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The Geographic Distribution of Private Protected Areas In South Africa

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Abstract

The South African agricultural landscape has seen tremendous changes since the fall of apartheid. Many agricultural landscapes have undergone a widespread conversion of land reserved for livestock farming towards private protected areas. This conversion created a consumptive and non-consumptive-oriented economy that includes wildlife tourism, ecotourism, hunting tourism, breeding and the selling of byproducts of wildlife. This process has been praised for its economic and environmental benefits, but also criticised for its impact on land reform and livelihood strategies. No recent academic analysis has been conducted on this phenomenon. Therefore, this paper will address this research gap by providing fine-grained data on the geography and size of privately owned protected areas in South Africa. This research will allow the government, the private sector, and researchers to view this phenomenon accurately and address its positive and negative aspects in an informed manner.

Keywords: Conservation; private protected areas; tourism; South Africa

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Introduction

Wildlife protection in South Africa occurs on two fronts. The first is state-owned land; these are protected areas managed by the South African government, such as South African national parks and provincial parks. The second is privately owned land owned by the private sector (Denny et al., 2024). These are referred to as private protected areas (PPAs). The Protected Areas Act (No. 57 of 2003) of South Africa defines a Private Nature Reserve as follows: a protected area (a) that is on land which is privately owned or which is under the control or management of a person other than the State; and (b) that it has been declared a private nature reserve in terms of Section 23 of the protected areas act. Private protected areas in South Africa are sometimes called game farms, private game reserves, and game ranches, albeit not exclusively so (Van der Merwe, 2024; Mokoena & Tshipa, 2023). On these private lands, management often focuses on tourism, either photographic safaris or hunting tourism and game breeding (Van der Merwe & Du Plessis, 2014). The geographic distribution of private protected areas (PPAs) in South Africa plays a crucial role in biodiversity conservation, particularly in regions with limited state-owned protected areas. Integrating PPAs into the conservation landscape has enhanced the persistence of various species, especially large and medium-sized mammals, by providing critical habitats often underrepresented in national and provincial parks. This distribution is influenced by historical land use patterns and the increasing trend of private landholders engaging in wildlife conservation (Clements et al., 2019; Denny et al., 2024). In light of these circumstances, the primary objective of this study is to investigate and delineate the contemporary geographic distribution of PPAs in South Africa. Through this research, we aim to fill the existing knowledge gaps and provide insights into the industry's spatial dynamics. This will shed light on how PPAs have evolved in the aftermath of the pandemic and the subsequent disruptions and changes.

Literature review

In South Africa in the early 1900s, the first game species became extinct, namely the quagga and the blue buck, due to over-exploitation by humans. To reverse this situation, colonial regimes banned all consumptive use of wildlife at commercial and subsistence levels (Mahoney et al., 2011). This approach unintentionally led to wildlife burdening private land, as wildlife competed with domestic livestock (Mahoney et al., 2011; Morais et al., 2018). South African government subsidies and investments further favoured livestock farming over wildlife conservation. Several veterinarians and government agriculturalists were against wildlife conservation on private land because it was believed that wildlife was unproductive and spread diseases to domestic animals. Although most farmers did not allow wildlife to remain on their land to mix with livestock, some farmers with more extensive properties kept wildlife, and these farms maintained higher land value than farms without wildlife (Davis-Mostert et al., 2016: 6). In the 1950s, international ecologists began acknowledging the potential of wildlife as a viable alternative meat source to domestic livestock. Despite this viewpoint, landowners were initially resistant to the idea, persisting in their efforts to enhance domestic livestock breeds and cropping systems. A few landowners ventured into developing business models centred around wildlife utilisation. Unfortunately, these pioneers faced obstacles from authorities who prohibited wildlife's private production and trade, with financial institutions refusing to recognise wildlife as economic assets. The classification of wildlife as an uncontrollable financial risk made it challenging for farmers to secure loans and subsidies for supporting wildlife activities (Davis-Mostert et al., 2016: 6). Even as the recognition of the sustainability of harvesting wildlife for commercial purposes grew, there remained some resistance to utilising private land for this endeavour. During the 1960s, the wildlife industry in South Africa was viewed as part of the agricultural sector, with only a few landowners engaging in commercial wildlife utilisation. In the 1970s and 1980s, however, a shift occurred, and landowners began to

recognise the financial potential of privately protected areas for sustainable wildlife use (Davis-Mostert et al., 2016: 1; Saayman & Van der Merwe, 2022; Ebedes et al., 2002). This shift was facilitated by the Parks and Wildlife Act of 1975, which granted landowners the right to the wild animals found on their properties. As a result, a ratified and legal form of private wildlife ownership was established, gaining the state's recognition and support. Many landowners realised that the wildlife industry could be a viable and attractive alternative to traditional agriculture (Zulu, 2015, p. 108; Eloff, 2002). This shift in approach and change in the legal framework laid the foundation for developing lucrative and sustainable economic ventures for private landowners (NAMC, 2006: iv).

In the 1960s, the government encouraged the commercial consumptive use of wildlife on state land, including prominent reserves like the Kruger National Park (KNP). Despite the government's limited support, the PPAs flourished, primarily driven by individual landowners. Notably, the early expansion of the private wildlife industry stemmed from landowners seeking a space to appreciate wildlife rather than pursuing commercial gains (Davis-Mostert et al., 2016, p. 6). In 1974, succumbing to pressure, the Department of Agriculture and Fisheries (now the Department of Agriculture, Forestry and Fisheries, or DAFF) established a committee tasked with formulating an official nature reserve policy (Carruthers, 2008). In 1991, the Game Theft Act (No. 105 of 1991) was proclaimed, giving private landowners ownership of wildlife under Certificate of Adequate Enclosure (CAE) (Snijders, 2012), meaning that the fence enclosing the farm must be adequate to host the wildlife. In 1994, the apartheid era ended, leading to further agricultural developments due to the termination of farming subsidies and deregulation (Hoogendoorn & Visser, 2011). These subsidies were provided to farmers by the apartheid government. So, their termination led to a significant decline in the number of farms and farmers because of their exposure to neo-liberal markets (Atkinson, 2007; Brooks & Kjelstrup, 2014). The deregulation of South African agriculture also led to a dramatic decline in farm labour and labourers living on farms (Greenberg, 2010; Conservation Action Trust, 2016).). Thus, a viable livelihood strategy for farms was to focus on naturally adapted wildlife to these areas, and farmers slowly converted their livestock farming activities to wildlife for the abovementioned reasons (van Zyl et al., 2001; Vink, 2004). In the post-apartheid era, South Africa was marketed internationally as a tourism destination, and tourists started to flock to experience South Africa's tourism offerings, with nature-based and wildlife tourism taking centre stage in many areas (Brooks et al., 2010; Visser & Hoogendoorn, 2011). Vos et al. (2019) state that the establishment of PPAs outpaced that of state-owned reserves. Vos et al. (2019) found that trends in PPA establishment differed from those of state-owned PAs in different legislative, political, and economic events. Their findings highlight the value of enabling legislative environments to facilitate PPA establishment and demonstrate the potential of PPAs as a long-term conservation strategy.

PPAs have been linked to improved wildlife outcomes and increased tourism. At the same time, PPAs significantly contribute to biodiversity conservation; management practices and external socio-economic factors can influence their effectiveness. Balancing conservation goals with local community needs (Mokoena & Tshipa, 2023; Taylor et al., 2020). remains challenging in the broader context of South Africa's protected area network (Denny et al., 2024). Due to the CAE, owners of land with wildlife benefited from reduced risk in cases where animals escaped onto neighbouring properties, as they could reclaim their wildlife (Bothma & Von Bach, 2010). This provision notably eased concerns for nature reserve owners interested in owning species such as sable, rhinos, and roans that fetch significant value during auctions. The CAE also formally defined wildlife intended for ownership as game species. Moreover, it exempted landowners from various conservation regulations, granting them the authority to capture and retain most species without requiring separate permits. In addition, they were permitted to hunt throughout the year and to market, sell, or donate animal products at their discretion (Snijders, 2012). The surge in South African wildlife numbers can be attributed to the efforts of two pivotal actors. The first encompasses public or government-protected areas, and the second sector is the PPA. This collaboration has yielded a highly effective and cost-efficient approach, making South Africa a leading wildlife tourism destination (Mahoney et al., 2011).

Method

Maps were generated in ArcGIS Pro using datasets from the Department of Forestry, Fisheries and the Environment. The datasets concerned are private and state-owned PPAs and Conservation Areas Data, which the DFFE updates and provides quarterly, i.e., 01 April 2023 – 03 June 2023, 04 June 2023 – 01 September 2023, 02 September 2023 – 17 November 2023 and 18 November 2022 – 28 March 2024 as per the Spatial Data Infrastructure Act 54 of 2003. According to the DFFE, the Conservation Areas Database (SACAD) contains spatial data for the conservation estate of South Africa. It includes spatial and attribute information for formally protected areas and areas with less formal protection. The statistics of the areas by administrative regions, covered by different protected areas, were calculated based on the spatial datasets described above within a GIS Environment and charts generated in Microsoft Excel. The protected areas data used in this study were obtained from the Protected and Conservation Areas Database provided by the DFFE. This dataset consists of a GIS inventory of Protected and Conservation Areas in South Africa, where protected areas are categorised into National Parks, Nature Reserves, Special Nature Reserves, Mountain Catchment Areas, World Heritage Sites, Protected Environments, Forest Nature Reserves, Forest Wilderness Areas and Marine Protected Areas (NRCS, 2012). Moreover, the ownership categories, such as privately and state-owned protected areas, are provided. The data were collected for 2010, 2015 and 2023 and projected to Africa using the Albers Equal Area Conic projection to calculate each Protected Area's area in hectares. These dates were the only dates with available data. It is generally known that equal area projections represent the areas in the correct relative size.

We used the Analysis Tools in ArcGIS Pro version 3.2 to determine the changes in protected areas. Specifically, the Pairwise Intersect tool was used to determine areas that did not change (i.e. stable) between any two periods: 2010 – 2015, 2015 – 2023, and 2010 – 2023. To determine the increase and decline between any two periods considered in the current study,

the Pairwise erase tool was used to determine the protected areas that were newly promulgated (an increase) and those that declined for all the periods considered here. This tool calculates the pairwise intersection between the input features (from 2023) and the erased features (2010), retaining newly promulgated protected areas. By switching the input and erase features – specifying 2010 and 2023 layers, respectively – we retained the protected areas that converted to other land uses (i.e., declined) from 2010 to 2023. The final layer depicting stable, decreased, and increased protected areas for any two periods was computed using the Combine tool. The areas were calculated per change class and exported to a CSV database for further statistical analysis.

A non-parametric test (Kruskal-Wallis ANOVA) was performed to determine if there was a significant difference in the change classes. These are protected areas that disappeared in the analysis period (stable, decline), and newly introduced protected areas in the analysis period (increase) between 2010 and 2023. Specifically, we tested the null hypothesis, H0: there is no significant area (Ha) difference between protected areas that experienced no change (stable), decline, and increase in the period under study, and the alternative hypothesis, H1: there is a significant area (Ha) difference between protected areas that experienced no change (stable), decline, and increase in the period under study at 5% significance level ($\alpha = 0.05$). A post hoc Dunn's test was subsequently performed to analyse the pairwise area difference between protected areas that experienced no change (stable), decline, and increase at a 5% significance level ($\alpha = 0.05$). Pearson's Chi-squared Test for Count Data was used to test the null hypothesis that the change class probabilities are not equal at a 5% significance level ($\alpha = 0.05$).

Results

The following sections discuss the results obtained from the data analysis. The results are divided into three periods, 2010, 2015, and 2023, and are informed by the data availability.

Dynamics of ownership by province

Table 1 presents data on private and state-owned protected areas and distribution across South Africa's nine provinces in 2010. The provinces are indicated by the following abbreviations (LP-Limpopo, GP-Gauteng, NW-North West, FS-Free State, MP-Mpumalanga, KZN-KwaZulu-Natal, WC-Western Cape, NC-Northern Cape, EC-Eastern Cape). Columns two and three detail the percentage of land in private versus state ownership. In 2010, the LP province had a high percentage of private and state-owned protected areas, totaling 358 protected areas, followed by WC with 278 and FS with 243 private and state-owned protected areas. LP also had the highest number of private protected areas, 320, followed by the FS (221) and then the WC (165). The provinces with the most state-owned protected areas in 2010 were WC (113), KZN (94) and EC (73). The province with the most hectares under protection is MP, with 2.5 million ha, followed by NC, with 2.1 million ha and LP, with 1.4 million ha. This could be because these provinces also host Kruger National Park (|LP and MP) and Kgalagadi Transfrontier Park in NC.

Table 1. Summary statistics of protected areas (count and area [ha]) in 2010

	Private	State	Min. Area	Max. Area	Total area (ha)
LP	320 (89%)	38 (11%)	0.96	265,755	1,403,366.0
GP	29 (55%)	24 (45%)	1.4	107,463	221,984.4
NW	50 (81%)	12 (19%)	157	52,077	205,983.4
FS	221 (91%)	22 (9%)	9.3	230,609	721,510.6
MP	70 (65%)	37 (35%)	7.2	1,917,231	2,471,432.2
KZN	15 (14%)	94 (86%)	5.8	321,647	1,065,931.7
WC	165 (59%)	113 (41%)	1.5	96,857	1,227,945.2
NC	6 (19%)	26 (81%)	2.1	958,955	2,100,983.5
EC	22 (23%)	73 (77%)	1.9	569,107	1,125,238.0

Table 2 provides detailed information on private and state-owned land ownership in 2015 across the nine provinces of South Africa. The LP province came out again with the highest number of private and state-owned protected areas, totalling 368 protected areas, followed by WC with 308 and FS with 245 private and state-owned protected areas.

Table 2. Summary statistics of protected areas (count and area [ha]) in 2015

	Private	State	Min. Area	Max. Area	Total area
LP	325 (89%)	42 (11%)	0.96	265,755	1,463,429.3
GP	31 (53%)	28 (47%)	1.4	107,463	227,908.2
NW	50 (81%)	12 (19%)	157	50,277	204,183.4
FS	223 (91%)	22 (9%)	9.3	230,609	723,966.9
MP	75 (63%)	44 (37%)	7.2	1,917,231	2,551,873.7
KZN	40 (26%)	111 (74%)	0.67	321,647	1,252,468.2
WC	189 (61%)	119 (39%)	1.5	96,857	1,362,899.4
NC	6 (19%)	26 (81%)	2.1	958,955	2,195,865.0
EC	31 (29%)	75 (71%)	1.9	569,107	1,270,781.5

The highest growth (Table 2a) in the number of private and state-owned protected areas between 2010 and 2015 was experienced in KwaZulu-Natal (KZN), with a 38.53% increase, indicating a significant increase from its initial value of 109 protected areas to 151. Moderate growth was experienced in GP, EC, MP, and WC, ranging from 10% to 12%. The provinces with no increase in protected areas were NC and NW, while FS and LP have very low growth percentages of 0.82% and 2.51%, respectively. Across all provinces and periods considered, there was a significant difference in the proportions of protected areas owned privately and by the state at a 95% confidence level ($p < 0.05$), except for GP in 2010, 2015 and 2023, and NC in 2023 only.

Table 2a: Growth in total number of protected areas 2010 -2015 (private and state-owned)

Province	Number of Protected Areas 2010	Number of Protected Areas 2015	%
NC	32	32	0,00
NW	62	62	0,00
FS	243	245	0,82
LP	358	367	2,51
WC	278	308	10,79
MP	107	119	11,21
GP	53	59	11,32
EC	95	106	11,58
KZN	109	151	38,53

Further, the data revealed (Table 2b) that the KZN, EC and WC showed the most significant percentage growth for private land protection between 2010 and 2015, with a 166,67% growth for KZN, followed by 40,91% growth for EC and 14,55% for the WC.

Table 2b: Increase in number of privately-owned PPAs 2010-2015

Province	Number of Protected Areas 2010	Number of Protected Areas 2015	%
NC	6	6	0,00
NW	50	50	0,00
FS	221	223	0,90
LP	320	325	1,56
GP	29	31	6,90
MP	70	75	7,14
WC	165	189	14,55
EC	22	31	40,91
KZN	15	40	166,67

Table 3 provides detailed information on private and state-owned land ownership in 2023 across the country's nine provinces. The LP province came out number one with the highest number of private and state-owned protected areas, totalling 368, again followed by WC with 308 and Free State with 245 private and state-owned protected areas.

Table 3. Summary statistics of protected area (count and area [ha]) in 2023.

	Private	State	Min. Area	Max. Area	Total area
LP	339 (86%)	55 (14%)	0.96	265,758	1,751,525.2
GP	37 (56%)	29 (44%)	1.4	107,463	243,835.0
NW	54 (78%)	15 (22%)	157	50,277	232,883.1
FS	227 (91%)	22 (9%)	9.3	230,624	774,274.3
MP	82 (64%)	47 (36%)	7.2	1,917,231	2,716,531.7
KZN	44 (23%)	149 (77%)	0.67	321,649	1,375,138.5
WC	188 (57%)	139 (43%)	1.5	96,857	1,423,992.5
NC	20 (37%)	34 (63%)	2.1	958,955	3,474,174.1
EC	40 (34%)	79 (66%)	1.9	894,758	2,592,105.2

Table 4 measured the growth percentage of the number of protected areas between the 2010 data set and 2023 for privately owned protected areas. The table shows that the highest growth was experienced in the NC and KZN, showing growth rates of 70% and 65.91%, respectively. This indicates a significant increase in PPA numbers. Moderate growth was experienced in the EC and GP, which also exhibited substantial growth at 45% and 21.62%, respectively. The lowest growth rate was experienced in the FS, LP, NW, and WC, with FS at 2.64%.

Table 4: Summary of growth in privately owned protected areas from 2010 to 2023

	Private land number			% growth	Total number of land, private and state-owned			% growth	Total land in ha, private and state-owned			% growth
	2010	2015	20123		2010	2015	2023		2010	2015	2023	
LP	320	325	339	5,60	358	367	394	9,14	1403366	1463429	1751525	19,88
GP	29	31	37	21,62	53	59	66	19,70	221984	227908	243835	8,96
NW	50	50	54	7,41	62	62	69	10,14	205983	204183	232883	11,55
FS	221	223	227	2,64	243	245	249	2,41	721511	723967	774274	6,81
MP	70	75	82	14,63	107	119	129	17,05	2471432	2551874	2716532	9,02
KZN	15	40	44	65,91	109	151	193	43,52	1065932	1252468	1375139	22,49
WC	165	189	188	12,23	278	308	327	14,98	1227945	1362899	1423993	13,77
NC	6	6	20	70,00	32	32	54	40,74	2100984	2195865	3474174	39,53
EC	22	31	40	45,00	95	106	119	20,17	1125238	1270782	2592105	56,59

The picture changes when the data is measured for private and state-owned land. The highest growth was found in KZN and NC, with growth rates of 43.52% and 40.74%, respectively. Moderate growth rates were experienced in the EC, GP, and MP, ranging from 17.05% to 20.17%. The growth rates were in the FS and NW over the 13 years. Land in Hectares (ha) for the same period, 2010-2023, found the highest growth in the EC and NC with rates at 56.59% and 39.53%, respectively, indicating a significant increase in total private and state-owned protected land in these provinces. Moderate growth was experienced in KZN and LP, with 22.49% and 19.88%, respectively. The lowest growth was experienced in the FS and GP, with FS at 6.81%. The data further revealed that the NC and KZN stand out for their substantial growth across all categories, indicating significant increases in private land numbers and total land area. FS and NW exhibit the lowest growth rates across all metrics, indicating relatively stable land ownership and distribution over the period.

Changes in privately owned protected areas by province

Table 5 shows significant growth in PPA land surface area (in hectares). The EC saw a dramatic increase from 35,884.52 ha in 2010 to 1,088,602.16 ha in 2023, representing an astonishing growth rate of 2,933.25%. The NC also exhibited a substantial increase in land in the private sector from 23,391.37 ha in 2010 to 151,829.24 ha in 2023, marking a growth of 549.19%. This suggests a significant expansion in land area over the period. KZN land area nearly doubled, growing from 108,734.57 ha in 2010 owned by the private sector to 210,912.29 ha in 2023, a 93.97% increase.

Table 5. Changes in privately owned protected areas (ha) between 2010 and 2023

	2010	2015	2023	Diff. 2010-2015	Diff. 2015-2023	Diff. 2010-2023
LP	837,950.92	888,652.74	1,039,618.52	50701.82	150,965.78	201,667.60
GP	31,504.29	38,312.12	48,812.25	6807.838	10,500.13	17,307.97
NW	90,379.16	90,379.16	103,434.32	0	13,055.16	13,055.16
FS	325,264.08	327,720.39	378,928.60	2456.309	51,208.22	53,664.53
MP	319,354.45	390,285.74	420,361.82	70931.29	30,076.08	101,007.37
KZN	108,734.57	185,242.92	210,912.29	76508.35	25,669.37	102,177.72
WC	230,914.68	275,045.20	274,143.80	44130.52	-901.39	43,229.12
NC	23,391.37	23,391.37	151,829.24	0	128,437.88	128,437.88
EC	35,884.52	114,157.22	1,088,602.16	78272.7	974,444.94	1,052,717.65
Total land	2,003,378	2,333,187	6,186,879			

Moderate to high growth was experienced for GP, with a significant growth rate of 54.96%, with land area increasing from 31,504.29 ha in 2010 to 48,812.25 ha in 2023. MP's PPA land area grew by 31.63%, from 319,354.45 ha in 2010 to 420,361.82 ha in 2023. LP, with the most hectares owned by the private sector compared to all the other provinces, shows a growth of 24.07%, with its land area increasing from 837,950.92 ha in 2010 to 1,039,618.52 ha in 2023. WC experienced lower growth, 18.69%, followed by FS, which had a growth rate of 16.49%, and NW, which had 14.46% growth. Total PPA for all provinces combined shows a significant increase of 208.87%, rising from 2,003,378 ha in 2010 to 6,186,879 ha in 2023. This substantial growth indicates a significant expansion in land area across all provinces over the past 13 years. The Kruskal-Wallis ANOVA rejected the null hypothesis that there is no significant area (ha) difference between PPAs that experienced no change (stable), decline and increase in the period under study ($p = 2.95e29$), leading to acceptance of the alternative hypothesis. This is confirmed by Pearson's Chi-squared Test, which failed to reject the null hypothesis that the change class probabilities are not equal at a 95% confidence level, leading to its acceptance.

Spatial change in protected areas

While the statistics discussed in the previous sections show a pattern of growth on both the private and public levels over the periods 2010, 2015 and 2023, the spatial data paints a picture of high levels of centralised growth. For example, for the period from 2010 to 2015 (see Figure 1), the LP has seen centralised growth primarily in the southwest of the province close to the towns of Thabazimbi and Lepalale, possibly catalysed by concessions connected to Marakele National Park and the Grootwater Nature Reserve.

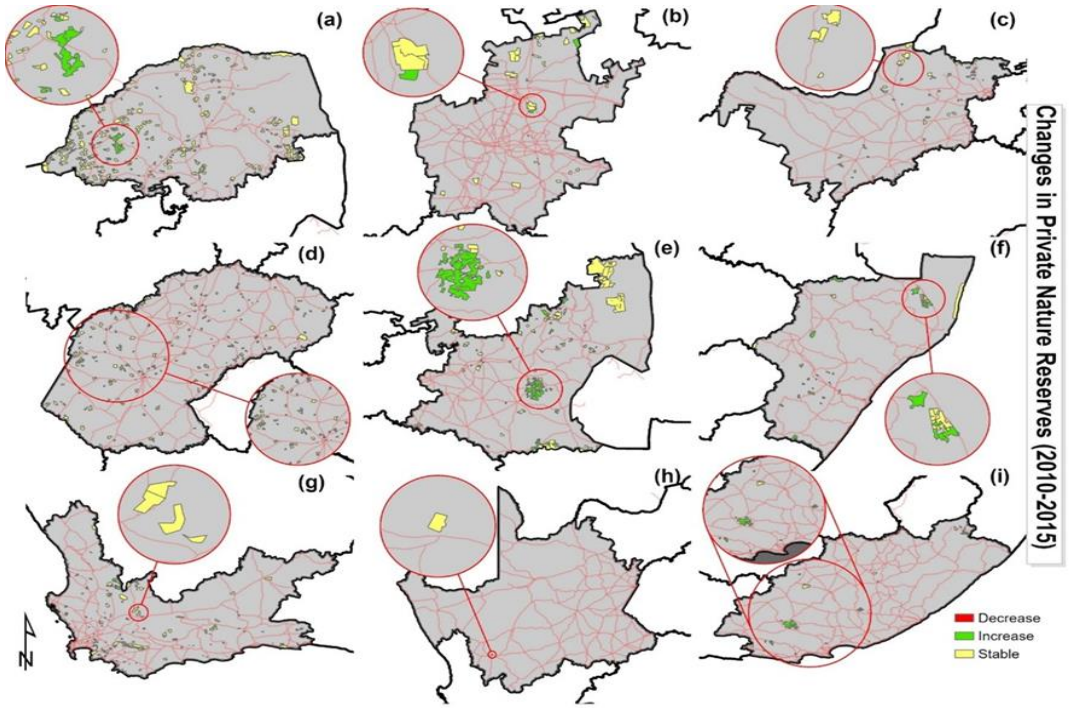

Figure 1. Changes in privately owned nature reserves between 2010 and 2015 in (a) Limpopo, (b) Gauteng, (c) North West, (d) Free State, (e) Mpumalanga, (f) KwaZulu-Natal, (g) Western Cape, (h) Northern Cape, and (i) Eastern Cape.

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There is also clustered growth of PPAs in the east of the Mpumalanga province, which is relatively close to eSwatini, around Ermelo. The rest of the spatial data in Figure 1 illustrates limited changes or stability for most provinces, with selected examples of growth for 2010-2015. In Figure 2, for the period 2015 to 2023, the most significant examples of high levels of spatially centralised growth are in the EC around the towns of Graaff-Reinet and Nieu Bethesda, connected to publicly owned national parks such as the Camdeboo National Park.

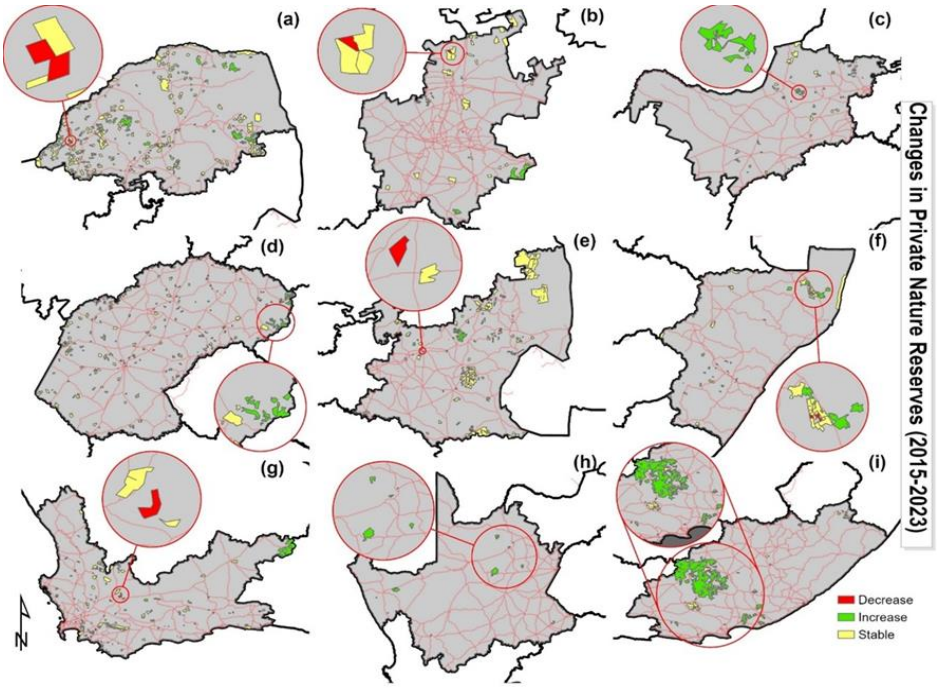
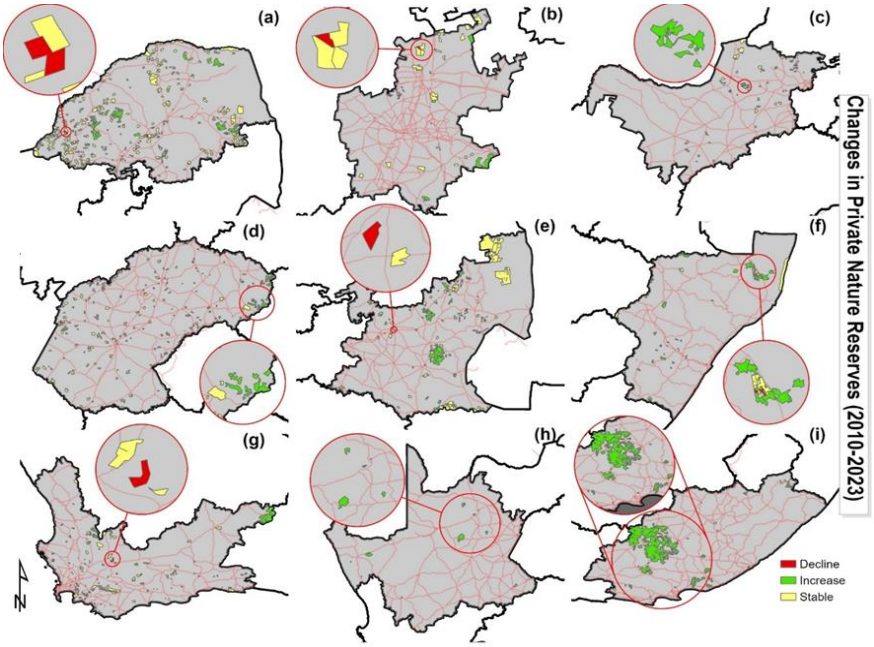


Figure 2. Changes in privately owned nature reserves between 2015 and 2023 in (a) Limpopo, (b) Gauteng, (c) North West, (d) Free State, (e) Mpumalanga, (f) KwaZulu-Natal, (g) Western Cape, (h) Northern Cape, and (i) Eastern Cape.

From 2015 to 2023, we see examples of minor decreases in the spatial distribution of PPAs in several provinces. The clear examples are in MP, WC, NC, GP and some minor cases in KZN. The reason for the decline falls outside the scope of this study and would require in-person fieldwork. Possible reasons include the oversaturation of the market and high levels of competition. Figure 3 shows the spatial characteristics of the changes in PPAs from 2010 to 2023.



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This period shows that spatial clustering in the EC has become particularly pronounced. By and large, it seems that the spatial clustering of PPAs has become stable. It will be interesting to see whether the same level of continued growth will be experienced in future and geographically where this will take place.

Findings and discussion

The first finding of the research is that there are clear growth patterns for the most part in the scale of PPAs in South Africa. This could, in part, be due to the growth of tourism in the country since the fall of apartheid and the popularity of South Africa as a wildlife tourism destination, which includes hunting and photographic safaris (DEAT, 2009). Hunting tourism, as one of the pillars of the PPA in South Africa (Higginbottom, 2004), is relatively affordable for overseas hunters (Nic Bowker Hunting, 2024), and it could be speculated that private landowners in this country have grabbed this opportunity with both hands based on the results of this study. The second finding is that the movement towards nature reserves rather than so-called 'traditional' farming methods like livestock farming has become increasingly unattractive to farmers dealing with volatile international markets and internal struggles in the agricultural industry. It could be argued that PPA offers alternative income streams to landowners. That is, given the growth shown across the country, it is more attractive and financially rewarding. The high level of stock theft may also motivate farmers to change to nature reserves, as it is much easier to protect game from theft than domesticated livestock. In the 2022/2023 financial year, financial losses due to livestock theft were substantial, with cattle theft leading with R854,790,000, sheep R248,502,000, and goats R207,620,000. Altogether, the economic impact of livestock theft in these categories amounts to a staggering R1,310,912,000 (Clack, 2024). Moreover, the arid areas of the country have seen significant tourism growth, and a partial reason for this is the growth of photographic safaris and hunting tourism opportunities in the Great Karoo region of the country (Atkinson, 2016). Hunting tourism and photographic safaris are arguably more lucrative than farming with livestock, which requires higher investment and labour costs. The third finding is that the strong growth of hunting tourism and PPAs within the neoliberal context raises questions about effective land reform, product growth, and exclusive privatisation. While converting to nature reserves, the benefits of the flourishing wildlife tourism and private game reserves sectors have not necessarily filtered through to all levels of society, especially those that require employment in high-growth areas. Arguably, conservation efforts have been highly successful, with particular species seeing an increase in numbers or being taken off endangered lists. These species include the White rhino (80% in private protected areas), the Cape Mountain zebra (which was taken off the endangered list), the Roan and Sable antelopes (both increased) and the Bontebok (off the endangered list).

Conclusion

The research's significance lies in estimating the number of PPAs in South Africa, their geographical location, and the surface area covered, as this was unknown. This is the most important contribution of this research. The PPAs also raise questions about southern Africa's role in creating rewilded environments and what benefits that could bring to the conservation and protection of biodiversity in the region (Hoogendoorn et al., 2019).

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