



Transilvania University of Brasov
FACULTY OF SILVICULTURE AND FOREST ENGINEERING

IUFRO

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Braşov, 16th October, 2020

The emerging economic role of forest-based cultural services

Davide Pettenella
with Laura Secco and Mauro Masiero
Dipartimento TESAF - Università di Padova



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Outline

- How can we define and classify cultural services?
- How much are they worth?
- What is new with them?
- Conclusion



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Outline

- **How can we define and classify cultural services?**
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Ecosystem Services (ES) classification (MA, 2005)

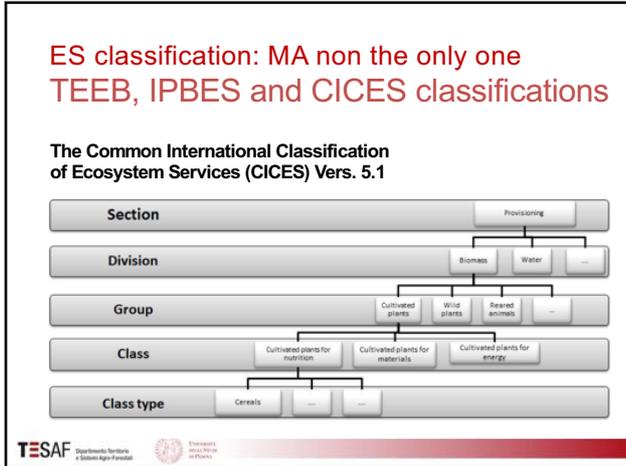


Category	Sub-categories	Examples
Supporting	<ul style="list-style-type: none"> • NUTRIENT CYCLING • SOIL FORMATION • PRIMARY PRODUCTION • ... 	
Provisioning	<ul style="list-style-type: none"> • FOOD • FRESH WATER • WOOD AND FIBER • FUEL • ... 	Wood NWFP Water
Regulating	<ul style="list-style-type: none"> • CLIMATE REGULATION • FLOOD REGULATION • DISEASE REGULATION • WATER PURIFICATION • ... 	Carbon sequestration Biodiversity protection Water cycle regulation Disease regulation
Cultural	<ul style="list-style-type: none"> • AESTHETIC • SPIRITUAL • EDUCATIONAL • RECREATIONAL • ... 	

LIFE ON EARTH - BIODIVERSITY



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Division	Group	Class
Direct, in-situ and outdoor interactions with living systems that depend on presence in the environmental setting	Physical and experiential interactions with natural environment	Characteristics of living systems that that enable activities promoting health, recuperation or enjoyment through active or immersive interactions
		Characteristics of living systems that enable activities promoting health, recuperation or enjoyment through passive or observational interactions
		Characteristics of living systems that enable scientific investigation or the creation of traditional ecological knowledge
		Characteristics of living systems that enable education and training
Indirect, remote, often indoor interactions with living systems that do not require presence in the environmental setting	Spiritual, symbolic and other interactions with natural environment	Elements of living systems that have symbolic meaning
		Elements of living systems that have sacred or religious meaning
		Elements of living systems used for entertainment or representation
Other characteristics of living systems that have cultural significance	Other	Characteristics or feature existence value
		Characteristics or feature option or bequest value

Cultural ES by CICES 5.1: 12 typologies ("Classes")

A classification not much suited for catching the variety and richness of (European) forest-related cultural services

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A proposal for better describing Socio-cultural ES in Europe

- Cultural services (art museums, concerts in the forest, theatre performances ...)

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Art events

Art exhibitions, concerts, drama...

www.artesella.it/en/

www.isuronidelledolomiti.it/EN/sounds-of-the-dolomites/

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Forest concerts

I SUONI DELLE DOLCINI
Dal 30 giugno al 31 agosto 2018

www.isuonidelledolciniti.it/

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Theatre and taijiquan in the forests

Escursione Teatrale 2018

ESCURSIONE TEATRALE 2018

TEATRO, TAIJIQUAN E MUSICA

19 MAGGIO Tagliero - Spazio della Scultura
15-16-17 GIUGNO Arezzo - Parco Nazionale della Foreste Casentinesi
20-21-22 LUGLIO Casaleggio - Parco Nazionale della Foreste Casentinesi
17-18-19 AGOSTO Breda Piave - Parco Nazionale della Foreste Casentinesi
28-29-30 SETTEMBRE Arezzo - Parco Nazionale della Foreste Casentinesi

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

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A proposal for better describing Socio-cultural ES in Europe

- Cultural services (art museums, concerts in the forest, theatre performances ...)
- Educational and pedagogic services (kindergarten or outdoor nursery forest schools, nature trails, bird watching, training in the forest, ...)

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Education and pedagogic activities

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

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 most export success?

By Rupert Neahr

Mappa delle Esperienze Educative in Natura

About 60 initiatives

www.asionalbosco.com/

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Education and pedagogic activities

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- Sport services (hunting, hiking, Nordic walking, mountain biking, orienteering, airsoft, archery, use of adventure parks,...)

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Sport activities and events

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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://umabios.com/forests-cemeteries-green-burials-bios-urn/>

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

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Burial/funeral forests

Boschi Vivi offre la possibilità di interramento delle ceneri del tuo animale

I NOSTRI ALBERI
Gli alberi che puoi scegliere sono di diverse tipologie: l'Albero di comunità, l'Albero personale e l'Albero partner.

ALBERO DI COMUNITA
È il posto in cui si sceglie un albero e la scelta per chi ha uno spirito libero, che ama condividere i propri ideali con gli altri.

ALBERO PERSONALE
È la scelta ideale per chi ama un contatto personale e diretto con la natura.

ALBERO PARTNER
Questo tipo di albero è l'ideale per una coppia che desidera condividere la memoria del proprio amore attraverso un terreno speciale.

<http://boschivivi.it>

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In US even a Guide for burial forest is available

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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- Spiritual and religious services (places for meditation and worship, ecological burial, funeral forests)
- Tourism and recreation (walking, wild forest products picking, camping, use of tree hotels, ...)

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Tree houses



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- Services for social inclusion (activities for the elderly, the handicapped, prisoners, refugees-displaced persons, ...)

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Social inclusion



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

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

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- Spiritual and religious services (places for meditation and worship, ecological burial, funeral forests)
- Tourism and recreation (walking, visits to special landscape, sites and natural monuments, wild forest products picking, camping, use of tree hotels, ...)
- Services for social inclusion (activities for the elderly, the handicapped, prisoners, refugees-displaced persons, ...)
- Services for improving wellness and for therapeutic treatments (forest bathing-Shinrin-Yoku, forest therapy, pet therapy, ...)

"Forest care" o "Green care"

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Forest bathing and therapy Shinrin-yoku (森林浴)

www.shinrin-yoku.org

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Forest bathing and therapy Shinrin-yoku (森林浴) → Forest-contact therapy

https://foresttherapyinstitute.com

http://shinrin-yoku.pt/en

www.samuraispain.org/shinrin-yoku.html

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Green care and forest-care

Austrian Research centre for Forests program (with Rural Development funds)

Green Public Health - Benefits of Woodlands on Human Health and Well-being

Renate Czerwka, Jan Hölzl, Laura Prius, Barbara Scherer, Barbara Schöcher, Daniela Haugla, Anne Ammerlaar, Renate Eder, Martin Eisenberger

Cervinka et al. (2014)
http://bfw.ac.at/greencareforest

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green4c

Green for Health and Social Inclusion

Join Learn Practice

Forest-based care Urban green care Social Agriculture Green Care Tourism

https://www.greenforcare.eu

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Ecosystem Services 1 (2012) 50-61

Contents lists available at SciVerse ScienceDirect

Ecosystem Services

Journal homepage: www.elsevier.com/locate/ecoser

Global estimates of the value of ecosystems and their services in monetary units

Rudolf de Groot^{a,*}, Luke Brander^{b,1}, Sander van der Ploeg^a, Robert Costanza^c, Florence Bernard^d, Leon Braat^e, Mike Christie^f, Neville Crossman^{g,h}, Andrea Ghermandiⁱ, Lars Hein^g, Salman Hussain^j, Pusham Kumar^k, Alistair McVittie^l, Rosmeiry Portela^l, Luis C. Rodriguez^{m,n}, Patrick ten Brink^o, Pieter van Beukering^o

^a Environmental Systems Analysis Group, Wageningen University, P.O. Box 47, 6700 AA Wageningen, The Netherlands
^b Institute for Environmental Studies (IES), VU University, De Boelelaan 1087, 1081 HV Amsterdam, The Netherlands
^c Institute for Sustainable Solutions (ISS), Portland State University, Portland, OR 97201, USA
^d AIB Partnership for the Tropical Forest Margins, World Agroforestry Centre (ICRAF), United Nations Avenue, Gigiri, P.O. Box 30677, Nairobi 00100, Kenya
^e Nature, Wageningen University & Research Centre, Environmentlabelling 2.1 A, 6708 PB Wageningen, The Netherlands
^f School of Management and Business, Aberystwyth University, Cheltenham Building, Aberystwyth SY23 3DD, UK
^g CSIRO Ecosystem Sciences, PMB 2, Clon Central, South Australia 5064, Australia
^h CSIRO Ecosystem Sciences, Billerudon Street, Craes Gardens, ACT 2601, Australia
ⁱ Department of Natural Resources and Environmental Management, Graduate School of Management, University of Huddersfield, Mount Cottrell, Huddersfield, West Yorkshire HD1 3TA, UK
^j Resource Economics and Biodiversity Team, Scottish Agricultural College, King's Buildings, West Mains Road, Edinburgh EH9 1QJ, UK
^k Division of Environmental Policy Implementation (DPEI), United Nations Environment Programme (UNEP), P.O. Box 20552, Nairobi 00100, Kenya
^l Conservation International, 2011 Crystal Drive, Suite 500, Arlington, VA 22202, USA
^m Institute for European Environmental Policy (IEEP), Quai de I'Yve 35/106/106, 1000 Brussels, Belgium

Source: <https://www.sciencedirect.com/science/article/pii/S092180091631309X>

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Value of ES (billion of €)

	Marine coastal	Coastal systems	Coastal wetlands ^a	Wetland wetlands ^a	Wetland water (lakes)	Tropical forest	Temperate forest	Woodlands	Grasslands
Provisioning services	812	55,724	2396	2998	1639	1914	1826	253	1305
1 Food	67	677	2364	1151	614	186	208	52	1162
2 Fodder									
3 Raw materials	8	21,328	12	58	425	198	27	191	68
4 Genetic resources	8	25,848	12	58	425	198	27	191	68
5 Medicinal resources									
6 Ornamental resources									
7 Fuelwood									
Regulating services	8	174,478	25,847	174,312	115,364	187	2129	402	11
8 Climate regulation	85	1188	479	65	488	2064	132	7	40
9 Erosion control									
10 Regulation of water flows									
11 Water treatment	85			852,125	3815	187	8	3	75
12 Climate moderation		153,214	25,369	2829	2887	18	5	13	84
13 Nutrient cycling					1713		3	93	3
14 Pollination					948		39	222	31
15 Biological control					948		11		
Support services	8	16,216	375	17,318	2403	8	38	802	1272
16 Soil formation	8	16,216	375	17,318	2403	8	38	802	1272
17 Genetic diversity	8	16,216	375	17,318	2403	8	38	802	1272
Cultural services	119	108,837	300	2193	4203	2108	867	300	193
18 Recreation	119	108,837	300	2193	4203	2108	867	300	193
19 Recreation	119	108,837	300	2193	4203	2108	867	300	193
20 Inspiration									
21 Spiritual enhancement									
22 Cognitive development									
Total economic value	491	352,249	28,917	193,845	25,682	4267	5284	985	2,871

Numbers in the cells are averages of the values found for a particular service and biome. Calculations are based on a total of 665 values. For details see Appendix 1.

^a Coastal systems include estuaries, continental shelf area and sea grass, but exclude wetlands like tidal marsh, mangroves and salt water wetlands.

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• Unfortunately, no relevant information available in FISE

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- ... neither in State of Europe's Forests 2020 (forthcoming)

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. Muller, 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 Torralba¹, Marko Lovrić², Jeanne-Lazya Roux³, Marie-Alice Budniok⁴, Anne-Sophie Muller⁴, Georg Winkel³ and Tobias Plieninger^{1,5}

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




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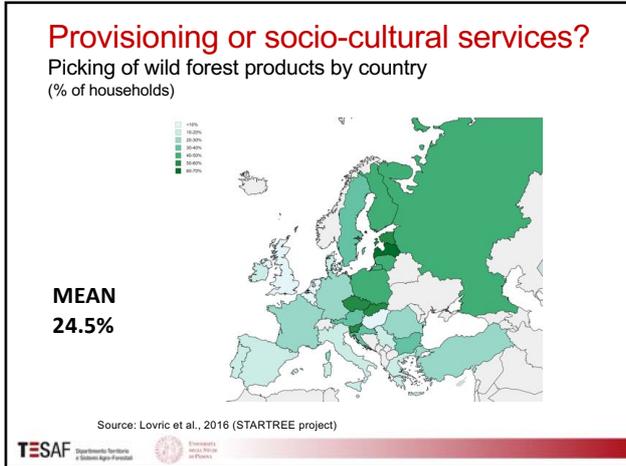
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At least 3 sources of undervaluation of socio-cultural services

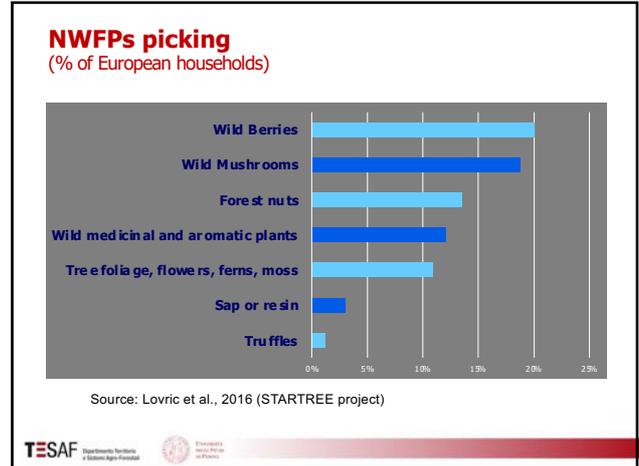
- Some components are **not assessed**
- In advanced economies wild forest products **picking** is considered a provisioning service, while it is **a socio-cultural one**
- The real economic **impact** is often **down-stream** the socio-cultural services supply




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Real economic impact

Forest bathing and forest-contact therapy:
benefits measured with the *Quality-Adjusted Life Years* (QALYs) indicator

Cost/QALY = **50% of the costs** for ordinary treatments

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Another example

Many (new) soft tourist activities:
micoturismo in Castilla y León

<http://www.turismocastillayleon.com/es/gastronomia-enoturismo/micoturismo>

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PARMA FUNGO PORCINO
 Enterprises: 62 (in 2008); > 100 in 2011
 15 Agritourisms/ Farm businesses
 12 Hotels/Guest quarters
 8 Bed&Breakfasts/Inns/Hostels
 9 Cheese, sausage and wine growing and producing factories
 2 Didactic farms
 3 Museums/Private collections
 30 Restaurants/Porterhouses
 26 Typical products sellers

TATTUOGIO
 THE TRAIL
 MAP OF THE TRAIL
 STOPS ALONG THE TRAIL
 PARKS
 MUSEUMS
 TOURIST INFORMATION
 PHOTO-GALLERY

FIRMS
 Bed & Breakfast
 Cantinelle / Osterie / Au Vignobole
 Farmhouses holidays
 Fattorie Industriali
 Hotel
 Masse / Colazione privata
 Ristoranti
 Sale of local products

Link
 Fungo di Borgolameo
 Museo Agario
 Strada del Porcino
 Ecole Nazionale Turismo

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Impacts of socio-cultural services development

The new activities:

- they meet the needs of emerging citizens that the welfare state is often unable to satisfy
- they are linked to new expertise (→ new job opportunities)
- they are able to activate new financial sources (SRI)

For implementing these activities, the private (social) sector is far ahead of the traditional forestry sector, their leaders and their way of thinking and deciding on the use of forest resources

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A simplified view of ES economy

Ecosystem Services	Institutions, drivers	Instruments & theory
• <i>Provisioning</i>	• Market	• (prevailing) prices under market economy; neoclassical economics
• <i>Regulating</i>	• State	• (prevailing) compensations, incentives (PES); environmental economics; State regulated market economics
• <i>Socio-Cultural</i>	• Community	• (prevailing) <i>non-profit sector</i> ; social economics

Social economics is a branch of economics and a social science that focuses on the relationship between social behavior and economics. covering such issues as culture, gender, ethics, and philanthropic behavior.

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The impacts of a new focus on socio-cultural services

- A **gender** revolution in the forestry sector

"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)

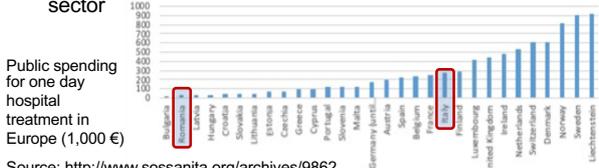



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The impacts of a new focus on socio-cultural services

- A **gender** revolution in the forestry sector
- A **change in funding**: involving the forest sector in the health care and educational systems means increasing in a remarkable way the investments of the public and private sector



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

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

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The impacts of a new focus on socio-cultural services

- A **gender** revolution in the forestry sector
- A **change in funding**: involving the forest sector in the health care and educational systems means increasing in a remarkable way the investments of the public and private sector
- A **cultural change**: in the Covid-19 area, how we measure human progress, how we improve quality of life, towards a less consumptive model? → re-thinking the contents of a bio-economy policy? (more forest based socio-cultural services and less bio-refineries?)

"In the midst of every crisis, lies great opportunity"
Albert Einstein

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Two (at least) lessons to be learned

- In the relation with the **external world**: We need to encourage governments and large institutions to **recognise and respond to these new opportunities**. Think to the Recovery and resilience Plans
- In the relation to our **forest educational system**: we need to adapt our vision of the forest and the contents of our teaching, with more attention to **interdisciplinarity and social sciences**

Are we adequately taking care of forest care issues?

