Study of therapeutic horticulture for neuro-disability in Scandinavia

Josephine Spring

2014
**Dedication:** to Any and the late Lauge Laugesen, Gerda and Eigil Nielsen who kindled my interest in Scandinavia

**Grateful thanks:** to the Winston Churchill Memorial Trust, all my Scandinavian hosts, my employer, referees, colleagues, family, friends and proof readers who supported me and Taber travel who arranged my route.

**Front cover:** Double helix DNA sculpture in the University of Uppsala Botanical Gardens
Contents

Map 2
Executive summary 5
Itinerary 6
Background 8
Aims 9
Mapping and data collection 9
Visit reports:

Sweden
Garden of Senses, Central Stockholm 9
Uppsala University 10
Jordhammars Växtkraft, Stenungsunds 11
Post-traumatic stress disorder garden, near Stenungsunds 12
Gröna rehab, Göteborg Botanical Gardens 12
Gunnebo Slott, Mölndal near Göteborg 14
Dalheimers hus, Göteborg 15

Denmark
Tangkær HD Unit, Ørsted 17

Norway
Bjórkas nursing home, Oppegard, near Olso 18
Sand farm, Enebakk kommun 20
Moer nursing home, Aas 21
Sunaas Rehabilitation Hospital, near Oslo 22
Norwegian University of Life Sciences, Aas 24
Róros rehabilitering 24
St Olav’s Hospital Neurological Centre, Trondheim 26
St Olav’s rehabilitation unit, Lian, Trondheim 28

What can be learned from Scandinavia? 29

Dissemination 31
What can be implemented? 32

Bibliography 33

Annex 1 Scandinavian data collection 35
Scandinavian horticultural therapy some key features Figure 2

**Indoor growing** – ornamentals
Jordhamsars Växtkraft, p11

**Simple garden** with social dining and robust water feature
Moer nursing home, p21

**Related crafts** - Concrete sculptures
Jordhamsars Växtkraft, p11

**Social and exercise** - Animal therapy
Björkás nursing home, p18

**Nature** - therapeutic site with adjacent wilderness for nature study Göteborg p12

**Historic associations** – therapy with local history, Gunnebo Slott p14
Executive summary
The practice of horticultural therapy for neuro-disabled patients in Scandinavia was observed in 14 therapeutic sites during May and June 2014. The weather was warm.

Therapeutic activities Gardens had a range of raised beds, robust and practical water features, greenhouses and more fruit being grown but fewer vegetables. A range of ornamental plants were grown and botanical names used. Flowers were grown for arrangement. Indoor plants were more prominent than in Britain, due to the cold weather. The gardening groups were used by multi-disciplinary teams to gain the confidence of the patients, provide therapy directly and create secondary opportunities by linking with art, photography and cooking that were therapeutic. Craft activities included woodwork, mechanics, jewellery, weaving, concrete items, willow weaving, painted stones and bee hive frame construction. Products were sold and running a stall was part of the therapy. The provision of an attractive external environment for outdoor exercise incorporated non-ambulant patients using wheelchairs, sleighs, boats and tricycles. Animals were used to encourage exercise and provide mental stimulation for clients. Indoor exercises were performed in conservatories using sheepskins as mats.

Integration with nature The natural world was explored in more varied ways. Clients were encouraged to observe plants using a lens. Bird calls were played to identify when groups went outside and tree barks used as sensory material. Clients were encouraged to use their senses and learn from nature.

Evidence based gardens and therapy The purpose of the sites, their topography, soils and climates varied but most projects were based on evidence and their results assessed using quantitative, qualitative or observational methods that could also be applied in the United Kingdom. The importance of viewing gardens and nature was emphasized and appropriate assessment scales outlined. Historical associations were used therapeutically.

Recommendations

Therapeutic opportunities and economic benefits Gardening groups allow the multi-disciplinary teams to get to know their patients and provide secondary therapeutic opportunities for linking with crafts, art and cooking. They support therapeutic activities: physical, psychological, and social and in practicing life skills. The gardens can be simple in design but effective and studies showed results that were of economic benefit. Gardens that host an environment conducive to exercise outdoors inclusive of wheelchairs, tricycles and other mobility aids should be considered and could be evolved to suit British care sites. Indoor plants can assist rehabilitation settings and views from windows and patios can be assessed for therapeutic value even in sites with very limited outside space. The use of green environments to reduce stress and sickness absence in staff working in healthcare could be explored further in Britain to potential fiscal benefit.

Framework for a therapy garden The Norwegian study of a garden for residential care facilities provides a useful tool of wide application to upgrade growing areas. It gives a framework of features: green, secure, path to follow, seats, a social centre, popular plants, local links, activities, a water feature and a pleasing view from windows. Closer liaison between university life sciences departments and care sites to undertake joint research projects would be invaluable in progressing this as would contact with nearby botanical gardens, riding stables and farms.

In the Royal Hospital for Neuro-disability grounds, more fruit could be grown and more activities related to nature. Viewing nature is important and requires further assessment on site as the programme of grounds’ improvements progresses to make the Beacon garden.
**Churchill Fellowship visits to Scandinavia – Itinerary 10 May to 10 June 2014**

<table>
<thead>
<tr>
<th>Towns &amp; countries visited with dates.</th>
<th>Organizations visited and purpose of visit.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depart London 10 May for Stockholm, Sweden 11 May</td>
<td>Meet Lena-Kajsa Sidén,, Foundation for Strategic Research and visit Garden of the Senses, therapeutic garden for elderly, central Stockholm</td>
</tr>
<tr>
<td>12 May Uppsala, Sweden</td>
<td>Professor Terry Hartig, Discuss evidence for the benefits of viewing nature, experimental methodology for assessment and research opportunities. Visit University of Uppsala Institute for Housing and Urban Research, Department of Psychology and University Botanical Gardens (founded by Linnaeus).</td>
</tr>
<tr>
<td>13 May Travel to Göteborg, Sweden</td>
<td>Travel across Swedish Lake District</td>
</tr>
<tr>
<td>14 May Göteborg, Sweden</td>
<td>Visit Göteborg Botanical Garden and Wilderness</td>
</tr>
<tr>
<td>15 May Stenungsunds, Sweden (30 miles north of Göteborg)</td>
<td>Visit Rick Mulder, Jordhammars Växtkraft, Stenungsunds kommun, Community green rehabilitation EU project and garden project for refugees</td>
</tr>
<tr>
<td>16 May Göteborg, Sweden</td>
<td>Eva-Lena Larsson at Gröna Rehab, Göteborg Botanical Gardens and researcher Eva Sahlin from Department of Psychology, Swedish University of Agricultural Sciences in Alnarp</td>
</tr>
<tr>
<td>19 May Mölndal suburb of Göteborg, Sweden</td>
<td>Emma Naqvii at Gunnebo Slott Therapeutic Garden and Lena Wikström Manager of the Historic Park</td>
</tr>
<tr>
<td>20 May Göteborg, Sweden</td>
<td>Visit Trädgårdsföreningen gardens to study rose collection</td>
</tr>
<tr>
<td>21 May Göteborg, Sweden</td>
<td>Carina Hvalstedt, HD specialist manager Dalheimers Hus Brain injury and neuro centre with roof garden</td>
</tr>
<tr>
<td>22 May Train from Göteborg to Ribe in Denmark</td>
<td>Pass through Scania, Sweden to Sjaelland, Fyn and Jylland in Denmark</td>
</tr>
<tr>
<td>25 May</td>
<td>Travel to Randers in North Jylland</td>
</tr>
<tr>
<td>Towns and countries visited with dates</td>
<td>Organisations visited with purpose</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>26 May</td>
<td>Visit Jane Ahrendt, Manager, Tangkær specialist Huntington’s disease unit with gardens and glasshouse</td>
</tr>
<tr>
<td>Ørsted, Denmark</td>
<td></td>
</tr>
<tr>
<td>27 May</td>
<td>Travel from Aalborg via Oslo to Ski</td>
</tr>
<tr>
<td>28 May</td>
<td>Visit with Ruth Raanaas and researcher Christine Olsen from the Norwegian University of Life Sciences at Aas and visit Bjørkås nursing home, Oppegord municipality to meet Marianne Bakke and Mona Herjaune with therapy dog Saga am</td>
</tr>
<tr>
<td>Oppegord and Enebakk in Southern Norway</td>
<td></td>
</tr>
<tr>
<td>29 May</td>
<td>Visit with Ruth Raanaas to Heidi and Oistein Skulderud, Sand Green Care Farm, Enebakk municipality pm</td>
</tr>
<tr>
<td>Aas, Norway</td>
<td>Visit Norwegian University of Life Sciences at Aas horticultural facilities</td>
</tr>
<tr>
<td>30 May</td>
<td>Visit with Grete Patil, Norwegian University Life Sciences at Aas, Moer Nursing Home in Aas municipality with sensory garden for dementia and Sunaaas rehabilitation hospital near Oslo to see three therapeutic gardens am</td>
</tr>
<tr>
<td>Aas and Sunaaas, Norway</td>
<td>Return to University of Aas to visit campus and meet Katinka Evensen pm</td>
</tr>
<tr>
<td>31 May</td>
<td>Travel from Ski to Oslo</td>
</tr>
<tr>
<td>1 June</td>
<td>Visit Oslo Botanical Gardens and see Granny’s Garden featuring plants from 100 years before</td>
</tr>
<tr>
<td>Oslo, Norway</td>
<td></td>
</tr>
<tr>
<td>2 June</td>
<td>Travel to Røros up the River Glomma valley</td>
</tr>
<tr>
<td>3 – 5 June</td>
<td>Discuss research conducted at the LHL-klinikene Rehabilitation Centre, with Harald Engan, Anette Nordsett and Ingvild Oterhals and rehabilitation programmes with staff and patients</td>
</tr>
<tr>
<td>Røros, Norway</td>
<td></td>
</tr>
<tr>
<td>6 June</td>
<td>Travel from Røros to Trondheim</td>
</tr>
<tr>
<td>7 June</td>
<td>Visit to St Olav’s Hospital, Toril Skandsen arranged a tour of the neuro-unit and hospital hotel</td>
</tr>
<tr>
<td>Trondheim, Norway</td>
<td></td>
</tr>
<tr>
<td>10 June</td>
<td>Visit to Monica Buseth and Gunhild Grues, St Olav’s Klinikk for fysikalsk medisin og rehabilitering, Lian, to see therapy garden and rehabilitation</td>
</tr>
<tr>
<td>Lian, Trondheim, Norway, Fellowship terminates</td>
<td></td>
</tr>
<tr>
<td>16 June</td>
<td>Fly from Trondheim to London</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>16 June</td>
<td></td>
</tr>
</tbody>
</table>
**Background to the study of therapeutic horticulture for neuro-disability**

The Scandinavian countries have used therapeutic horticulture to help those with neurodisability. Programmes have developed in hospitals, specialist care units, botanical gardens, community centres and historic sites. As the climate, soil and flora of Scandinavia is similar to the United Kingdom, the practices could be adopted in the British Isles. More importantly, research is in progress in Scandinavia to assess the effectiveness of the interventions. Evidence is now required for therapeutic developments and the assessment of effectiveness is important. In Scandinavia, links have formed between the universities and therapeutic sites, enabling research.

**London site facilities** The Royal Hospital for Neuro-disability is situated in Putney, South West London and is fortunate in having nine acres of grounds. It was established in 1854 and moved to the current site in 1863. The site has an oak tree that is over 500 years old and was originally part of the Spencer estates when Melrose Lodge was a hunting lodge. The grounds were landscaped by Capability Brown and when purchased by the hospital a farm established with animals, orchards (some trees of which remain), vegetable beds and greenhouses. The site had a well for water. The economic depression of the 1930s terminated farming and after the Second World War much of the cultivated land was compulsorily purchased for housing. In the remaining nine acres, the grounds are maintained by the Green team grounds men. Residents are encouraged to join a garden group. There are five gardening groups for a range of diagnoses including brain injury, severe stroke and neurodegenerative diseases. Link [www.rhn.org.uk](http://www.rhn.org.uk)

**Horticultural therapy research** The fellow was asked in 2007, having a Masters in horticulture, to restore a garden in the unit for Huntington’s disease (HD) residents which had fallen into disuse but required attention as the Mayor of Wandsworth was visiting. One of the residents came out and followed the horticulturist around the garden like a shadow. The resident was asked if she wanted to plant and was given a plant, trowel and watering can. The Goodman House gardening group was born. Other residents joined in growing flowers, vegetables and fruit. Assessment was needed and a pilot research study was conducted. This showed that the residents got a sense of achievement from growing, enjoyed being outside and in the sun. Staff reported gardening as a constructive outdoor activity supporting secondary activities of crafts, cooking, ceramics, concerts and computing. It provided an alternative environment for therapy, promoted social interaction, provided therapeutic opportunities for functional movement and posed cognitive challenges. The most interesting finding was the preference for red and pink flowering plants and vegetables. Research on colour vision has shown that HD affects colour vision and patients cannot see the blue end of the spectrum well. Link [www.rhn.org.uk/events/conferences-and-seminars/event-open-lecture-gardening-hd.htm](http://www.rhn.org.uk/events/conferences-and-seminars/event-open-lecture-gardening-hd.htm)

**Developing a beacon garden** This pilot study led to a proposal to undertake research to optimize the plantings in grounds to make them as therapeutic as possible for the residents and their visitors and as restorative as possible for staff dealing with challenging situations. The literature search for this study identified activity in Scandinavia and so an application was submitted to the Winston Churchill Memorial Trust in September 2013 and led to a Fellowship award.

**Aims**

1. To study the design of therapeutic gardens for neurological and psychiatric units, hard and soft landscaping, features and planting schemes, documenting them photographically and in a trip diary. Blog at [http://churchillfellowjosephinespring.wordpress.com/2014/04/](http://churchillfellowjosephinespring.wordpress.com/2014/04/)
2. To observe, participate in (if practicable) and document therapeutic activities conducted in the gardens, planted rooms and natural habitats, collecting activity sheets, guidelines, tool usage, therapy goals and training materials.

3. To seek out and discuss assessment methods to establish the effectiveness of therapy gardens and therapeutic activities conducted relating to gardening. To collect assessment scales, tools and measures, mapping horticultural therapy and research in Scandinavia.

**Data collection**

The Fellow describes each site in detail, to map who does what, where, how, with whom and why? The gardens are described so that horticulturists can envisage the plantings. For UK clinical colleagues, the patient facilities and activities are outlined. The Fellow designed a tool to collect horticultural therapy data in a systematic way during visits, Annex 1. This was best discussed with hosts but some visits were short and the information had to be drawn from notes. The Likert Scale was used with staff at five sites. The data requires more detailed analysis but some general conclusions have been drawn and are cited.

**Visit to Garden of Senses, Central Stockholm 11 May 2014**

This is a sensory garden connected to a facility for elderly people in Central Stockholm. The visit was not planned but suggested by a Swedish friend. The garden illustrated several features of Scandinavian therapeutic gardens for care facilities.

**Facilities** It was thoughtfully designed with brightly coloured tulips in soil beds and a trellis for roses and other climbers. There were both trees and an umbrella to provide shade and lots of seating, both benches and individual seats, and there were handrails for those who required support. The eye-catching feature was the central summerhouse in white wood with a copper roof and trellising to break the wind, (photograph back cover). Two floral troughs at waist height provided contrast with bright plantings of golden pansies.

**Features for consideration** The summer house provided a social centre for the garden, and a wreath hung by the door. There was an historical connection from the orange tulips planted to celebrate 400 years of gardening liaison between Sweden and the Netherlands. Thus the garden provided green, security, seats, a social centre, popular plants and a reflection of an historical link, meeting many of the criteria cited in Norway for care home gardens, (See page 22). Link http://sverigesradio.se/sida/artikel.aspx?programid=2054&artikel=5733199. Photograph back cover
Visit to Professor Hartig to discuss research methodology at Uppsala University, 12 May 2014

Professor Hartig is an environmental psychologist with a background in wilderness studies and viewing nature. He works jointly between the Institute of Housing and Urban Research and the Psychology Department at the University. He has published on assessment methods for wilderness, nature and healing gardens.

Facilities for research Work at Uppsala was undertaken by a PhD student who was currently in the USA who would draw on a Master’s project on restoration of student attention following an hour-long lecture. It used the Linnaeus Botanical Garden hothouse as a restorative compared to a lecture room environment in a study of 40 students using rating scales, (Hartig et al. 1997 and Laumann et al., 2001). A design framework is available for restorative environments, (Hartig et al., 2008). Link http://www2.ibf.uu.se/PERSON/terry/terry.html

Research questions He explained there were critical questions about experiencing benefits of wilderness, fields and forests. Why are they beneficial and what has happened during the experience? Is there a potential to reinforce the experience? There are scientific questions about this and healing gardens. Enthusiasm needs to be tempered with constraint. Nature may also make you sick and may pose a threat, so you need to understand the trade-offs, conditionality and contingency and drill down beneath the association to examine the activity versus the benefit. In practice, you need to look at the flow of people through the garden environment and think of how to form comparison groups. What may be measured? There is a range of measures including self-esteem, restoration or collective restoration, impulse control, agitation and problem behaviours. Physiological measures include blood pressure and heart rate. What helps families to do better is a further issue.
Future research on the London garden, a prospective study with good records could work with rolling recruitment of participants. A study on the restorative effect of the garden on staff was possible using an electro-cardiograph (ECG). It was considered that phenomenology was possible but a quantitative approach preferred. The use of picture choices as in the pilot study is appropriate for those with communication problems. It may help to share data for analysis and to contact other UK researchers including Mitchell in Glasgow, Pahl in Plymouth, de Pledge in Truro and O’Brian at Alice Holt Research Station, Surrey. Two papers were given discussing methodological issues in nature and health. (Hartig, et al., 2014 and 2003).

Exchange of ideas The fellow provided the research presentation and paper on the Huntington’s garden study, (Spring, 2013). The reciprocal exchange of research information featured in many visits and the discussion on methodology was very helpful.

Visit to Jordhammars Växtkraft, Stenungsunds, north of Göteborg 15 May 2014

Rick Mulder, from the Netherlands, runs two sites. The first is a horticultural nursery with glasshouses, bought from a retired grower. The site is outside the town, which is home to the petrol-chemical industry, in fields bounded by a stream and that slope to the sea, providing additional reflected light.

Activities The clients are mainly without work; join for six months and need to progress from ten hours of work per week to twenty hours. Participation and choice of reporting hours is voluntary. Clients must progress and move forward to help new joiners. Many (40 per cent) have alcohol or drug problems. As addiction may be dopamine related, they are assigned hard physical tasks and the other clients help assure abstinence. Clients may also have learning disabilities, one was wheelchair-based. Some are health referrals, others employment related. Assessment is by interview. Often the first interview is very negative, the second more optimistic and the third has a positive tone. Mindfulness therapists visit and yoga is done, clients go out for courses. Clients hold their own notes and are interviewed at regular intervals. As well as propagation, crafts of carpentry, willow weaving and concrete moulding are done and products sold. All clients and staff eat together and provision of a nourishing lunch is important in maintaining a good state of well-being.

Funding and economic output The project is funded from the health and unemployment budgets and after the six months some of the clients become workers at the enterprise. Wages are subsidised by the government but cost less than full time unemployment as the
subsidy is related to the disability percentage. 40 per cent return to ‘work’ in either the open job market or in the sheltered enterprise.

**Features for consideration** Staff eating with patients was the norm in Scandinavia and the quality of the meals provided was high. It would be interesting to see if this would be culturally acceptable in the United Kingdom. There was a wider range of crafts than in England with more emphasis on saleable articles. The project had been assessed (Mulder, 2013) and details are available at Link

https://www.stenungsund.se/download/18.33916c3b141245549684df3/1381410877110/Utv%C3%A4rderingsrapport+Jordhammers+V%C3%A4xtkraft+Stenungsund.pdf

**Visit to site to treat clients with Post Traumatic Stress Disorder (PTSD) 15 May 2014**

**Facilities** Annika, horticulturist and Annette, social worker are developing the new project.

![Figure 6 PTSD garden under development at Stenungsunds](image)

The clients do not learn much Swedish as they are isolated and the use of translators is difficult. There are two clients, from war zones, and language problems are significant. The staff will try to use a computer to assist communication. Funding is for one year but further funding is requested.

**Features for consideration** Fruit was grown on the site including peaches under glass. More fruit could be grown in London.

**Exchange of ideas** The research presentation was given. Dr Turner, PTSD consultant, was contacted who has suggested that a group in Stockholm may assist them on the language issues. A copy of a book written by one of his PTSD patients will be posted to Rick. The use of iPads at RHN for clients with communication problems was outlined.

**Visit to Gröna rehab (Green Rehab) in the Göteborg Botanical garden 16 May 2014**

**Facilities** Eva Sahlin, a doctoral student, has been evaluating the Gröna Rehab project, based at the Swedish University of Agricultural Sciences at Alnarp. The project is led by Eva-Lena Larsson, a biologist who works at the Botanical Gardens and has done research on nature and health. The project was initiated by a problem experienced by the regional government of West Gotland, with over 50,000 employees, in the health sector having high levels of sick leave, stress and moderate to severe depression. The project was funded for three years. It receives about 60 clients annually. Clients with severe depression may not have worked for between three months to twelve years. The site is an old gardener’s cottage, with mature fruit trees on the front lawn.
The staff consists of five people: a biologist, a gardener, a psychologist, a physiotherapist and an occupational therapist.

**Activities** There are four groups a year, two rehabilitating the long term sick and two stress management courses. All clients are first name only and the green programme is gardening and nature. It is complemented by the white programme of body relaxation, handicrafts, art, talking therapy and exercise (on sheep skins). The wilderness is adjacent to the Botanical gardens and this is experienced in groups or alone. Monday has slow 5km walks, using a lens to focus on nature, identify bird calls, feel tree barks and this and the garden work shows nature is imperfect, which may help clients to come to term with their problems.

Pricking out delicate young seedlings was seen as stressful as they are easily damaged. Patients make metaphors but the seedlings grow and are planted out into a meadow. The meadow flowers are picked and taken home. Social confidence is built by holding small parties on a seasonal basis, Christmas baskets are made. In winter, crafts with wool and willow weaving are done. Art sessions are held, with each painting dated. Clients are asked to choose different colours and use symbols. The dates help trace progress. Relaxation therapy is held with sitting, standing and prone exercises. Discussion sessions are organised so that clients support each other.

**Economic outputs** The clients are predominantly female and drawn from a female-dominated workforce. The monitoring has shown an initial success rate after a three month rehabilitation of 93 per cent returning to work or to study. After 18 months, 86 per cent are still in work or study, which is of economic significance. The project has been carefully evidence-based, and an established methodology has been followed. Green rehab is popular in west and south Sweden but not in the east. A book is available about the project, (Larsson E-L., 2010).

**Features for consideration** What happens to British health staff with burnout? Could NHS money be saved by encouraging stressed staff to relax in gardens on such courses? Should measures be taken to address this problem and is one solution to encourage short breaks and lunch to be taken in garden areas? This is encouraged in London, especially where the patients may have challenging behaviour as a result of their illness but formal data have not been acquired.
The Botanical gardens are adjacent to a university hospital with institutes and were founded by a doctor, like Uppsala. This differs from London as Kew is a scientific site and not close to any major hospital or university facility. Link http://epi.vgregion.se/sv/gronarehab/

**Exchange of ideas** The long hours of winter darkness may be a confounding factor and the measurement of melatonin from saliva was suggested for the spring and autumn rehabilitation groups, to see if daylight was a factor in recovery. The methodology would be sent on from London and the research presentation was given.

**Visit to Gunnebo Slott, near Göteborg 19 May 2014**

**Facilities** Emma Naqvi, a graduate of the Thrive course, runs the therapeutic garden at Gunnebo. Gunnebo Slott is an historic house built by a British merchant in the Georgian period.

The view from the house terrace provides the four elements for a restorative landscape:
1. Views from above
2. Trees
3. Water pool with fountain
4. Secluded hedged areas

In addition, there is a farm, two kitchen gardens, formal gardens, wilderness, pastures and bogs. The farm has traditional breeds to maintain the landscape and there is a commercial riding stables with about 16 horses and carriage driving. There is open-air theatre, reconstruction of old buildings, archaeology as well as a restaurant and conference centre. The site is also used by schools for educational visits with a teacher in period dress. Thus the site has a wide range of users, so the therapeutic garden is secluded.

The therapy garden a lawn area with chairs and tables surrounded by fruit bushes, rhubarb and perennials, a meadow area, a tiered intercropping area with vegetables and some flowers and an alpine bed in the rocks. The soil is clay to loam on granite bed rock with the site facing south-east. There are plans to extend the teaching area and meadow plantings.

Gunnebo rehabilitates clients referred from psychiatric or neurological services, including burn-out stress, brain injury and stroke patients. The therapeutic garden lies behind the new kitchen garden and is arranged in rooms with hedging for privacy. Most clients are from the lower paid public sector, 'the Swedish poor'. Those referred are somewhat

---

**Figure 8 Gunnebo Slott modern greenhouse for propagation and protected crops. Note the two tiers of plants.**

Other indoor facilities consist of a house with a craft room, a group room and a kitchen.

Indoor activities include mindfulness, relaxation, exercise, art, craft and cooking.

Participation in Gunnebo projects, for example archaeological or historic research at the site is encouraged.
excluded from Swedish society as they lack material assets and networks of friends to cope with life’s challenges.

**Activities** There is no formal therapy; the gardening is to strengthen the patients mentally and physically. The horticultural programmes follow the Thrive English model and links to the historic site. A group that morning harvested rhubarb from soil beds and participants had also been weeding and mulching. Sessions are 45 minutes twice in a morning, three mornings per week. Contact with the farm and stabled horses’ is encouraged, as is free attendance at the theatre. Gunnebo Slott was built as a summer house by a wealthy British merchant. He commissioned the architect Carlsberg in 1778 to research and design a timber summer house where he could entertain in style. It passed out of the Hall family to private hands until purchased by the Mönndahl kommun. It is run as a public facility by the kommun and the regional government. It is open as a special historical house and garden, with complete historical records. Carlsberg did detailed interior design including floors and fabrics. This provided a rich background for historical projects.

**Features for consideration** The use of a historic site gives an extra dimension to the therapy, as historic and archaeological activities may be included. The nearest parallel subsequently seen in England is at Pitzhanger Manor where there are raised beds provided in the walled kitchen garden. Historical associations are one of the items listed for consideration for a garden at a residential care site in Norway, see p 22. Lunch was served and crafts undertaken. Contact with animals was encouraged at this site. Link [http://www.gunneboslott.se/english/](http://www.gunneboslott.se/english/)

**Exchange of ideas** Emma is the first reciprocal visitor to the hospital garden at Putney. She took many photographs and saw a resident paint a flowerpot which was presented to her. She has agreed to be part of an email network to exchange ideas, information, publications and knowhow across northern Europe. Gunnebo is also the centre of the Swedish parks association and both the therapeutic and the recreational managers welcomed contact with Britain in Bloom. As a result of the Fellow’s connections to this programme, Emma has visited a very similar site in London, Walpole Park with Pitzhanger Manor House in Ealing. She is planning to visit Dalheimer’s hus in Goteborg. Interest was also expressed in some joint research between the Royal Hospital and Gunnebo Slott.

**Visit to Dalheimers Hus, Göteborg 21 May 2014**

Dalheimers hus is a centre in Göteborg that caters for brain injury, stroke and neurodegenerative diseases including Huntington’s disease (HD). It is easily accessible by public transport by trams, buses and boats. Carina Hvalstedt, specialist manager, hosted the visit.

**Facilities** The centre has excellent facilities: on the ground floor there is a large, well-equipped gym adjacent to a sizeable swimming pool. Members of the public can pay to join the gym and swim. Along the connecting corridor there are physiotherapy treatment and clinic rooms. the physiotherapist said that gardening was a very good form of exercise for HD clients. There is a special hydro-massage facility and research has been conducted on this for HD clients. They do aqua-aerobics and there is a specialised saddle-like device to help them practise their balance. There is a restaurant serving good food with three main choices, hot meat or fish or salad for S Kr70 (£7 very cheap in Scandinavia), and large portion sizes were served. It is open to local residents and advertised on a digital signboard outside the building. Clients were observed being delivered in taxis. There are automatically opening doors and wheelchair-friendly lifts. There is a conference centre and meetings were in progress. There is a library specialising in disability media and a toy library on a trolley.
Carina had just completed a big project on HD affecting children in families and had drawn on Ceri Bowen’s work at RHN. There are a lot of resources on the Swedish HD web site, including some in English and a recent video in English. There are also books and leaflets for children and parents for families affected by neurological conditions. These are in Swedish but English translations are envisaged.

The centre is run by the Göteborg city. The facility is to the west of the city, near the Gota river with views of the suspension bridge. (Jonasson, 2001). In Sweden, people can have personal 24/7 carers. They may get day care and there are 20 respite beds on the higher floors of the Dalheimers building. Carina is moving on to train the carers and would be interested in learning from the UK.

**Activities** There was an indoor nature room. The group did many craft activities associated with the garden, made their own calendar, collected and packed seeds, did art and photography and had a client make a book about the garden using an iPad (not HD). There is a carpentry workshop with tools. The HD clients have a well-being group where they can choose activities. These include art, textiles including cushions, jewellery, wall hangings, gym, swimming and horse riding. The clients go on outings.

![Figure 9 Dalheimers hus roof garden with therapists](image)

The planning of the roof garden in containers gave considerable flexibility for growing a wide range of plants and the outlook over the river and suspension bridge was attractive, especially for outdoor dining. The enthusiasm and innovation of Christine who ran the garden group was infectious and even if patients could not use their hands, she took them in hers and planted with them. She was obtaining tomato trees from China and was keen to know of other roof gardens for disabled gardeners. Several of the HD clients could speak English. Most had visited England and would like to do so again. Some were in wheelchairs and some in wheeled armchairs from the UK with foot stools. Many had head or neck supports.

Staff were amused by the Churchill crown, ‘Churchill drank a lot of whisky’, they said, and were pleased by the RHS sunflower seeds. Literature and presents for Putney gardeners, including seeds their group had gathered and packed, were given in reciprocation.
**Features for consideration** The site was an excellent example of flexible container growing and using a roof space for growing and as a café. Fruit growing in containers was established. The range of crafts was wide ranging from woodwork to needlework and was the only site where I found computing related to the garden. HD tourism was an interesting suggestion from the clients. Link [http://goteborg.se/wps/portal/enheter/traffpunkt/dalheimers-hus/!ut/p/b1/04_SjzQ1MzczNDYyNNOP0I_KSyzLTE8syczPS8wB8aPM4o1MvQOdjLyMDf wD3N0MjLzcq0IDPNy8Ql2M9XOjHBUBhRQ1lw!!/](http://goteborg.se/wps/portal/enheter/traffpunkt/dalheimers-hus/!ut/p/b1/04_SjzQ1MzczNDYyNNOP0I_KSyzLTE8syczPS8wB8aPM4o1MvQOdjLyMDf wD3N0MjLzcq0IDPNy8Ql2M9XOjHBUBhRQ1lw!!/)

**Exchange of ideas** Carina welcomed contact with London and Christine who ran the gardening was pleased to meet another gardener. The research presentation from London was given.

If there is interest in Denmark, a European HD gardening group could be formed to exchange ideas. They were interested in the Fellow’s research and especially in the colour vision information. They also mentioned that the vision of clients is often tunnel-like and they should always be approached from the front. The Fellow delivered publications to Denmark at their request.

**Visit to Tangkær HD unit in Ørsted, Denmark, 26 May 2014**

The purpose-built unit opened in 1972, Huntington’s disease (HD) is categorised as a psychiatric disease in Denmark.

**Facilities** The HD unit has 16 two-room flats for residents, 15 are occupied now. There are more units for psychiatric residents but these are smaller. Tangkær has 70 staff including a dietician, physiotherapist, occupational and music therapists and two activity workers. The site is quiet: the birdsong was memorable, (photograph back cover).

![Figure 10 Tangkær greenhouse](Image)

Some HD residents (who appear at an earlier stage than those who garden in London) work in the greenhouse, erected 30 years ago. The magnificent grapevine and rows of tomatoes are watered by residents. The grapes are juiced and unfermented juice is drunk. The tomatoes are used in salad or may be liquidised and jellied.

The buildings are on the outskirts of the village and are at ground level. They are surrounded by arable fields and marshes with woods in view. There are garden areas including a courtyard garden with attractive pots, trees and a summer house, in which a resident was singing. There is a lawn and a patio area. There are plans for a south-facing sensory garden, the site was attractive and staff were keen to learn about the London garden.

There is a dining room for residents, p28. Breakfast of rye bread, cheese and coffee was eaten by a late riser. The kitchen is open plan so you can see and smell the food being prepared, which was important to encourage appetite. Staff ate with the residents and the
Fellow’s table had two residents and two staff. The food was soft but pleasant, lasagne and salad or an alternative pasta dish was available providing choice. Late stage HD residents eat ‘jelly food’ that looks and tastes like smorgasbord but is liquidised and jellied in appropriately shaped moulds. For example, jelly bread topped jelly cheese and jelly tomato is served. PEG feeding is not used, only a little naso-gastric feeding at the very end stage.

The rooms are ensuite with an automatic bathroom door and comprise a stainless steel lavatory, basin and shower with aids. There is a ceiling-mounted hoist in the bedroom which is divided from a sitting area by a wardrobe and storage unit on moveable wheels. The beds are hospital type with soft mattresses and padded cot sides if required. Residents can have their own furniture or art. There is a modern room for receiving families with a balcony and computer screen for data display. The estates manager had worked there for 28 years. He got the first HD chair from London, but subsequently had chairs made in Denmark from steel as a stronger material than wood. One patient was seen on a chair-bed and others in large special armchairs with foot blocks, similar to those used in Sweden.

**Activities** included an art room, gym with cycles, Link p25 [http://huntingtons.dk/wp-content/uploads/2014/04/20133.pdf](http://huntingtons.dk/wp-content/uploads/2014/04/20133.pdf) - jacuzzi with ceiling hoist, traditional bath and sensory bath filled with plastic spheres where coloured lights are projected and music is played. There is an art installation projected on a floor where you move, it moves. There is an external exercise gravel path of one kilometre that snakes around rough meadow, in which there are several wooden exercise structures including swings. The gravel paths are flame weeded. One resident keeps a small dog and he walks this outside. There is a fire pit, around which residents meet in the evenings and music is played. Tangker holds a festival in the garden in the summer. There are links with London on music therapy already and the Tangker music therapist has formed a rock band called ‘Dizzy’ which is going to perform at a local festival. Residents visit the village to shop and go to the Krø (inn). A ball game and playing cards were projected to encourage movement. There is a woodwork room where residents can assist and a mechanical workshop where they make scooters.

**Features for consideration** There was fruit growing and activities in the existing grounds including music, festivals and Viking fires. There was a summer house, a focus for social activity in the garden also a recommendation for residential gardens by the Norwegians, see p22. The outdoors was used to encourage exercise and again a wide range of crafts were conducted including mechanics. The Snoozelen bathroom and projected images were interesting features, as was a poster requiring staff to check the safety features of a wheelchair before use. Link [www.tangkaer.rm.dk](http://www.tangkaer.rm.dk)

**Exchange of ideas** Jane worked at the Star and Garter Home, Richmond and the Danes are keen to see facilities in London after seeing the Putney research presentation which would be useful in planning their new garden.

**Visit to Bjørkås nursing home, Oppegard, near Oslo, 28 May 2014**

The purpose of the visit was to meet Mona Herjaune and her therapy dog Saga working with elderly people with dementia in a day centre within a residential facility.

**Activities** The session starts as the dog greets residents and they give the dog treats. Saga will bark on command and will lift a paw on the command ‘high five’.

To assist leg movement, elderly are asked to raise their legs when seated in a chair wearing trousers and the dog runs underneath their legs. Finally a standing person in
trousers is asked to open their legs wide so the dog can run through them. As a further cognitive task, the elderly person has to say what they did with the dog. Other movement exercises include walking the dog, bending down to the dog and stretching. Saga can demonstrate how to use a step and this is better received than a person showing them. Dog therapy sessions last for one hour and can accommodate five people. Saga is a very gentle dog and likes being stroked. It was noticeable that her presence encouraged the elderly to talk, both to the dog and to the group. Indeed the group shared a joke. The elderly could all walk, talk and appeared prosperous.

Research Christine Olsen has been researching animal therapy in 15 homes, using video, staff observation questionnaires and rating scales. Inter-rater ratings were measured and were fairly consistent. Measurements were done after two weeks and ten weeks of a twelve week animal therapy intervention. Results show present memory improves after ten weeks. There have also been trials using a robotic seal to help the elderly; after initial concerns this has worked quite well.

Figure 11 Mona Herjaune and her therapy dog Saga

Saga is a Rottweiler aged five. Her role is to encourage the elderly to move and provide mental stimulation. The person is asked to stand, given a dog treat and told to make wide circles with one hand for the dog to follow. Then the person is given a small ball to throw, throws it and the dog retrieves it and gives it back for a treat. Next a device called a twister is used. Link http://www.nina-ottosson.com/DogTwister-Plastic-2.php It is circular (in red bag) with a solid central hub around which the wood has been recessed, with further recessed hollows (about six) into which treats are placed but only in two hollows which the elderly person has to choose. Five wedges are placed in the upper recess and rotated so both the treats are covered. The twister is put on the floor and Saga moved the wedges with her nose and paw until she found the treats. This requires cognitive skills for both dog and elderly.

Saga is a very busy dog, she searches for the lost elderly and works with schoolchildren. Some of the children have learning difficulties, others do not want to go to school so she walks them there and works with them, a very talented and well-trained dog.

There was gardening at this site. On arrival, a lady came to do gardening on the patio that looks out over Oslo fjord. There is a concrete raised bed that does not drain well. The soil looked exhausted. The residents grew potentilla, peony, bulbs and cypressus in the raised bed. They did some gardening in pots. Lunch was eaten outside in warm sunshine, in the garden with a beautiful view over the fjord.

Features for consideration Saga did much more than a petting dog, often used in the United Kingdom. The activities to promote movement were carefully planned and clearly did stimulate the elderly to speak, move and joke. Some were a little wary of the dog, but
worked with her, others were very happy. Would the use of a robotic seal be acceptable and cost effective?

Viewing nature was important at this site, and the patio garden, although small, facilitated outdoor activities. Link https://www.researchgate.net/profile/Ruth_Raanaas

Visit to a green care farm, Sand Farm, Enebakk kommun, 28 May 2014

Green care farms aim to provide care in a farming environment, rather than agricultural production. Sand Farm is run by a couple, Heidi and Oistein Skullerud, he is a trained social worker as well as a farmer and she is a nurse. He is very versatile doing farming, building work and forestry.

Facilities The farm grows grass for hay, oats, potatoes and carrots. There are attractive flowers planted around the farm. The area is east of Oslo, very rural with unadopted roads. There are steep slopes from the farm down to the Glomma river. Sheep are kept at the farm, ten ewes with lambs, a small number of hens, a rabbit and outdoor cats. There are several large farm buildings, which contain kitchens, a teaching room and a large workshop. There are winter sheep stalls and machinery including mowers, tractors and forestry equipment. The farm produces care for two groups. The first is adults who are on long-term sick leave for reasons including depression, drugs or alcohol or who have never worked. The farm takes seven adults for about one year. Their participation is paid for by NAV (government agency for work and pensions). Most participants are men but their ages vary.

Activities The day is timetabled and starts with breakfast, with tasks and activities followed by lunch. In the winter, they skate and ski cross country. A professional shearer shears the sheep. All adults are trained to use a chain saw safely, and can learn to drive a tractor and a ride-on mower. The trees spread across the slopes and the soil has started to erode, so much work is going into felling timber and stabilising the slopes in the winter. The ash trees have ‘die back’ and the elms are diseased.

The second group are school children with behavioural problems or learning difficulties. Four come once a week with a teaching assistant, so there are three adults and four children. The idea is that they learn by doing, learning being woven into the activities. Eggs are collected and cooked for breakfast. At present, a lot of activity is around the Viking project. The farm is on the site of a Viking farm so an area above the river has been cleared and a Viking fire place made with rough timber benches and tables. A Viking ting or meeting place (semi-circular amphitheatre) is being constructed that will seat 300. This has involved the children in geometry and mathematics. Viking clothes are being made.

Figure 12 Professor Raanaas leads me to a Sami lavo at Sand farm

In the woods by the Glomma river is a Sami lavo, made of wood and canvas. Adults do forestry including felling timber and making outdoor furniture and other wooden items.

The children have made Viking wooden shields, axes and swords

Eggs are collected and cooked for breakfast. At present, a lot of activity is around the Viking project. The farm is on the site of a Viking farm so an area above the river has been cleared and a Viking fire place made with rough timber benches and tables. A Viking ting or meeting place (semi-circular amphitheatre) is being constructed that will seat 300. This has involved the children in geometry and mathematics. Viking clothes are being made.
An area for archery and axe throwing, both Viking sports, has been excavated. A Viking festival day will be held in August with the Mayor attending.

**Features for consideration** All the activities are to show old and young that they can achieve and learn. It is not a therapy but a bridge back to work for adults. The animals are a bond and some of the men are very attached to the lambs and cats. The scheme helps restore self-esteem as well as teaching practical skills. The adults are motivated by doing things to help disadvantaged children. The farmer has great enthusiasm. When asked about health and safety, the Nordic view is that children should climb trees, sail boats and sit by open fires. They are warned of hazards and that farming is dangerous. There are about a thousand care farms in Norway under a government programme. Farming is going through difficult, economic times and there were demonstrations in Oslo by farmers about depressed prices during the visit.

This site was similar in aiming to return adults to work to Jordhammars Växtkraft horticultural site in Sweden. Again heavy physical work was used for those recovering from addiction but practical skills were taught in fields where there was potential for employment: construction, forestry and grounds maintenance, rather than farming. The animals were useful in that participants could relate to them, care and feed them. The schools in Norway, a teacher stated, focus on getting high PISA scores and practical subjects get limited time and resources. The more practical approach to learning may provide a useful alternative and it was interesting that the needs of the children stimulated the adults attending the project. Again, using the history and cultural associations of the site played a part in the activities. Link [http://www.aaspro.no/attforing/gront-arbeid-sand-gard](http://www.aaspro.no/attforing/gront-arbeid-sand-gard)

**Report on a visit to Moer nursing home, Aas, 30 May 2014**

Aas kommun has a population of 18,000 and is south of Oslo. Norway has an ageing population. Acute care is provided by the national government. Nursing home care is the responsibility of local government, the kommun. The local care plan is to provide nursing home beds for twenty per cent of the aged over eighty. Initially, the infirm are supported at home, then in sheltered accommodation and finally with dementia, nursing care is required.

**Facilities** In Aas, an area where there was a farm, the community uses the site for the provision of nursing homes, sheltered housing for the elderly, learning disabilities and mental health clients. There is also a nursery for pre-school children. The site is on the edge of the kommun, on higher ground, with some units looking out over the railway line and into fields.

Moer has two ground floor buildings with twelve rooms in each. Residents enter the garden by a veranda. The garden was not planned when the home was built, but the Rotary raised 500,000 N Kr (£50k) to provide one. The Rotary includes in its members, academics from the University of Life Sciences, Aas, so the retired processor of landscape architecture designed the garden. He and other retired staff maintain the garden. The garden is secure, has a central area with chairs and a circular path. It is planted with herbs, ornamentals, shrubs, young trees and apple trees, as this is an orchard area. A right of way had to be blocked to make the garden secure.

**Activities** Concerns have been expressed that the garden is not used systematically, there are issues with maintenance and staff need encouragement to take clients into the garden. It is intended that the residents can walk there without an escort and may socialise there with relatives. Shade is limited by trees being young, but the apple trees are bearing fruit, will these be picked? Are the herbs used in cooking?
There is now a desire, almost an expectation, for gardens with care facilities in Norway. Prof Patil asked for the mental health flats to have a south, not north, facing garden. The original elderly care block had lawn with trees but no flowers, fruit or vegetables. A more recent unit has a patio with planted pots of geraniums, a granite water feature and an art installation, a lawn and a soil bed with alliums in flower. Chairs and tables decorated with potted geraniums attracted attention. A third garden has a statue of a deer purchased by volunteer helpers who raise money to enhance the homes and grounds. There is a need to plan units with a garden that will meet the needs of residents, relatives and staff. It was fine weather and we saw elderly residents go into the gardens and some nurses sitting out. The kommun would now question a care facility planned without a garden.

**Research**  Ellen-Elisabeth Greferud did a PhD on design of gardens for dementia. It was supported by the Competence centre for ageing and health, Hagenselkap (Norwegian RHS), and the National Bank (Husbanken) and a book written which has been translated into English. Eight pilot gardens were examined. This led to features listed above being recognised as important. For indoor plants, lighting is important, and underground gardens have been experimented with in a hut made of earth, wood and tree branches. As many buildings are wood, a fire access path was constructed with a grass strip to discourage wandering. Marianne Gonzales did a review of garden and horticultural activities in dementia, (Gonzales and Kirkevold, 2013). The Oslo botanical garden has a sensory garden with plants from past times that provides a useful reference collection for plant choice and is an excellent display, (Borgen and Guhlhal, 2011). Photograph back cover.

**Features for consideration**  The research on the important features for a garden at a residential care site is of wide application and published in English. The involvement of the local government planning process, voluntary groups and academics could provide a valuable model. Further work is needed on the factors that lead to increase usage of these facilities. Link [http://www.umb.no/ansatt/cv/grete.patil.pdf](http://www.umb.no/ansatt/cv/grete.patil.pdf)

**Report of a visit to Sunaas Rehabilitation Hospital, Oslo fjord 30 May 2014**

The hospital has 150 patients and 700 staff. It is paid for by the Norwegian Health service and takes amputees, spinal cases, patients with stroke, brain injury and burns. An occupational therapist, who does not garden, but does later stage assessments said patients can come for between a few days for assessment up to twelve weeks, then they go
home or to other care facilities but may come back for further treatment and assessments. Some patients were ambulant, others in chairs or using rollators, two were prone on wheeled beds, as a result of pressure sores. Staff wear brightly coloured sweatshirts but no uniform trousers and doctors wore white coats.

The hospital is situated on a peninsula that juts into Oslo fjord. There are stunning views over the fjord. The site is approached from an established orchard with mature trees and a landscaped large pond with iris and water lily in flower. The position was chosen by the Sunaas family who started the hospital for their disabled son, in a sunny position and a good area for growing orchard fruit. Apples, pears, plums and cherries all thrive, with red and black currants and blueberries.

Facilities There are three garden areas:

By the occupational therapy department which is staffed by 40 therapists. This has an art area, three kitchens with herbs and exotics, for example, dates growing in pots. By an external door there is a variable height table for indoor growing. They germinate tomatoes and peppers from seed. Immediately outside, there are strawberries in troughs at waist height and pots with herb plants. Herbs are dried and bottled for kitchen use and labelled with details of use, a project undertaken by patients. A wide range of crafts related to growing is conducted including Christmas wreathes, Easter decorations, cards and labels to their own design and painting elliptical flat stones as ladybirds. Growing adjacent to the therapy kitchen appears to have assisted the integration of growing with cooking. The balcony garden allowed a wide range of plants to be grown at differing heights and so be accessible to many patients. Fruit growing was prominent.

A new area above the OT department, with steep slopes. It has raised wooden beds with brassicas recently planted, plum and cherry trees, an unused cold frame and a table underneath which wheelchairs fit. There were soil beds at ground level with potatoes growing. The area needs to be developed more systematically but may move to the front of the building after demolition work is completed.

Features for consideration Garden groups were popular and related closely to cooking and art. The balcony garden was well planned, provided a wide range of container...
gardening at variable heights for wheelchair and ambulant patients. Patients eat with the staff in the restaurant, canteen style with soup and one hot dish as well as a cold buffet. The hospital has an attractive location but access roads are winding and steep. Link http://www.sunnaas.no/om-oss/english

Visit to Norwegian University of Life Sciences, Aas, Norway 30 May 2014

The university started as an agricultural college but now teaches a wide range of biological subjects including biotechnology, horticulture, agriculture, veterinary science, plant sciences, landscape architecture, Tivoli and circus. It is situated south of Oslo.

Research Growing experiments observed included tall, pole black currants (photograph back cover), fruit trees, ornamentals and clean growing for plant health. There is research on trees and diseases, the environmental effect of plants on workers and of viewing nature. Research has been conducted on dementias, at Sunaas hospital on strokes with an occupational therapist who is training at Thrive. In Norway, nature is culturally important and exploited for therapy, (Grinde and Patil, 2009) but Norwegians think gardens are more important in Britain than nature.

Katinka Everson had researched how people perceive office environments with and without plants. The workers were tested for attention, restoration and stress reduction in the work environment. Only small effects were shown, so it is difficult to prove that people work better with plants. The perceived restoration scale was used in the assessments and window views were taken into account. No physiological measurements were made but objective tests on the performance in the office were conducted. This follows a review, (Bringlimark et al., 2009).

Exchange of ideas Interest was expressed on the fellow’s publication on Winter activities for gardening groups, (Spring, 2011). In discussion, research co-operation on stroke patients at Sunaas was raised, Craig rehabilitation hospital in the USA was mentioned and the work of Jean Larsson at the Minnesota Arboretum. Link http://www.nmbu.no/en

Visit to Røros Rehabilitering, Røros in Norway 3 to 5 June 2014

Facilities The rehabilitation centre is funded by a charity LHL Helse, the Heart and Lung Association of Norway and constructed in 2003. It is high in the mountains, over 500 metres above sea level. In June, there were still snow caps on the peaks, and spring had come early this year. It is situated on the coldest part of Norway, and a temperature of minus 51ºC has been recorded. Much of the year it has snow cover, snow starts in October and the thaw may not come until May. During the visit the weather was warm, 20º to 23º C.

Patients must be able to care for themselves, for example wash and dress without assistance even if they are in a wheelchair. The centre takes five streams of rehabilitation:

1. Cardiac clients come for one week, then four weeks and are followed up in four to six weeks by telephone.

2. Lung COPD and non-obstructive diseases attend for four weeks and are followed up in four to six weeks by telephone. They may attend again that year but usually attend once per year, depending on their condition.

3. Work rehabilitation is provided for both physical (mainly pain) and psychological (stress, depression) conditions and clients come for four weeks.
4. Cancer patients post-acute treatment, (all sites), to give a better quality of life and improve health after long treatments, three to four weeks with a follow up.

5. Obesity is a problem in Scandinavia; obesity research is being conducted over one to two years which involves clients staying for three to five stays of three weeks.

There is a dedicated team for each group of patients. This includes: a nurse specialist, a physiotherapist or sports physiotherapist and two nutritionists who cover the teams, with a psychotherapist, occupational therapist and a social worker. There is a laboratory with a physiological technician. The unit is led by a consultant oncologist, a cardiologist is present four days per week and there is a general practitioner. There is an on-call doctor, a nurse and a receptionist on duty at all times.

**Funding and economics** The clients are drawn from the mid-Norway region and the rehabilitation centre, although private and charitable, has a three-year agreement with the regional health funder. Although hospital care is free in Norway, there are residential qualifications about this entitlement. Patients pay about £15 for a general practitioner appointment and for investigations, medication and other costs up to about £500. Then they are deemed chronically sick and the state takes over financial provision. There is a cottage hospital in Røros and a district general hospital 45 miles away. Seriously ill patients are treated in the university St Olav’s Hospital in Trondheim. Clients pay N Kr 100 (£10) per day at the rehabilitation centre.

---

**Figure 15 research on indoor growing at Røros rehabilitation centre**

Each participant received five questionnaires, (S1 to S5), the control group was drawn from participants in rehabilitation between January to November 2007, before any plants were introduced. In late 2007, well established green plants with low allergenic potential in pots on wheels or troughs were placed in the corridors and the day rooms. Participants arriving between January and November 2008 were the intervention group, observing the indoor plants. Additional information was sought on air quality between July 2007 and May 2008. The questionnaires sought information on self-reported mental and physical health, SF-12 and affect circumflex. Each participant received one before their stay, three during their stay and one after their stay. 472 questionnaires were completed.

A moderate positive response to the indoor plants was reported. The heart patients responded more positively than the lung patients to the intervention and women more than men. Women reported better physical health than men after the intervention. The heart group had a more emotional response than the lung group. The lung group was more sensitive to air quality and perceived it better when plants were present. However, the relative humidity was lower when the plants were introduced, (Raanaas et al., 2010).

**Research** The experiment, which was collaborative with Uppsala University and the Norwegian University of Life Sciences at Aas, was conducted between 2006 and 2008.
The experiment involved heart and lung patients and their responses to indoor plants and to the view of the scene they saw from their room. The research was both qualitative and quantitative. There was an experimental group and a control group. Røros was a copper mining town and the town landscape includes huge slag heaps, which will not grass over due to the minerals in the slag. This unusual view was used in an experiment on views out of windows at the rehabilitation centre. The view from their room window was measured using the perceived restorativeness scale, (Hartig et al., 1997), testing fascination, attention, restoration and stress. The scores were higher with views of the forest and these had more fascination than the views of the town or the buildings. There was no positive response for women on mental health, well-being or emotions, compared with the positive response to physical health linked to the indoor plantings, (Raanaas et al., 2012). The study was supported by the Stiftelsen for Norsk helse- og rehabilitings organisasjoner and cost about £26,000.

The indoor plants are still growing, cared for by a member of the housekeeping team. They have grown dense foliage and due to staff sickness may require some pruning as ghost spots were observed on the leaves. The University at Aas has been informed of this.

**Current therapy and research** Each group of clients at Røros is composed of 15 to 20 adults. They work as a group but also have individual counselling if required. All are residential at the site, except for the obesity group who live on a farm about one mile away and have to walk, bicycle or ski to the centre and back. They are self-catering, making their own breakfast and supper. The regime for them is four main meals per day with two snacks of fruit and vegetables and a drink. The food provided is low salt and high fibre, and coupled with the activity regime leads to a weight loss of 10 to 20 kilos over two years. All groups have a blood screen for lipid and are tested for diabetes. The obese group have their body mass index (BMI) and waist measured daily and may receive special advice on sleep apnoea and other problems. They also received psychological support and sessions on cooking from a trained chef. Television is restricted to lounge viewing; there are only two computers, with Wi-Fi in rooms.

The group with cancer and lung problems have a more calorific diet and this is supplemented by homemade smoothies. They may get tailored dietary advice. They also do a lot of work in the gym, after which smoothies are served.

After discussion, consideration is being given for the obese groups to grow vegetables in pots. This may require a cold frame or green house but expert advice could be obtained from Aas University. Link [http://www.lhl.no/klinikkene/roros/](http://www.lhl.no/klinikkene/roros/)

**Features for consideration** The site was involved in research and had hosted interesting projects with application to other sites on the use of indoor plants in the rehabilitation environment and viewing nature but gardening was not exploited as a form of exercise or activity. Residence at the centre was interesting as the views of the patients were heard on the rehabilitation programmes.

**Visit to St Olav’s Hospital Neurological centre, Trondheim 7 June 2014**

The hospital is an old foundation, 1277, monastic related to the cathedral. The current site is of interest as it was rebuilt relatively recently, on the existing town centre site, as this was good for communications with other parts of Norway. There are several buildings, mid-rise of about six floors, connected with covered bridges. It has received architectural awards. Link [http://www.stolav.no/en/](http://www.stolav.no/en/)
Facilities  The hospital signage and map were very clear. Two wings on the north of the main road were used for neurology, (neuro- centre and neuro-ost), connected by a bridge at the first floor (2nd in Norway). From the signage, the neuro-service covers in addition to neurology and neurosurgery, ophthalmology and associated surgery and ear, nose and throat. Some patients were arriving by taxi, there was a large reception area, with a staffed desk and a computer booking in terminal. On the ground floor, there was a shop and a self-service café by the courtyard with access to the courtyard garden and where food could be eaten outside in summer. The garden had a patio area with tables and chairs close to laburnum trees in full bloom. Antirrhinums and begonias were planted in soil beds at ground level with ferns and periwinkle in the area shaded by the building from the sun. There was a water feature with water falling from about knee height to ankle height into a long pool crossed by stepping stones. On the first floor, the long corridor had attractive modern art and old photographs were displayed. An intensive care unit was marked. Signage was very clear to go to neuro-ost and then to the hospital hotel.

Hospital hotel and Helse hus The hotel had 100 rooms. It is used after day surgery, especially if the patient would have a long journey home and by patients with early outpatient appointments. The receptionist said some surgical patients do get re-admitted and that this is easy if required. Four meals a day are provided on the Scandinavian schedule with main meal at 3pm and supper at 7pm in a first floor dining room. The food menu displayed had Norwegian dishes. In the entrance there was reception desk, a lounge with access to the courtyard garden and a piano. The hotel has an agreement with the regional health funder to provide this service. Rooms cost 1200N Kr (£120) per day, some patient’s get this paid for either by the health funder or the kommun. Eleven rooms are designed for wheelchair use. Rooms are ensuite, with telephone, internet Wi-Fi and television. The hotel is operated by Nordlandia care and they have similar hotels in Sweden and Finland.

The receptionist also pointed out the Helse-hus for the assessment of elderly patients’ future needs when discharged from acute care. This was across the road from the hotel. Patients are assessed for care needs including home assistance or admission to a nursing home. There was a dining facility or café on the ground floor. This was like a rehabilitation

Figure 16 Courtyard garden between neuro-ost and hospital hotel, St Olav’s hospital, Trondheim

The hospital hotel had another courtyard garden. It had an extensive lawn traversed by stepping stone paving. There were small trees including elderflower, a raised concrete bed with foliage plants and antirrhinums and geraniums were planted in soil beds at ground level.

There was a similar water feature to the one at the Neuro-centre and a patio with chairs and tables with potted plants to encourage outdoor dining. The gardener with red trousers is planting annuals Link http://www.stolav.no/en/Patients/Useful-information/Patient-hotel/118961/
hospital for the elderly but modern and close to the acute services. Link http://www.trondheim.kommune.no/helsehus/

**Features for consideration** The use of the courtyard gardens was very interesting as they provided a view of nature including small trees and lawn from the building, an outside recreation area and an extension to the café for eating for staff patients and relatives in fine weather.

**Visit to St Olav’s rehabilitation unit, Lian, Trondheim 10 June 2014**

The unit has 14 early stage beds and eight later stage beds for neuro-disability. The clients include those with traumatic and anoxic brain injury, stroke and multiple sclerosis. The unit was at Monkvoll but moved about four years ago to Lian, formerly a psychiatric unit.

**Facilities** Lian is situated on the outskirts of Trondheim, above a lake (see back cover) and surrounded by forest and hills. The land between the building and the lake is south facing and a wheelchair ramp has been installed to allow access. There is a sheltered, south-facing patio which is paved and has tables and chairs for eating outdoors with umbrellas for shade. It is surrounded by the building on three sides, open to the south, with a wooden panel fence it has trellising that supports honeysuckle and passion flower, the latter subject to caterpillar attack. There is a flight of stairs from the building to the patio, pointed with pots of flowers, (see back cover). At the foot of the steps is a waist-high raised bed with stone walls planted up with herbs and strawberries. It includes edible ornamentals including nasturtium and calendula. To the left of this there is a raised bed in wood, with an overhang for wheelchair gardening planted with nasturtiums. There were soil beds with shrubs, a circular lawn with four soil beds, each planted with a different colour, white, blue, red and yellow flowers which had recently been replanted. Beyond this was a rougher area, with blueberries growing and to the right, red and blackcurrant bushes and cherry, plum and apple trees, all bearing fruit.

**Activities** The group was mixed with one wheelchair client but most were ambulant. Staff worked alongside them and it was thought that this group work helped to establish a rapport for other therapy. The group was social with people talking and enjoying the sunshine. No vegetables were grown but some pots were used. The stone raised bed had recently been refilled then planted with herbs. The garden gave sensory stimulation as well as exercise.

*Figure 17 Waffles made by a hemiplegic member of the gardening group at St Olav’s Hospital Lian Rehab Unit*

Each session is planned and the clients help in the planning process. The tasks seen were weeding, laying black nylon and mulching with bark for weed suppression, dealing with the caterpillars, feeding plants with fertiliser and one participant made waffles for the others to have at the end of the group session.
The group meets at 12.15pm on a Tuesday each week. The group may vary from two to fourteen. The challenges to growing in this situation are considerable and include frost, deer damage to bulbs and poor weather but the group continues.

Outdoor activity is encouraged at Lian. Camilla, a physiotherapist, gave a presentation about getting into the fresh air daily. This may be with tricycles, canoeing or rowing on the lake, walking around the lake and on Thursdays an expedition by bus with some walking, wheelchairs on special ramps to a mountain destination, such as a resistance hut from World War Two. In the winter, there is skiing and sledding with dog and horse drawn sledges. Mountain rock climbing is encouraged, including the use of the eight metre high wall in the Lian garage. Hemiplegics are encouraged to climb, supported by ropes and get great satisfaction. The aim is to stimulate and keep up the interest in the outdoors, maintain skills and provide exercise. There was a very positive feel to the centre and both staff and clients were engaged.

Features for consideration The gardening group consisted both of patients and members of the staff from many disciplines gardening alongside the patients. The challenges of growing at these high latitudes are considerable but good plants were seen enhancing the site and providing edible crops for cooking. The garden was one aspect of a programme that encouraged outdoor activity and achievement despite physical and cognitive deficits.

What can be learned from Scandinavia?
The Fellow was welcomed and hosts were happy to share information and show what they were doing at a practical level. Ideas were discussed, different approaches shown and therapeutic horticulture on a broader base with more integration in the natural environment was evident. Most importantly, the programmes were based on the evidence available and results were assessed, often in research studies undertaken jointly with universities. The gardens were simple in design but effective and studies showed results that were economically beneficial.

Gardens There was a wide range of raised beds, more robust and practical water features, good greenhouses and more fruit being grown but fewer vegetables. A broad range of ornamental plants were grown and the use of botanical names was widespread. Flowers were grown to be picked and arranged. Indoor plants were more important than in England, due to the cold weather. Plant material was used in crafts. The growing methods were excellent and the vines impressive. Saga the dog had rehabilitation skills that were appreciated by the patient group. Land was limited in area but well used, terraced for flatness (it could be useful to adopt this strategy in the UK) and growing linked to farms and riding stables. Community support was evident in some projects but volunteers were fewer than would be seen in the United Kingdom. Indoor garden areas were used at nine sites.

Viewing nature The importance of viewing gardens and nature was emphasized. The views varied a lot and Britain has a gentler but verdant appearance, like Denmark, but more undulating. A wider range of sensory stimuli from nature were used such as encouraging clients to feel tree bark textures and listen for bird calls. Clients were encouraged to explore plants at a microscopic level using a lens to examine plant structures. Nature and the natural world was explored more and in varied ways. Bird calls were played to identify when groups went outside. Clients were encouraged to use their senses, observe and learn from nature.

Evidence based gardens Research was carried out to identify features that will enhance the therapeutic effect of plants and gardens. Ten out of the fourteen sites were involved in
research, seven were collaborating with universities. Research was carried out to identify features that will enhance the therapeutic effect of gardens. Useful studies include the work of Grefsrǿd on design of gardens for dementia which gives a framework for the design of gardens in residential care sites with ten features. The work at Grôna Rehab, on getting stressed healthcare staff back to work and preventing staff getting stressed, was strictly evidence based and under assessment. The work at Rôros both on indoor plants assisting with rehabilitation and the views from the rehabilitation centre in promoting recovery could be applied in the United Kingdom. If projects have been assessed, the evidence can then be put to a wider group of those involved with the design of health care facilities. This would include senior management, estates workers, think tanks, architects, engineers, builders and planners.

**Assessment** More assessment was used quantitative and qualitative, some assessment scales but also timed interval observations, focus groups and interviews. Assessment scales had been complied and verified such as the perceived restorativeness scale of Hartig, 1997. There is a range of measures including self-esteem, restoration or collective restoration, impulse control, agitation and problem behaviours. Physiological measures include blood pressure and heart rate. What helps families to do better is a further issue that merits consideration. The pictorial questionnaire and post occupation assessment methods used in Putney were thought appropriate to the London gardening group.

**Crafts and catering** Craft activities linked to the garden were more extensive, cooking was a serious activity and groups could be conducted by a professional chef. Waffle making is central to therapy in Norway it seemed. In most of the residential establishments visited, the chef was considered a part of the therapeutic team and their contribution valued. Art and cookery were the most common garden related activities.

There were more craft activities including woodwork and some mechanical work that may appeal more to men. Jewellery, weaving, concrete items, wool products, painted stones and bee hive frames were made and sold. Running a stall or shop was part of the therapy.

**Exercise outdoors** Outdoor exercise was encouraged wherever possible, including in wheelchairs. Sleighs, boats, tricycles and other forms of transport are encouraged. Doing exercises outside was popular, thus a good green environment was needed. Floor exercis-
es and rest periods were conducted on sheepskins. In rehabilitation, there was emphasis on exercise with good gyms and swimming pools that were accessible with ramps.

**Therapeutic benefits and challenges**  Completing the Likert scale at five sites, see Annex 1, all agreed gardening provided physical, psychological and social benefits. An occupational therapist stated ‘You get highly visible results; it provides an opportunity for staff and therapists to relate to patients. It provides good opportunities for cognitive and physical therapy.’ Problems identified were related to participants getting too hot or cold and tired. Only one incident related to sharp tools was reported but concerns were expressed that the therapy lacked recognition and getting funds was difficult. No one in Scandinavia thought that getting dirty was a problem. All planting activities were considered important or very important. There was less consensus on garden related activities except for cooking, the majority of sites felt the gardening groups helped teach life skills.

**Information sharing**  There was the opportunity to show to hosts what had been done in London, growing in raised trugs, ladder allotments and raised beds and these were noted as useful. In Putney, more plants were grown in pots and painting done on the pots. The papers on winter activities and gardening for Huntington’s disease were requested, (Spring, 2011) and the effects of HD on colour vision noted (Spring, 2013). The most popular item was the pictorial guide of how to plant a potato in a pot. The presentation of research was copied and much interest was expressed in the computing, concerts and ceramics associated with the garden. There was no mosaic at any site visited. Most hosts were pleased that the Fellow came to share, not just to take and hopefully they learned just a little from the visit.

**Dissemination and Implementation – What, how, where and to whom?**

Much information was collected during the visit but this needs segmenting and targeting at different groups. These include: health care professionals, horticulturists and gardeners, patient and other voluntary groups, those involved in estate management, architects, designers, think tanks and planners, local groups including allotments and work colleagues. Different groups would require different information presented in different ways.

**Health Care Professionals**  Data was collected during the visit and this and other findings need to be written up and submitted for a peer reviewed publication. This would be aimed at health professionals to provide evidence on which practice can be based. This evidence could also be presented in poster format at British Society of Rehabilitation Medicine and the College of Occupational Therapists. A key influence would be to contact the current President of the Royal College of Physicians who is a strong advocate of therapeutic gardening and the ‘Dementia Tsar.’ An ‘Open lecture’ will be held in Putney on 12 February 2015 that external organizations such as acute brain injury and neuro-disability units will be invited to attend.

**Royal Hospital for Neuro-disability**  There are two clinical groups: those who are working with Huntington’s disease and others who are working with brain injury. Therapeutic benefits need to be highlighted to these groups in separate presentations. A third group is estates, who have a rolling improvement plan for the building and grounds. The plans include improvements to indoor, and if possible, outdoor growing areas. As well as providing therapeutic spaces, much of the information on the benefits of viewing nature could be incorpo-
rated. The art and craft department has had a slide presentation. They admire Scandinavian design and are looking for new activities. At the hospital, there are lunchtime presentations where this information can be presented.

**Patient groups** The Huntington’s Disease Association and Headway (for brain injuries) have newsletters and local groups which may find the topic of interest.

**Architects, designers, estate managers and planners** When new facilities are planned, they should be based on evidence. Gardens are no exception but the evidence does not seem widely known in Britain. Findings could be circulated to NHS estates, the King’s Fund, Royal Institution for British Architects and Royal Town Planning Institute and local planning departments to raise awareness.

**Horticulturists** Thrive, the British organization for gardening for people with disabilities, kindly gave me some contacts and requested a report back. They have received a copy of the blog written when travelling and have requested an article for Growth Point, their magazine which is read by therapeutic gardeners from a wide range of backgrounds. The University of Reading trains horticultural scientists and their Alumni magazine has covered the visits. Horticulture Week, the trade paper for all involved in horticulture, featured an on-line news item. On the academic side, Reading and other Universities that research in this area may find information on Scandinavian research of interest and particularly the assessment methods used there. Perhaps more liaisons with health care organizations on research could be highlighted.

At the ‘Grass roots’, the Royal Horticultural Society provided copies of their community gardening magazine of that name and sunflower seeds to celebrate 50 Years of Britain in Bloom. They want feedback as does the Head of London in Bloom. All establishments visited were encouraged to join in this celebration by growing sunflowers and this was well received. Community gardening is supported by many of the London Boroughs and the team at the Royal Borough of Kensington and Chelsea has received a copy of the blog.

**Local groups**
The deepest roots of British gardening are allotment holders and amateur gardeners who get their hands dirty. My fellow allotmenteers are full of questions and have put the link to the blog on the allotment website. Interest has been expressed in a presentation from Scotland, an article drafted for a church newsletter and a talk given, with others to follow, at St John Ambulance in Merton.

**The Scandinavian hosts**
When travelling, hosts said that a map of the therapeutic gardening and research will be useful for them and others in Scandinavia. This report is intended to illustrate how therapeutic gardening also reflects the geography, climate and culture in which rehabilitation programmes have developed and has led to contact of two sits in Sweden.

**What can be implemented?**

**Challenges using the evidence for therapy and design** The challenge is to change the approach to gardening therapy towards evidence-based projects, activities and gardens, as well as providing pleasant external environments. Evidence is already available on which new projects can draw. There are research methods: quantitative, qualitative and observational that can be deployed to assess the effectiveness of the design.
The Norwegian study on the elements of a garden for residential care facilities provides a useful tool of wide application to upgrade growing areas. It consists of a framework with ten features: green, secure, path to follow, seats, a social centre, popular plants, local links, activities, a water feature and a pleasing view from windows. Indoor plants can assist rehabilitation settings and views from windows and patios can be assessed for therapeutic value. The use of green environments to reduce stress and sickness absence in staff working in healthcare could be explored further in Britain. Closer liaison between university life sciences departments and care sites to undertake joint research projects would be invaluable in taking this forward. There was contact at some sites with nearby botanical gardens, riding stables and farms and this could be considered in Britain where appropriate.

**Opportunities for therapy** Gardening can provide a range of therapeutic activities: physical, psychological, and social and in practicing life skills. The gardening groups observed were used by the multidisciplinary teams in the garden to get to know and gain the confidence of their patients and it provided secondary opportunities for linking with art, photography and cooking that were also therapeutic. Cooking nourishing meals based on produce was important in Scandinavia and could be replicated in Britain. Providing an environment conducive to exercise outdoors that is inclusive of wheelchairs, tricycles and other mobility aids should be considered in this country. Historical links to sites were exploited for therapeutic activities.

**Local opportunities** In the Putney grounds, more fruit could be grown and more activities related to nature and to the history of the site. Viewing nature is important and this requires further assessment at this site as the programme of site improvements is taken forward towards the goal of a Beacon garden.

As an ‘It’s Your Neighbourhood’ judge, growing activities were observed that could be implemented in Community Gardens here, for able-bodied participants as well as disabled.

**Mapping and networking** In addition to providing a research map, hosts will be asked if a biennial email newsletter would be of interest to encourage the spread of innovative practice in Northern Europe and people requested to submit items for circulation, one acceptance has been received following the first reciprocal visit.

Finally, encouraging others in horticulture, therapy, estates and planning to apply for a Fellowship, it has been an enlightening and enriching experience.
Bibliography:


Mulder R., 2013, 6 år med Jordhammars Växtkraft, Stenungsunds kommun..


Spring J et al, 2011, Gardening with Huntington’s disease clients – creating a programme of winter activities, Disability and Rehabilitation 33(2):159-164
Annex 1 Scandinavian visit data collection tool

Aim: to seek information from health, horticultural and university staff working on horticulture for health and social welfare in Scandinavia, especially with neurological conditions. To record details of sites, users, staff, adapted growing, treatment programmes, financial support and assessment.

On the Likert scale one site gave spreads so lower value scored to reduce bias, neither was every question relevant to every site so some responses were not applicable

Aggregated data from 14 questionnaires, 8 filled in from notes after visit due to time pressures

NB not all questions were answered on each questionnaire

Area of work

Q1 Does your organisation research or provide services on:
Viewing nature 9 Therapeutic horticulture 11 Other therapy 12 Research 10

Client sessions

Q2. How many sessions do you provide/do research each week? Ranged from 1 per week for 12 weeks to 5 one day sessions per week

Q3. How many service users/participants attend/week? Ranged from 5 to 15 clients per session.

Q4. How long are the sessions?
Less than 1 hr 4 1-2 hr 3 Half day 2 Whole day 4 Other: 1 not known

Q5. Which age range do clients/research participants have attending your site?
Under 18 5 18-35 10 35-55 9 55-75 9 75+ 5

Q6. Clients/research with: Brain injury 6 Stroke 5 Neuro-degenerative disease 4

Q7. Clients/research with: Learning difficulties 2 Mental health 6 Dementia 3

Q8 Clients/research: Physical disability 4 Homeless 1 Offenders 1 Deprived 2

Q9. Other clients/research groups: 2 drug/alcohol dependent, 1 refugee, 1 heart disease, 1 cancer, 1 lung disease, 1 obesity

Q10. Care/research Site included:
Forest 2 Park 2 Farm 3 Urban garden 2 Care facility 9 Residential 6
Wildlife haven 4 Other 2 Botanical gardens, 1 horticultural enterprise, 1 historic garden, 1 roof garden

NB some large sites had more than one area

Facilities: Indoors 9 Outdoors 14


Q12. Grow in: Soil beds 9 Raised beds 8 Pots 11 Planters 7 Trugs 3
Ladder planter 0

Q13. Associated activities: Art 9 Ceramics 2 Cooking 7 Computing 3 Music 2

Other: Mechanics, woodwork, forestry, construction, dancing, crafts, history, photography, pets, cultural including Viking and Sami
Q14. Do you celebrate using garden/produce National festivals 2 Religious festivals 7
Q15. Features: Water 7 Shrubs 10 Trees 8 Lawn 8 Flowers 10 Sculpture/art 5
Q16. Adapted: Wheelchair access 12 Special tools 2 Sensory 8 Enclosed 8
Q17. Views: from indoors 14 outdoors 14 pictures 6 with computers 2 virtual reality 0

Assessments & research

Q18. Outcome measures: Questionnaires: 5
   Yes 10 No □ Rating scales: 5
   Observations: 3 includes video
   Interviews: 4
   Reports: 4
Other: Individual owns own portfolio, diary

Q19. Research: Quantitative Yes 5 Method Rating scales
   Qualitative Yes 7 Method Focus group
   Other: 2 Observation

Q20. Is the research collaborative? Yes 7 If yes, with whom? Universities and charities

Q21. Funding
Is your work paid by: National government 6 Regional / city Government 7
   Health provider 5 EU 0 Charity 1 Commerce 1

Staff

Q22. How many staff do you employ?
   Paid full time: range 5-700 Paid part time: 1-3 Volunteers 0

Q23. What training does your organisation provide for newly recruited staff:
   Induction 5 On the job 5 Day release 5 Other 2 Please specify: Courses

Q24. How would you describe recruiting staff:
   Very easy 3 Easy 0 Neither easy nor difficult 2 Difficult 2 Very difficult 0

Q25. Where do you recruit staff from:
   University/College 5 Agri/horticulture 2 Healthcare 4 Apprenticeships 3

Q26. Have you any other comments on your project, viewing nature?
   Get highly visible results, provides an opportunity for staff and therapists to make a relationship with patients and provides good opportunities for cognitive and physical therapy.
   Thank you for providing the information
### Activity assessment completed at 5 sites

<table>
<thead>
<tr>
<th>Activity</th>
<th>Very Important</th>
<th>Important</th>
<th>Unimportant</th>
<th>Very Unimportant</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Planting</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Propagation seeds, bulbs, cuttings, plug plants, trees</td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Maintenance, mowing, trimming, weeding, mulching, digging</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Harvesting Flowers, greenery, fruit, vegetables, wood, fish</td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Encouraging wildlife</strong></td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Ecology and recycling water, compost, energy, pollution</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Viewing nature Inside, outside, pictures</td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Garden Related Activities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photography</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooking</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Music</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computing</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Art Collage, drawing, painting, crafts, ceramics</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Potential benefits</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical mobility, co-ordination, functional movement, outside</td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychological choice, ownership, problem solving, mood &amp; behaviour</td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social group interaction, communication, achievement,</td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Life skills co-operation, inclusion, craft &amp; cultivation skills</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Potential problems</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypo or hyperthermia</td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Get too tired</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Sharp tools/ accidents</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Get dirty</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Therapy lacks recognition</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Funding difficult</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
Tangkær green house and laburnum tree, Ørsted

Granny’s Garden, Oslo Botanical Gardens

Lake and forest at Lian, Trondheim

Black Viking pole blackcurrants, Aas

Planter in Norwegian national colours, Lian, Trondheim

Garden of the senses, Stockholm & author