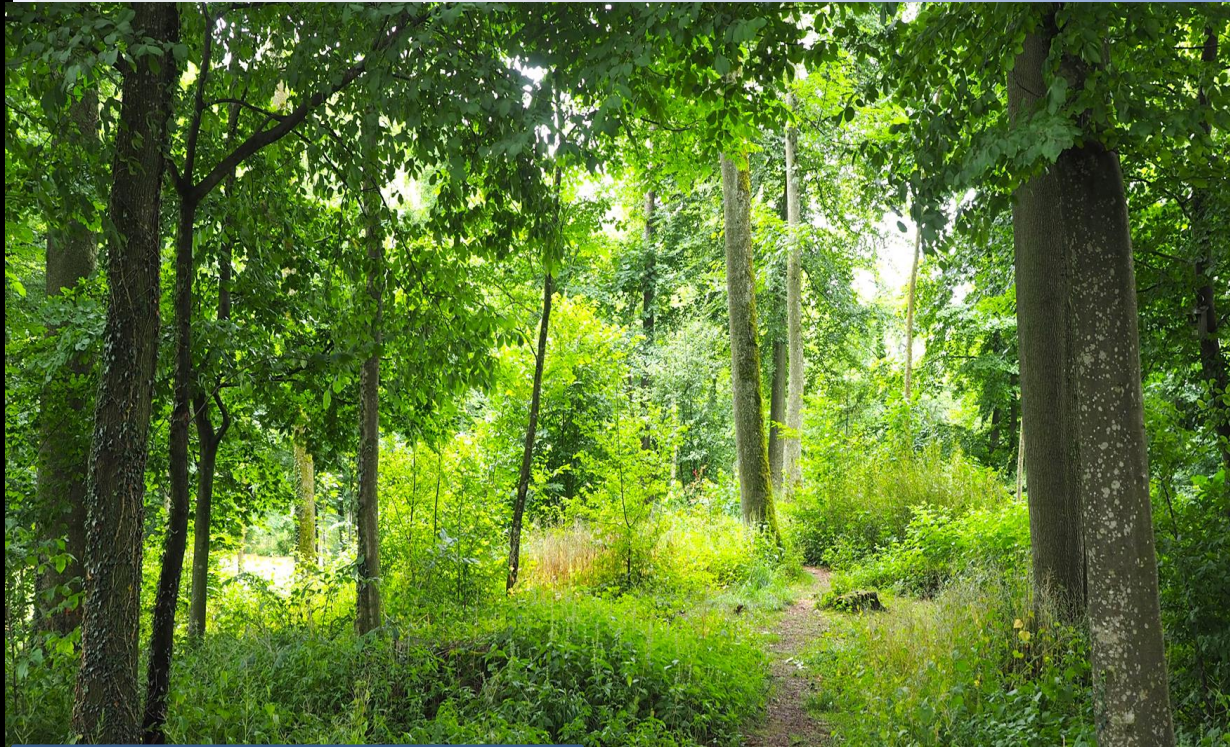




Food and Agriculture
Organization of the
United Nations



Optimal Forest Ecosystem
Functioning
Facilitator
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Green Forest Jobs:
Exploring opportunities and
increasing the capacity of UNECE
member States

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UNECE

Green Jobs in the Forest Sector



UNITED NATIONS

- a) Ecosystem service provision.
- b) Classifications.
- c) The MEA (2005) identified four types of ES, namely:
 - i) provisioning services, i.e. the products obtained from ecosystems;
 - ii) regulating services, i.e. benefits obtained from the maintenance and regulation of ecosystem processes;
 - iii) cultural services, i.e. the non-material benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experiences; and
 - iv) supporting services, i.e. those that are necessary for the production of all other ES.

TABLE 43 Outlook on jobs that would be increasingly needed in the field of activity "Mycoforestry"

| Key competencies, skills to be developed | Jobs that would be increasingly needed |
|---|---|
| <ul style="list-style-type: none"> • University or third-level degree/diploma standard of education in the discipline of forest mycology • Practical laboratory experience of the isolation, identification and classification of forest fungi • Working knowledge of and research competency in the forest mycology interest areas of mycoremediation, mycofiltration, mycomedicines, mycomedicines, myconol and the practice of mycoforestry | <ul style="list-style-type: none"> • Mycology researchers • Specialists in mycology laboratory diagnostics • Forest mycologists, specialists in fungal taxonomy • Specialists in mycoremediation and biological control • Managers of fungal forests • Laboratory and field technicians • Producers of edible fungi, e.g. truffles, ceps, chanterelles |

EXPLORE

ILLUMINATING THE MYSTERIES—AND WONDERS—ALL AROUND US EVERY DAY
 NATIONAL GEOGRAPHIC
 VOL. 233 NO. 6

TALKING TREES

BY DAISY CHUNG AND
 RYAN T. WILLIAMS

IN THIS SECTION
 Gobi Desert
 Pangaea
 Looming Crystals
 Basic Instincts
 Pop. Omniverse

BENEATH A SINGLE PATCH of forest soil lies a vast interconnected web of life, it is a kind of hidden intelligence. By tracking specific chemicals, she and other scientists observed how trees in forming underground symbiotic relationships—called mycorrhizae—with resources with one another.

DEEP CONNECTIONS
 In sharing resources, networked forests with healthy hub trees become more resilient. Researchers examined fungal connections in a Canadian forest (A) and found that the selective removal of hub trees (B)—by loggers, for example, or from an insect invasion—would cause more connections to be lost than if trees were removed randomly. Clear-cutting would destroy all links.

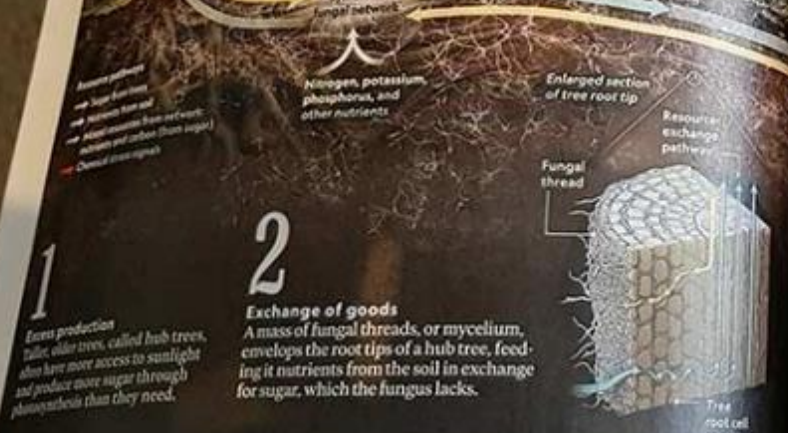


Understory nursery
 Douglas fir trees use the network to identify and nurture related seedlings.



Seasonal partners
 Deciduous paper birch and evergreen Douglas fir trade resources seasonally. In spring and fall, firs share sugar with leafless birches. In summer, birches return the favor to shaded firs.

Fire preparation
 Fir trees infected with budworm send stress signals to nearby trees.



1
Excess production
 Taller, older trees, called hub trees, also have more access to sunlight and produce more sugar through photosynthesis than they need.

2
Exchange of goods
 A mass of fungal threads, or mycelium, envelops the root tips of a hub tree, feeding it nutrients from the soil in exchange for sugar, which the fungus lacks.

3
Deep connections
 Weaker firs in the shaded understory tap into the network as it swells with resources. Firs can also share with other species, such as birch.



WARNING SIGNS
 Through the network, trees under stress can transfer resources, such as water, and can send chemical signals that trigger defensive mechanisms in other trees. Threats like insect infestation and drought are expected to increase as the climate changes.