

# Wildlife Conservation and Community-Based Natural Resource Management in Southern Africa's Private Nature Reserves

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*In southern Africa, legislative changes that devolved wildlife management authority on private land to landowners and growth in the commercial value of wildlife resulted in a substantial increase in private land dedicated to wildlife. In addition, groups of landowners within the bounds of the Great Limpopo Conservation Area have incorporated their properties into private nature reserves, thereby expanding the management scale of common-pool wildlife resources. Secondary data and experience with the reserves form the basis of our exploration of the contribution of private landholdings to wildlife conservation and the extent to which three private nature reserves appear to exhibit characteristics that promote effective community-based natural resource management (CBNRM). The combined area of private land with wildlife-based enterprises in South Africa is more than double that of formal protected areas, and the three private nature reserves exhibit, to varying degrees, characteristics that enhance CBNRM and coordinated decision making for wildlife conservation.*

**Keywords** African wildlife, collaboration, community-based management, conservancies, private land conservation

The Millennium Ecosystem Assessment (2005, 18) states that “Biodiversity is the foundation of ecosystem services to which human well-being is intimately linked.” During the late 19th century and much of the 20th century, efforts to protect biodiversity in Africa emphasized the designation of protected areas (Adams and

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McShane 1992). For example, South Africa's flagship park, Kruger National Park, was created in 1902 (Mabunda et al. 2003). The emphasis on protected areas began to shift during the 1970s with the recognition that islands of protection are inadequate for maintaining spatially heterogeneous biodiversity (Bell 1984). Together with the growing interest in the commercial potential of wildlife, this recognition led to legislation in Zimbabwe and South Africa that devolved management authority for wildlife on private land from central government to landowners. Increasingly, it also became apparent that, in the long run, wildlife could not be effectively conserved in protected areas or on private land without the support of neighboring communities (Simmons and Kreuter 1989; Kreuter and Simmons 1994). Since many native communities were evicted by colonial governments from their ancestral lands when protected areas were proclaimed, native people generally viewed wildlife as a threat (Magome and Murombedzi 2003). To address such antipathy, government agencies and nongovernment organizations (NGOs) joined forces in the 1980s and 1990s to develop community-based wildlife programs aimed at providing benefits to affected communities (Hulme and Murphree 2001; Murombedzi 2003; Balint and Mashinya 2008).

A further challenge to biologically sound and institutionally feasible wildlife management is that many wildlife species exhibit extensive and unpredictable movements across the landscape. Biological challenges are created by the fact that many species require large home ranges and form metapopulations. Institutional challenges occur because existing management scales, especially on private properties, are generally too small for individual stakeholders to share the full benefit and full cost of conservation (Naughton-Treves and Sanderson 1995). Expanding the biological and institutional scope, in part through the development of multi-property private nature reserves, addresses this problem of scale. Under such a scenario, wildlife becomes a common pool resource that transcends individual properties.

In his seminal thesis "The Tragedy of the Commons," Garrett Hardin (1968) argued that "mutual coercion mutually agreed upon" through government control or enforceable privatization of resources is necessary to avoid the inevitable depletion of common pool resources. However, private ownership does not guarantee the application of ecologically sound land management decisions; nor does it guarantee coordinated decision making among neighbors. In addition, scholars have challenged Hardin's assertion, citing many instances of successful community-based natural resource management (CBNRM). Elinor Ostrom (1990) explored conditions that led to satisfactory resolution of common-pool resource problems and concluded that such solutions may be more effectively achieved by voluntary organizations than by coercion. More recently, Agrawal (2003) reviewed three landmark works (Ostrom 1990; Wade 1994; Baland and Platteau 1996) to identify critical enabling conditions for the sustainability of common-pool resources. Based on this review, Agrawal (2003) identified four categories of variables that influence the management of common-pool resources: resource system characteristics, characteristics of groups that depend on the resources, institutional regimes through which resources are managed, and the nature of the relationship between a group and external forces and authorities. He also identified variables that represent relationships between resource system characteristics and group characteristics.

Scholarly works on CBNRM have generally focused on communal land where local inhabitants (who are often assumed to be "native" to the area) have the right to use, but not title nor exclusive individual rights of access to land or the resources it

provides. Furthermore, scholars of CBNRM often assume that decision making that leads to effective common-pool resource management incorporates the interests of most members of the affected community, but the nature of decision making in commonly recognized examples of CBNRM varies considerably (see seminal paper by Agrawal and Gibson 1999). For example, in Zimbabwe's Communal Areas Management Program for Indigenous Resources (CAMPFIRE), one of the earliest examples of wildlife-focused CBNRM in southern Africa, decision-making authority for wildlife management and the use of wildlife-related income ranged from elected regional or local government officials to traditional community leaders and to village communities residing in communal areas where wildlife occurred (Hulme and Murphree 2001).

Conservation areas comprised of multiple private landholdings have previously not been considered in the context of CBNRM. We argue that this is a gap in the CBNRM literature. Our assessment of private nature reserves in southern Africa as an example of CBNRM is based on the observation that members of multi-landowner nature reserves represent communities of people who have joint interests in a common pool natural resource (wildlife) and who coordinate, to varying degrees, their decisions about the management of wildlife that traverses their combined properties. Generally, when joining a private nature reserve or purchasing already incorporated land, members are legally bound by the reserves' constitution to adhere to a wildlife management plan for the whole reserve. This plan is implemented either by a management entity that is accountable to an elected board of directors or more loosely through mutually agreed-upon arrangements by members. Such institutional arrangements represent natural resource management by a community with a common interest. This observation together with the fact that wildlife in southern Africa's internally unfenced private nature reserves is a common-pool resource supports our contention that wildlife management within these private nature reserves is an example of CBNRM.

We use the term "local community" to refer to a group of people who reside within a given geographic location, without specifying ethnicity, type of land tenure, or period or longevity of residence by community members. To differentiate two primary types of communities in our study, we refer to members of private nature reserves as "landowner communities" and we use the term "neighboring communities" to refer to native inhabitants of communal lands that border private nature reserves. Both types of communities have a significant number of absentee members. Many members of so-called "native communities" in southern Africa are absent for long periods of time because they work in distant urban areas. In the case of private nature reserves, varying numbers of members are absentee landowners who visit their properties more or less frequently. Although "private landowner communities" and "neighboring communities" may differ with respect to prevailing land tenure (private versus communal land) and proportion of permanently resident members, both groups have common local interests.

In this article we specifically address the following question: To what extent are the principles of successful CBNRM exhibited by multi-landowner conservation communities that constitute private nature reserves in southern Africa? The objective of our article is to examine the contribution of private nature reserves to conservation initiatives in southern Africa and to identify whether or not these reserves reflect critical conditions for sustainable CBNRM. First, we summarize the role of private nature reserves in South Africa. Second, we assess the characteristics of three

private nature reserves within the Great Limpopo Trans-frontier Conservation Area with respect to principles for successful CBNRM. Our study is based mainly on information obtained from published literature and from unpublished reports provided by private nature reserves in South Africa and Zimbabwe. No systematic research has been conducted on the comparative characteristics of private nature reserves in Southern Africa. However, some firsthand information was provided by the second author of this article, whose primary function with South Africa's Agricultural Research Council is to monitor long-term ecological changes within the private nature reserves west of the Kruger National Park and to provide wildlife management recommendations to the members of these reserves. Because no primary data were collected for this study and the secondary data used were mainly descriptive, our study is exploratory and provides a framework for future research.

### Private Nature Reserves in Southern Africa

The development of private nature reserves in southern Africa has followed a fairly consistent path, as exemplified by developments in South Africa. The period from 1850 to 1950 was termed the "century of extermination," during which European settlers and their livestock moved into the interior of African countries (Adams and McShane 1992). These incursions, supported by racially discriminatory government policies, resulted in native people evicted from their traditional land base (Magome and Murombedzi 2003). White settlement also led to the decimation of wildlife to make way for domestic livestock (Peel et al. 2004), while the rinderpest epidemic in southern Africa during the 1890s resulted in further precipitous declines in wildlife populations. Subsequent conservation efforts during the 20th century led to reversals of wildlife declines and ultimately to population sizes that could support consumptive use options, such as safari hunting and game meat production, in addition to nonconsumptive tourism (Peel 2005).

A key driver of the development of vibrant wildlife industries in South Africa and Zimbabwe in the 1980s and 1990s was legislative change that allowed private landowners to utilize and manage wildlife on their land without government permits. These changes, together with declining profitability of agricultural production and the growth in international interest in southern Africa as a tourist destination, created economic incentives for landowners to increase wildlife on their land. Many ranchers in drier areas converted their primary land use entirely to game ranching. For example, in South Africa's northern Limpopo Province, where livestock production was traditionally the primary land use, game ranching was reported to be the main activity on 29% of the land by 1998 (Van der Waal and Dekker 2000).

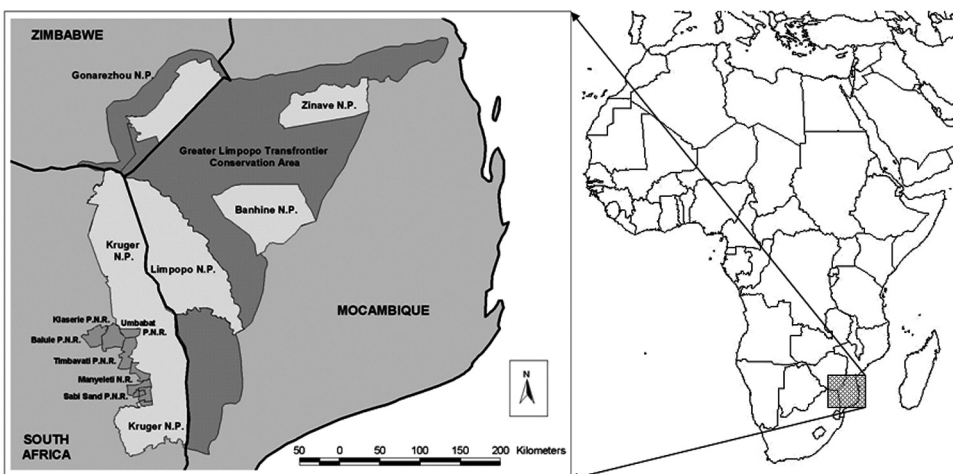
Of an estimated 55,000 private farms and ranches in South Africa, there are approximately 5,000 game ranches and over 4,000 mixed game and livestock ranches, which jointly cover about 170,000 km<sup>2</sup> (Palmer et al. 2006). This area of private land supporting wildlife comprises about 14% of South Africa's land area, compared to 6.3% declared as formal conservation areas. About 45% of the game ranches are located in the Limpopo Province where they cumulatively covered around 36,000 km<sup>2</sup> in 1998, about twice the size of the Kruger National Park.

Under the National Parks Act of 1976, private land located next to national parks could be designated as a "contracted national park" (Magome and Murombedzi 2003). In principle, this allows the South African government to expand the land area formally dedicated to biodiversity conservation under its

wildlife management prescriptions without having to purchase or expropriate land. The advantage for participating landowners is that, through the exclusion of boundary fences, they obtain access to larger wildlife populations, thereby increasing their potential for developing wildlife tourism enterprises. In actuality, private land adjacent to the Kruger National Park has not yet been granted contracted park status, but formal designation as contracted parks is still under discussion. What has happened is that, in order to remove fences separating private land from the Kruger National Park, an agreement was signed by the Association of Private Nature Reserves with South African National Parks to manage wildlife within the reserves according to the master plan for the Kruger National Park.

In the years leading up to this agreement, the establishment of game ranches by neighboring landowners led to alliances among them to create large blocks of contiguous land dedicated to wildlife. Such alliances are referred to as private nature reserves in South Africa and conservancies in Zimbabwe (Palmer et al. 2006). Although the characteristics of reserves vary, they commonly include the removal of all fences within the reserve, a single perimeter fence around the reserve, and the removal of boundary fences where reserves border formal protected areas. In addition, membership of a private nature reserve generally provides one vote per landowner entity and it requires adherence to an overall land use and wildlife management plan for the reserve that conforms to the Kruger National Park's master plan. These management plans stipulate constraints on members' rights with respect to types and intensities of land use (e.g., restrictions on hunting activities or number of tourist lodges), wildlife off-take rates, implementation of vegetation management practices and access to adjacent properties.

Within the Great Limpopo Trans-frontier Conservation Area, which will span 100,000 km<sup>2</sup> when it is fully incorporated (van Amerom and Büscher 2005), the private nature reserves are located to the west of the Kruger National Park and to the north and west of the Gonarezhou National Park (Figure 1). In South Africa, five private nature reserves west of Kruger include Sabi Sands, Klaserie, Timbavati, Balule, and Umbabat (Table 1). The latter four comprise the Associated Private



**Figure 1.** Location of the Great Limpopo Trans-frontier Conservation Area and the adjacent private nature reserves.

**Table 1.** Characteristics of private nature reserves west of the Kruger National Park, South Africa

Reserve <sup>a</sup>	Reserve area (ha)	Members	Property size range (ha)	Investment in management (US\$) <sup>b,c</sup>	Income sharing initiatives with adjacent local communities (US\$)
Sabi Sands	65,100	24	50 to 14,000; most 3,000–6,000	Game count ≈ \$22,000; Ecological monitoring ≈ \$3,200	11 properties provide funds to NGOs, and farms bordering communities have own outreach programs
Klaserie	57,918	87	52 to 4,600	Annual management budget ≈ \$330,000	HIV/AIDS awareness program ≈ \$3,000; Community Children's Eco-training activities ≈ \$11,400
Timbavati	55,392	50	279 to 2,251	N/A	HIV/AIDS program includes funding for on-site, mobile and nearby clinics; Bush School Program; staff training program (by three lodges and five owners)
Balule	36,000	N/A	21 to 6,200	Annual management budget ≈ \$217,000	Water provision for a local nursery school, drilled a borehole for them (R25 000), ongoing support in terms of donations for everyday school items. AIDS workshops for local staff and owners.
Umbabat	16,900	22	40 to 2,213	N/A	N/A

<sup>a</sup>Timbavati, Klaserie, Balule, and Umbabat comprise the Associated Private Nature Reserves (APNR).

<sup>b</sup>Members of the APNR share the costs of game counts and ecological monitoring: annual game count cost ≈ \$46,000; and annual ecological monitoring cost ≈ \$14,500.

<sup>c</sup>Ecological monitoring has been conducted for more than 15 years in all cases.

Nature Reserves (APNR). Free movement of wildlife across the APNR reserves and along the west–east river systems has been made possible by fence removals within and between reserves and Kruger (Bornman 1995). In Zimbabwe the conservancies near the Gonarezhou National Park include Malilangwe, Hippo Valley, Chiredzi River, Save Valley, and Bubiana and Bubi River, and wildlife corridors have been proposed to link them to the Gonarezhou National Park.

### **Case Studies: Timbavati, Klaserie, and Save Valley**

In this section, we describe and compare the characteristics of three private nature reserves within the Great Limpopo Trans-frontier Conservation Area: the Timbavati and Klaserie Private Nature Reserves in the Limpopo Province of South Africa and the Save Valley Conservancy in southeastern Zimbabwe. The three were selected for comparison because of their historical importance, their implementation of large-scale wildlife management plans, and their differences with respect to constitutional structures and landowner rights. By comparing existing information about them, we attempt to identify variations in the extent to which critical conditions for suitable CBNRM occur among communities of private landowners who are members of these private nature reserves.

#### ***Timbavati Private Nature Reserve***

Timbavati Private Nature Reserve was proclaimed in 1956 when a group of wildlife ranchers on the western boundary of the Kruger National Park met to form the Timbavati Association (Bornman 1995). The reserve was fenced off from the park in 1961 to prevent the spread of foot-and-mouth disease, but this led to large-scale mortality of wild animals during the severe drought of 1962 because the fence blocked seasonal migrations. The sudden public interest in Timbavati in the early 1970s due to the discovery of white lions led to development of the first tourist lodge, and today there are seven lodges.

The revised constitution of the Timbavati Private Nature Reserve (1999, 1) states that the objective of the reserve is “to promote and conserve (native) fauna and flora on those farms . . . whose owners are members of the Association and any other farms that may subsequently be included by the Association, . . . and to restore the Reserve to the flora and fauna which existed before the interference of man.” Membership is limited to legal entities owning land or to those holding a registered usufruct over land within the reserve. Retaining membership is a legal requirement for all current and future landowners, and any lessees are equally bound by the terms and conditions of membership. Each member is charged an annual fee to help offset the cost of wildlife management within the reserve.

Constraints on land use are a key element of the constitution. Specifically, no member may capture or kill wildlife or use any resources derived from the land without obtaining written consent from the association, and no member may have more than one tourist lodge per 855 hectares of land. In addition, all wildlife management, including quota setting (conducted in conjunction with appropriate authorities), culling of excess or problem animals, hunting, and the sale of captured animals, is done exclusively by the association’s management entity. Income derived from such wildlife management activities accrues to the association for payment of habitat and wildlife management expenses. The constraints on land use coupled with

the overarching land management by the association are key components of integrated land use management policy within the reserve.

### ***Klaserie Private Nature Reserve***

Klaserie Private Nature Reserve was formed in July 1969 to expand the wildlife area on the farms whose owners were concerned about the deleterious effects of being fenced off from the Kruger National Park (Bornman 1995). The constitution of Klaserie Private Nature Reserve (1998, 1) states that its objective is “to conserve a wide diversity of indigenous species and their associated habitats using sustainable utilization principles.” Membership is restricted to legal entities owning land within the reserve, and all members are obligated to pay annual fees to cover the cost of managing the reserve.

Constraints with respect to land use include a limit of one tourist lodge per 856 hectares of land, which cannot be used commercially without permission of the executive committee. Each property has further constraints with respect to number of residents, timesharing, and subdivision or sale of land, including the right of first refusal by existing members to buy land being sold and subjection of new owners to the terms and conditions of membership. With respect to hunting, Klaserie members are less constrained than their Timbavati counterparts. They may shoot animals according to the total annual off-take quota specified for the reserve, prorated by the area of the land they own. Culling of overabundant species is prescribed and directed by the executive committee and permits for member participation in culling are allocated based on individual property size. The warden of the reserve is appointed by the executive committee to be the administrative official for the association, but the warden’s land and wildlife management role is less inclusive than in Timbavati because individual members do most of the hunting.

### ***Save Valley Conservancy***

Unlike Timbavati and Klaserie, the Save Valley Conservancy does not share a border with a formal protected area, and therefore members of the Save Valley Conservancy are not directly constrained by National Parks policies. Prior to 1991, the land included in the Save Valley Conservancy was used for cattle ranching, but the devastating drought of 1991/1992 underscored the reality that this semi-arid area is better suited to native wildlife than domesticated cattle (Goodwin et al. 1997). Simultaneously, conservationists were seeking suitable land to relocate endangered black rhino from the Zambezi Valley where poachers were threatening their continued existence. The relocation of these rhinos to large tracts of private land created the impetus for the creation of the Save Valley Conservancy, which was characterized as “community participation through a rhino endowment model” (du Toit 2005, 1). The Save Valley Conservancy was established when 23 ranchers replaced their fences with a single rhino-proof game fence around their combined properties. This led to the formation of one of the world’s largest private nature reserves, covering 345,067 hectares (3,450 square kilometers) (Goodwin et al. 1997). The current ownership varies from local partnerships to government-approved international investors and the Zimbabwe government itself. Most of the properties within the conservancy include black Zimbabwean partners.



A ground-breaking constitution binding the former ranchers into a single wildlife management unit was signed in 1991. The Save Valley Conservancy was incorporated as a nonprofit organization to develop and maintain opportunities for the conservation and sustainable utilization of natural resources within it (Goodwin et al. 1997). Because the Save Valley Conservancy's formation affected diverse stakeholders, including neighboring communities, its constitution committed the members to "full liaison" with local authorities, government agencies, and NGOs (Goodwin et al. 1997). Its underlying principle was that land use must be not only ecologically and economically sound but also sociopolitically sustainable.

Given that the Save Valley Conservancy does not border a national park and is surrounded by communal lands, the third aspect of the constitution is critical because its the long-term survival depends on the support of people living on these adjacent communal lands, which is influenced by the level of benefits accruing to them (Balint and Mashinya 2008; Goodwin et al. 1997). A well-documented example of the symbiotic benefit between the Save Valley Conservancy and neighboring communities is the collaboratively developed wildlife program in Mahenye, which is one of the most cited success stories of Zimbabwe's CAMPFIRE program (Murphree 1995; Balint and Mashinya 2008). The participation of neighboring communities was facilitated by the creation of two institutional bodies. The first was a joint Committee of the Rural District Councils (CRDC), consisting of two representatives from each of five adjoining districts, to represent the interests of the neighboring communities in dealings with the Save Valley Conservancy. Together with the Save Valley Conservancy's elected management committee, the CRDC established a partnership committee as the forum for the two bodies to discuss matters of common interest. The second body is a trust established in 1999 to foster mutually beneficial and durable economic relations between the conservancy and about 20,000 people in 18 neighboring communities (Cunliffe 1994).

The purpose of the trust is to attract and administer funds needed to involve the neighboring communities in the economy created by the conservancy. The first funds were provided by the International Finance Corporation using Global Environment Facility funds. Among several mechanisms for involving the neighboring communities, perhaps the most innovative was the use of these funds by the communities to procure wildlife breeding stock for placement in the Save Valley Conservancy to create a regular source of income for them through the sale of the subsequent offspring for hunting (du Toit 2005). This arrangement is beneficial because the wildlife endowment enhances the economic viability of the conservancy's tourism operations, thereby stimulating employment, and the income derived from the investment can be used to fund projects and enhance food security for neighboring communities. This partnership of landowner and neighbouring communities is rare yet a critical aspect of the local support for the conservancy.

Despite its remarkable early conservation successes, the Save Valley Conservancy faces problems. In the face of Zimbabwe's Fast Track Land Resettlement Program, about 25% of the southern half of the conservancy no longer operates effectively as a wildlife conservation area because of the influx of people who were forcibly resettled from land taken by Zimbabwe's political elites (SVC 2007). In addition, the Zimbabwe government's disastrous land policy has led to a widely reported collapse of the country's economy, specifically the tourism industry, and a dramatic shift in the value placed on wildlife from a source of tourism-related

revenue to a source of meat. These factors have led to a dramatic decline in wildlife in the south due to poaching (SVC 2007). By contrast, private property rights remain protected in South Africa, there is no policy of forced resettlement, and widespread land invasions have not occurred.

### *Comparison of Three Case Studies*

In the final section, we compare the Timbavati, Klaserie, and Save Valley reserves with respect to critical enabling conditions listed by Agrawal (2003) for the sustainability of common pool resources. However, existing information is insufficient to evaluate all 29 of the listed conditions and their subconditions. In this exploratory study we selected conditions for comparison for which information could be obtained from unpublished reports and published literature (Table 2). Although the selective nature of our study prevents us from drawing broad conclusions about the effectiveness of these private nature reserves with respect to CBNRM paradigms, our study does identify some preliminary indicators and suggests potential directions for further research. In our analysis we focus to a greater extent on group characteristics than the other three categories of critical conditions because these are most relevant to answer our initial question about the extent to which the principles of successful CBNRM are exhibited by multi-landowner conservation communities in southern Africa.

The three private nature reserves we discuss exhibit varying degrees of adherence to the critical enabling conditions for the sustainable management of common pool resources, such as wildlife. The two conditions assessed with respect to *resource system characteristics* are “small size” and “well-defined resource base.” In the case of the Save Valley Conservancy, wildlife is contained by a fence around the 345,067-hectare reserve. In principle, wildlife within the conservancy represents a relatively large but well-defined resource. However, due to the land invasions resulting from Zimbabwe’s Fast Track Land Resettlement Program, the integrity of the conservancy’s wildlife resource has been partially compromised. By contrast, Timbavati and Klaserie are much smaller in size and their boundaries are secure due to protection of private property rights in South Africa. However, wild animals migrate freely across a much larger area represented by the four Associated Private Nature Reserves as well as the Kruger National Park. This might seem to contradict the condition of a well-defined resource base, but wild animals on these private nature reserves are, in fact, part of well-defined larger populations that are collectively managed according to national park guidelines. By integrating their land with the Kruger National Park through fence removal and by adhering to the park’s wildlife management guidelines, the members of the private nature reserves may have strengthened their security of land tenure because the government is less likely to expropriate land for resettlement from these private nature reserves than land that is not incorporated into the greater Kruger National Park.

Regarding the extent to which private nature reserves exhibit critical conditions for sustainable common-pool resource management, differences in *group characteristics* are perhaps more informative than differences in resource characteristics. The two group characteristic conditions in Table 2 include “size and definition of group membership.” All three reserves consist of less than 100 well-defined members. The Save Valley Conservancy has the smallest membership, although its integrity is being challenged in the south where land invasions have been extensive.

**Table 2.** Extent to which Timbavati (TPNR) and Klaserie (KPNR) Private Nature Reserves and the Save Valley Conservancy (SVC) adhere to critical conditions for the sustainability of common-pool resource management

Characteristic	TPNR	KPNR	SVC
<b>Resource system characteristics</b>			
Small size	Wildlife migrate between KNP and APNR <sup>a</sup>	Wildlife migrate between KNP and APNR <sup>a</sup>	<i>Wildlife contained within SVC</i>
Well defined resource base	<i>Secure property boundaries delineate reserve</i>	<i>Secure property boundaries delineate reserve</i>	Initial property boundaries delineate reserve but invasions compromised SVC integrity
<b>Group characteristics</b>			
Relatively small community	50 members	87 members	<i>23 members; 18 adjacent local communities</i>
Clearly defined boundaries	<i>Defined by individual landholdings</i>	<i>Defined by individual landholdings</i>	Defined by former landholdings but undermined by settler invasions
Shared norms among members	Stipulated in constitution; adherence compulsory; <i>enforced by wildlife management entity</i>	Stipulated in constitution; adherence compulsory; <i>enforced by warden</i>	Stipulated in constitution; adherence compulsory; challenged by resettlement
Inter-dependence among members	As directed by the constitution but not for livelihoods	As directed by the constitution but not for livelihoods	<i>Yes, especially in the face of land nationalization</i>
Past successful experience	<i>Yes, formed in 1956</i>	<i>Yes, formed in 1969</i>	Yes, especially before 2000 after which invasions by settlers have compromised part of SVC
Appropriate leadership	Yes, Executive Committee members are elected	Yes, Executive Committee members are elected	<i>Strong leadership by a long term resident who is respected at all levels.</i>

(Continued)

Table 2. Continued

Characteristic	TPNR	KPNR	SVC
<b>Overlap between resource system and group characteristics</b>			
High level of dependence by members on resources	Not for livelihood	Not for livelihood	<i>Most depend on resources on land for their income</i>
Fairness of allocation of benefits	Benefits to landowners based on property size; Neighboring communities receive minimal benefit	Benefits to landowners based on property size; Neighboring communities receive minimal benefit	Benefits derived directly by members; <i>Neighboring communities receive wildlife-related benefits</i>
<b>Institutional arrangements</b>			
Locally devised institutional rules	Rules devised by original members	Rules devised by original members	Rules devised by members with <i>local communities through 2 elected committees</i>
Simple, easy to understand	Yes, explicitly stipulated in constitution	Yes, explicitly stipulated in constitution	Yes, explicitly stipulated in constitution
<b>External environment</b>			
Central government support of local authority	Central government has encouraged formation of private nature reserves	Central government has encouraged formation of private nature reserves	<i>Zimbabwe's Fast Track Land Resettlement Program has undermined integrity of SVC</i>
External aid to compensate local users for conservation activities	No government aid to private nature reserves; Some community support	No government aid to private nature reserves; Minimal community support	No government aid to SVC; <i>Local community benefits from SVC are a core aspect of the constitution</i>

*Note.* Bold italics emphasizes greater degree of adherence.

<sup>a</sup>APNR = Associated Private Nature Reserves, KNP = Kruger National Park.

Limited membership is important because Wagner et al. (2007) found that intragroup trust among members of wildlife management associations in Texas was negatively correlated with the number of association members. In earlier studies, Pretty and Ward (2001) noted that most natural resource management groups with effective social capital (trust, reciprocity, and community networks) range from 20 to 30 members, and Wuthnow (1994) indicated that the ideal group size for maximum trust building is fewer than 20 people. Based on these findings, small group size may partially explain why the Save Valley Conservancy members have been able to develop a coordinated strategy for ensuring its survival in the face of Zimbabwe's land nationalization policies. Another enabling factor may be that 18 adjacent neighboring communities appear to support the conservancy because, through committee representation, they have participated in decision making with regard to wildlife stocks in the conservancy and they have benefited from its wildlife. In effect, these communities might be considered to be ancillary members of the Save Valley Conservancy.

Two additional connected critical *group characteristics* for sustainable common-pool management are "shared norms among community members" and "interdependence among members." Adherence by members to specified norms is stipulated in the constitution of all three private nature reserves. Members of Timbavati and Klaserie are interdependent with respect to their mandatory adherence to overarching wildlife management plans that conform to the master plan for the Kruger National Park. Breach of their obligation to conform to these management plans not only could result in sanctions for individual landowners, but could jeopardize the agreement by South African National Parks to remove fences separating Kruger from the private nature reserves. Furthermore, based on the terms and conditions of membership, participating landowners are obligated to adhere to specified norms of behavior. Although some members have implemented permitted practices, such as constructing artificial water points to attract wildlife, which may not be ideal for ecologically optimal resource management, Timbavati membership imposes restrictions on land use that enable the reserve's centralized management entity to implement wildlife management practices across individual property boundaries. One reason that these restrictions could be incorporated into the constitution is that the founding members shared strong interests in conservation and in potentially obtaining contracted national park designation for the reserve. In contrast to Timbavati, more varied land use objectives among the original members of Klaserie led to a less restrictive constitution that does not stipulate centralized wildlife management. In the Save Valley Conservancy, interdependence among members is more explicit than in Timbavati or Klaserie because its members have had to band together to devise strategies for counteracting land invasions in the wake of Zimbabwe's "resettlement" drive. There has also been a strong incentive to include neighboring communities during the decision-making process.

The last two *group characteristics* analyzed are "past successful experience" and "appropriate leadership." In Timbavati and Klaserie both enforcement of the constitution and membership have increased during the last 40 years, indicating significant past experience. Regarding leadership, both reserves have an elected and executive committee that oversees wildlife management decisions and arbitrates conflicts between members. Although perspectives among committee members are not necessarily cohesive, committee members who do not represent the interests of the reserves' members can be replaced. Although the Save Valley Conservancy was

formed more recently, it has exhibited remarkable resilience in the face of great challenges resulting from land nationalization. One reason for this is that the conservancy has enjoyed exceptionally strong and dedicated leadership by one member who has local roots and strong political connections and who is highly respected by the other members of the conservancy. Common property theory generally assumes balanced group leadership as an essential condition for effective CBNRM. However, a strong charismatic leader, especially one who has strong political connections and who is a skilled collaborator, may favorably influence the dynamics of the leadership group and potentially facilitate CBNRM. Such focused leadership is not always present in organizations governed by committees whose members have divergent interests, which appears to be more characteristic of some private nature reserves in South Africa.

Two conditions listed by Agrawal (2003) that overlap between *resource system* and *group characteristics* are “high level of dependence on the resource” and “fairness in allocation of benefits.” Many members of Timbavati and Klaserie are wealthy absentee landowners who do not depend on their land within the reserves for income generation. Instead, their dependence on the resource is tied to the value they place on wildlife-related recreation within the reserve. In the Save Valley Conservancy, members’ dependence on wildlife resources is more material because many derive their livelihoods from wildlife. There are also differences between the case studies in South Africa and Zimbabwe with respect to the allocation of benefits. Recreational benefits accrue to members of all three case studies through the presence of wildlife on their own land and through negotiated traversing rights on neighboring properties. In Timbavati and Kalserie, members’ hunting benefits and financial dividends (e.g., from live animal sales and culling proceeds) are apportioned according to the size of their land. In the Save Valley Conservancy, landowners benefit directly through the sale of wildlife tourism, including hunting, on their land. In all three cases, the benefits of membership are clearly defined and are generally in proportion to each member’s contribution of land to the reserve.

The third category of critical conditions listed by Agrawal (2003) pertains to *institutional arrangements* and includes “locally devised” and “simple and easy to understand” institutional rules. In all three case studies the institutional rules were devised by the founding members and, in the case of the Save Valley Conservancy, with full liaison with neighboring community leaders. Furthermore, while the degree of simplicity and ease of understating may be a matter of judgment, the terms and conditions of membership are clearly specified in the constitutions of the three reserves. Therefore, these two conditions appear to be met by all three reserves.

The fourth category of conditions refers to the *external environment*, including “central government support of local authority” and “external compensation for local community conservation activities.” In South Africa, the elected executive committee is the local authority governing the private nature reserves. These authorities have been strengthened through the government’s signed agreement with the members of the Association of Private Nature Reserves to remove fences that separated the private nature reserves from the Kruger National Park. By contrast, Zimbabwe’s government has seriously undermined the authority of management entities of conservancies to extent that most have ceased to exist because the former landowners have been forced to abandon their properties. The Save Valley Conservancy is an exception and has survived mainly because of the politically astute

strategies adopted by its leadership. Neither government has directly compensated private nature reserves for conservation activities.

While the critical enabling conditions for the sustainability of common-pool resources listed by Agrawal do not include intercommunity transfers of benefits (e.g., between landowners and neighboring communities), Agrawal (2003, 248) stated that studies from which these conditions were derived paid little attention to “the social, political-institutional, and physical environment in which commons are situated.” It is beyond the scope of this article to address these complex issues in detail. However, the case of the Save Valley Conservancy suggests that the dispersal of wildlife-related benefits to neighboring communities is an important factor for ensuring its survival. By contrast, benefits generated from Timbavati and Klaserie for neighboring communities have been limited to HIV/AIDS awareness, ecological training, and staff training programs. One factor found to affect the level of local community commitment to wildlife conservation under Zimbabwe’s CAMPFIRE initiative was the extent to which communities impacted by the presence of wildlife were included in decisions regarding the dissemination of wildlife-related proceeds (Hulme and Murphree 2001). In cases where external authorities used wildlife-based income to fund community projects, villagers tended to view such projects as government handouts rather than wildlife-related benefits, whereas communities that were included in the decision-making process connected such benefits with wildlife. The preceding observations and the support of neighboring communities for the Save Valley Conservancy following the receipt of wildlife-related benefits provide a clear message for South Africa’s private nature reserves that neighboring community concerns and interests need to be a focal part of their long-term planning and management strategies.

## Conclusion

In postcolonial Africa, it has become increasingly clear that the future of wildlife conservation depends on the provision of wildlife-related benefits to local communities that coexist with wildlife or live in close proximity to conservation areas. At the same time, the options for proclaiming new conservation areas or expanding existing protected areas are limited. By contrast, legislation that led to the devolution of management authority for wildlife on private land to landowners resulted in a dramatic increase in the amount of land dedicated to wildlife in South Africa and in Zimbabwe. Specifically, the private nature reserves along the western border of the Kruger National Park in South Africa and north and west of the Gonarezhou National Park in Zimbabwe substantially expanded wildlife conservation on large tracts of private land adjacent to or near formal conservation areas. In addition, the private nature reserves adjacent to the Kruger National Park have been effectively incorporated into the park through the removal of boundary fences. The increasing contribution of private nature reserves to wildlife conservation should encourage national governments to view them as important elements of multinational conservation initiatives, such as the Great Limpopo Trans-frontier Conservation Area.

We have argued that private nature reserves represent examples of CBNRM because they consist of clearly defined communities of people who are collaborating to manage common-pool wildlife resources. In our exploratory analysis of the Timbavati and Klaserie private nature reserves in South Africa and the Save Valley

Conservancy in Zimbabwe we found that these private nature reserves exhibit, to varying degrees, some of the critical conditions for the sustainability of common-pool resources, specifically wildlife. While they exhibit some common characteristics that have contributed to their success, the three case studies also exhibit significant differences in characteristics that may affect their future survival as community-based conservation areas. Specifically, the South African examples exhibit more secure land tenure and Timbavati incorporates a centralized wildlife management entity that facilitates the application of integrated land management. By contrast, the Zimbabwe example exhibits a smaller membership that facilitates coordination of strategies to counteract deleterious government policies and it fosters benefit-related support by neighboring communities.

The findings of our analysis of private nature reserves in southern Africa raise interesting possibilities, but broad conclusions are constrained by limitations of exploratory research. Insufficient published information precluded a comprehensive evaluation of the efficacy of wildlife management in private nature reserves or the extent to which all critical conditions for the sustainability of common pool resources are met by these reserves. In addition, our study does not include a detailed analysis of the relationships between private nature reserves and neighboring communities. It is possible that these nature reserves have so far been successful because their membership is ethnically relatively homogeneous, at least in South Africa. However, in his critique of transfrontier conservation initiatives in southern Africa, McDermott Hughes (2005, 174) acerbically describes the private nature reserves as “large, vibrant (white) bioregions [that] nestle against small static (black) villages.” Such geographic juxtaposition of ethnically and economically disparate communities may lead to a decline in the integrity and success of private nature reserves unless the interests of neighboring communities are squarely addressed.

To more clearly evaluate the likely long-term contribution of private nature reserves to wildlife conservation and CBNRM in southern Africa, several questions need to be addressed in future research. These include: To what extent are optimal wildlife management practices implemented in private nature reserves? How are historical ethnically based patterns of land distribution likely to affect the long-term sustainability of private nature reserves and how can tensions between members of private nature reserves and neighboring communities due to economic disparities associated with these ownership patterns be mitigated? To what extent do membership criteria and sociodemographic characteristics of private nature reserves influence the existence of critical conditions for the sustainability of common-pool resources? To what extent do external social, political, institutional, and physical environments influence the degree to which private nature reserves exhibit characteristics of CBNRM? Are all critical conditions for the sustainability of common-pool resources in private nature reserves equally important and to what extent do these conditions interact?

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