



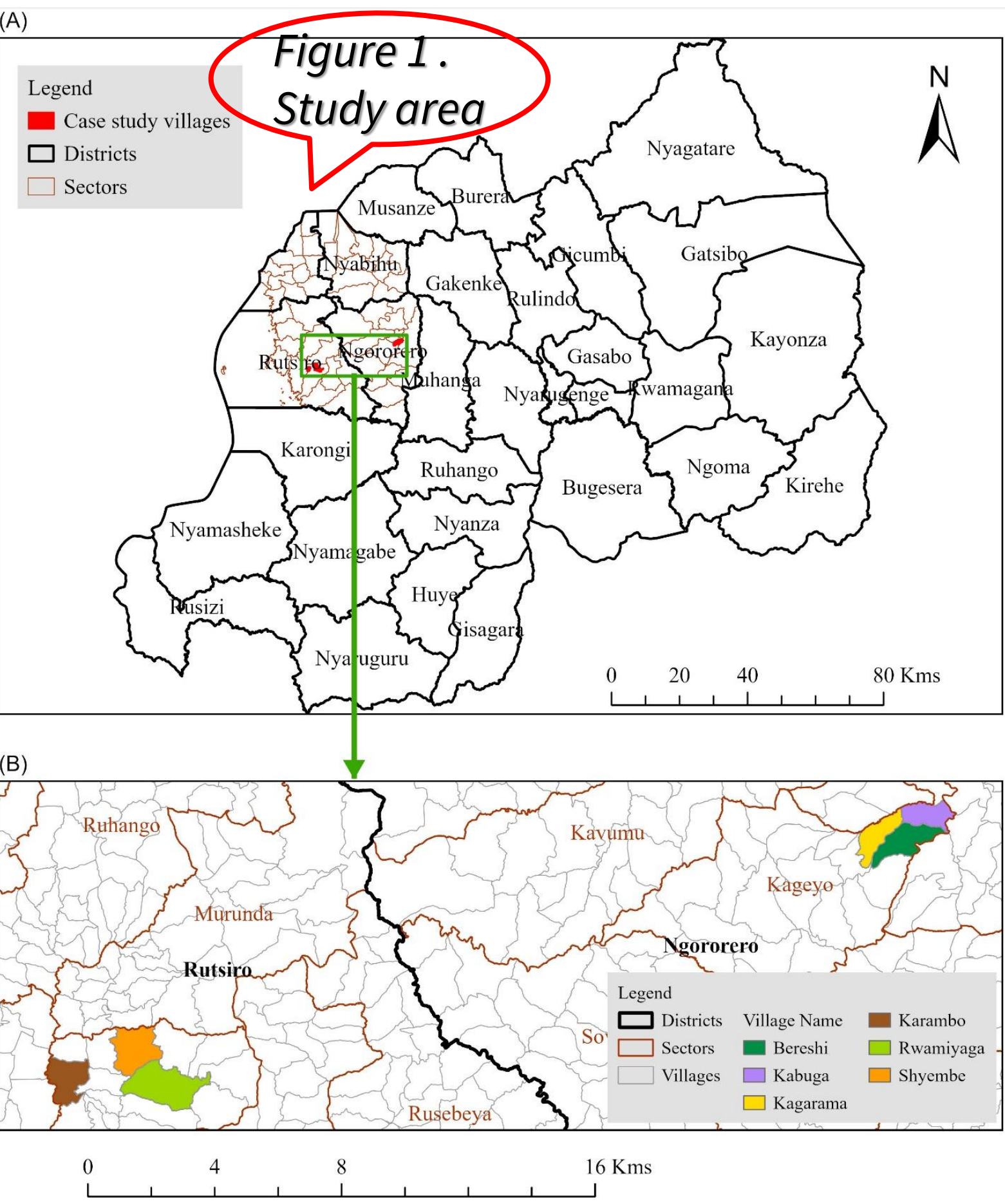
Valery Ndagijimana^{1,2,3,6}, Sandro Luis Schlindwein⁴, Stefan Sieber^{2,5}, Joern Fischer^{3,2}, Katharina Lühr^{1,2}

¹Eberswalde University for Sustainable Development (HNEE), Faculty of Forest and Environment, Alfred-Moeller-Str. 1, 16225 Eberswalde, Germany.
²Leibniz Centre for Agricultural Landscape Research (ZALF), Eberswalder Str. 84, 15374 Müncheberg, Germany.
³Leuphana University Lüneburg, Social-Ecological Systems Institute, School of Sustainability, 9 Universitätsallee 1, 21335 Lüneburg, Germany.
⁴Federal University of Santa Catarina: Universidade Federal de Santa Catarina, Brazil.
⁵Humboldt Universität zu Berlin, Thae-Institute for Agricultural and Horticultural Sciences, Resource 12 Economics, Germany.
⁶Center of Excellence in Biodiversity and Natural Resource Management, University of Rwanda, 14 Kigali, Rwanda.

Introduction

- ✓ Ecosystem restoration is widely recognized as a response to land degradation.
- ✓ Agroforestry and homegardens are among the common restoration approaches.
- ✓ The societal effects of ecosystem restoration vary across approaches and contexts.
- ✓ We conceptualize social cohesion as “the degree of social integration, characterized by shared identity, values, norms, and a common vision, that manifests through collective well-being and positive social relations, such as trust and cooperation, both among citizens and between citizens and the state” (Ndagijimana et al. 2026, p.11).
- ✓ Inclusive agroforestry governance can foster community cohesion (Yusriadi 2025), while exclusionary governance and invasive species may trigger disputes and undermine social cohesion (Llosa 2019).
- ✓ Homegardening can strength social interaction, knowledge exchange, seed sharing, cooperation, and mutual support within communities (Díaz-Reviriego et al. 2016), while changes in governance and commercialization can weaken collective practices such as seed sharing (Prihatini et al. 2018).
- ✓ We investigated the dynamics between restoration and social cohesion by examining selected restoration practices in Western Rwanda.

Case study and restoration approaches across the area



RESULTS (CTD)

Homegardens-social cohesion dynamics

- ✓ (R1) Engagement in homegardens, resource pooling, and solidarity are linked through a positive feedback loop.
- ✓ Homegardens also interact with social relations through three positive reinforcing feedback loops (R2, R3 and R4).
- ✓ (R5) Homegardens interact with a sense of belonging through a positive feedback loop
- ✓ (B6) Homegardens are associated with land fragmentation to meet family members' inheritance, family members' subsistence, and livelihood needs.

Key Highlights

- § Policymakers and practitioners should move from tokenistic participation to co-designing ecosystem restoration.
- § It is vital to harmonize ecological goals with local livelihood needs.
- § Integrate traditional institutions to resolve conflicts around restoration implementation
- § Local resource pooling must be emphasized for the long-term sustainability of restoration initiatives and resilience.
- § Equal attention to ecological and social cohesion outcomes is essential for long-term sustainability.

RESULTS

Agroforestry-social cohesion dynamics

- ✓ (R1) Capacity building enhances agroforestry performance through a reinforcing feedback loop.
- ✓ (R2) Community conflicts, peaceful cohabitation, and the misappropriation of agroforestry produce are interlinked through a negative reinforcing feedback loop.
- ✓ (R3) Community conflicts interlink with civic engagement, cooperation, trust, social relations, as well as shared norms and values through a negative reinforcing feedback loop.
- ✓ (B4) socioeconomic improvement, collective wellbeing, and sense of belonging counteract spatial marginalization through a balancing feedback loop.
- ✓ (B5) overall, interviewees and workshop participants both concluded that embedding equity into an agroforestry system can reinforce community participation, potentially reducing competition over resources.
- ∞ The government should involve the community in discussions about suitable locations for tree planting. Additionally, it is important to establish tree nurseries close to the communities, so that people can easily access tree seedlings without difficulties and have the freedom to plant the species they choose. This will promote active participation in the restoration efforts (Interview SHY15).

