

# ES-Certificates save the World – at least Orchard Meadows

## Commodification of Ecosystem Services

### Introduction – What are orchard meadows?

- 🍎 widespread traditional cultural landscape in Europe (Europe: ca. 1 Mio. ha)
- 🍎 cultivation of orchard meadows (OM) is officially declared Intangible Cultural Heritage by UNESCO (GER, AU)
- 🍎 traditional agroforestry system: OM combines fruit tree growing most frequently with permanent pasture.
  - large-crowned fruit trees in wide distances, mostly high-trunked and strong-growing
  - characterized by different age, size, as well as fruit varieties, and species (Herzog and Oetmann 2001; Herzog 1998)



very high biodiversity: 5,000+ animal and plant species in OM

### Current status – Traditional cultural landscape with very high biodiversity and extent of ES

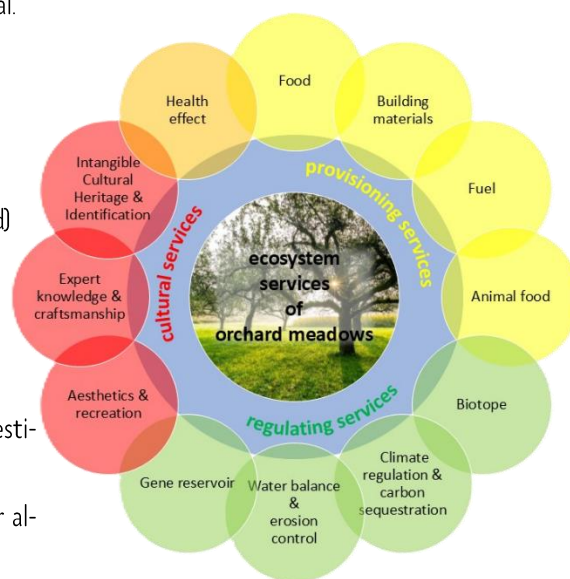
- 🍎 traditional agroforestry system with the “greatest” biodiversity and extent of ecosystem services of all cultural landscapes: 5,000 animal and plant species (Rösler 1993)
  - 🍎 decline in stocks of 60-70% since 1950: threatened with complete destruction (red list of endangered biotope types in Germany) (BMUV, 2017)
  - 🍎 lack of economic basis due to the considerable amount of time and effort required for maintenance and preservation compared to income from product sales
- ⇒ **In line with other traditional systems, long term conservation of the OM system needs financial incentives for farmers, either by market or by public subsidies** (Flinzberger et al. 2020; Forejt and Syrbe 2019; Herzog 1998; Plieninger et al. 2013; Schaich et al. 2010; Tojanko et al. 2011; Wolpert et al. 2020).

Type of landscape	potential total species occurrence
arable land (wheat and maize)	6,54
modern agroforestry system (walnut trees for timber production)	7,98
orchard meadows (high-stemmed cherry trees)	13,10

Monitoring of species occurrence in different agroforestry systems. Orchard meadows with the highest species occurrence (source: own illustration based von Kay et al. (2019))

### Examples for special ecosystem services of OM

- 🍎 food: fresh & dried fruit, fruit juice & juice spritzer, jam, cider/perry, Secco
- 🍎 animal food: gras/hey/silage, fruit, tree foliage (extension of the grazing period)
- 🍎 carbon sequestration through permanent grassland and trees
- 🍎 climate regulation: microclimate cold air production
- 🍎 gene reservoir: 5.000+ fruit types (climate-resistant varieties)
- 🍎 Intangible Cultural Heritage & identification: influence on society (customs, festivals, traditions), regional identity
- 🍎 health effect: landscape lowers blood pressure, old fruit varieties suitable for allergy sufferers, hyposensitization for allergy sufferers



# ES certificates - Rewarding the provision and conservation of biodiversity and ecosystem services

**Aim: Integration of ecosystems services in value chains via ES-Certificates and preserving high levels of biodiversity and ES**

## Current status

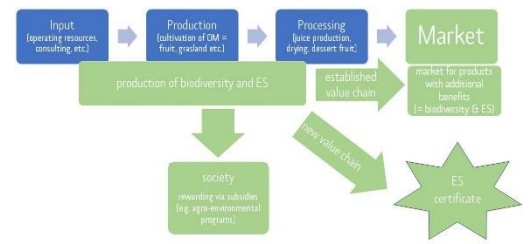
- 🍅 lack of profitability ⇒ termination of management (cultivation)
- 🍅 decreasing extent of biodiversity and ES due to missing replacement planting, loss of trees, lack of underutilisation, succession, etc.

## Short term scenario (with ES-Certificates)

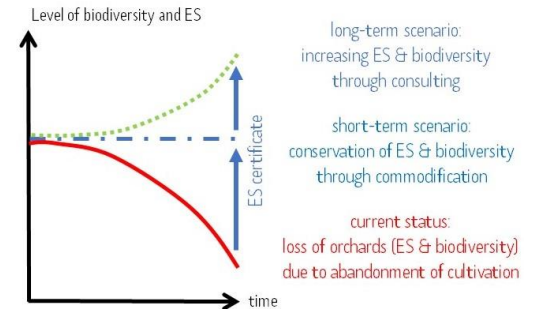
- 🍅 commodification of ES via certificates (and other paths: more funding, higher sales revenues)
  - ⇒ economic efficiency given
  - ⇒ preserving of biodiversity and ES

## Long term scenario (ES-certificates included cultivation guideline)

- 🍅 mandatory cultivation guideline for certified OM areas
- 🍅 consulting & support for further development of certified OM areas
  - ⇒ increase in biodiversity and scope of ESS



Schematic value chain orchard meadows with integration of biodiversity and ES (source: own illustration)



Schematic description of the implementation of ES certificate in practice (source: own illustration).



Schematic description of the implementation of ES certificate in practice (source: own illustration).

## References

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