Phytoremediation: A green solution

Clausen, Lauge Peter Westergaard; Nielsen, Mette Algreen; Trapp, Stefan

Publication date:
2014

Document Version
Publisher's PDF, also known as Version of record

timbre

Tailored Improvement of Brownfield Regeneration in Europe

Phytoremediation: A green solution

18/09/2013 – timbre workshop, Sprotawa, Polen

Lauge Clausen: lpwc@env.dtu.dk
Mette Algreen Nielsen: mmbr@env.dtu.dk
Stefan Trapp: sttr@env.dtu.dk

Content

timbre

1. Short introduction
2. The processes
3. Important to consider
4. Conclusion

1. Introduction

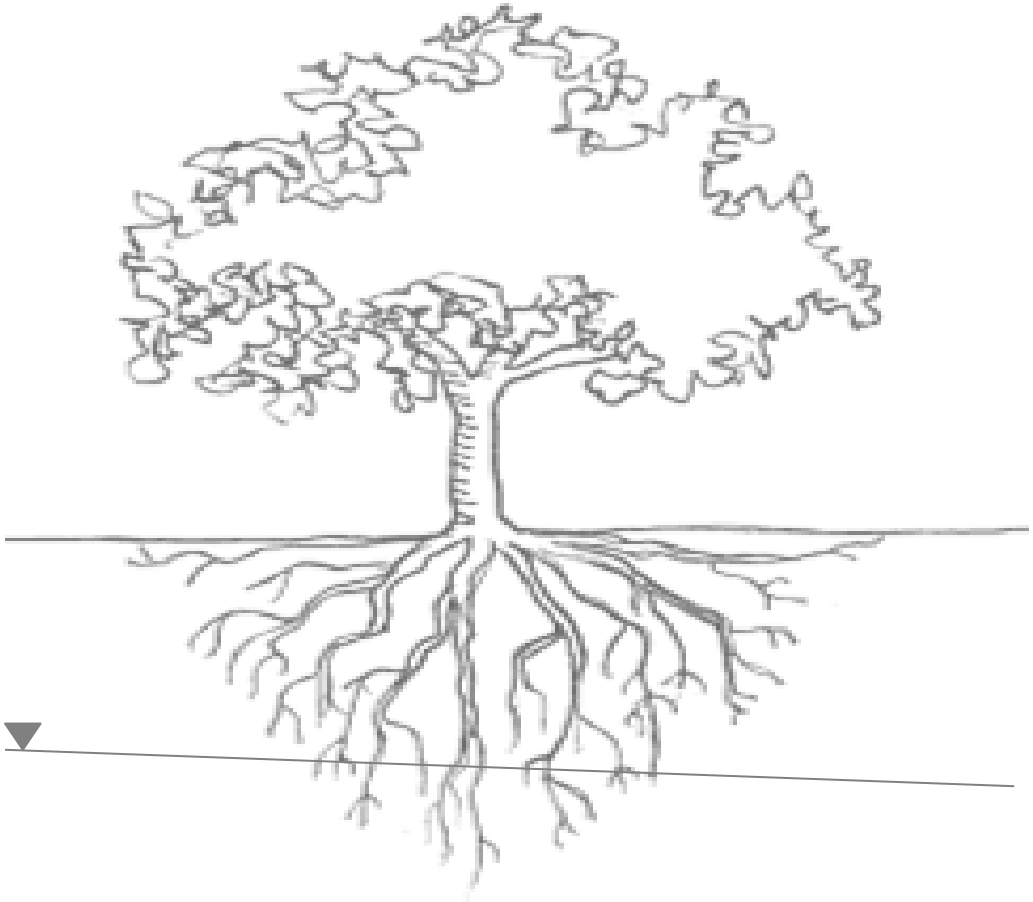
Phyto = plant (old greek)

Remedium or remediation = restoring of balance

→ **Treatment of contaminated soil by use of plants**

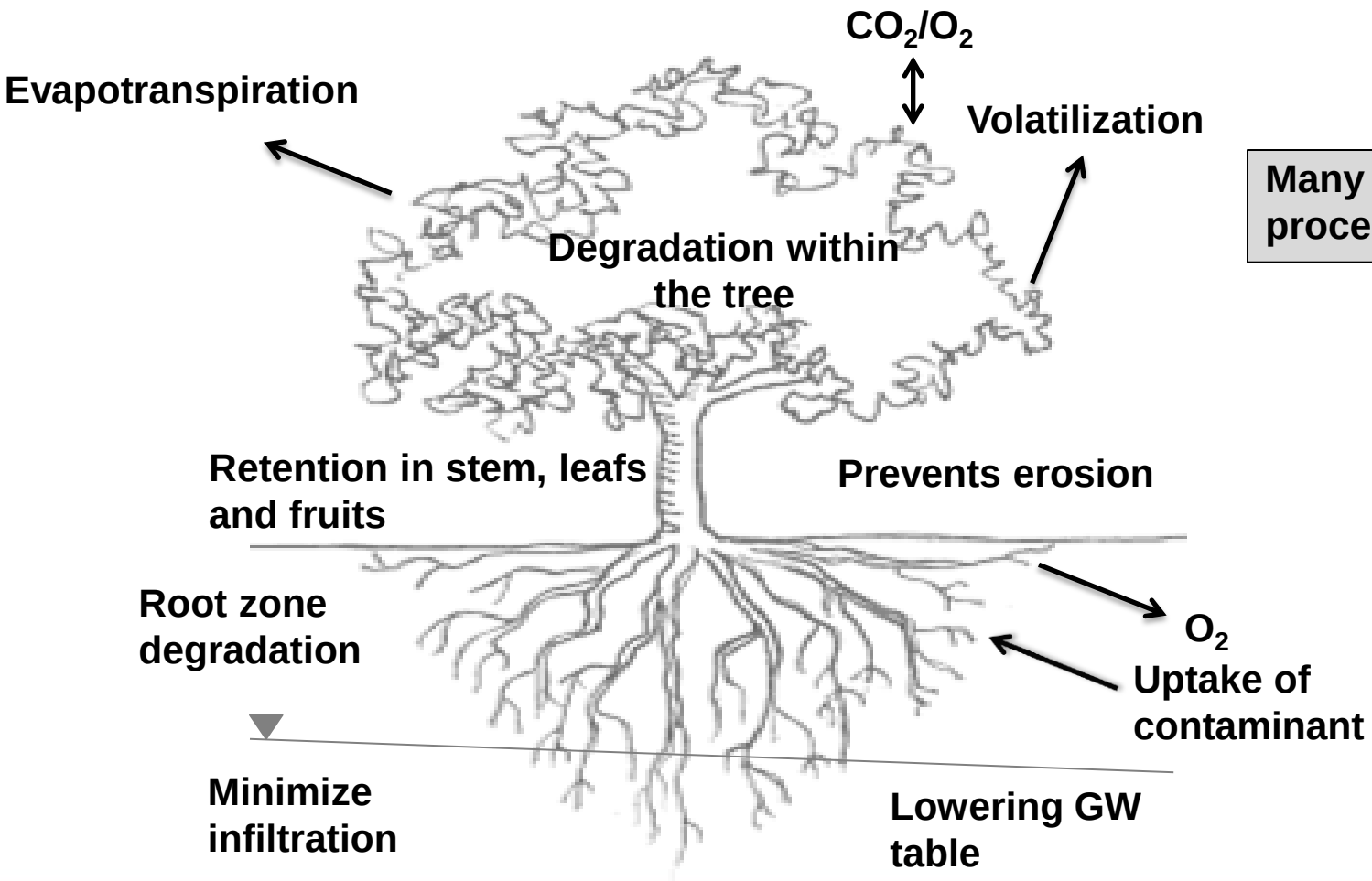
2. The processes

What happens within and around a tree?



2. The processes

What happens within and around a tree?



Many other processes ?

2. The processes

- **Phytoextraction**:
  Transfer of pollutants to the vegetation.
- **Phytovolatilization**:
  Volatilization of components through trunk or leafs.
- **Rhizo- and phytodegradationion**:
  Degradation of contamination in the root zone or inside the plants.
- **Hydraulic control and soil fixation**:
  Plants bind the soil and minimize infiltration.

3. Important to consider

- Phytoremediation takes time – years or even decades.
- Limited by soil toxicity and climate.
- Only useful for shallow contamination.
- The costs equals natural attenuation.
- Decrease downwards migration of contaminants.
- Plants enhance degradation by natural degraders.
- Fixates the soil.
- Looks nice during treatment.

4. Conclusion

- Often not an option at urban sites - unless a park is desired.
- Very useful for large size areas with shallow contamination.
- Very useful for low-priority sites which needs to be handled.

Thank you for your attention!

timbre

Tailored Improvement of Brownfield Regeneration in Europe

Lauge Clausen

Institution:

Technical University of Denmark (DTU)

2800 Kgs Lyngby, Denmark

Contact: lpwc@env.dtu.dk

www.timbre-project.eu

SEVENTH FRAMEWORK PROGRAMME

TIMBRE acknowledges funding by the European Community's Seventh Framework Programme under grant agreement 265364