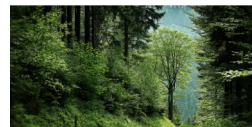


## Governance arrangements of forest-based care initiatives. Insights from two EU-funded projects: Green4C and RESONATE

**Aynur Mammadova and Davide Pettenella**  
TESAF, University of Padova | Italy

*Mauro Masiero, Laura Secco, Todora Rogelja, Angela Moriggi, Aisling R. Sealy Phelan, Alessandra Rigo, Giulia Corradini, Elena Pisani, Paola Gatto (University of Padova, TESAF, Italy); Angelica Moe, Francesca Pazzaglia (University of Padova, DPG, Italy); Colm O'Driscoll, Ilaria Doimo, Giulia Amato (Etifor, Italy), Mathew White (University of Vienna, Austria)*

**International Forest Policy Meeting (IFPM 5)**  
University of Helsinki, Finland  
10-12 April, 2024



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DI PADOVA

**TESAF**

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## Outline

- Background of the two projects
- Socio-cultural services: a neglected issue
- Socio-cultural services: a classification model
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- Governance issues related to forest green care development

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### Background: disconnection from nature and its challenges

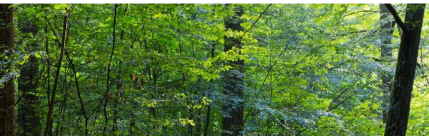
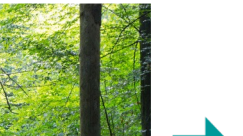


- **Rural outmigration** (decrease in services and employment opportunities, loss of social ties, abandonment of landscapes)
- Urban lifestyles are often connected to **sedentary life-styles, higher use of technological devices, deteriorated social connections, higher crime rates, inequality, unemployment, lower air quality**
- Worldwide **Non-communicable Diseases (NCD)** - principal causes of death and of an increase in years lived with disabilities
- **Ageing of the population** – drastical increase in private and public expenditure for health and long-term care;
- On average only 3% of healthcare expenditure is spent on public and private **preventive care and health promotion**

4

**Core of the problem: Human-nature divide.**

**Values of nature**

| Intrinsic value   | Instrumental value  |
|---|---|
| <i>Nature has a value independent of people</i>                                   | <i>Nature is valuable as it delivers diverse services and benefits for people</i> |
|  |  |

5

**Diverse Values and Valuations of Nature**

**Value indicators**  
**Specific values**  
**Broad values**  
**Worldviews and knowledge systems**

**Living from**  
river resources

**Living in**  
riverine landscape

**Living with**  
riverine species and habitats

**Living as**  
river as part of us

Illustrative examples of how aspects of the values typology are highlighted by certain life frames

**Values typology**

Source: IPBES, 2022, Pascual et al., 2023

6

## From practice to paradigm shift. Rethinking values of nature

### Relational value

*Derivative of relationships with and responsibilities towards nature*

**Individual**  
(identity, good life, stewardship)



**Collective**  
(cultural identity, social cohesion, social responsibility, moral responsibility towards non-humans)

7

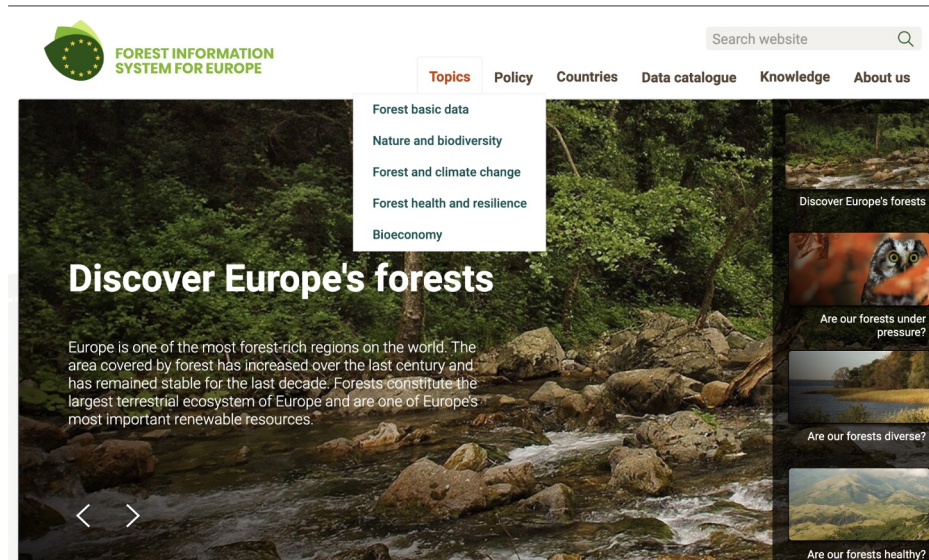
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## Unfortunately, no relevant information available in FISE



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## ... neither in State of Europe's Forests 2020

### CRITERION 1: FOREST RESOURCES AND THEIR CONTRIBUTION TO GLOBAL CARBON CYCLES

#### 1.1 Forest areas in Europe are increasing

..

### CRITERION 2: FOREST ECOSYSTEM HEALTH AND VITALITY

#### 2.1 Depositions of air pollutants still threaten European forests

..

### CRITERION 3: PRODUCTIVE FUNCTIONS OF FORESTS

#### 3.1 Considerably more increment than fellings in Europe

..

### CRITERION 4: BIOLOGICAL DIVERSITY IN FOREST ECOSYSTEMS

#### 4.1 Most forests in Europe are semi-natural

..

### CRITERION 5: PROTECTIVE FUNCTIONS IN FOREST MANAGEMENT

#### 5.1 Protective forests play important roles in Europe

..

### CRITERION 6: OTHER SOCIO-ECONOMIC FUNCTIONS AND CONDITIONS

#### 6.1 Most forests in Europe are in public hands but there are 100 times more private than public forest owners

..

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## A silent development...



### Ecology and Society

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The following is the established format for referencing this article:  
Torralba, M., M. Lovrić, J.-L. Roux, M.-A. Budniok, A.-S. Mulier, G. Winkel, and T. Plieninger. 2020. Examining the relevance of cultural ecosystem services in forest management in Europe. *Ecology and Society* 25(3):2.  
<https://doi.org/10.5751/ES-11587-250302>

#### Research

### Examining the relevance of cultural ecosystem services in forest management in Europe

[Mario Torralba](#)<sup>1</sup>, [Marko Lovrić](#)<sup>2</sup>, [Jeanne-Lazya Roux](#)<sup>3</sup>, [Marie-Alice Budniok](#)<sup>4</sup>, [Anne-Sophie Mulier](#)<sup>4</sup>, [Georg Winkel](#)<sup>3</sup> and [Tobias Plieninger](#)<sup>1,5</sup>

Source: <https://www.ecologyandsociety.org/vol25/iss3/art2/>

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## Forest-based Socio-Cultural Ecosystem Services (human benefits of nature)



### Culture

(art museums, concerts in Nature, theater performances, land art,...)



### Tourism&recreation

(walking, visits to special landscapes and sites, wild products picking, camping, picnic, ...)



### Sport

(hiking, nordic walking, mountain bike, orienteering, hunting, adventure parks, ...)



### Pedagogy & education

(kindergarten or outdoor schools, educational farms, scout groups, ...)



### Spiritual & religious

(meditation and worship, ecological burial, ...)



### Social inclusion

(activities for the elderly, disable people, refugees-displaced, prisoners, victims of violence...)

### Emergent activities - Green care



### Nature-based wellness and therapy

(forest bathing-Shinrin-Yoku, forest therapy, pet therapy, ...)

Source: Doimo et al. 2020; Masiero et al. 2020; Mammadova et al. 2021

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## Art events



[www.artesella.it/en/](http://www.artesella.it/en/)

Art exhibitions, concerts, drama...

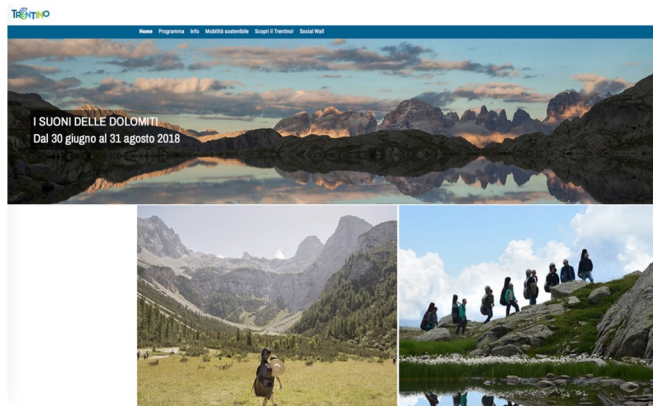


[www.isuonidelledolomiti.it/EN/sounds-of-the-dolomites/](http://www.isuonidelledolomiti.it/EN/sounds-of-the-dolomites/)

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## Forest concerts



[www.isuonidelledolomiti.it/](http://www.isuonidelledolomiti.it/)



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## Theatre and taijiquan in the forests



### Escursione Teatrale 2018



Un percorso tra teatro, taijiquan e musica

Cos'è Escursione Teatrale

Escursione Teatrale è un progetto interdisciplinare: escursioni in montagna si integrano ad attività di Teatro, Taijiquan e Musica.

Chi partecipa

Gruppi misti di persone vedenti, non vedenti e ipovedenti... e cioè: tutti!

Per maggiori informazioni

Pagina ufficiale del progetto [http://www.teatrozigola.org/progetto\\_escursione\\_teatrale.html](http://www.teatrozigola.org/progetto_escursione_teatrale.html)



<https://www.parcoforestecasentinesi.it/it/news/escursione-teatrale-2018/>

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## Education and pedagogic activities

German model exported (and adapted) in many other countries, including South-European ones ☑

Campfire Kids

### Going Back to Nature with Forest Kindergartens

Radical back-to-nature forest kindergartens where children are allowed to climb trees and play with fire have spread across the country. Will the concept of the Waldkindergarten become Germany's next export success?

By Rupert Neate



[www.spiegel.de/international/zeitgeist/forest-kindergartens-could-be-the-next-big-export-from-germany-a-935165.html](http://www.spiegel.de/international/zeitgeist/forest-kindergartens-could-be-the-next-big-export-from-germany-a-935165.html)



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## Education and pedagogic activities

forestpedagogics.eu

Home About News Annual Congresses FCN Subgroup Contact us

Kids don't need more toys  
- they need more adventures

European wide forum for Information and communication about forest pedagogy

FCN - Subgroup - Forest Pedagogics

Forest Kindergarten  
International  
Federation

@forestkindergarteninternational  
federation

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## Sport activities and events



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## Tree houses



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## Social inclusion



"Learning is experience. Everything else is just information" Albert Einstein Languages



ABOUT SOCIALFOREST

SOCIAL AND ENVIRONMENTAL IMPACT

SERVICES

COOPERATION

BLOG

CONTACT

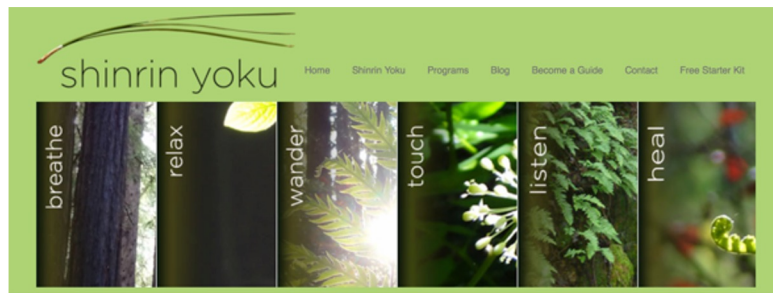


Training, projects and job-opportunities for young unemployed people at high risk of social exclusion, e.g. immigrants, people with addiction or mental disorders...

<http://socialforest.org/en/>

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## Forest bathing and therapy Shinrin-yoku (森林浴)



### Introductory Videos on Shinrin-yoku Forest Therapy



Introduction to Shinrin-yoku, by M. Amos Clifford. Voice over a slide show of nature images photographed in Sonoma County.



Introduction to Forest Therapy, taped during a guide training session in September of 2014 in Sonoma County.



United States segment from a Korean Broadcasting System documentary looking at Forest Therapy in the U.S., Japan, and Korea.

[www.shinrin-yoku.org](http://www.shinrin-yoku.org)

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## Burial/funeral forests

Bios Urn   Bios Urn Pets   Bios Incube Life   Bios Parks   News   Support

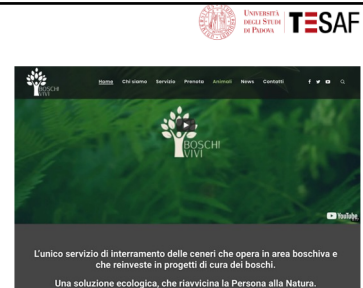
Forests over Cemeteries: The Rise of Green Burials and the Bios Urn®



<https://urnabios.com/forests-cemeteries-green-burials-bios-urn/>



<http://drhannahrumble.com/2012/10/german-forest-burials-ruheforst/>



<http://boschivivi.it>



Capsula Mundi. Una morte piena di vita.

Capsula Mundi è una proposta culturale, un progetto etico, una proposta di dialogo appropriato al tema della morte. È un contenitore dalla forma antica e perfetta, quella dell'urna, realizzato con un materiale biodegradabile, nel quale viene posto il corpo del defunto in posizione fetale e in terra. La Capsula è messa a dimora come un seme nella terra. Dopo il mese viene piantato un albero, dando in vita dal defunto, che verrà curato da bambini e amici, come un'attività per i parenti e per il futuro del pianeta. Il cimitero assume così un nuovo aspetto, non più grigio lapidi di pietra ma alberi che si formano un bosco, un bosco sacro. Il progetto è al momento in una fase di start-up ma, sostenuto dal grande entusiasmo suscitato da questo idee in tutto il mondo, stiamo lavorando per renderlo una realtà.

[www.capsulamundi.it](http://www.capsulamundi.it)

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## Guide: Finding A Green Cemetery



This article on [funeral planning](#) is provided by Everplans — The web's leading resource for planning and organizing your life. Create, store and share important documents that your loved ones might need. [Find out more about Everplans »](#)



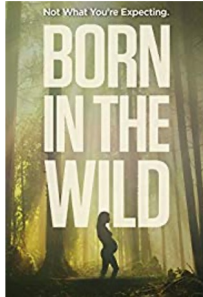
<https://www.everplans.com/articles/guide-finding-a-green-cemetery>

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## Socio-Cultural “services”: along all the steps of the human life cycle!

From the cradle ....



.... to the grave




Penn Forest  
Natural Burial Park


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**Green4C** is a three-year long (2020-2023) Erasmus + project promoting nature-based health and social care through university business alliances, and support for innovation and entrepreneurship.






[info@greenforcare.eu](mailto:info@greenforcare.eu)  
<https://www.greenforcare.eu/>

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## Main research outputs of the Green4C project




**EU Blueprint on Green Care: Nature for Health, Well-being and Social Inclusion.**

Mammadova, A., O'Driscoll C., Burlando C., Doimo, I., Pettenella, D. (2021). EU Blueprint on Green Care: Nature for Health, Well-being and Social Inclusion.  
<https://www.greenforcare.eu/news/eu-blueprint-on-green-care/>



**20 case studies across Europe and Americas**


<https://www.greenforcare.eu/case-studies/>



**EU Market Outlooks on Green Care**

<https://www.greenforcare.eu/news/market-outlooks-green-care/>

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# GREEN CARE MANIFESTO


To centre multi-sectoral attention on the health, wellbeing, and social inclusion benefits of nature, with a focus on green spaces in both urban and rural areas.

**Priorities of action for promoting, green care services and their direct beneficiaries, land managers, funders, supporters, researchers and scientists**



<https://www.greenforcare.eu/news/the-green-care-manifesto/>

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# resonate

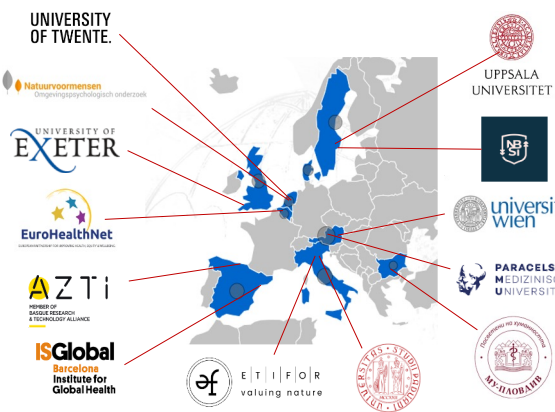
RESILIENCE THROUGH NATURE-BASED THERAPIES

2023-2027

**Building individual and community resilience through nature-based therapies**

RESONATE is a Horizon Europe project that will bring together a consortium of world leaders in nature-based therapy (NbT) research, practice, policy, and innovation with stakeholders in the health, environmental, economic, and societal sectors.

<https://resonate-horizon.eu/>



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STUDIE

International advisory board

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UNIVERSITY OF WOLLONGONG AUSTRALIA

greencare

European Centre for Environment & Human Health




The Resonate project is funded by the European Union's Horizons Europe Research and Innovation programme under grant agreement No. 101081420 and co-funded by the UK Research and Innovation grant award No. 10063874





UK Research and Innovation

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**resonate**  
RESILIENCE THROUGH  
NATURE-BASED THERAPIES

2023-2027






**Expected Outcomes**

- Sharper view of **green space management**, nature protection, agriculture and forestry sectors as care providers and their possible linkages with the healthcare, social and educational sectors;
- Stronger evidence base for the **causal relationships between nature and health** and well-being for more effective nature therapy prescriptions;
- Cost-effective **nature therapy prescriptions** are more widely used in the health care sector;
- Greater **citizen and policy-maker awareness** of the positive benefits of nature for health and well-being;
- Wider utilization by healthcare professionals and citizens of nature therapy as a form of **preventive medicine**.




From 9 Case Studies to 3 Social Innovation Action "Nature-based Resilience Hubs" to demonstrate best practice cross-sectoral collaboration and market potential.







The Resonate project is funded by the European Union's Horizons Europe Research and Innovation programme under grant agreement No. 101081420 and co-funded by the UK Research and Innovation grant award No. 10063874



**UK Research and Innovation**

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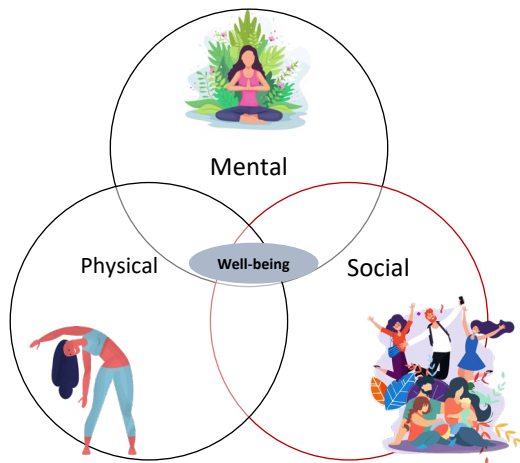
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## The lessons of Covid-19. Recognizing connections and relationships



Source: WHO definition of the constituents of human well-being (left) and "One health" concept (right)

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## A very relevant field for interdisciplinary action research



### Mainstream theories and hypothesis in nature-based health & well-being



Attention Restoration Theory (Kaplan and Kaplan, 1989)

Stress Reduction Theory (Ulrich et al., 1991)

Biophilia Hypothesis (Kahn, 1997)

- Improve focus and ability to concentrate
- Have restorative and relaxation effects
- Help reduce negative thoughts and stress
- Improve self-awareness and reflection
- Facilitate healing and coping mechanisms for social pressure
- Stimulate cooperative behaviours and stronger social cohesion
- Encourage pro-environment and pro-conservation behaviours

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## New: Nature-based Biopsychosocial Resilience Theory (NBRT)



‘Nature-based biopsychosocial resilience theory’ (NBRT) framework suggests that individual-level resilience can refer to both: a) a person’s set of adaptive *resources*; and b) the *processes* by which these resources are deployed.

These biopsychosocial resilience resources can:

- i) reduce the risk of various stressors (*preventive resilience*);
- ii) enhance adaptive reactions to stressful circumstances (*response resilience*), and/or
- iii) facilitate more rapid and/or complete recovery from stress (*recovery resilience*).

Source: White et al. 2023 (consortium partners of the RESONATE Horizon Europe project)


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## Health benefits of forests in particular








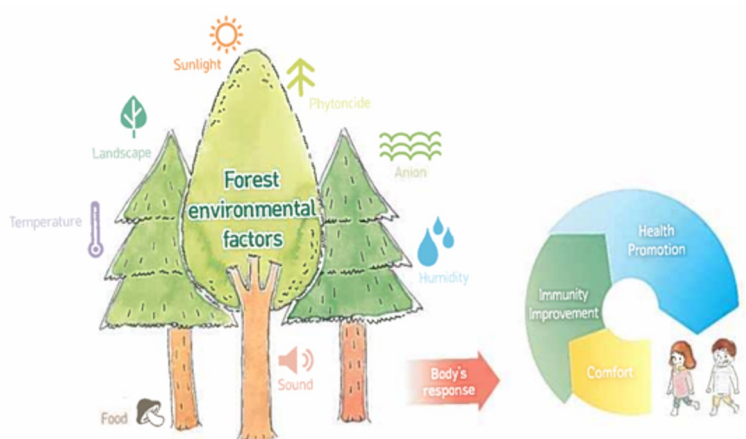
- Forests provide a health-promoting environment by mitigating noise, improving air quality, and providing opportunities for nature experiences and recreation
- Restoration by lowering blood pressure, pulse rate, and cortisol levels, leading to a general reduction in stress and negative emotions such as depression, fatigue, general anxiety, insecurity, and tension
- Exposure to specific microorganisms, such as those found in green environments like forests, may positively influence the human immune response and reduce the frequency and prevalence of allergies (e.g., pollen allergy) as well as classic and chronic
- Regular physical activity helps counteract causes of mortality such as diabetes, heart disease, and dementia while also offering a wide range of recreation and exercise opportunities for all ages
- Forests and other #natural areas are suggested to enhance social interactions, which may or may not involve exercise

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### Several aspects determine positive effects on health and well-being

-  • **Aesthetic aspect**
-  • **Phytoncides**
-  • **Negative ions**
-  • **Nature sounds**
-  • **Sun light**



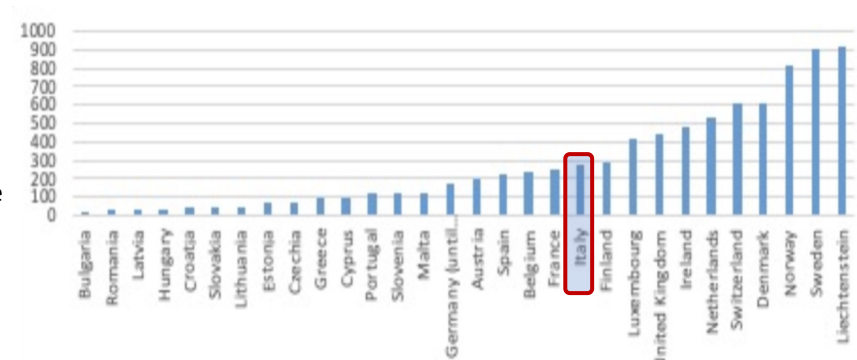
Source: Korea Forest Service, 2014; Mencagli e Nieri, 2017; Meneguzzo e Zabini 2020; Arndt, 2021

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### Cost-effective approaches for post-pandemic recovery and the support of many medical treatments

**A funding dimension:** involving the forest sector in the health care and educational systems means saving some money through prevention of some diseases and in the conventional costs of (mental) treatments

Public spending for one day hospital treatment in Europe (1,000 €)



| Country          | Public spending (1,000 €) |
|------------------|---------------------------|
| Bulgaria         | ~10                       |
| Romania          | ~20                       |
| Latvia           | ~30                       |
| Hungary          | ~40                       |
| Croatia          | ~50                       |
| Slovakia         | ~60                       |
| Lithuania        | ~70                       |
| Estonia          | ~80                       |
| Czechia          | ~90                       |
| Greece           | ~100                      |
| Cyprus           | ~110                      |
| Portugal         | ~120                      |
| Slovenia         | ~130                      |
| Malta            | ~140                      |
| Germany (united) | ~150                      |
| Austria          | ~160                      |
| Spain            | ~170                      |
| Belgium          | ~180                      |
| France           | ~190                      |
| <b>Italy</b>     | <b>~200</b>               |
| Finland          | ~210                      |
| Luxembourg       | ~220                      |
| United Kingdom   | ~230                      |
| Ireland          | ~240                      |
| Netherlands      | ~250                      |
| Switzerland      | ~260                      |
| Denmark          | ~270                      |
| Norway           | ~280                      |
| Sweden           | ~290                      |
| Liechtenstein    | ~300                      |

Source: <http://www.sossanita.org/archives/9862>

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## An example of institutionalization of forest green care: forest prescriptions



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## A simplified view of ES economy

### Ecosystem Services

- *Provisioning*
- *Regulating*
- *Socio-Cultural*

### Institutions, drivers

- Market
- State
- Community

### Instruments & theory

- (prevailing) prices under market economy; **neoclassical economics**
- (prevailing) compensations, incentives (PES); **environmental economics**
- (prevailing) *non-profit sector*; **social economy theory**

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## The impacts of Forest-based Care initiatives

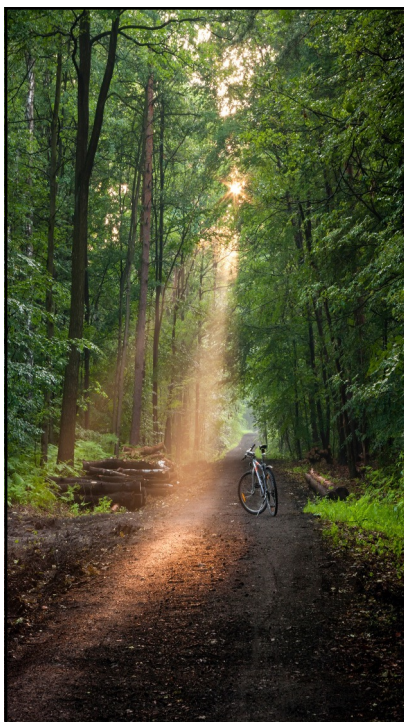


- Fundamental role of **social innovations**
- **From individual benefits to broader social, economic and environmental impacts** (e.g. *pro-environmental behaviour, responsible forest management, improving social capital and local development*)
- **New entrepreneurship** opportunities, innovative professions, green jobs
- **Hybrid organisations: PPP**

Courtesy: Boscoin città, GoJauntly, Ecowellness

Source: Mammadova et al., 2021. <https://www.greenforcare.eu/news/eu-blueprint-on-green-care/>

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## Forest-based Care initiatives as hybrid organizations



- Connecting profit-generation to a social and environmental mission
- Lacking institutional and legal clarity
- Operating across diverse economic sectors
- (So far) Operating in niche markets
- Having diverse organisational structures and collaborative arrangements



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### The impacts of a new focus on socio-cultural services

*"The first and foremost purpose of a forest growth is to supply us with wood material; it is the substance of the trees itself, not their fruits, their beauty, their shade, their shelter, that constitutes the primary object..."*

B.E. Fernow, 1902.  
**Economics of Forestry** (p. 86)

A **gender** revolution in the forestry sector



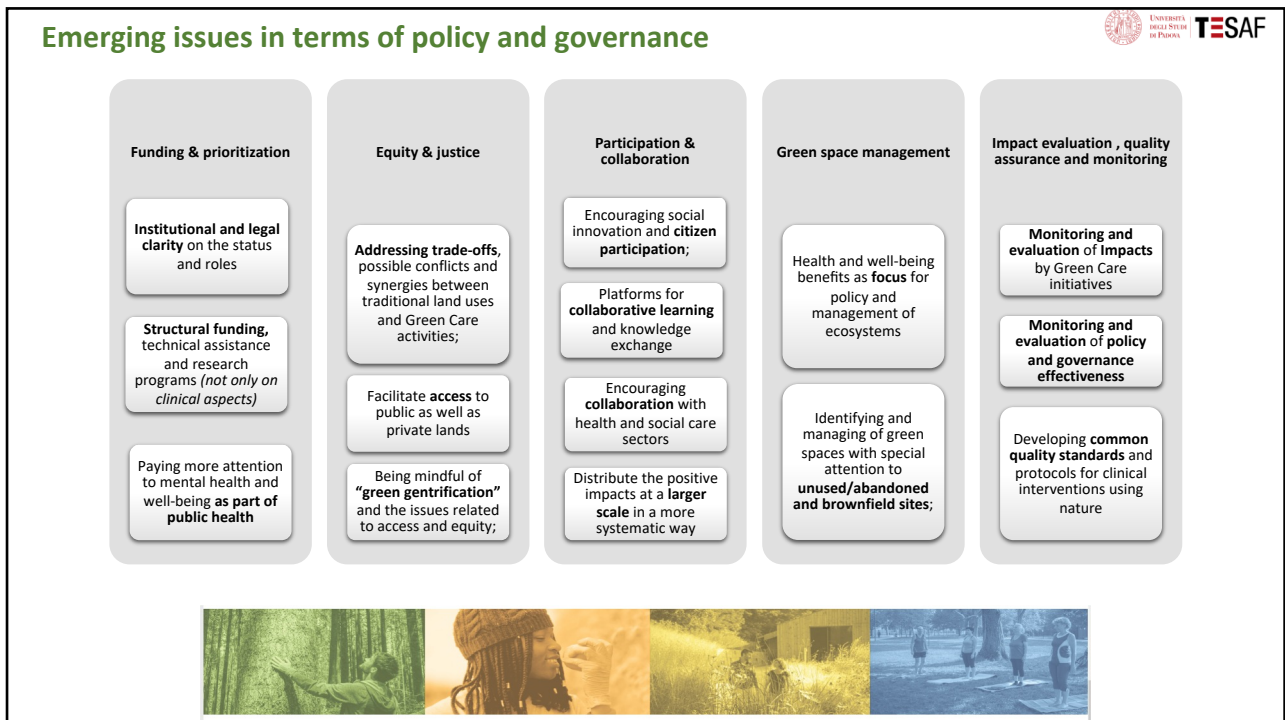
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### Green care governance arrangements in Europe: still a very dynamic context (and poorly monitored)

- **Roles, responsibilities and cross-sectoral linkages** of public and private actors are **still flexible**: not standardised, not monitored, boundaries not clearly defined (yet)
- In Europe forest-based care can be described as a sector characterised by a **bottom-up approach, demand-driven, with context-specific solutions**
- **Governance arrangements are local-specific**, i.e. vary according to:
  - a) the innovators/actors/agents,
  - b) the core activities proposed by the forest-based care initiative,
  - c) the forest sites,
  - d) the existing legal and institutional frameworks.

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**Take home messages**

- Green Care initiatives can contribute to a new perception of the values of nature, to improving social capital and to creating sources of income for implementing SFM
- Political, institutional, financial support and training services are needed for promoting Green Care initiatives (new “green jobs”)
- Collaboration with forestry and healthcare sector is necessary to fill the knowledge gaps
- More information and interdisciplinary research is needed on cost-benefits impacts and proper governance model of forest-based care activities.



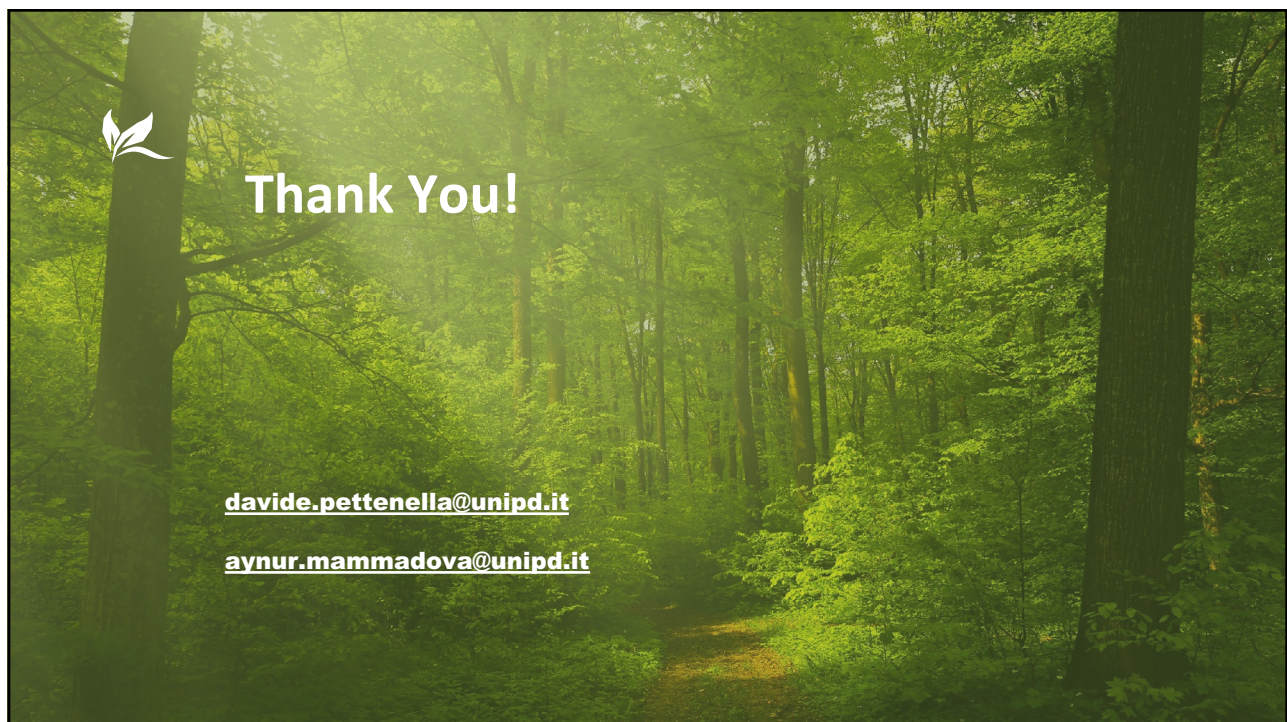
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