

Therapeutic Horticulture and Therapeutic Goals: Expanding the Scope and Practice Through the Therapeutic Horticulture Activities Database and Its Use of Health Domain-Specific Goals

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Abstract

Therapeutic goals are foundational in the practice of horticultural therapy. They are integral to the therapeutic process for both the clinical modality of horticultural therapy and the less formalized practice of therapeutic horticulture. Expanding the scope and understanding of therapeutic goals across health domains can provide practitioners, allied health professionals, and clients with a more thorough framework and result in stronger health outcomes. Developments within the field are propelling a renewed focus on therapeutic goals and how they are used by practitioners. This is timely given the American Horticultural Therapy's Association's new professional designation of Therapeutic Horticulture Practitioner.

The launch of the Therapeutic Horticulture Activities Database in early 2024 and its inclusion for each activity of therapeutic goals in the five primary health domains has helped to expand the awareness of therapeutic goals that are applicable to the practice of horticultural therapy, and specifically for therapeutic horticulture.

Introduction

Therapeutic Horticulture (TH) is defined by the American Horticultural Therapy Association as “the participation in horticultural activities facilitated by a registered horticultural therapist or other professionals with training in the use of horticulture as a therapeutic modality to support program goals. Therapeutic horticulture is the process through which participants enhance their well-being through active or passive involvement in plant and plant-related activities” (AHTA, 2024). This modality is delivered to individuals and groups, with the intention of improving health outcomes. Though clinical charting is not typically used in TH interventions, the use of therapeutic goals is an essential component, as is the framework of the therapeutic process, horticultural therapy (HT) standards of practice, and reliance on the American Horticultural Therapy Association’s (AHTA) code of ethics. AHTA differentiates HT from TH based on the development and documentation of individualized treatment plans and goals. For that reason, the development, documentation, and monitoring of therapeutic goals is essential in horticultural therapy practice. While goal development and tracking is not a requirement of therapeutic horticulture practice, its inclusion undoubtedly strengthens programing.

Therapeutic Goals Used in Horticultural Therapy and Therapeutic Horticulture

The use of therapeutic goals within HT has been promoted since the inception of the profession and is one of the praxes on which the field relies. Currently, there is not a centralized source where therapeutic goals are listed or inventoried. Three HT textbooks, *Horticulture as Therapy: Principles and Practice* (2003), *Horticultural Therapy Methods* (2006, 2017) and *The Profession and Practice of Horticultural Therapy* (2019), have been the primary references for therapeutic goals and have included information on goals and goal setting, with information spread throughout each.

The Expanding Therapeutic Goal Paradigm

Both HT and TH have seen expansion of therapeutic goals in the field. Greater numbers of allied health professionals are enrolling in HT coursework, incorporating HT/TH into their practices, and contributing to knowledge transfer about therapeutic goals in mental health, social work, and speech therapy as well as occupational, physical and recreation therapy disciplines. Increasing exploration and knowledge of the relationship between neuroscience, human behavior, self-regulation, mental health, and HT/TH has expanded HT literature, foundational

knowledge, and practice (Fleming et al., 2023). With these connections have come therapeutic goals related to brain functioning, self-regulation, and sensory integration, among others (Fleming et al., 2023; Poláčková et al., 2023).

Therapeutic Horticulture Activities Database

The Therapeutic Horticulture Activities Database (THAD), launched in early 2024, was created by registered horticultural therapists and leaders of regional HT groups. Diane Relf, HTR, PhD., a pioneer in HT, envisioned a free online TH activity database for use by practitioners as a key aspect in the further development of the field. Part of the THAD development included using five primary health domains for expressing potential therapeutic goals of each activity: cognitive/intellectual, physical, psychological/emotional, sensory, and social. These primary health domains were selected by the THAD Working Group whose members are Diane Relf, Lesley Fleming, Leah Diehl, Trish Hildinger, Gerry Sherman, and Catherine Crowder.

This paper seeks to identify and index therapeutic goals applicable to TH, organized by health domains and supported by examples from THAD. This list is not definitive but demonstrates the expanding depth, clarity, and scope of TH practice. It should be noted that many goals can fall into more than one health domain, such as those related to self-regulation or stress, so an attempt to place them in a primary domain was made based on specific or typical presenting health challenges. The THAD examples identify multiple therapeutic goals for each activity, drawn from the five domains, though typically only one or two would be emphasized in a given session. The intention of identifying goals across domains was to broaden awareness and applications by practitioners. The THAD examples have been hyperlinked in the paper.

Cognitive/Intellectual Health Domain: Therapeutic Goals + THAD Activity Examples

Many TH goals and activities seek to improve or maintain cognitive function, seen most frequently with populations living with dementia, intellectual disabilities, stroke-related impairment, or brain injury. Goals are often stated in very general terms in HT, such as *improve quality of life*, or *improve cognitive function*, and lack what facet of cognitive function is being addressed. Goals such as *improve memory*, *follow sequential steps*, or *learn new skills* are more focused, providing useful direction to TH activities and clients (Fleming, 2024). For example, cognitive stimulation therapy provides a reference point for goals related to dementia and cognition, used in other therapeutic disciplines, and can help inform TH activities targeting memory recall, decision-making, concentration, and attention, and adapting or adjusting to negative thoughts (Cove et al., 2014; Streater et al., 2016).

Table 1 includes functional areas and related goals and TH activities in the cognitive/intellectual health domain that can be used by a range of populations and target a variety of goals and outcomes.

Cognitive and intellectual goals have been grouped together in the THAD platform. They can be quite different, however, and depending on the client and population, may require practitioners to have understanding of brain health and processing. Depending on the complexity of the client's needs and goals, they may be best delivered in partnership with interdisciplinary treatment teams. As researchers develop a better understanding of the brain and the nuances of its relationship to behavior, there will be more opportunities for incorporating TH activities in treatment for additional client groups such as those with PTSD or social emotional learning challenges.

Table 1

Functional Areas of Cognitive/Intellectual Health, Related Goal Areas, and Examples of TH Activities

Functional Area	Goal Areas for Healthy Function	Examples of THAD Activities
Planning and Organization	Sequencing	Making Salsa Hardening Off Plants
	Prioritization, Time Management & Goal Setting	Vocational Horticulture Tasks
	Reasoning & Problem Solving	Herb Propagation from Seed Games with Weird & Wonderful Plants Forcing Paperwhites & Other Bulbs*
	Flexible Thinking	Plant Puns on Pots* Science Experiment: Avocado 3 Ways* Pansies in Pumpkins*
Memory	Working Memory/Short-term Memory/Recall	Peeling Vegetables Matching Game: Photos to Live Plants
	Long-term Memory/Recall	Creating a Plant Teleidoscope
	Reminiscence	Lavender Cookies
Focus	Attention to Task	Planting Microgreen Seeds
	Concentration	Transplanting Herbs to Outdoor Garden
	Following Directions	Hardwood Stem Cuttings
	Self-Restraint & Emotion Control	Daily Gardening Tasks*
Knowledge Acquisition, Leisure Skills & Job Skills Development	Observation & Perception	Color Wheel Challenge with Plants Growing Mindful Awareness in TH Activities Photographing Nature's Micro Patterns
	Task Initiation	Planting a Tea Pot Garden Alphabet Garden*

Table 1*Functional Areas of Cognitive/Intellectual Health, Related Goal Areas, and Examples of TH Activities*

Functional Area	Goal Areas for Healthy Function	Examples of THAD Activities
Knowledge Acquisition, Leisure Skills & Job Skills Development	Language & Number Concepts	Plant Parts & Plant Parts Rap* In the Garden Slide Show Seed Tape
	Curiosity	What Plant Speaks to You?*

Note. This table lists an assortment of TH activities that could be employed to provide support in the domain of cognitive/intellectual function. It is not an exhaustive list and many of the activities listed could support work in other goal areas as well.

* This activity does not explicitly state the associated goal but could be adapted to do so.

Physical Health Domain: Therapeutic Goals + THAD Activity Examples

Therapeutic horticulture goals in the physical domain are primarily focused on improving mobility, physical strength, range of motion, balance, fine and gross motor skills, cardiovascular health, and adaptations for tasks and skills involving physical components. Gardening tasks used in TH have led to improvements in these areas. Physical function goals related to specific health conditions such as stroke, cerebral palsy, arthritis, and even developmental disability can be targeted to the needs of each type of client group. The scope of goals used in TH within the physical health domain can also include goals related to pain management and physiological aspects of self-regulation, as well as compensatory strategies and adaptations in using artificial limbs and assistive mobility devices.

Table 2 is not a definitive inventory but rather a sample of the extensive range of therapeutic goals possible for physical challenges across health diagnoses, injury, and levels of physical functioning. The goals in the physical health domain included here suggest the types of therapeutic goals that can be used for a variety of physical health issues where TH interventions can contribute to improved health outcomes.

Knowledge transfer from occupational and physical therapy disciplines has elevated TH. HT professionals at hospitals and rehab centers have long been involved in developing HT interventions for regaining physical function, which begins with understanding numerous types of injuries and conditions, the complex nature of these physical challenges, and the physiology of muscles, joints and other body parts involved in healthy functioning.

Table 2*Functional Areas of Physical Health, Related Goal Areas, and Examples of TH Activities*

Functional Area	Goal Areas for Healthy Function	Examples of THAD Activities
Motor Function	Fine Motor Skills	Seed Self Portraits Fall Leaf Luminaries
	Gross Motor Skills	Game: Gathering Nature's Treasures
	Mobility & Gait	Field Trip to Community Garden
Coordination	Eye-Hand Coordination	Insect Hotel
	Balance & Stability	Seed Planting in Trays Preparing Soil in Raised Beds
	Range of Motion	Pounding Pansies
Strength & Exercise	Grip	Celery Shenanigans Don't Pick the Flowers
	Endurance	Physical Exertion – Substance Use Addiction Adaptive Gardening: Repetitive Motion Disorders
Healthy Lifestyle	Nutrition	Nutrition Veggie Snack Packs* Plan, Plant & Eat the Rainbow
	Sleep	Gardening, Melatonin & Sleep
	Daily Exercise	Green Exercise – Dementia Populations

Note. This table lists an assortment of TH activities that could be employed to provide support in the domain of physical function. It is not an exhaustive list and many of the activities listed could support work in other goal areas as well.

*This activity does not explicitly state the associated goal but could be adapted to do so.

Table 3*Functional Areas of Psychological/Emotional Health, Related Goal Areas, and Examples of TH Activities*

Functional Area	Goal Areas for Healthy Function	Examples of THAD Activities
Psychological	Managing Challenges	Harvesting Herbs Grown for Leaves
	Rational Thinking	Care of Houseplants Kitchen Waste: Regrow Avocado Seeds
	Self-Confidence	Moss Frame
	Security/Sense of Safety	Spacing Plants & Boundaries Expanding a Sense of Safety Pruning Your Fears
Emotional	Mood Enhancement	Fring Frang Acadian Potato Dish Cut flower Arrangement in a Meaningful Container
	Recognizing & Acknowledging Emotion	Positive Energy Sun Satchel Amaryllis Bulb Planting
	Self-Esteem & Empowerment	Teacup Planting Herb Propagation from Seed
	Self-Control	That's Bananas
	Trauma and Grief Processing	Poem + Nature Walk - Bereaved
	Anxiety & Stress Reduction	Lavender Soap Balls Calming Exercises in the Garden
Behavioral	Self Regulation	Forcing Blooms in Winter Weeding the Herb Garden Waiting for Water Chant

*Psychological/Emotional Health Domain:
Therapeutic Goals + THAD Activity Examples*

This health domain does not have finite parameters. Generally, psychological health and related challenges pertain to the ability to manage difficult situations, think rationally, and make decisions

(Dressler, n.d.; The Phoenix Recovery Center, 2023). It can involve emotional health, defined as one's ability to manage moods, feelings, and responses. Mental health encompasses both psychological and emotional components. Additionally, a distinction is drawn by medical and therapeutic professionals between mental health and behavioral health.

Table 3

Functional Areas of Psychological/Emotional Health, Related Goal Areas, and Examples of TH Activities

Functional Area	Goal Areas for Healthy Function	Examples of THAD Activities
Behavioral	Coping Strategies	Checking Seed Germination Rate I'm Tired: Plants & People
	Self-Efficacy/Personal Agency	Tending Garden Beds - Dementia
	Personal Growth & Creativity	Living Art with Moss Exploring Renewal & Personal Growth

Note. This table lists an assortment of TH activities that could be employed to provide support in the domain of psychological and emotional wellness. It is not an exhaustive list and many of the activities listed could support work in other goal areas as well.

*This activity does not explicitly include the associated goal but can be adapted to do so.

Behavioral health focuses on actions affecting wellbeing and their impact on physical and mental health, not on psychological inputs (Gillette, 2023). Stress is an example where both emotional and behavioral thoughts and responses are linked.

The therapeutic horticulture activities database (THAD) combines psychological, emotional, and behavioral goals within the psychological/emotional domain. For many health professionals these may need to be further distinguished based on individuals and populations with specific challenges and prioritized goals (e.g. survivors of human trafficking) (Poláčková et al., 2023). Like many health domains, mental health challenges are not black and white and may fall into several domains.

Psychological/emotional therapeutic goals typically used in TH practice include *increasing self-esteem, sense of self, and/or empowerment, developing coping strategies, pursuing personal growth, and using reminiscing for emotional health*. Goals relating to sense of safety, defining love, recognizing unhealthy relationships and safe outlets for expressing fear, coping with fatigue (psychological and physical), overcoming and managing

symptoms of depression or anxiety, and finding moments of awe as inspiration are also found in TH practice.

There has been expanding interest and applications of TH and HT for self-regulation dysfunction, which have psychological, emotional, and physiological connections (Fleming et al., 2023; Poláčková et al., 2023). The breadth and complexity of self-regulation challenges across populations (children, veterans, incarcerated) and their impact on other health domains can result in multidimensional goals in TH practice. Table 3 identifies the scope of therapeutic goals that can be used in the psychological/emotional health domain.

The scope and variety of therapeutic goals in this health domain are extensive as are mental health challenges. TH programs focused on this domain serve populations experiencing addiction, depression, eating disorders, pain, psychosis, PTSD, and social anxiety, among others. Stress and anxiety related to political events, climate change, and other divisive issues are on the rise and TH programs can help address these stressors using a variety of therapeutic goals.

Sensory Health Domain: Therapeutic Goals + THAD Activity Examples

This health domain is not widely referenced in current literature to the same degree as other health domains. Sensory stimulation is a basic element of HT/TH activities because hands-on plant and gardening activities include extensive sensory opportunities. A broader understanding of proprioception, interoception, vestibular sense of balance, and self-regulation is emerging as important components of sensory integration and have significant bearing on human functioning and dysfunction. (Barker et al., 2021; Fleming & Grimes, 2024; Gabaldo, 2019; Pathways, 2023). Ayres' foundational theory on the nervous system's interpretation of sensory input continues to be relevant for sensory processing, and research in the field of sensory integration therapy continues to expand knowledge across disciplines (Ayres, 1962, 1965, 1972; Dean et al., 2019; Gomez et al., 2021).

In current HT practice sensory *stimulation* is an oft-used therapeutic goal. Commonly employed sensory goals include *mood enhancement, stress relief, memory stimulation, and anxiety reduction*.

TH activities submitted to THAD suggest a growing use of goals for sensory integration and sensory motor activities. This may reflect an expanding understanding of the importance of sensory inputs on human functioning. Traditionally, the role of sensory integration as building blocks for developmental skills and behavior has been focused on children and those with dyspraxia, ADHD, or ASD. However, sensory integration has broad applications beyond these groups including those living with PTSD, trauma, stroke, and TBI, among other conditions (Autism CRC, 2024; Jang & Lee, 2016; Poláčková et al., 2023; Thielen et al., 2023; Whitehouse et al., 2020).

Table 4*Functional Areas of Sensory Health, Related Goal Areas, and Examples of TH Activities*

Functional Area	Goal Areas for Healthy Function	Examples of THAD Activities
Sensory Stimulation	Visual	Nature's Colors Game
	Tactile	Flower Vase Bouquet: Hand Held Method
	Gustatory	Eating Plant Parts – Immigrant/Refugee
		Taste & Spit Vegetables
	Olfactory	Smelling Culinary Herbs
	Auditory	Conflict Resolution Sensory Path
	Stress and Anxiety Relief	Making a Walking Stick
Mood Enhancement	Air Drying Leafy Herbs Dream Pillows	
Sensory Awareness	Proprioceptive	Holiday Pine Bough Door Swag
	Interoceptive	Transplanting Herbs to Outdoor Gardens
	Vestibular	Sensory Bin
Sensory Integration & Processing	Sensory Motor	Hapa-zome Leaf Dye
		Origami Calendar with Seeds & Pressed Flowers
		Spring Kokedama in Vases
Self-Regulation	Sensory Tolerance	Garden Style Floral Arrangement
		Bird Feeder
		Outdoor Obstacle Course
Sensory Tolerance	Sensory Tolerance	Nature Artwork – Bereaved
		Propagating Herbs by Division
		Foot & Hand “Bath” with Fresh Herbs
		Playing with Soil, Sand & Water
		Earth Day Hanging Kokedama

Note. This table lists an assortment of TH activities that could be employed to provide support in the domain of sensory interaction and integration. It is not an exhaustive list and many of the activities listed could support work in other goal areas as well.

*This activity does not explicitly state the associated goal but could be adapted to do so.

Social Health Domain: Therapeutic Goals + THAD Activity Examples

Social functioning encompasses social skills, social behavior, cognition, and communication essential during inter-personal interactions. The fields of psychology, neuroscience, education, and mental health identify social interactions and challenges or deficits to these, as important throughout the lifespan (Cordier et al., 2015). Therapeutic services addressing challenges in the social health domain are critical.

Typical TH goals have included *working cooperatively in groups, mastering socially appropriate dress and attitude* (particularly in vocational settings), *reducing verbal and physical outbursts or threats, developing nurturing skills for plants and humans, and responding appropriately to social cues.*

Social health and wellbeing are understood to have multiple factors impacting social interaction including predisposition, personality and temperament, family history, socioeconomic, and culture (Cordier et al., 2015). The breadth of this health domain and its interrelatedness to other domains is evident where terms like socio-cognitive, socio-emotional, and psycho-social are used in the literature.

Social goals can be specific to individuals, populations, diagnostic characteristics, or circumstances. For example, therapeutic goals for people living with autism spectrum disorder may include the improvement of relationship skills, self-awareness, social awareness, self-management, and responsible decision-making. These goals may be identified by special education teachers, social workers, or HT practitioners and the person/client(s) themselves (Positive Action, 2024).

Self-regulation and social emotional learning are two areas within TH programming that have received increased attention. The use of individual educational plans (IEPs), the practice of conscious discipline and positive action

strategies, and the encouragement of intrinsic self-motivation improving behavior and attitudes can be successfully integrated into TH programs and activities (CASEL, 2020; Conscious Discipline, n.d.; Grimes, 2024). Communication skills, community participation, awareness and empathy, and other interpersonal skills are integral to healthy social function and relationships and can be employed as therapeutic goals for all populations regardless of age, population, and therapeutic discipline intervention (Aakre, n.d.).

Discussion

Therapeutic Horticulture Practitioner Designation – Impact on Therapeutic Goals

Implementation of a new professional designation by AHTA in 2024 signals a recognition of the degree to which TH is being used (Stowell et al., 2021). The new professional registration level seeks to recognize, legitimize, and expand the number of trained and credentialed professionals delivering TH.

A concern that could surface, related to the THP designation, is a reduced emphasis on identifying and applying therapeutic goals as part of TH services. The AHTA (2024) definition of TH mentions program goals, in contrast to the definition of HT requiring “specific goals in an established treatment, rehabilitation, or vocational plan.” The success of the discipline is reliant on practitioner ethics and use of standards of practice including therapeutic goals in both TH (group based) and HT (individually based) programs. The creation of the THP provides an opportunity to bring more awareness of the HT/TH profession and in turn the myriad goals and activities that can be used to address client needs. The purpose of THAD is just that; to provide an expanding resource to support THPs and HTRs in addressing their client’s needs.

Table 5*Functional Areas of Social Health, Related Goal Areas, and Examples of TH Activities*

Functional Area	Goal Areas for Healthy Function	Examples of THAD Activities
Social Perception	Social Awareness	Ring In the New Year: Plant Connections
	Sharing Feelings/ Empathy	Personal Growth Metaphor: Deciduous Fruit Tree Pruning
	Social Anxiety	Bulb Lasagna Planting Stone Angels, Guardian Angels & Behavior
	Recognizing Social Cues	Nature Masks
	Tolerance	Lettuce Be Different
	Mentalizing	Mixing Soil Starting Jade Plants in Soil
Social Interaction	Appropriate Communication	Herbal Tea
	Engagement	Making Agua Fresca Harvesting for Communal Meal
	Cooperation	Milk Jug 2 Mini Greenhouse Sowing Seeds in Winter
	Solving Communication Challenges	Drying Herb Flowers
	Pro-Social Behavior	Watering Can Pass-Off Repotting Plants
	Managing Social Responsibilities & Relationships	Community Gardening - Dementia Populations Service Project: Making Photo Plant Cards
Work Interaction	Appropriate Communication	Harvesting Herbs Grown for Roots, Rhizomes & Bulbs
	Teamwork & Collaboration	Newcomer Plot Gardening on Hospital Grounds* Paper Sunhat Ready, Set Grow the Hydroponics Way
	Managing Expectations	Pre-employment Program Activities at Hospital Market Garden

Note. This table lists an assortment of TH activities that could be employed to provide support in the domain of social interaction. It is not an exhaustive list and many of the activities listed could support work in other goal areas as well.

*This activity does not explicitly state this goal but could be adapted to do so.

Therapeutic Horticulture Activities Database (THAD)

The new, expanding, and free Therapeutic Horticulture Activity Database is an important contribution to the growing body of knowledge within HT/TH. The collaborative nature of THAD's development and growth is a strength, evidenced by its tested TH activities used in actual practice that include multiple adaptation ideas. The identification of therapeutic goals in each health domain for every activity broadens its usefulness to practitioners. As additional THAD activities are added, it is anticipated that more classification categories will be included.

Other Health Domains

This paper and THAD are using five health domains to examine therapeutic goals specific to TH. Other health and wellness domains are identified in the literature, including spiritual, creative, occupational, environmental, and financial (University of Utah, n.d.). Health issues can fall within multiple health domains even when a single deficit or goal has been identified for treatment or intervention. For example, self-regulation, social emotional learning, and stress are multi-faceted and impact the physiological, psychological, and social domains of human functioning. As the HT/TH practice continues to mature, additional domains and greater distinction within current domains may evolve, bringing greater definition to therapeutic services.

Knowledge Transfer from Allied Health Professions Will Expand Knowledge Base

As identified in the paper, knowledge transfer between allied health professions has occurred, specifically where similar therapeutic goals are used across disciplines. There are several areas where this knowledge transfer will continue to expand, and deeper understanding will benefit the HT/TH profession. These areas include trauma, physical functioning, self-regulation, mind-body integration, and social-emotional learning (Fleming et al., 2023;

Fleming & Grimes, 2024). Therapeutic goals related to these areas are becoming more evident in TH practice.

Summary

The creation of an index of the many therapeutic goals applicable to TH interventions is an essential step in advancing the core knowledge and delivery of HT/TH services. This paper has initiated this process by examining therapeutic goals, their relationship to HT and allied health practice, and presenting activity examples available in THAD. What becomes evident in this process are the many additional goals that can be incorporated into TH practice, particularly when considering them in the context of health domains. While it is not possible to include a listing of all possible therapeutic goals in this paper, it is possible to acknowledge the broadening scope of therapeutic goals within and across health domains.

With the addition of the THP credential, it is hoped that more practitioners will be recognized for the work they are doing and that, in turn, may lead to greater recognition of the benefits of HT/TH practice. This could serve as a turning point for the profession, however an increase in the understanding and use of TH goals will be essential in solidifying the credibility of HT/TH. THAD is a critical resource in these expansion efforts and plays an intrinsic and supportive role in the therapeutic process, HT/TH practice, and the growth of the field.

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Contributors of THAD activities listed in **Table 2: Physical Health Domain: Therapeutic Goals and THAD Activity Examples** include L. Fleming, S. Morgan, D. Relf, Z. Poláčková, M. Hewson, G. Sherman, G. Stivland, T. Hildinger, M. Bethel, and A. Chance.

Contributors of THAD activities listed in **Table 3: Psychological/Emotional Health Domain: Therapeutic Goals and THAD Activity Examples** include L. Fleming, M. Predney, D. Relf, S. Morgan, K. Carroll, Z. Poláčková, B. House, E. O'Connor, K. Grimes, S. Yu Tham, J. Brown, E. Creus, H. Kelejian, C. Tashjian, J. Murphy, S. Sterling, and J. Sullivan.

Contributors of THAD activities listed in **Table 4: Sensory Health Domain: Therapeutic Goals and THAD Activity Examples** include L. Fleming, D. Relf, S. Morgan, G. Stivland, Z. Poláčková, K. Carroll, M. Bethel, J. Sullivan, G. Sherman, B. Stark, E. O'Connor, C. Mortada, Y. Miyake, S. Sterling, J. Murphy, and K. Grimes.

Contributors of THAD activities listed in **Table 5: Social Health Domain: Therapeutic Goals and THAD Activity Examples** include L. Fleming, T. Hildinger, Z. Poláčková, H. Lindsay, D. Relf, M. Predney, S. Morgan, M. Bethel, M. Hewson, K. Grimes, K. Carroll, C. Crowder, C. Stanko, K. Haney, N. Ellis, and E. Moriarty Wroath.

Biographies

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Elizabeth (Leah) Diehl, RLA, HTM is Director of Therapeutic Horticulture at Wilmot Botanical Gardens and Lecturer in the Environmental Horticulture Department at the University of Florida. She is a licensed landscape architect, master gardener, and professionally registered horticultural therapist. She manages and teaches an undergraduate certificate program in horticultural therapy at UF, conducts research, and runs therapeutic horticulture programming for diverse populations, where she trains and manages clients, students, and volunteers. Her current research project is exploring the effects of a structured therapeutic horticulture program on student stress, anxiety, and academic resilience. Other areas of research and collaboration include the effects of therapeutic horticulture on care partner burden, low back pain, and women with gynecologic cancer. Leah serves as a consultant and instructor with the National Parks Board and Ngee Ann Polytechnic, both in Singapore. She began her work in horticultural therapy in Chicago in 1993, and has given lectures, workshops, and trainings on horticultural therapy, healing gardens, and related topics throughout the U.S. and abroad.

Kathryn E. Grimes (Katie), HTR, MAT is the Education and Volunteer Manager at Wonder Gardens, a small, historic botanic garden and zoo in Bonita Springs, Florida. She holds a Master of Arts in Teaching degree and a concentration in special education from Trinity University in San Antonio, Texas, and has been a registered horticultural therapist since 2017. Katie has guided outdoor and garden-based programming for over 20 years in contexts that include schools, a community garden, parks and recreation, early learning environments, and the oldest and largest AZA-accredited zoo in Texas. As a registered horticultural therapist and a Certified Interpretive Guide, she has designed and implemented therapeutic and sensory gardens, programs, walks, tours, and interactions that focus on care for the environment and affect human well-being. Katie appreciates nature as a model for diversity and believes that improving access will benefit both the environment and the people, animals, and plants who live there.