Agro-biodiversity & eco-agriculture

A good marriage or
... a second best option?

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KLIMOS

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The global ecocrisis

Trespassing the safe operating space for humanity for key factors of planetary stability

Rockström et al. (2009) Nature 461
A 6th mass extinction?!

REVIEW  (Barnosky et al. 2011_Nature 471)

do:10.1038/nature09678

Has the Earth’s sixth mass extinction already arrived?

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Palaeontologists characterize mass extinctions as times when the Earth loses more than three-quarters of its species in a geologically short interval, as has happened only five times in the past 540 million years or so. Biologists now suggest that a sixth mass extinction may be underway, given the known species losses over the past few centuries and millennia. Here we review how differences between fossil and modern data and the addition of recently available palaeontological information influence our understanding of the current extinction crisis. Our results confirm that current extinction rates are higher than would be expected from the fossil record, highlighting the need for effective conservation measures.

Mass extinction: loss of > 75% of species in a geologically short interval
The ‘Big 5’ mass extinction events

Extinction is not new

Over 95% of the species that ever existed have gone extinct.

Long restoration times

(Barnosky et al. 2011_Nature 471)
intensive agriculture

Agriculture

Segregate

Tree plantations

Forest

Agroforestry

Integrate functions

‘loss of forest functions’

Current legal, institutional & educational paradigm

Current reality

intensive, multifunctional landscape: crops, trees, meadows and forest patches

intensive

extensive

production

conservation

protection

natural forest

Deforestation’

‘loss of forest functions’

50% of ‘agricultural land’ has >30% tree cover in SEA & CA
Home gardens on Mount Elgon, Uganda
Rubber agroforests:
- 70-90% of species of natural forest
  -> 3 million ha
  -> 2 billion USD/yr for rubber alone

Jambi, Sumatra, Indonesia

Rubber seedlings can be transplanted into gaps in existing agroforests

“Sisipan”
Clonal planting material successfully established with limited weeding in a system post slash & burn (CIRAD & ICRAF)
Biodiversity in the market
Thanks for your attention

Questions?

ees.kuleuven.be/klimos