

# DIGGING IN

NOVA SCOTIA HORTICULTURE FOR HEALTH NETWORK

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The Nova Scotia Horticulture for Health Network is a coalition of people interested in supporting horticulture for health initiatives through resource-sharing, exchange of practices/knowledge, and networking.



Landscapes for Health

## Reflexology Paths, Barefoot Parks and Earthing

By Lesley Fleming, HTR

Photos by J. Walker & J. Fleming

What are these and how do they relate to landscapes for health?

“Landscape that are wild or designed that facilitates human health and well-being” is Naomi Sachs’ definition of landscapes for health (2008). This includes a wide variety of landscapes. Barefoot parks and paths, along with reflexology paths offer sensory experiences using the foot as a pathway to health. Referencing earthing, a concept of walking on natural substances like sand, mud, grass and stones, these designed landscapes provide activities (recreational and therapeutic) that strengthen foot and leg muscles, in outdoor settings which also provide connections to nature. All geared to an experience with a twist of fun and hopefully not an ankle, these parks and paths seem wildly exotic, but are in fact found in designed landscapes around the globe.

**Reflexology paths** are constructed with stones and other materials meant to stimulate specific reflex areas on the feet. Based on the ancient healing art of reflexology, different parts of the feet are linked to organs and other parts of the body, with the reflexology pathway using acupuncture on the feet to massage both foot and associated body part (Embong et al, 2016).

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Photo top right:  
A. Mesureur

“The purpose of reflexology is to normalize the body’s function, break down tension, alleviate stress, and improve nerve function and blood supply throughout the body. ...this practice has shown benefits in a wide variety of medical conditions” (Quindlen, 2019). Research published in the *Journal of American Geriatrics Society* suggested that walking reflexology paths three times a week for 30 minutes over 16 weeks can reduce blood pressure and improve balance (Li et al, 2005).

Reflexology paths are very popular in Asia. Many communities throughout Japan, Singapore, Taiwan and China, have public reflexology paths, with large numbers of people who use them as a regular health ritual, based on a tradition dating back thousands of years (Kunz & Kunz, 2008). The Asian tradition of stone stepping or cobblestone-mat walking is akin to reflexology paths, with American reflexologists “becoming aware of Asian interest in walking on varied surfaces for health purposes following presentations at the Rwo Shr Health 1990 Worldwide Conference Tokyo (Kunz & Kunz, 2008).

Since that time, reflexology paths have been installed at health facilities, educational institutions, public parks and resorts. The most prominent Canadian example is Toronto’s Dufferin Grove Park’s [Jenna K. Morrison Reflexology Footpath](#) (photo p. 1). American reflexology paths are more numerous: [Bastyr University Herb Garden Path](#) in Kenmore Washington; [Florida International University Reflexology Path](#) in Miami FL; Lancaster Pennsylvania’s public [parks - Marymoor Park, White Center Heights Park and Steve Cox Memorial Park](#); Michigan State University Bott College of Nursing Muelder Reflexology Pathway in East Lansing Michigan; and [True Nature Healing Reflexology Path](#) in Carbondale Colorado’s Peace Garden.

**Barefoot parks** offer outdoor adventures like walking barefoot through brooks and over suspension bridges, climbing and balancing experiences in a variety of soil conditions, [foot gymnastics](#), visual/auditory/olfactory sensory stimulation stations and [foot sensation trails](#). First opened in Germany in 1992 (Reddy, 2004) their origins can be traced historically to the practice of kneippen from

## Reflexology Pathway at Nova Southeastern University Medicinal and Healing Garden

Nova Southeastern University in Fort Lauderdale FL installed a reflexology pathway as a component part of its medicinal garden in 2010. Intended to relieve stress students might experience, and part of the university’s commitment to wellness and integrative medicine, the path is also accessible to the general public. Its design is an intricate pattern of stones with a “theme of the five Chinese Meridian elements [of] water, wood, fire, earth, and metal, each representing a season, an organ system, and a color” (NSU Florida, 2021). The medicinal garden and pathway function as a living classroom and teaching lab for nutrition, acupuncture, aromatherapy, Asian medicine, health psychology and wellness (Ma, nd).

Ma, K. (nd). Garden of tranquility. *Horizons*. <https://pharmacy.nova.edu/images/Tranquility.pdf>

NSU Florida. (2021). Healing and medicinal garden. [https://pharmacy.nova.edu/medicinal\\_garden/index.html](https://pharmacy.nova.edu/medicinal_garden/index.html)



the 1800's, of walking on wet grass or shallow water, and the early 1900's reflexology. Both used early applications of pressure to the feet as a method of impacting specific parts of the body. Today there is great interest in these types of experiences, as much focused on outdoor recreational fun as therapeutic benefits of strengthening leg and foot muscles.

Barefoot parks and trails are more prominent in Europe. [Austria's Hexenwasser](#) is the longest barefoot path with over 60 interactive stations. Britain's Trentham Barfuss Park opened in 2006, but was closed during COVID-19. The first American barefoot park opened in Washington state (Marazita, nd). In North America, there are several organizations that promote barefoot experiences (Connecticut Forest and Park Association, Society for Barefoot Living, Seattle Barefoot Hikers) each offering [tips for walking barefoot](#).

*"Experiencing the sensation of different textures, and wading through streams in your bare feet can only make you feel invigorated, especially as each foot has more than 7,000 nerve endings and 26 bones, making it a very sensitive part of the body".*

*Long, quoted in Reddy, 2004*

Reflexology lecturer H. Rooney of Napier University in Edinburgh comments about barefoot trails as a substitute for reflexology. "A skilled reflexologist will work the whole foot and pay attention to specific organ reflexes. They will also vary the pressure to the reflex areas depending on the client's tolerance and the desired clinical outcome" (Reddy, 2004).

It is interesting to note the similarities and differences between reflexology, reflexology paths and barefoot parks. Each adds a unique twist to landscapes for health.

Embong, NH, Soh, YC, Ming, LC. & Wong, TW. (2016). Perspectives on reflexology: A qualitative approach. *Journal of Traditional and Complementary Medicine* 7(3); 327-331.

Kunz, B. & Kunz, K. (2008). The reflexology path. *The Times*.

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Marazita, E. (nd). Paths of Health Gallery. <http://www.pathsofhealth.net/gallery.html>

Reddy, J. (2004). Britain's first barefoot park. *Canadian Reflexology School*.

<https://canadianreflexologyschool.com/britains-first-barefoot-park/>

Sachs, N. (2008). Isn't every garden a healing garden: Part I. *Therapeutic Landscapes Network*. <http://www.healinglandscapes.org/blog/2008/08/>

Quindlen, KA. (2019). Reflexology. *Student Publications*. 763

*Lesley Fleming, HTR became interested in reflexology paths after visiting the medicinal garden at Nova Southeastern University, Fl. and walking on their path. Her latest research interest has focused on sensory processing, with applications for people-plant programming, and the role senses play in populations which may experience sensory challenges.*



## Heathers and Heaths from the Ericaceae Family

By Lesley Fleming, HTR

Photos by Sayfullina & O. Gozhha.unsplash

Colorful blooms are the primary attraction of both heather and heath plants used in the garden. They are different and the same. Both are known for their low maintenance attributes and interesting foliage, this being one of the distinctions between them. Heather has flat scale-like leaves and heaths have needle-like leaves. They come from different genus in the Ericaceae family.

Heather, known for its Scottish roots and presence in Scottish Highlands, has more than 500 cultivars, all derived from *Calluna vulgaris*. Low-growing or spreading mounds, these plants are considered more winter hardy than heath, able to manage zones 5-7, some thriving in zone 3 when winter protection is provided. And some will actually bloom under the snow. Colors are described as in the pink range with white, rose, and deep purple. Heather's foliage changes color during cold weather, and some, like *Erica x watsonii* 'Dawn' turns from red spring growth to gold in the later seasons. Of note is the functionality of heather. It has been used for building materials, rope, fuel and fodder (Better Homes & Gardens, nd).

Heath are from the *Erica* genus with different botanical traits than heather. Referred to as spring or winter heath, they are available in more than 700 species and cultivars, their color range tends to be broader than heather, with some deep reddish purple and magenta. *Erica carnea* varieties are

considered the hardiest of winter-blooming heaths including *E. carnea* 'Foxhollow Fairy', 'King George' and 'Porter's Red' (Knight, nd).

Both of these evergreen shrub types prefer full sun for best blooms, do well on hills, open areas, rock gardens and along paths, where good drainage and air circulation are available. Heath and heather are able to manage in rocky soil and salt spray, preferring acid soil and peat moss amendment. Height ranges from 1-2 feet depending on variety. Both are propagated by seed or cuttings. Wildlife enjoy heather and heath; deer, rabbits and butterflies will feed on them (UConn, nd).

Better Homes & Gardens. (nd). How to grow heathers and heaths.

<https://www.bhg.com/gardening/trees-shrubs-vines/shrubs/growing-heathers-and-heaths/>

Knight, A. (nd). Winter heaths. *The National Gardening Association Learning Library*.

University of Connecticut Home & Garden Education Center (nd). Heath and heather.

<http://www.ladybug.uconn.edu/FactSheets/heath-and-heather.php>



## Winter Heath & Heather Varieties

### Heath

*Erica carnea* 'Red December', 'Myretoun Ruby', 'Springwood White'

*Erica x darlyensis* 'Alba', 'Arthur Johnson', 'Furzey'

<https://www.gardenia.net/plant-variety/about-heaths-and-heathers>

### Heather

*Calluna vulgaris*

Fall varieties that bloom into December: 'Alicia', 'Marlies', 'Redbud', 'Veluwe'

[http://www.heathsandheathers.com/varat2/cart2\\_Page1208.htm](http://www.heathsandheathers.com/varat2/cart2_Page1208.htm)

### Heather Societies

<http://www.northamericanheathersociety.org/>

<https://www.heatherworld.org/category/heathers/calluna-heathers/>

## HT Activity Plan – Making Black Walnut Ink

Text by Lesley Fleming, HTR

Photo by K. Carroll



### Materials

black walnuts-6 for small batch  
 non-reactive pot reserved for dying projects  
 gloves  
 cheese cloth & metal sieve  
 rubbing alcohol  
 mason jars/dropper bottles

**ACTIVITY DESCRIPTION:** Preparing black walnut ink for use in art projects.

### THERAPEUTIC GOALS:

Emotional: reminiscing by elders who may have used black walnuts for food & other purposes

Intellectual: cognitive practice of following sequential steps; practicing safety precautions during activity; comparison of current day practices to historical eras – preparation of functional materials like ink & other

Social: creating art/cards for personal use or as gifts for others

Physical: fine motor skills

### STEP-BY-STEP PROCESS:

1. Harvest black walnuts (*Juglans nigra*) in green husks in the fall. Allow them to soften, letting them sit out or be cooked in husks, then removing the nut.
2. Cover fruit & simmer medium-low for entire day, then cool. Strong odor & staining requires proper ventilation & stain protection for hands & surfaces.
3. Strain using cheesecloth & fine mesh metal sieve to remove solids. Use gloves & surface protection. Suggestion – do small batches.
4. Discard solids; black walnuts contain high levels of toxic juglone so use caution if composting solids.
5. Simmer liquid for several hours in a non-reactive pot until thick & golden brown or darker. Test with a paintbrush - it should be thick enough to write with.
6. Once cooled, strain liquid again to remove remaining sediment.
7. Pour into mason jar (partially full) and add rubbing alcohol (20% of the walnut ink's volume) as a preservative. For darker color add rusted iron.
8. Store ink in small bottles; tinted dropper bottles are recommended. Optional to add a whole clove to each bottle as additional preservative.

**APPLICATIONS FOR POPULATIONS:** Black walnut ink can be used for art projects or for card making in conjunction with pressed flowers or other embellishments. This activity can include harvesting black walnuts, nature walks, history of quill pens, and ink brush art from other cultures.

**SAFETY CONSIDERATIONS:** Black walnuts/ink will stain once fruit blackens. Wear gloves. May not be appropriate for young populations or those with cognitive deficits, self-harm tendencies, or skin sensitivities.

**NOTES OR OTHER CONSIDERATIONS:** Use of black walnuts, for food & other purposes, has a long history dating back to pioneer times. Making black walnut ink may be appropriate for themes & activities related to history, reminiscing, nature's bounty, ecology and upcycling.

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<https://www.lostincolours.com/black-walnut-ink/>

Missouri Botanical Garden. (nd). *Juglans nigra.*

<https://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=a875>

HT Activity Plan form developed by Lesley Fleming, Susan Morgan and Kathy Brechner 2012, revised in 2018.

## Playful Plant Propagation - Highlights from “Garbage to Gardens Project”

Text & photos by Kathy Carroll, MS, HTR

The program “Garbage to Gardens” was used with elementary and middle school students with seed propagation as a platform for academic and social skill development.

Plant propagation is simply the process of multiplying plants. The greatest thing about plant propagation is that it is free for the most part, and it multiplies the beauty and therapeutic elements of nature by making new plants. Its versatility is a bonus – propagating can be done from seeds, cuttings, layering and division.



The project was introduced - “Each seed is a promise...some people call seeds ‘treasure boxes’ because they hold the treasure of life, food, health and beauty” (Sharon LoveJoy, *Hollyhock Days*, 1994). Student were asked to bring seeds from 3 different foods (3-5 seeds each) from their kitchens. Students observed that seeds came in many different sizes, shapes and colors, from both common and unusual vegetables and fruits. The variety of seeds was a revelation to many. Sustainability was integrated into the project by asking students to transport seeds in containers that would otherwise have been thrown away or recycled. Discussion about food sources followed; some students didn’t realize how their food came to their table.

The propagation project used the Scientific Method:

1. Asking a Question? What do you wonder about these particular seeds? Will these large seeds grow faster and taller? How long will it take for the small seeds to sprout?
2. Researching - How deep do I plant the seeds? How long will my type seed take to grow?
3. Formulating a Hypothesis - What will happen, jotted down in a personal plant journal.
4. Testing/ Experimenting.
5. Recording/Analyzing observations and results.
6. Drawing a Conclusion/Communicating the results.

Method: Students dried seeds over several days, in trays or paper bags, shaking them to remove excess water. Student scientists started their seeds by putting them in wet paper towel in old CD holders (remember those?) and placing them by a light source (Growlab or windowsill). Germination techniques were practiced, experimenting with heat, light, water and oxygen inputs. Once germinated, the seeds were transferred to pots. This powerful way to see the seeds’ life cycle and the time it took for growth gave students a good visual of what was happening under the soil once their seeds were planted. Experimenting with various factors was part of the process and part of the fun. When to repot, what depth of seed in soil, how to handle small seeds or use seed tape, what type of soil worked best, drainage issues and overwatering, and using adaptive tools like plastic spoons engaged the students.



Instructor's observations over several years expanded lessons and activities to include (red wiggler) composting/soil amendments, importance of drainage, gardening techniques – testing soil dryness by pushing finger into pot up to first knuckle, effects of overwatering and use of small misters as alternative watering method, Growlab light box/adjustments to maximize growth, problem-solving and resilience related to poor outcomes including having to re-start propagation (when Growlab light was turned off over holiday period). Other observations - the importance of youth connecting with nature, plant activities as a positive social catalyst, this introduction to gardening which became a hobby for some students (years later students told me they still garden).

Outcomes: Developed for elementary and middle-aged students, all aspects of the project can be adapted for any age student/adult with any abilities. Knowing your population and what their abilities, interests and challenges are allows best implementation, fostering individual, teamwork and whole group activities. Designating a specific number of plants for each student to care for worked best.

Students cultivated personal, social, and academic growth as a result of this long term project:

*Building self-esteem.*

*Problem solving skills* setting up each experiment, determining how to plant each type of seed.

*Fine motor skills* planting and tending a garden with tools or fingers.

*Language arts skills* writing in journals recording all aspects from process to growth changes.

*Math reasoning* measuring soil volume, water, lineal measurements of plant growth, graphing size and timelines, comparing/contrasting.

*Team work and social skills* discussing & comparing data, and helping each other/brainstorming.

*Verbal and nonverbal skills* explaining and questioning together.

*Creativity* setting up the project, labeling, etc.

*Empathy and nurturing skills* as part of plant care & human interactions.

"Plants possess life-enhancing qualities that encourage people to respond to them. In a judgmental world, plants are non-threatening and non-discriminating. They are living entities that respond directly to the care that is given them, not to the intellectual or physical capacities of the gardener. In short, they provide a benevolent setting in which a person can take the first steps towards confidence."

Charles A. Lewis

*Kathy Carroll, MS, HTR is a registered horticulture therapist, (CHTA), retired educator and Advanced Master Gardener (MSU). Her degrees in Special Education Mental Disabilities, Minor in Dramatic Arts for Children (EMU) and Masters in Learning Disabilities (WSU) have provided the foundation for much of her work in education, design and implementation of school and community gardens and programs, horticultural therapy and published work. She was a board member of the MHTA for 10 years, playing a key role in their annual conferences. Currently, she is a board member and contributor for the NSHHN.*



## Using Children's Literature for People-Plant Programming

By Lesley Fleming, HTR

Photos by L. Fleming & SM. Nog.unsplash

Inspiration comes in many forms. Children's literature offers opportunities to imagine, reminisce, relive, learn, and feel joy, stimulating senses across health domains. Ideas jump off the pages of children's books with their colorful illustrations, exuberant activities and innocent perspectives. How can children's books be used effectively for people-plant programming?



### Visual imagery

Children's picture books offer a wide range of visual ideas, images and experiences that can be used to begin discussions, re-imagine life, or role-play. Special populations who have experienced trauma, are dealing with grief, seek to bolster self-esteem or confidence, or require positive leisure activities can find short plant or gardening stories with colorful pictures stimulating. Older adults find enjoyment looking at children's picture books, taking them back to younger days, reminiscing about their

childhoods. Many of these stories do not require strong cognitive functioning providing elders, including those with dementia, intellectual stimulation and visual imagery that is easily comprehended.

Therapeutic horticulture activities using children's picture books can include painting plant related art based on a children's book, planting or visiting a garden similar to one featured in a book, participating in intergenerational activities (reading and taking plant cuttings—ideas from a book), and playing games in the garden—can you find the rose or daisy from the story?

Recommended books with colorful visual imagery include:

*Up in the Garden and Down in the Dirt* by Kate Messner     *Tokyo Digs a Garden* by Jon-Eric Lappano

*Molly and the Strawberry Day* by Pam Conrad     [Compost Stew](#) by Mary McKenna Siddals

### Metaphors

Metaphors are often used in literature, defined as comparisons between two objects having similar qualities. Metaphors frequently use everyday language, and are found in both sophisticated literature and children's books. Night owls, early birds, and clear skies are common nature metaphors relating life's experiences or human traits. Therapeutic horticulture goals like modifying behavior, strengthening physical abilities as part of rehabilitation, and developing coping strategies for grief, can use metaphors in support of specific health outcomes. Reading a longer book a few pages per session, for example, can be a metaphor for patience or coping during convalescence. Marcia Brown's folktale *Stone Soup* makes something from nothing, a metaphor for self-esteem and perceptions. *Sunflower*

*Sal* by Janet Anderson tells the story of a big-sized girl who makes a big difference to her family planting large sunflowers, these a metaphor about size – plants and people.

## Symbolism

Symbolism in children’s literature borrows frequently from nature. As an object or event that represents something more or something other than itself, often with some type of association, plants can become symbols like *Molly’s Rosebush*, a remembrance for a miscarried sibling in Janice Cohn’s picture book. Or *The Lottery Rose* by Irene Hunt, about a young boy’s escape from hardships in his rose garden sanctuary. Other plant symbolism - cherry blossoms representing life’s ethereal qualities, trees as symbols of strong foundations or ability to bend in wind, and spring plantings symbolizing renewal and transformation. These can be partnered with hands-on plant activities.

Recommended children’s books which use symbols from nature, plants and gardening:

*Be Like the Sun* by Susan Swanson

*In a Nutshell* by Joseph Anthony

*Plants Can’t Sit Still* by Rebecca Hirsch

*The Grandad Tree* by Trish Cooke

## Intellectual Stimulation

Wordplay, poems and concepts can be intellectually stimulating and these can be found in children’s literature, combining visual interest, relatable experiences, well known plants and mental inquiry. Plant-based activity can be both passive and active; many programs will include both, using a concept or story to be followed by a hands-on activity like planting seeds or tree seedlings. Douglas Florian’s *Poetrees* uses poetry about trees. Barbara Bash’s *Ancient Ones* examines vitality of life through the portrayal of a Douglas fir forest full of life though many years old. Similarities between people and plants is explored humorously in Heos and Clark’s *Just Like Us! Plants*. Timely topic of community action related to environmental clean-up in an urban city is the theme in Diane Mullen’s [One Little Lot](#).

Children’s literature can be a platform for people-plant programming, for exploring a wide range of topics, health situations, plants and nature, incorporating the beauty of storytelling.



## Plant Trends: The Exploding Sector of Plant-based Foods

Text & photos by Lesley Fleming, HTR



Plant trends are predicted, identified and analyzed each year with an eye to the business side of the horticulture/green industry. Often based on consumer preferences, there are other factors that influence trends, some industry-generated, others reflective of actual consumer purchases.

One area that is exploding, is research and development of next generation plant-based meat alternatives (McClements & Grossmann, 20xx; He et al., 2020). Ripe for expansion, and timely due to increasing awareness of food security, food access, and health implications of red meat diets, the trend for plant edibles continues to grow (Lott & Story, 2019; Toribio-Mateas et al., 2021; Alcorta et al., 2021). “Consumer demand for specific plant-based protein crops like nuts, hemp seeds, beans and edamame, organic foods, heirloom fruits and vegetables” is at an all-time high (Fleming, 20xx; Gomez-Pinilla, 2010). The rise of the plant-based food sector, a global movement with strong corporate involvement, is synergistic to consumer demand. Industry analysts Elkin & Bloomberg suggest “plant-based food sales are expected to increase fivefold by 2030” (2021); *Forbes Magazine’s* Marquis’ analysis – “[plant-based foods are our future and entrepreneurs are helping make the shift](#)” (2021). Other indicators of this trend include research investigating motivations for consuming natural foods (Moscatto & Machin, 2018), metrics confirming the fast paced growth of natural foods and plant-based industries (Ribio-Licht, 2021; Foxx, 2021), and food industry events like the [Global Plant-forward Culinary Summit](#) which has introduced less familiar plant-based foods, seeking to influence or inform consumers.

The plant-based food sector seems appealing to both large and small businesses. This includes producers/growers. The interest in sourcing and buying locally produced plant-based foods continues to strengthen providing opportunities for all size businesses.

Alcorta, A., Porta, A., Tárrega, A., Alvarez, M.D. & Vaquero, M.P. (2021). Foods for plant-based diets: Challenges and innovations. *Foods* 10(2):293. doi: 10.3390/foods10020293

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Lesley Fleming, HTR and Susan Morgan, MS investigated horticultural trends on behalf of the [Florida Horticulture for Health Network \(FLHFN\)](#). Much of the cited research is listed in the [FLHFN Resource Hub](#), providing the foundation for this article.



Photo: E. Olsson.unsplash

## Resources Winter 2022



**Hortophilia** concept refers to the deep bond people have with gardens and plants. Oliver Sacks' interview elaborates: <https://flowerpowerdaily.com/oliver-sacks-the-healing-power-of-nature-and-gardens/>

Shoemaker, CA., Relf, P.D., Park, S. & Dorn, S. (20xx). Hortophilia hypothesis. *Acta Horticulturae* (in press).

**Horticultural Therapy Videos** offer visual validation of the benefits of this treatment modality.

<https://www.htinstitute.org/resources/videos/>

**Frederick Law Olmsted's vision for inclusive public spaces.**

Article in ASLA's *The Dirt*

<https://dirt.asla.org/2021/05/10/a-vision-for-truly-inclusive-public-spaces-rooted-in-olmsteds-core-values/>

Photo: B. Ashby

### Nova Scotia Horticulture for Health Network

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