

Return to Forests Therapeutic Potential of Woodland Environments

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Dear Editors,

Your journal *Visions of Sustainability* has paid considerable attention to biophilia and biophilic design. Authors often document the benefits of connectedness to Nature. However, relatively little space has been devoted to one of the most ancient environments for our relationship with Nature: the forest. The benefits of frequenting forests are undeniable (Hansen et al., 2017; Kotte et al., 2019; Stier-Jarner et al., 2021). However, fundamental questions remain about what is beneficial for whom and for what aspects of human psychophysical health. Consequently, there is no clear understanding of either the characteristics to look for in the forests or the activities to be carried out in them in order to benefit from such an environment.

A correct prescription of forest therapies is essential not only for the patient but also for the coherent management of the forests themselves. There is a risk of considering the forest in a partial, reductive, and excessively utilitarian way. For example, the mere consideration of the beneficial effects of some phytoncides (Antonelli et al., 2020) cannot explain those obtained in broad-leaved forests in the winter season, when the production of phytoncides is considered irrelevant (Peterfalvi et al., 2021). The importance of taking account of the characteristics of each forest ecosystem is confirmed by the contradictory results in relation to

the activities proposed. Activities whose efficacy is known when carried out indoors, such as physical exercise, can generate stress in complex forest environments (Toda, 2013), while they are preferred in open natural environments (Zhang et al., 2015). However, more complex forests can offer equal or greater benefits if appropriate activities are carried out in terms of quality and intensity (e.g., Lee et al., 2018). Moreover, making generalizations concerning the therapeutic indications of the forest becomes even more problematic if we add the variables related to the individual visitors: their state of health, their attitudes, their knowledge and predispositions, and, last but not least, the level of their ‘connectedness to Nature’ (Berto et al., 2018).

To evaluate the therapeutic potential of woodland environments, the Forest Therapies in Italian Forests Network (*Rete Terapie Forestali in Foreste Italiane* - TeFFIt, www.teffit.it) is developing two lines of research. The first aims at identifying and describing forest ecosystems with a high degree of biodiversity, which appears to be the most promising both in terms of individual human characteristics and needs (Haahtela, 2019) and the type of activities proposed (Doimo et al., 2020).

The second refers to cross-sectional and longitudinal studies that indicate how the possibility of benefiting from forests is a *pathway* by which the patient develops (not ‘acquires’) a growing ability to relate to forests themselves (Sonntag-Öström, 2015). Patients learn to act in the forests in the ways that are most suited to their psychophysical needs. They improve their state of health and, at the same time, develop an awareness of lifestyle habits that are healthier for themselves and more sustainable for the environment (Oh, 2020; Clarke, 2021). However, this is not a linear but rather a circular path, which develops according to individual times and modes. For this reason, forest therapists must have the ability and sensitivity to adapt their proposals to the characteristics and needs of the patient without intrusiveness or forcing.

We can describe this pathway in five stages: (1) biophilic, (2) sensory, (3) haptic/proprioceptive, (4) adaptive, (5) integrative. Each stage corresponds to the central stimulation activated, remembering that it is a circular path in which each phase is gradually retraced employing the new skills and competencies developed previously.

1. BIOPHILIC. It has been observed that people with a poor connection with Nature are unable to restore themselves in complex forest environments, even though these are the most restorative ones (Berto et al., 2018). Therefore, in this first phase, it seems appropriate to give emphasis to accompanying the patient in

environments with a high biophilic value, but with easy, reassuring pathways, which make it possible to encounter the life of the forest (which is initially scarcely or not at all perceived) in a positive way. The patient's attention will be directed towards the forms of life that induce fascination.

2. **SENSORY.** In the first approaches to the forest, it is appropriate to choose environments whose perceptible biodiversity is represented by similar life forms (mammals, birds) and that are therefore pleasant and reassuring: nesting places for songbirds, flowery areas, or areas with soft and open plant forms, soft mosses, tasty berries, pleasant scents. The goal is to favor an exotopic approach¹, to accompany people towards an emerging and growing curiosity, confidence, and wonder towards forms of life that are increasingly distant and different from the human.

3. **HAPTIC-PROPRIOCEPTIVE.** Touch is the only 'reciprocal' human sense. Everything that can be touched in a forest is alive. In turn, every living thing perceives the human touch. Being aware of this 'reciprocity' can improve the lived experience in a forest. Even simply walking on different natural soils can represent both a proprioceptive-kinesthetic and a relational experience, to which every individual reacts in a particular way. There is no such opportunity when dealing with artificial sensory pathways (Tsunetsugu, 2013; Gross, 2019; Song et al., 2019). The experience of contact with the life of the soil and subsoil helps to develop an awareness of the presence of forms of life that are barely perceptible and less similar to humans (arthropods, fungi, protists). Patients learn to react correctly together with these living forms, and, over time, the reaction methods can evolve as they become familiar with the complexity and diversity of the forest ecosystem.

4. **ADAPTIVE.** The biophilic, sensory, and haptic-proprioceptive experiences allow the patient to express their adaptive abilities. Patients explore the environment (in this case, the forest) and look for stimuli that relieve symptoms and discomfort and improve their physiological functions (Sonntag-Öström et al.,

¹ Exotopia is "a dialogic tension in which empathy plays a transitory and minor role, dominated instead by the continuous reconstituting the other as the bearer of an autonomous perspective, as sensible [I read 'sensible' as 'endowed with sense' - which concerns sensoriality and sensitivity - and at the same time 'endowed with meaning', Author's note] as ours and not reducible to ours" (Sclavi, 2003). Exotopia could also prove suitable for preventing eco-anxiety phenomena (Capaldi et al., 2014; Panu, 2020; Verplanken et al., 2020) resulting from distorted or simply inexperienced forms of 'connection with Nature'. Similarly, in the clinical, social, and educational context, the transition from empathy to exotopia has made it possible to have a more constructive dialogue with the 'different' human other, be it a sick person, an immigrant, or a disabled person, helping to reduce the burnout of operators (Sclavi, 2003).

2015), from breathing to movement. The exploration of oneself and the environment leads to the development of an awareness of the dynamism of the processes. This combined approach enables patients to adapt both to changes in the forest (circadian, seasonal, climate, microenvironment) and changes in themselves, such as perceptive skills, awareness, and connection with the forest develop.

5. INTEGRATIVE. The care paradigm adopted by the TeFFIt Network depends on patients' abilities to perceive and be aware of their needs and how to respond to them through the forest. At the same time, patients will have understood (through the exercise of exotopia) the different and often mysterious needs of the life forms that inhabit the forest. In this way, the patient-forest interaction will be adaptive and not opportunistic or, on the other hand, unrealistically emotional. For example, patients will be able to enjoy phytoncides without however voluntarily damaging the plants to perceive some of them better or persistently search for them while neglecting other beneficial elements, as well as being able to express their desire to leave a trace of themselves in the forest or to communicate its presence in some way, without becoming intrusive or harmful. In this way, the feeling of affiliation with Nature can develop into competence. The patient learns how to integrate into wild environments, always maintaining acceptable behavior.

Although the current trend in forest therapies is to multiply the proposals for activities, even in terms of single activities (trekking, mindfulness, yoga, physical exercise, etc.), regardless of environmental analysis and individual needs, a personalized setting of forest frequentation seems a preferable model of health promotion, as it is simpler and easier to apply. A personalized setting requires only minimal initial support, favors the advantages of proximity (Korpela, 2007), and is more suitable for maximizing the reciprocity of benefits for human health and the forests.

In conclusion, I would like to propose a reflection on awareness, a term that is central to forest therapy. Traditional mindfulness practices are recognized as trying to make a non-judgmental acknowledgment of the present moment (Kabat-Zinn, 1994). In forest therapy practices shared by the TeFFIt Network, we prefer to talk about 'taking notice'. This practice goes beyond simply taking note of the present moment. Taking notice involves keeping a memory of it, that is, being capable of re-evoking it in the mind and body, capable of promoting the development of the organism's adaptation and integration with the forest. With 'taking notice' practice, patients are able to maintain delicate divided attention on what they can perceive of the forest, how the organism reacts to it, and how the forest

reacts to itself. Almost an observation ‘out of the corner of one’s eye’, whose sustained maintenance over time is facilitated by the restorative action of the forest, through fascination (Kaplan, 1995).

As members of the TeFFIt Network we have observed that, contrary to what is suggested in established mindfulness practices (Kabat-Zinn, 1990; 1994; Segal et al., 2002), it is counterproductive to focus attention only on a physiological function, such as breathing, or individual parts of the body. It appears more effective to observe when the same function or area of the body emerge from our attention, stimulated by the forest. Likewise, any emerging thoughts and sensations can be noted, to perhaps understand their meaning later, instead of committing oneself to letting them go, facilitated by the fact that among the actions of the forest, there is the interruption of brooding (Chen, 2019) and instead the favoring of the alternation between mind-wandering, which is internally oriented, and soft charm, fascination, which is externally oriented (Williams et al., 2018). The desirable qualities of curious, non-judgmental attention and attentive, decentralized listening will be facilitated both by the exercise of exotopia and by the decentralizing action of the forest itself (Chen, 2019; Oh et al., 2020). In other words, wandering freely, mind and body, in the forest, ‘taking note’ of what emerges to capture the attention, far from hindering awareness, could instead support people in developing greater flexibility and new associations of ideas (Williams et al., 2018), as well as to adopt healthier (Oh et al., 2020) and more sustainable (Clarke, 2021) lifestyles. Mindfulness-Based Interventions (MBIs)², often proposed as examples of green mindfulness (Danon, 2019), seem to have specific objectives that are different from those of immersion in the forest. Furthermore, MBIs also have needs regarding the organization, setting, and privacy that are not easily compatible and consistent with their practice in wild forests (Ambrose-Oji, 2013). A more informal and open awareness seems better suited for therapeutic activities in natural settings (Djernis et al., 2019).

Forest therapies are arousing more and more interest. However, many open questions remain, requiring research efforts to accurately describe the environments where this is practiced. With a precise catalog of the qualities of each forest ecosystem, the therapeutic prescription will be more precise, considering the fact that the observations made so far suggest that it is the forest itself which stimulates a state of awareness and adaptivity that is appropriate to and suitable for each patient.

² Such as, for example, Mindfulness Based Stress Reduction (MBSR), Acceptance-Based Stress Therapy (ABST), Acceptance Commitment Therapy (ACT) and Mindfulness Based Cognitive Behavioral Therapy (MBCBT).

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Competing Interests

The author has declared that no competing interests exist.



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