

The role of large ungulates in forest ecosystems

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Acknowledgements

Plant assemblages

Vertical structure

Diversity

Composition

Horizontal structure

Boulanger et al. 2018 (Glob Chang Biol)
Baltzinger et al. 2022 (Historical Ecology)

Habitat modification



Cascading
effects



Garrido et al. 2019 (J Appl Ecol)
Baltzinger et al. 2016 (Bas Appl Ecol)

Energy flow and matter cycling

- Litter quality
- Biomass losses
- Inputs & outputs

Primary productivity ←

McInnes et al. 1992 (Ecology)
Abbas et al. 2012 (Oikos)
Daufresne 2021 (Ecol Lett)

Seed dispersal

Epizoochory

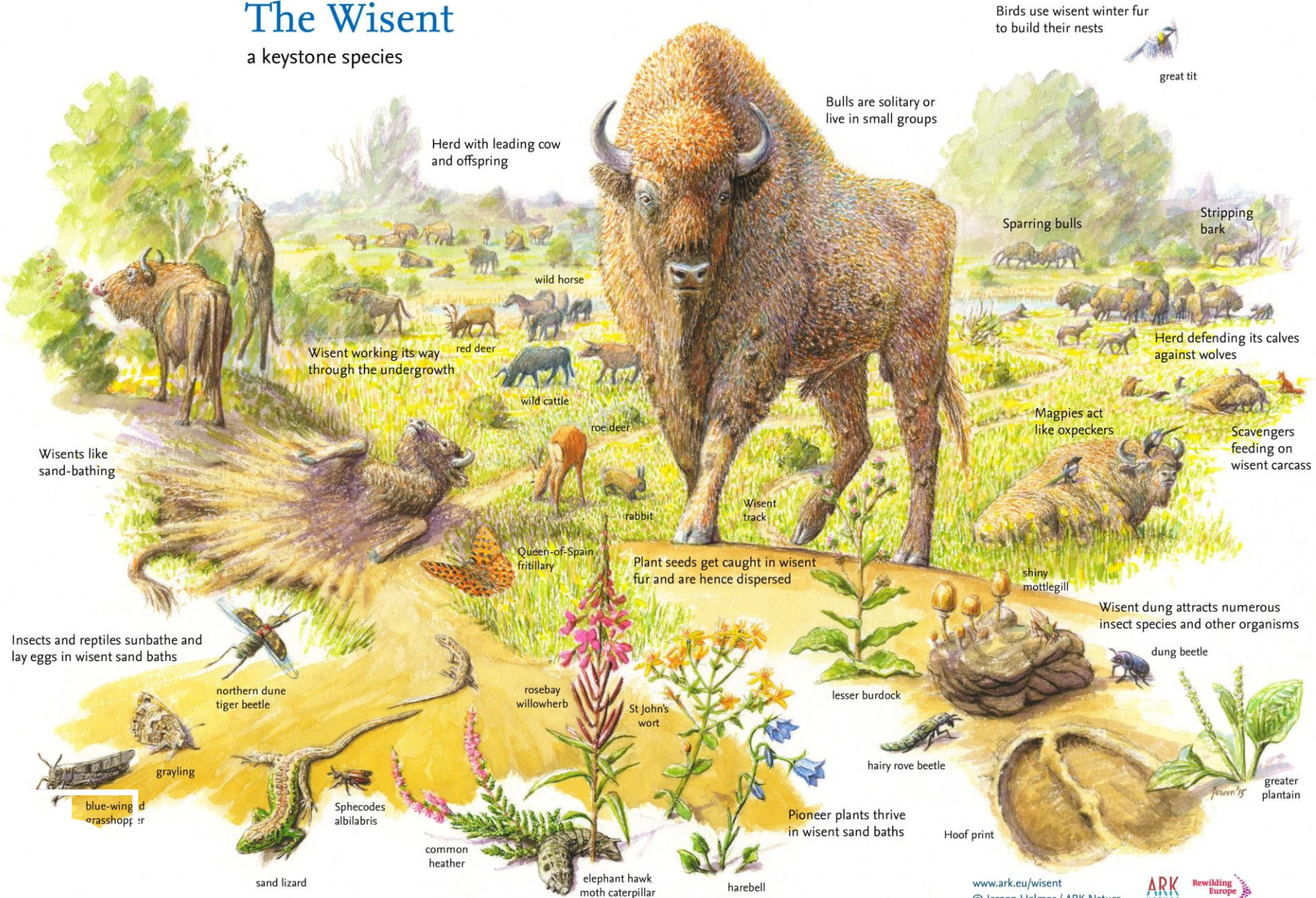


Endozoochory

Baltzinger et al. 2019 (Front Ecol Evol)
Green et al. 2021 (Oikos)

The Wisent

a keystone species



Birds use wisent winter fur to build their nests



great tit

Bulls are solitary or live in small groups

Herd with leading cow and offspring

Sparring bulls

Stripping bark

wild horse

Wisent working its way through the undergrowth

red deer

wild cattle

roe deer

Herd defending its calves against wolves

Magpies act like oxpeckers

Scavengers feeding on wisent carcass

Wisents like sand-bathing

Wisent track

Plant seeds get caught in wisent fur and are hence dispersed

shiny mottlegill

Wisent dung attracts numerous insect species and other organisms

Insects and reptiles sunbathe and lay eggs in wisent sand baths

northern dune tiger beetle

dung beetle

rosebay willowherb

lesser burdock

grayling

Sphecodes albilabris

St John's wort

hairy rove beetle

blue-wing grasshopper

common heather

Pioneer plants thrive in wisent sand baths

Hoof print

greater plantain

sand lizard

elephant hawk moth caterpillar

harebell

➤ Ecosystem services and constraints



Bison & Loison 2022



Widemo et al. 2019

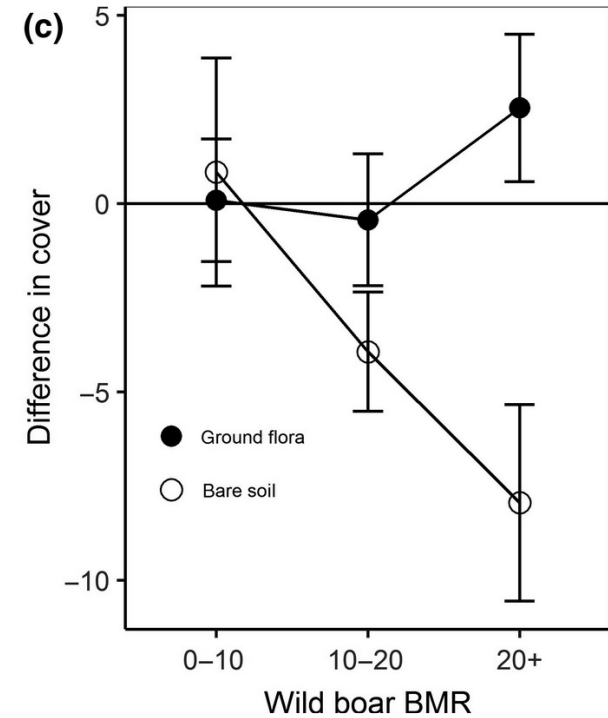
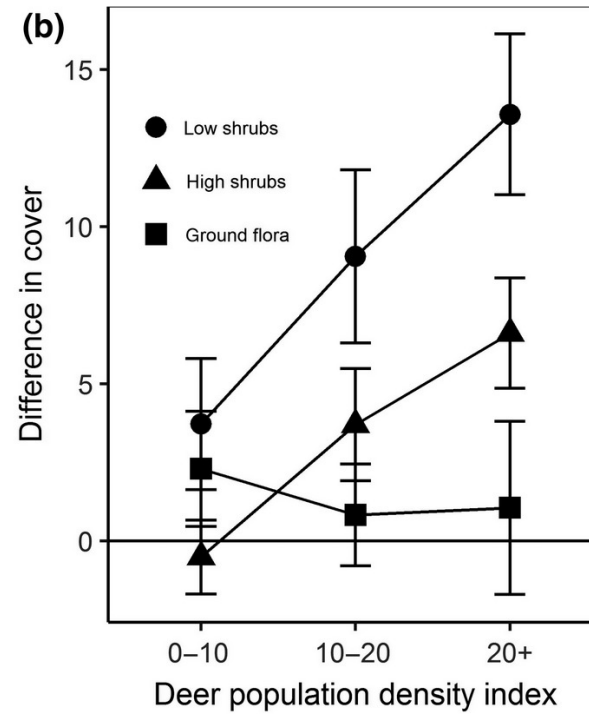
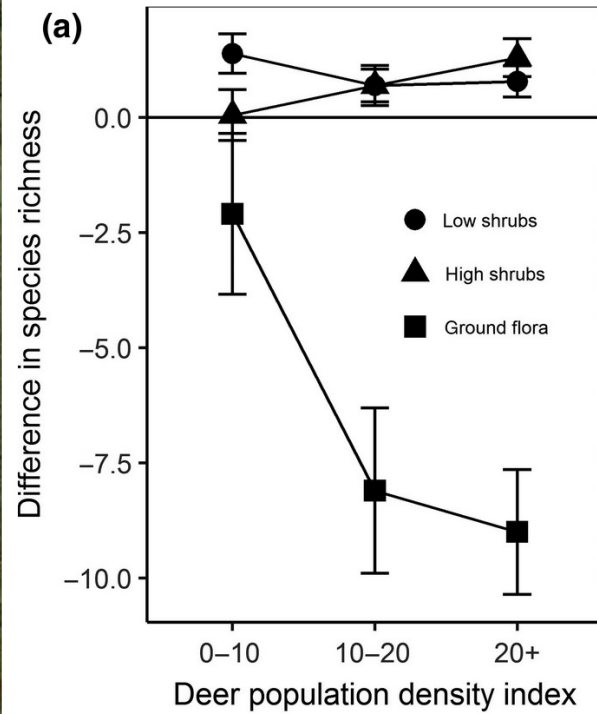
➤ Acknowledgements

Photo credits

- **Slide 1**
 - John Royle/Unsplash (red deer)
- **Slides 2 et 3**
 - Vincent Boulanger (exclosure)
- **Slide 3**
 - Jan Meeus/Unsplash (European robin)
 - Krzysztof Niewolny/Unsplash (peacock butterfly)
- **Slide 4**
 - Anders Mårell (moose browsing)
- **Slide 5**
 - Velcro Czepy/Unsplash (hooked seed)
 - Christophe Baltzinger (roe deer feces)
- **Slide 6**
 - Artwork Jeroen Helmer (wisent)
- **Slide 8 - Acknowledgements**
 - Shane Rounce/Unsplash (hands on tree)

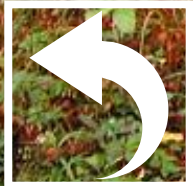
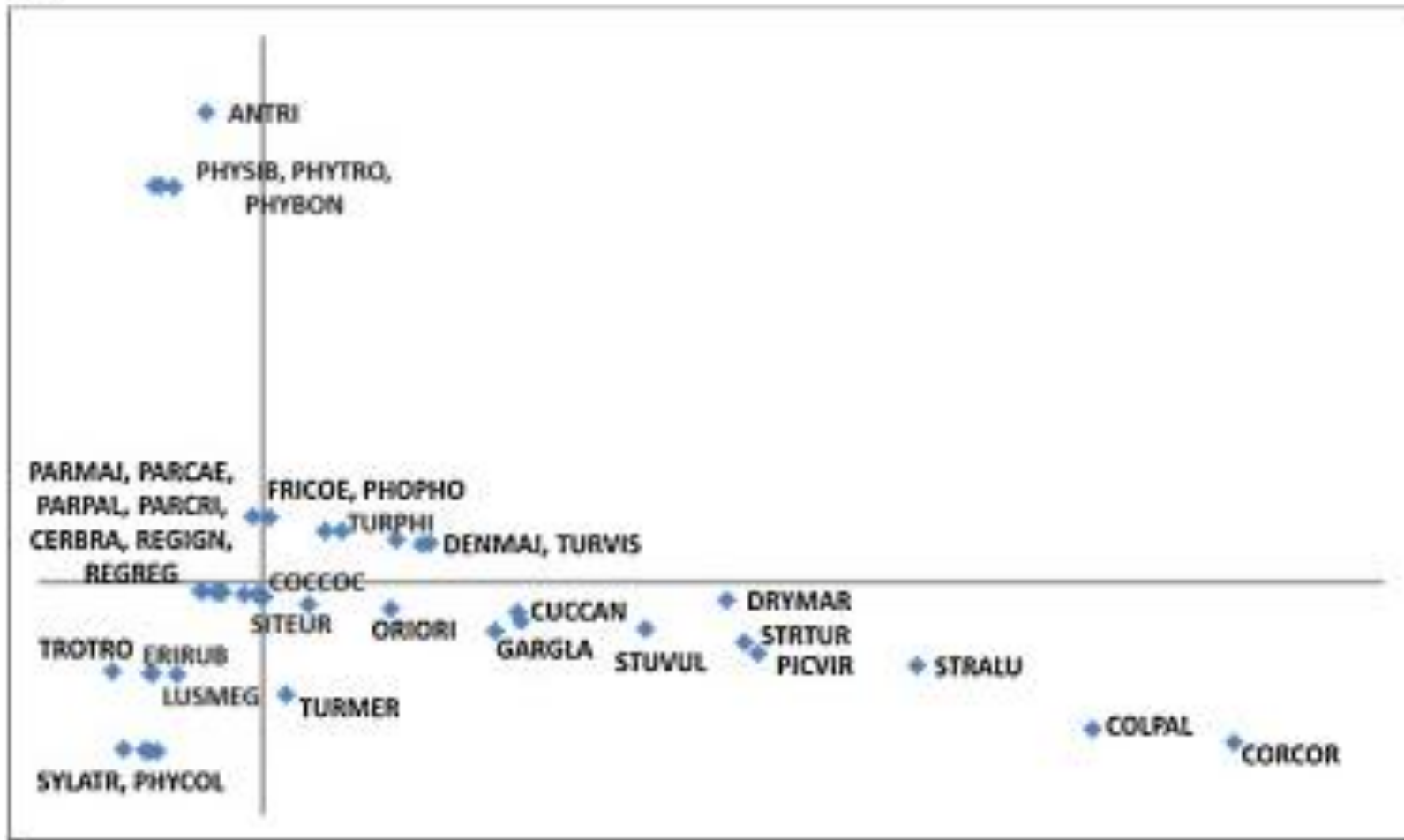


Boulanger et al. 2018 (Glob Chang Biol)

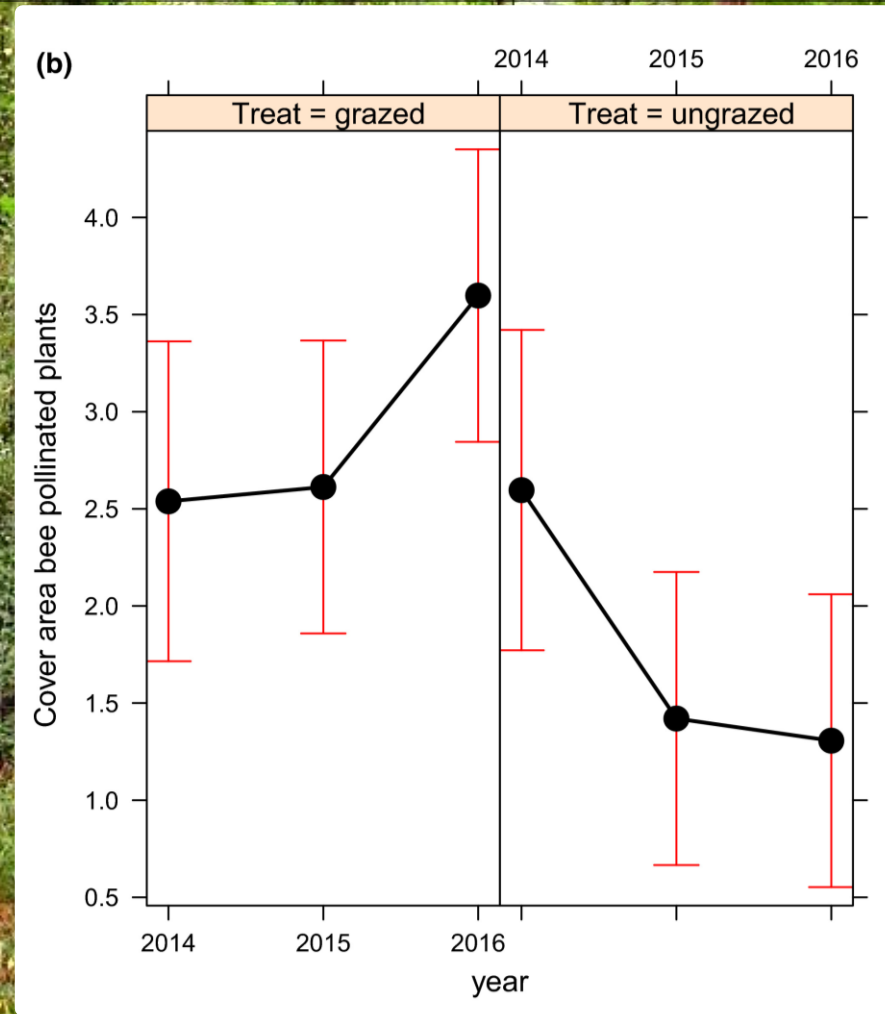
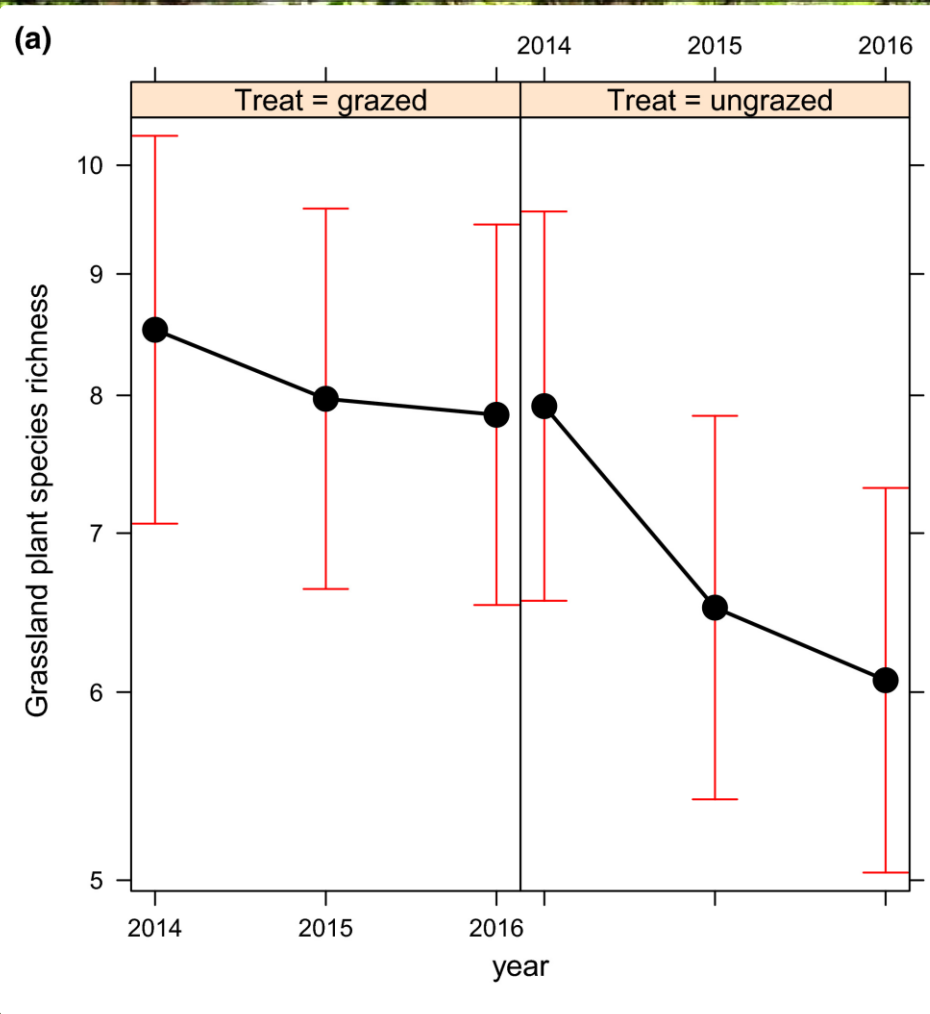


Baltinger et al. 2016 (Bas Appl Ecol)

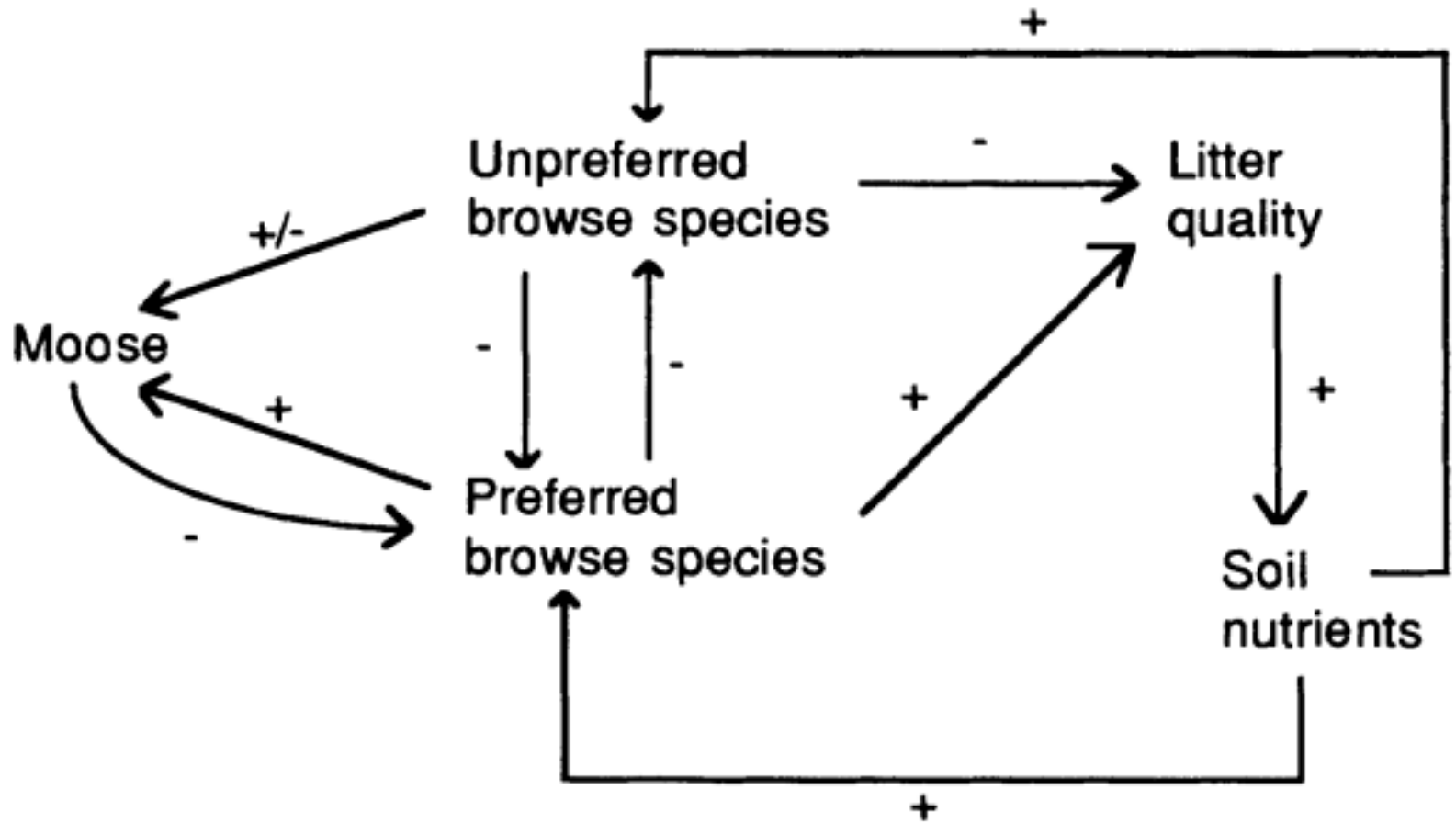
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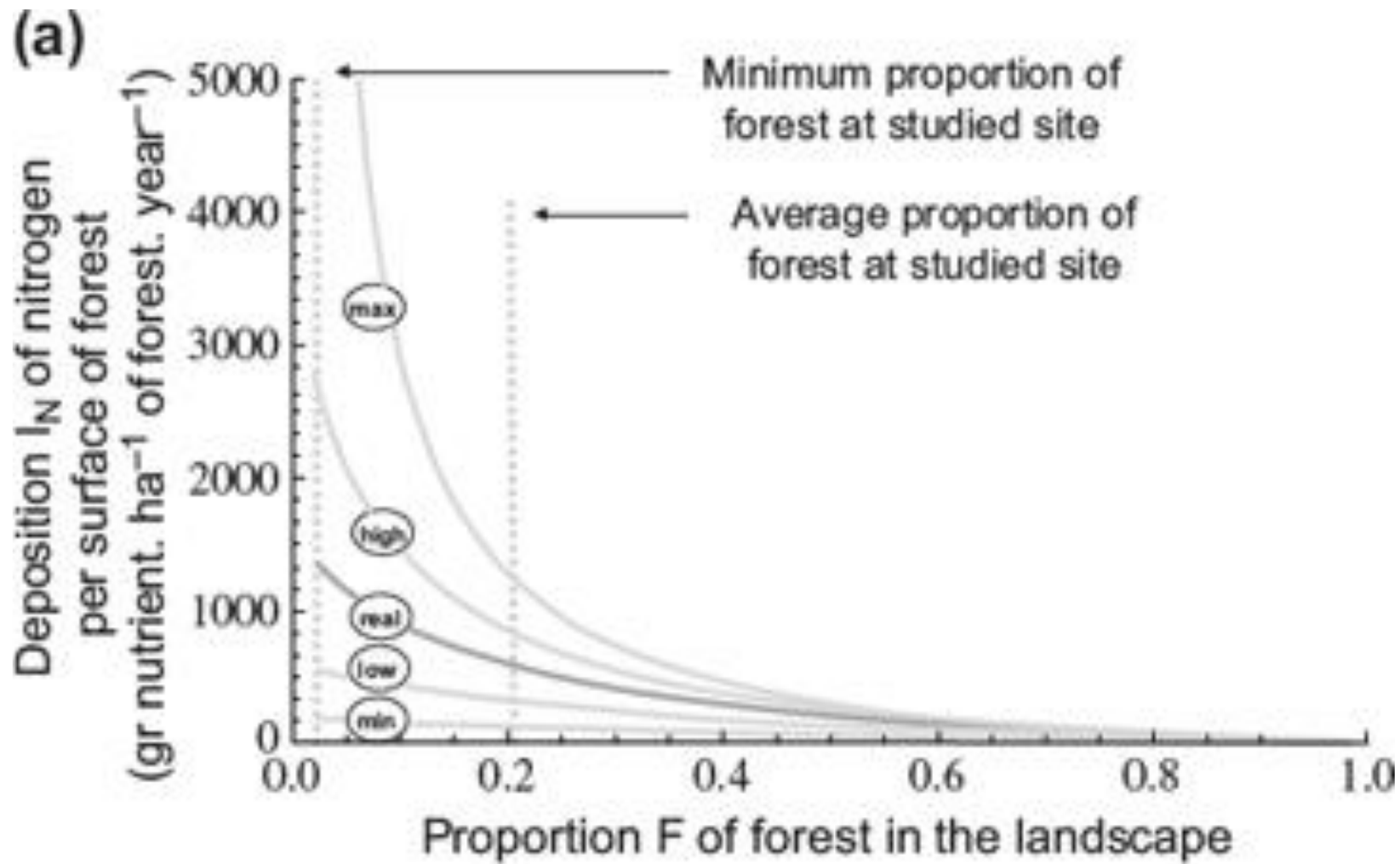
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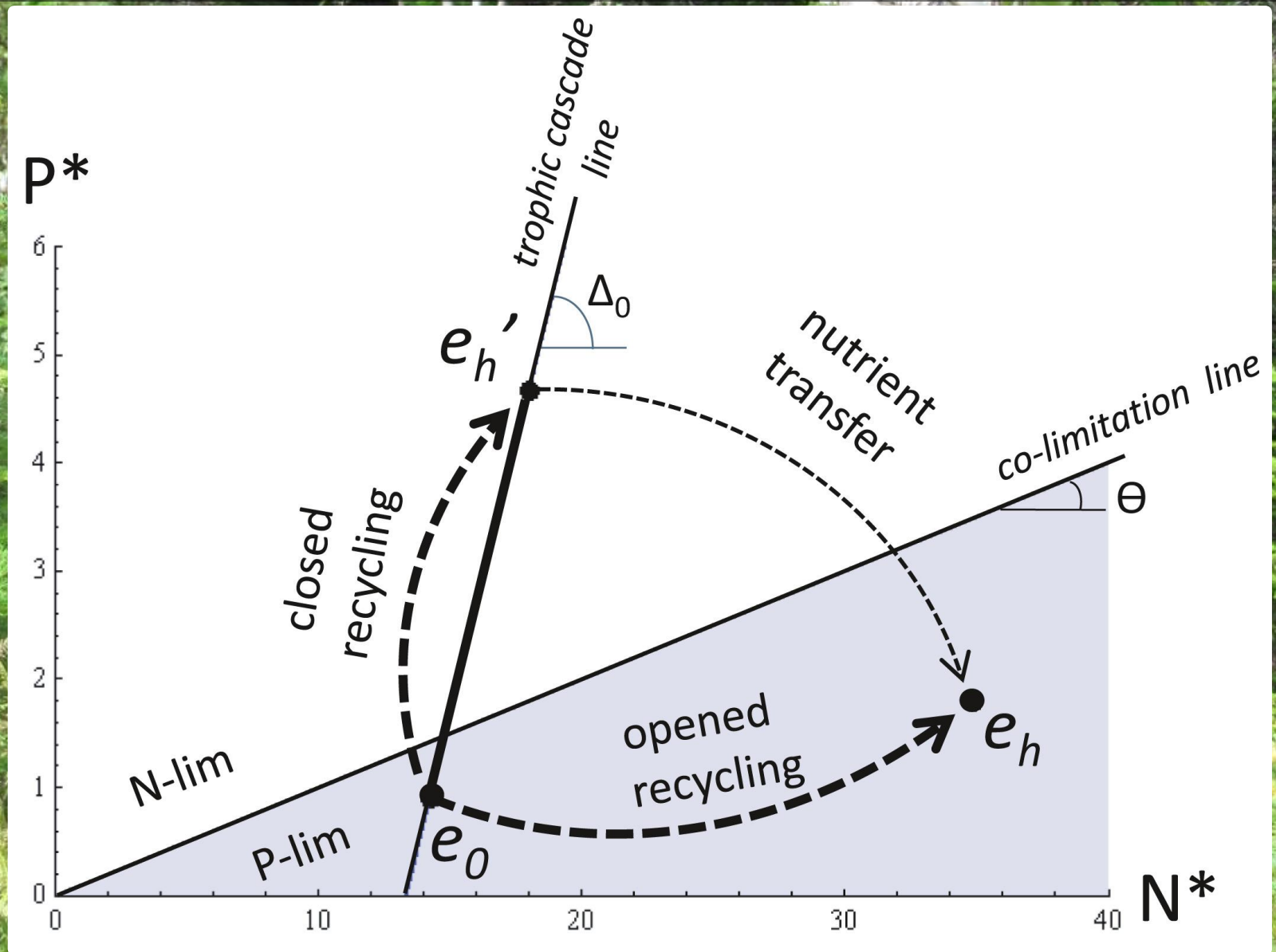
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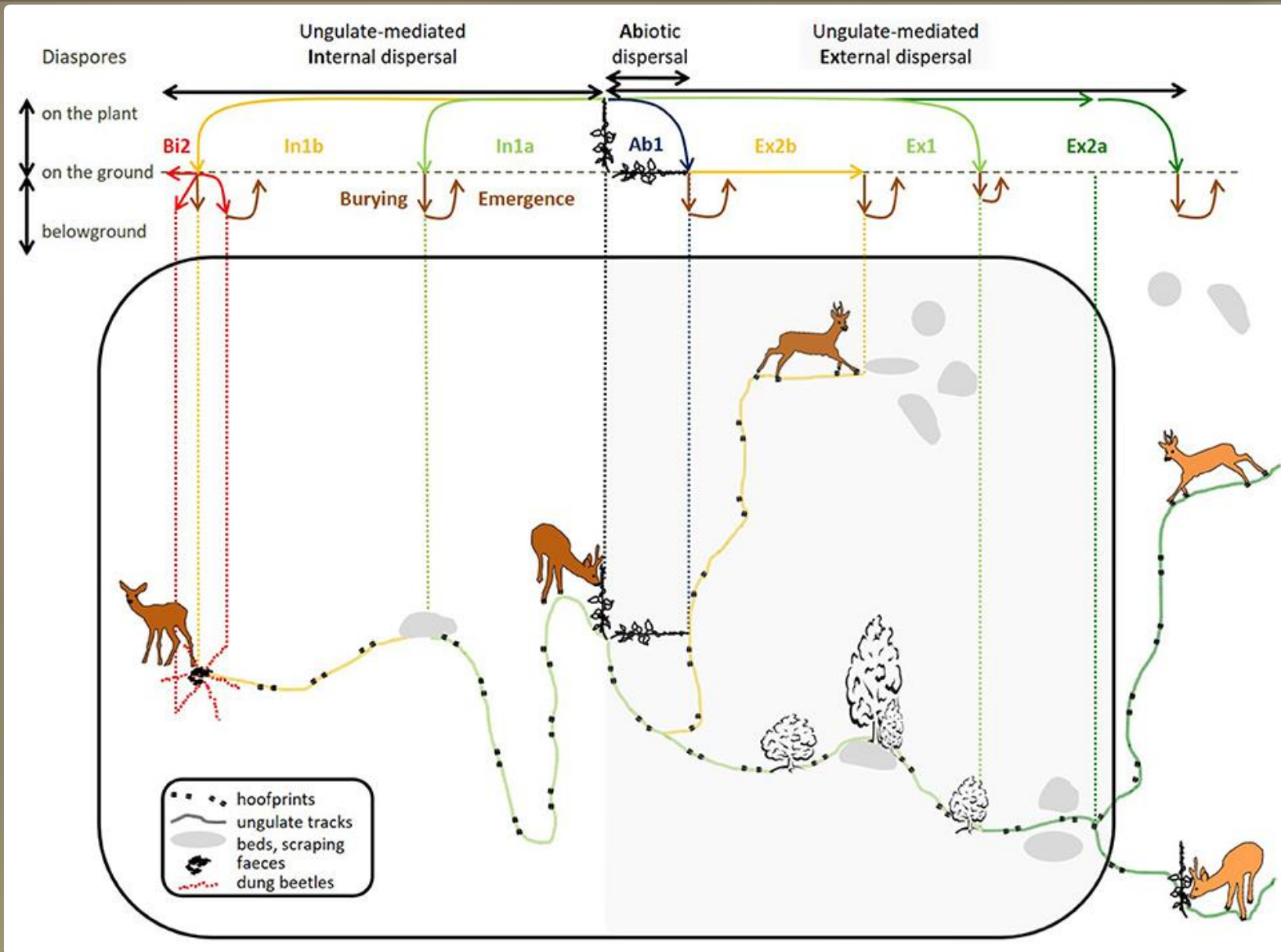
Abbas et al. 2012 (Oikos)



Daufresne 2021 (Ecol Lett)



Baltzinger et al. 2019 (Front Ecol Evol)



Green et al. 2021 (Oikos)

