REPUBLIKA SLOVENIJA
MINISTRSTVO ZA OKOLJE IN PROSTOR

Slovensko partnerstvo za tla

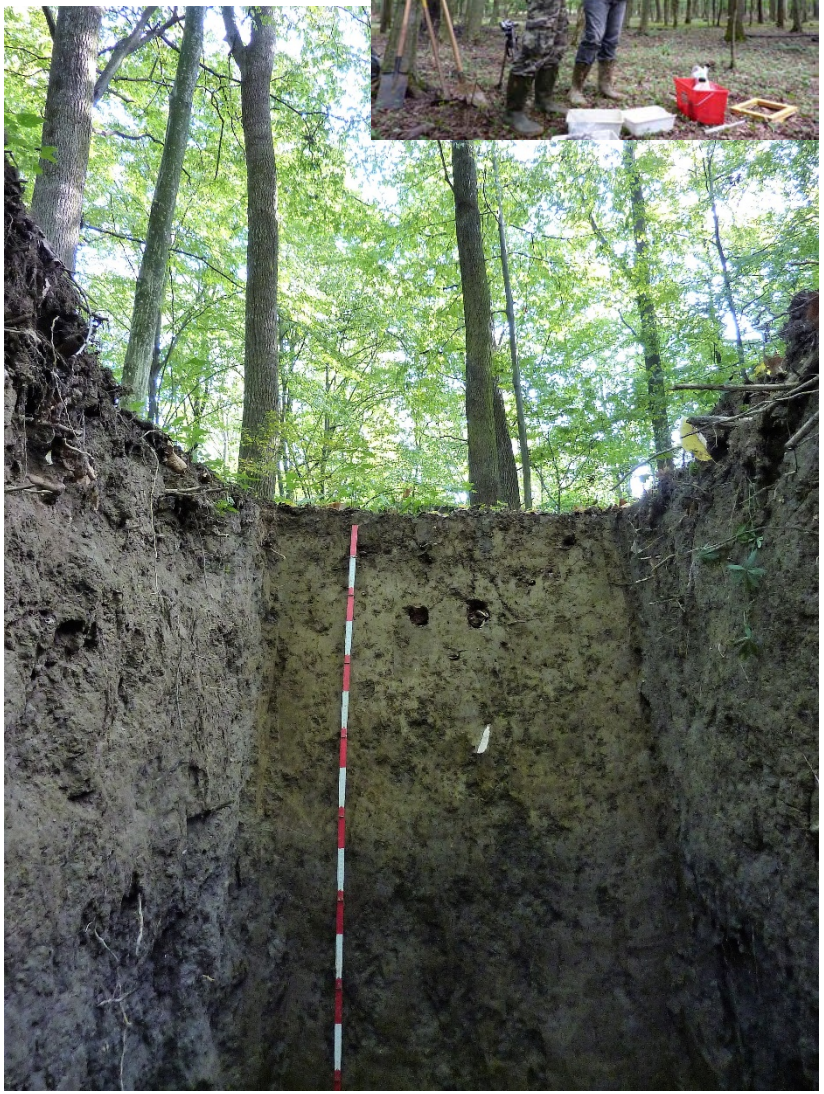
Gozdna tla

Primož Simončič (Gozdarski inštitut Slovenije, GIS)

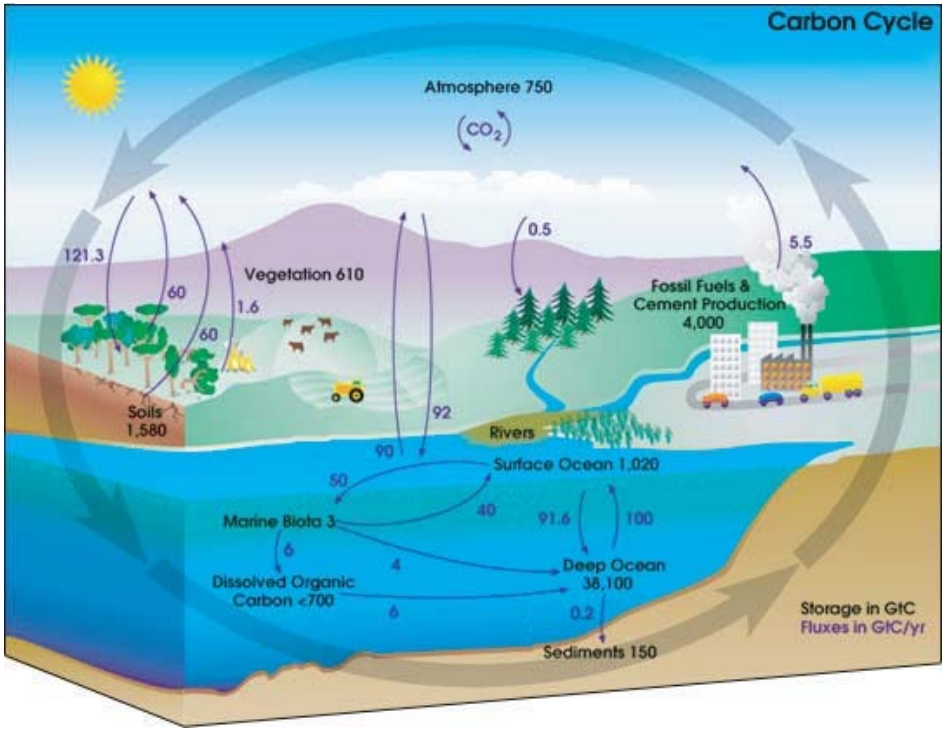
Gozdna tla .....

Značilnosti gozdnih tal v Sloveniji:

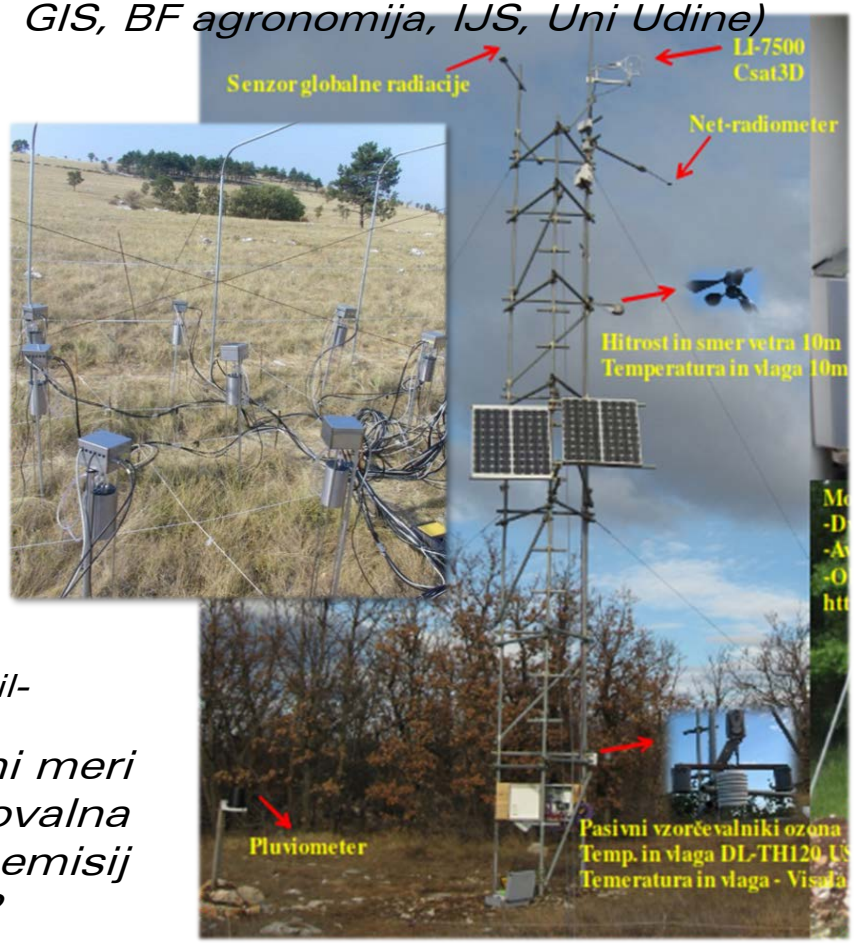
- pestrost talnih razmer z (relativno) ohranjenimi talnimi horizonti
- ohranjena površina tal – opad / Ol, Of, Oh, Ah ...
- gozdna vegetacija in globok koreninski sistem
- naravna sukcesija vegetacije in tal sta povezanega sistema
- zakonodaja prepoveduje vnos k. snovi v gozd in posledično v tla
- trajnostno sonaravno gospodarjenje – vpliv na stanje



Podnebne spremembe, ogljik, organska snov in tla



Ekosistemske meritve toka CO_2 ter meritve respiracije tal *(Ferlan s sod., GIS, BF agronomija, IJS, Uni Udine)*



http://www.fao.org/soils-portal/soil-management/soil-carbon-sequestration/en/

Pariški sporazum in EU zakonodaja – v kakšni meri bodo kmetijstvo, gozdarstvo in lesna predelovalna industrija ter raba tal vplivali na zmanjšanje emisij oz. bilanco TGP v EU v obdobju 2020-2030? Kakšna je vloga tal?

Podnebne spremembe, ogljik, organska snov in gozdna tla

Zaloge organske snovi v organskem horizontu tal (OM_{Ohor}), v mineralnem delu tal (OM_M) in skupaj v tleh (SOM),

ocene zalog organske snovi (OMpool), razmerja med neživo organsko snovjo v tleh in

podploskev *subplot*	OM_{Ohor} (t/ha)	OM_M (t/ha)	SOM (t/ha)	OM_{pool} (t/ha)	$(SOM/OM\text{-}_{pool})*100$ (%)	$(AGOM_\Sigma + BGOM_\Sigma) / OM_{pool}*100$; (%)
SNJ S	9,1	156,4	165,5	1054,9	15,7 %	84,0 %
RAJH S	12,6	135,1	147,8	1245,3	11,9 %	77,1 %
BRI S	37,5	251,8	289,3	604,9	47,8 %	52,2 %
KLA S	75,7	340,4	416,1	774,1	53,8 %	46,2 %

Snežna jama	Rajhenavski Rog	Brička	Kladje
SNJ	RAJH	BRI	KLA
Rendzine, rjava pokarbonatna, izprana pokarbonatna tla	Rendzine, rjava pokarbonatna tla	Distrična rjava tla	Distrična rjava tla, distrični rankerji

Se zaloge ogljika se v gozdnih ekosistemih povečujejo, tako v nadzemni in podzemni biomasi kot v mineralnem delu tal in v opadu ter v mrtvem lesu, na površini gozdnih tal?

Podnebne spremembe, ogljik, organska snov in gozdna tla

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Forest soils in France are sequestering substantial amounts of carbon

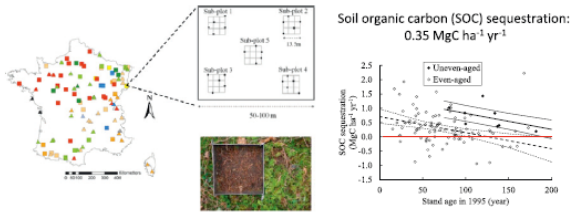
Mathieu Jonard [a,*], Manuel Nicolas [b], David A. Coomes [c], Isabelle Caignet [a], Anaïs Saenger [a], Quentin Ponette [a]

[a] UCL-ELI, Université catholique de Louvain, Earth and Life Institute, Croix du Sud 2, L7.05.09, BE-1348 Louvain-la-Neuve, Belgium
[b] ONF, Office National des Forêts, Département RDI, Bâtiment B, Boulevard de Constance, F-77300 Fontainebleau, France
[c] Forest Ecology and Conservation Group, University of Cambridge, Department of Plant Sciences, Downing Street, Cambridge CB2 3EA, UK

HIGHLIGHTS

- We evaluated whether French forest soils are sources or sinks of carbon?
- Soils were resampled after 15 years in the 102 French forest monitoring plots.
- Forest soils across France have accumulated 0.35 MgC ha^{-1} yr^{-1} between 1993 and 2012.
- Soil carbon sequestration declined with tree age and was affected by stand structure.
- Forest management has the potential to influence this carbon sink.

GRAPHICAL ABSTRACT



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ABSTRACT

The aim of this study was to assess whether French forest soils are sources or sinks of carbon and t quantify changes in soil organic carbon (SOC) stocks over time by resampling soil in long-terr forest monitoring plots. Within each plot, and for each survey, soils were sampled at five points selecte in five subplots and divided into layers. Composite samples were produced for each layer and subplo then analysed for mass, bulk density and SOC. Linear mixed models were used to estimate SOC changes ove 15 years between two soil surveys carried out in 102 plots in France. A factor analysis and a budget approach were also used to identify which factors and processes were primarily responsible for SOC dynamics. Forest soils throughout France substantially accumulated SOC (+0.35 MgC ha^{-1} yr^{-1}) between 1993 and 2012. The SOC sequestration rate declined with stand age and was affected by stand structure. Uneven-aged stands sequestered more SOC than did even-aged stands ($p < 0.001$). For the forest floor, the SOC sequestration rate estimated by the budget approach was in agreement with that based on stock comparison. This increasing SOC stock in the forest floor can be explained by recent changes in certain factors affecting litter decomposition (climate and litter quality). For the mineral soil, the budget approach was unable to replicate the observed SOC sequestration rate, probably because SOC stocks were not yet at equilibrium with litter inputs at the beginning of the monitoring period (contrary to our steady-state assumption). This explanation is also supported by the fact that the SOC sequestration rate decreased with stand age. As the SOC sequestration rate declines with stand age and is higher in uneven-aged stands, forest management has the potential to influence this carbon sink.

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ORIGINAL PAPER

Carbon stocks in tree biomass and soils of German forests

Nicole Wellbrock*, Erik Grüneberg, Thomas Riedel, Heino Polley

Thünen Institute of Forest Ecosystems Alfred-Möller-Str. 1, Haus 41/42, 16225 Eberswalde, Germany

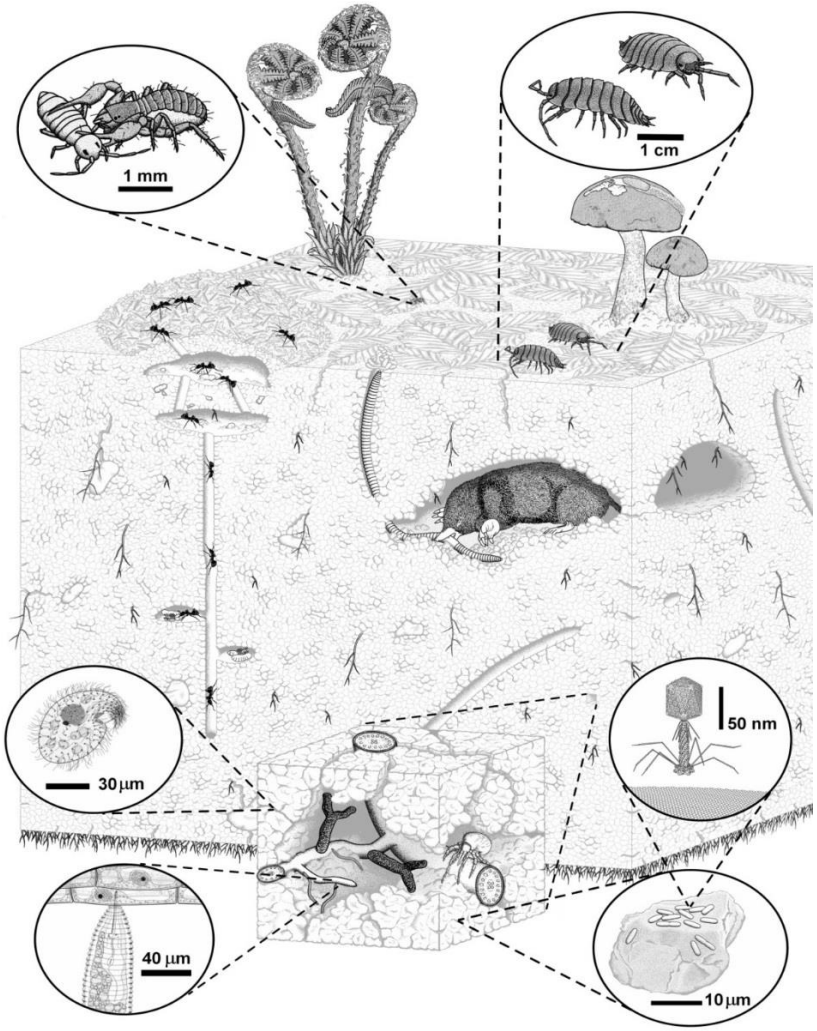
Abstract
Close to one third of Germany is forested. Forests are able to store significant quantities of carbon (C) in the biomass and in the soil. Coordinated by the Thünen Institute, the German National Forest Inventory (NFI) and the National Forest Soil Inventory (NFSI) have generated data to estimate the carbon storage capacity of forests. The second NFI started in 2002 and had been repeated in 2012. The reporting time for the NFSI was 1990 to 2006. Living forest biomass, deadwood, litter and soils up to a depth of 90 cm have stored 2500 t of carbon within the reporting time. Over all 224 t C ha^{-1} in aboveground and belowground biomass, deadwood and soil are stored in forests. Specifically, 46% stored in above-ground and below-ground biomass, 1% in dead wood and 53% in the organic layer together with soil up to 90 cm. Carbon stocks in mineral soils up to 30 cm mineral soil increase about 0.4 t C ha^{-1}yr^{-1} stocks between the inventories while the carbon pool in the organic layers declined slightly. In the living biomass carbon stocks increased about 1.0 t C ha^{-1} yr^{-1}. In Germany, approximately 58 mill. tonnes of CO_2 were sequestered in 2012 (NIR 2017).

Key words: forests ecosystems; soil; carbon stocks; Germany; National Forests Inventory; National Forests Soil Inventory

Editor: Bohdan Konôpka

Monitoringi zalog ogljika v gozdnih tleh v Franciji in Nemčiji kažejo na povečevanje zalog ogljika za cca 0,35-0,40t C ha^{-1} v Franciji v obdobju 1993-2012 oz. v Nemčiji v obdobju 2002-2012.

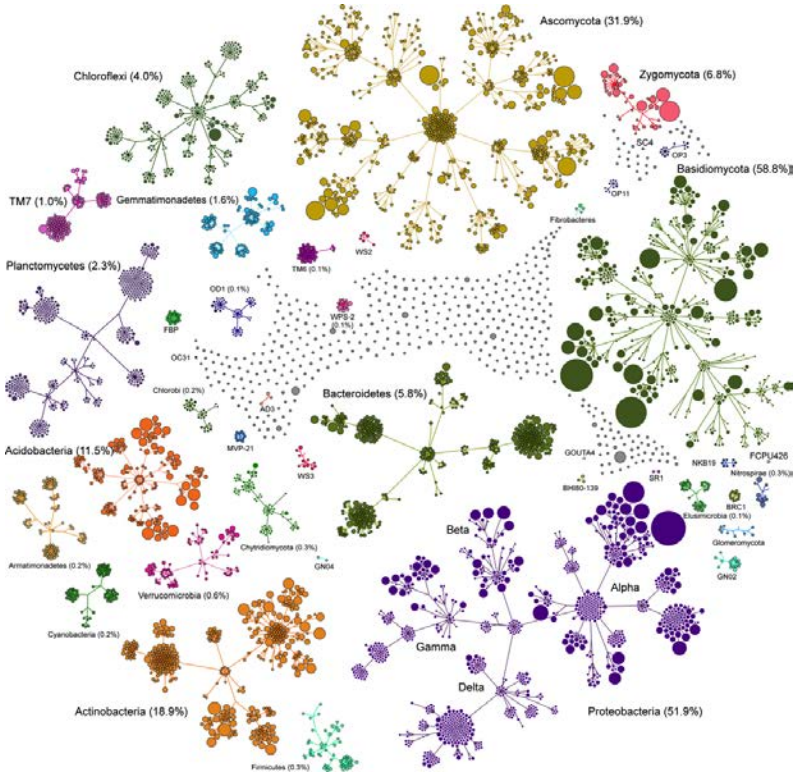
Biologija gozdnih tal



Risba: Marko Bajc, FIGE, Gozdarski institut Slovenije

Biotska pestrost in procesi v gozdnih tleh in mikorizosferi

https://twitter.com/theGSBI



Hartmann et al. 2017 Mol. Ecol.

Mikrobiom tal raziskujemo z metagenomiko

Biologija gozdnih tal