

POLICY BRIEF



Shai-Hills Resource Reserve - All photo credits: Author

BIODIVERSITY UNDER PRESSURE: CONSERVATION AND COMMUNITY LIVELIHOODS IN THE SHAI HILLS LANDSCAPE, GHANA

Savanna ecosystems in Ghana are increasingly under pressure from rapid urban expansion, agricultural encroachment, and weak land-use governance. In the Shai Hills Resource Reserve and its surrounding landscape, these pressures are reshaping plant biodiversity and threatening the ecosystem services that local communities depend on for food, medicine, fuelwood, and cultural practices. This study examines how plant biodiversity and community livelihoods vary between protected and unprotected areas in the Shai Hills landscape.



Ongoing construction around the reserve

OVERVIEW

This research investigates plant species communities and the role of traditional ecological knowledge (TEK) in shaping biodiversity conservation and community livelihoods in the Shai Hills Resource Reserve (SHRR) protected area and its surrounding unprotected flat plains. The objectives are as follows:

- i) To assess the plant species community of the flat plains (SHRR) protected area and unprotected area.
- ii) To determine factors influencing the decline of plant species around the flat plains (SHRR).
- iii) To evaluate the benefit of plant species in flat plains (SHRR) and unprotected areas for the people living around the reserve.



Ecological data assessment

POLICY RECOMMENDATIONS

1. **Legally recognized buffer zones around the Shai Hills:** Legally recognized buffer zone to prevent land commercialization and uncontrolled development around the reserve, and ensure that the ecological integrity of the SHRR is preserved.
2. **Promote sustainable livelihood alternatives for local communities:** Expand livelihood programs (e.g., beekeeping, small-scale agroforestry, non-timber forest product value chains) to reduce dependence on the reserve.
3. **Restoration program:** Degraded unprotected areas need targeted reforestation and assisted natural regeneration initiatives.

KEY FINDINGS

I) Plant species community

The study revealed that unprotected areas recorded slightly higher plant species richness, likely due to the presence of both native and disturbance-tolerant species. However, the protected flat plains maintained more stable vegetation structure and a greater abundance of native woody species. In contrast, unprotected areas exhibited signs of disturbance, habitat fragmentation, and human-adapted species.

II) Factors influencing the decline of plant species around the flat plains (SHRR)

The research identified agricultural expansion, urbanization, illegal harvesting of plant species as the main drivers of plant species decline. Weak enforcement and rapid land commercialization around the reserve are accelerating biodiversity loss.

III) Benefit of these plant species in the flat plain (SHRR)

Communities depend heavily on plant species for medicinal, cultural, and livelihood benefits, with strong traditional ecological knowledge guiding their use of important species. Many plants play vital roles in household health, income, and cultural identity, highlighting the importance of integrating community knowledge and needs into conservation planning.



Team members

RESEARCH APPROACH

The study used a mixed-methods approach combining ecological field surveys and community-based socio-ecological assessments.

To examine the factors contributing to plant species decline and changes in community benefits, structured questionnaires (n = 160) were administered alongside key informant interviews across five fringe communities surrounding the Shai Hills Resource Reserve in Ghana. These tools captured local perceptions of species decline, drivers of vegetation loss, and the cultural, medicinal, and livelihood uses of plant species.

CONCLUSION

The study demonstrates that the Shai Hills Resource Reserve (SHRR) plays a critical role in conserving plant species diversity within a rapidly changing peri-urban landscape.

Protected areas (SHRR) support significantly higher species richness and ecological stability compared to the surrounding unprotected flat plains, which are increasingly degraded by agricultural expansion, urbanization, quarrying, and unsustainable resource use.

The research underscores the need for collaborative, landscape-based conservation strategies that balance ecological protection with local livelihood needs.

REFERENCES

Karikari Nancy (2025). Comparative study of plant species, and community benefits in the flat plains of the Shai Hills Resource Reserve and adjacent unprotected areas in Ghana [Master's Thesis] Université Félix Houphouët-Boigny.

