



# PRIVATELY PROTECTED AREAS AND BIODIVERSITY STEWARDSHIP IN SOUTH AFRICA: CHALLENGES AND OPPORTUNITIES FOR IMPLEMENTATION AGENCIES

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## ABSTRACT

Habitat loss and degradation are among the most pressing threats facing global biodiversity. Increasing the network of both protected areas and conservation areas is considered an important mechanism for conserving biodiversity and improving land management. Private land conservation and the establishment of privately protected areas has emerged as a cost effective tool for expanding the conservation estate. However, public and private institutions are limited in their financial and human capacity required to undertake this work. This research investigated the challenges facing the conservation agencies implementing the biodiversity stewardship initiative in South Africa, and the opportunities which may be leveraged to further strengthen these organisations. The research targeted practitioners and included a series of focus group discussions and an online questionnaire. Recommendations arising from this research are structured into four major themes: enhancing government–NGO collaboration; landowner partnerships; personnel capacity; and financial opportunities. A logic model to guide government–NGO collaboration is presented, along with a typology of the benefits and support mechanisms available to landowners involved in biodiversity stewardship. PLC initiatives must remain flexible in order to respond to changing socio-economic conditions. This research is intended to help facilitate such flexibility in private land conservation and privately protected area programmes.

**Key words:** biodiversity stewardship; collaboration; challenges; opportunities; landowners; private land conservation

## INTRODUCTION

Habitat loss and degradation are among the most pressing threats facing global biodiversity, and this is no different in South Africa (Sala et al., 2000; Driver et al., 2012; Marnewick et al., 2015). Increasing the network of both protected areas and conservation areas is considered one of the most important mechanisms for conserving biodiversity and improving land management, whilst offering a range of socio-economic benefits (Watson et al., 2016). The Convention on Biological Diversity (CBD) Aichi Biodiversity Target 11 calls for: “at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically

representative and well connected systems of *protected areas* and *other effective area-based conservation measures*” (CBD, 2010; emphasis added). Private Land Conservation (PLC), and in particular the creation of Privately Protected Areas (PPAs), has emerged in recent years as a cost effective tool for achieving protected area and conservation area expansion, whilst reducing the capacity burden placed on national governments through these additional areas (Fishburn et al., 2009; Gallo et al., 2009; Stolton et al., 2014; Selinske et al., 2015; Bingham et al., 2017; Hardy et al., 2017; Drescher & Brenner, 2018). Recent reports indicate there are approximately 14,296 PPAs spread across 25 countries worldwide, as reported in the IUCN World Database on Protected Areas (WDPA) (Bingham et al., 2017); however this number may be higher due to low levels of

reporting of PPAs on the WDPA (Stolton et al., 2014). The rapid growth in declaration, and in many cases important contributions to conservation targets, highlights the need for more in depth understanding of PPA programmes (e.g. Mitchell, 2005; Fitzsimons, 2015; Hardy et al., 2017; Hora et al., 2018).

South Africa's legislative and policy framework regarding the formal declaration of protected areas facilitates declarations on privately and communally owned land. This facilitation is made possible by the national biodiversity stewardship initiative. The term stewardship is used in varying contexts across the literature (Cockburn et al., 2018), but broadly relates to the actions or principles applied for improving the sustainability of socio-ecological systems (Chapin et al., 2010). In South Africa, biodiversity stewardship is an approach to securing protection for land with important biodiversity elements through agreements with private and communal landowners, driven by conservation authorities and supported by NGOs (Barendse et al., 2016; SANBI, 2017). Thus for the purposes of this research, the term biodiversity stewardship refers specifically to the biodiversity stewardship initiative – the programme which drives the establishment of PPAs and conserved areas in South Africa (Cumming & Daniels, 2014). The initiative was developed in the early 2000s in response to systematic conservation planning work which illustrated the large amount of critical biodiversity remaining on private and communal land (Cowling et al., 2003).

Currently there are five different types of biodiversity stewardship agreements. These exist in a hierarchy of protected areas and conservation areas, with differing levels of commitment, duration, permanence and management restrictions, which correspond with increasing availability of incentives (SANBI, 2017; Mitchell et al., 2018). The various agreements align with the IUCN guidance for either PPAs (Dudley, 2008; Stolton et al., 2014) or criteria for identifying “other effective area-based conservation mechanisms (OECMs)” (IUCN WCPA, 2018), depending on their particular legal status, duration and intention (Mitchell et al., 2018). Government funded biodiversity stewardship programmes have been developed in each of South Africa's nine provinces to drive implementation of these agreements. Biodiversity stewardship is well regarded in South Africa as an efficient and economic tool for achieving expansion of the national protected area estate, and improving environmental management of the broader landscape (SANBI, 2017). The South African National Biodiversity Strategy and Action Plan (NBSAP) recognised the critical role that biodiversity stewardship can play as an

approach to protect and manage land in conservation priority areas (Government of South Africa, 2015). The National Department of Environmental Affairs (2016) reports over 564,000 hectares of important areas for biodiversity conservation being declared, equating to approximately 40 per cent of the national protected area estate. The South African sector has also made important contributions to the development of the IUCN policy regarding PPAs and private land conservation (Stolton et al., 2014; Bingham et al., 2017; Mitchell et al., 2018).

Despite the successes of biodiversity stewardship and its collaborative implementation across South Africa, challenges exist, most notably financial and capacity resource constraints. Provincial governments tasked with leading its implementation are increasingly limited by available financial and human resources. Through their mission to conserve biodiversity and support government departments to achieve conservation outcomes, non-governmental organisations (NGOs) have increasingly assisted to implement PLC in South Africa (Pasquini et al., 2011). The Biodiversity Stewardship Business Case report recognised the role of NGOs and the need to build partnerships between NGOs and government conservation agencies (SANBI, 2017).

Although the growth of NGO involvement has provided much needed support for government departments to allow for the continued declaration of protected areas through biodiversity stewardship, NGOs do face certain challenges. NGOs can be limited by short-term funding cycles, which may inhibit their long-term involvement at sites. A long-term outlook is often necessary for negotiations with landowners and in particular for support to existing sites. Additional challenges faced by NGOs include the prohibitive costs associated with procuring services such as legal expertise; the provision of additional fiscal benefits for landowners to encourage involvement in biodiversity stewardship; and clarity regarding NGO and government agency roles and responsibilities (Fitzsimons, 2015). The provincial conservation agencies implementing biodiversity stewardship face many of the same challenges. Thus, although biodiversity stewardship has achieved positive outcomes for conservation in South Africa, as with any conservation initiative, it is important to undertake an evaluation of the programme at different stages in order to further improve its implementation (Von Hase et al., 2010; Keene & Pullin, 2011; Rissman & Sayre, 2012).

This research investigated the challenges facing the biodiversity stewardship community of practice in South Africa, specifically the government agency and NGO staff tasked with implementation. The study utilised a

participatory approach, and engaged a wide range of biodiversity stewardship practitioners, from programme managers in government agencies to NGO extension officers working with landowners, as well as key technical experts operating within this sector. Previous research on biodiversity stewardship in South Africa has focused primarily on landowners' perspectives of PLC and biodiversity stewardship (Pasquini et al., 2009; Selinske et al., 2015; Selinske et al., 2017). Landowners' perspectives are essential in structuring relevant PPA and PLC programmes; however, without well-resourced implementation agencies driving these programmes and supporting landowners, biodiversity stewardship or similar

initiatives are likely to decline (Prado et al., 2018). The research presented here can help to avoid such a situation and support the sustainability of PPA and PLC initiatives, both in South Africa and globally.

**METHODS**

The review of challenges and opportunities within the South African biodiversity stewardship community of practice used both qualitative and quantitative techniques. This study involved two separate focus group discussion sessions held in the Western Cape Province and an online questionnaire which was circulated nationally.



**Figure 1. Biodiversity stewardship process model**



Moutonshoek Protected Environment – a recently declared Privately Protected Area in South Africa comprising of multiple landowners and including conservation and agricultural land © Dale Wright

### Focus group sessions

Each year many of the individuals and organisations involved in biodiversity stewardship and protected area expansion in the Western Cape meet to share lessons learnt and experiences in order to grow capacity within this community of practice. These “Peer Learning Forums” allow for knowledge sharing, networking and a strategic re-alignment of goals. Over time this group has expanded from a purely government agency led constituency, to one which includes role players such as NGOs, landowners and private consultants.

A focus group session at the 2015 Western Cape Biodiversity Stewardship Peer Learning Forum, involving 44 participants, included a facilitated discussion focused on the following topics: 1) Challenges facing the sector, 2) Opportunities to overcome these challenges and 3) Designing the ideal scenario for biodiversity stewardship to proceed. Workshop participants were assigned random groups and tasked with producing their own sets of challenges and opportunities. The groups’ contributions were then combined into a single list. These discussions were continued during the 2016 Peer Learning Event. Prior to that meeting, the results from the 2015 Peer Learning Event focus group were summarised to remove duplicate items. Each of the final items was allocated to

one of four constructs corresponding to some of the major resources underpinning biodiversity stewardship implementation (Figure 1). These resource constructs include: Operational Capacity, Personnel Capacity, Collaborative Partnerships and the Extension Toolbox. Additional resources include Stewardship mechanisms, Reactive stewardship and Advocacy / awareness (Figure 1); however these were not considered for the purposes of this research. At the 2016 Peer Learning Forum, the participants were asked to vote on what they felt were the most pressing challenges and most catalytic opportunities.

All participants had a maximum of ten votes which could be cast across 65 stated challenges and opportunities. Participants were requested to split their ten votes equally across the challenge and opportunity items. The total number of votes for each challenge and opportunity were then summed to determine the highest ranking challenges and opportunities within each resource construct. The votes were converted into an overall percentage based on the total number of votes received as a proportion of the total number of workshop participants. A final focus group involving all workshop participants discussed these rankings and provided consensus as to why these statements ranked highest, whilst also developing mechanisms to address

the highest ranking challenges and opportunities. The minutes from that discussion were also consulted during this research.

### Online questionnaire

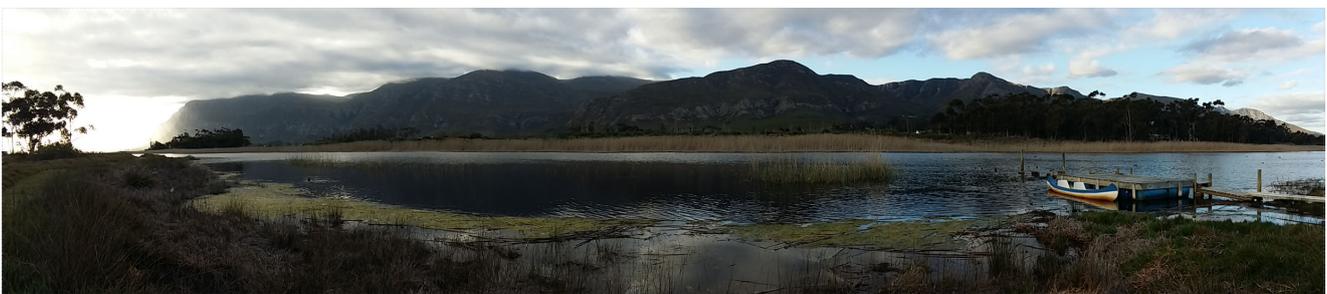
In order to expand the scope of this review beyond solely the Western Cape community, an online questionnaire was designed and circulated nationally from February to July 2017, using the online platform provided by Google Surveys (Appendix 1 Supplementary information). The questionnaire was primarily circulated using targeted email lists which include many of the practitioners and experts working in biodiversity stewardship in South Africa. Practitioners were then asked to further share the questionnaire to others in their networks. The ease of online completion was intended to encourage participation and increase the number of responses received. As with standard survey practice, reminders were sent to participants at intervals to improve the response rate (Dillman et al., 2009).

The questionnaire included a total of 48 questions. The first section included three questions regarding the demographics of participants with respect to their employment in the sector. The second section focused on challenges to biodiversity stewardship, including an open-ended question prompting respondents to suggest challenges they faced in their own work. This was followed by a series of 20 statements which included the highest ranking challenges as determined by the voting during the focus group sessions. Respondents were asked to indicate their level of agreement or disagreement with each of the 20 statements. The third section, focused on opportunities, including three open-ended questions, addressing the perceived benefits of biodiversity stewardship for participating landowners, the opportunities which exist to enhance the sector and suggestions for enhancing government–NGO collaboration. A series of 20 statements was used to elicit further information regarding the highest ranking

opportunities as previously identified. The open-ended items preceded the statements in the challenge and opportunity sections in order to avoid prompting and bias in the suggestions received from the open-ended questions (Babbie, 2004).

The open-ended questions were analysed using content analysis in which all items representing a common theme are grouped together and major themes identified. The responses for the open-ended question pertaining to enhancing government–NGO collaboration were reviewed and similar responses grouped, thus providing a final list of recommendations. These recommendations were subsequently developed into a logic model to illustrate the sequential steps which may be taken to improve collaboration. In a similar manner, the responses for the open-ended question relating to the benefits and support mechanisms available to landowners was also summarised and grouped according to an overall typology of benefits.

The statements were analysed quantitatively, using a five point Likert scale from 1 = strongly disagree to 5 = strongly agree (Likert, 1932; Babbie, 2004). The mean score was calculated for each statement or item. Subsequently, the mean scores were translated into a percentage indicating the level of agreement, such that scores greater than 50 per cent indicate agreement with the item. The final percentage scores from the online questionnaire were used to rank the challenge and opportunity items. The individual items were subsequently reviewed and common themes across challenges and opportunities emerged. These common themes form the sub-headings within the discussion. Where relevant, the initial challenge and opportunity items have been referenced in the results and discussion using the following format; (1.1, Table 1) – indicating Table 1, section 1; item 1 – as per the numbering of items in the relevant table. A number of recommendations were produced during this research



The Klein River Estuary represents important habitat for birds and other biodiversity. Negotiations with private landowners are currently underway here, with the aim of creating a Nature Reserve comprising of multiple properties © Dale Wright

and these were also summarised and included here, with a distinction between those recommendations already being applied by the sector and potential new opportunities.

## RESULTS

Results from both the voting which took place during the second focus group and the online questionnaire are presented here in Tables 1 and 2. Items are presented in groupings under each of the resource constructs identified as the basis for implementing biodiversity stewardship (Figure 1). The “Forum” results indicate the total percentage of votes received in favour of an item during the 2016 Peer Learning Forum, given that participants were allowed multiple votes. The “Online” column represents the percentage level of agreement which was obtained for each item from the online questionnaire. The items (statements) are ranked within each resource construct by their mean score obtained from the online questionnaire.

A total of 42 participants were involved in the 2016 Western Cape Peer Learning Forum, representing 22 government staff and 20 NGO staff. A total of 40 responses were received for the online questionnaire, representing NGO staff (n=23), government agency employees (n=15) and individuals from the private sector / consultants (n=2). Respondents had an even spread of experience working in the sector; 0 – 5 years

(n=12), 5 – 10 years (n=17) and 10+ years (n=11). The majority of respondents were directly involved in biodiversity stewardship implementation through work as Programme or Project Managers (n=20) or Extension Officers (n=12). Other positions within the sector which were represented included staff from the department of agriculture (n=2), private landowners (n=2), technical or legal support (n=1) and one academic.

The questionnaire generally received high levels of agreement from the broader community (Tables 1 & 2). This supported the previous focus group discussions and final prioritisation of items for inclusion in the questionnaire.

## Challenges

The issue of sustainable, long-term funding for permanent staff received the highest number of votes during the forum session, and was supported by a correspondingly high score from the online questionnaire (3.2, Table 1). Item 2.1 (Table 1) related to the challenge of funding for the ongoing management of sites scored the second highest of all challenge items in the questionnaire. Item 1.1 (Table 1) related to the lack of political will to support biodiversity stewardship received the highest score from the online questionnaire, with a correspondingly high number of votes during the forum. In addition, the items relating to knowledge required by extension officers (2.2, Table 1)



NGO staff members assessing a potential Biodiversity Stewardship site in the grassland biome © Daniel Marnewick

**Table 1. Biodiversity stewardship challenges identified by forum participants and online questionnaire**

Resource construct	Item	Forum	Online
1. Collaborative partnerships	1.1 High level political will to support and adequately finance biodiversity stewardship is lacking.	38	93
	1.2 Landowners often have misconceptions regarding biodiversity stewardship or mistrust of conservation agencies / organisations.	7	86
	1.3 The sector is not always able to assist willing landowners who do not fall within priority conservation areas.	5	81
	1.4 There is a lack of clarity regarding each partner's roles and responsibilities.	7	62
	1.5 NGOs do not properly structure their engagement with government conservation agencies.	5	56
2. Operational capacity	2.1 Funding for maintenance of established sites is a challenge.	31	92
	2.2 Practitioners require a detailed understanding of ecological processes and the relevant management interventions.	17	81
	2.3 NGO short-term funding cycles inhibit progress.	14	80
	2.4 The legal costs for proclamation are prohibitive.	10	72
	2.5 Setting land aside for protection is often in direct competition with income earning land uses.	10	72
3. Personnel capacity	3.1 There is a lack of succession planning in extension services.	12	91
	3.2 Sustainable, long-term funding for permanent staff is lacking.	67	91
	3.3 Extension officers require a highly diverse skills set.	14	87
	3.4 Extension officers do not receive training in social science skills such as negotiation.	29	78
	3.5 Limited knowledge of the previous history of landowner engagements can hamper progress at biodiversity stewardship sites.	0	74
4. Extension toolbox	4.1 Limited capacity in the legal sector (including knowledge of declaration processes, willingness or time to assist, or other capacity constraints) inhibits progress and support for proclamations.	29	79
	4.2 There is a lack of technical (non-financial) resources to assist landowners with maintenance of proclaimed sites.	10	76
	4.3 There is a lack of relevant benefits for landowners.	17	74
	4.4 There is a lack of comprehensive training materials for new extension officers.	19	74
	4.5 There is no clear legal or process framework for declaring biodiversity stewardship sites.	10	53

and the extension officers' skills set (3.3, Table 1) both received high levels of agreement in the online questionnaire. There was also strong agreement in the online questionnaire with the statement relating to succession planning for the sector (3.1, Table 1); however this was not as strongly supported by the forum votes. In certain instances, the low levels of agreement or number of votes also provide important insights. Items 1.4 and 1.5 (Table 1) related to government–NGO partnerships and collaboration, both scored low, in both the forum and online results. Overall the national community showed convergence with the top priority challenges as described by the Western Cape community, due to the high number of

items with a mean score above 50 per cent (n=20, Table 1).

### Opportunities

Collaboration between partners using complementary strengths was considered a major opportunity for the sector, with the highest mean score of any opportunity item from the online questionnaire (3.1, Table 2). Further items related to partnerships which received strong support in the online questionnaire included the item related to opportunities in co-funding and sharing limited financial resources (1.1, Table 2), creating co-funding partnerships and platforms (2.2, Table 2), applying a strategic approach to a region (1.3, Table 2)

**Table 2. Biodiversity stewardship opportunities identified by forum participants and online questionnaire**

Resource construct	Item	Forum	Online
<b>1. Collaborative partnerships</b>	1.1 Co-funding and sharing limited financial resources can enhance biodiversity stewardship.	14	89
	1.2 Landscape scale initiatives represent an opportunity to enhance biodiversity stewardship.	26	87
	1.3 A strategic approach to covering a specific region will enhance biodiversity stewardship implementation.	31	86
	1.4 Private Sector support should be leveraged to enhance biodiversity stewardship.	17	86
<b>2. Operational capacity</b>	2.1 Establishing collaborative endowment funds will support biodiversity stewardship.	24	90
	2.2 Creating co-funding partnerships and platforms will enhance the implementation of biodiversity stewardship.	10	87
	2.3 Alignment between business interests and the biodiversity conservation sector is an unexplored opportunity for biodiversity stewardship.	24	85
	2.4 Promoting mixed land use zoning will allow for agricultural sector resources to support biodiversity stewardship.	33	83
	2.5 Existing Conservancies can provide a great platform for launching biodiversity stewardship processes in an area.	12	79
<b>3. Personnel capacity</b>	3.1 Utilizing complementary capacity and technical strengths of various partners can enhance biodiversity stewardship.	10	93
	3.2 Local champions should be used to drive biodiversity stewardship.	21	86
	3.3 Improved environmental awareness in the general public can be used to support biodiversity stewardship.	10	80
	3.4 Improving landowner's capacity (including to manage environmental projects, drive proclamation processes, or maintain landowner communities) will enhance biodiversity stewardship implementation.	14	70
<b>4. Extension toolbox</b>	4.1 Pro-bono advertising options in newspapers should be established to reduce costs for biodiversity stewardship.	10	91
	4.2 Establishing a pro-bono legal and tax support platform will enhance biodiversity stewardship.	17	88
	4.3 Transferring institutional knowledge into practical learning materials will support new entrants into the biodiversity stewardship sector.	7	86
	4.4 A standardized national toolbox will improve extension officers' capacity to support landowners.	12	86
	4.5 Establishing a common access information database will support practitioners.	19	85
	4.6 Alternative mechanisms for formal protection on private land (outside of those currently described in the protected areas act) should be explored.	14	85
	4.7 A poster template for the "Annual Plan of Operation" will enhance the long-term management and maintenance of biodiversity stewardship sites.	19	75

and implementing landscape scale initiatives (1.2, Table 2). Financial opportunities also received strong support. Establishing collaborative endowment funds received strong support from both the forum and online questionnaire (2.1, Table 2), as did securing pro-bono advertising (4.1, Table 2) and pro-bono legal support

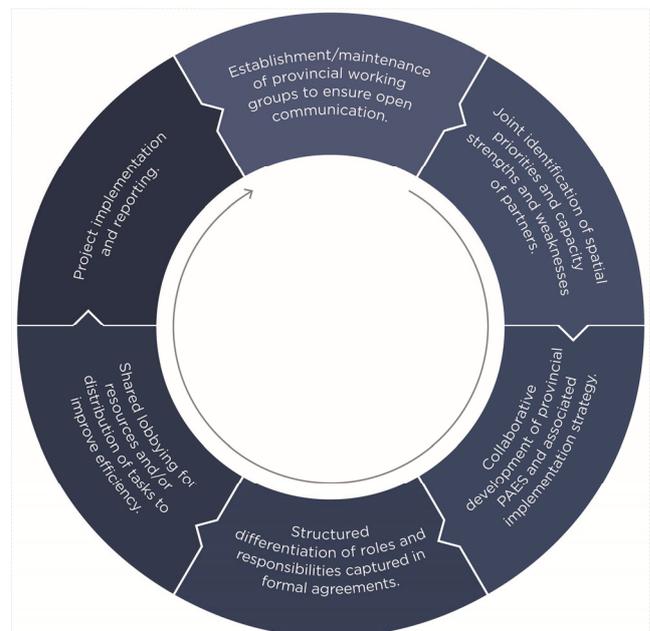
(4.2, Table 2). Aligning with business interests (2.3, Table 2) and securing private sector partnerships (1.4, Table 2) received high levels of support from both the forum and questionnaire, illustrating convergence between the different communities of practitioners. Items relating to financial opportunities generally



Species such as the threatened Martial Eagle rely on a network of state and privately protected areas to support their habitat requirements.  
© Dale Wright

received high levels of support (Items: 1.1, 2.1, 2.2, 4.1, 4.2; Table 2). Respondents were also in support of the item relating to utilising local champions to drive biodiversity stewardship (3.2, Table 2). There was also agreement in the online questionnaire with items relating to materials for supporting practitioners, including the standardised national toolbox (4.4, Table 2) and establishing a common access information database (4.5, Table 2).

Common themes which emerged from the open-ended question regarding government–NGO collaboration include: communication, drafting Memorandums of Understanding (MOUs) and formalising partnerships, obtaining high-level political support, financing and incentives, cross-department support, role differentiation and partnerships and shared responsibilities. These themes informed the development of a logic model for enhancing collaboration (Figure 2). Respondents also provided information regarding the benefits generated for, and support mechanisms available to, private landowners involved in biodiversity stewardship (Table 3). An overall summary of the major recommendations arising from this research is also provided (Table 4).



**Figure 2. Logic model for enhancing collaboration among organisations involved in protected area expansion**

## DISCUSSION

Four major themes which emerged from the research as affecting biodiversity stewardship in South Africa were identified by key PLC stakeholders; namely: enhancing government–NGO collaboration, landowner partnerships, personnel capacity and financial opportunities. Due to the interactive and participatory nature of these research methods, many of the recommendations captured through this research have already been discussed amongst the relevant role players in South Africa and many are already being put into practice by different organisations. Examples of these include the establishment of Provincial Biodiversity Stewardship Reference Groups to support communication and collaboration, a Biodiversity

Stewardship Conference held in 2017 to promote high level political support, seeking pro-bono legal support, capacity development programmes for extension officers and developing an online platform for the distribution of training materials. For this reason the summary of recommendations provided distinguishes between initiatives currently being implemented by the sector and ideas for new initiatives developed through this research (Table 4).

### Enhancing government–NGO collaboration

The Business Case (SANBI, 2017), NBSAP (Government of South Africa, 2015) and previous research (Pasquini et al., 2011) all suggest strengthening partnerships as a mechanism to enhance biodiversity stewardship. The

**Table 3 Summary of support mechanisms and benefits available to private landowners**

Management planning	Management interventions	Sustainable financing	Skills development & employment opportunities	Individual or intrinsic	Legal
Drafting environmental management plan for each site	Natural Resource Management activities	Facilitating landowner access to innovative biodiversity financing	Field ranger training and employment	Maintaining landowner's vision for their property	Securing conservation commitment through notarial deeds
Development of annual plans of operation	Pre-burn inspections, use of firebreaks and controlled burning	Municipal rates rebates / exemptions / exclusions	Fire and alien plant management training and sub-contracting these services	Landowner satisfaction of contributing to conservation	Safeguarding biodiversity value on the property
Annual review of management effectiveness (METT), to support landowners	Alien plant eradication	Biodiversity tax incentives	Small business establishment – ecotourism, natural resource management teams	Fulfilment of personal conservation values	Legal recognition through protected areas legislation
Ecological and biodiversity monitoring programmes.	Fencing (removal or erection as necessary).	Facilitating access to external donor funding.	Establishing micro-economies, including value added SMMEs, in wildlife economy or NRM sectors	Social learning and networking opportunities.	
Grazing plans and rangeland/vegetation condition assessments	Supply of game censuses Access to the wildlife economy)	Facilitating access to government funding streams/ grants	Information and training day	Contributing to conservation of South Africa's cultural heritage	
Technical advice and support (GIS mapping, management planning, etc.)	Implementation of soil erosion control measures	Alignment with Biodiversity Economy Strategy and using this to leverage investment	Environmental awareness and education initiative	Maintaining biodiversity and natural resources for the benefit of future generations	
Implementation of ecological restoration measures					

**Table 4. Summary of recommendations**

Sections	Current initiatives	Research findings
<b>Enhancing government–NGO collaboration</b>	Establishment of provincial biodiversity stewardship reference groups to improve communication.	Documentation of the critical areas for improving collaboration.
	Structure partnerships along lines of differing technical strengths or different spatial priority areas.	Logic flow model designed to enhance collaboration by combining various aspects of the current work.
<b>Landowner partnerships</b>	Upskilling landowners, local community members or farm staff to assist with maintenance activities.	Monitoring and responding to landowners' attitude changes over the long-term.
	Focusing training initiatives and support on local champions.	Ensuring succession planning for new landowners of biodiversity stewardship sites.
	Communication programmes and events for landowners.	Creating and maintaining social networks to facilitate landowner capacity building.
<b>Political support</b>	Enhance the role of biodiversity stewardship projects in other large, landscape level government programmes.	Increase efforts to educate and empower municipalities with regard to the value of biodiversity stewardship.
	Conduct communication events with all levels of government and across different government departments.	Strengthen the relationships with other government departments.
<b>Personnel capacity</b>	Finalise the biodiversity stewardship guideline to ensure consistency of implementation.	Encourage mentoring, training or job shadowing among practitioners.
	Create an open access information database for all practitioners	Ensure adequate succession planning for staff and organisations implementing biodiversity stewardship at specific sites.
	Host annual learning events at both national and provincial levels, alongside other communications platforms such as quarterly national and provincial reference group meetings.	Finalise a legal guideline document to ensure consistency in implementation, including a note for biodiversity stewardship conveyancing for property attorneys.
<b>Financial opportunities</b>	Aligning existing capacity and funds and structuring roll out of projects to maximise efficiency in implementation.	Implementing a multi-phase funding approach including separate periods of scoping and investigation, negotiation and maintenance.
	Establish large-scale endowment funds for use across the sector.	Establishment of revolving trusts (one example thus far implemented in South Africa).
	Financing for conservation through payments for ecosystem services or investments in ecological infrastructure.	Establish a platform for reduced rates or pro-bono support from the legal sector.
	Investigate and leverage opportunities with other industries, including the game ranching or hunting sectors, Corporate Social Investment schemes, or mandatory government programmes such as B-BBEE.	Accessing pro-bono advertising, potentially utilising the unsold space in newspapers to reduce the costs of public participation.
	Strengthen and implement tax incentives to support landowners.	Standardise the implementation of property rebates for biodiversity stewardship sites.

results illustrate that whilst clarity of roles and responsibilities exists in most cases (1.4; 1.5; Table 1), this can be further refined to enhance outcomes. The logic model developed from this research takes partner organisations from initial engagement and improved communication, achieved through the establishment of provincial biodiversity stewardship reference groups, to joint identification of spatial priorities, formal differentiation of roles and responsibilities, and finally to well-structured partnerships captured in MOUs or other agreements (Figure 2). Currently, reference groups to promote communication exist in certain Provinces, however these are not yet standard practice across the country. In addition, although there has been

some degree of informal differentiation of roles and responsibilities and identification of spatial priorities among certain organisations, this has not been explicitly done across all regions. We therefore propose the logic model (Figure 2) as a formal process which could be implemented in all provinces to guide structured collaboration. This process may also be followed by similar groupings of organisations implementing PLC and PPA initiatives in other parts of the world. The respondents considered role differentiation as a critical point for enhancing collaboration and improving financial sustainability; however other studies have indicated that responsibilities must be allocated with the specific experience and skills sets of each partner in

mind (Pasquini et al., 2011). Partnerships may be structured along lines of differing technical strengths or across different spatial priority areas (3.1, Table 2). Collaborative spatial planning should be undertaken at multiple scales, both between government conservation agencies and NGOs, but also across government departments such as conservation and agricultural departments. NGOs and provincial government conservation agencies can act as potential bridging agents, bringing together different partners in the South African conservation landscape and thereby facilitating collaboration (Barendse et al., 2016). To further enhance collaboration, it is imperative that political support be obtained at multiple levels, including national, provincial, and district and local government agencies (1.1, Table 1). Ultimately, the efficiency of private and public land conservation may be improved through better integration (SANBI, 2017; Farley et al., 2017).

### Landowner Partnerships

Private land conservation and the declaration of PPAs is not possible without the full support and trust of private landowners, be they community groups or commercial farmers (Knight et al., 2010). Respondents in this research indicated that conservation is sometimes considered to be in direct conflict with alternative land-uses (2.5, Table 1), and as such, there exists a clear need to address landowners' perceptions of biodiversity stewardship, and conservation in general (1.2, Table 1). Some practitioners felt that there is a lack of relevant benefits, such as financial incentives or environmental management projects, for landowners (4.3, Table 1); and the further development and communication of benefits for participants in biodiversity stewardship must be a priority. Other studies have acknowledged similar issues with regard to providing consistent incentives for landowners signing conservation agreements (Fitzsimons, 2015), and the need to clearly articulate these benefits (Drescher & Brenner, 2018). This research has generated a comprehensive list of the benefits available to, and support mechanisms for, private and communal landowners engaging in biodiversity stewardship in South Africa (Table 3).

Respondents also suggested that communication programmes regarding the positive outcomes for landowners involved in biodiversity stewardship should be developed at national and provincial levels, or in relation to specific target audiences such as commercial farmers or land reform beneficiaries (1.2, Table 1). Kusmanoff et al. (2016) found that messages from PLC initiatives in Australia were focused on the environmental benefits for a landowner. However,

communication programmes would do well to address the full range of value orientations, including egoistic, altruistic and environmental values, which may influence a landowner's behaviour (Selinske et al., 2015; Kusmanoff et al., 2016), as well as the full range of benefits available to participating landowners (Table 3). The long-term environmental management activities and support to landowners provided by extension officers are a major resource requirement of declared sites. Upskilling landowners, local community members or staff working on-site might allow for maintenance activities to be implemented by the landowners themselves, thereby potentially reducing the support required from government and guiding long-term sustainability of sites (3.4, Table 2) (Pasquini et al., 2009). Creating and maintaining social networks for biodiversity stewardship landowners could further enhance learning in the absence of extension officers and help strengthen the biodiversity stewardship landowner community of practice (Pasquini et al., 2009; Selinske et al., 2015; Selinske et al., 2016). This will not only contribute to their learning, but also to maintaining the satisfaction derived from an individual's involvement in biodiversity stewardship (Selinske et al., 2015; Selinske et al., 2016). Informal social networks amongst landowners and practitioners may be important in supporting the aims of PLC initiatives like biodiversity stewardship (Drescher & Brenner, 2018).

This research also suggested that succession planning, or rather the lack thereof, was a challenge for the sector (3.1, Table 1). Succession planning should be considered from both an organisational and landowner perspective. A history of landowner engagements, as documented by an organisation, would allow an extension officer to approach a specific property with full knowledge of previous attitudes and their potential suitability as a biodiversity stewardship site. Succession planning should also involve new landowners purchasing existing stewardship sites, or new family members who take on the responsibility of managing sites. Such planning may include educating new landowners regarding the activities and commitments which are expected of them, as owners of biodiversity stewardship sites, and the support which can be offered from conservation agencies. This notion of inter-generational stewardship has been recognised as a critical component for ensuring the long-term conservation gains from PLC initiatives are maintained (Selinske et al., 2017). It is important that landowners be sensitised to the long-term intent required for PPAs, as captured in the latest IUCN guidance defining PPAs (Stolton et al., 2014). Such long-term intent may require the involvement of multiple generations of landowners at a single site.



White rhinoceros are being conserved across both state and privately protected areas in South Africa © Dale Wright

### Personnel Capacity

The government and conservation agency personnel directly involved in PLC projects and the declaration of PPAs are the cornerstone of such work. Their partnerships with landowners facilitate the establishment of protected areas and conservation areas (Fitzsimons et al., 2013). It is essential that personnel are adequately skilled and supported to undertake this important work. Extension officers working in biodiversity stewardship require a highly diverse skills set including, but not limited to: ecological knowledge, understanding of management interventions, knowledge of environmental legislation and legal procedures, socio-economic considerations, knowledge of agricultural practices and social skills such as negotiation, conflict resolution and leadership (3.3, Table 1) (G Mortimer pers comm). Rather than expecting all personnel to fully understand and apply every aspect of this diverse skill set, as is currently often the case, respondents suggested that online communication and information sharing platforms or websites should be created (4.5, Table 2). These platforms should house relevant knowledge and allow practitioners to access specific information as and when

required. They might also allow practitioners to post specific questions or issues on an open platform and receive guidance from others in the sector, thereby providing a networking and mentoring facility. The International Land Conservation Network (ILCN) fulfils a similar role at a global scale through their webinars and website ([www.landconservationnetwork.org](http://www.landconservationnetwork.org)). Separate communication and networking platforms could be developed for practitioner and landowner communities of practice. Additionally, in order to bridge the potential skills gap, partnerships with other experts and practitioners may be utilised, with various skills being sought as and when required. The biodiversity stewardship community of practice could also look to developing accredited training programmes at graduate level, or identify relevant short courses, for both the technical and non-technical skills required.

Mentoring and training from colleagues was highlighted as potentially assisting in transferring skills among individuals or institutions. Formal training interventions are being undertaken periodically by the sector, but ongoing mentoring among colleagues may help to further improve skills and strengthen

implementation. Job shadowing and mentoring for new entrants to the sector would also allow for upskilling of biodiversity stewardship practitioners (Table 4). Participants suggested existing institutional or personal knowledge gained from years of experience should also be captured in practical learning materials (4.3, Table 2). These materials can subsequently be used in formal training sessions or through mentoring programmes. Platforms such as peer learning events, knowledge exchanges and mini-conferences will increase communication and enable social learning within the biodiversity stewardship community of practice (SANBI, 2017). These online materials, short courses and learning events should all form part of a standardised national toolbox (4.4, Table 2), freely available to all practitioners.

### Financial Opportunities

A lack of funding for sustainable conservation programmes is one of the biggest stumbling blocks facing biodiversity conservation globally (Balmford et al., 2003; Waldron et al., 2013). As suggested by the responses from the national questionnaire, securing sustainable funding for permanent extension staff and the ongoing maintenance of sites are potentially the greatest challenges for biodiversity stewardship in South Africa (2.1, 3.2, Table 1). Previous studies have shown that landowners place particular importance on the extension service, which is provided as part of the maintenance function for declared PPAs (Selinske et al., 2015). These extension services are not possible without sufficient funding from well-resourced government and NGO stewardship programmes to provide experienced and suitably qualified personnel (2.2, 3.3, Table 1). In certain Provinces the provision of extension services is limited by a lack of resources, and it is therefore essential for the sector to develop innovative financing mechanisms.

These programmes may be supported through mixed income from national government, the private sector or alternative funding streams. Financing for conservation through payments for ecosystem services or investments in ecological infrastructure have not yet been fully realised in South Africa, but should be investigated as an additional avenue for achieving conservation (DEA, 2017). Utilising biodiversity offsets to both secure critical areas, and contribute to the management of existing or new sites could also be explored. It is important to note that whilst offsets may provide opportunities, they may also pose threats if not implemented correctly with the necessary safeguards (Maron et al., 2015).

Rather than depending solely on increasing traditional funding allocations for this work, the biodiversity stewardship sector could seek to better coordinate projects among multiple partners, to improve efficiency (e.g. improving government–NGO collaboration), eliminate duplicate efforts and redundancy, and potentially reduce costs through pro-bono provision of certain services. Legal costs remain a large part of the budget for NGOs implementing biodiversity stewardship programmes (2.4, Table 1); however these legal costs could be cut by establishing a platform for reduced rates or pro-bono support from the legal sector (4.2, Table 2; Table 4). Financing for the maintenance of sites may be secured through increasing the roll out of tax incentives to landowners, through increasing access to tax practitioners with the relevant skills and resources; a project currently being implemented in South Africa (Lapeyre & Laurans, 2016; DEA, 2017; Stevens, 2018).

The establishment of endowment funds specifically for biodiversity stewardship is also being considered (2.1, Table 2; Table 4). Centralised endowment funds could be co-created by multiple partners in the sector, and subsequently be drawn from by those same partners as the funds mature and disburse income. The establishment of revolving trusts which are maintained through the purchase and resale of land and subsequent investment of profits into the revolving fund has led to successful conservation outcomes in other parts of the world (Hardy et al., 2018a,b) and may have potential in South Africa (DEA, 2017).

### CONCLUSION

We acknowledge that a shortcoming of this research is the missing perspective of the landowners engaged in biodiversity stewardship programmes. The challenges and opportunities which exist for landowners may very likely be different to those experienced by implementation agencies (Lute et al., 2017; Prado et al., 2018), and represent essential information required for advancing the implementation of biodiversity stewardship. Given previous research in South Africa regarding landowners' perspectives (Pasquini et al., 2009; Selinske et al., 2015), this research sought to expand our knowledge by focusing primarily on implementation agencies. Successful PPA and PLC programmes require both strong implementation agencies and motivated landowners (Fitzsimons et al., 2013); as such this research should be considered alongside the perspectives of landowners (e.g. Selinske et al., 2015) to generate a broader understanding of the challenges and opportunities for the biodiversity stewardship initiative as a whole.

The staggering figure of 68 per cent of all of South Africa's protected areas, declared between 2008-2016, being declared PPAs through biodiversity stewardship, coupled with the significant cost reduction (SANBI, 2017), is evidence enough that biodiversity stewardship should be embraced by the state and private sectors. The past decade of implementing biodiversity stewardship has produced important successes, lessons learned and highlighted a number of challenges. This research was timely in engaging the South African biodiversity stewardship community of practice during a period in which it is thinking critically about the key challenges. The research here adds to the growing body of work highlighting the challenges and opportunities to PLC and PPA schemes, not only in South Africa (Pasquini et al., 2009; Selinske et al., 2015) but in many parts of the world (e.g. Rissman & Sayre, 2012; Fitzsimons & Carr, 2014; Scrimgeour et al., 2017; Prado et al., 2018). This research further aims to provide a framework and methodology for other practitioners wishing to undertake a similar high-level evaluation of the organisations implementing PLC or PPA initiatives in their own countries. PLC and PPA initiatives must remain flexible in order to reach a wider audience of private landowners and respond to changing socio-economic conditions (Selinske et al., 2016; Drescher & Brenner, 2018). This research is intended to help facilitate such flexibility in the South African biodiversity stewardship initiative.

## SUPPLEMENTARY ONLINE MATERIAL

Appendix 1 Biodiversity Stewardship Capacity Questionnaire

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## RESUMEN

La pérdida y degradación del hábitat se encuentran entre las amenazas más apremiantes que se ciernen sobre la biodiversidad mundial. El aumento de las redes tanto de áreas protegidas como de áreas de conservación constituye un mecanismo importante para conservar la biodiversidad y mejorar la gestión de la tierra. La conservación privada de tierras y el establecimiento de áreas protegidas privadas se ha convertido en una herramienta eficaz en función de los costos para la ampliación de las áreas de conservación. Sin embargo, las instituciones públicas y privadas tienen una capacidad financiera y humana limitada para llevar a cabo este trabajo. La presente investigación examinó los desafíos que enfrentan los organismos de conservación que implementan la iniciativa relacionada con la gestión racional de la biodiversidad en Sudáfrica y las oportunidades que pueden aprovecharse para fortalecer aún más estas organizaciones. La investigación se dirigió a los profesionales e incluyó una serie de discusiones de grupos focales y un cuestionario en línea. Las recomendaciones que surgieron de esta investigación están estructuradas en cuatro temas principales: mejorar la colaboración gobierno-ONG; asociaciones de propietarios de tierras; capacidad del personal; y oportunidades financieras. Se presenta un modelo lógico para orientar la colaboración gobierno-ONG, junto con una tipología de los beneficios y mecanismos de apoyo disponibles para los propietarios de tierras involucrados en la gestión racional de la biodiversidad. Las iniciativas relacionadas con la conservación privada de tierras deben ser flexibles para poder adaptarse a las condiciones socioeconómicas cambiantes. Esta investigación pretende ayudar a facilitar dicha flexibilidad en la conservación privada de tierras y en los programas de áreas protegidas privadas.

## RÉSUMÉ

La perte et la dégradation de l'habitat comptent parmi les menaces les plus urgentes qui pèsent sur la biodiversité mondiale. L'élargissement des réseaux d'aires protégées et d'aires de conservation constitue un dispositif clef pour la préservation de la diversité biologique et pour l'amélioration de la gestion des terres. Dans ce contexte, la conservation de terres privées ainsi que la création d'aires protégées privées représentent désormais des outils efficaces et économiques pour assurer l'extension du domaine de conservation. Cependant, les institutions publiques et privées souffrent de capacités financières et humaines limitées pour accomplir ce travail. Nous avons étudié les défis auxquels sont confrontés les organismes de conservation en Afrique du Sud pour élaborer leurs initiatives de gestion de la biodiversité et les opportunités qui pourraient être exploitées pour renforcer ces organisations. Cette enquête s'adresse aux opérationnels de la conservation, et comprend une série de discussions de groupe et un questionnaire en ligne. Les recommandations qui en découlent s'articulent autour de quatre thèmes principaux : le renforcement de la collaboration entre le gouvernement et les ONG ; les partenariats avec des propriétaires fonciers ; la capacité en personnel ; et des opportunités financières. Nous présentons un modèle logique visant à guider la collaboration gouvernement-ONG, ainsi qu'une typologie des avantages et des mécanismes de soutien disponibles pour les propriétaires fonciers impliqués dans la gestion de la biodiversité. Les activités de conservation menées sur les terres privées doivent rester flexibles afin de répondre aux conditions socio-économiques changeantes. Cette analyse a pour but de d'encourager la souplesse et l'agilité dans les programmes de conservation de terres privées et d'aires protégées privées.