Leibniz Centre for **Agricultural Landscape Research** (ZALF)

KICS-ZERT: Monitoring of certified privately financed biodiversity projects

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KICS-ZERT

Within the **KICS-Zert project,** ecological and social science perspectives are co-developing an AI- and citizen science-based photo monitoring app for biodiversity certification. By linking vegetation indicators with private-sector frameworks for reporting and investment, this collaboration supports the creation of a scientifically sound and socially accepted tool for transparent, scalable biodiversity assessment.

Can AI 'See' Habitat Quality for wildlife?

Identify vegetation parameters for assessing habitat quality, translate them for optical/AI recognition, and validate a photo-based monitoring method against field data from FRANZ sites.

Identification of vegetation-based parameters that can be captured via photos

Photo 1. Horizontal view of a flower strip in Münchehofe, Brandenburg.

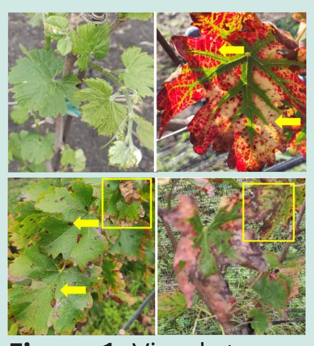


Figure 1. Visual stress symptoms observed in grapevine plants (*Cándido-Mireles et al.,* 2013).

Figure 2. Vertical vegetation cover derived from side-view photography and image segmentation (*Jorgensen et al.,* 2013).

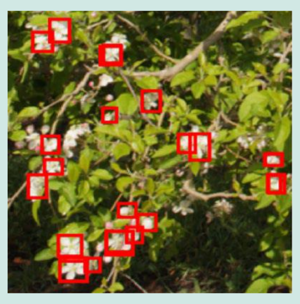


Figure 3. Apple trees number of flowers, used to calculate blooming intensity (*Farjon et al.,* 2019).

Method development and test AI recognition potential

Figure 4. Schematic of photo-based monitoring setup (left) and example vegetation indicators derived from photos for AI recognition (right).

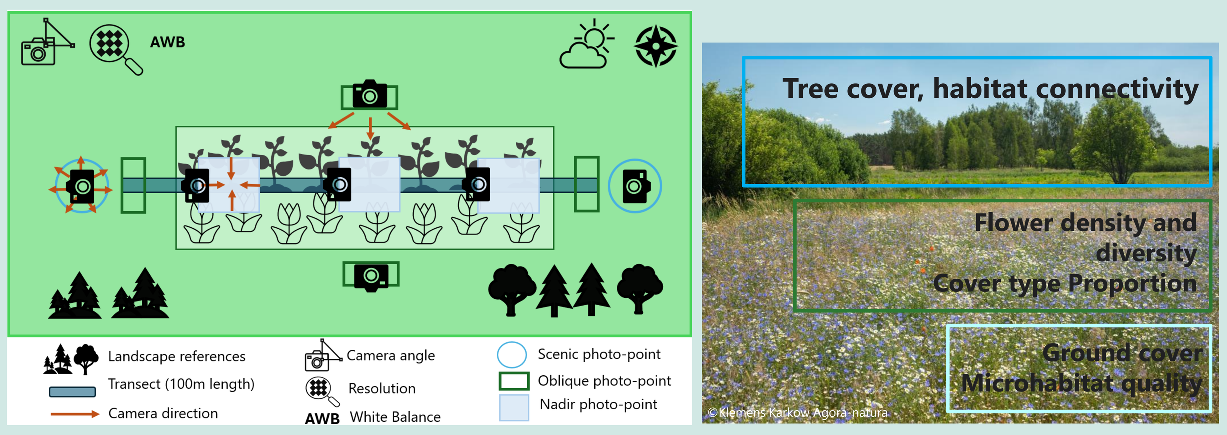


Figure 5. Vegetation plot classification into cover types (Luscier et al., 2006).

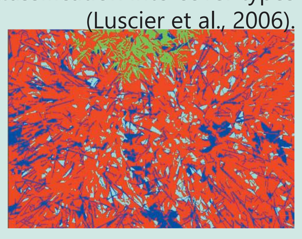
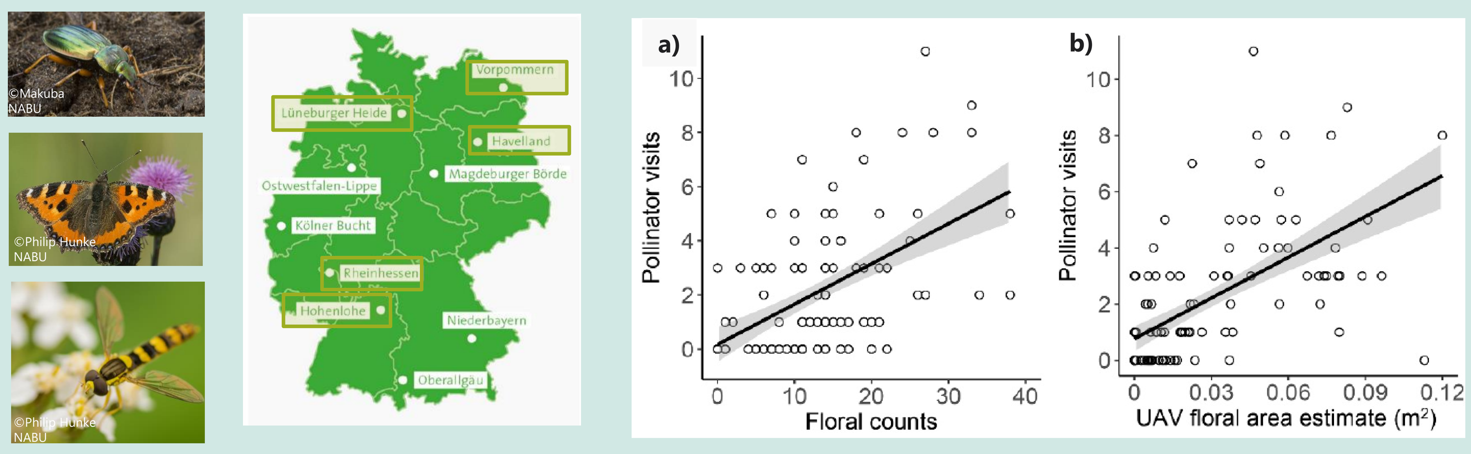


Figure 6. Sample tags of 25 classes used for a CNN.(Hicks et al., 2021).

Validation including field work data

Figure 7. Photos and map: FRANZ project (NABU) showing monitoring taxa targets and regions (left) and Example study showing the visual estimates of pollinator activity in 0.25 m2 quadrats in relation to (**a**) visual counts of flowers within quadrats, and (**b**) UAV-estimated floral area within the quadrats. (Xavier et al. 2018)



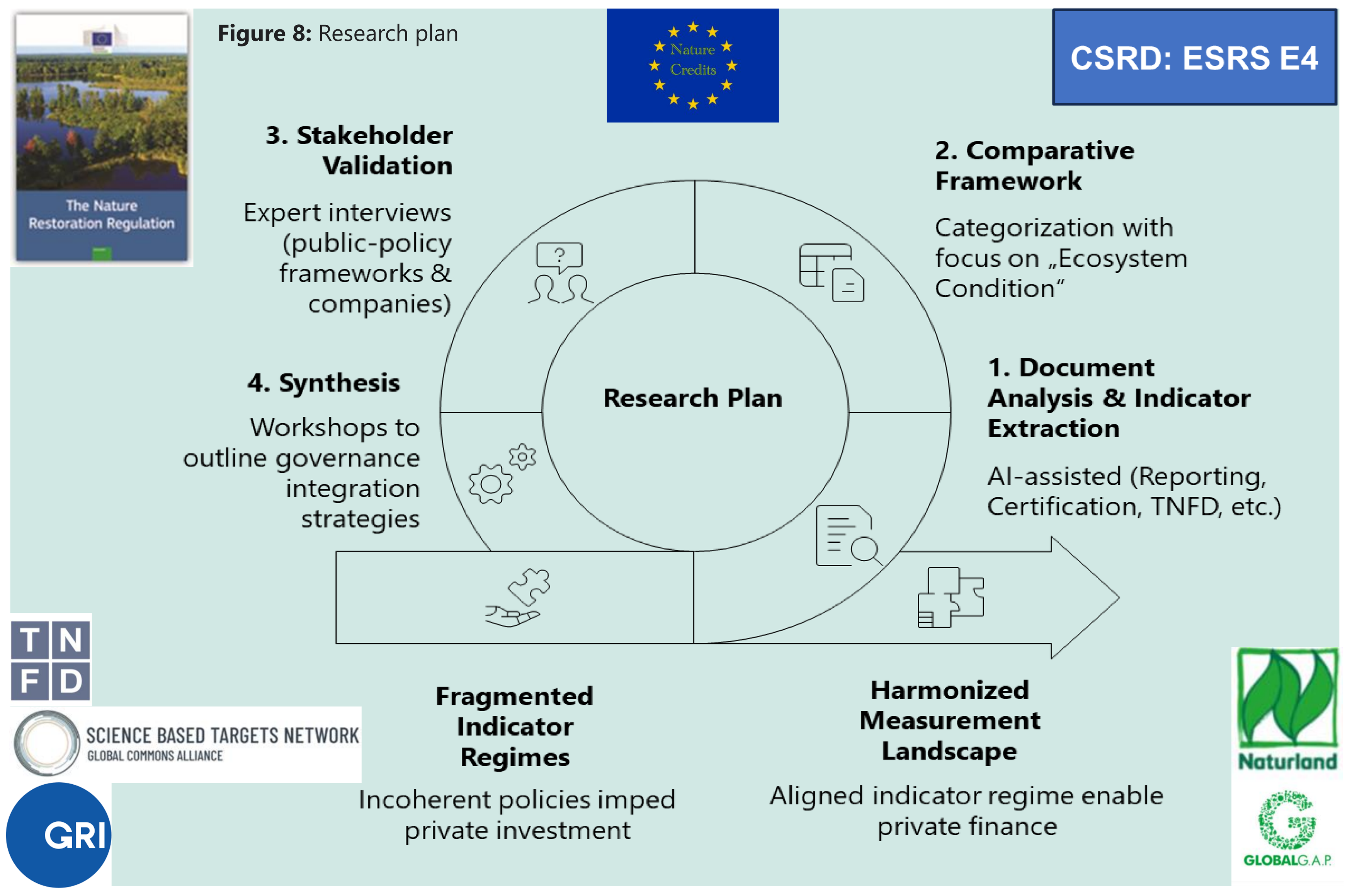
Private Sector Indicators – What's needed?

Problem: Fragmented biodiversity indicator regimes across EU policies (CSRD, NRR) and private initiatives (e.g., TNFD, certification schemes) produce uncertainty and constrain private biodiversity finance (e.g. biodiversity-credits).

Goal: Mapping of standards to a unified, tool-ready indicator set so companies can measure, report, and finance biodiversity action.

Research Question: How coherent are public-policy frameworks and private initiatives in enabling private biodiversity funding?

Figure 8: Research plan



Preliminary Results: ES-Extent metrics prominent, but frameworks recognize ES-Condition indicator

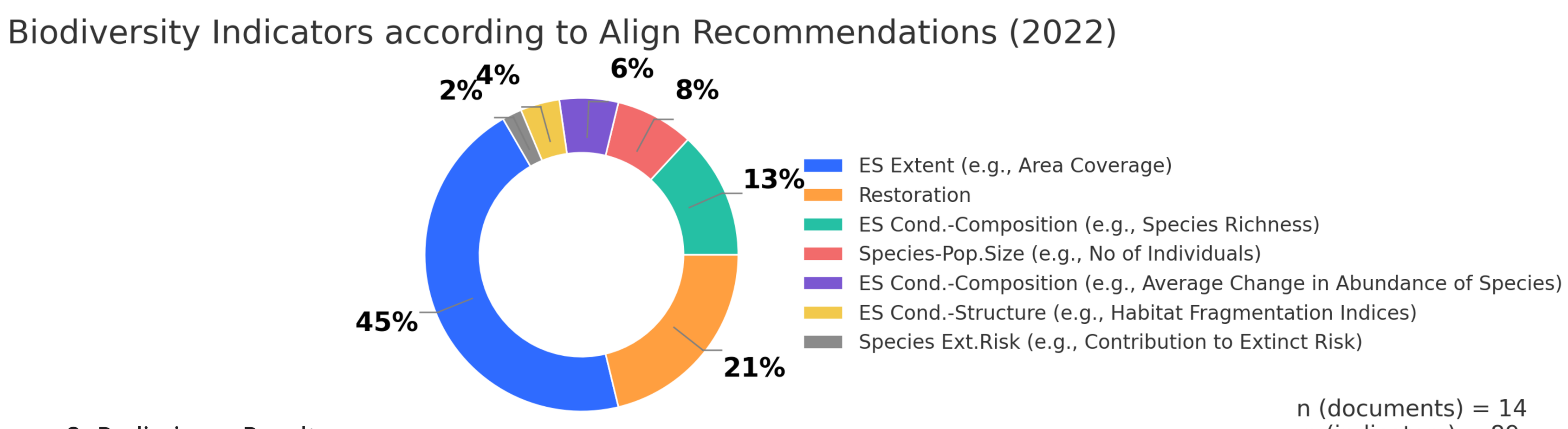


Figure 9: Preliminary Results

By integrating ecological indicators with private-sector indicator sets, this joint work creates a bridge between scientific monitoring and real-world implementation. From standardized, field-validated vegetation metrics to harmonized reporting and biodiversity finance to enable transparent multiscale certification.

Acknowledgements

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