Rewilding in practice: the role of herbivore diversity
Rewilding is not about restoring tradition or cultural heritage
Rewilding is restoring once lost herbivores (and predators) that belong here
Restoring the co-evolution of landscape, plants and animals
Once Europe housed a huge diversity of large herbivores
Predators were omnipresent
Trophic position

Food web on African savanna

small

Landscape impact

Food web on African savanna

Trophic position

quality ←↔→ quantity

Selective feeders ←↔→ bulk feeders

Which ones do we need for ecosystem restauration
Many herbivores are still available.
E.g. wisents open up dune shrubbery
Horses shorten the grass

Rabbits profit
- Debark bushes and
- Shorten grass even more
Facilitation on sandy soil
Competition on sandy soil
Facilitation on sandy soil
Facilitation on sandy soil

Wisent
Horse
Rabbit

Grased Calamagrostis
Short grassland

Facilitation on sandy soil
Facilitation on sandy soil
Facilitation on sandy soil
Grazing on sandy soil
Many herbivores involved
Why doesn’t the forest disappear?
Large herbivores facilitate germination of woody species.
Thorns protect
Forest rejuvenates in open land
Trees appear adapted to the presence of large herbivores
Wandering open forest landscapes
Abiotic and biotic processes co-operate.
Abiotic and biotic processes co-operate
In opened forest bushes and flowers bloom
Many small animals and flowers profit from light, warm micro-climate and open structure.
Not only grazing
Small effect, but present on a large scale.
Natural herd composition, more result
Large herbivores transport seeds.
Animal trails connect heavily used area’s
Pioneer species profit

Sand lizard / zandhagedis (Lacerta agilis)

duinviooltje (Viola tricolor subsp. curtisii)
Natural, medicine-free dung is a biodiversity hotspot.

Don’t treat herbivores with antibiotics!
Much more than just grazing

Large herbivores:

- Graze, browse and debark
- Facilitate other species
- Stimulate and suppress plant growth
- Suppress invasive species
- Spread seeds
- Take sand baths and make bull pits
- Rub their coat
- Concentrate dung
Much is still unknown

What is the impact of
• Water buffalo
• Moose

What is the effect of migration
• From flood plains to dry sandy soil
• Towards water in dry seasons
• From mountains to valleys or up into alpine meadows

The role of predation
Seasonal migration enlarges carrying capacity and species composition.
Predation balances the plant-herbivore ecosystem
Facilitation in a nutrient rich system
And competition
Herbivore body mass determines how populations are regulated.

Natural densities

Loss of biodiversity and landscape structure

**Over-grazed**

- High biodiversity
- Food surplus in summer
- Flowers blossom and set seeds
- In autumn dry vegetation full of seeds

**Under-grazed**

No visible effect, “homeopatic”
Large predators are essential to suppress medium sized ungulates.
Conclusion

Natural processes interact
- Wind, water and fire for large scale effect
- Herbivory & predation for details
- Larger herbivores have a bigger impact on landscape and biodiversity

No single species does the whole job
- They all graze, browse, wallow, rub and shit
- Their differences, competition and facilitation fuel biodiversity
- Every habitat has its own key species

Natural herd composition
- Male competition results in more diversity

There is still a lot to find out
Thanks for your attention!