



Combating land degradation: the potential of soil reversion

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Land degradation is usually not seen as a major problem in industrialised countries, although continuous soil sealing for human settlements and infrastructure entails the loss of agricultural land, landscape fragmentation and the loss of natural habitats. In many European countries, land-take on greenfields is unbowed, while, at the same time, there is a considerable number of unused brownfields, like abandoned rail yards and industrial or military sites. In addition, many new by-pass roads have been constructed to take up the volume of traffic and unburden the towns and villages from traffic emissions, but the old roads are rarely downgraded or reconverted and risk being used as shortcuts. Today the sealed area exceeds the requirements of the current generation and contributes to degraded land with heavily disturbed soil-borne ecosystem services. Soil reversion, i.e. replacing a sealed surface with soil to restore ecosystem services, could mitigate this unsustainable trend that restricts the options of future generations.

This contribution discusses the potential and challenges of soil reversion to reduce net soil loss. The expanses of brownfield area vary between countries, whereas the rate of new soil sealing is still high in most countries and soil reversion should be considered more. Our research revealed that the current techniques enable successful restoration of agricultural soils and pioneer habitats on site. However, re-converting single small areas can hardly mitigate landscape fragmentation at a regional scale. The same principle prevails as for soil sealing, but in the inverse way: the benefit of soil reversion may appear small for single cases, but in the sum soil reversion might be effective.

Today, many brownfield areas stay sealed because of economic and political reasons, or because the potential benefit from restoring ecosystem services at these brownfield sites is not known. We developed a mapping approach to assess the potential performance of ecosystem services on several industrial brownfield sites in Switzerland. This mapping method provides more tangible information about potential ecosystem service performance, which could support political decision making on the re-use of brownfields.

We will present the examples of soil reversion we investigated and identify the obstacles of soil reversion. We will further discuss approaches to promote more soil reversion by means of current or new policy instruments.