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LOCAL COMMUNITY MANAGEMENT OF WILDLIFE RESOURCES THROUGH HARVEST-BASED INITIATIVES IN THE UGALLA GAME RESERVE, TANZANIA

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Abstract

This study assessed whether local communities can effectively manage wildlife resources in protected areas through Harvest-Based Initiatives (HBI) in the Ugalla Game Reserve, Tanzania. Data were collected between February and April 2022 using semi-structured questionnaires administered to 141 members of four trade unions, supplemented by eight key informant interviews. All respondents (100%) identified trade union membership as a prerequisite for participating in HBI, and most (83%) reported involvement in decision-making ($\chi^2 = 10.119$, $df = 3$, $p = 0.018$). Of those involved, 79% were satisfied with the decision-making process ($\chi^2 = 11.724$, $df = 3$, $p = 0.008$), and satisfaction did not differ significantly across trade unions ($\chi^2 = 5.989$, $df = 3$, $p = 0.112$). A generalised linear model showed that trade union membership significantly predicted satisfaction, but in the opposite direction to that expected, with members reporting lower satisfaction than non-members; tribe, age, education and economic activity had no significant effect. Management challenges differed significantly among trade unions ($\chi^2 = 293.258$, $df = 18$, $p < 0.001$) and included corruption (up to 42% of members), limited awareness of wildlife laws (up to 35%), closure of fishing camps (44–56%) and poaching (100% of beekeepers), compounded by frequent changes in reserve management. Community participation can foster sustainable resource use, although satisfaction with leadership representation remains limited. We conclude that local institutions can contribute meaningfully to wildlife management when adequately supported, and recommend that Tanzania's Ministry of Natural Resources and Tourism develop clear regulations to strengthen community-based management and address the governance gaps identified.

Keywords: *Community participation, Harvest-Based Initiatives, Protected areas, Wildlife management*

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Introduction

Wildlife management in the protected areas of Eastern and Southern Africa remains shaped by a colonial legacy of exclusion and centralised control (Bugembe, 2016). Most protected area networks restrict local people's access to wildlife resources, even where communities have relied on them for generations (Andrade and Rhodes, 2012), and sharing authority, accountability and rights between communities and government remains difficult, frequently resulting in conflict with resource users (Kideghesho and Mtoni, 2008; Kisingo *et al.*, 2022; Wilfred, 2018). Protected areas nonetheless remain the dominant global conservation approach (Oduor, 2020; Wapalila, 2008): China protects 18.0% of its land area (Gao *et al.*, 2023; Mi *et al.*, 2023; PRC, 2018), South American networks have expanded under growing anthropogenic pressure (Baldi *et al.*, 2019), and Tanzania and Zambia have each set aside more than 38.0% of their land as national parks, game reserves or forest reserves (Brink *et al.*, 2016; IUCN-ESARO, 2020; URT, 2009).

Managing wildlife in protected areas requires collaboration among the stakeholders who protect and use these resources (Hummel *et al.*, 2019), and neighbouring communities are among the most essential of them (Dhliwayo *et al.*, 2023). Although local communities are often perceived as threats to wildlife, engaging them in sustainable use can secure species survival and broaden acceptance of conservation (Armitage *et al.*, 2020; Kansky, 2022). Yet the laws governing protected areas typically prohibit community access to and use of wildlife within them (van de Water *et al.*, 2023). Many communities therefore regard protected areas as obstacles to escaping poverty, which jeopardises resource sustainability (Vandergeest, 1996) and complicates community involvement in conservation (Kideghesho and Mtoni, 2008; Mutekwa and Gambiza, 2017). Exclusionary management has generated significant conflict between conservation objectives and community needs worldwide (Badola and Hussain, 2003), prompting a shift in developing countries towards participatory models (Andrade and Rhodes, 2012; Aryal *et al.*, 2020; Roe *et al.*, 2009).

Community-Based Natural Resources Management (CBNRM) emerged from this shift as an approach to co-managing wildlife outside protected areas while improving local livelihoods (Kicheleri *et al.*, 2018; Nelson *et al.*, 2020). Zambia introduced the Administrative Management Design for Game Management Areas (ADMADE) in 1983 (Bwalya-Umar and Kapembwa, 2020), Namibia legislated for communal conservancies in 1996 (Naidoo *et al.*, 2011), and Tanzania introduced Wildlife Management Areas (WMAs) in 2002 (USAID, 2013), all with the common aim of securing wildlife while improving community welfare (Mudimba, 2020). In practice, CBNRM has often failed to meet community expectations (Benjaminsen *et al.*, 2013; Wilfred, 2018). Many programmes were donor-funded and implemented top-down (Oduor, 2020), and several schemes in Tanzania and Zambia function much like conventional state-protected areas, denying communities the access and use rights their livelihoods require (John, 2021a, 2021b; Moyo *et al.*, 2016; Nelson *et al.*, 2020; Noe *et al.*, 2019).

In Tanzania, CBNRM was introduced two decades ago, after massive poaching had nearly eliminated rhino populations and sharply reduced elephant numbers, making it essential to engage communities

in sustainable use (Kideghesho, 2016, 2019). It has helped safeguard wildlife and dispersal areas, but the transfer of user rights has been slow (Nelson *et al.*, 2020; Noe *et al.*, 2019), and some communities have sought to withdraw, citing limited benefits and continued restrictions (Kicheleri *et al.*, 2018). Such rejection risks reinforcing the mistaken notion that communities cannot manage wildlife and that expanding strictly protected areas is the only safeguard (Kideghesho and Mtoni, 2008; Langat *et al.*, 2018). Meanwhile, demand for wildlife resources continues to rise with population growth and persistent rural poverty (NBS, 2013, 2014, 2021). National policy therefore promotes community use of wildlife as a pathway out of poverty (Kicheleri *et al.*, 2018; URT, 1998, 2019), and the country's 38 WMAs, covering roughly 3% of its protected land, were designed to deliver benefits to communities and restore the sense of ownership lost under state control (IUCN-ESARO, 2020; Kileli, 2017; Noe and Kangalawe, 2015; USAID, 2013).

Wilfred (2010) suggested that WMAs could serve as vehicles for Harvest-Based Initiatives (HBI), which allow communities to extract wildlife resources directly through fishing, beekeeping, resident hunting and other activities that do not harm wildlife, improving livelihoods while reducing illegal activity (USAID, 2013). Most CBNRM programmes, however, favour non-consumptive activities that make tangible benefits harder to realise, and studies of WMAs report persistently inadequate community access to resources (Brittain *et al.*, 2021; IRA and MNRT, 2007; Kangalawe and Noe, 2012; Kicheleri *et al.*, 2018; Lwankomezi *et al.*, 2021), even though the Wildlife Policy of 1998 (revised 2007) identified inadequate user rights as a core problem (URT, 1998). Because local populations depend partly on wildlife for survival, denying them access tends to increase illicit activity (Nachihangu *et al.*, 2022). This pressure is acute in game reserves, which serve mainly for tourist trophy hunting that benefits few residents directly (Kalokola *et al.*, 2024; Mi *et al.*, 2023). Watching others use wildlife they are denied, while bearing the costs of living alongside it, makes game reserves especially prone to illegal use (Ramp and Bekoff, 2015).

The Ugalla Game Reserve is an exception. Local communities have used its wildlife resources since the colonial era and organise that use through trade unions, which implement HBI inside the reserve, formulate by-laws, exclude non-compliant members and represent members' interests to reserve management (Fisher, 1997, 2002; Wilfred *et al.*, 2019). This model is rarely adopted elsewhere, and many conservationists question its sustainability and ecological impact (Adams and Hulme, 2001), yet research has largely overlooked the role local communities play in managing wildlife inside protected areas (Aryal *et al.*, 2020; Bluwstein *et al.*, 2016; Massey *et al.*, 2014). Although HBI has operated in Ugalla for more than half a century, little is known about how it is managed or the challenges it faces. This study therefore examines (i) the criteria trade unions apply for practising HBI, (ii) the extent of community participation in decision-making, (iii) the factors shaping members' satisfaction with that process, and (iv) the challenges trade unions face in managing HBI. The findings can inform management of protected areas where communities are permitted to use wildlife.

Study Area

This study was conducted in western Tanzania, in the Sikonge District of the Tabora Region, which encompasses a

substantial portion of the Ugalla ecosystem. The Ugalla Game Reserve covers approximately 7,000 km² and lies between approximately 4° and 7° South and 31° and 34° East. Ipole and Uyumbu are two Wildlife Management Areas adjacent to the Ugalla Game Reserve and serve as buffer zones between local communities and the core protected area.

The climate is characterised by a distinct rainy season from December to June and a dry season from July to November, with average annual rainfall of 700-1,000 mm and average temperatures ranging from 28–30°C during the hot, dry period to 15–21°C during the cold period (Hariohay *et al.*, 2019; Wilfred and MacColl, 2011). Vegetation is dominated by miombo woodland, including *Brachystegia spiciformis*, *B. microphylla*, *B. bussei*, *Isoberlinia globiflora*, *Acacia kirkii*, *Cassia abbreviata*, *Burkea africana*, *Cymbopogon giganteus*, *Julbernadia globiflora*, and *Pterocarpus angolensis*, across both the game reserve and the adjoining WMAs (Kuboja *et al.*, 2016; Munishi *et al.*, 2010; Njana *et al.*, 2013). The reserve is home to a wide variety of species, including elephant, wild dog, buffalo, eland, impala, waterbuck, warthog, and topi, as well as migratory birds such as the white pelican (Wilfred *et al.*, 2019).

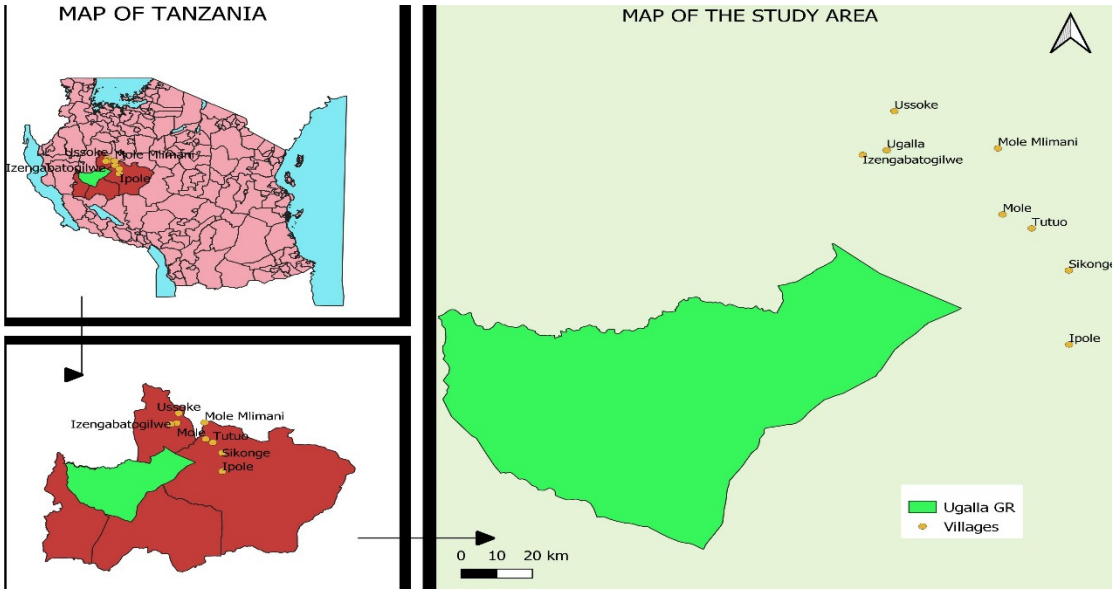


Fig. 1. Map of the study area showing the Ugalla Game Reserve and the surveyed villages. Source: World Database on Protected Areas (WDPA), National Bureau of Statistics (NBS), and Ugalla Game Reserve Department GIS Unit (2022).

Materials and Methods

Data Collection

Questionnaire Survey and Key Informant Interviews

Sample size was determined using the Yamane formula, chosen for its simplicity, precision and cost-effectiveness (Oluigbo *et al.*, 2024), yielding 141 respondents drawn from four trade unions: Sifico, Twikilagi, Tabora Fish and Ugalla Beekeepers. Only registered members of these long-established unions may use wildlife resources within the reserve, and the unions may exclude non-members or members who break union rules (Fisher, 1997, 2002). Respondents were selected at

random from each union's membership list, giving every member an equal chance of selection. Questionnaires were administered face-to-face between February and April 2022, during the farming season, between 13:00 and 15:00 to avoid disrupting farm work. They covered respondents' characteristics (tribe, age, education, marital status, economic activity and union membership), criteria for union membership, participation in HBI, involvement in decision-making and management challenges.

To gain a deeper understanding of HBI, in-depth interviews were held with eight key informants: the four trade union chairpersons, two wildlife professionals from the Ugalla Game Reserve and two Sikonge District natural resources officials responsible for issuing fishing and beekeeping permits. The interviews explored the history of HBI in Ugalla, community involvement in conservation, the role of trade unions in managing HBI and the challenges of managing HBI within the reserve.

Data Analysis

Questionnaire data were coded and analysed in SPSS version 20 (IBM Corp., Armonk, NY, USA). Descriptive statistics (frequencies, percentages and means) were used to summarise respondents' characteristics, membership criteria, participation in HBI and management challenges, and a reliability analysis confirmed the consistency of the questionnaire. Given the categorical nature of the data, chi-square (χ^2) tests were used to test for differences in involvement in decision-making, satisfaction and the challenges faced by trade unions. A generalised linear model (GLM) was used to analyse factors influencing satisfaction with the decision-making process, with a satisfaction index as the response variable and age, tribe, education, marital status, economic activity and trade union membership as explanatory variables. Statistical significance was set at $p < 0.05$.

Results and Discussion

Criteria for Practicing HBI in the Game Reserve

Table 1 summarises the criteria trade unions apply for membership. All respondents (100%) indicated that members must be at least 18 years old, 84.0% that members should be male, 77.0% that their parents should once have lived along the Ugalla River, 65.0% that members should live adjacent to the protected area, and 50.0% that members should have lived in the villages for many years. For entry to the reserve to practise HBI, all respondents (100%) indicated that participants must be trade union members and Tanzanian citizens, 70.0% that they must have no poaching record, and 18.0% that they must live adjacent to the protected area.

In-depth interviews revealed that gender also shapes participation. Women could join the fishing trade union but were not permitted to stay in fishing camps, entering the reserve only as traders who bought fish from fishermen for resale in the villages. Customary rules and by-laws set by local chiefs prohibited women from fishing in the river (Fisher, 1997).

Table 1: Requirements for trade union membership and HBI participation

Criteria to Join Cooperation Union	Frequency	Percentage
18 Years	141	100
Parents once lived along the Ugalla river	108	77
Adjacent protected areas	92	65
I lived in the village for many years	71	50
Male	118	84
Famous /Businessman	24	17
Criteria to be allowed to Participate in HBI in Ugalla Game Reserve		
Member of union	141	100
No poaching records	99	70
living adjacent to protected areas	26	18
Tanzanian	141	100

Participation in Decision-Making

Of the 141 respondents, 83.0% (n = 117) reported involvement in decision-making and 17.0% (n = 24) reported none ($\chi^2 = 10.119$, df = 3, p = 0.018), indicating that a substantial proportion of trade union members participate in managing wildlife resources within the reserve. Among those involved, 85.0% took part in setting traditional camp by-laws, 73.0% in arranging transport for fish and honey, 66.0% in pre-season meetings to agree on HBI matters, 40.0% in deciding how resources within fishing and beekeeping camps should be used, and 33.0% in determining how many union members may enter the reserve (Table 2).

Table 2: The role of trade unions in the decision-making process

Variables	Frequency	Percentage	Df	p-Value
Involvement in Decision Making				
Yes	117	83		
No	24	17	3	0.018
satisfaction in Decision making (n= 117)				
Yes	92	79		
No	25	21	3	0.008
Variable (decision-making)				
Involved in making traditional by-laws*	97	85		
Arranging means of transport and ways used to transport fish and honey products*	83	73		
Deciding matters concerning HBI before the commencement of the season*	75	66		
Deciding numbers of union members to be allowed in the game reserve*	37	33		
Use of resources inside protected areas for local people *	46	40		

*Data based on multiple responses

Most members involved in decision-making (79.0%) were satisfied with their involvement, while 21.0% were not (χ^2 = 11.724, df = 3, p = 0.008). Satisfaction was 89% among Ugalla Beekeepers, 77% among Twikilagi, 74% among Sifico and 64% among Tabora Fish members, but did not differ significantly among trade unions (χ^2 = 5.989, df = 3, p = 0.112; Table 3).

Table 3: Satisfaction with the decision-making process among trade union members

Trade union	**Satisfied in involvement in decision making**		**Total**	**P- VALUE**
	Yes	**No**		
Sifico	74%	26%	100 %	
Tabora Fish	64%	36%	100%	0.112
UGALLA BEKEEPER	89%	11%	100%	
Twikilagi	77%	23%	100%	

Key informants confirmed that union members take part in HBI decisions through regular meetings, which are also used to resolve disputes, such as disagreements between rangers enforcing the Wildlife Act and union members over resource use, that could otherwise jeopardise the sustainability of wildlife resources in the reserve. As one Ugalla Game Reserve informant explained:

> *"Our objective is to ensure wildlife resources are protected and secured; therefore, we need to ensure that all decisions made by local communities that reduce unsustainable utilisation of wildlife resources in game reserves are incorporated" (participant in the in-depth interview from Ugalla Game Reserve)*

Factors Influencing Trade Union Members' Satisfaction with Decision-Making on HBI

In the GLM (Table 4), trade union membership significantly influenced satisfaction with HBI decision-making, but in the opposite direction to that expected: members reported lower satisfaction than non-members (β = –0.253, p = 0.004), possibly because union leaders do not adequately represent members' views to reserve management. Tribe, age, education, marital status and economic activity had no significant effect.

Table 4: Generalised linear model of factors influencing satisfaction with HBI decision-making

			Statistical tests	
Independent variables	**B**	**SE**	**Wald Chi-square**	**p-value**
(Intercept)	0.843	0.2593	10.575	0.001
[education=1] Primary	0.128	0.0835	2.343	0.126
[education=2] Secondary	0.189	0.1707	1.224	0.269
[education=5] Informal	0[a]	.		.
Trade union membership	-0.253	0.0889	8.135	0.004*
[Marital=1] Married	0.2	0.1369	2.132	0.144
[Marital=2] Singe	0a	.		.
[Economic=1] Crops cultivation	0[a]	.		.
[Economic=2] Fish Merchants	0[a]	.		.
[Tribe=1] Nyamwezi	0.025	0.1414	.032	0.858
[Tribe=2] Muha	-0.193	0.1906	1.025	0.311
[Tribe=3] Mkonongo	0[a]	.		.
Age	0.002	0.0056	.143	0.706
(Scale)	0.11[b]	0.0144		

The response variable was a satisfaction index toward decision-making; explanatory variables were age, tribe, education, marital status, economic activities, and trade union membership.

"a" is Set as zero because this parameter is redundant.

"b" Maximum likelihood estimate.

"B" the negative and positive value indicates the direction of influence

*Significant strength

Challenges Facing Trade Unions in Managing HBI

Respondents identified six challenges in managing HBI (Table 5), and these differed significantly among trade unions ($\chi^2 = 293.258$, df = 18, $p < 0.001$). Corruption by rangers during monitoring was reported by 42% of Twikilagi, 33% of Sifico and 25% of Tabora Fish members. Limited awareness of protected area laws and regulations was reported by 35% of Tabora Fish, 32% of Ugalla Beekeepers, 29% of Sifico and only 4% of Twikilagi members; the low figure for Twikilagi may reflect that most of its members live in Ussoke village, where a permanent ranger post provides frequent conservation education. Changes in reserve management were cited by 31% of Sifico, 29% of Twikilagi, 22% of Ugalla Beekeepers and 18% of Tabora Fish members, reflecting reserve managers' discretion to revise HBI arrangements. Closure of fishing camps was cited by 56% of Twikilagi and 44% of Sifico members, and competition with hunting companies by 52% of Ugalla Beekeepers, 28% of Tabora Fish and 20% of Sifico members. Poaching was cited only by Ugalla Beekeepers (100%), possibly because poachers raid beehives for honey as food.

Table 5: Challenges facing trade unions in managing HBI

Trade union	Challenges facing monitoring HBI					
	Corruption	**Awareness of protected area laws**	**Hunting companies**	**Poaching**	**Closing of fishing camps**	**Changes of Game Reserve**
Sifico	33 %	29%	20 %		44 %	31 %
Tabora Fish	25 %	35%	28 %		00 %	18 %
Ugalla Beekeepers	00 %	32%	52 %	100 %	00 %	22 %
Twikilagi	42 %	4 %	00 %		56 %	29 %

Discussion

The criteria trade unions apply for HBI appear central to securing communities' access to and user rights over wildlife. They establish members' identity and legitimacy, ensuring that families historically settled along the Ugalla River, or resident there for decades, retain access. Because communities know their members and their livelihoods intimately, they are well placed to judge who is genuinely eligible, consistent with Dawson *et al.* (2021) argument that legitimate local institutions are vital to securing wildlife resources and their sustainable use; members are also more likely to comply with rules they helped establish. When HBI is designed for protected areas, local communities should therefore be allowed to define their own criteria before guidelines derived from formal laws are added.

Community involvement in natural resource decision-making attracts frequent criticism (Andrade and Rhodes, 2012), largely because most conservation decisions remain top-down (Kideghesho, 2006). Communities are often treated as threats and given directives rather than a genuine role (Sigala *et al.*, 2021), and local knowledge and institutions that have managed wildlife for centuries are frequently overlooked (Sanga and Haulle, 2022). Such exclusion can trigger poaching and unsustainable use as communities cease to feel responsible for outcomes (Sanga and Haulle, 2022; Wilfred, 2018). By contrast, communities in Ugalla are actively involved in decisions on wildlife use, which may help explain why HBI has persisted inside the reserve for so long.

Trade union membership alone, however, did not translate into greater satisfaction, apparently because members are dissatisfied with how their leaders represent them to reserve management. This is consistent with Tang'are and Mwanyoka (2023), who found that communities are more satisfied with leadership representation, and more willing to comply, when they perceive clear benefits. Where members feel their needs have been inadequately represented, a sense of betrayal may undermine satisfaction with the wider decision-making process.

Participatory planning that involves communities in shaping livelihood and conservation initiatives is more likely to succeed (Chirenje *et al.*, 2013; Fariss *et al.*, 2022; Tarimo and Olotu, 2020). In Ugalla, communities plan and implement wildlife resource management directly, and unions can exclude members who breach agreed rules. This matches Kideghesho and Mtoni's (2008) definition of co-management as the sharing of

power, responsibilities, rights and duties between protected area authorities and local communities, and may explain why HBI has endured for more than half a century.

Monitoring is essential to the sustainability of wildlife resources in protected areas (Moore *et al.*, 2018; Nahonyo, 2005). Our data indicate that anti-poaching patrols by reserve management play the most significant role in monitoring HBI, ensuring that agreements between unions and management are honoured and that communities adhere to the Wildlife Policy and Wildlife Conservation Act. Other measures remain important complements, since involving communities directly in monitoring makes conservation both fairer and more effective (Anagnostou *et al.*, 2020).

Gender has long shaped how rural communities use wildlife (Mugambi *et al.*, 2022). Although women are less directly involved in exploitation than men, they influence men's decisions: Loibooki *et al.* (2002) showed that women promote wildlife exploitation in the Serengeti, and Nielsen *et al.* (2016) found that women play a significant role in marketing and selling wildlife products from the Kilombero Game Controlled Area. Similarly, women in Ugalla are not directly involved in harvesting or managing wildlife but play an essential role in distributing and selling its products, and, as Douma (2012) observed more broadly, are underrepresented in decision-making. Because wildlife use is highly gendered, gender-responsive policies are needed (Mugambi *et al.*, 2022). Given women's influence on the men who make frontline harvesting decisions, interventions that actively involve women in HBI may yield particularly promising conservation results.

Challenges in managing wildlife are largely inevitable, as differing perceptions among users and stakeholders make conflict likely (Wilfred, 2019). Frequent changes to wildlife laws widen the awareness gap between resource users and law enforcers (John, 2021b), and limited awareness jeopardises both management and sustainability (Hariohay *et al.*, 2018; Sigala *et al.*, 2021). Communities around Ugalla still need a stronger understanding of the laws and regulations governing wildlife use.

Corruption among some rangers managing HBI also hinders sustainable use in Ugalla. Kideghesho (2016) argues that corruption, driven partly by eroding accountability among officials, weakens conservation institutions and enables poaching. Improving the welfare of protected area staff, combined with zero tolerance for corrupt individuals, could reduce corruption among rangers and support more effective management.

Hunting companies compete with local communities for wildlife resources and, because of the foreign currency they generate, receive preferential treatment from government, consistent with Nachihangu *et al.* (2018). Companies therefore often resist community use of resources within their hunting blocks, even though beekeeping, fishing, medicinal plant gathering and mushroom collection are vital to livelihoods and do not conflict with hunting. Hunting companies should accommodate such uses, both as compensation for land communities have relinquished for conservation and in recognition of the costs communities bear from crop raiding and livestock predation.

Frequent changes in reserve management were a challenge acknowledged by all four unions. Reserve managers are central to securing wildlife under the Wildlife Conservation Act, Cap 283 (R.E. 2022), and ratified international instruments, but HBI lacks formal regulation, so its continuation depends on managers' discretion and informal understandings with unions. The absence of clear guidelines risks confusion among resource users, and the broader lack of regulations governing community harvesting in Tanzania continues to generate conflict between managers and users (Kisingo *et al.*, 2022).

Reserve management also shapes the morale of game scouts, innovation in combating illegal activity and rangers' perceptions of neighbouring communities; the strategies management adopts towards rangers influence how resources are monitored and how rangers interact with communities (Nachihangu *et al.*, 2022; Rizzolo *et al.*, 2021). Management that accounts for the well-being of peripheral communities is essential (Abukari and Mwalyosi, 2020), and sustainable management inside and around protected areas ultimately requires effective partnership between protected area management, local communities and local government (Harrison *et al.*, 2015).

Conclusion

Despite the challenges trade unions face, several factors underpin the successful implementation of HBI in the Ugalla Game Reserve. First, local communities set the requirements for participation themselves, excluding those without legitimate claims to the reserve's wildlife resources. Second, trade unions play a substantial management role by establishing by-laws, sanctioning violators and negotiating with reserve management to resolve conflicts over resource use. Third, coordinated management becomes achievable when reserve management and communities jointly recognise the need to conserve wildlife, integrate indigenous knowledge and monitor resource use through anti-poaching efforts. Community engagement in decision-making therefore plays a substantial role in the success of conservation of this kind.

Recommendations

To ensure the responsible and sustainable use of wildlife resources, we recommend the following.

1. Tanzania's Ministry of Natural Resources and Tourism should develop clear regulations governing local communities' use of wildlife resources within protected areas, including formal guidelines for implementing HBI, to improve livelihoods and increase community acceptance of conservation objectives.
2. Reserve management and trade unions should review how members participate in decision-making and how union leaders represent them, given members' dissatisfaction with leadership representation.
3. Conservation education on wildlife laws and regulations should be strengthened among trade union members, particularly in villages without a permanent ranger post.
4. Reserve management should adopt zero tolerance towards corruption among rangers monitoring HBI, alongside measures to improve staff welfare.
5. Women's role in HBI should be recognised and their participation in

decision-making and resource management strengthened.

6. Hunting companies should accommodate non-conflicting community activities, such as beekeeping and fishing, within their hunting blocks.

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