

Antioch University

## AURA - Antioch University Repository and Archive

---

Antioch University Full-Text Dissertations &  
Theses

Antioch University Dissertations and Theses

---

2023

### Growing Therapeutic Horticulture in the Field of Clinical Psychology

Kelli Woodson

Follow this and additional works at: <https://aura.antioch.edu/etds>



Part of the [Clinical Psychology Commons](#)

---

GROWING THERAPEUTIC HORTICULTURE IN THE FIELD OF CLINICAL  
PSYCHOLOGY

A Dissertation

Presented to the Faculty of  
Antioch University New England

In partial fulfillment for the degree of  
DOCTOR OF PSYCHOLOGY

by

Kelli Woodson

ORCID Scholar No. 0009-0001-4622-7409

September 2023

GROWING THERAPEUTIC HORTICULTURE IN THE FIELD OF CLINICAL  
PSYCHOLOGY

This dissertation, by Kelli Woodson, has  
been approved by the committee members signed below  
who recommend that it be accepted by the faculty of  
Antioch University New England  
in partial fulfillment of requirements for the degree of

DOCTOR OF PSYCHOLOGY

Dissertation Committee:

Theodore Ellenhorn, PhD, Chairperson

Barbara Belcher-Timme, PsyD

Katherine Evarts, PsyD

Copyright © 2023 by Kelli Woodson  
All Rights Reserved

## ABSTRACT

### GROWING THERAPEUTIC HORTICULTURE IN THE FIELD OF CLINICAL PSYCHOLOGY

Kelli Woodson

Antioch University New England

Keene, NH

The connection between nature and well-being has been recognized across cultures for centuries. One way in which people have facilitated this connection over the years has been through their interactions with plants and the practice of horticulture. Research over the years has further substantiated a connection between horticultural practices and overall well-being. However, a significantly disproportionate amount of this research has been conducted within the field of clinical psychology, despite the notable clinical implications. The current dissertation aims to address this gap in the current literature by exploring this connection from the lens of clinical psychology. More specifically, the current work outlines an extensive review of current, relevant literature, introduces the concept of therapeutic horticulture, and then conceptualizes therapeutic horticulture through various psychotherapeutic theoretical perspectives. Moreover, the current work aims to grow beyond the scope of the current dissertation to inform a subsequent book to define core competencies, standards, and guidelines for the use of therapeutic horticulture within the field of clinical psychology. Given this, the current dissertation is formatted as a formal book proposal and three sample chapters, which will then be submitted for publication. This dissertation is available in open access at AURA (<https://aura.antioch.edu>) and OhioLINK ETD Center (<https://etd.ohiolink.edu>).

*Keywords:* Clinical psychology, therapeutic horticulture, human-nature connection

Table of Contents

Growing Therapeutic Horticulture in the Field of Clinical Psychology.....1  
    Variegated Leaves.....3  
    Example Interventions.....5  
Book Proposal .....6  
    Statement of Aims.....6  
    Brief Abstract .....7  
Detailed Synopsis.....8  
    Introduction .....8  
    Chapter 1: Sprouts; Early Connections Between Plants and People.....8  
    Chapter 2: Crop Rotation; Challenging the Dominant Narrative of Therapy .....9  
    Chapter 3: Roots; Underlying Theoretical Orientations.....9  
    Chapter 4: Branches; Adapting Therapeutic Horticulture to Fit Your Theory.....10  
    Chapter 5: Companion Planting; Implications for the Therapeutic Relationship .....10  
    Chapter 6: Climate Justice as Social Justice: Implications on the Macro Level.....11  
    Chapter 7: Landscape Design; A Short Note on Methods.....11  
    Chapter 8: Seeds; Identifying the Core Competencies.....11  
    Chapter 9: Stalks; Defining Standards.....12  
    Chapter 10: Trellising; Outlining Guidelines .....12  
    Chapter 11: Budding and Pollination; Expanding the Growth of Therapeutic Horticulture  
    within Clinical Psychology.....12  
The Target Market.....13  
Review of the Main Competing Titles .....14  
    Main Competing or Related Titles .....14  
Format and Timeline .....15  
Chapter 1: Sprouts; Early Connections Between Plants and People.....16  
Chapter 2: Crop Rotation; Challenging the Dominant Narrative of Therapy.....22  
Chapter 4: Branches; Adapting Therapeutic Horticulture to Fit Your Theory.....26  
    Person-Centered .....26  
    Positive Psychology .....29  
    Positive Emotion .....30

Engagement/Flow .....	30
Relationship .....	31
Meaning .....	31
Accomplishment .....	32
Relational-Cultural Theory .....	32
Feminism .....	35
Intrapersonal .....	36
Interpersonal .....	37
Somatic .....	37
Spiritual .....	38
Existential .....	39
Death .....	39
Freedom .....	40
Isolation .....	41
Meaninglessness .....	41
ACT .....	42
Botanical (Clinical) Illustration .....	44
Conclusion .....	46
References .....	48

## **Growing Therapeutic Horticulture in the Field of Clinical Psychology**

The current literature shows that there is a relationship between being in, and interacting with, nature and individual well-being (Greenleaf et al., 2014; Johnson, 2019; M. Jordan, 2014; Roszak et al., 1995; and more). This correlation has significant implications for clinical practice within the field of psychology as it may help bolster future clinical interventions. The literature has similarly shown a more specific relationship between horticultural practices and well-being, leading to further clinical implications around the incorporation of therapeutic horticulture into psychotherapeutic practice (American Horticultural Therapy Association [AHTA], 2020b; de Seixas et al., 2017; Griffiths & Griffiths, 1976; Siu et al., 2020, and more). Despite the findings around the effectiveness of therapeutic horticulture in benefiting clinical practice, as well as the theoretical and clinical relevance to psychology, there is an astonishingly disproportionate amount of research on this topic from psychology journals.<sup>1</sup> This gap in the literature brings up professional and ethical concerns.

In response, researchers in the fields of mental health and horticultural therapy are calling for a wider implementation of therapeutic horticulture within clinical practice and research (Cooley et al., 2020; Haller & Capra, 2017; Harper et al., 2019). In order to ensure ethical and competent practice, they explain that it is paramount for practitioners and researchers from relevant fields, such as clinical psychology, to ban together to publish research; they state “the need for strong research as a base for the profession cannot be overstated” (Haller & Capra, 2017, p. 4). The same concern stands when considering the potential application of therapeutic horticulture in the field of clinical psychology. Publishing research around therapeutic

---

<sup>1</sup> When compared to horticultural therapy, counseling, nursing, occupational therapy, etc. journals.



horticulture is of paramount importance in order to ensure professional and ethical clinical practice within the field of psychology.

The relative lack of research on therapeutic horticulture from a psychological perspective raises both practical and potentially ethical concerns regarding competent practice for psychologists who may be interested in incorporating this form of intervention into their clinical practice (American Psychological Association [APA], 2017). The current dissertation attempts to address this significant gap in the literature through summarizing the current literature relevant to the incorporation of therapeutic horticulture within the field of clinical psychology, as well as conceptualizing therapeutic horticulture as a clinical intervention within the framework of various psychotherapeutic theoretical perspectives.

The current dissertation will also serve as a formal book proposal and three sample chapters to be later submitted to an academic publishing company for publication. The prospective publisher was chosen as it is a well-known and reputable publishing company. Moreover, they have published numerous books related to the field of psychology and their publications are able to reach an audience of students and professionals around the world. The prospective publishing company was also a good fit for the current works due to its length requirements,<sup>2</sup> quick turn-around time, and openness to new ideas and theoretical innovations. Additionally, in doing research around, and reaching out to, potential publishing companies, I was able to connect with an editor from this company who expressed significant interest regarding the current topic and subsequent book proposal.

The later book will build on the findings and arguments presented in the current dissertation to define empirically-supported core competencies, standards, and guidelines for the

---

<sup>2</sup> As this would be my first publication, a shorter publication was preferable.

use of therapeutic horticulture within the practice of clinical psychology. In doing so, the subsequent book hopes to further address ethical concerns around competency associated with the current lack of widely recognized professional guidelines within the field of clinical psychology for the practice of therapeutic horticulture (APA, 2017; Cooley et al., 2020). The hope is that the further publication can have wider reaching implications to aid future clinicians aspiring to incorporate ethical, evidence-based therapeutic horticulture into their clinical practice. This dissertation, and the subsequent publication, will thus have notable implications for future clinicians aspiring to incorporate ethical, evidence-based therapeutic horticulture into their clinical practice.

### **Variegated Leaves**

In considering the implications of therapeutic horticulture within clinical psychology, it is important to differentiate the current work from the existing research and practice in the American Horticultural Therapy Association (AHTA). The term “therapeutic horticulture” (as discussed here) is a separate, though related, concept from that of “horticultural therapy” (as discussed by the AHTA). These two concepts differ by their requirements for practice in that horticultural therapy requires a specific degree and licensure, while therapeutic horticulture can be utilized by any professional who is competent in the therapeutic uses of horticulture (AHTA, 2020a). Therefore, it is therapeutic horticulture that has clinical implications for psychologists. What’s more, in 2015, the AHTA outlined standards of practice for horticultural therapy (AHTA, 2015) though, as of yet, no such standards have been outlined for therapeutic horticulture. The proposed book will be the first publication to directly outline practical core competencies as well as educational standards and guidelines for the use of therapeutic horticulture within the practice of clinical psychology.

The AHTA (2020a) provides further distinction between therapeutic horticulture and horticultural therapy. The organization explains that horticultural therapy is the engagement in horticultural activities facilitated by a registered horticultural therapist to achieve specific therapeutic, rehabilitation, or vocational goals (AHTA, 2020a, 2020b). Horticultural therapy is a task-oriented, goal-driven treatment approach to rehabilitation. The goals put particular focus on product (i.e., the end result), process (i.e., the activity, such as the active cultivation of a plant), competent performance of the horticultural activity, interaction with others, and interaction with nature (AHTA, 2015, 2020b; Haller & Capra, 2017). Given this, horticultural therapy always requires active engagement in horticultural practices and attention to the task at hand. Through this lens, the horticultural activity itself is seen as the main agent of change that can lead to increased physical and emotional well-being (Haller & Capra, 2017); when discussing the theoretical framework of horticultural therapy AHTA co-founder, Diana Relf stated, “Horticulture is at the core of what it is all about” (Relf, 2021).

Therapeutic horticulture, on the other hand, is the incorporation of horticulture into a wide range of therapeutic modalities (AHTA, 2020a), including clinical psychotherapeutic practice. From this perspective, horticulture can be viewed not as the main agent of change but rather a tool to be used within the larger psychotherapeutic context. Therapeutic horticulture begins to shift away from the traditional office setting of psychotherapy, bringing talk therapy into a more natural setting (Cooley et al., 2020). In therapeutic horticulture, the intensity and type of engagement with plants and horticulture is structured to be dependent on the needs of the population involved; it can incorporate active or passive involvement with the environment based on client needs/abilities (Hassink & Van Dijk, 2006). Therapeutic horticultural

interventions in the context of psychotherapy must therefore be adapted to fit client needs as well as psychologist's theoretical orientation.

### ***Example Interventions***

While therapeutic horticultural practices may vary depending on client needs and psychologist's theoretical orientation, the following are some examples of ways in which a clinician might begin to bring therapeutic horticulture into their own practice.

#### Passive Engagement:

- Utilizing nature/plant-based metaphors to explore psychological processes—For example: highlighting the impact that sunlight, water, and soil quality has on the growth of the plant would be an apt metaphor to explore how one's upbringing/early experiences have shaped their own growth over time in order to facilitate increased insight.
- Nature-based mindfulness—For example, practice bringing a more mindful attention to plants (e.g., notice the color, the texture, the smell, the new growth, etc.), whether office plants or while sitting outside in a garden, as a means to be more grounded in the present moment.
- Guided meditation—For example, the clinician might lead the client through a guided visualization of a garden to aid in self-regulation.
- Acknowledging one's connection to nature as part of the therapeutic triad within therapy.
- Even simply conducting therapy in a space with plants, whether houseplants or next to a garden, can lead to psycho-biological benefits!<sup>3</sup>

---

<sup>3</sup> See "Psychobiology" section in Chapter 3.

### Active Engagement:

- Planting seeds at the onset of the therapeutic process to parallel to growth of the client throughout their time in therapy.
- Caring for a plant as a means to facilitate an increased sense of interconnectedness and mutuality to other living beings.
- Reflecting on the ways in which one's interactions with plants parallel the ways in which they interact with other living beings and/or themselves to help facilitate increased insight- For example, an individual who tends to be passive in relationships and/or overly self-critical/self-deprecating may blame themselves for any plant-related mishaps.
- Potential difficulties involved in horticultural practices (e.g., plant diseases, frost, pests, low yield, loss of plant, etc.) provide ample opportunity to practice distress tolerance in sessions.
- Gardening in sessions can also be a way to stay grounded when discussing/reflecting on traumatic experiences and thus aid in self-regulation.

## **Book Proposal**

### **Statement of Aims**

The current book aims to outline core competencies, standards, and guidelines for the use of therapeutic horticulture as a psychotherapeutic intervention within the practice of clinical psychology. To do this, the book begins by providing an extensive review of the current literature on the connection between nature and emotional well-being, with a specific focus on the therapeutic benefits of plant-human connection and horticultural practices. This extensive literature review then shifts into a more in-depth exploration of the theoretical and clinical

implications for therapeutic horticulture within clinical psychology. In doing so, the current work proposes a shift towards an alternative, more egalitarian structure for psychotherapeutic practice through the incorporation of therapeutic horticulture. The book then goes on to explore ways in which therapeutic horticulture can be conceptualized and applied through various evidence-based psychotherapeutic theoretical perspectives, as well as to discuss the trans-theoretical implications of therapeutic horticulture for the therapeutic relationship and social justice.

The current work then utilizes the information gleaned from the current research and subsequent theoretical exploration to outline specific core competencies, standards, and guidelines for the use of therapeutic horticulture within clinical practice. These core competencies, standards, and guidelines are presented in alignment with currently recognized core competencies, standards, and guidelines within professional psychology (American Board of Professional Psychology [ABPP], 2020; APA, 2004, 2012). This information will thus provide an empirically supported base through which clinical psychologists can adequately ensure the competent and ethical incorporation of this unique intervention into their psychotherapeutic practice. The current book builds on the existing research in a unique way by exploring these concepts almost exclusively from the lens of clinical psychology. Moreover, it will be the first book published to directly delineate core competencies, standards, and guidelines for the use of therapeutic horticulture within the field of clinical psychology.

### ***Brief Abstract***

Despite the substantial amount of research showing the effectiveness of therapeutic horticulture in benefiting well-being, as well as the theoretical relevance to psychology, there are currently minimal, if any, external guidelines for the incorporation of therapeutic horticulture within the practice of clinical psychology (de Seixas et al., 2017; Greenleaf et al., 2014; Griffiths

& Griffiths, 1976; Johnson, 2019; M. Jordan, 2014, Siu et al., 2020; and more). This book provides a brief introduction to the current literature around the connection between plants and people, the benefits of horticulture on well-being, and the current understanding of therapeutic horticulture. Furthermore, this book explores a wide range of psychological theories that informed the growth of therapeutic horticulture, as well as exploring ways in which therapeutic horticulture can be adapted to fit a variety of other theoretical orientations within clinical psychotherapy. Using this research and theoretical exploration, the current work then outlines specific core competencies, standards, and guidelines for the use of therapeutic horticulture within clinical psychology. It is through this that this book is intended to be the fertile seed from which the use of therapeutic horticulture in clinical practice can continue to grow.

## **Detailed Synopsis**

### ***Introduction***

This introductory section introduces the rationale of the current book. Within this, it briefly describes the notable gap within the current literature and explores the potential implications of this gap as it relates to ethical concerns around competency (APA, 2012, 2017). This section then goes on to introduce the ways in which the current book addresses this gap, and subsequent concerns.

### ***Chapter 1: Sprouts; Early Connections Between Plants and People***

The first chapter will provide a research-based introduction to the connection between plants and people; more specifically, between plants and emotional-well-being. Through an exploration of the current literature, this chapter looks at how people's connections with plants have evolved throughout the centuries. Within this exploration, this chapter pays particular attention to recent research that has served to substantiate the importance of this connection in

regards to emotional well-being. This chapter then discusses how this research facilitated the early sprouts of therapeutic horticulture. In addition, this first chapter makes an important delineation between therapeutic horticulture and horticultural therapy,<sup>4</sup> which in turn begins to highlight the clinical implications for therapeutic horticulture within the field of clinical psychology.

### ***Chapter 2: Crop Rotation; Challenging the Dominant Narrative of Therapy***

This chapter will briefly discuss the current structure of most psychotherapeutic practice within our industrialized, western society. From this, it will begin to highlight some of the inequities of basing an entire field of practice in such a limited cultural framework. This chapter then begins to challenge the dominant narrative around what constitutes psychotherapeutic practice and what is deemed relevant to incorporate into psychotherapeutic conceptualizations and treatments. This chapter then proposes that the incorporation of therapeutic horticulture into clinical practice is paramount to providing adequate care as our society adapts to the changes of the current climate crisis. It also argues that this inclusion of therapeutic horticulture into therapy allows for a shift towards a more egalitarian form of practice through the incorporation of nature and therapeutic horticulture.

### ***Chapter 3: Roots; Underlying Theoretical Orientations***

This chapter presents the theoretical underpinnings of therapeutic horticulture, as highlighted within the current literature: ecopsychology, relational psychodynamic theory, and psychobiology. These theoretical orientations have all specifically published works that explore the therapeutic benefits of horticulture within a psychological framework; whether Roszak's seminal work on the role that connection to nature plays in individual well-being (Roszak, 2001),

---

<sup>4</sup> This delineation was moved into an earlier section for the sake of the current dissertation, though will be in the introduction section of the later book.



Jung's writings on nature and the soul (Jung & Sabini, 2002), or the various studies showing how engaging with plants and nature can increase the production of various mood-enhancing neurotransmitters such as oxytocin (Haller & Capra, 2017; M. Jordan, 2014; Lorber, 2011; Pfeffer et al., 2009; Siu et al., 2020). This chapter explores in depth how each of these approaches to psychology have informed therapeutic horticulture as it pertains to clinical practice. It is thus on these psychological theories that the pillars of therapeutic horticulture rest.

#### ***Chapter 4: Branches; Adapting Therapeutic Horticulture to Fit Your Theory***

While therapeutic horticulture is built on the aforementioned psychological theories, it has potential applications within a wide range of theoretical approaches to psychotherapeutic practice including, though not limited to: Person-Centered, Positive Psychology, Relational-Cultural Theory, Feminism, Existentialism, and Acceptance and Commitment Therapy. This chapter briefly introduces each of these theories and explores the ways in which therapeutic horticulture can be utilized within these frameworks. This chapter also provides a brief clinical example of applying therapeutic horticulture when working with post-traumatic stress disorders.

#### ***Chapter 5: Companion Planting; Implications for the Therapeutic Relationship***

This chapter centers around one of the most prominent common factors regardless of psychological theory: the therapeutic relationship (Kottler, 1991). This chapter begins by highlighting the importance of the therapeutic relationship in clinical practice. From this, this chapter explores the notable implications that therapeutic horticulture has on the therapeutic relationship and thus, on the therapeutic process in general.

### ***Chapter 6: Climate Justice as Social Justice: Implications on the Macro Level***

This chapter argues that not only does therapeutic horticulture have significant implications within the therapeutic setting, but that it can offer a significant contribution to social justice as well. To begin, this chapter outlines Bronfenbrenner's systems theory, a psychological theory that brings attention to the various systems in which we are all engaged (i.e., micro, meso, macro; Bronfenbrenner, 1989). This chapter then explores therapeutic horticulture from a macro level, including its connection to climate change, intersectional environmentalism (L. Thomas, 2022), and ecofeminism (Diamond & Orenstein, 1990).

### ***Chapter 7: Landscape Design; A Short Note on Methods***

This chapter briefly describes the process by which the following core competencies, standards, and guidelines were developed. It also provides relevant definitions as well as a rationale and intended scope of the core competencies, standards, and guidelines that follow. The aim of this chapter is to conceptualize and provide a rationale for the means by which the following core competencies, standards, and guidelines are defined.

### ***Chapter 8: Seeds; Identifying the Core Competencies***

This chapter proposes core competencies for the use of therapeutic horticulture within clinical psychology. To do this, relevant research, presented in previous chapters, is applied within the currently recognized core competencies for professional psychology, as outlined by the American Psychological Association and the American Board of Professional Psychology (ABPP, 2020; APA, 2012). Within this, both foundational (i.e., knowledge) and functional (i.e., skills) competencies are addressed (ABPP, 2020). The foundational competencies discussed include: relationships, theoretical underpinning, ethics: safety and professionalism, ecological systems, individual and cultural diversity and social justice, reflective practice and self-care, and

basic horticultural knowledge. The functional competencies presented include: intervention, research, consultation, supervision, advocacy, and basic horticultural skills.

### ***Chapter 9: Stalks; Defining Standards***

This chapter outlines standards for the use of therapeutic horticulture; These standards are meant to act as the mandatory minimum threshold for competent clinical practice. These standards are formatted in line with the APA's currently acknowledged standards for clinical practice (APA, 2004, 2012), though expand on these to better address the unique requirements for the incorporation of therapeutic horticulture. The proposed standards include: education and core competencies, socially situated roles, philosophical foundations, research training, and personal and professional. Within this section, the author also discusses benchmarks for education in order to ensure standards are met in practice.

### ***Chapter 10: Trellising; Outlining Guidelines***

This chapter discusses several guidelines for the use of therapeutic horticulture within clinical psychology. Unlike the standards discussed in the previous chapter, these guidelines offer suggestions around best practice based on current relevant research, though are not considered to be mandatory. Similar to previous chapters, these guidelines build on currently accepted guidelines outlined by the APA (2004, 2012) while incorporating relevant research to better fit these guidelines to therapeutic horticulture. These guidelines include: life-long learning, assessment, adaptability, authenticity, and agents of social change.

### ***Chapter 11: Budding and Pollination; Expanding the Growth of Therapeutic Horticulture within Clinical Psychology***

This final chapter begins to explore the ways in which other clinicians within the field can build on the concepts presented throughout the book. This includes ideas for continued

research within the field of clinical psychology as well as continued advocacy for this unique intervention to be formally recognized by the American Psychological Association. This final chapter is meant to be a call to action for other professionals within the field of psychology as additional work is needed to further advocate for the recognition and competent incorporation of therapeutic horticulture within this field.

### **The Target Market**

The target audience for the proposed works would be graduate students and practicing clinicians within the field of psychology. On a broader level, the clinical implications of the current research and theoretical exploration may also appeal to relevant organizations such as the American Psychological Association (particularly the specialty areas of Clinical Psychology, Psychodynamic Psychology, Counseling Psychology, Rehabilitation Psychology, and Group Psychotherapy), the American Horticultural Therapy Association, and the International Plant Propagator's Society. The findings may also be relevant to various graduate level courses on related topics such as: Psychotherapeutic Intervention, Ecopsychology, Relationships/Relational Theories/The therapeutic relationship, and/or Social Justice.

The literature reviewed for the proposed book primarily pertains to concerns associated with industrialized western cultures, such as the United States. Additionally, the core competencies, standards, and guidelines are formatted in alignment with APA and ABPP. Given this, the current work may be particularly salient for psychologists practicing in the United States or similarly industrialized western cultures. However, this book may also have international appeal from a theoretical standpoint as the importance of the human-nature relationship is not isolated to western cultures; the significance of the connection between nature and well-being is

universal (AHTA, 2020b; Bienz, 1980; Detweiler et al., 2012; M. Jordan, 2014; McDowell, 1997; Simson & Straus, 1997; Watson & Burlingham, 1960; and more).

### **Review of the Main Competing Titles**

While there is a growing body of evidence in the current literature to support the positive impact of nature and engagement in horticultural activities on well-being (AHTA, 2020b; de Seixas et al., 2017; Griffiths & Griffiths, 1976; Siu et al., 2020; and more), there are currently no core competencies, standards, or guidelines widely recognized within the field of clinical psychology. The proposed book would thus be the first publication to address therapeutic horticulture from the distinctive lens of clinical psychology; and moreover, to define core competencies, standards, and guidelines for the incorporation of therapeutic horticulture into clinical practice.

#### ***Main Competing or Related Titles***

*Horticultural Therapy Methods; Connecting People and Plants in Health Care, Human Services, and Therapeutic Programs* by Haller and Capra (2017).

- Strengths: Clearly defines horticultural therapy including benefits, goals, settings, and populations.
- Weaknesses: Refers exclusively to the work of horticultural therapy, not therapeutic horticulture. Therefore, it has limited application within the field of clinical psychology.

*Ecotherapy; Theory, Research, and Practice* by Jordan and Hinds (2016).

- Strengths: Comprehensively introduces the concept of ecotherapy and outlines various aspects of practicing nature-based psychotherapy.
- Weaknesses: Does not specifically address therapeutic horticulture as an intervention.

*Nature and Therapy; Understanding Counseling and Psychotherapy in Outdoor Spaces* by M. Jordan (2015).

- Strengths: Briefly introduces the psychological benefits of nature and subsequently introduces the concept of nature-based therapies in a succinct and digestible manner.
- Weaknesses: Does not go into depth about therapeutic horticulture or identify core competencies, standards, or guidelines to engaging in nature-based therapies such as therapeutic horticulture.

*Therapy Through Horticulture* by Watson and Burlingame (1960)

- Strengths: Seminal work exploring the therapeutic benefits of horticulture.
- Weaknesses: While it addresses some mental health benefits of horticulture, this book centers on occupational therapy, physical therapy, and horticultural therapy and does not directly mention therapeutic horticulture within the field of psychology.

While each of these books offer unique insight that is related to the current work, none of them directly address therapeutic horticulture from a clinical psychology point of view.

Moreover, none of these resources define core competencies, standards, and guidelines for the use of therapeutic horticulture in clinical practice. In this way, the proposed book offers a unique addition to the current literature with significant potential implications for the practice of clinical psychology.

### **Format and Timeline**

The proposed book is on track to be completed by May 2024. Including references and footnotes, it will likely be around 50,000 words. Of this, sections of three chapters will have been utilized as my doctoral dissertation (about 10–20%), and thus will be previously published work. The remainder of the work will be original, unpublished work.

## Chapter 1: Sprouts; Early Connections Between Plants and People

The restorative connection between nature and emotional well-being/mental health is an idea that has been recognized by various cultures for hundreds of years (AHTA, 2020b; Bienz, 1980; Detweiler et al., 2012; M. Jordan, 2014; McDowell, 1997; Simson & Straus, 1997; Watson & Burlingham, 1960). Within Western healthcare, the use of horticulture as a therapeutic modality dates back at least 10,000 years when, in Mesopotamia, horticulture was used as a means to “calm the senses” (Buzzell & Chalquist, 2009; Detweiler et al., 2012; Monroe, 2015). The therapeutic use of horticulture was also seen in ancient Egyptian civilizations, in which physicians would often prescribe walks through a garden for those suffering from mental illness (AHTA, 2020b). In the Middle Ages, gardens were planted around monasteries and hospitals to brighten melancholy moods. St. Bernard of Clairvaux described the benefits of these gardens, specifically highlighting the therapeutic effects of plants; The plants were seen as a means to heal both physical and spiritual ailments (Buzzell & Chalquist, 2009; McDowell, 1997).

Indigenous cultures have also long recognized the importance of human connection with nature (Johnson, 2019; Kimmerer, 2013; Suzuki & Knudtson, 1992). Traditional wisdom from many indigenous peoples teaches that humans are not separate from their environment but rather, that everyone is an interconnected part of nature; the awareness of which guides their actions as well as their sense of self (Johnson, 2019; Suzuki & Knudtson, 1992). This sense of connection with the land also instills a greater sense of responsibility to the natural world, as indigenous populations viewed their relationship with the non-human world as highly reciprocal (Suzuki & Knudtson, 1992). As horticultural practices began to expand, native wisdom continued to highlight this sense of reciprocity with the land.

Perhaps nowhere is the unwritten pact between humans and plants more explicit than between farmers and their domesticated crops... By domesticating plants, we ourselves have become, in some sense, “domesticated” by them. This marriage, for better or worse, between two species - one animal, the other green plant - has grown out of a long, reciprocal, evolutionary relationship. And like so many other ecological bonds between human beings and vegetation, it can lead to genuine human feelings of love and devotion for living plants (Suzuki & Knudtson, 1992, p. 129).

In her book on indigenous wisdom and scientific knowledge, environmental biologist and plant ecologist Robin Kimmerer posits that human suffering stems from the westernized societal tendency to be dissociated from a reciprocal sense of love with the land (Kimmerer, 2013). She states,

Gardens are simultaneously a material and a spiritual undertaking. That’s hard for scientists, so fully brainwashed by Cartesian dualism, to grasp... No one would doubt I love my children, and even a quantitative social psychologist would find no fault in my list of loving behaviors... You might also observe these actions between a person and a bit of carefully tended ground... Why then, seeing this list, would you not make the leap to say that the garden loves her back? (pp. 123–124)

Kimmerer shares the Potawatomi perspective that this relationship with the land is important for both ecological and mental health (Kimmerer, 2013); Many other indigenous perspectives also acknowledged the impact that nature has on one’s overall well-being. For example, flowers are often seen as embodiments of regeneration and hope while gardens are seen as miniature ecosystems that offer feelings of serenity and peace of mind. Some indigenous groups, such as the Murngin, expanded this idea even further to posit that the landscape itself was a living



extension of the human brain (Suzuki & Knudtson, 1992). The human-nature relationship also played a central role in traditional medicine (Johnson, 2019). For example, Koyukon shamans utilized the boughs of mature white spruce trees (“ts’iba tlee’ meaning spruce head) in healing ceremonies to heal various illnesses (Suzuki & Knudtson, 1992, pp 129).

Comparatively recently, in the late 18<sup>th</sup> century, Dr. Benjamin Rush became the first Western psychiatrist to document the positive effects of working in the garden for individuals with mental illnesses (Lorber, 2011; Monroe, 2015) after he noticed the positive effect that digging in the soil was having on his patients (AHTA, 2020b; McDowell, 1997). He argued that horticultural activities stimulated patients’ senses and aided in the development of self-esteem and a sense of belonging (Monroe, 2015). He soon began advocating for the use of occupational activities, such as gardening, to assist patients in recovery within the mental health care system (Reed, 2015). By 1812, he established the first hospital-based garden program, implementing “digging in a garden” as an intervention for psychiatric presentations (Detweiler et al., 2012). In 1879, Pennsylvania’s Friends Asylum built the first known greenhouse to be used with individuals with mental illness (Smith, 1998). By the early 1900s, this idea of including gardening into psychiatric treatment began to spread to various community mental health care institutions and almshouses across the United States (Monroe, 2015). The use of therapeutic horticulture then continued to expand in the 1940s and 50s as it was used with veterans from the World Wars (Wise, 2018). In 1982, the Japanese government coined the term “shinrin yoku,” meaning “taking the atmosphere of the forest.” Based in ancient Chinto and Buddhist practices, this concept eventually led to the later development of “Forest Therapy” (M. Jordan, 2014; Williams, 2017). As the therapeutic benefits of nature and horticulture began to gain traction around the world, methods expanded to be used with various populations on a wider scale

(AHTA, 2020b). Research in this area also began to increase in an attempt to provide additional credibility to the merits of this approach.

In 1984, Roger Ulrich conducted a formal study on the effects of views of nature on recovery in hospitals. It was this study that directly showed the importance of greenspace (i.e., outdoors, the forest, the garden, etc.) in individual recovery and well-being (Lorber, 2011). Based on this study, Ulrich proposed the Psycho-Evolutionary Theory of stress reduction (PET). This theory posited that the visual qualities of nature evoked automatic physiological changes within the parasympathetic nervous system such as lower cortisol levels, blood pressure, and heart rate that subsequently not only reduced stress but actually increased one's sense of calm, relaxation, and contentment (M. Jordan, 2014; Harper et al., 2019; Williams, 2017). In that same year, E.O. Wilson proposed the Biophilia Hypothesis. The Biophilia Hypothesis states that humans have an innate emotional connection to all living organisms: people, animals, and plants. Wilson goes further to state that because of this, individual identity and sense of fulfillment in life is inextricably connected to one's relationship with nature (M. Jordan, 2014; Williams, 2017).

Not long after, in 1989, Stephen and Rachel Kaplan hypothesized that psychological distress is often associated with cognitive fatigue, which has increased in our modern world. Their research also found that engagement in nature involved different cognitive functioning, when compared to cognitive functioning in an urban environment. From this, they began to explore the ways in which one could "restore" cognitive energy and thus improve psychological functioning through interactions with nature. Their research posited that natural environments evoke a sense of "soft fascination" through aesthetic and sensory engagement. Kaplan and Kaplan argued that this form of indirect attention evoked by natural environments has the

capacity to effortlessly hold our attention in a way that actually restores our cognitive functioning and emotional well-being, rather than diminishing it (M. Jordan 2015; Williams, 2017).

Later studies provided biological backings to Kaplan's theory. For example, using electroencephalography (EEG), one study found that nature provides visual input that evokes fractal stimulation which in turn puts the brain in a "low-effort state" (Berman et al., 2019, p.1045). Over the years, additional research has been published further exploring the biological and neurocognitive effects of nature. For example, one study found that after just 30 minutes of active engagement with nature, not only did cortisol levels decrease, but participant neuroendocrine levels returned to a positive baseline (Van Den Berg & Custers, 2011). Similarly, a study on Shinrin-Yoku found lower levels of cortisol after spending time in the forest (M. Jordan, 2014).

Overall, the research shows a positive correlation between time spent in nature and psychological and emotional well-being (Berman et al., 2019; Greenleaf et al., 2014; M. Jordan, 2014; Lorber, 2011). Viewing and interacting with nature is associated with increased positive feelings and reduced 'negative' emotions such as sadness, anger, and fear (Lorber, 2014). Exposure to and interaction with nature has also been shown to reduce stress while improving attention, working memory, and cognitive functioning (Berman et al., 2019). Conversely, the research shows that a disconnection with nature caused by increased time spent indoors is linked with mental depletion and fatigue as well as increased rates of aggression, depression, and psychological disorders, as well as a decreased ability to self-regulate (Greenleaf et al., 2014).

In light of these findings, recent research has begun to look more specifically at the impacts of horticulture on psychological and emotional well-being. These studies have shown

that horticultural activities, such as gardening and growing plants, have similarly led to positive psychological outcomes and improved overall well-being (M. Jordan, 2014; Pfeffer et al., 2009; Siu et al., 2020). In one book on horticultural therapy, the author explained that one's relationship with plants can stimulate increased production of oxytocin and elevate endorphin levels, resulting in elevated mood (Haller & Capra, 2017). Other studies have shown that there is a bacterium in soil, called mycobacterium vaccae, that stimulates the production of calming and mood enhancing neuropeptides in the brain (Lorber, 2011). Overall, studies have shown that the benefits of horticultural activities include: increased self-esteem, self-confidence, self-efficacy, and motivation, as well as decreased stress and anxiety, reduced severity of depressive and other psychiatric symptoms, improved cognition, stabilized mood, restoration of social connections and engagement, enhanced sensory stimulation, and an increased subjective quality of life (Haller et al., 2019; Harris, 2017; Greenleaf et al., 2014; Sempik et al., 2014; Siu et al., 2020; Ulrich et al., 1991). The findings of these studies provide strong evidence to suggest that nature-based therapies, such as therapeutic horticulture, are beneficial for a variety of mental health disorders (Bienz, 1980; Cooley et al., 2020; Greenleaf et al., 2014; Griffiths & Griffiths, 1976; M. Jordan, 2014; Lorber, 2011; Siu et al., 2020).

Therapeutic horticulture is the participation in gardening and plant-related activities to enhance well-being (AHTA, 2020a). In the context of talk therapy, therapeutic horticulture uses plants as a medium through which to explore therapeutic concepts. Therapeutic horticulture as a psychotherapeutic intervention takes a holistic approach to therapy, engaging the mind, body, and natural environment (Cooley et al., 2020; Monroe, 2015). Through this approach, plants are used as a means to aid in stress reduction and bring peace to individuals suffering from mental illness (Monroe, 2015). Therapeutic horticulture is able to provide a supportive, natural

environment (Sahlin et al., 2012) in which clients can feel safe to reflect, engage, and explore their own well-being. Some studies have further suggested that the incorporation of nature-based treatments, such as therapeutic horticulture, can have a particularly positive impact on long-term management of one's mental health (de Seixas et al., 2017). This is further supported by the fact that increasing numbers of therapeutic programs throughout the world are reporting successful incorporation of horticulture into their work (Jordan & Hinds, 2016, p.171). Psychotherapists who have begun to move sessions outdoors have explained that sessions are enhanced by the inclusion of the natural environment (Harper et al., 2019). Some studies have even found that therapeutic horticulture is as effective, if not more effective, than indoor talk therapy (Cooley et al., 2020). Because of this, some clinicians have argued a case for incorporating therapeutic horticultural practices into residential as well as day treatment facilities (Majuri, 2002). Therapeutic horticulture is a therapeutic practice that has begun to shift away from classical office settings in an effort to reconnect clients to their natural world, in addition to re-connecting them to others and their true selves.

## **Chapter 2: Crop Rotation; Challenging the Dominant Narrative of Therapy**

Throughout history, the field of psychology has had to adapt to various societal, cultural, and political changes. For example, "talk therapy's" rise in the late 19th century was largely due to society's growing emphasis on the scientific method to make sense of the external world and the medical model to treat physical ailments. This then led to a desire to find a scientific theory that could similarly explain one's internal, or psychic, world. It was this "sociohistorical zeitgeist" that acted as a catalyst for the development of psychoanalytic theory (Messer & Gurman, 2011; Wampold, 2019). By the early 20th century, the field of scientific research began to emphasize the importance of direct observation. This societal shift thus led to the development

of behaviorism and cognitive-behavioral theory within the field of psychology. Following World War II, psychology shifted yet again as society attempted to make sense of the meaning of life in the wake of the violence and loss of the Holocaust; it is at this time that humanistic and existential therapies developed and grew in popularity. More recently, various postmodern approaches to psychotherapy have adapted to other changes in society; such as feminist theory which developed parallel to the Women's Movement as it grew in the late 1960s and 1970s (Wampold, 2019). Throughout its history, psychology has grown and adapted in response to societal experiences and philosophies. Now, with the growing disconnect between humans and their natural environment as well as the effects of climate change becoming ever more salient in our daily lives, it is time for the field of psychology to adapt once again.

*To talk about the soul of the world or reciprocity with the more-than-human is to profoundly contradict the status quo social reality.*

—Suzuki & Knudtson, 1992, p. 6

Images portraying therapy often depict two people talking in a small office while sitting in chairs, or perhaps one of them is laying on a couch. What is not shown is what is outside that room: what relationships are brought into conversation, what societal values influence the way the two interact, what natural environment lies just beyond the small office window. While most psychologists continue to conduct their practice indoors some psychologists are beginning to think outside the box, and outside the office; some psychologists are beginning to bring their practice into the garden (Buzzell & Chalquist, 2009; Cooley et al., 2020; M. Jordan, 2014; Jordan & Hinds, 2016). In reflecting on bringing therapy into natural spaces, clinicians reflect

“For the majority of our clients, sessions are greatly enhanced by being outdoors” (Buzzell & Chalquist, 2009, p. 67).

Modern psychotherapy has been built on western sociocultural ideals of individualism and capitalism and thus limits the therapeutic context to the four walls of our industrial society. In a society that emphasizes independence and self-reliance, we minimize the importance of our relationships with other humans and virtually ignore our relationship with the rest of the natural world around us; In a society in which capitalism flourishes, we are pushed to increase productivity regardless of the negative impact on providers and client care. The movement of psychotherapy into natural spaces thus calls for a liberatory shift from a conceptualization of therapy based solely on Western, industrialized, patriarchal norms to a more holistic perspective that includes wisdom from other areas of expertise including nature-conscious expertise and traditional wisdom, horticultural therapy, occupational therapy, and ecology (Buzzell & Chalquist, 2009). By incorporating the experiences, studies, and research that has accumulated within these spaces into the field of psychology, “Nature-based therapy approaches can be considered evidence-informed practices as most variations draw on a large body of existing literature” (Harper et al., 2019, p. 234).

One way to begin this process of incorporating nature into clinical practice is through the use of therapeutic horticulture. Therapeutic horticulture begins to challenge the current narrative of therapy by expanding the psychotherapeutic frame to include the non-human world, particularly plants. In doing this, it inherently challenges the dominant narrative around what the therapeutic process can look like. It frees the therapeutic process from the four office walls by actively incorporating the natural worlds that lay outside the window. This can be done passively (e.g., through the use of nature metaphors or nature-based mindful meditations) or actively (e.g.,

sitting outside or working in the garden; AHTA, 2020b; Cooley et al., 2020). In this, therapeutic horticulture also expands the limitations of a purely dyadic approach to therapy. From a more nature-oriented perspective, such as through therapeutic horticulture, nature itself becomes a therapeutic third. The understanding of relationships begins to shift to include human's relationship with the more-than-human world around them (Buzzell & Chalquist, 2009). Some even argue that by not acknowledging this broader understanding of relationships, we may inadvertently be causing additional harm to clients; "Counselors who ignore human-nature relations and the potential benefits of nature could be failing to tap into a valuable healing relationship and perhaps may even be colluding with the problems that their clients are seeking solace from" (Harper et al., 2019, p. 233). From this perspective, by ignoring the integral connection between people and nature, psychologists act in direct contradiction to the professional ethics of beneficence and nonmaleficence (APA, 2017; Harper et al., 2019).

By expanding the therapeutic process to include the natural world, psychologists also have an opportunity to play a pivotal role in human's collective adaptation to our changing world. Though therapy often takes place with an individual or in a small group, it is through individuals that our society adapts and changes over time; It is through an individual shift in perspective that psychologists and clients can become the catalyst for a wider societal shift (Buzzell & Chalquist, 2009; Suzuki & Knudtson, 1992). More specifically, "we are talking about new ways of perceiving relationships among human beings...and the earth." (Suzuki & Knudtson, 1992, p. 232) in order to empower a greater sense of connection with the natural environment.

With all of this in mind, it is clear to see that it is time for psychology to adapt once again: to our warming climate, to our increasingly industrialized society, and to our clients'



modern struggles and desires. Therapeutic horticulture provides a research-based approach to begin this collective adaptation. It is time that psychology expands its branches and begins to grow.

#### **Chapter 4: Branches; Adapting Therapeutic Horticulture to Fit Your Theory**

While the origins of therapeutic horticulture are primarily rooted within ecopsychology, relational psychodynamic, and psychobiology frameworks, therapeutic horticulture can also be utilized as an intervention within a wide range of theoretical frameworks in clinical practice. This can include, though is not limited to: Person-Centered Psychotherapy, Positive Psychology, Relational-Cultural Theory, Feminist Psychology, Existential Psychotherapy, and Acceptance-Commitment Theory. As a psychotherapeutic intervention, it is important that any clinician utilizing therapeutic horticulture within their practice adapts it to fit their theoretical orientation as well as clients' unique needs.

##### **Person-Centered**

Person-centered, or client-centered, therapy was originally developed by Carl Rogers in the 1940s and 50s. Central to this theory is the idea that individuals inherently have potential for growth (Messer & Gurman, 2011). More specifically, Rogers proposed that individuals have the capacity to recognize the factors that are causing them unhappiness and, within the context of an understanding and accepting therapeutic relationship, have the capacity to change these factors. Rogers explained that in a safe, therapeutic environment the client “can lay himself bare... to reorganize the structure of the self in accordance with reality and his own needs” (Rogers, 1952, p. 67); in other words, the client can explore and address the factors that are causing them distress.

Within a person-centered framework, therapeutic horticulture can serve to further facilitate a supportive and safe therapeutic environment through its inclusion of nature and plants. In a book on the connection between plants and people, it was stated that “human beings are happiest and most comfortable when living with flora” (Tompkins & Bird, 1972). Not only does engaging with plants provide psychobiological benefits that can help the client feel more relaxed and at ease,<sup>5</sup> but plants are inherently non-judgmental, non-threatening, and non-discriminating (Hassink & Van Dijk, 2006). Because of this, therapeutic horticulture is able to facilitate a nonthreatening, nonaggressive, safe, and supportive environment in which client and therapist can develop a strong therapeutic relationship (Smith, 1998).

Within this framework, therapeutic horticultural practices can also be utilized to facilitate insight into one’s “concept of self”.<sup>6</sup> This can be done by reflecting on the ways in which the client sees themselves, not only in relation to the therapist, but also in relation to the plants. In one article on the use of therapeutic horticulture in clinical practice, the author explains the tendency of clients to “project their sense of belonging in the scene” (Lorber, 2011, p. 21). Through trying to better understand the way that clients project this sense of belonging onto their relationships with the plants, one can begin to better understand an individual's relationship to themselves and others (Adams, 2010a). For example, a client who sees themselves as having a “green thumb” may suggest an individual who feels competent in their ability to relate to other living things, whether plants or people. On the other hand, a client who blames themselves for the loss of a plant to an early frost, may suggest that they tend to unnecessarily take the blame for problems in their relationships due to feelings of inadequacy. Through observing the way that the

---

<sup>5</sup> See “Psychobiology” section in Chapter 3 for more detail.

<sup>6</sup> How one views themselves in relationship to others and the internal value that is placed on this perception (Rogers, 1952).

client relates to the plants, the client may uncover insights into parts of their self-concept that are creating distress, and thus may be better equipped to uncover their capacity to change. It is also through observing these people-plant interactions that the clinician may gain insight into the way that the client views themselves, which from a person-centered perspective is paramount in facilitating and maintaining an effective therapeutic relationship (Rogers, 1952).

Therapeutic horticulture also offers ample opportunities to explore the concept of growth; a concept that is central to person-centered psychotherapy (Messer & Gurman, 2011). One way in which this concept can be explored is through metaphor (e.g., the growth of a plant). This is particularly relevant given that studies have shown that the use of nature metaphors is a common beneficial therapeutic tool used in therapeutic horticulture (Cooley et al., 2020). For example, one article stated, “therapeutic horticulture would be beneficial to individuals who are metaphorically struggling with the outcomes of poor soil, lack of nurturance, and a lot of ugly weeds choking their fragile growth process” (S. Thomas, 2014, p. 155). Therapeutic horticulture also provides more tangible avenues to explore the concept of growth through observing plant growth. From this perspective, plant growth can represent the parallel growth of the individual in treatment, a physical embodiment of their growth and change over time (Haller & Capra, 2017).

This ability to visualize growth over time also aids in facilitating an increased sense of confidence, self-esteem, and self-efficacy (Greenleaf et al., 2014; Messer & Gurman; 2011; Sempik et al., 2014). Similarly, the inclusion of therapeutic horticultural practices into psychotherapy can act as a catalyst for empowering client’s sense of autonomy, responsibility, and self-reliance. This in turn can enhance the client’s ability to self-regulate and facilitate increased self-acceptance (Greenleaf et al., 2014; Griffiths & Griffiths, 1976; Lorber, 2011; Messer & Gurman, 2011). It also provides a very tangible sense of self-reliance in that clients

have the opportunity to learn how to grow various fruits and vegetables that they can then consume.

Person-centered therapy also emphasizes the importance of the client's responsibility to take an active, creative role in organizing their therapeutic growth process (Messer & Gurman, 2011). In line with this approach, the incorporation of therapeutic horticulture into one's treatment should be in alignment with the client's own perceptions of what will and will not be helpful to their growth process. This may mean that one client finds it beneficial to take a more active approach (e.g., actively engaging in horticultural activities) while another may find it a better fit to take a passive approach (e.g., sitting on a bench in a greenhouse or mindfully observing a near-by plant). In therapeutic horticulture, the intensity and type of engagement with plants and nature can adapt to the needs of the population involved; it can incorporate active or passive involvement with the environment based on client needs/abilities (Hassink & Van Dijk, 2006). By tailoring the intervention to the unique client needs, the clinician can more effectively provide a diverse range of support emotionally, cognitively, and socially (Haller & Capra, 2017; Haller et al., 2019). Just as a plant knows to grow in the direction of the sun, each client knows which direction will best support their own growth throughout the therapeutic process.

### **Positive Psychology**

At its core, positive psychology is about happiness. It focuses not just on helping individuals endure their lives but on helping clients build a life worth living, one that is based in satisfaction with the past, optimism for the future, and happiness in the present moment. It emphasizes one's strengths and virtues as the building blocks to living a good and meaningful life (Knoop, 2014; Seligman, 2003; Seligman & Csikszentmihalyi, 2000). Positive psychology also posits that, in these conditions, humans have an innate tendency to grow towards well-being;

“people, like all other living organisms, in all senses grow upwards; we see how personal growth and well-being are promoted much better when good conditions for growth from below are prioritized” (Knoop, 2014, p. 30). More specifically, positive psychology articulates how individuals flourish through, five interrelated, yet distinct elements in human life, collectively referred to as PERMA: 1) Positive Emotion, 2) Engagement/Flow, 3) Relationship, 4) Meaning, 5) Accomplishment (Seligman, 2011).

### ***Positive Emotion***

Within this lens, therapeutic horticulture could be utilized as a therapeutic tool that does not just minimize pathology, but an intervention that actively adds joy to the therapeutic process. This positive impact is seen in the findings of several studies that state that exposure to nature and engagement in horticultural activities provide an opportunity for enjoyment and emotional restoration, elevating mood, increasing optimism, and empowering self-confidence (Buzzell & Chalquist, 2009; Haller et al., 2019; Lorber, 2011; Siu et al., 2020; and more). Some have even argued that therapeutic horticulture and other forms of “green exercise proves as effective as antidepressants” (Buzzell & Chalquist, 2009, p. 71) in improving mood.

### ***Engagement/Flow***

A flow state is one in which an individual is completely engaged, focused, and concentrated on a specific task. Seligman argues that when one is experiencing flow, the individual becomes completely absorbed in the task at hand to the point that they no longer notice time passing or feel a sense of self-consciousness; moreover, they may not notice any of their thoughts and feelings while in flow. This complete engagement, in turn, leads to a sense of inner clarity and greater self-confidence (Knoop, 2014; Seligman, 2011). Some studies have found that engaging in therapeutic horticulture is one way in which to induce a flow state. More

specifically, the task of gardening often requires a focused attention and engagement that can momentarily quiet mental stress and fatigue, thus facilitating a sense of inner peace (Haller & Capra, 2017).

### ***Relationship***

The third element of life that is essential for one to flourish, from the lens of positive psychology, is positive relationships; Seligman (2011) stated “very little that is positive is solitary” (p. 23). This perspective posits that humans are instinctively driven to connect with other humans for survival as well as for well-being (Seligman, 2011). The roots of therapeutic horticulture as a psychotherapeutic intervention expand this conceptualization around the importance of relationships to include humans’ relationship with the more-than-human world. Not only have humans evolved to seek relationships with other humans, but we have evolved by maintaining a reciprocal relationship with nature (Buzzell & Chalquist, 2009; M. Jordan, 2014; Suzuki & Knudtson, 1992; Williams, 2017). The incorporation of plants and plant-care activities within therapeutic horticulture thus provides ample opportunities to facilitate a more positive relationship between clients and plants.

### ***Meaning***

Another aspect of positive psychology that could be explored with the use of therapeutic horticulture is the idea that meaning is found in being part of, and contributing to, something bigger than oneself (Seligman, 2003). By incorporating nature and plants into the therapeutic process, one is reminded of humans’ place within the larger ecosystem; “over time the experience...in nature gives us a sense of place. We become aware of how we are embedded in an ecosystem; in a landscape with a particular flora and fauna; in a particular social system and culture” (Harper et al., 2019, p. 44). Therapeutic horticulture as a psychological intervention thus

provides a way to acknowledge and reflect on the client's place within this larger system, and subsequently aid in creating a new sense of meaning around what it is to have a life worth living.

### ***Accomplishment***

The fifth, and final, element is accomplishment. More specifically, accomplishment for the sole purpose of accomplishing something, of feeling accomplished; not accomplishing something to achieve or gain something else, but the experience of accomplishment as a form of "achieving life" (Seligman, 2011, p. 23). Incorporating therapeutic horticulture into clinical practice provides an avenue through which one can actively develop this sense of accomplishment within the context of therapy (Siu et al., 2020). In successfully aiding in a plant's growth, one is provided with a tangible sense of accomplishment. This growth could also act as a metaphorical representation of the client's own growth and progress towards treatment goals (i.e., therapeutic "accomplishments").

### **Relational-Cultural Theory**

In Jean Baker Miller's seminal work on relational-cultural theory (RCT), she asserts that relationships are the central mechanism of growth. Miller went on to explain that the self exists within an interrelated relational and cultural context and thus that the concept of a separate self is false (J. Jordan, 2018; Miller, 1976). Given this, RCT argues that an increased sense of connection within meaningful, growth-fostering relationships can aid in the construction of a more integrated, positive felt sense of self and more positive, flexible relational images (Frey, 2013; J. Jordan, 2003, 2018). This in turn can facilitate a sense of empowerment and self-worth (J. Jordan, 2018) and decrease feelings of isolation (J. Jordan, 2003). Additionally, this engagement in meaningful connection also facilitates relational resilience. Relational resilience refers to one's ability to move back into connection following a disconnection as well as to

recognize when it is safe to reach out for and accept help from others (J. Jordan, 2003, 2018), all of which can improve overall well-being and act as protective factors against a variety of mental health disorders.

Within this framework, therapeutic horticulture's inclusion of the human-plant relationship can be seen as an extension of RCT's conceptualizations of connection as it broadens the concept of "growth-fostering relationships" to include both human and non-human relationships (Cooley et al., 2020). Miller distinguished growth-fostering relationships as being characterized by empathy, empowerment, and mutuality (J. Jordan, 2018; Miller, 1976). RCT theorists also acknowledge that not all relationships are based on these characteristics and thus posit that not all relationships are growth-fostering; Therefore, RCT theorists would not encourage clients to move towards all relationships, and even encourage actively moving away from harmful, oppressive, and/or abusive relationships. Similarly, clinicians incorporating therapeutic horticulture would not encourage clients to garden with poisonous plants. Thus, RCT practitioners and practitioners of therapeutic horticulture, alike, promote client movement towards growth-fostering, rather than abusive or poisonous, human-human and human-plant relationships.

What's more, therapeutic horticulture offers a means through which to facilitate a greater sense of interrelatedness with all living creatures and the environment (Van Gordon et al., 2018). This sense of connection subsequently allows individuals to feel a sense of place and purpose within the world and decreases feelings of isolation (Greenleaf et al., 2014). From an RCT standpoint, this in turn facilitates a sense of empowerment and increased sense of self-worth (J. Jordan, 2003, 2018). The impacts of this increased sense of interrelatedness also relates back to the RCT conceptualization of mutuality. RCT theorists explain that within a mutual relationship



“one is both affecting the other and being affected by the other; one extends oneself out to the other and is also receptive to the impact of the other” (J. Jordan, 1991, p. 1). In incorporating therapeutic horticulture into clinical practice, the client is affecting the plant while the plant is affecting them.

Conversely, RCT argues that a chronic disconnection and isolation leads to psychological suffering (J. Jordan, 2018). The negative impact of disconnection is particularly evident in our increasingly industrialized society. A recent meta-analysis and systematic review on loneliness (i.e., subjective sense of disconnection) showed a significant increase in reports of loneliness over the last 30 years. What’s more, in exploring potential contributing factors, they found that perceived loneliness positively correlated with increased urbanization (Buecker et al., 2021). In his book *Voices of the Earth*, Roszak (2001) writes,

What is the source of the ‘epistemological loneliness’ that characterizes modern life?...The impression of desertion or abandonment... is due, I am sure... to this contemptuous dismissal of the biosphere... Life shrinks to a few urban rooms; no wonder it becomes absurd. (p. 66)

The impact of increased industrialization and urbanization within our society acts as a catalyst for a collective sense of disconnection, both from other people as well as from our environment.

This becomes particularly concerning when one considers that by 2050, around 2.5 billion people are expected to live in urban environments and that individuals living in industrialized western cultures now spend up to 90% of their lives indoors (Berman et al., 2019; Greenleaf et al., 2014). Urban-industrial society communicates to humans that they are somehow “above” and “separate” from nature’s ecology. This systematic dismissal of the human connection to the earth leads to significant feelings of disconnection (Roszak et al., 1995), and

therefore, to human suffering. Psychologist Harold Searles (1960) stated, “[Western] cultural institutions are such as to make it inordinately difficult for the culture members to integrate their experience with the nonhuman environment” (p. 403). In the same way that Miller argued that one’s felt sense of self is created through their relationships with other humans (J. Jordan, 2018), humans’ felt sense of self is impacted by our connection to the natural world around us; when humans are estranged from the environment, they cannot fully know themselves or others (Searles, 1960). Given this, therapeutic horticulture as an intervention within RCT is aptly positioned to reduce this sense of disconnection by exploring one’s relationship to others as well as to nature.

RCT also explores the ways in which dominant culture shapes individual identities and relationships through the creation and maintenance of inequitable power structures and thus through the subsequent oppression, marginalization, and disempowerment. RCT begins to highlight the impact of “power over” relationships on cultural contexts/identities (J. Jordan, 2018). Within the context of psychology, RCT theorists/practitioners aim to alter the existing paradigms of western psychology through shifting societal awareness to focus on relationships (J. Jordan, 2018). Therapeutic horticulture’s inclusion of plants and nature into the conceptualization of what constitutes a relationship further challenges traditional psychotherapeutic practices and the various societal power structures in which these practices are formed.<sup>7</sup>

## **Feminism**

The concept of feminist psychology was first explored by Karen Horney, though it did not see wide-spread emergence in the field of psychology until the rise of second wave feminist

---

<sup>7</sup> See Chapter 2: “Crop Rotation: Challenging the Dominant Narrative of Therapy.”

movements in the United States in the 1960s. Feminist psychology focuses on interpersonal and personal power dynamics within wider socio-political contexts; Horney (1946) emphasized “the significance of social factors over and above their circumscribed application to feminine psychology” (p. 12). The goal of treatment is to empower and liberate individuals, particularly those belonging to marginalized groups, from socio-cultural systems of oppression (Brown, 2018). Within this, feminist psychotherapy focuses on four distinct domains of power that are part of the human experience: interpersonal, intrapersonal, somatic, and spiritual. All of which can be addressed through the incorporation of therapeutic horticulture.

### ***Intrapersonal***

Therapeutic horticulture’s inclusion of plant activities provides both tangible and metaphorical means by which to empower clients to take a more agentive role in how they engage with their environment and the world around them. For example, one might draw a parallel that “Pruning the plant to encourage new growth and free it from tangled overgrowth illustrates the pruning that one can do in one’s own life to be free from any parts that are overwhelming” (Haller & Capra, 2017, p. 78). Through this, the client can physically take an active role in shaping the plant life around them, while also exploring the parallels of what socio-political weeds may be inhibiting their own growth. In providing an avenue for empowerment and liberation in nature, the client begins to break down cycles of negative thinking around one’s ability and control within their lives; it facilitates an increased internalized locus of control. In doing so, it can empower clients to address other domains of life in which they may begin to take back a sense of control and agency; “As we cultivate plants, they reciprocate by cultivating within us a deeper connection to the seasons of our life” (Haller & Capra, 2017, p. 23).

### *Interpersonal*

Paramount within feminist psychotherapy is the conceptualization of the therapeutic relationship as a “liberatory relationship” which emphasizes equality and collaboration (Brown, 2018). The inclusion of therapeutic horticulture within feminist psychotherapy may serve as a catalyst to the development of this liberatory therapeutic relationship. Many studies have found that the inclusion of plants and horticultural activities into psychotherapy aids in establishing and maintaining a safe, supportive, and strong therapeutic relationship in which clients feel less guarded in their interactions and thus more open to discuss concerns (Hassink & Van Dijk, 2006; Lorber, 2011; Smith, 1998). By engaging in therapeutic horticultural activities side-by-side with the client, instead of chair to couch, it creates a sense of mutuality based on shared activity and therefore can aid in minimizing the power dynamic inherent in modern, patriarchal, and industrialized psychotherapy (Cooley et al., 2020; Lorber, 2011). Mutuality, from a feminist perspective, goes beyond a shared activity to highlight the bi-directional nature of growth in relationships.

Therapeutic horticulture also has interpersonal implications outside of the therapeutic relationship. Many studies have found that therapeutic horticulture evokes a sense of interrelatedness (Adams, 2010a), encouraging individuals to form meaningful communities around common interest (Walton et al., 2012). When individuals are gardening together there are opportunities for social engagement that can prompt communication, collaboration, and social bonding (Cooley et al., 2020).

### *Somatic*

Feminist theory also pays particular attention to the ways in which individuals relate to their own bodies and embodied experiences. Somatic power is therefore seen as one’s ability to

connect with their body in an accepting, nourishing way. To aid in empowering clients within this domain, feminist practitioners may incorporate embodiment practices within their interventions (Brown, 2018). The body is similarly incorporated into therapeutic horticultural practices. One way in which this is seen is through the incorporation of grounding, both psychologically and physically; perhaps imagining one's feet as rooting firmly within the earth or bringing a mindful awareness to the ground beneath your feet. Engaging in therapeutic horticultural activities provides sensory engagement that can facilitate a more compassionate awareness to the client's embodied experience; the "process of tuning in and noticing what is happening in the body can help... promote self-compassion, and facilitate conscious actions to shift neural states" (Harper et al., 2019, p. 89). The engagement of both mind and body within therapeutic horticultural practices also aids in facilitating the co-regulation process as one develops a sense of safety and agency both in their external environment as well as their internal environment (Harper et al., 2019).

### *Spiritual*

Within feminist theory, the concept of spirituality refers to the various ways that humans create a sense of meaning in their lives; it is not isolated to organized religion but may be found in many different ways. This sense of meaning then provides individuals with a "raison d'être" and empowers a sense of comfort and well-being even in times of difficulty or challenge (Brown, 2018). For many, their experiences with nature act as opportunities for this kind of spiritual meaning-making (Harper et al., 2019). Humans' relationship with plants impact us

In ways that are often impossible to measure. They can offer us solace...adorn our places of worship, accompany us through rites of passage, and embroider our burial sites as

embodiments of life's endless fecundity, continuity, capacity for regeneration, and hope.  
(Suzuki & Knudtson, 1992, p. 129)

By incorporating plants into psychotherapy, therapeutic horticulture provides ample opportunity to naturally empower clients within this spiritual meaning-making process.

### **Existential**

Existential psychotherapy is primarily concerned with the anxieties that arise from the acknowledgement of the limitations of one's own existence and the ability to find meaning from these experiences (May, 1960; Pitchford, 2009; Yalom, 1980); in his seminal work on Existential psychotherapy, Rollo May (1960) stated that experiences "have meaning only in the context of the existing, living person" (p. 689). May's mentee, and prominent existential psychologist, Irvan Yalom later expanded on May's work in defining four givens of human existence: death, freedom, isolation, and meaninglessness. Despite the existential anxiety that comes from these aspects of human existence, it is the acceptance of these givens that allows humans to find meaning and thus to live their life to the fullest (Yalom, 1980). When incorporating therapeutic horticulture into existential psychotherapy, the clinician may highlight the parallel processes between plant care and the existential concepts noted above; "by first tuning into the outer landscape... we can assist clients to build the foundational skills necessary to observe their internal environments" (Harper et al., 2019, p. 89). Within the context of existential therapy therapeutic horticulture is aptly positioned to address many of the existential givens as outlined by Yalom (Harper et al., 2019).

### ***Death***

Perhaps the most difficult of Yalom's givens is the acknowledgment of one's own mortality, of inevitable death; "Our existence is forever shadowed by the knowledge that we will

grow, blossom, and, inevitably, diminish and die” (Yalom, 2008, p. 248). Incorporating therapeutic horticulture into clinical practice provides an avenue to explore this concept even further. By bringing attention to the natural cycle of life, growth, and death within a plant, one can explore their broader ability to acknowledge and accept this cycle in their own life. For example, every gardener in New England knows that certain annual plants will die when the frost of fall comes, but nonetheless, every spring these same gardeners find joy and contentment in planting their seedlings in the ground. By recognizing and accepting the inevitability of death come fall, they find ever the more joy in spring’s life. Yalom explains that it is only through coming to terms with one’s own mortality and accepting the inevitability of death that one finds meaning in life; each moment becomes precious when you are aware that they are limited (Yalom, 1980).

### ***Freedom***

Yalom and May both explored the concept of freedom, Yalom’s second given. They argued that people are ultimately responsible for their own existence. While this allows us the freedom to choose our paths in life, it also means that individuals must take responsibility for those choices (May, 1981; Yalom, 1980). Therapeutic horticulture again provides a means by which the client and therapist can explore this concept within the context of the plant-person relationship. For example, the clinician may give the client the freedom to choose which seed to plant, where to plant it, and how often to water it. This freedom to choose also means that the client has now assumed responsibility for the impact that those choices have on the plant and its growth. In the same way that a gardener must take responsibility for the care of the plants in their garden, people must learn to take responsibility for their actions in every aspect of their lives. If you do not plant a seedling in adequate sunlight then it will grow small and meek and if you do

not water a plant then it will shrivel and die. This provides a physical avenue within which the therapist and client can explore the larger, existential implications of freedom, choice, and responsibility.

### ***Isolation***

Existential isolation, or existential loneliness, refers to the awareness that we are all inherently alone in the universe; we are born alone and we will die alone. Despite even our deepest connections with others, there remains an inevitable gap between ourselves and others. While the ultimate goal from this perspective is to confront and accept this fundamental isolation, we may also find temporary solace from this loneliness in our connections with others. In quoting one of his patients, Yalom stated, “I know we are each ships passing in the dark and each of us is a lonely ship, but still it is mighty comforting to see the bobbing lights of the other nearby boats” (Yalom & Josselson, 2013, p. 268). From an existential lens, therapeutic horticulture may provide additional solace from this sense of isolation by enhancing one’s sense of connection with the natural world, plants, other humans, and even themselves (Haller & Capra, 2017).

### ***Meaninglessness***

Yalom and May argue that life is meaningless; or rather, that no meaning is absolute. Despite this, Yalom and May acknowledge that humans attempt to invent meaning, or find purpose. It is subsequently this ongoing, yet futile search for a life-sustaining purpose or meaning that ultimately leads to existential distress. Instead, Yalom argues, meaning is found in immersing oneself in something larger than themselves, “If one is immersed in the river of life, then the question of meaning drifts away” (Yalom & Josselson, 2013, p. 268). One way in which to engage in something that transcends the self is to spend time in nature. By incorporating



therapeutic horticulture into clinical practice, one becomes aware of just how small they are compared to the natural world around them and thus they can become fully immersed in that “river of life.” On this, Carl Jung (1973) once reflected, “Every stone, every plant, everything seemed alive and indescribably marvelous. I immersed myself in nature and away from the whole human world” (p. 49). In this way, meaning, or the acceptance of the lack thereof, is found through therapeutic horticulture (Siu et al., 2020).

## **ACT**

Acceptance and Commitment Therapy (ACT) was developed by Stephen Hayes within the context of the “third wave” of behavioral therapies in the 1980s. This approach aims to help patients grow towards a meaningful and values-congruent life, while also acknowledging and accepting the inevitable pain that comes with life. Within this, ACT outlines six core therapeutic processes: contacting the present moment (i.e., mindfulness), defusion, acceptance, self-as-context, values, and committed-action. These therapeutic processes allow a “psychological flexibility” in which one is fully present, open, and committed to doing what matters to them; which in turn increases their overall quality of life and well-being (Harris, 2019). Within an ACT context, therapeutic horticulture can be utilized as a tool to explore many of these six core processes.

We see this possibility, perhaps most evidently, in the opportunity for mindfulness in nature (Germer et al., 2013; Harper et al., 2019). In the book *Mindfulness in Nature* (Huppertz & Schataneck, 2017), the authors explore multiple “dimensions” of mindfulness in nature. In nature, an individual can engage in focused mindfulness (e.g., focusing on a specific piece of nature, such as a plant) or wide mindfulness (e.g., being attentive to all aspects of our natural environment in that specific moment). Within a natural environment, individuals can engage in

“outer mindfulness” (i.e., focus on the external experience); “In nature, one can linger, delve into, immerse, and forget oneself in outer mindfulness... we look and we observe—as if we have never seen it before. We give our complete attention to the natural phenomenon” (Huppertz & Schatanek, 2017, p. 40). We can also utilize nature to facilitate an “inner mindfulness,” in which one explores their interpretations and experiences of the natural world around them (Huppertz & Schatanek, 2017).

These nature and plant-based mindfulness practices can also provide the means by which the client can practice taking the role of the “observing self” (i.e., self-as-context). Clients can practice noticing the ways in which they interact with the plant, what sensations they feel, and even acknowledge thoughts and feelings that arise without being fused with those thoughts and feelings. By engaging with the outside world (e.g., plants) through therapeutic horticulture, one can also begin to tune into their internal environment, without judgment; individuals can “turn inside-out, loosening the psyche from its confinement within a strictly human sphere, freeing sentience to return to the sensible world that contains us” (Adams, 2010b, p. 29).

Therapeutic horticulture within an ACT framework would likely be particularly salient for clients who endorse values around connecting with nature. According to a recent report from the Environmental Protection Agency, Americans spend around 90% of their time indoors (Environmental Protection Agency [EPA], 2022). This staggering percentage can be especially detrimental for individuals who endorse values around being in nature as it means that 90% of their time is spent in contradiction to their values. While ACT could help individuals radically accept the pain associated with spending so much time indoors, therapeutic horticulture could simultaneously help clients take committed action towards their values as it actively incorporates

one's connection to nature within the therapeutic process through the use of horticultural practices.

### **Botanical (Clinical) Illustration**

Therapeutic horticulture has been shown to lead to positive outcomes in multiple psychiatric populations, including individuals struggling with trauma-related disorders such as Post-Traumatic Stress Disorder (PTSD; Wise, 2018). Studies have shown that, just as there is a connection between humans and their natural environment, there is a significant correlation between affective/cognitive symptoms of PTSD and physical/neurological reactions; there is a significant brain-body correlation in the experience of PTSD (Van Der Kolk, 2015). PTSD can lead to physiological dysregulation which evokes various dysregulated emotional and cognitive responses, reducing the capacity for accurate reality-testing (Lorber, 2011). Traumatic memories can be understood as being held within a mind/brain/body communication, and thus addressing all three is integral to emotional regulation (Van Der Kolk, 2015). Because of these complex interactions, some practitioners are calling for a shift in therapeutic assumptions in order to better address this mind/brain/body connection in the treatment of PTSD and trauma-related disorders (Van Der Kolk, 2015).

In his book, *The Body Keeps Score*, Van Der Kolk (2015) explains the importance of engaging the body's visceral "safety system" before attempting to address one's thoughts, feelings, or memories. Moreover, he explains that it is not uncommon for traumatized individuals to get stuck in a fight/flight/freeze mode (Van Der Kolk, 2015). This overactivation of the sympathetic nervous system (fight/flight) or dorsal vagal complex (freeze) soon becomes inhibitory rather than adaptive. Van Der Kolk explains that rhythmic movement can begin to address the body's reaction to traumatic memories, leading the body to relax, creating a safe

space in which social engagement can re-emerge as a way to further address the mind/brain reaction to trauma (Van Der Kolk, 2015). This mind/brain/body/nature connection is addressed through the use of therapeutic horticulture (Roszak, 2001).

For example, the restorative effects of nature have been shown to help re-regulate the autonomic nervous system (Lorber, 2011) and thus reduce stress related to fight/flight reactions. This restorative effect is seen in many ways. One explanation is the Attention Restoration Theory (ART). This theory states that cognitive functioning in a natural environment is different from day-to-day functioning in that it calls for a more indirect form of attention guided by visual aesthetics and sensory contact. This subsequently has restorative effects on cognitive functioning and stress reduction (M. Jordan, 2014). The focus on the here-and-now of gardening and plant care activities also aids in both physical and cognitive regulation when working with PTSD. For example, declarative memories (i.e., memories of various events) are held in a different part of the brain than nondeclarative memories (i.e., skills and procedures). Therefore, by recounting traumatic events while simultaneously doing skills-based activities, the individual is better able to differentiate the memory from the reality of the here-and-now. In other words, the human-plant interaction offers a tangible, tactile way for the body and brain to differentiate past memories from the present. This can help promote a sense of safety and reduce stress, thus subsequently facilitating increased self-regulation (Lorber, 2011).

Overall, therapeutic horticulture creates a physical safe space in which to facilitate insight into repressed traumatic memories by differentiating memories from the here-and-now through the tactile experience of horticultural activities. It also offers an individual the opportunity to connect with nature, allowing them a corrective experience of security and safety within their environment. Therapeutic horticulture thus begins to address relational aspects of trauma by

re-connecting individuals to others, themselves, and their natural environments. In this, it addresses several diagnostic criteria of PTSD outlined by the American Psychological Association: disconnection from one's body or one's surroundings (i.e., derealization and depersonalization) (APA, 2013), "feelings of detachment or estrangement from others" (APA, 2013, p. 272), and "Persistent and exaggerated negative beliefs or expectations about oneself, others, or the world" (APA, 2013, p. 272). Overall, therapeutic horticulture can leverage psychological perspectives to understand the presentation of an individual struggling with a trauma-related disorder such as PTSD.

### **Conclusion**

As a person-centered field of study, psychology has an ethical and moral obligation to constantly be adapting to our changing world. In the face of the current climate crisis, this means expanding our conceptualization of therapy to include the natural world around us. The inclusion of therapeutic horticulture into clinical practice provides an avenue in which to do just that. As an intervention, therapeutic horticulture can be adapted to a wide range of psychological theories and thus can be appropriately incorporated into clinical psychotherapy. However, in order to ensure competent practice, one must go beyond theoretical relevance to clearly define core-competencies, standards, and guidelines for the use of therapeutic horticulture within clinical psychology; such as will be done in the book following the completion of this dissertation. It is thus the hope that this dissertation and subsequent works will serve as the impetus for additional research and publications to further encourage the inclusion of therapeutic practice into clinical psychotherapeutic practices.

Through the incorporation of therapeutic horticulture into clinical practice, psychologists have the opportunity to re-connect clients to the world around them and subsequently to

themselves. It is through this individual re-connection, that psychologists can also act as the catalyst for a larger societal shift, addressing environmental and social injustices. As with any major shift in the history of psychology, it is impossible to untangle the impact of our environments from our clinical work and research. It is my hope that the field of psychology will continue to bring attention to the impact of the climate crisis and the importance of climate justice in an effort to further the efficacy of our field as well as to meet the existential crisis we face as a planet.

## References

- Adams, W. W. (2010a). Bashō's therapy for narcissus: Nature as intimate other and transpersonal self. *Journal of Humanistic Psychology, 50*(1), 38–64. <https://doi.org/10.1177/0022167809338316>
- Adams, W. W. (2010b). Nature's participatory psyche: A study of consciousness in the shared earth community. *The Humanistic Psychologist, 38*(1), 15–39. <https://doi.org/10.1080/08873261003635708>
- American Board of Professional Psychology. (2020). Competency requirements: Foundational and functional. <https://www.abpp.org/Applicant-Information/Foundational-Functional-Competencies.aspx>
- American Horticultural Therapy Association. (2015). Standards of practice for horticultural therapy. [https://www.ahta.org/assets/docs/ahta\\_standards\\_of\\_practice.pdf](https://www.ahta.org/assets/docs/ahta_standards_of_practice.pdf)
- American Horticultural Therapy Association. (2020a). Definitions and Positions. <https://www.ahta.org/ahta-definitions-and-positions>
- American Horticultural Therapy Association. (2020b). History of horticultural therapy: History and practice. Retrieved from <https://www.ahta.org/history-of-horticultural-therapy>
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). American Psychiatric Publishing. <https://doi.org/10.1176/appi.books.9780890425596>
- American Psychological Association. (2004). Developing and evaluating standards and guidelines related to education and training in psychology: Context, procedures, criteria, and format. <https://www.apa.org/about/policy/bea-guidelines.pdf>
- American Psychological Association. (2012). A practical guidebook for the competency benchmarks. <https://www.apa.org/ed/graduate/guide-benchmarks.pdf>
- American Psychological Association. (2017). Ethical principles of psychologists and code of conduct. <https://www.apa.org/ethics/code/ethics-code-2017.pdf>
- Berman, M. G., Stier, A. J., & Akcelik, G. N. (2019). Environmental neuroscience. *The American Psychologist, 74*(9), 1039–1052. <https://doi.org/10.1037/amp0000583>
- Bienz, D. R. (1980). *The why and how of home horticulture*. W. H. Freeman.
- Bronfenbrenner, U. (1989). *Ecological systems theory*. Oxford University Press.
- Brown, L. S. (2018). *Feminist therapy* (2<sup>nd</sup> ed.). American Psychological Association.

- Buecker, S., Mund, M., Chwastek, S., Sostmann, M., & Luhmann, M. (2021). Is loneliness in emerging adults increasing over time? A preregistered cross-temporal meta-analysis and systematic review. *Psychological Bulletin, 147*(8). <https://doi.org/10.1037/bul0000332>
- Buzzell, L., & Chalquist, C. (2009). *Ecotherapy: Healing with nature in mind*. Sierra Club Books.
- Cooley, S. J., Jones, C. R., Kurtz, A., & Robertson, N. (2020). “Into the wild”: A meta-synthesis of talking therapy in natural outdoor spaces. *Clinical Psychology Review, 77*, 101841. <https://doi.org/10.1016/j.cpr.2020.101841>
- de Seixas, M., Williamson, D., Barker, G., & Vickerstaff, R. (2017). Horticultural therapy in a psychiatric in-patient setting. *BJPsych International, 14*(4), 87–89. <https://doi.org/10.1192/S2056474000002087>
- Detweiler, M. B., Sharma, T., Detweiler, J. G., Murphy, P. F., Lane, S., Carman, J., Chudhary, A. S., Halling, M. H., & Kim, K. Y. (2012). What is the evidence to support the use of therapeutic gardens for the elderly? *Psychiatry Investigation, 9*(2), 100–110. <https://doi.org/10.4306/pi.2012.9.2.100>
- Diamond, I., & Orenstein, G. (1990). *Reweaving the world: The emergence of ecofeminism*. Sierra Club Books.
- Environmental Protection Agency. (2022, July). *Indoor air quality: What are the trends in indoor air quality and their effects on human health?* United States Environmental Protection Agency. <https://www.epa.gov/report-environment/indoor-air-quality#note1>
- Frey, L. L. (2013). Relational-cultural therapy: Theory, research, and application to counseling competencies. *Professional Psychology: Research and Practice, 44*(3), 177–185. <https://doi.org/10.1037/a0033121>
- Germer, C. K., Siegel, R. D., & Fulton, P. R. (Eds.). (2013). *Mindfulness and psychotherapy* (2<sup>nd</sup> ed.). Guilford Press.
- Greenleaf, A. T., Bryant, R. M., & Pollock, J. B. (2014). Nature-based counseling: Integrating the healing benefits of nature into practice. *International Journal for the Advancement of Counseling, 36*(2), 162–174. <https://doi.org/10.1007/s10447-013-9198-4>
- Griffiths, A. E., & Griffiths, L. W. (1976). Healing through horticulture. *Journal of Leisureability, 3*(1), 29–35. <https://psycnet.apa.org/record/1978-25539-001>
- Haller, R. L., & Capra, C. L. (Eds.). (2017). *Horticultural therapy methods: Connecting people and plants in health care, human services, and therapeutic programs* (2<sup>nd</sup> ed.). CRC Press.



- Haller, R. L., Kennedy, K. L., & Capra, C. L. (2019). *The profession and practice of horticultural therapy*. CRC Press. <https://doi.org/10.1201/9781315143101>
- Harper, N., Rose, K., & Segal, D. (2019). *Nature-based therapy: A practitioner's guide to working outdoors with children, youth, and families*. New Society.
- Harris, H. (2017). The social dimensions of therapeutic horticulture. *Health & Social Care in the Community*, 25(4), 1328–1336. <https://doi.org/10.1111/hsc.12433>
- Harris, R. (2019). *Act made simple: An easy-to-read primer on acceptance and commitment therapy* (2<sup>nd</sup> ed.). New Harbinger Publications.
- Hassink, J., & Van Dijk, M. (Eds.). (2006). *Farming for health: Green-care farming across Europe and the United States of America*. Springer.
- Horney, K. (1946). *Our inner conflicts: A constructive theory of neurosis*. W.W. Norton & Co.
- Huppertz, M., & Schatanek, V. (2017). *Mindfulness in nature: 84 nature-oriented exercises & theoretical foundations*. CreateSpace Independent Publishing Platform.
- Johnson, L. M. (Ed.). (2019). *Wisdom engaged: Traditional knowledge for northern community well-being* (Vol. 3). Polynya Press.
- Jordan, J. V. (2003). A relational-cultural model: Healing through mutual empathy. *Bulletin of the Menninger Clinic*, 65(1), 92–103. <https://doi.org/10.1521/bumc.65.1.92.18707>
- Jordan, J. (1991). The movement of mutuality and power. *Work in Progress*, 1-11. <https://growthinconnection.org/wp-content/uploads/2021/03/1991MovementofMutualityandPower.pdf>
- Jordan, J. (2018). *Relational-cultural therapy*. (2<sup>nd</sup> ed.). American Psychological Association. <https://doi.org/10.1037/0000063-000>
- Jordan, M. (2014). *Nature and therapy: Understanding counseling and psychotherapy in outdoor spaces*. Routledge. <https://doi.org/10.4324/9781315752457>
- Jordan, M., & Hinds, J. (2016). *Ecotherapy: Theory, research and practice*. Bloomsbury Academic. <https://doi.org/10.1057/978-1-137-48688-2>
- Jung, C. G. (1973). *On the nature of the psyche*. (R. F. C. Hull, Trans.) (Ser. Bollingen series, 20). Princeton University Press.
- Jung, C. G., & Sabini, M. (2002). *The earth has a soul: C.G. Jung on nature, technology, and modern life*. North Atlantic Books.
- Kimmerer, R. W. (2013). *Braiding sweetgrass*. Milkweed Editions.

- Knoop, H. H. (2014). *Positive psychology*. Aarhus University Press.  
<https://doi.org/10.2307/j.ctv62hgdb>
- Kottler, J. A. (1991). *The compleat therapist*. Jossey-Bass.
- Lorber, H. Z. (2011). The use of horticulture in the treatment of post-traumatic stress disorder in a private practice setting. *Journal of Therapeutic Horticulture*, 21(1) 18-29.  
<https://www.jstor.org/stable/24863533>
- Majuri, C. E. (2002). Proposing horticultural therapy programs in residential or day treatment facilities. *Journal of Therapeutic Horticulture*, 13, 82–89.  
<http://www.jstor.org/stable/44025051>
- May, R. (1960). Existential bases of psychotherapy. *American Journal of Orthopsychiatry*, 30(4), 685–695. <https://doi.org/10.1111/j.1939-0025.1960.tb02086.x>
- May, R. (1981). *Freedom and destiny*. W.W. Norton & Company.
- McDowell, M. J. (1997). *The role and application of horticultural therapy with institutionalized older people*. McGill University.
- Messer, S., & Gurman, A. (2011). *Essential psychotherapies: Theory and practice* (3<sup>rd</sup> ed.). The Guilford Press.
- Miller, J. B. (1976). *Toward a new psychology of women*. Beacon Press.
- Monroe, L. (2015). Horticulture therapy improves the body, mind, and spirit. *Journal of Therapeutic Horticulture*, 25(2), 33–40. <https://www.jstor.org/stable/24865266>
- Pfeffer, J. C., Deyton, D. E., & Fly, J. M. (2009). Survey of horticultural therapy programs in tennessee. *Journal of Therapeutic Horticulture*, 19, 24–44.
- Pitchford, D. B. (2009). The existentialism of Rollo May: An influence on trauma treatment. *Journal of Humanistic Psychology*, 49(4), 441–461.  
<https://doi.org/10.1177/0022167808327679>
- Reed, C. L. (2015). *The origins, development and perceived effectiveness of horticulture-based therapy in Victoria*. Retrieved from:  
<https://pdfs.semanticscholar.org/f62a/5ad0a021ca0ffe1e5690debaa1aabf80cf56.pdf>
- Relf, D. (2021, October 29-30). *Hortophilia hypothesis* [Poster Presentation and Speaker]. IPPS/AHTA/ISHS Joint Symposium, online.
- Rogers, C. R. (1952). “Client-centered” psychotherapy. *Scientific American*, 187(5), 66–75.  
<https://doi.org/10.1038/scientificamerican1152-66>

- Roszak, T. (2001). *The voice of the earth: An exploration of ecopsychology* (2nd ed.). Phanes.
- Roszak T., Gomes, M. E., & Kanner A. D. (Eds.). (1995). *Ecopsychology: Restoring the Earth, Healing the Mind*. Sierra Club Books.
- Sahlin, E., Matuszczyk, J. V., Ahlborg, G., Jr., & Grahn, P. (2012). How do participants in nature-based therapy experience and evaluate their rehabilitation? *Journal of Therapeutic Horticulture*, 22(1), 8–23. <https://www.jstor.org/stable/24865211>
- Searles, H. F. (1960). *The nonhuman environment*. International University Press.
- Seligman, M. E. P. (2003). Positive psychology: Fundamental assumptions [Editorial]. *The Psychologist*, 16(3), 126–127.
- Seligman, M. E. P. (2011). *Flourish: A visionary new understanding of happiness and well-being*. Free Press.
- Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, 55(1), 5–14. <https://doi.org/10.1037/0003-066X.55.1.5>
- Sempik, J., Rickhuss, C., & Beeston, A. (2014). The effects of social and therapeutic horticulture on aspects of social behaviour. *British Journal of Occupational Therapy*, 77(6), 313–319. <https://doi.org/10.4276/030802214X14018723138110>
- Simson, S., & Straus, M. (1997). *Horticulture as therapy: Principles and practice*. CRC Press.
- Siu, A. M. H., Kam, M., & Mok, I. (2020). Horticultural therapy program for people with mental illness: a mixed-method evaluation. *International Journal of Environmental Research and Public Health*, 17(3). <https://doi.org/10.3390/ijerph17030711>
- Smith, D. (1998). Horticultural therapy: The garden benefits everyone. *Journal of Psychosocial Nursing & Mental Health Services*, 36(10), 14–21. <https://doi.org/10.3928/0279-3695-19981001-12>
- Suzuki, D., & Knudtson, P. (1992). *Wisdom of the elders: Honoring sacred native visions of nature*. Bantam Books.
- Thomas, L. (2022). *The intersectional environmentalist: How to dismantle systems of oppression to protect people and planet*. Voracious.
- Thomas, S. P. (2014). Therapeutic horticulture deserves wider implementation. *Issues in Mental Health Nursing*, 35(3), 155. <https://doi.org/10.3109/01612840.2014.883790>

- Tompkins, P., & Bird, C. (1972). *The secret life of plants: A fascinating account of the physical, emotional, and spiritual relations between plants and man*. Harper and Row Publishers Inc.
- Ulrich, R. S., Simons, R. F., Losito, B. D., Fiorito, E., Miles, M. A., & Zelson, M. (1991). Stress recovery during exposure to natural and urban environments. *Journal of Environmental Psychology, 11*(3), 201–230. [https://doi.org/10.1016/S0272-4944\(05\)80184-7](https://doi.org/10.1016/S0272-4944(05)80184-7)
- Van Den Berg, A. E., & Custers, M. H. G. (2011). Gardening promotes neuroendocrine and affective restoration from stress. *Journal of Health Psychology, 16*(1), 3–11. <https://doi.org/10.1177/1359105310365577>
- Van der Kolk, B. A. (2015). *The body keeps the score: Brain, mind, and body in the healing of trauma*. Penguin Books.
- Van Gordon, W., Shonin, E. & Richardson, M. (2018). Mindfulness and nature. *Mindfulness, 9*, 1655–1658. <https://doi.org/10.1007/s12671-018-0883-6>
- Walton, G. M., Cohen, G. L., Cwir, D., & Spencer, S. J. (2012). Mere belonging: The power of social connections. *Journal of Personality and Social Psychology, 102*(3), 513–532. <https://doi.org/10.1037/a0025731>
- Wampold, B. E. (2019). *The basics of psychotherapy: An introduction to theory and practice* (2<sup>nd</sup> ed.). American Psychological Association. <https://doi.org/10.1037/0000117-000>
- Watson, D. P., & Burlingame, A. W. (1960). *Therapy through horticulture*. Macmillan.
- Williams, F. (2017). *The nature fix: Why nature makes us happier, healthier, and more creative* (Norton paperback). W.W. Norton & Company.
- Wise, J. (2018). *Digging for victory: Horticultural therapy with veterans for post-traumatic growth*. Routledge.
- Yalom, I. D. (1980). *Existential psychotherapy*. Basic Books.
- Yalom, I. D. (2008). Staring at the sun: Overcoming the terror of death. *The Humanistic Psychologist, 36*(3-4), 283–297. <https://doi.org/10.1080/08873260802350006>
- Yalom, I. D., & Josselson, R. (2013). Existential psychotherapy. In D. Wedding & R. Corsini (Eds.), *Current psychotherapies* (pp. 265–293). Cengage Learning.
- Yunt, J. D. (2001). Jung's contribution to an ecological psychology. *Journal of Humanistic Psychology, 41*(2), 96–121. <https://doi.org/10.1177/0022167801412007>