

Horizons in soil conservation: protecting pedodiversity

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World Soil Day WSD 2020 Celebration in the Russian Federation



impacts. Soil can play a positive role in reducing the impacts of climate change, by sequestering CO₂, sustainably managing the resource and restoring degraded soils.

sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.'

food security and improved nutrition and promote sustainable agriculture.'

ages by preventing dangerous chemicals, air and water pollution from contaminating land and soil. Additionally, reducing soil degradation can help to increase food production.

Soil is getting momentum



Soil and United Nations Sustainable Development Goals
eea.europe.eu, 2019

'Ensure sustainable consumption and production patterns,' through making sure chemicals and waste does not make its way into the

'Make cities and human settlements inclusive, safe, resilient and sustainable,' by ensuring land and soils are

'Ensure availability and sustainable management of water and sanitation for all,' by preserving soil quality because of

Soil ecosystem services

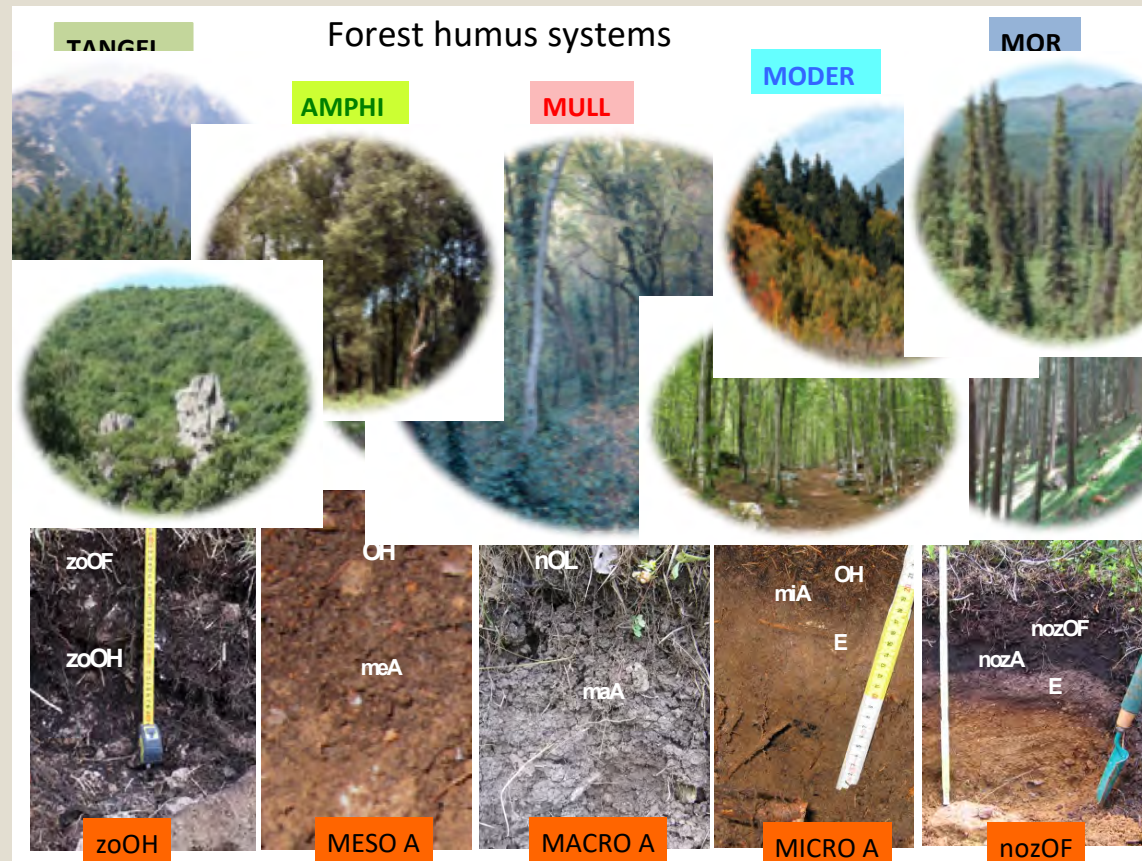
- Production of food, fuel & energy
- Regulation of nutrients and uptake
- Clean air & water
- Regulation of runoff and sediment delivery
- Decomposition and cycling of organic matter
- Gas exchange and carbon sequestration
- Medicines
-
-
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First 30 cm?

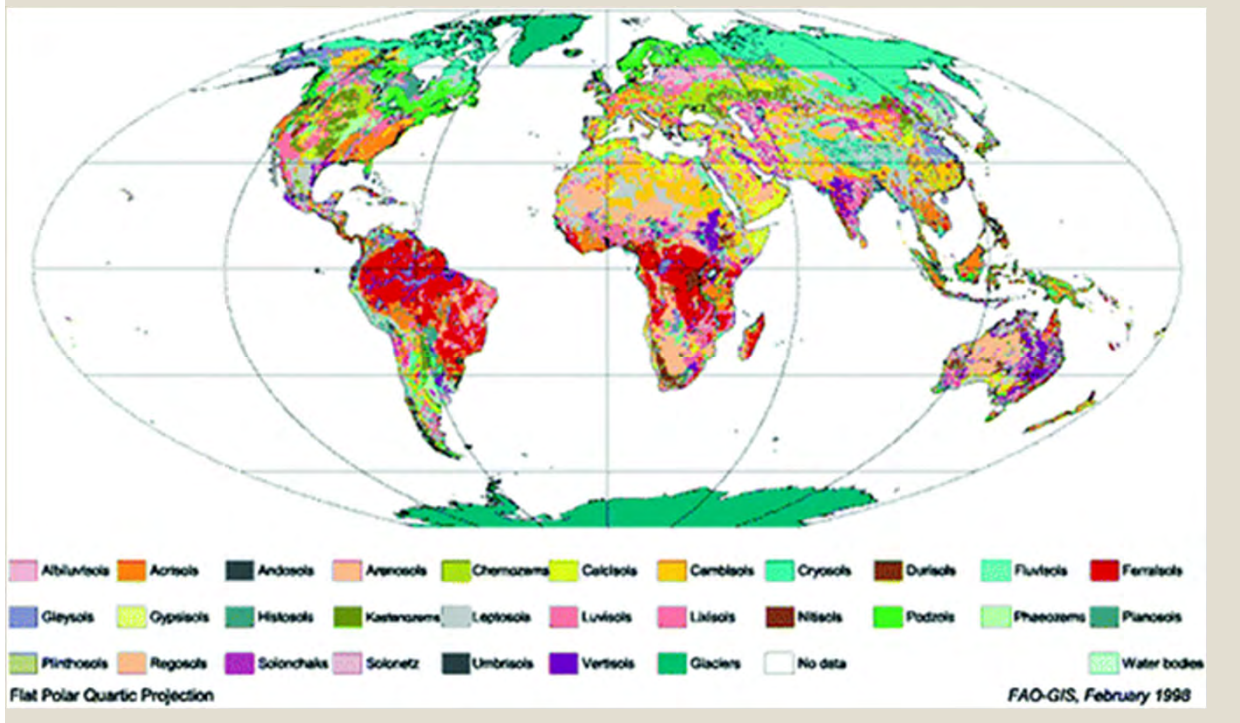
And then?

Soil self-organization



Zanella A. et al., 2018

Pedodiversity



Food and Agriculture
Organization of the
United Nations

WORLD
SOIL
RESOURCES
REPORTS

106

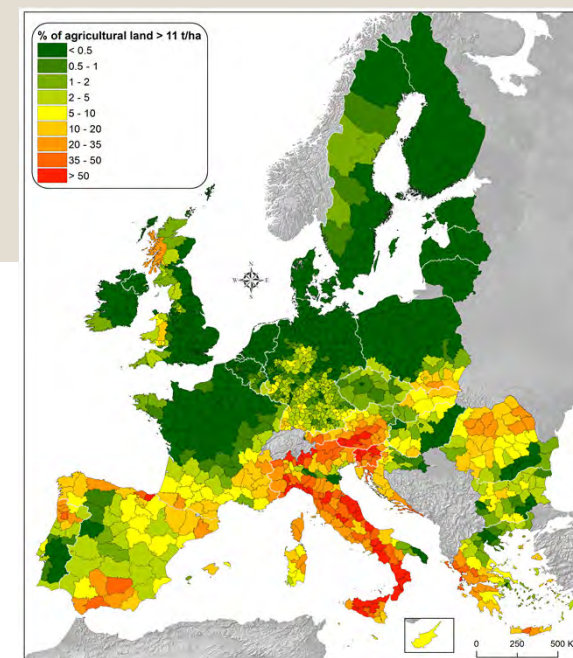
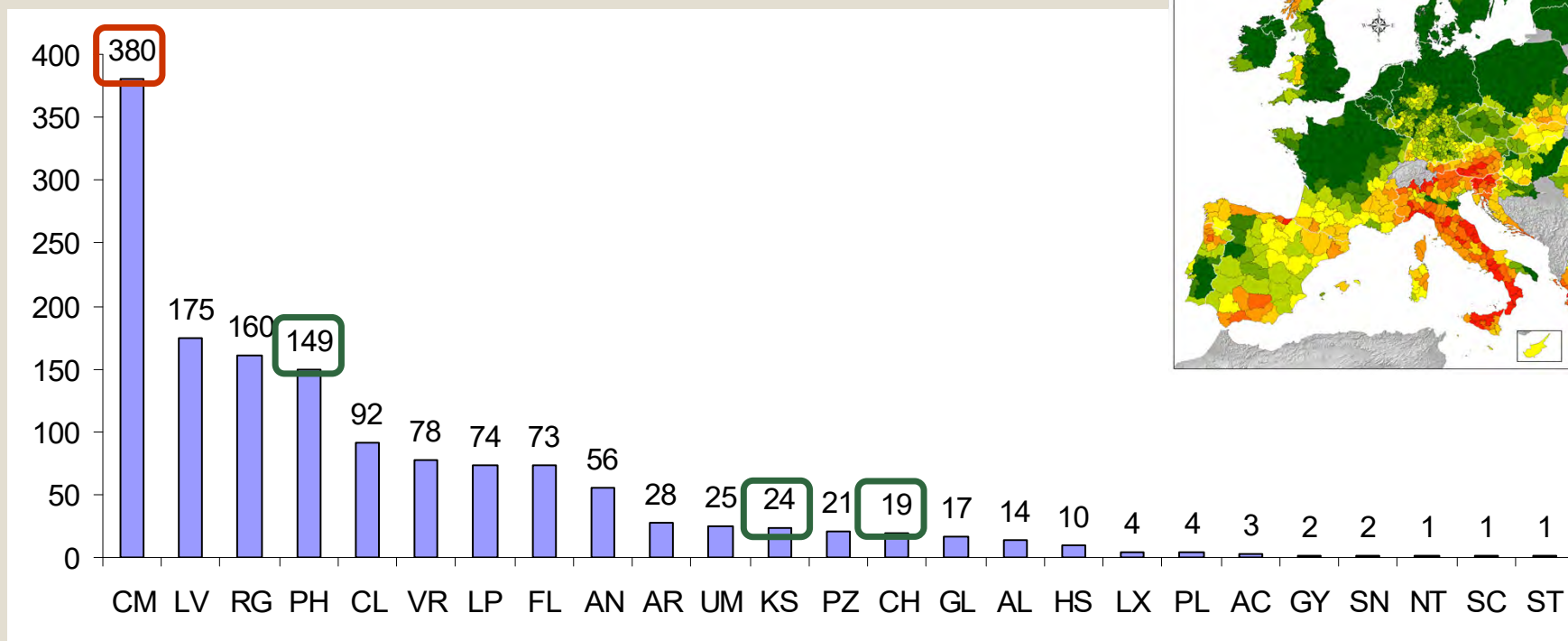
World reference base for soil resources 2014

International soil classification system
for naming soils and creating legends for soil maps

Update 2015



Pedodiversity in Italy (n. of soil typological units)



Costantini E. et al., 2013

Threats to pedodiversity: erosion



Threats to pedodiversity: bulldozer erosion



Threats to pedodiversity: bulldozer erosion



Threats to pedodiversity: agricultural intensification



Dazzi C. et al., 2019

Threats to pedodiversity: urban sprawl 0.43% of land surface

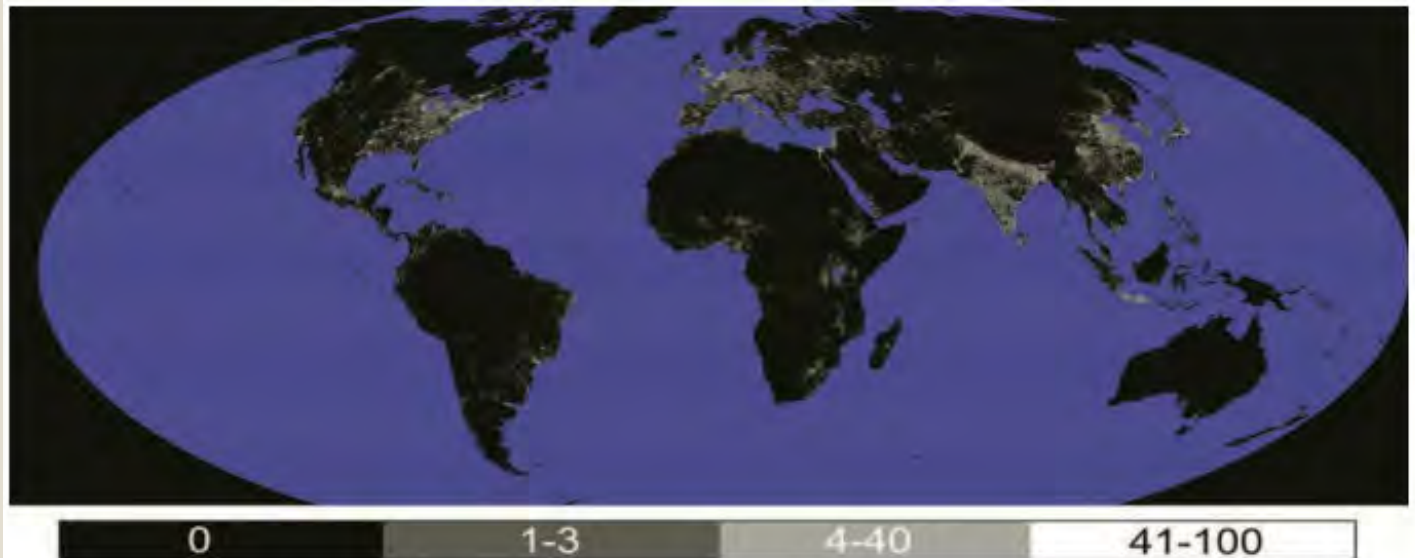
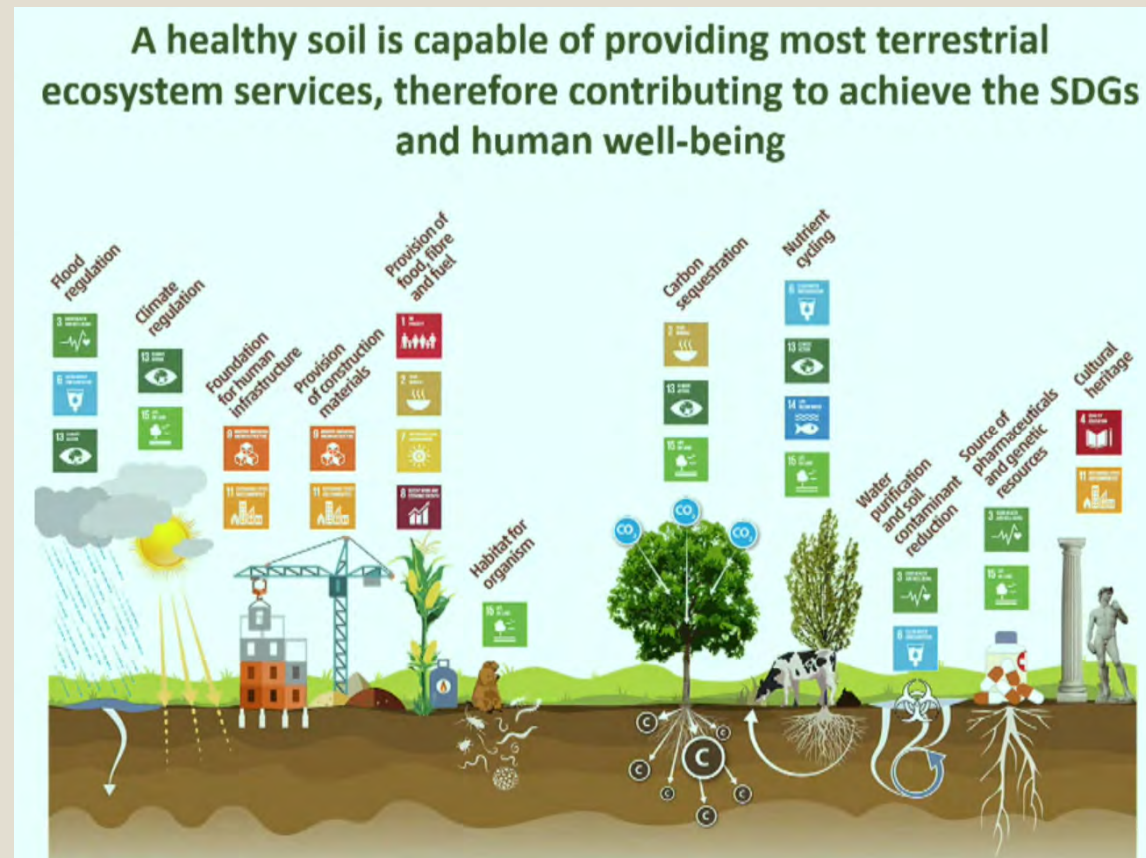


Figure 1. Satellite derived estimates of constructed area densities for 2000–2001 in a 1 square kilometre grid. The figure shows these values aggregated into four greyscale levels with percentage cover ranging from 0% to 100%

Soil sealing: ec.europa.eu (2012)

Protecting soil self-organization and pedodiversity to protect soil health and ecosystem services



Vargas R., 2020





5 DECEMBER 2020

World Soil Day

Keep soil alive,
protect soil biodiversity

Have a nice
soil day!