



# Tailored pathways and agroecological action for reviving farmland biodiversity

BD Diana Sietz · Sebastian Klimek · Jens Dauber

## Transformative vision

Specialisation and intensification of food production have transformed agriculture triggering a farmland biodiversity crisis. As the biodiversity loss undermines the basis of agroecosystems' productivity and, hence, the sustainability of food systems, another transformation is urgently needed. We designed pathways to effectively re-establish farmland biodiversity (Fig. 1).

- Pathways I to III: High-nature value farming and agroecological intensification
- Pathways IV and V: Sequences of de-intensification and ecological restoration

## Future pathways tailored to characteristics of agricultural land systems

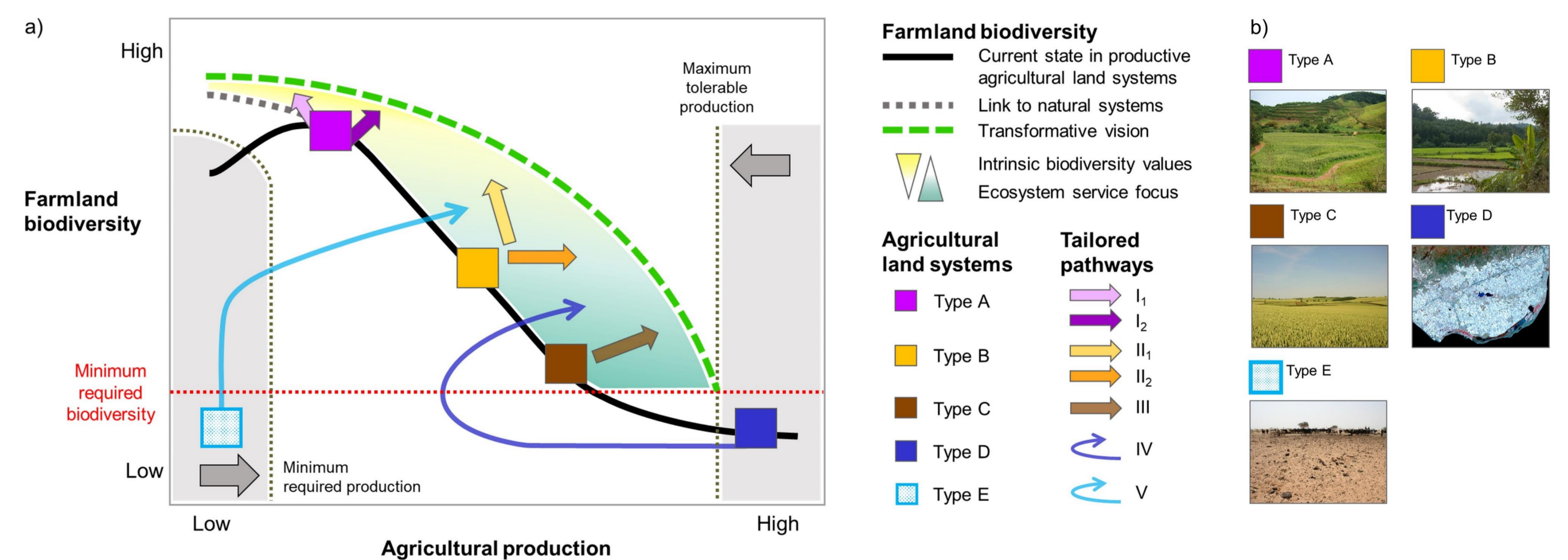


FIG 1: a) Conceptualisation of the general relationship between agricultural production and farmland biodiversity together with tailored pathways toward enhanced farmland biodiversity and b) example photographs of agricultural land system types. Source: Sietz et al. (2022)

## Which targeted agroecological actions can we swiftly implement?

Agroecology enables targeted decision-making by policy makers, farmers and other stakeholders in specific contexts.

- Key principles: diversity, synergies, efficiency, recycling, resilience, knowledge co-creation and sharing, human and social values, culture and food traditions, responsible governance and solidarity economy
- We fitted farming approaches based on agroecological principles to current interplay between agricultural production and farmland biodiversity (Fig. 2).

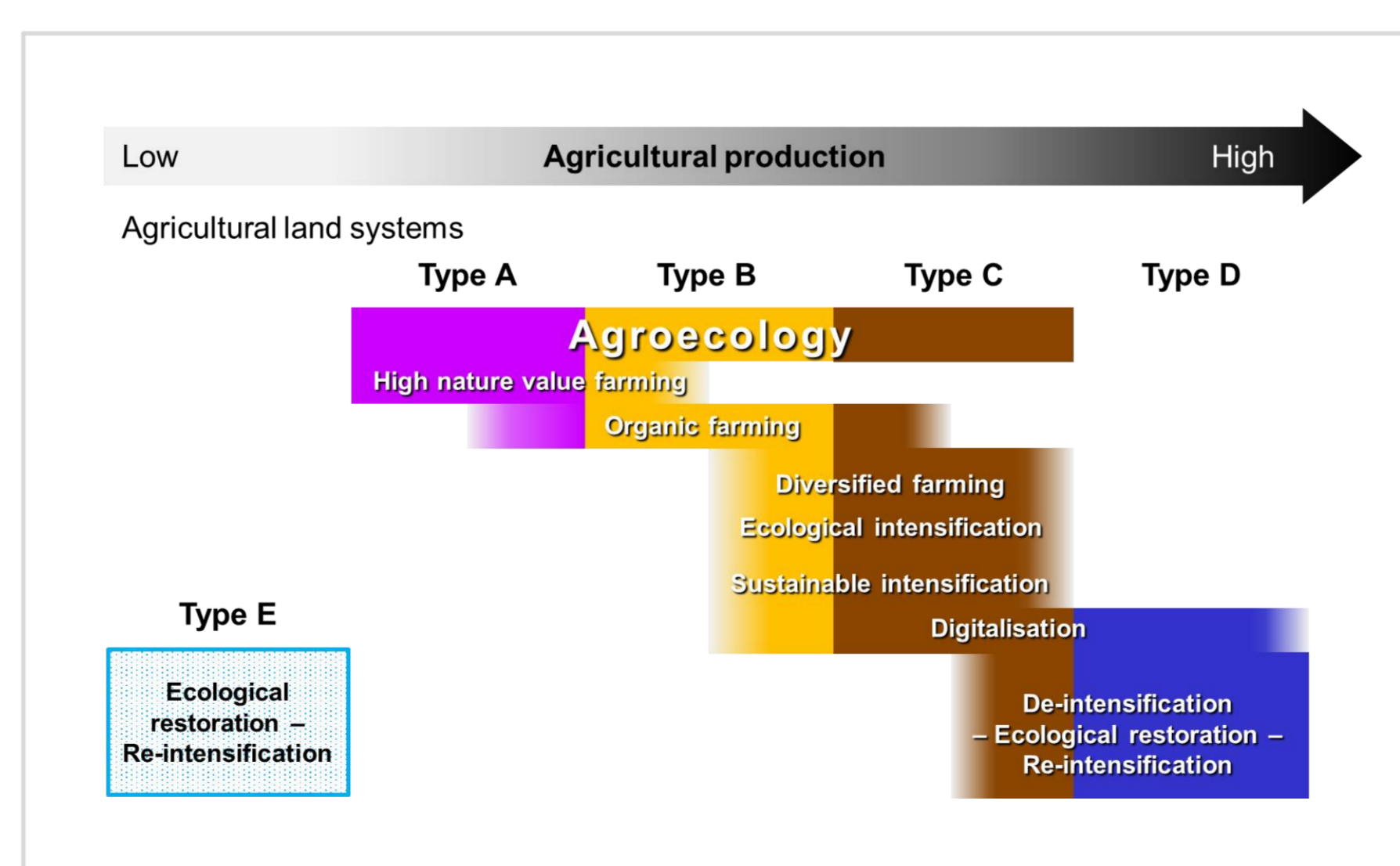


FIG 2: Agroecology and other alternative farming approaches that share or may emphasise agroecological principles considered most suitable to enhance farmland biodiversity. Darker colours indicate better suitability of an approach for the respective agricultural land system.

## Advice for policy makers

- The concept helps to evaluate if and under which conditions existing biodiversity and agricultural policies provide effective incentives to sustainably transform agricultural land systems.
- Promising solutions can best be developed and tested in stakeholder-centred initiatives such as on-farm experimentation or living laboratories at landscape scale experimenting on real farms with farmers and other food system actors.