaning (including the natural setting, the built environment, sense of place, symbolic landscapes and everyday activities) and "outer/social context (including beliefs and philosophies, social relations and/or inequalities, and territoriality)". These themes, he argued, were also reflected in the concept of the therapeutic community and were the point of interaction of environmental and societal factors which created the healing process. The healing sites that he investigated included the Asclepian sanctuary at Epidauros in Greece (1992), and the Roman Catholic shrine at Lourdes in France (Gesler, 1996). Whilst Gesler's original focus was on sites with deep spiritual meaning and a history of healing, the concept has been broadened to include many different perceptions of landscape and of activities. For example, Milligan et al (2004) used it to explore how allotment gardening was seen as beneficial to health by older people. However, the construct of therapeutic landscapes has not been widely applied to green care approaches such as gardening and tends to be used mostly by cultural geographers. There is, therefore, the potential for a greater use of the concept to further the understanding of the sociology of green care.

References

Gesler, W. M. (1992) 'Therapeutic landscapes: medical issues in light of the new cultural geography'. *Social Science and Medicine,* 34(7), 735-746.

Gesler, W. M. (1993) 'Therapeutic landscapes: theory and a case study of Epidauros, Greece'. *Environment and Planning D:* Society and Space, 11, 171-189.

Gesler, W, (1996) 'Lourdes: healing in a place of pilgrimage'. *Health & Place,* (2), 95–105.

Milligan, C., Gatrell, A. and Bingley, A. (2004)' 'Cultivating Health': therapeutic landscapes and older people in Northern England'. *Social Science and Medicine,* 58, 1781-1793.

6.6 Presence theory

The presence approach was developed by Andries Baart, and is based on his long-term research among church ministers in disadvantaged neighbourhoods in Utrecht (Baart, 2001). Presence can be summarised as entering into a caring involvement in response to the universal need for intimacy and involvement (Kal, 2002). In general, people seem to thrive on company and to become more and more cut off if they lack it over a long period of time. In the presence approach, the care worker offers the client 'a caring presence', in a relationship in which no hierarchical difference between the two people is assumed. No problem is formulated and analysed, no goal is established and no route towards reaching it is planned out. The 'care worker' is simply attentively present.

Presence is based on the assumption that, potentially, everyone has the power to improve their lives themselves. It is a question of trust. The 'client' is accepted in a meaningful relationship and the care worker constantly seeks to maintain a balance between providing help and trusting in the client's own capacities; the latter feels that he or she is 'seen' and 'counts'. The care worker behaves professionally, yet as a friend. An orientation to the client's world and experience lies at the heart of the presence approach. Being there, being together, doing things together – Baart considers these things are too often absent in pastoral care, which often focuses on intervention (Baart, 2001; Kal, 2002), whereas it is precisely in attentive, active interpersonal relationships that growth, learning and development occur (Dröes, 2003).

References

Baart, A. (2001) *Een theorie van presentie.* Lemna, Utrecht.

Droës, J. and van Weeghel, J.(1994). *Perspectieven van psychiatrische rehabilitatie.* Maandblad Geestelijke Volksgezondheid, 49(8), 795-810.

Kal, D. (2002) Kwartiermaken. *Werken aan ruimte voor mensen met een psychiatrische achtergrond.* Boom, Amsterdam.

6.7 Work and employment

Findings show that continuous employment is associated with better psychological and physical health (Isakssson, 1989; Bartley et al, 2004). It is not just a source of income, but fosters a sense of belonging. Research

also shows that involvement in work activities gives people who have suffered mental illness or psychiatric problems a feeling of recovery (see, for example, Michon, 2006).

Employment for individuals with mental illness gives opportunities for them to participate in society as active citizens (Boardman, 2003). Work and employment are very important in the context of mental health problems, because the overwhelming majority of people with such problems want to be engaged in some kind of meaningful activity that uses their skills and meets the expectations of others (Grove, 1999; Secker et al, 2001; Boardman, 2003). Work is crucial for people with mental health problems, as they are especially sensitive to the negative effects of unemployment and the associated loss of structure, purpose and identity (Bennett, 1970). Already socially excluded as a result of their mental health problems, their exclusion is aggravated by unemployment.

Bennett (1970), Jahoda (1982), Warr (1987), Shephard (1989) and Boardman (2003) list some of the social-psychological functions of work for people with or without mental health problems:

- Work structures the time usefully; it provides contrast in time experience and gives meaning to things such as spare time and holidays.
- Work gives a social identity and status; social contacts and support.
- It gives an opportunity to develop skills and it prevents the development of secondary disabilities.
- It shows that people need each other, that people have a collective goal and that there is mutual dependency.
- It forces people to activity; it provides a sense of personal achievement, gives the opportunity to become physically tired and results in a better physical condition,
- Work is something you do for other people. By contrast, in most leisure activities you can please yourself.

It is not true that every work situation has these positive functions. On the contrary, each work situation has characteristics that offer opportunities or limitations (Warr, 1987). According to Warr's 'vitamin model', a deficiency

in job autonomy, job demand, social support, skill utilisation, skill variety and task feedback impairs an employee's mental health. The importance of green care in relation to work and employment is that it offers vulnerable people the opportunity to engage in activities that can give them the positive aspects of work as listed above whilst minimising the negative ones.

References

Bartley, M., Sacker, A. and Clarke, P. (2004) 'Employment status, employment conditions and limiting illness. Prospective evidence from the British household panel survey 1991-2001'. *Journal of Epidemiology and Community Health,* 58, 501-506.

Bennett, D. (1970) 'The value of work in psychiatric rehabilitation' *Social Psychiatry,* 5, 224-230.

Boardman, J. (2003) 'Work, employment and psychiatric disability'. *Advances in Psychiatric Treatment,* 9, 327-334.

Grove, B. (1999) 'Mental health and employment: shaping a new agenda'. *Journal of Mental Health,* 8, 131-140.

Isaksson, K. (1989) 'Unemployment, mental health and the psychological functions of work in male welfare clients in Stockholm'. *Scandinavian Journal Social Medicine,* 17, 165-169.

Jahoda, M. (1982) *Employment and Unemployment – a Social Psychological Analysis.* Cambridge: Cambridge University Press.

Michon, H. W. C., van Weeghel, J., Kroon, H. et al. (2006) 'Predictors of successful job finding in psychiatric vocational rehabilitation: An expert panel study'. *Journal of Vocational Rehabilitation,* 25(3), 161-171.

Secker, J., Grove, B. and Seebohm, P. (2001) *Challenging Barriers to Employment. Training and Education for Mental Health Service Users. The service users' perspective'.* Kings College London: London Institute for applied health and social policy.

Shepherd, G. (1989) 'The value of work in the 1980's'. *Psychiatric Bulletin,* 13, 231-233.

Warr, P. B. (1987) *Work, Unemployment and Mental Health.* Oxford: Oxford University Press.

6.8 Insights of humanistic psychology

Humanistic psychology asserts that humans cannot be reduced to components, that they have choices and responsibilities and that they seek meaning. There is a rejection of determinism and a concern for positive growth, rather than pathology (Bugental, 1964). According to Maslow every human has fundamental basic needs: safety and security, love and belonging, esteem, achievement and respect. An individual feels anxious if these basic needs are not met. In addition there is the need for growth,

meaning and self actualisation (Maslow, 1971). The way this is expressed is unique for every person and dependent on one's personality.

A person fully immersed in what he or she is doing is energised by a feeling of focus. Full involvement and success in the process of the activity and the mental state this leads to is known as "Flow" (Csíkszentmihályi, 1996). Flow experiences are optimal experiences that enrich life and give meaning to it. Csíkszentmihályi identifies the following as preconditions for an experience of flow: clear goals, concentrating and focusing, direct and immediate feedback and balance between ability level and challenge. The activity is intrinsically rewarding so there is an effortlessness of action.

Frankl (1959) emphasises the search for meaning. He developed the logo therapy, a form of psychotherapy focusing on tasks and useful activities in which a client can be involved in the future. According to Frankl, it is crucial that one undertakes activities or is involved with something that is valuable. If the desire for meaning is frustrated, neuroses can develop.

According to Antonovsky (1987), there is no strict difference between health and illness. Every individual is positioned somewhere on the scale between full health and illness. One's sense of coherence determines to a great extent the position on the scale and whether the direction is towards health or illness. A person's sense of coherence consists of three components – comprehensibility, manageability, and meaningfulness.

Comprehensibility is the extent to which events are perceived as making logical sense, that they are ordered, consistent, and structured. Manageability is the extent to which a person feels they can cope. Meaningfulness is how much one feels that life makes sense, and challenges are worthy of commitment.

The empirically well defined theory of self determination (Deci and Ryan, 1985, 2000) connects with these ideas. It states that there are three basic needs: the need for competence, autonomy and relatedness. Contexts that support satisfaction of these basic needs facilitate natural growth processes including intrinsically motivated behaviour and integration of extrinsic motivations. Contexts that forestall autonomy, competence or relatedness are associated with poorer motivation, performance and well-being. So for personal growth and well-being one needs challenges, experience of having control over the social and physical environment, fulfilling contacts, safety and the ability to organise and regulate one's own behaviour.

References

Antonovsky A. (1987) *Unravelling the Mystery of Health.* How People Manage Stress and Stay Well. San Francisco: Jossey-Bass.

Bugental, J. F. T. (1964) 'The third force in psychology'. *Journal of Humanistic Psychology,* 4, 19-25.

Csíkszentmihályi, M. (1996) *Creativity: Flow and the Psychology of Discovery and Invention.* New York: Harper Perennial.

Deci, E. L. and Ryan, R. M. (1985) *Intrinsic Motivation and Self-determination in Human Behaviour.* New York: Plenum Publishers.

Deci, E. L. and Ryan, R. M. (2000) 'The 'what' and 'why' of goal pursuits: Human needs and the self-determination of behavior'. *Psychological Inquiry,* 11, 227-268.

Frankl, V. (1959) *Man's Search for Meaning* (2006 edition). Boston, Massachusetts: Beacon Press.

Maslow. A. H. (1971). *Towards a Psychology of Being,* Rotterdam, Netherlands: Lemniscaat.

6.9 Salutogenic theory

Salutogenesis is the process of factors which contribute to a person's health, as opposed to processes behind illness, disease and sickness (pathogenesis). Salutogenetic theory was developed by Aaron Antonovsky from his study of concentration camp survivors of the second world war. His project came to study and to measure people's orientation towards health rather than their orientation towards sickness and symptoms. From this point of view, he developed a new way of thinking about health and sickness i.e. "Salutogenic Thinking" (Antonovsky, 1979; Antonovsky, 1987) in contrast to traditional medical pathology and pathogenic orientation and thinking. Antonovsky further stressed that the dimension of health must be understood within the dimension of age, and within the social and cultural context (Antonovsky, 1985). In this perspective he introduces the phenomenon he called "the sense of coherence", and underlines in his theories the vital importance of this dimension in a health and quality of life perspective (Antonovsky and Sagy, 1986). According to Antonovsky, human beings will throughout life always strive for coherence and wholeness.

In his first book "Health, Stress and Coping", Antonovsky (1979) presents an operationalised definition of health called "Sense of Coherence" measurable with the Sense of Coherence Scale (SOC). This was developed in the purpose of measuring health within a perspective of salutogenic thinking (Antonovsky, 1984). The Sense of Coherence is again broken

down to three concepts or dimensions called Comprehensibility, Manageability and Meaningfulness. These can be measured as independent dimensions with three subscales (Antonovsky, 1987). Antonovsky states that Sense of Coherence depends on cognitive, affective, motivational and existential factors. He draws on the works in existential psychiatry and existential psychotherapy of Victor Frankl (Frankl, 1963, 1978; Frankl et al 1970); and concerning coping, on the theories of Lazarus (1984).

Antonovsky assumed that patients with a high SOC score would be more resilient to the effect of stressors and would cope better with these experiences than those patients with a lower SOC score (Antonovsky, 1984; Antonovsky, 1987). The SOC score can be used both as a mediator and a moderator (Eriksson, 2006).

References

Antonovsky, A. (1979) *Health, Stress, and Coping,* San Francisco: Jossey-Bass.

Antonovsky, A. (1984) 'The sense of coherence as a determinant of health', In J. D. Matarazzo (Ed.) *Behavioral Health: a Handbook of Health Enhancement and Disease Prevention,* 114-129, New York: Wiley.

Antonovsky, A. (1985) 'The life-cycle, mental-health and the sense of coherence'. *Israel Journal of Psychiatry and Related Sciences,* 22, 273-280.

Antonovsky, A. (1987) *Unravelling the Mystery of Health: How People Manage Stress and Stay Well.* San Francisco: Jossey-Bass.

Antonovsky, H. and Sagy, S. (1986) 'The development of a sense of coherence and its impact on responses to stress situations'. *Journal of Social Psychology,* 126, 213-225.

Eriksson, M. (2006) 'Antonovsky's sense of coherence scale and the relation with health: a systematic review'. *Journal of Epidemiological Community Health,* 60, 376-381.

Frankl, V. E. (1963) *Man's Search for Meaning: An Introduction to Logotherapy.* New York: Washington Square Press.

Frankl, V. E. (1978) *The Unheard Cry for Meaning: Psychotherapy and Humanism.* New York: Simon and Schuster.

Frankl, V. E., Crumbaugh, J. C., Maholick, L. T. and Gerz, H. O. (1970) *Psychotherapy and Existentialism: Selected Papers on Logotherapy,* London: Souvenir.

Lazarus, R. S. and Folkman, S. (1984) Coping and Adaption. In W. D. Gentry (ed.) *Handbook of Behavioral Medicine,* 282-325, New York: Guilford.

6.10 Recovery model

'The Recovery Model' is much vaunted as an alternative to traditional psychiatric practice, and has several relevant aspects to green care: sustainability, holism, authenticity and a focus on growth and development. Its critics maintain that it is ill-defined and rather diffuse as a concept (perhaps shared with green care); this is generally rebutted by the consideration that 'recovery' is defined by the service users who are in the process of recovery themselves, and not by 'experts' who are telling them how they should be.

Another aspect is to play down a focus on illness and pathology, and take a more positive attitude – Cloninger (2006) describes "The Happy Life; voyages to well-being". A related venture, in the face of the relentless rationalism of evidence based decision making, is work to define an underlying value base: 'evidence based practice' may be necessary for services and units to survive in the current climate, but many feel it is not sufficient, at least in mental health. Fulford (2004) has related it to principles of moral philosophy, and the Sainsburys Centre for Mental Health has developed a workbook, by Woodbridge and Fulford (2005), for practitioners to examine the values which underlie their practice. A value which is rarely mentioned in academic writing, but frequently mentioned as of importance in day-to-day green care or therapeutic community work is that of understanding spiritual needs as well as biological, psychological and social ones, and the power of working with nature to meet them. This is now gaining widespread acceptance, and is described in this way by Walters (1994):

> *"In variety, small communities cannot compete with cities. The greatest satisfaction in the arts, however, lies in creating, not merely in being entertained. In this area of life, the intentional community could offer incomparably more than the big city: the time to create, and interested audience, inspiring natural surroundings, and an opportunity to explore and develop one's inner life."* (p. 30)

A collaborative UK project has produced the 'Mental Health Recovery Star' (MacKeith and Burns, 2008), which is a 10-point, 10-scale self-rated

assessment tool produced in an attractive and 'user-friendly' format with clear explanations of the different axes of 'recovery'. The ten axes used are:

■ self-care	■ addictive behaviour
■ living skills	■ responsibilities
■ social networks	■ identity & self-esteem
■ work	■ trust & hope
■ relationships	■ managing mental health

It is self-evident how several of these could readily be related to the intended outcomes of green care. The accompanying guides explain what each of the ten points on each scale implies is present or absent, and star-shaped graphical representation can be plotted to indicate problem areas, and progress.

References

Cloninger, C. R. (2006) 'The science of well-being: an integrated approach to mental health and its disorders'. *World Psychiatry,* 5(2) 71-76.

Fulford, K. W. M. (2004) Ten principles of values-based medicine. In J. Radden (ed.) *The philosophy of Psychiatry: A Companion.* New York: Oxford University Press.

MacKeith, J. and Burns, S. (2008) Mental Health Recovery Star. London: Triangle Consulting and Mental Health Providers Forum. Available at: http://www.mhpf.org.uk/

Walters, J. D. (1994) *Intentional Communities. How to Start Them, and Why.* Crystal Clarity.

Woodbridge, K. and Fulford, B. (2005) Whose Values? *A Workbook for Values-based Practice in Mental Health Care.* London: SCMH.

6.11 Self-efficacy

Based on social cognitive theory, there is a continuous relationship between a person's cognition, behaviour and environment, and the goal of therapy is to bring about positive changes in a person's self-perception and hence their behaviour by improvements in self-efficacy, self-esteem and locus of control. According to Albert Bandura (1977) self-efficacy is concerned with judgments of how well one can execute courses of action required to deal with prospective situations. People avoid activities that they believe exceed their coping capacities, but they undertake and perform assuredly those

that they judge themselves capable of managing. Perceived self-efficacy regulates human function in four major ways (Bandura, 1977):

i) *Cognitive:* People with high self-efficacy are more likely to have high aspirations, think soundly, set themselves difficult challenges, and commit themselves firmly to meeting those challenges. They have a tendency to visualize successful outcomes instead of dwelling on personal deficiencies or ways that things might go wrong.

ii) *Motivational:* Motivation and self-belief is stronger if people believe that they can attain their goals. Self-efficacy beliefs determine the goals people set for themselves, how much effort they expend, and how long they persevere.

iii) *Mood* or *affect:* Self-efficacy beliefs regulate the motion states. People that lack self-efficacy are more likely to magnify risks, while people with high self-efficacy deal with stress and anxiety by acting in ways that make the environment less threatening. They are also more likely to calm themselves and seek support from other people. Likewise, persons with high coping abilities have better control over disturbing thoughts. There is also a connection between low self-efficacy and depression. Low self-efficacy causes the defeat of one's hope, thus resulting in low mood. This in turn will lead to weakened self-efficacy and causes a downward cycle.

People with low self-efficacy avoid difficult tasks, they lower their goals, and seek less support from others. Failures make them lose faith in themselves, and in turn contribute to lowered mood and depression (Bandura, 1982, 1986, 1997).

Research has shown that therapeutic riding, for example, can improve self-confidence, social competence and quality of life (Fitzpatrick and Tebay 1997; Burgon, 2003; Bizub et al, 2003). However, there are to date few long-term follow-up studies of the impact of green care interventions on self-efficacy. A recent doctoral thesis based on a randomised, controlled study of a three-month intervention with dairy cattle for patients with severe mental health illness (mainly mood disorders, anxiety disorders, personality disorders, and schizophrenia), showed that anxiety was lower and self-efficacy higher at follow-up six months after the end of the intervention compared with baseline for the treatment group, but not for the

controls (Berget, 2006; Berget et al, 2007). Among the diagnostic groups, only the patients with affective disorders showed significant increase in self-efficacy at follow-up. The study suggested that positive effects of animal interventions on self-efficacy among these patient groups may take a long time to develop.

References

Bandura, A. (1977) 'Self-efficacy: Toward a Unifying Theory of Behavioral Change'. *Psychological Review,* 84, 191-215.

Bandura, A. (1982) 'Self-efficacy, mechanism in human agency'. *American Psychologist,* 37, 122-147.

Bandura, A. (1986) 'The explanation and predictive scope of self-efficacy theory'. *Journal of social and clinical psychology,* 4, 359-373.

Bandura, A. (1997) 'Self-efficacy'. *Harvard Mental Health Letter,* 13, 4-7.

Berget, B. (2006) *Animal-Assisted therapy: Effects on Persons with Psychiatric Disorders Working with Farm Animals.* PhD Thesis, Aas: Norwegian University of Life Sciences and Oslo: University of Oslo.

Berget, B., Skarsaune, I., Ekeberg, Ø. and Braastad, B. (2007) 'Humans with Mental Disorders Working with Farm Animals: A Behavioral Study'. *Occupational Therapy in Mental Health,* 23(2), 101-117.

Bizub, A. L., Davidson, L. and Joy, A. (2003) 'It's like being in another world. Demonstrating the therapeutic benefit of horse back riding for individuals with psychiatric disability.' Psychiatric Rehabilitation Journal, 26, 377-383.

Burgon, H. "Case studies of adults receiving horse-riding therapy." *Anthrozoos,* 16(3), 263-76.

Fitzpatrick, J. C and Tebay, J. M. (1997) 'Hippotherapy and therapeutic riding', In C.C. Wilson and D. C. Turner (eds.) *Companion Animals in Human Health* (Eds), pp. 41-58, London: Sage Publications.

6.12 Nature, religion and spirituality

Most cultures have a tradition in which gods, supernatural beings and powers are believed to reside within the elements of nature. Often, these beliefs have been developed into religions in which the gods are worshipped. Rituals may be practised in which they are thanked, sacrificed to, or placated.

Anthropologists have studied these "primitive religions" extensively. Even in modern, "developed" societies, nature religions persist in neo-paganist movements such as Wicca. The fact that these beliefs are widespread testifies to the emotional power that nature has for humans.

Modern, mainstream religions, however, also include nature components. St Francis of Assisi is well-known as a nature-oriented Christian saint.

Contemporary movements include “creation spirituality”, a movement associated with Matthew Fox (Fox, 2000) who claims that revelation is found in two places: the Bible and Nature.

William Wordsworth’s poetry is often cited as an example of how nature can evoke spiritual feelings. His poetry is suffused with his personal experiences of nature, gained in the English Lake District. He writes of the intense emotion experiences of nature generated in him and many examples can be found in his long, autobiographical work, The Prelude (1805).

Wordsworth’s poetry does not just belong to a previous era. As a teacher of English literature, Michael Paffard wondered how many of his teenage students could identify with Wordsworth’s experiences. So he asked them, and his findings are described in detail in his book, “Inglorious Wordsworths” (Paffard, 1973). They were not at all uncommon. Four hundred sixth-formers and university undergraduates completed his questionnaire, and just over half of them (55%) described experiences of “nature-mystical joy, awe and fear” they had encountered through contact with nature.

Paffard had difficulty finding an appropriate word to describe the “religious” experiences that people described to him but which they did not equate with a belief in God or affiliation to a religious faith and he finally settled on the word “numinous”, a Latin term coined by German theologian Rudolf Otto to describe that which is “wholly other”. The numinous is the *mysterium tremendum et fascinans* that leads in different cases to belief in deities, the supernatural, the sacred, the holy, and the transcendent.

For many, nature is appreciated as having a “spiritual but not religious” element. The natural environment seems to help us to feel in touch with something much greater than ourselves (but which we might hesitate to describe as “God”) and which is healing. The Quiet Garden Movement (2008) illustrates this nicely. It promotes the use of gardens for “prayer, silence, reflection and the appreciation of beauty”. More widely, an explicit spiritual dimension of gardens and gardening has been reported in the literature, particularly in association with older people, and those suffering major or terminal illness. Indeed, Unruh (2004) included ‘connectedness to nature’ and ‘connectedness to others’ as part of her “spiritual” theme in her studies of people with terminal illness, in addition to the obvious concept of ‘connectedness to a higher being, God’.

Whilst green care in general does not explicitly propose any spiritual philosophy or advocate any religious views it is highly likely that for some people working in the natural environment fulfils deeper spiritual needs.

References

Fox, M. (2000) *Original Blessings.* Los Angeles: J.P. Tarcher.

Paffard, M. (1973) *Inglorious Wordsworths: A study of some transcendental experiences in childhood and adolescence.* London: Hodder and Stoughton,

Quiet Garden Movement. (2008) http://www.quietgarden.co.uk/quiet_garden_ministry.htm, accessed February 2008.

Unruh, A. M. (2004) 'The meaning of gardens and gardening in daily life: a comparison between gardeners with serious health problems and healthy participants'. *Acta Horticulturae,* 639, 67-73.

6.13 Jungian Psychology

Jungian Psychology, also known as Analytic Psychology or Jungian Psychoanalysis, is derived from the work of C. G. Jung. Jung was one of Freud's earliest collaborators who broke away from the psychoanalytic orthodoxy when he found it too mechanistic and drive-based. His path was to follow a less deterministic view of human nature – one which gave prominence to the deep meaning of experience. This indeed includes spiritual, transcendental, numinous and mystical meanings, which he elaborated following his work with psychoanalysis of psychotic patients.

Earlier Jungian work included his character types (Jung, 1921), and personality dimensions – his best known and widely used coinage is that of the qualities of extraversion and introversion. The measurement of character traits came into widespread use in both the world of academic psychology (as part of the foundation of the five axis dimensional assessment of personality, see Goldberg, 1992) and management training (where they form the basis of the Myers-Briggs typography, see: Myers et al, 1998).

Synchronicity is an important concept in Jungian metapsychology (Storr, 1973): it gives meaning to connections which are not causal, and recognises connections between the psyche and the external world. Jung refers synchronous events as *'acts of creation in time',* showing the on-going generative powers of Nature. Susan Rowland relates this to the creation myth and archetype of the Earth-Mother (Rowland, 2006).

Jung's later contributions are more closely related to what we now call 'green care'. He described the phenomenon of the collective unconscious – which is a pre-verbal and primitive sense of connectedness – to others, to ancestors and to nature. Jung (1959) describes the lack of awareness about it in traditional science as follows:

> *"For [experimental science] the workings of nature in her unrestricted wholeness are completely excluded. We need a method of enquiry which leaves Nature to answer out of her fullness."* (p. 846)

This is an early harbinger of the biophilia hypothesis (see Section 6.2) which was first posited by E. O. Wilson (Wilson, 1984), and later expanded and developed by Stephen R. Kellert (Kellert, 1993). Lovelock's Gaia is a similar theoretical construction, though his focus is to describe the connectedness with nature as a whole organism, and he does not do so with any consideration of the psychological, spiritual or physical of the experience of humans in this (Lovelock, 1979).

Lionel Corbett a Californian post-Jungian psychiatrist, describes the transcendental nature of contact with nature (Corbett, 2006):

> *"A further genre of numinous experience occurs to people who find the sacred within the natural world. Some traditional religionists were nature mystics, but today this sensibility is mostly found in the guise of political movements such as the environmentalists. What drives them however is a profound feeling for the numinosity of nature, so that to desecrate the land is tantamount to sacrilege. One can recognise such individuals when they have this type of experience:*
>
> *Hurrying to a class at the university, because I was late I had to cross an expanse of lawn. As I ran across the grass, I had the most amazing and horrible experience. I could feel that each blade of glass had a life force, that the ground had a life force, that everything was bound together in this wonderful dance. I could feel my feet crushing the blades of grass. I could hear the crunch, I could feel the pain the grass felt. From this experience of expanded consciousness and oneness – which came totally unbidden and unexpected at that moment – I realised that I was something more than this pocket of flesh and mind, wondering and searching."* (p. 63)

References

Corbett, L. (2006) Varieties of numinous experience: the experience of the sacred in the therapeutic process. In A. Casement, and D. Tacey (eds.) *The Idea of the Numinous: Contemporary Jungian and Psychoanalytic Perspectives,* Chapter 4, Hove: Routledge.

Goldberg, L. R. (1992) 'The development of markers for the Big-five factor structure' *Journal of Personality and Social Psychology,* 59(6), 1216-1229.

Jung, C. G. (1921) 'Psychological Types' in *Collected Works of C G Jung, Volume 6,* Princeton University Press.

Jung C. G. (1959) On the Psychology of the Trickster Figure. *Collected Works,* 9i.

Kellert, S. R. (1993) *The Biophilia Hypothesis.* Washington DC: Island Press.

Lovelock, J. (1979) Gaia: *A new look at life on Earth.* Oxford: OUP.

Myers, I. B., McCaulley, M. H., Quenk, N. L., Hammer., A. L. (1998) *MBTI Manual (A guide to the development and use of the Myers Briggs type indicator).* 2nd Edition. Palo Alto CA: Consulting Psychologists Press.

Rowland, S. (2006) *Jung and Derrida: the numinous, deconstruction and myth.* In A. Casement and D. Tacey (eds) *The Idea of the Numinous: Contemporary Jungian and Psychoanalytic Perspectives,Chapter 7,* Hove: Routledge.

Storr, A. (1973) *Jung.* London: Fontana.

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

6.14 Quality of life models

Although quality of life (QoL) is a widely used concept, its' definitions are diverse. In the social sciences, QoL refers to material well-being and people's feelings about the adequacy of their resources. In the medical sciences, QoL refers to the health-related quality of life (HRQoL) in which attributes of health status are emphasized. QoL is holistic in nature representing a broad range of dimensions ranging from necessities of life such as food to those connected to happiness and fulfilment (Meerberg, 1993). Measurement of QoL provides "insight into the perceived discrepancy between actual and ideal states". The QoL is high when the hopes and expectations of one's ability to function match the perceived situation (McDowell, 2006).

QoL models can be used to assist resource allocation and to assess the impact of policy decisions (Rogerson, 1995). In health care QoL is an outcome measure used in evaluating treatment outcomes mainly from a patient perspective. By measuring quality of life, the effect of different

conditions and interventions on people's lives can be evaluated. Two treatments which are equal but have different consequences for the patient can be compared on the basis of how they affect the QoL. Patient experiences can be better understood using QoL- measures, for example, where there are adverse effects (McDowell, 2006).

There are several conceptual models to measure health related quality of life (HRQoL). Although there is no unanimity among researchers as to whether the quality of life and health are distinct constructs (Smith et al, 1999; Lercher, 2003), there is agreement, however, that quality of life is subjective and multidimensional in nature and includes both positive and negative dimensions of physical, psychological and social domains (The WHOQOL Group 1995). Smith et al (1999) concluded that when assessing the quality of life, greater emphasis is given to mental health than to physical state and that the pattern is reversed when health status is gauged.

HRQoL measures are either health indexes or health profiles. Health indexes are global measures which summarize health in a single number. Profile measures have one or more separate domains and a total score for each domain is calculated independently. Generic measures are independent of the illness so they can be used when comparing the changes caused by different diseases to the quality of life. Disease specific measures focus on effects which particular diseases such as cancer may cause (McDowell, 2006).

The measures of HRQoL include other elements in addition to physical, mental, and social well-being. The relative balance between health issues and non health issues may vary by health status (Spilker and Revicki, 1996; McDowell, 2006). The EuroQol scale covers usual activities, the SF-36 work and role performance, and WHOQOL covers spiritual well-being, transportation, and environmental factors, too (McDowell, 2006).

QoL is a subjective outcome which is measured by standard scales and the problem is whether all the dimensions of QoL scales used are really important to the respondent. In some scales patient-specific items are added to increase the relevance of the scale. (McDowell, 2006). When patients are confronted with a life-threatening or chronic illness, they have to adapt to their situation. By changing internal standards, values, and conceptualisation of QoL, they accommodate their illness. The process is called response shift. (Sprangers and Schwartz, 1999) Response shift may

complicate the interpretation of the subjective changes in QoL (McDowell, 2006).

When QoL is conceptualized properly, it is very suitable for use in connection with green care enabling different dimensions of outcomes to be measured at the same time.

Capability approach by Amartya Sen (Verkerk et al, 2001) may provide interesting elements for evaluating implementation and outcomes of green care. Verkerk et al (2001) show how the capability approach provides a theoretical basis and operationalisation for QoL research in situations in which standard measurements are not yet applicable. In many cases, the standard scales, although well-validated, do not cover the expected outcomes and are not sensitive enough.

In this model, functioning refers to the basic or complex valuable things that a person can do or be. Functioning can generate happiness but also freedom to make choices. It is an essential aspect of QoL. Resources are used to achieve functioning. The capability of a person refers to the different combinations of functioning that a person can or cannot realise by using the available resources. Capability is dependent on personal characteristics and social arrangements emphasizing functional capacity rather than performance.

The model provides a framework for evaluating green care interventions based not only on outcomes of functionings but also the effects on improving the capabilities of achieving HRQoL. The capability approach parallels in many ways with the person-environment-occupation-performance –model by Christiansen et al (2005).

References

Christiansen, C. H., Baum, C. M. and Bass-Haugen, J. (eds.) (2005) *Occupational Therapy: Performance, Participation and Well-being, 3rd edition,* Thorofare NJ: SLACK Incorporated.

Lercher, P. (2003) 'Which health outcomes should be measured in health related environmental quality of life studies?' *Landscape and Urban Planning,* 65, 63-72.

McDowell, I. (2006) Measuring Health. *A Guide to Rating Scales and Questionnaires.* 3rd Edition. Oxford: Oxford University Press.

Meerberg, G. A. (1993) 'Quality of life: A concept analysis'. *Journal of Advanced Nursing,* 18, 32-38.

Rogerson, R. J. (1995) 'Environmental and health-related quality of life: conceptual and methodological similarities'. *Social Science and Medicine,* 41, 1373-1382.

Smith, K., Avis, N. and Assmann, S. (1999) 'Distinguishing between quality of life and health status in quality of life research: a meta-analysis'. *Quality of Life Research,* 8, 447-459.

Sprangers, M. and Schwartz, C. (1999) 'Integrating response shift into health-related quality of life research: a theoretical model'. *Social Science and Medicine,* 48, 1507-1515.

Spilker, B. and Revicki, D. A. (1996) 'Taxonomy of quality of life'. In B. Spilker (ed.) *Quality of Life and Pharmacoeconomics in Clinical Trials,* 25-31, Philadelphia: Lippincott-Raven.

The WHOQOL Group. (1995) 'The world health organization quality of life assessment (WHOQOL): position paper from the World Health Organization'. *Social Science Medicine,* 41, 1403-1409.

Verkerk, M. A., Busschbach, J. J. V. and Karssing, E. D. (2001) 'Health-related quality of life research and the capability approach of Amartya Sen', *Quality of Life Research,* 10, 49-55.

6.15 Physical resonance as a methodological approach to understanding the influence of plants on people

Scientific discussion about the effects of plants on the human psyche is mostly limited to chemistry and nutrition and does not address the question, why "Green" in general and trees specifically, are effective agents. So far, theories to explain why walking through the woods or the countryside, is so relaxing and restorative, are scarce. Measurements have been taken to show the influence of viewing natural scenes (Hartig et al, 1991) on blood pressure (Ulrich et al,1991) and on restoration-time after surgery (Ulrich, 1984); Kaplan and Kaplan have conducted much important research. These show results and effects, but explanations are still scarce (see, for example, 1989, 1995).

A concept derived from psychotherapy and psychoanalysis called physical countertransference may bring a solution. This notion was profoundly improved by Heimann (1950), and refined by Rand (2001) and Totton (2005). They named it "physical resonance".

Initially, resonance is the sounding together of (two or more) physical entities. Physical resonance underlines the physical aspect of both. By transferring the concept of "physical resonance" from humans to plants, a new paradigm for understanding the therapeutic value of green care emerges. People can notice specific body reactions when they take time to feel the physical sensations which plants evoke. Even though this approach can be applied to any object, to humans or plants or to organic objects, to concrete – it is the matter which matters. There is a fundamental psycho-

physiological effect – an effect on the body not just in the mind – of every thing people look at. But plants – like animals or humans – have an effect differing from any non-living object. Physical resonance, the effect of the observation of what plants do to rest and move, activates a human neurobiological program which could help to perform a similar activity. The concept of physical resonance may explain how the sensory effects on the body tissue provide impulses to the muscle tone and to the organs. Thus, plants can evoke a relaxing, soothing and restoring effect, spreading throughout the body including the sympathetic nervous system.

There are manifold opportunities for experiencing these bodily sensations. Natural habitats, landscape and farms provide a whole range of different plants as well as trees. For the gardener, client, patient or restoration-seeker there is ample opportunity to use different natural forms to experience physical resonance in different parts of their body.

It is not clear whether all people experience such sensations or whether they need to have special sensitivity. For example, can it be developed by training? It may be that introverted people or people with a certain capacity of introspection are more easily accessible to the idea of using their body feelings as a resonance instrument for exploring plant qualities for their human well being. Further research on this is needed.

References

Hartig, T., Mang, M. and Evans, G. W. (1991) 'Restorative effects of natural environment experiences'. *Environment and Behavior,* 23, 3–26.

Heimann, P. (1950) 'On counter-transference'. *International Journal of Psycho-Analysis,* 31, 81-84.

Kaplan, S. (1995) 'The restorative benefits of nature: toward an integrative framework'. *Journal of Environmental Psychology,* 15, 169-182.

Kaplan, R. and Kaplan, S. (1989) T*he Experience of Nature: A Psychological Perspective.* New York: Cambridge University Press.

Rand, M. (2001) 'Somatic resonance and countertransference'. *AHP Perspective,* April/May.

Totton, N. (ed.) (2005) *New Dimensions in Body Psychotherapy.* Mcgraw-Hill Publishing Company.

Ulrich, R. S. (1984) 'View through a window may influence recovery from surgery'. *Science,* 224, 420-421.

Ulrich, R. S., Simons, R. F., Losito, B. D., Fiorito, E., Milse, M. A. & Zelson, M. (1991) 'Stress recovery during exposure to natural and urban environments'. *Journal of Environmental Psychology,* 11, 201-230.

6.16 Group analytic theory

Group Analytic Theory is a form of group psychotherapy (also known as group analytic psychotherapy) that has since grown into the major international school of group-based psychoanalysis. Characteristically, it uses the concepts of the unconscious and psyche defences in a similar way to Freud – but stresses the indivisible social nature of the analysis:

> *"Each individual – itself an artificial, though plausible, abstraction – is centrally and basically determined, inevitably, by the world in which he lives, by the community, the group, of which he forms a part. The old juxtaposition of an inside and outside world, constitution and environment, individual and society, phantasy and reality, body and mind and so on, are untenable. They can at no stage be separated from each other, except by artificial isolation."* (Foulkes, 1964, p. 10)

This starkly states the implausibility of individualism and importance of relationships. Foulkes, in a different language but similar spirit to Jung, describes a phenomenon of group relations in a similar depth to Jung's collective unconscious. This is what Foulkes calls the 'foundation matrix' of the group. In it, the network of relationships of group members is unconsciously (and partly consciously) experienced as a healing and reparative force:

> *"The matrix is the hypothetical web of communication and relationship in a given group. It is the common shared ground which ultimately determines the meaning and significance of all events and upon which all communications and interpretation, verbal and non-verbal, rest."* (Foulkes, 1964, p. 292)

Once established as a trusting and enabling environment, a well-functioning group can be experienced as a healing, holding and sometimes transcendental space. A group analytic description of this relates it to the parallel of infant development and the pre-verbal experience of belonging and safety (attachment and containment). These experiences necessarily precede more rational and cognitive functioning, and are not directly related to the words spoken in groups (Haigh, 1999). They are more related to the 'natural rhythms' of activity and aspects of regularity and

dependability of the whole experience. This is clearly relevant in the way that people in groups who are working in horticultural or other green care settings form relationships. These relationships are 'beyond the verbal', and are sometimes made up of a network, or matrix, of people who do not even share a common language. This is particularly vividly illustrated by Sonja Linden and Jenny Grut's work in London with refugees (Linden and Grut, 2003).

The relevance of these factors to different forms of green care form a spectrum. As described, they can be the primary therapeutic instrument in settings such as Linden and Grut's. In other situations, such as green exercise, or individual experience of wilderness, they are not relevant. However, where they are likely to come into play – such as any situation in which people regularly come together for purposeful activities and form some sort of emotional bond – their relevance should be considered.

References

Foulkes, S. H. (1964) *Therapeutic Group Analysis.* London: Allen & Unwin.

Haigh, R. (1999) The quintessence of a therapeutic environment. In P. Campling and R. Haigh (eds.) *Therapeutic Communities: Past, Present and Future,* London: Jessica Kingsley Publishers.

Linden, S. and Grut, J. (2003) The Healing Fields: *Working with Psychotherapy and Nature to Rebuild Shattered Lives.* London: Frances Lincoln.

7 Green care: interacting policy and social frameworks

7.1 Health promotion

Green care has emphasized the therapeutic use of agricultural and horticultural activities and tried to find means to show its effectiveness in ways comparable to those of clinical health care. This has led to problems, because the outcomes of green care are not rapidly visible, but gained during a long time period and are not as specific as the outcomes of, for example, surgery or antibiotics used in medical care. The processes involved in green care are mainly targeted to enhance the coping strategies of individuals, rather than to cure the symptoms of diseases. Instead of disease-oriented health care, green care raises interest in a salutogenic approach to health, i.e., in the factors which contribute to the health of individuals. Therefore, a holistic view of health, with an emphasis on the active participation of individuals in developing and maintaining their health, might be feasible to use in the context of green care. Health promotion may be a framework which can assemble various activities and actors involved in green care and provide a new means for the evaluation of its outcomes (Rappe, 2007).

According to the Ottawa Charter, health promotion is "the process of enabling people to take control over, and improve their health" (WHO, 1986). Health promotion concerns the promotion of healthy life-styles and changes in living environment which enhance health and make healthy choices easier. The goals of health promotion can be met by adjusting personal, social, economical, physical and ecological factors which have an effect on health.

The Ottawa Charter for Health Promotion defines five ways of action to promote health: *healthy public policy, supportive environments, community action for health, life skills and health literacy, and development of health services* (WHO, 1986). All of these actions are relevant to green care.

Healthy public policy makes healthy choices available and also easier to achieve. In healthy public policy health is taken into account in all sectors of administration and policymaking. For example, in city planning, parks

can be seen as decreasing the need for health services by promoting exercise and creating a healthier microclimate.

Supportive environments enable people to expand their capabilities and develop their self reliance. The Sundsvall Statement on Supportive Environments (WHO, 1991) emphasised equal access to resources for living and opportunities for empowerment for all people despite their impairments or other limiting factors. A supportive environment in a health promotion context refers to the physical and social aspects of the environment. In green care a supportive environment can be provided by creating physically and mentally accessible green environments in which all individuals have equal opportunities to develop their skills and talents and receive social support. When green care is attached to sustainable development, a more comprehensive meaning for supportiveness can be reached through an ecological dimension.

Community action for health means collective activities which are aimed at increasing the opportunities of communities to manage the determinants of health. With regards to horticulture, there are many good examples of how the social health of communities can be improved through greening projects. Very often these projects are led by non-governmental agencies (NGOs).

Life skills and health literacy are individual characteristics. Life skills are related to the capabilities to adopt and to develop positive behaviours to cope with daily challenges. Physical, cognitive, and social skills which enable life management and facilitate the compatibility between an individual and his or her environment are an integral part of life skills. Health literacy characterises those intellectual and social skills on which the motivation and capabilities to acquire, understand and use knowledge for promoting health are based. Health literacy can be promoted through green care, for example, by teaching people about gardening and its relationship with health (being outdoors, stress recovery, physical exercise, and nutrition) and by giving people the knowledge about how they can modify their own environment to make it more suitable for their needs. In therapeutic green care the development of healthy life skills and health literacy should be core topics because they enable individuals to maintain their health status after the therapy episode has ended.

There is an obvious need for novel health services in societies. New ways to affect people's health are necessary to counterbalance the huge increase in health service costs caused by ageing. The investments needed to establish and run green care are minor compared with the costs of traditional medical care. Another distinctive characteristic of green care, compared with clinical care, is that green care can be positively influential at many levels simultaneously, including physiological, psychological, and social functioning.

The means to promote health are prevention, health education, and health protection (Downie et al, 2000). By prevention the risk of occurrence of diseases, disabilities and other unwanted states is decreased. Prevention has three levels: primary, secondary, and tertiary prevention (Kauhanen et al, 1998). Primary prevention is targeted to individuals and communities and its aim is to prevent contact with factors harmful for health. Secondary and tertiary prevention concern the individual. The aim of secondary prevention is to perceive the initial state or risk of a disease so early that its further development can be prevented, for example, by changes in life style. Tertiary prevention pays attention to the functional abilities and aims to prevent the proceeding of the primary disease or prevent the development of comorbidity. Rehabilitation is included in tertiary prevention.

The target of health education is to change beliefs, attitudes, and behaviours which contribute towards health. Health protection is aimed at increasing the potential for people to live in healthy environments and to support healthy lifestyles. This is an area in which green care has a clear role.

Relative model of health

Health is often discussed without reference to the approach from which it originates. Three concepts of health are prevailing: biomedical (objective), functional (social), and perceived (subjective). To understand the whole array of health benefits arising from green care, the definition of health should be based on subjective evaluations rather than on objective measures because in that way individual meanings affecting well-being can be captured.

The relative model of health introduced by Downie et al (2000) takes into account the multidimensional and subjective characteristics of health. In the model both ill-health and well-being are interconnected through physical,

mental and social facets. Overall health is experienced as the sum of all of the facets of health at any one time. The perceived health state is a dynamic process which is affected by individual meanings. In the model, health can be improved either by enhancing positive health or by reducing negative health, or doing both.

The objective of the therapeutic use of green care is to reduce ill-health. It can consist of horticultural therapy, animal-assisted therapy and other therapeutic activities, which are targeted to heal conditions related to ill-health. Stress and attention fatigue can be seen as incapacitating states of human body; so the recovery provided by green environments is therapeutic.

Well-being has two dimensions: true well-being and fitness. True well-being is related to the empowerment of individuals based on autonomy and feeling of well-being. Coping resources and possibilities to use one's capabilities contribute to autonomy. Green care provides many possibilities to exert control over events and situations and offers opportunities for free choice and development of skills.

Fitness is related to an individual's physical capacity to cope with the demands of the environment. Green care can be used to increase the compatibility between the individual and the environment by providing the opportunity for physical activity and exercise in accessible and supportive surroundings.

The suggestion based on the model of Downie et al, (2000), that health can be promoted not only by preventing ill-health but also by enhancing well-being and fitness, is in accordance with the salutogenic approach described by Antonovsky (1988), in which factors maintaining good health are emphasized (Rappe, 2005). In Antonovsky's theory a strong sense of coherence maintains good health by providing resources to manage everyday strain. A sense of coherence can be achieved when stimuli derived from the environment are comprehensible, manageable and meaningful for an individual.

Outcomes

The outcomes of green care are difficult to prove, especially when a biomedical disease-oriented construct of health is used. The use of a

relative model of health may be feasible in connection with green care because it starts from the premise that health is a multidimensional and dynamic process and not merely an absence of a disease.

When green care is viewed as health promotion, it enables a wide range of outcomes to be considered on different levels, both on that of the individual and of society. Effective health promotion leads to changes in the determinants of health which can be related both to individuals and to the structure of the society (see: International Union for Health Promotion and Education, 1999). In addition to direct changes in health status, outcomes arising from green care can be seen as changes in health behaviour or in community participation or environmental and political changes.

Health outcome measures include reduced mortality, morbidity, and disability (ill-health). Social outcomes are related to an individual, and measured by quality of life, functional independence, and equity (well-being).

Health and social outcomes can be achieved by affecting their determinants such as personal behaviour, environmental conditions and health care services. Changes in personal behaviour which represent healthy lifestyles could be measured, for example, by the degree of physical exercise undertaken or by changes in nutrition.

Environmental conditions may include the quality of the air, the noise level and the amount of social opportunities present at a green care project. The effectiveness of health care service may be measured by the provision of preventive services (for example, a park or a farm can, in this context, be considered a green care service). These three determinants of health can be affected by modifying personal, social, and structural factors through health promotion interventions. An effective health promotion strategy may affect all three of these at the same time; health and social outcomes, the determinants of health, and modifiable factors which change the determinants of health. The effectiveness of green care, when regarded as health promotion, could be therefore assessed by measuring changes in different levels i.e. in knowledge, in policy, or in organisational practices. Changes in lifestyle or in environmental conditions, and in the use of health services are also relevant indicators in addition to changes in health status.

The health promotion perspective is not a complete framework for green care, neither does it give unambiguous answers regarding how to measure

its effects. There will be shortcomings in distinguishing the differences between therapeutic and preventive uses of green care. For example, is 'therapy' in a green care context mainly rehabilitation and therefore can be regarded as tertiary prevention? Or does it really heal some diseases? However, when the context of green care is extended from a primarily 'therapeutic' use to health promotion, new connections between health and environment are detectable, and a wide array of outcome measures becomes available for studying the effectiveness of the green care interventions.

7.2 Social inclusion

'Social exclusion' is a modern construct for describing disadvantage of people within society that extends beyond simple poverty. One definition is provided by the Centre for the Analysis of Social Exclusion at the London School of Economics and Political Sciences (LSE):

> *"An individual is socially excluded if he or she does not participate in key activities of the society in which he or she lives"* (Burchardt et al, 2002, p. 30)

Another definition which has been used by the government in the UK is:

> *"Social exclusion is a complex and multi-dimensional process. It involves the lack or denial of resources, rights, goods and services, and the inability to participate in the normal relationships and activities, available to the majority of people in a society, whether in economic, social, cultural or political arenas. It affects both the quality of life of individuals and the equity and cohesion of society as a whole".* (Social Exclusion Unit, 2004)

Whilst there is a relationship between social exclusion, employment and income, it is a complex construct and relates to an individual's lack of ability or opportunity to benefit from all of the varied dimensions of the society or community of which they are part. Research has shown that people with poor mental or physical health are often at greatest risk of social exclusion (Social Exclusion Unit, 2004) and in the UK and other countries there have been attempts to address the issues of social exclusion of these and other vulnerable people through identifying the causes of exclusion and developing strategies for 'social inclusion' (for example, see

the UK National Social Inclusion Programme; www.socialinclusion.org.uk and the Social Exclusion Task Force; http://www.cabinetoffice.gov.uk/social_exclusion_task_force.aspx).

Social inclusion, on the other hand, refers to the processes by which people are enabled to participate in those key activities of the societies in which they live. Burchardt et al (2002) have proposed four key dimensions of social inclusion which they call c*onsumption, production, social interaction and political engagement.*

- Consumption is the idea of being able to buy the sorts of goods and services that other people can buy, and access the types of public services that other people can access.
- Production is the idea of being engaged in a socially valuable activity, including paid work, education/training, child care, other unpaid work and voluntary work.
- Social interaction refers to social networks and cultural identity.
- Political engagement is broadly conceived to include notions of self-determination, 'having a say', empowerment, being involved in campaigning organisations and so on.

Social inclusion may be important as a concept within green care for describing and exploring its benefits. Sempik et al (2005) have used the framework of social inclusion, as postulated by Burchardt et al (2002), in their study of Social and Therapeutic Horticulture (STH). They have argued that STH enables social inclusion through providing meaningful activities for participants *(production)* in an environment that is deliberately structured to promote social interaction and maximise social opportunities; STH projects frequently involve clients in the organisation and running of the project and in decision-making *(political engagement);* and often they provide access to goods and services *(consumption)* that clients would otherwise be unable to afford, for example, high quality (organic) food and the opportunity to participate in gardening, education and training. Such an analysis could be extended to other forms of green care.

Other green care services which include involvement with animals or livestock also add a further dimension to social inclusion. It is hypothesized that social support acting as a buffer against stress responses or illness

can be derived not only from human relationships, but also from a human-animal relationship. According to McNicholas and Collis (2001) social support from animals (pets) may be a replacement for lacking human support, providing a release from relation obligations, enhance reorganization, re-establish routines, and "top up" existing human support.

Although animals encountered in various green care settings are not necessarily 'companion' animals (in care farming, for example, they are more likely to be livestock) for the participant or client, in addition to the contact with other clients, the farmer and his/her family, the animals are thought to serve as catalysts or mediators of enhanced conversation skills. Bernstein et al (2000) demonstrated that geriatric persons subjected to Animal-Assisted Therapy were more likely to initiate and participate in longer conversations than a control group getting Non-Animal Therapy (NAT) like arts, crafts and snack bingo. Similar effects were found in a 12-month controlled study of elderly schizophrenic patients where contact with a pet, either a dog or a cat, resulted in significantly improved conversational and social skills in the experimental group compared with the controls (Barak et al, 2001).

The inherent nature of the majority of green care approaches is to be inclusive, to re-engage disengaged groups of people with themselves and with other people through nature based activities (be those plant or animal focused). The concept of social inclusion is therefore an important one within green care.

7.3 Multifunctionality in agriculture

Care farming or green care within agriculture provides an example of multifunctionality in agriculture. Recently, there has been a substantial shift towards recognising that any area of land can provide many *different* services at the same time (including environmental, recreational and health services) and so therefore can be thought of as multifunctional (Hine et al, 2008a; Hine, 2008).

The agricultural sector has become particularly aware of the multifunctional character of land and although the core aim for agriculture remains the production of food, fibre, oil and other primary products, it also provides other important benefits to society and the environment. These include

landscape and aesthetics, recreation and amenity, water accumulation and supply, nutrient recycling and fixation, wildlife habitats, storm protection and flood control as well as carbon sequestration (Dobbs and Pretty, 2004). These public services gained from land have been the focus of the Millennium Ecosystem Assessment (2005) and Defra (2007).

In the past, the focus has been on the negative externalities of agriculture: water pollution (from pesticides, fertilisers and soil, from farm waste, *Cryptosporidium from livestock* etc); the loss of landscape (hedgerows, picture postcard fields) and biodiversity (wildlife, farmland birds etc.); the spread of food-borne diseases (salmonella, BSE etc.) and gaseous emissions (methane from livestock) (Pretty et al, 2001). However, the concept of multifunctionality in agriculture switches the focus onto the positive side effects of farming.

This has been supported by the Curry Commission (2002), which recommended that subsidy payments under the Common Agricultural Policy (CAP) should be decoupled from production. Thus establishing the principle that agriculture and land management also have many positive side-effects, contributing to public goods such as biodiversity, landscape aesthetics, water quality, carbon sequestration and so on (Dobbs and Pretty, 2004)

The multifunctional nature of the services provided therefore gives a multifunctional value for the land. From a review of the current literature and previous work on the multifunctionality of land (Pretty et al, 2000; Dobbs and Pretty, 2004; Pretty et al, 2008; Hine et al, 2008b), eight key services produced by the land have been identified (Table 7.1). Many of the services and functions highlighted in Table 7.1 have gone unrecognised in the past, or because they have contributed to public goods or services they have not had a cost or value assigned, and so have tended to receive little attention.

Table 7.1: Key services produced by the land

Service type	Issues
1. Farming services	Food, fibre, oil and other primary produce from farms and from other land management (e.g. forestry)
2. Biodiversity	Wildlife in fields, on farms and in non-farmed habitats and ecosystems
3. Historic and heritage	Presence of scheduled monuments (sites and buildings of archaeological and historic importance)
4. Water services	i. Flood protection through rain water absorption and coastal management of sea. ii. Water retention by land into rivers and aquifers
5. Climate change mitigation	i. Carbon sequestered into organic matter in soils or above ground biomass. ii. Carbon saved by reductions in fossil fuel use iii. Carbon saved by biomass-based renewable energy production to avoid carbon emissions iv. Effects of vegetation in reducing air pollution v. Effects of greenspaces on microclimate
6. Landscape character	The unique natural and man-made features of a particular regional landscape, e.g. stone walls, sunken lanes, hedgerows, water meadows, farm buildings etc.
7. Leisure and recreation services	Activities undertaken by the public in rural areas, such as walking, cycling, fishing, boating, horse-riding
8. Health services	The mental and physical health benefits to individuals arising from exposure to green places and engaging in physical activity.

Source: Hine et al, 2008b

It is generally accepted by many that farmers and other land managers should be recognised or paid for the public services they produce (Sutherland, 2004) and although the new combination of agri-environmental schemes in England (Defra, 2007) supports this to a certain extent, on the whole mainstream discussions of multifunctionality in agriculture (and forestry) have hitherto neglected the health and the social values of activities associated with nature (Nilsson et al, 2007).

Green care farming however, can be seen as an example of multifunctional agriculture and interestingly many of the care farmers in Europe and the UK are the same farmers who are also involved in environmental conservation, leisure and educational activities (Hassink and van Dijk, 2006).

It is worth noting the difference between multifunctionality in agriculture and on-farm diversification. The Organization of Economic and Cooperation Development (OECD), states that multifunctionality refers to the fact that the economic activity (in this case, farming) may have multiple outputs (agricultural production, healthcare, landscape aesthetics etc) and, by virtue of this, may contribute to several societal objectives at once (OECD, 2008a). Diversification on the other hand, refers to the expansion of an existing firm (the agricultural enterprise) into production activities in different economic sectors (OECD, 2008b; Nilsson et al, 2007) (i.e. Bed and Breakfast, caravan storage, haulage, renting out land for non-agricultural purposes and so on).

It does appear that there may be good prospects for further enhancing agriculture's multifunctionality in a coordinated way that builds on past experiences (Dobbs and Pretty, 2004). Utilising the capacity of health services from farming and agricultural land can offer another example of the potential for multifunctionality in agriculture. Care farming is therefore part of a growing recognition that land is multifunctional, providing a range of environmental and social goods and services. Green care on farms can also be seen as a way to reconnect people to the land, and to the food produced by domestic farming.

References (Section 7)

Antonovsky, A. (1988) *Unravelling the Mystery of Health. How People Manage Stress and Stay Well.* San Fransisco, Jossey-Bass Publishers.

Barak, Y., Savorai, O., Mavashev, S. and Avshalom, B. (2001) 'Animal-Assisted Therapy for elderly schizophrenic patients'. *American Journal of Geriatric Psychiatry,* 9, 439-442.

Bernstein, P.L, Friedmann, E. and Malaspina, A. (2000) 'Animal-assisted therapy enhances resident social interaction and initiation in long-term care facilities'. *Anthrozoös,* 3, 213-224.

Burchardt, T., Le Grand, J. and Piachaud, D. (2002) 'Degrees of Exclusion: Developing a Dynamic, Multidimensional Measure'. In J. Hills, J. Le Grand, and D. Piachaud (eds.) *Understanding Social Exclusion,* pp. 30-43, New York: Oxford University Press.

Curry Commission. (2002) *Farming and Food: A Sustainable Future,* Report of the Policy Commission on the Future of Farming and Food, London: The Cabinet Office. Available at: http://archive.cabinetoffice.gov.uk/farming/pdf/PC%20Report2.pdf

Defra. (2007) *An Introductory Guide to Valuing Ecosystem Services.* London: Defra. Available at: http://www.defra.gov.uk/wildlife-countryside/natres/eco-value.htm

Dobbs, T. and Pretty, J. (2004) 'Agri-environmental stewardship schemes and 'multifunctionality''. *Review of Agricultural Economics,* 26, 220-237.

Downie, R. S., Tannahill, C. and Tannahill, A. (2000) *Health Promotion Models and Values,* 2nd edition. Oxford: Oxford University Press.

Hassink, J. and van Dijk, M. (2006) 'Farming for health across Europe: comparison between countries, recommendations for research and policy agenda'. In *Farming for Health: Green-care farming across Europe and the United States of America,* 347-357, Dordrecht: Springer. Available at: http://library.wur.nl/frontis/farming_for_health/

Hine R. (2008) 'Care farming: bringing together agriculture and health'. *Ecos,* 29(2), 42-51.

Hine, R., Peacock, J. and Pretty, J. (2008a) *Care Farming in the UK: A Scoping Study,* Report for NCFI(UK). Available at: http://www.ncfi.org.uk/documents/Care%20farming%20in%20the%20UK%20FINAL%20Report%20Jan%2008.pdf

Hine, R., Peacock, J. and Pretty, J. (2008b) Green Spaces: *Measuring the Benefits.* Report for the National Trust. Available at: http://www.nationaltrust.org.uk/main/w-green-lung-1a2.pdf

International Union for Health Promotion and Education. (1999) *The Evidence of Health Promotion Effectiveness. Evidence Book, Part Two.* Brussels, Luxembourg.

Kauhanen, J., Myllykangas, M., Salonen, J. T. and Nissinen A. (1998) *Kansanterveystiede (Public health). 2nd Edition.* Porvoo: WSOY.

McNicholas, J. and Collis, G.M. (2001) 'Children's representations of pets in their social networks'. *Child Care Health Development,* 27, 279-294.

Millennium Ecosystem Assessment. (2005) *Ecosystems and Human Well-being: Current State and Trends. Findings of the Condition and Trends Working Group.* Washington: Islan Press. Also available at: http://www.millenniumassessment.org/en/index.aspx

Nilsson, K., Baines, C. and Konijnendijk, C. (eds.) (2007) *Health and the Natural Outdoors,* COST and European Science Foundation Strategic Workshop Final Report. Brussels: COST.

OECD. (2008a) Website: http://stats.oecd.org/glossary/detail.asp?ID=1699 (accessed 14 September 2009)

OECD. (2008b) Website: http://stats.oecd.org/glossary/search.asp (accessed 14 September 2009)

Pretty, J. N., Brett, C., Gee, D., Hine, R. E., Mason, C. F., Morison, J. I. L., Rayment, M. D., van der Bijl, G., and Dobbs, T. J. (2001) 'Policy challenges and priorities for internalising the externalities of agriculture'. *Journal of Environmental Planning and Management,* 44(2), 263-283. Available at: http://www.essex.ac.uk/bs/staff/pretty/JEPM%20pdf.pdf

Pretty, J., Brett, C., Gee, D., Hine, R., Mason, C. F., Morison, J. I. L., Raven, H., Rayment, M. and van der Bijl, G. (2000) 'An assessment of the total external costs of UK agriculture'. *Agricultural Systems,* 65(2), 113-136.

Pretty, J., Smith, G., Goulding, K.W.T., Groves, S.G., Henderson, I., Hine, R.E., King, V., van Oostrum, J., Pendlington, D.J., Vis, J.K. and Walter, C. (2008) 'Multi-Year assessment of Unilever's progress towards agricultural sustainability: indicators, methodology and pilot farm results', *International Journal of Agricultural Sustainability,* 6, 37-62.

Rappe, E. (2005) *The Influence of a Green Environment and Horticultural Activities on the Subjective Well-being of the Elderly Living in Long-term Care,* Publications no 24. Department of Applied Biology, the University of Helsinki. Helsinki, Yliopistopaino. Electronic publication at http://ethesis.helsinki.fi/

Rappe, E. (2007) 'Green care in the framework of health promotion', in C. Gallis (ed.) *Green care in Agriculture: Health effects, Economics and Policies Proceedings, Vienna,* 33- 40. Thessaloniki: University Studio Press.

Sempik, J., Aldridge, J. and Becker, S. (2005) *Health, Well-being and Social Inclusion, Therapeutic Horticulture in the UK.* Bristol: The Policy Press.

Social Exclusion Unit. (2004) *Mental Health and Social Exclusion.* London: Office of the Deputy Prime Minister, http://www.socialinclusion.org.uk/publications/SEU.pdf

Sutherland, W. (2004) 'A blueprint for the countryside'. *Ibis,* 146(2) 230-238.

WHO. (1986) *Ottawa Charter for Health Promotion.* http://www.who.int/hpr/NPH/docs/ottawa_charter_hp.pdf

WHO. (1991) *Sundsvall statement on supportive environments for health,* http://www.who.int/hpr/NPH/docs/sundsvall_statement.pdf

8 Conclusions

8.1 Green care – the evidence and the challenge to research

Research into green care spans a variety of different subject areas and issues, for example, mapping the use of green care approaches, describing those activities and approaches, the level of participation, differences in services between countries, perceptions of practitioners and participants and many others. However, one area of research that is of specific interest (and also one that can arouse controversy and passion in equal measures) is that regarding the *effectiveness* of green care interventions.

There are two important issues with regards to research into effectiveness. Firstly, effectiveness in which sphere? And secondly, what type of data or 'level' of evidence should be accepted as 'proof' of effectiveness?

In addressing the first issue perhaps the questions to be asked are *what do we expect of green care?* and *what do we want it to do for us?* Once we have answered these questions it becomes easier to address the second issue.

We would like green care interventions to improve the well-being of participants in some (or many) ways, including 'quality of life', physical health, mental health, mood, psychological well-being, social inclusion, employment prospects and so on. We want participants to be *happier* as a result of attending a green care project. But clients have different needs and green care projects are multifaceted – they present many different experiences, activities and opportunities to participants who in turn select (or are given) those that are appropriate or desirable for them.

Green care provides *care.* Clients work in a supportive environment, they engage in activities that they enjoy, there are opportunities for social contact, green care staff take an interest in their clients and the natural environment in which green care takes place has been shown by much psychological research to be pleasing to the individual. It would be hard to dispute the benefits of such care provision and perhaps the best

way to 'measure' the outcomes is to listen to the experiences and views of participants. Much good work has been carried out exploring the perceptions of green care participants, looking at how green care benefits the individual. Some of these studies have been described throughout this document.

Hence, qualitative research shows that green care is valued, enjoyed and considered to be personally beneficial. Therefore, is there a need for any other type of evidence or research?

There is often an assumption or perhaps an expectation that such benefits are founded on changes in psychological functioning or changes in clinical condition that are directly attributable to green care. Whilst it may be true that if a client reports that he or she feels happier then there has been some psychological change, this does not mean that any underlying condition has necessarily been altered by participation in green care. It may have – but if we wish to claim that green care directly changes a client's clinical condition or affects any disease process then we need to test it in the same way as any medicinal product might be tested.

Whilst those in the green care movement and many of those in health care may consider the experiences of participants to be the best evidence of effectiveness, many of those responsible for formulating health policy and providing funding are firmly rooted in the world of quantitative data and randomised controlled trials (RCTs). This is the currency of the regulatory authorities that give approval for new medicines.

Complex interventions are difficult to study and as a result, controlled trials are the 'gold standard' of some green care researchers and the antithesis of others. That is certainly the experience of those in the Therapeutic Community movement where there have been few such trials and where also the issue is hotly debated. For example, Manning (2004), explored the potential of RCTs in researching the effectiveness of the therapeutic community approach to mental ill health and concluded:

> *"The RCT is for many observers of medical and social practice a powerful method of developing a strongly legitimate means for gathering evidence which carries extensive social power.*
>
> *However, the RCT as practised is not an appropriate gold standard solution for all problems. It certainly cannot be the required standard for an assessment of the therapeutic*

> *community movement, or a single local therapeutic community. While it could answer some questions about therapeutic communities, there would be massive problems and large costs. This is not to say that RCTs should not be done where appropriate.*
>
> *Other approaches may be needed first, though and continued monitoring of therapeutic communities through a variety of assessment methods will be necessary not only to replace RCTs if cost or feasibility rules them out, but also to check whether RCT results are sustainable and generalisable."* (Manning, 2004, p. 119)

There are two important messages from Manning's comments that can be applied to green care; the first is that the RCT should not be the *required standard* for the green care movement and for individual projects. The second is that RCTs should be carried out where *appropriate.* If we wish to claim the effectiveness of a clearly defined intervention within green care on a specific group of clients then controlled trials are the way. In such circumstances they are feasible. Indeed, this was the approach taken by Berget et al (2007) in studying the effects of animal assisted therapy on a group of psychiatric patients.

However, where interventions are more diverse and client groups are heterogeneous, for example, as in the case of care farming, such studies are far more difficult. They require much greater resources and such resources, unfortunately, are not plentiful in the field of green care research.

One other point from Manning's conclusion that is important is the notion of *continued monitoring… through a variety of assessment methods.* This represents a way in which practitioners (in partnership with researchers) can help to continue to build the evidence base for green care.

There will be no definitive RCT of green care itself. Researchers will continue to collect data on discrete aspects of it. This will include RCTs and qualitative work that will create a broad evidence base that encompasses different green care approaches and research disciplines. Indeed, within the context of green care research, evidence is drawn from a number of different sources. These are shown in Table 8.1, below. The classification is not intended as a hierarchy but as an overview of the source of the research material.

Table 8.1: Sources of research evidence used in connection with green care

I.	Effectiveness of specific green care interventions
II.	Benefits of the natural environment
III.	Benefits of a social environment
IV.	Physical activity and mental health
V.	Occupation, employment and health (and adverse effects of unemployment)
VI.	Physical activity and physical health
VII.	Psychological theories, constructs and frameworks

Much supporting evidence has come from associated fields of research and has been used in the context of green care approaches. For example, the psychological theories of Kaplan and Kaplan (see Section 6) regarding attention restoration in the natural environment are frequently quoted in regards to therapeutic horticulture and other green care interventions. Other theories and constructs that have similarly been used with green care (or have relevance to it) are summarised in Section 6. Evidence from the other groups in the table is included throughout this report.

8.2 Towards a paradigm shift – greening medical, psychiatric and social care

Modern critiques of psychiatry clearly illustrate how technological and scientific progress has been accompanied by a loss of social, psychological and interpersonal awareness, described by Bracken and Thomas (2001) as 'Postpsychiatry'. Bracken has since proposed that we are in the midst of a 'mental health revolution' (see RCP, 2008) which is being led by the service user and 'recovery' movements, and involves criticism of a solely instrumental approach, scrutiny of the nature of expertise and a reassertion of values, meanings and relationships as being of primary importance.

Illich (1975) strongly criticised the way in which people's bodily condition was made pathological and often worse by over-zealous medicalisation and "expropriation of their health". .

> *"An advanced industrial society is sick-making because it disables people from coping with their environment and, when they break down, it substitutes a clinical prosthesis for the broken relationships. People would rebel against such an environment if medicine did not explain their biological disorientation as a defect in their health, rather than as a defect in the way of life which is imposed on them or which they impose upon themselves."* (Illich, 1975, p. 169)

In summary, many now see the practice of mental health as having become technical, sterile, mass produced, with excessive use of unnatural chemicals, isolated from its wider context, and shallow in terms of meaning and experience. The parallel quick fix in agriculture was the introduction of pesticides, insecticides and fertilisers in the second half of the twentieth century. There is now an appreciation that these "modern methods" are somewhat limited in their ability to solve complex problems.

Although a strict evidence based biomedical approach works well for conditions such as infections or chemotherapy treatment of cancers, it is not possible to apply it meaningfully to the complex individual experiences which are seen in the majority of 'mental disorder'. Many conditions are as much a lifelong and maladaptive way of being in the world as they are an 'illness'; many people suffer painful and chaotic lives, troublesome relationships and multiple psychosocial problems. These are not amenable to simple solutions using a technological model, and in 2004 the UK Department of Health funded 11 different service models to deliver new ways of working with those who have these problems, and to evaluate their work. Many of them are strongly influenced by the 'service user movement' and the 'recovery model': the intention is to help people with the discovery of their innate potential, with habilitation so they can achieve a life that they feel is worth living.

In the same way as medical industrialisation is unhelpful for people with problems of this nature, the physical environment of hospitals, with their sterile hard surfaces, harsh lighting and decor, and extremely hectic activity, is not ideal. Many intensive treatment programmes would benefit by having a base in more conducive environments, such as farms and other natural settings, and include farming activities as part of their programme. The farms would have the advantage of this being a way of using their resources in a socially beneficial way, and to have a certain amount of

labour to help in the production of food. The production of food itself is also likely to have substantial psychological benefits for those members of the community involved in it. Such approaches represent the 'greening of medical, psychiatric and social care'.

8.3 Epilogue: the way forward

Within this document, we as researchers and practitioners, have tried to paint as full a picture of green care as is possible. We have described its components and its links and interactions with other systems, processes, frameworks and theories. We have reiterated the need for more research, for more evidence of effectiveness and have discussed the difficulties that researchers face in this field. We see that there are both practical difficulties in conducting the studies and philosophical difficulties with regards both to the methodology and the perceived need for 'hard' evidence.

At the outset we have made clear our position – that we believe that nature is a valuable asset within many different therapeutic contexts. It is not our task as researchers to set out to find the proof that green care works; but rather to further the understanding of how those interventions we call green care may indeed be beneficial; to whom they should be applied and in what context; and also under what circumstances it may be contraindicated or harmful. In all of the research on green care that we have examined, we have seen no reports of adverse reactions or of any negative views. Understanding the thoughts of those who say they do not like gardening or being outdoors or touching animals may well help us to include those who feel excluded from green care or even disconnected from nature itself.

There is now an overwhelming body of evidence that shows that the natural environment is beneficial to health and well-being. It is clear that it is valued by those who seek their recreation and leisure in the outdoors and by those who are participants of green care programmes. We can see opportunities where nature can be placed within existing therapies, for example, within therapeutic communities and occupational therapy departments. This will not instantly create new green care projects but it will help to spread the greening of medical, social and psychiatric services which was discussed in the previous section. The continued monitoring of such services and indeed of green care projects, in addition to other research approaches discussed earlier in this report, will help to build up a detailed understanding of green care that is robust.

References (Section 8)

Berget, B., Skarsaune, I., Ekeberg, Ø. and Braastad, B. (2007) 'Humans with mental disorders working with farm animals: a behavioral study'. *Occupational Therapy in Mental Health,* 23(2), 101-117.

Bracken, P. and Thomas, P. (2001) 'Postpsychiatry'. *British Medical Journal,* 322, 724-727.

Illich, I. (1975) *Limits to Medicine. Medical Nemesis: The Expropriation of Health.* Harmondsworth: Penguin.

Manning, N. (2004) 'The gold standard, what are RCTs and where did they come from?'. In J. Lees, N. Manning, D. Menzies and N. Morant (eds.) *A Culture of Enquiry: Research Evidence and the Therapeutic Community,* London: Jessica Kingsley Publishers.

RCP. (2008) Royal College of Psychiatrists, News.
http://www.rcpsych.ac.uk/member/rcpsychnews/october2008.aspx (accessed 4 July 2009)

ESF provides the COST office through an EC contract

Cost is supported by the EU RTD Framework programme

‘Green Care’ is a range of activities that promotes physical and mental health and well-being through contact with nature. It utilises farms, gardens and other outdoor spaces as a therapeutic intervention for vulnerable adults and children. Green care includes care farming, therapeutic horticulture, animal assisted therapy and other nature-based approaches. These are now the subject of investigation by researchers from many different countries across the world.

This book is the result of cooperation by scientists brought together under the COST (European Cooperation in Science and Technology) programme. It seeks to describe and define green care and to set it within the context of a number of theoretical and practical frameworks including those of psychology, psychotherapy, health promotion, social inclusion and others. The aim is to provide a guide which will help researchers and others to understand the principles of green care and its links with other disciplines and approaches.