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Between the Front and the Home: A Nature-Based Therapeutic Program for Service Members in Active Conflict Zones Experiencing Recurrent Transitions Between Combat and Civilian Life

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Abstract

Service members in protracted conflict zones, particularly reservists, frequently move between active combat duty and civilian life multiple times within a single conflict episode, often on short notice and without a defined endpoint. The dominant frameworks of military mental health, including the deployment cycle model, post-deployment psychoeducation, and trauma-focused psychotherapy, were largely developed under the assumption of a single, definable return and do not adequately address the chronic uncertainty, anticipatory burden, and regulatory demands imposed by recurrent and unpredictable transitions. This study proposes a nature-based therapeutic framework designed specifically for this clinical situation. Drawing on Stress Reduction Theory, Attention Restoration Theory, the biophilia hypothesis, the construct of continuous traumatic stress, and the empirical record of nature-based interventions for veteran populations, including forest bathing, mountain therapy, blue-space practice, therapeutic horticulture, and wilderness therapy, the framework integrates these literatures into a coherent intervention organized around cyclicality rather than closure. The program is structured in five recurring phases that follow the actual movement of the service member between front and home: a standby civilian phase, a mobilization transition, an active operational phase, a demobilization transition, and a return civilian phase. Six guiding principles structure the framework: cyclicality, graded dose, geographic flexibility, low threshold and recreational framing, portability of internal resource, and ecological inclusion of family and peers. Five activity categories, including immersive natural environment exposure, active nature-based physical engagement, therapeutic horticulture, short-dose urban nature exposure, and internalized nature practice, can be instantiated in landscape-appropriate forms across forested, mountainous, coastal, urban, and arid environments. Continuity across cycles is supported by stable settings, sustained facilitator and group relationships, and portable internal practices including sensory anchors and nature connectedness. The framework is offered as a complement to evidence-based trauma-focused care rather than as a substitute. Empirical evaluation, mechanistic research, and qualitative inquiry are needed to refine and validate the framework. Its central claim is that in conditions of recurrent transition, recovery cannot be organized around closure, and that nature, with its slow rhythms and persistent presence, offers a distinctive form of continuity within discontinuity that may be especially well suited to those whose lives oscillate between two radically different ecologies of meaning, behavior, and arousal.

Keywords: nature-based therapy, ecotherapy, military reservists, combat-related stress, recur-

rent deployment, continuous traumatic stress, forest bathing, therapeutic horticulture, post-traumatic stress disorder, conflict zones

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1. Introduction

Active conflict zones produce a distinctive psychological situation that the existing post-deployment literature has only partially addressed. In conventional accounts of military service, deployment is conceptualized as a relatively bounded period that begins with mobilization, proceeds through a discrete operational phase, and ends with a homecoming followed by reintegration into civilian life (Adler et al., 2011; Bowling & Sherman, 2008). This linear framework underlies most established post-deployment interventions, including psychoeducational programs, debriefings, and trauma-focused therapies (Adler et al., 2009, 2011). However, in regions of protracted armed conflict, service members, particularly reservists, frequently move back and forth between the front and the home several times within a single conflict episode, often on short notice and without a defined endpoint (Neria et al., 2025; Shelef et al., 2025). The boundary between deployment and civilian life becomes porous, and the very notion of a single "return" loses its explanatory power.

This pattern of repeated, often unpredictable transitions imposes psychological demands that differ in kind, not only in degree, from those associated with a one-time return from combat. A service member who has just resumed family routines may be recalled within hours; another who has been in the field for weeks may be released home with little warning, only to be summoned back days later. The civilian on a brief leave does not know whether tomorrow will bring another mobilization order, and the soldier in the field does not know whether a ceasefire will return them to their family. The chronic uncertainty, the absence of a clear "after," and the need to repeatedly adapt to two radically different ecologies of meaning, behavior, and arousal generate a clinical situation that does not map cleanly onto either acute combat stress or post-deployment readjustment as those constructs are typically defined (Eagle & Kaminer, 2013; Greene et al., 2018).

Israel since October 2023 offers a particularly stark example of this configuration. Hundreds of thousands of reservists have been mobilized and demobilized multiple times, with rounds of duty followed by short returns home and subsequent recalls (Neria et al., 2025). Studies conducted during the war document substantial post-traumatic symptomatology among reserve soldiers, with broader nationwide surveys also showing sharp increases in probable PTSD, depression, and anxiety across the general Israeli population in the aftermath of the attack (Levi-Belz et al., 2024; Shelef et al., 2025). Yet analogous patterns can be identified in other protracted conflicts, including those involving Ukrainian forces, populations in southern Israel exposed to recurrent rocket fire, and various theaters in which non-state actors and conventional militaries operate within the same civilian space (Greene et al., 2018). The phenomenon is therefore not parochial; it characterizes a class of conflicts in which the front and the home are spatially close, temporally interwoven, and politically unstable.

The therapeutic literature, by contrast, remains largely organized around the assumption of a definitive return. Cognitive processing therapy, prolonged exposure, and eye movement desensitization and reprocessing have strong evidence bases for post-traumatic stress disorder and are usually delivered after the trauma exposure has ended (Schnurr & Lunney, 2019). Battlemind and other post-deployment psychoeducation programs are designed for a homecoming phase of

fixed duration (Adler et al., 2009). Programs aimed at reservists similarly assume a discrete demobilization (Wang et al., 2020). Even nature-based therapies for veterans, which have grown substantially in research attention over the past two decades (Annerstedt & Währborg, 2011; Poulsen, 2017), are typically structured as multi-week or multi-month residential or outpatient programs aimed at chronic post-traumatic stress disorder, rather than as flexible companions to the cyclical movement between front and home.

Nature-based therapy is, however, particularly well suited to the specific demands of recurrent combat-civilian transitions. Its sensory and embodied character supports parasympathetic activation and arousal regulation in ways that are compatible with the hypervigilance often carried back from the front (Berto, 2014; Ulrich et al., 1991). Its capacity to be delivered in brief doses, including in urban green spaces, gardens, and short walks, lends itself to the stop-and-start temporal structure that recurrent mobilization imposes (Barton & Pretty, 2010; White et al., 2019). Its low stigma and avoidance of an explicit clinical frame address one of the most consistent barriers to help-seeking in military populations (Hoge et al., 2004; Sharp et al., 2015). And its emphasis on connection, meaning, and embodied presence speaks to dimensions of recovery, including post-traumatic growth and identity reconstruction, that pharmacological and protocol-based psychotherapies do not always reach (Poulsen et al., 2016; Tedeschi & Calhoun, 2004).

This study presents a nature-based therapeutic program designed specifically for service members experiencing recurrent transitions between active combat zones and civilian life under conditions of unpredictability. Although the program draws on the rich literatures of forest bathing, mountain therapy, wilderness therapy, blue-space interventions, therapeutic horticulture, and ecotherapy more broadly, it is constructed as a flexible framework rather than as a single setting-specific protocol. The framework is intended to be adaptable to the natural and built environments available in different conflict zones, given that not every region offers forests, mountains, or coastlines, but most regions offer some accessible form of nature, whether parks, agricultural land, semi-arid landscapes, or even small green corners of dense urban areas. Following this introduction, the article reviews the relevant literatures on the psychological consequences of recurrent military transitions, on continuous traumatic stress, on the theoretical and empirical foundations of nature-based therapy, and on its applications with veteran populations. The aim of the program is then articulated, the program itself is described in detail, and a discussion considers implementation, limitations, and directions for future research.

2. Literature Review

2.1. The Psychological Toll of Recurrent Transitions Between Front and Home

The conceptualization of military deployment as a discrete event with a clear return point has shaped both research and clinical practice. Adler and colleagues described the deployment cycle as a continuum of readiness with identifiable phases, in which reentry and reintegration constitute the culminating stage (Bowling & Sherman, 2008). This model has informed the design of programs such as Battlemind, which prepares soldiers across pre-deployment, in-theater, and post-deployment phases under the assumption of a temporally bounded operational period (Adler et al., 2009, 2011). Empirical work on this cycle has documented elevated risks of post-traumatic stress disorder, depression, alcohol misuse, and aggression in the months following return, with combat exposure consistently emerging as the most powerful predictor of adverse outcomes (Sundin et al., 2014; Zamorski & Boulos, 2014).

When deployment cycles repeat, however, the picture becomes more complex. Reservists, who form a substantial proportion of the deployed force in many modern militaries, are particularly

vulnerable to repeated transitions and the rapid alternation between civilian and combat roles (Wang et al., 2020). Compared with active-duty service members, reservists are more likely to deploy as individual augmentees, more likely to report low deployment preparedness, and more likely to face challenging reintegration to civilian work and family life soon after return (Wang et al., 2020). These structural vulnerabilities translate into measurably higher rates of post-traumatic stress disorder, depression, and binge drinking in some samples (Wang et al., 2020). The Bioecological Model of Deployment Risk and Resilience proposed by Wooten conceptualizes service members as embedded in dynamic ecological systems whose protective and risk factors operate before, during, and after the operational phase (Wooten, 2013). Within this framework, repeated deployment cycles repeatedly disrupt the same ecological systems, eroding resources that might otherwise have time to recover.

A particular feature of recurrent deployments is the anticipation of redeployment, which is itself associated with adverse psychological outcomes independent of actual exposure (Adler et al., 2011). Service members who know that they may be recalled cannot fully disengage from the operational mindset, and family members face the same uncertainty in their own preparation and grief work (Bowling & Sherman, 2008). When the timing of redeployment is unpredictable, this anticipatory burden is amplified. Research on cumulative deployments suggests that the relationship between number of deployments and mental health outcomes is not always linear, but that combat exposure within deployments and the stability of the inter-deployment period both shape long-term outcomes (Sundin et al., 2014; Zamorski & Boulos, 2014).

In the Israeli context, the war that began in October 2023 has produced an unusually clear empirical view of recurrent mobilization. Studies of reservists have documented substantial post-traumatic symptomatology, with one large-scale study indicating that approximately 12 percent of reserve soldiers who sought help from the IDF Combat Stress Reaction Unit met criteria for probable post-traumatic stress disorder following October 7th war service, with hand-to-hand combat exposure and exposure to dead bodies emerging as particularly strong correlates (Shelef et al., 2025). Reports of suicide among reservists with prior recognized post-traumatic stress disorder who were nonetheless recalled have drawn attention to the systemic costs of cycling psychologically injured personnel back to combat (Shelef et al., 2025). Neria et al. (2025) have argued that the Israeli mental health system is structurally unprepared for a population in which trauma is ongoing rather than resolved, and in which the boundary between civilian and combatant is repeatedly redrawn. Although these data are specific to one conflict, they illustrate a pattern that is likely to recur whenever protracted hostilities and reservist-based militaries coincide.

2.2. Continuous Traumatic Stress and the Limits of the Posttraumatic Frame

The phenomenology of repeated transitions cannot be fully captured by post-traumatic stress disorder as defined in the Diagnostic and Statistical Manual, which presupposes that the traumatic exposure has ended and that symptoms persist after the threat has passed (American Psychiatric Association, 2013). Eagle and Kaminer (2013) introduced the concept of continuous traumatic stress to describe the lived experience of individuals and communities for whom danger is not a memory but an ongoing reality. In such contexts, hypervigilance, emotional suppression, and avoidance may function not as pathological residues but as adaptive responses to genuine continuing threat (Eagle & Kaminer, 2013; Stevens et al., 2013).

The construct has been operationalized in research on populations exposed to chronic political violence, including residents of southern Israel near the Gaza Strip and Palestinians in the West Bank and Gaza (Greene et al., 2018; Marie et al., 2020). Greene et al. (2018) conducted a

systematic review of studies among adults living under continuous traumatic stress in southern Israel and concluded that exposure was associated with both pathology and resilience, with substantial individual variation in trajectories. A Continuous Traumatic Stress Response scale has been developed to assess symptoms specific to ongoing threat, distinguishing them from classical post-traumatic responses (Goral et al., 2021). Marie et al. (2020), reviewing anxiety and post-traumatic stress disorder in Palestine, similarly found that continuous traumatic stress predicted mental health outcomes beyond the effects captured by traditional post-traumatic measures.

Service members who alternate between front and home occupy a particular variant of this condition. Unlike civilians under continuous threat, they cycle in and out of acute exposure; unlike conventionally deployed soldiers, they do not have a defined "after" within which to consolidate a post-traumatic narrative. The home is not a fully safe rear area, and the front is not a fully encapsulated operational period. The cognitive and emotional regulatory work required to shift between these two modes of being repeatedly, and at unpredictable intervals, draws on resources that may be precisely those most depleted by combat exposure itself, including directed attention, autonomic flexibility, and the capacity for trust in stable temporal expectations (Bryant, 2019; van der Kolk, 2014).

2.3. Barriers to Help-Seeking and the Need for Low-Threshold Interventions

A consistent finding across military mental health research is that a substantial proportion of service members who could benefit from psychological treatment do not seek it. Hoge et al. (2004) documented that fewer than half of soldiers returning from Iraq with mental health problems sought professional help, with stigma identified as the dominant barrier. Subsequent reviews have confirmed and extended this finding across British, American, and other military populations, identifying public stigma, self-stigma, structural discrimination, and concerns about career consequences as interlocking obstacles (Iversen et al., 2011; Sharp et al., 2015). Approximately 60 percent of military personnel with mental health problems avoid treatment, and the most strongly endorsed concerns relate to perceived judgment by leadership and peers (Sharp et al., 2015).

These barriers are amplified in conditions of recurrent mobilization. A reservist who returns home for a brief period before another likely call-up has limited time, limited motivation to begin a clinical relationship that will be interrupted, and a strong incentive to appear functional in order not to be flagged as compromised. The very act of seeking help may be perceived, by the service member or by the institution, as evidence of unfitness for further duty. The result is that interventions which require a sustained outpatient relationship, an explicit clinical setting, and a willingness to identify as a patient may systematically fail to reach the population most affected by recurrent transitions.

Low-threshold interventions, those that do not require a clinical label, that can be entered and exited flexibly, and that draw on activities perceived as recreational or restorative rather than therapeutic, therefore occupy an important niche. Outdoor and nature-based programs have emerged in military and veteran communities partly because they offer this profile (Poulsen et al., 2016; Westlund, 2014). Veterans frequently describe such programs as more acceptable than conventional psychotherapy, and qualitative evidence suggests that participation in nature-based activities can serve as a bridge into more traditional treatment for some individuals (Caddick et al., 2015; Poulsen et al., 2016).

2.4. Theoretical Foundations of Nature-Based Therapy

Two complementary theoretical frameworks dominate the contemporary literature on the restorative effects of natural environments. Ulrich's Stress Reduction Theory proposes that exposure to non-threatening natural settings, particularly those resembling environments in which humans evolved, produces rapid reductions in physiological and affective stress through evolutionarily prepared responses (Ulrich, 1983; Ulrich et al., 1991). In a series of foundational studies, Ulrich and colleagues demonstrated that participants viewing natural scenes after a stressor recovered more quickly on autonomic measures than those viewing urban scenes (Ulrich et al., 1991), and that hospitalized patients with views of trees recovered more rapidly than those with views of brick walls (Ulrich, 1984).

Kaplan and Kaplan's Attention Restoration Theory offers a more cognitive account, proposing that natural environments support the recovery of directed attention, a finite resource depleted by the effortful, top-down focus required by modern urban and occupational life (R. Kaplan & Kaplan, 1989; S. Kaplan, 1995). Restorative environments are characterized, in this framework, by being away (psychological distance from routine demands), extent (sufficient richness to engage the mind without requiring effortful direction), fascination (a soft, effortless absorption of attention), and compatibility (a fit between the environment and the person's inclinations) (S. Kaplan, 1995). Empirical work has documented improvements in attention, working memory, and self-regulation following exposure to natural environments compared with urban ones (Berman et al., 2008; Hartig et al., 2003).

Wilson's biophilia hypothesis, originally articulated as an evolutionary argument that humans possess an innate tendency to focus on life and life-like processes, provides a broader frame within which both Stress Reduction Theory and Attention Restoration Theory can be situated (Kellert & Wilson, 1993; Wilson, 1984). Although the strongest forms of the hypothesis remain contested, meta-analytic evidence supports the central empirical claim that contact with nature is associated with positive affective responses across a wide range of populations and settings (Gaekwad et al., 2022). Nature connectedness, the subjective sense of psychological belonging to the natural world, has been proposed as a mediator linking nature contact to mental health outcomes, with adaptive emotion regulation strategies as a particularly relevant downstream variable (Gu et al., 2023; Lengieza & Swim, 2021).

For trauma populations specifically, these frameworks intersect with literatures on autonomic regulation, vagal tone, and embodied processing. Trauma is increasingly understood as a condition in which the autonomic nervous system loses flexibility, alternating between hyperarousal and hypoarousal in ways that are poorly responsive to top-down cognitive intervention (Porges, 2011; van der Kolk, 2014). Natural environments, with their gentle and rhythmic stimuli, have been theorized to support parasympathetic activation and the recovery of autonomic flexibility, providing a sensory and embodied scaffolding for regulation that does not require verbal processing (Berto, 2014; Shirazi et al., 2024). The implication is that nature-based interventions may be especially valuable for populations whose primary symptoms are arousal-based and whose access to verbal processing is intermittent, conditions that describe service members in recurrent combat-civilian transitions with notable accuracy.

2.5. Empirical Evidence on Nature-Based Therapy for Veterans and Trauma Populations

The application of nature-based therapy to veterans has a long and varied history. Annerstedt and Währborg (2011) identified the use of horticultural and garden-based activities for soldiers suffering from shell shock during and after World War I as an early instance of what is now

called nature-assisted therapy. Contemporary research on veteran populations has examined a wide range of modalities, including therapeutic horticulture, wilderness expeditions, fly fishing, surfing, equine-assisted therapy, and forest-based therapy gardens (Greer & Vin-Raviv, 2019; Poulsen et al., 2016).

Gelkopf et al. (2013) conducted one of the first randomized controlled trials of a nature-based intervention for combat-related post-traumatic stress disorder, comparing a one-year Nature Adventure Rehabilitation program with a waiting-list control among Israeli veterans with chronic combat-related post-traumatic stress disorder. Significant improvements were observed in post-traumatic symptoms, depression, social and emotional quality of life, hope, and perceived control over illness; change in post-traumatic symptoms was contingent on change in perceived control (Gelkopf et al., 2013). Subsequent research has extended these findings. Poulsen et al. (2016) conducted qualitative interviews with veterans participating in a ten-week nature-based intervention in a forest therapy garden and identified themes of bodily symptom relief, repaired relationships, identity reconstruction, future orientation, and lasting lessons. Building on an intensive two-week treatment program for military personnel and veterans with post-traumatic stress disorder (Bryan et al., 2018), Bettmann et al. (2021) examined daily time spent outdoors during that program and found that more outdoor time within individuals predicted greater reduction in post-traumatic symptoms.

A meta-analysis and systematic review by Genç and Yalçınkaya Alkar (2025) examined the effectiveness of nature-based interventions for post-traumatic stress disorder across heterogeneous populations and concluded that such interventions produced moderate reductions in symptoms. Bettmann et al. (2024) found in a meta-analysis that nature exposure, even in doses as brief as ten minutes, produced short-term mental health benefits in adults with mental illness. Caddick et al. (2015), using narrative analysis of UK combat veterans participating in a surfing charity, described surfing as facilitating an embodied "respite" from post-traumatic stress disorder, organized around the concept of the "blue gym." Walter et al. (2023) demonstrated, in a randomized controlled trial of surf and hike therapy for active-duty service members with major depressive disorder, that both modalities produced clinically meaningful reductions in depressive symptoms, with surf therapy showing some advantages on certain outcomes.

Forest bathing, or shinrin-yoku, has accumulated a particularly substantial physiological evidence base in Japanese research. Park et al. (2010), in field experiments across twenty-four forests, documented reductions in salivary cortisol, blood pressure, and pulse rate following forest exposure compared with urban exposure, accompanied by increases in parasympathetic and decreases in sympathetic nervous activity. Tsunetsugu et al. (2010) reviewed the development of shinrin-yoku research in Japan and the establishment of forest medicine as a distinct field. Subsequent research has examined forest bathing for depression, anxiety, burnout, and stress, with generally positive findings on psychological outcomes although physiological findings have been more mixed in non-Japanese samples (Furuyashiki et al., 2019; Kavanaugh et al., 2022).

Mountain therapy, river running, hiking expeditions, and other forms of outdoor adventure programming for veterans have produced a more variable but generally encouraging evidence base. Scheinfeld et al. (2017) found that an Outward Bound program for male military veterans produced improvements in psychosocial functioning. Hyer et al. (1996) had earlier shown that an Outward Bound experience added to inpatient post-traumatic stress disorder treatment produced incremental benefits. Therapeutic horticulture has likewise been studied across both veteran and civilian populations, with a meta-analysis by Wood et al. (2025) finding that social and therapeutic horticulture reduced symptoms of depression and anxiety across diverse samples.

2.6. Toward Adaptable Nature: Beyond Forests, Mountains, and Coasts

A practical limitation of much of this literature is its dependence on specific landscape types that are not universally available. Forest bathing presupposes forests; mountain therapy presupposes mountains; surf therapy presupposes coasts; wilderness therapy presupposes wilderness. Conflict zones, however, occur in every kind of geography. Some are densely urban, some are arid or semi-arid, some are coastal, and some are mountainous, but few are all of these at once. A program designed to be deployable across the global population of conflict zones therefore cannot be tied to a single landscape type.

Fortunately, the underlying mechanisms identified by Stress Reduction Theory, Attention Restoration Theory, and the biophilia hypothesis do not require any specific landscape; they require contact with environments that contain natural features, that are perceived as non-threatening, and that engage soft fascination (S. Kaplan, 1995; Ulrich et al., 1991). Empirical work supports the broader applicability of these mechanisms. Urban green spaces, including parks, gardens, and tree-lined streets, have been shown to produce measurable mental health benefits, with effects that scale with the dose and quality of exposure (Astell-Burt & Feng, 2019; White et al., 2019). White et al. (2019), in a large-scale study, found that spending at least 120 minutes a week in nature, broadly defined, was associated with significantly higher self-reported health and well-being. Barton and Pretty (2010), in their multi-study analysis of green exercise, demonstrated dose-response relationships between time in nature and improvements in mood and self-esteem across a range of activities and settings.

Therapeutic horticulture, which can be implemented in small gardens, balconies, courtyards, or community plots, has been validated as an accessible form of nature-based intervention even in settings where larger natural areas are unavailable (Wood et al., 2025). Care farming, blue-space interventions in urban water features, and structured walking in even modest urban parks have all shown benefits (Astell-Burt & Feng, 2019; Caddick et al., 2015). The principle that emerges is one of graded, scalable nature contact: the optimal intervention may involve immersive wilderness experience for some, but a meaningful minimum can be achieved with a small park, a community garden, or a single tree.

This principle is particularly important for service members in conflict zones, where movement may be restricted, where extensive wilderness may be unavailable or unsafe, and where the natural environments accessible to a person on a brief leave may consist of a neighborhood park or a back garden. A flexible program must therefore be capable of meaningful delivery across this entire spectrum, from a fifteen-minute visit to an urban park to a multi-day expedition in available wilderness, with mechanisms for continuity across the recurring cycles of mobilization and return.

2.7. Synthesis: Why Nature-Based Therapy Fits Recurrent Transitions

Bringing these literatures together yields a coherent rationale for a nature-based program tailored to service members experiencing recurrent transitions. First, the dose-response flexibility of nature-based interventions, from minutes in an urban park to weeks in wilderness, fits the unpredictable temporal structure of recurrent mobilization in ways that fixed-duration outpatient protocols do not (Barton & Pretty, 2010; White et al., 2019). Second, the autonomic and attention-restorative mechanisms of nature exposure target precisely the regulatory capacities most depleted by combat exposure and most necessary for transitions (Berto, 2014; S. Kaplan, 1995). Third, the low stigma and recreational framing of nature-based activities address the help-seeking barriers that are most acute among reservists facing recall (Caddick et al., 2015; Sharp et al., 2015). Fourth, the embodied, sensory character of nature contact provides

regulation pathways that do not require sustained verbal processing, which is particularly valuable for individuals whose access to therapy is intermittent and whose verbal capacity may be compromised by acute combat exposure (Shirazi et al., 2024; van der Kolk, 2014). Fifth, the explicit cultivation of nature connectedness offers a stable, portable resource that the service member can carry across the front-home boundary, providing continuity in a context defined by discontinuity (Gu et al., 2023; Lengieza & Swim, 2021).

These mechanisms are necessary but not sufficient. They must be organized into a coherent program that addresses the specific phases and transitions of recurrent mobilization, that is robust to interruption, and that is implementable across diverse landscapes. The program described in this study attempts that organization.

3. Aim of the Program

The aim of the program presented in this study is to provide a flexible, mechanism-based, low-threshold nature-based therapeutic framework for service members in protracted conflict zones who experience recurrent and often unpredictable transitions between active combat duty and civilian life. Specifically, the program seeks to: (a) support autonomic regulation and attentional recovery during the brief windows of return to civilian life; (b) cultivate a portable nature connectedness that can serve as a regulatory and meaning-making resource across the front-home boundary; (c) reduce the help-seeking barriers associated with recurrent mobilization by offering an accessible, recreational entry point that does not require a clinical identity; (d) prepare the service member for the next, often unpredictable, recall in ways that reduce the psychological cost of anticipatory uncertainty; (e) provide families and small peer units with a shared restorative practice that can integrate the multiple stakeholders affected by recurrent transitions; and (f) remain implementable across a wide range of geographies, with calibrated activities for forested, mountainous, coastal, urban, and arid environments. The program is intended as a complement to, not a replacement for, evidence-based trauma-focused psychotherapy and pharmacological treatment for service members who meet criteria for post-traumatic stress disorder, depression, or other clinical conditions.

4. The Program: A Cyclical Nature-Based Framework for Recurrent Combat-Civilian Transitions

4.1. Guiding Principles

The program rests on six guiding principles that structure its content, timing, and delivery. The first is cyclicality. Rather than organizing the intervention around a single endpoint, the program is built as a recurring cycle whose phases correspond to the actual movement of the service member between front and home. Each return is an entry point and each recall is an exit point, but neither is final, and the program persists across the cycle as a continuing thread.

The second principle is graded dose. Drawing on the dose-response evidence in the nature-exposure literature (Barton & Pretty, 2010; White et al., 2019), the program offers activities calibrated to the time available, ranging from brief urban green-space exposure to multi-day immersive experiences. The minimum effective dose is set deliberately low so that even a service member with only a few hours of leave can engage meaningfully.

The third principle is geographic flexibility. The program is articulated as a set of mechanism-based activity categories, each of which can be instantiated in whichever natural environment is locally available. Forest bathing, mountain therapy, blue-space practice, therapeutic horticulture, and urban green-space walking are treated as equivalent vehicles for the same underlying restorative and connective processes, allowing local implementers to choose vehicles that fit their

geography (Park et al., 2010; Wood et al., 2025).

The fourth principle is low threshold and recreational framing. Activities are presented as restorative practices rather than as clinical treatment, and entry does not require a diagnosis or a referral. This addresses the well-documented stigma barriers in military populations (Hoge et al., 2004; Sharp et al., 2015) while leaving open the option of more intensive clinical engagement for those who need it.

The fifth principle is portability of resource. The program explicitly cultivates nature connectedness, embodied regulation skills, and sensory anchors that the service member can carry from one phase of the cycle to the next. This addresses the discontinuity that defines recurrent transitions by providing a continuous internal resource that travels across the boundary between front and home (Lengieza & Swim, 2021).

The sixth principle is ecological inclusion of the broader system. Recurrent mobilization affects not only the service member but also family members, peer units, and employers. The program incorporates family-inclusive and peer-based components that reflect the bioecological model of deployment risk and resilience (Wooten, 2013) and recognize that transitions are accomplished by systems, not individuals alone.

4.2. Structure: A Five-Phase Cyclical Framework

The program is organized into five phases that correspond to the recurrent cycle of mobilization and return. Unlike linear deployment programs, in which each phase is traversed once, in this framework phases recur with each cycle, and the work done in earlier cycles deepens the resources available in later ones. The five phases are: (1) the standby civilian phase, in which the service member is at home but may be recalled; (2) the mobilization transition, the brief period between recall and arrival at the front; (3) the active operational phase at the front; (4) the demobilization transition, the brief period between release and arrival home; and (5) the return civilian phase, which overlaps in practice with a renewed standby phase. The phases are presented sequentially below, but the framework is genuinely cyclical, and a service member entering the program may begin at any phase.

4.2.1 Phase 1: The Standby Civilian Phase

The standby civilian phase is the longest phase for most service members and the one most amenable to structured nature-based work. The service member is at home, engaged in civilian roles, but lives under the anticipation of possible recall. Anticipation of redeployment is itself associated with adverse psychological outcomes (Adler et al., 2011), and the phase is therefore not a neutral baseline but an active site of intervention.

During this phase, the program offers three principal activity streams. The first is structured weekly nature exposure, calibrated to the principle that meaningful benefits begin to accrue at approximately 120 minutes of nature contact per week (White et al., 2019). The format of this exposure is determined by local geography. In regions with accessible forests, a weekly forest bathing session of approximately two to three hours is recommended, drawing on the protocols developed in Japanese forest medicine, in which slow walking, sensory attentiveness, and unstructured presence in the forest are emphasized (Park et al., 2010; Tsunetsugu et al., 2010). In mountainous regions, structured hiking with attention to embodied sensation rather than performance can substitute (Scheinfeld et al., 2017). In coastal regions, blue-space practices including beach walking, swimming, paddling, or surfing are offered, drawing on the body of research demonstrating mood and arousal benefits of water-based natural environments (Caddick et al., 2015; Walter et al., 2023). In urban or semi-arid regions where extensive natural areas

are unavailable, the program substitutes urban park visits, community garden participation, and structured walking along tree-lined streets, drawing on evidence that urban green spaces produce measurable mental health benefits (Astell-Burt & Feng, 2019). The substitutability of these formats is explicit; the goal is the underlying mechanism of attention restoration and stress reduction (S. Kaplan, 1995; Ulrich et al., 1991), not adherence to a particular landscape.

The second activity stream is therapeutic horticulture, conceived as a continuing rather than a session-based practice. Service members are encouraged to develop and tend a small garden, whether on a balcony, in a backyard, in a community plot, or in a workplace courtyard. Therapeutic horticulture has accumulated evidence as an accessible and effective nature-based intervention for diverse populations, including military veterans (Poulsen et al., 2016; Wood et al., 2025). For service members in recurrent transitions, the garden offers a distinctive temporal advantage: it persists across mobilizations, providing a tangible thread of continuity. The growth of plants, with its slow rhythm and demand for ongoing tending, offers a counterweight to the abrupt and discontinuous rhythms of mobilization. The garden also embodies the principle of portability of resource in a literal sense, since the service member returns to a living thing that has continued to exist during their absence.

The third activity stream is the cultivation of nature connectedness as a portable internal resource. In group sessions led by trained facilitators, service members engage in guided practices that build sensory anchors, embodied awareness, and cognitive associations with natural settings, drawing on the literature suggesting that nature connectedness mediates the relationship between nature contact and emotion regulation (Gu et al., 2023; Lengieza & Swim, 2021). Specific practices include attentional anchoring to particular trees, viewpoints, or natural sounds; somatic exercises that link parasympathetic activation to sensory memories of nature; and brief written or oral reflections that link experiences in nature to personal meaning. The aim is to develop internal representations of natural environments that the service member can call on when actual nature contact is unavailable, including during the operational phase. This work draws on the polyvagal framework of trauma regulation (Porges, 2011) and on the emerging literature on nature connectedness as a mechanism rather than merely a correlate (Lengieza & Swim, 2021).

A family component runs throughout the standby civilian phase. Family members are invited to participate in a subset of nature-based activities, with the rationale that recurrent mobilization is a shared experience and that the family system carries much of the psychological work of the transitions. Shared nature contact has been associated with relational benefits in non-clinical populations and offers a non-pathologizing format for the family-level processing that recurrent transitions require.

4.2.2 Phase 2: The Mobilization Transition

When recall arrives, the service member faces a compressed window in which to disengage from civilian roles and re-engage with operational identity. This window is often only hours long, and it is psychologically demanding. The mobilization transition phase of the program is therefore brief and pragmatic, focused on tools rather than processes.

Three components are offered. The first is a brief structured nature contact, ideally lasting between fifteen and sixty minutes, intended to consolidate the parasympathetic state before the shift toward operational arousal. Even short doses of nature exposure produce measurable benefits in adults with mental health symptoms (Bettmann et al., 2024), and the goal here is not extended restoration but a final anchoring point. The format depends on what is locally available, but a walk in a familiar park, time in the home garden, or even attentive presence with a houseplant or natural view through a window can serve.

The second component is the consolidation of sensory anchors. Service members are guided to identify specific sensory elements of their nature practice, a particular birdsong, a tree they have come to know, a smell, a tactile memory, that they can bring forward as internal anchors during the operational phase. This draws on evidence that imagined natural environments can produce some of the restorative effects of actual ones (Berto, 2014) and on the broader literature on portable regulation resources in trauma populations.

The third component is a brief structured conversation with a family member or a peer about the expected duration of separation, the practical arrangements for the home and the garden during absence, and the agreed contact protocols. The aim is to externalize the practical anxieties that often colonize the mobilization transition and to leave them behind in a tangible form, rather than carrying them into the operational phase.

4.2.3 Phase 3: The Active Operational Phase

During active operations, structured nature-based therapy is largely impossible, and the service member's primary task is operational. The program nevertheless offers a presence in this phase, organized around three principles.

The first is the use of internal sensory anchors developed during earlier phases. Service members are encouraged, during pauses in operational activity, to access the consolidated anchors. This use of natural imagery as a regulatory tool is consistent with evidence that visual and imagined exposure to nature produces measurable affective and physiological effects (Berto, 2014; Gaekwad et al., 2022).

The second is brief, opportunistic contact with whatever natural elements are present in the operational environment. The combat zone is not nature-free; it contains skies, weather, plants, and animals, and the program suggests that service members maintain a quiet attentional practice of noticing these elements when circumstances permit. This is consistent with findings that even minimal nature contact, including views from windows, produces measurable benefits (Ulrich, 1984), and it offers a continuity of practice that does not depend on access to designed natural environments.

The third is peer-level practice. Within small operational units, service members who have shared the standby program may briefly reference shared nature experiences or anchors, providing a quiet form of continuity within the group. The peer dimension is particularly important in light of evidence that unit cohesion and peer support are protective against post-traumatic outcomes (Wooten, 2013) and that nature-based programs may operate in part through their group character (Caddick et al., 2015).

The program does not propose to deliver formal therapeutic activity in active combat zones, and it does not seek to replace operational mental health support, debriefing, or critical incident response. Its presence in this phase is deliberately minimal and is intended only to maintain the thread of practice across the cycle.

4.2.4 Phase 4: The Demobilization Transition

The release from operational duty back to civilian life often arrives with little warning, and the service member crosses the boundary in a state of arousal that may be poorly suited to the demands of family and civilian roles awaiting them. The demobilization transition phase of the program addresses this gap.

The phase begins, when possible, with a brief nature-based decompression activity within the first day or two of return. This may take the form of a guided walk in a familiar natural setting, a session in a therapy garden, or, where feasible, a short stay at a residential nature-based

program. The goal is to provide a buffer between the operational state and the resumption of civilian roles, allowing autonomic regulation to begin to recover before the service member is asked to function fully at home. Evidence from the Nature Adventure Rehabilitation trial (Gelkopf et al., 2013) and from outdoor adventure programs for veterans (Hyer et al., 1996; Scheinfeld et al., 2017) supports the value of structured outdoor activity in transitional periods, although these programs were designed for chronic post-traumatic stress disorder rather than for acute decompression.

The second element of the demobilization transition is a brief assessment and triage. Without medicalizing the encounter, a trained facilitator engages the service member in conversation while walking or while engaged in a horticultural activity, attending to indicators of acute distress, sleep disturbance, suicidal ideation, or substance use that would warrant referral to clinical services. This use of nature-based activity as a low-stigma vehicle for clinical contact draws on observations that veterans often find such settings more acceptable than office-based therapy (Caddick et al., 2015; Poulsen et al., 2016).

The third element is the re-engagement of the standby phase practices. The service member returns to weekly nature exposure, to the garden, and to family-inclusive activities, ideally with continuity of facilitator and group across cycles. The repetition of practices known from earlier phases provides a psychological scaffolding for re-entry that does not require the service member to construct meaning de novo each time.

4.2.5 Phase 5: The Return Civilian Phase

The return civilian phase blends, in practice, with the standby civilian phase, since the service member is now both at home and potentially subject to recall. The program treats this overlap explicitly and avoids the assumption, common in linear deployment frameworks, that return is a single event with a defined endpoint. The return civilian phase intensifies certain elements of the standby phase for a defined period after each return, including more frequent group sessions, more explicit attention to family reintegration, and more structured opportunities for narrative integration of the most recent operational experience.

Narrative integration is approached through nature-based formats rather than through pure verbal processing. Service members are invited, in the context of nature contact, to articulate what they choose to articulate about the recent operational period, and to do so in formats that are open-ended and embodied rather than protocolized. This approach is consistent with the qualitative evidence on nature-based therapy with veterans, in which themes of identity reconstruction, future orientation, and meaning emerge organically from sustained engagement with natural settings (Poulsen et al., 2016). It is also consistent with the post-traumatic growth literature, which suggests that growth can emerge from cognitive processing of trauma in supportive contexts (Tedeschi & Calhoun, 2004), although the program does not assume that growth will or should occur.

For service members who, on triage during the demobilization transition, have shown indicators of clinical-level symptoms, the return civilian phase includes structured referral to evidence-based trauma-focused psychotherapy or psychiatric care. The nature-based program is positioned explicitly as complementary to such care, not as a substitute for it. Evidence suggests that nature exposure may augment the effects of standard treatment for post-traumatic stress disorder (Bettmann et al., 2021), and the program is designed to make such augmentation feasible in practice.

4.3. Activity Categories Across Geographies

To support implementation across the heterogeneous geographies of conflict zones, the program is articulated through five activity categories, each of which can be instantiated in landscape-appropriate forms. The categories are not mutually exclusive and a given program may combine several.

The first category is immersive natural environment exposure, instantiated as forest bathing in forested regions (Park et al., 2010), structured hiking or alpine immersion in mountainous regions (Scheinfeld et al., 2017), beach and ocean exposure in coastal regions (Caddick et al., 2015), and extended urban park or nature reserve visits in regions where these are the most natural environments available.

The second category is active nature-based physical engagement, instantiated as wilderness expedition, surf therapy, mountain hiking, kayaking or paddling, or trail running, depending on geography. This category draws on the literature documenting the synergy between physical activity and natural environments (Barton & Pretty, 2010) and on evidence that adventure-based programs produce psychosocial benefits in veteran populations (Gelkopf et al., 2013; Hyer et al., 1996; Scheinfeld et al., 2017; Walter et al., 2023).

The third category is therapeutic horticulture, instantiated as garden tending in any available scale, from an apartment balcony to a community plot to a working farm. The category includes care farming where it is locally available and feasible (Wood et al., 2025).

The fourth category is short-dose urban nature exposure, instantiated as park walking, time at urban water features, attention to street trees, and presence with houseplants and natural views. This category is essential for the brief windows of the mobilization and demobilization transitions and for service members in geographies without immediate access to extensive natural areas (Astell-Burt & Feng, 2019; White et al., 2019).

The fifth category is internalized nature practice, instantiated as guided imagery, sensory anchoring, and mindfulness-of-nature meditation. This category does not require any actual nature contact at the moment of practice and is therefore deployable in operational environments and in any other circumstance where physical access is not available (Berto, 2014).

4.4. Frequency, Format, and Personnel

The program is delivered by interdisciplinary teams that include mental health professionals (clinical psychologists, social workers, or trauma-trained therapists), trained nature-based therapy facilitators (forest therapy guides, horticultural therapists, or wilderness therapy practitioners depending on activity category), and peer leaders who are themselves service members or veterans. The mental health professional anchors the clinical accountability of the program and conducts the triage in the demobilization transition. The nature-based facilitator delivers the activity content. The peer leader provides credibility and reduces the perceived clinical character of the encounter, addressing the stigma barrier directly (Sharp et al., 2015).

In the standby civilian phase, group sessions are recommended at a frequency of once weekly for two to three hours, with optional individual or family activities between sessions. In the demobilization transition, an intensive engagement of two to four sessions over the first one to two weeks after return is recommended, followed by re-entry to the weekly standby rhythm. In the mobilization transition, a single brief individual contact, when feasible, is recommended. In the active operational phase, no formal program activity occurs, although peer-level continuity may be sustained.

Group size for activity sessions is recommended at six to twelve participants, balancing the benefits of group cohesion against the need for individual attention. Where possible, groups are

constituted from service members who share unit affiliation, geographic origin, or operational role, supporting the peer dimension of the work. Family-inclusive sessions are offered at lower frequency, perhaps once monthly, and include partners, children, and where appropriate parents or siblings.

4.5. Continuity Mechanisms

A central design challenge is maintaining continuity across cycles for a population whose movement is unpredictable. Three mechanisms address this challenge. The first is the continuity of the natural setting itself. The same forest, the same stretch of coast, the same garden, the same urban park serves as a stable referent that the service member can return to across cycles. This addresses the discontinuity of the service member's own movement by anchoring the program in a place that does not move.

The second is the continuity of the facilitator and the group. To the degree feasible, the same facilitator and the same peer group accompany the service member across multiple cycles, accumulating shared history and shared sensory references. This continuity replaces the discontinuity that recurrent mobilization imposes on more conventional clinical relationships.

The third is the continuity of the practices themselves. The sensory anchors, the garden, and the internalized nature practice are by design portable across cycles. Each cycle adds to a cumulative repertoire that the service member carries internally, regardless of where the next mobilization sends them.

5. Discussion

This study presents a nature-based therapeutic framework designed for a clinical situation that the existing literature has only partially addressed: the recurrent and unpredictable transitions between active combat duty and civilian life that characterize service in protracted conflict zones. The framework is built on the convergence of several established literatures, including the deployment cycle model in military psychology (Adler et al., 2011; Bowling & Sherman, 2008), the construct of continuous traumatic stress (Eagle & Kaminer, 2013), the theoretical foundations of nature-based intervention in Stress Reduction Theory and Attention Restoration Theory (S. Kaplan, 1995; Ulrich et al., 1991), and the empirical record of nature-based programs for veteran populations (Gelkopf et al., 2013; Poulsen et al., 2016; Walter et al., 2023). Its principal contribution is the synthesis of these literatures into a framework explicitly organized around cyclicality and unpredictability rather than around a single return.

5.1. Theoretical and Clinical Implications

The framework challenges the implicit assumption, common in much of the post-deployment literature, that reintegration is a one-time process with a definable endpoint. When transitions recur on short notice and at unpredictable intervals, the clinical situation is not adequately described as either acute combat stress or post-deployment readjustment. It is, in important respects, closer to the experience of populations exposed to continuous traumatic stress, with the additional complication that the service member alternates between acute exposure and civilian life rather than experiencing continuous exposure throughout (Eagle & Kaminer, 2013; Greene et al., 2018). The implication for theory is that the constructs of post-traumatic stress disorder and continuous traumatic stress, often treated as alternatives, may need to be combined to capture the experience of personnel in protracted conflicts, and that interventions designed for either alone may be insufficient.

The clinical implication is that interventions for this population should be evaluated not by

their fit to a single phase but by their robustness across the cycle. An intervention that works only in a defined post-deployment window will fail when recall arrives during the window. An intervention that requires a sustained outpatient relationship will fail when the relationship is repeatedly interrupted. The nature-based framework presented here is designed to be robust to these interruptions, in part because its activities are not premised on continuous attendance, in part because its key resources are internal and portable, and in part because its physical and social settings persist across cycles even when the service member does not.

The framework also has implications for the role of nature-based therapy within mental health systems. Nature-based therapy has often been positioned as either a complementary recreational activity or as a stand-alone alternative to conventional treatment. Neither framing fits the population in question. The framework presented here positions nature-based therapy as a cyclical, low-threshold companion to clinical care, providing a continuing thread that extends across phases when more intensive treatment is unavailable or inappropriate, and serving as a vehicle for triage and engagement when clinical care is needed (Caddick et al., 2015; Poulsen et al., 2016).

5.2. Strengths and Limitations

The framework has several strengths. Its mechanism-based articulation allows for implementation across heterogeneous geographies, addressing a long-standing limitation of nature-based therapy literatures that have been organized around specific landscape types (Park et al., 2010; Wood et al., 2025). Its low-threshold and recreational framing addresses the help-seeking barriers that are particularly acute in military populations and especially in reservists facing recurrent recall (Hoge et al., 2004; Sharp et al., 2015). Its inclusion of family and peer dimensions reflects the bioecological character of recurrent mobilization (Wooten, 2013). And its explicit cyclical structure, organized around the actual movement of the service member rather than around an idealized return, addresses the most distinctive feature of the clinical situation.

The framework also has substantial limitations. It is, at present, a theoretical proposal that has not been empirically tested as a whole. While its component activities have evidence bases of varying strength (Bettmann et al., 2024; Genç & Yalçınkaya Alkar, 2025; Wood et al., 2025), the integrated framework requires empirical evaluation before strong claims can be made about its effectiveness. The randomized controlled trial of the Nature Adventure Rehabilitation program (Gelkopf et al., 2013) provides the closest empirical analogue, but it was a single-cycle program for veterans with chronic post-traumatic stress disorder rather than a cyclical program for active service members.

A second limitation is that the framework's flexibility is also a source of variability. By allowing local implementers to choose among activity categories and landscape vehicles, the framework risks producing implementations that differ substantially in dose, intensity, and content. Some such variability is inherent in any geographically adaptable program, but it complicates evaluation and may limit comparability across sites. Future implementations will need to specify minimum dose, content, and personnel requirements to support both quality control and cumulative evidence.

A third limitation concerns the population. The framework is designed for service members who alternate between front and home, and its mechanisms are tailored to that alternation. It does not directly address the needs of service members in continuous deployment, of veterans who have left service entirely, or of civilians in conflict zones, although elements of the framework may be adaptable to those populations. Nor does the framework address the situation of service members with severe operational injuries, who require dedicated rehabilitation programs in

which nature-based components may play a different role.

A fourth limitation concerns access. Nature-based therapy presupposes some accessible natural environment, and although the framework is designed to be flexible, regions with severely degraded environments or with security restrictions on movement may struggle to implement even the lower-dose categories. The framework's reliance on urban green spaces and therapeutic horticulture is intended to mitigate this constraint, but the constraint is real.

5.3. Implementation Considerations

Implementation of the framework requires attention to several practical considerations. The first is the training and supervision of facilitators. Nature-based therapy facilitators in different traditions, including forest therapy guides, horticultural therapists, and wilderness therapy practitioners, vary in training standards and clinical preparation (Wood et al., 2025). For a program targeting service members with potential trauma histories, facilitators must be prepared not only in nature-based methods but also in trauma-informed practice, in recognition of clinical indicators that warrant referral, and in working with military culture. Co-leadership models that pair nature-based facilitators with clinical mental health professionals address some of these requirements but require sustained funding and institutional commitment.

The second consideration is institutional placement. The framework can be implemented within military medical systems, within veterans' service organizations, within civilian mental health services, or within nongovernmental organizations. Each placement carries trade-offs. Military placement offers integration with command structures but may amplify stigma concerns. Civilian placement may reduce stigma but may struggle to coordinate with operational schedules. Nongovernmental placement offers flexibility but may lack continuity of funding. The optimal placement is likely to vary by national context and by the specifics of military-civilian relations.

The third consideration is integration with existing programs. Many militaries and veterans' systems already operate post-deployment programs, peer support networks, and outdoor recreational programs (Adler et al., 2009; Greer & Vin-Raviv, 2019). The framework presented here is intended to integrate with rather than replace such programs, and implementation should map carefully onto the local landscape of existing services to avoid duplication and to leverage existing infrastructure.

The fourth consideration is the management of risk. Nature-based activities carry physical risks, including exposure to weather, terrain, and water, and these risks are amplified when participants may have impaired regulation, sleep deficits, or substance use. Activity selection, group size, and facilitator-to-participant ratios must reflect these risks, and emergency response plans must be in place. The risks are not unique to this population, but their management requires attention.

5.4. Directions for Future Research

Empirical evaluation of the framework is the most important direction for future research. Cluster-randomized trials, in which units or geographic regions are randomized to receive the framework versus usual post-deployment services, would be the strongest design. Outcomes should include not only post-traumatic stress symptoms but also quality of life, family functioning, peer relationships, occupational functioning, and indicators of help-seeking and engagement with clinical services. Given the cyclical structure of the population's experience, repeated-measures designs that track outcomes across multiple cycles will be more informative than single-endpoint comparisons.

Mechanistic research is also needed. The framework rests on hypothesized mechanisms that

include autonomic regulation, attention restoration, nature connectedness, and reduction of help-seeking barriers. Each of these mechanisms can be measured directly, using heart rate variability, attentional performance tasks, validated nature connectedness scales, and help-seeking outcomes (Goral et al., 2021; Gu et al., 2023). Mediation analyses that test which mechanisms account for outcomes would inform refinement of the framework and identify which components are essential.

Comparative research across geographies would help to establish whether the framework's flexibility produces equivalent outcomes across different landscape vehicles or whether some vehicles outperform others. The Japanese forest medicine literature suggests that forest exposure produces particularly robust physiological effects (Park et al., 2010; Tsunetsugu et al., 2010), but evidence from urban green-space studies and from blue-space research suggests that other vehicles may be equally effective for psychological outcomes (Astell-Burt & Feng, 2019; Caddick et al., 2015).

Qualitative research is needed to understand the lived experience of service members in recurrent transitions and to evaluate how the framework's cyclical structure is experienced. The qualitative literature on nature-based therapy with veterans has generated rich accounts of identity, embodiment, and meaning (Caddick et al., 2015; Poulsen et al., 2016), and similar work with this population would inform refinement of the framework's content.

Finally, research should examine the integration of the framework with evidence-based trauma-focused psychotherapy. Bettmann et al. (2021) found that time outdoors during outpatient treatment for post-traumatic stress disorder predicted greater symptom reduction, suggesting that nature-based components may augment standard treatment. Trials that test the framework as an adjunct to cognitive processing therapy, prolonged exposure, or eye movement desensitization and reprocessing would address an important question about the optimal place of nature-based therapy in the broader treatment landscape.

6. Conclusions

Service members in protracted conflict zones occupy a clinical situation that the dominant frameworks of military mental health have not been designed to address. The deployment cycle model assumes a single, definable return; the post-traumatic stress disorder framework assumes that the trauma has ended; outpatient psychotherapy assumes a sustained, uninterrupted relationship. None of these assumptions holds for personnel who alternate between front and home on short notice, often unpredictably, sometimes for months on end. The clinical situation is one of recurrent transitions across an unstable boundary, with anticipation of recall colonizing the civilian phases and anticipation of release colonizing the operational ones.

Nature-based therapy is well suited to this situation, although not in the forms in which it has been most commonly delivered. Its flexibility of dose, its low stigma, its capacity for embodied regulation without verbal processing, its portability through internal sensory anchors, and its persistence across cycles in the form of stable settings and tended gardens align with precisely the demands that recurrent transitions impose. The framework presented in this study organizes these strengths into a five-phase cyclical structure that follows the actual movement of the service member rather than an idealized return, and that can be implemented across the heterogeneous geographies of conflict zones by drawing on whichever forms of nature contact are locally available.

The framework is offered as a theoretical proposal grounded in convergent literatures, not as a tested intervention. Empirical evaluation, mechanistic research, comparative studies across geographies, and qualitative work on lived experience are all needed to refine and validate

it. The clinical urgency, however, is substantial. Reservists in current and recent conflicts are cycling between front and home in numbers that strain conventional services and with psychological consequences that conventional frameworks have not adequately captured (Neria et al., 2025; Shelef et al., 2025). A framework explicitly designed for their situation, drawing on the substantial evidence base of nature-based therapy and on the conceptual resources of the continuous traumatic stress literature (Eagle & Kaminer, 2013), offers a starting point for clinical and research work that the situation demands.

The deeper claim implicit in the framework is that recovery, in conditions of recurrent transition, cannot be organized around closure. There is no single after, and there may not be one for years. What can be organized is continuity within discontinuity: a stable garden, a familiar walk, a known group, an internal sensory anchor that travels with the service member across the boundary that they cross and recross. Nature, in its slow rhythms and persistent presence, offers a particular form of continuity that other resources do not. The framework presented here is an attempt to make that form of continuity systematically available to those who most need it.

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