

## LETTER

# Understanding the Motivations, Satisfaction, and Retention of Landowners in Private Land Conservation Programs

Matthew J. Selinske<sup>1</sup>, Jan Coetsee<sup>2,3</sup>, Kerry Purnell<sup>4</sup>, & Andrew T. Knight<sup>1,5,6</sup>

<sup>1</sup> Department of Life Sciences, Imperial College London, Silwood Park Campus, Buckhurst Road, Ascot, Berkshire SL5 7PY, UK

<sup>2</sup> Department of Environmental Science, Rhodes University, P.O. Box 94, Grahamstown 6140, South Africa

<sup>3</sup> SAB Biodiversity Stewardship, Bredasdorp Road, Caledon 7230, South Africa

<sup>4</sup> CapeNature, P.O. Box 1918, Somerset West 7129, South Africa

<sup>5</sup> Centre of Excellence in Environmental Decisions, The University of Queensland, St. Lucia Queensland 4072, Australia

<sup>6</sup> Department of Botany, Nelson Mandela Metropolitan University, P.O. Box 77000, Port Elizabeth 6031, South Africa

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## Correspondence

Matthew Selinske, Department of Life Sciences, Imperial College London, Silwood Park Campus, Buckhurst Road, Ascot, Berkshire SL5 7PY, UK.  
Tel: +16125987704.  
E-mail: selinske@gmail.com

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## Abstract

Private land conservation is an increasingly popular approach to protect critical biodiversity. In the Western Cape Province of South Africa private land conservation is the focal strategy for CapeNature, the provincial conservation agency. Despite its importance, little is known about the drivers of landowner participation in the CapeNature program and how these varied motivations influence participant satisfaction and retention. Our psychometric survey of 75 enrolled landowners found that the highest ranked motivations to participate were Conservation and Place Attachment but Social Learning had a stronger influence on program satisfaction. Landowners participate to fulfill a motivation or set of motivations but their satisfaction and commitment may hinge on other unforeseen motivations or factors. Understanding the relationship between motivations, satisfaction, and commitment is necessary for a successful retention strategy in any conservation program, especially on private lands where success depends on landowner commitment. This research was incorporated into improving CapeNature's program delivery.

## Introduction

Protecting biodiversity on private land is critical for achieving conservation goals (Knight 1999). It is impossible for governments and other conservation organizations to purchase all land valued for its biodiversity, and so private protected areas or private land conservation programs (PLC) are increasingly important in conservation efforts (Gallo *et al.* 2009). Pressure to achieve Aichi targets and protect high priority biodiversity increases the attractiveness of PLC (Crouzeilles *et al.* 2012). Pressure from donors and tax payers to cost-effectively spend the increasing sums of PLC funding by conservation organizations and governments, necessitates increasing the efficiency and the return-on-investment of PLC programs

(Merenlender *et al.* 2004). Most assessments of the effectiveness of conservation programs, including PLC, measure biodiversity protected but not the underlying drivers of program effectiveness, which rest upon decisions made by participating individuals (Knight *et al.* 2010). PLC effectiveness is founded equally upon maintaining biodiversity and the satisfaction of landowners which engenders long-term participation. Therefore, it is essential to monitor and evaluate both (Rissman & Sayre 2012).

PLC comprises lands owned and administered by individuals, communities, NGOs, or corporations with a primary goal of protecting, managing and/or ensuring the persistence of biodiversity. Such lands may qualify for any of the IUCN Protected Area categories, contingent on the protection provided (Langholz & Krug 2004;

Dudley 2008). A major challenge PLC faces is ensuring the commitment of landowners (Knight *et al.* 2010). This requires engaging landowners' motivations, creating effective suites of instruments, incentives, and institutions to enhance participation (Young *et al.* 1996), ensuring their satisfaction, and meeting program objectives within time and budget constraints.

Studies examining landowner attitudes and motivations are common within the PLC literature (Kabii & Horwitz 2006; Cross *et al.* 2011). Despite their importance the most salient attitudes and motivations may not be the best predictors of program satisfaction or sustained commitment (St John *et al.* 2010; Asah & Blahna 2013). Attitudes and motivations driving participation in PLC are contextual, vary within and between landscapes and communities, and participation often results from multiple motivations (Knight *et al.* 2010; Miller *et al.* 2010; Sorice 2012). Failure to more comprehensively and holistically understand the factors driving individual landowner's choices hinders PLC managers ability to ensure commitment and hence the effectiveness of PLC (Armsworth *et al.* 2012).

Landowners voluntarily participate in PLC (Curtis & Van Nouhuys 1999), and volunteerism is an extensively researched field in social psychology (Asah & Blahna 2012). The Volunteer Functions Inventory (VFI; Clary *et al.* 1998) is a widely applied psychometric instrument founded on the functionalism of attitudes (Smith *et al.* 1956; Katz 1960). Attitudes develop through varied psychological functions that serve an individual's needs (Katz 1960). A person may hold an attitude for diverse reasons, and different people may share the same attitude serving dissimilar functions. Attitudinal functions are germane to complex processes underlying motivations (Clary *et al.* 1998). The VFI aims to explain the participation of individuals in programs, through understanding the motivations of participants.

We adapted the VFI to the PLC context producing a psychometric instrument, the Stewardship Functions Inventory (SFI; see Supplementary Materials), which can be used for understanding the ways in which motivations drive the choices made by landowners to commit to PLC. This understanding is useful for designing PLC, recruiting landowners, and monitoring and evaluating program effectiveness. We illustrate the SFI's utility with a case study in South Africa. Our results show that satisfaction and commitment may be temporal and dependent on catering to a suite of motivations both salient and latent. We also identify Social Learning as a motivation to promote within PLC programs.

## Methods

The Western Cape Province of South Africa primarily comprises the Cape Floral Kingdom, a region of globally important biodiversity (Cowling *et al.* 1996; Mittermeier *et al.* 2004). PLC is the primary strategy for achieving provincial and national conservation goals contributing toward Aichi targets (SANBI & DEAT 2008). Since 2002, the province's conservation agency, CapeNature, has enrolled 127,550 ha of private lands into the CapeNature Biodiversity Stewardship Program (CNBSP) and plans exist to include an additional 50,000 ha over the next five years (Turner 2012). Despite the focus on program expansion, funding is inadequate for providing the benefits expected by landowners currently participating in the CNBSP, or to enroll the increasing number of them who have expressed strong interest to participate. In previously held CNBSP focus groups, program participants expressed dissatisfaction with components of the program, for example, the level of extension support. As over 60% of landowners have nonbinding agreements or contracts of 30 years or less, landowner dissatisfaction can potentially drive declining landowner commitment, increasing pressure on biodiversity, and diminishing return-on-investment for the CNBSP in the event landowners exit the program (Von Hase *et al.* 2010).

Landowners contracted to the CNBSP were identified using CapeNature records and surveyed and interviewed between July 2013 and March 2014. Participants undertook a self-administered postal or web-based survey (Dillman *et al.* 2009) in Afrikaans or English. Face-to-face semistructured interviews were conducted in English at landowner residences whose protocol was adapted from the questionnaire. Managers were surveyed or interviewed where landowners were not contactable but the SFI was not administered as it measured motivations to enroll which only the landowner may legally act upon. The survey was piloted with seven Imperial College graduate students and two Western Cape farmers prior to circulation.

Introductory questions comprised open- and closed-ended questions on landowner's relationship with their land and the motivations, benefits, expectations, and satisfaction with the CNBSP. Questionnaire data was collated and coded in Microsoft Excel, with responses to open-ended questions coded and analyzed according to Kitchin & Tate (2000). Closed-ended questions and Likert statements were analyzed using the Psych Package (Revelle 2013) for R statistical environment (R Development Core Team 2012).

**Table 1** The Stewardship Functions Inventory

Volunteers Functions Inventory adapted motivations (Clary <i>et al.</i> 1998)	Stewardship motivations
<p><b>Conservation Values</b> The individual enrolls in the Stewardship Program in order to express or act on the value of conservation.</p> <p><b>Understanding</b> The landowner is seeking to learn more about biodiversity and how best to manage it on their land.</p> <p><b>Social (normative)</b> The Stewardship Program allows an individual to strengthen his or her social relationships and conform to social expectations.</p> <p><b>Ego Enhancement</b> One can grow and develop psychologically through participation in the Stewardship Program.</p> <p><b>Ego Protection</b> The individual uses the Stewardship Program to reduce negative feelings, such as guilt, or to address personal problems. These feelings may be associated with an individual's negative environmental impact.</p> <p><b>Business (adapted from VFI Career)</b> The landowner has the goal of enhancing a business activity which takes place on the Stewardship property through marketing or reserve status.</p>	<p><b>Stewardship Extension</b> The Stewardship Program offers a chance for a landowner to receive visits from and build a relationship with an extension officer. (CNBSP Focus Group; Moon &amp; Cocklin 2011).</p> <p><b>Stewardship Partnership</b> A landowner joins the Stewardship Program to be part of a joint effort or larger movement to protect nature with CapeNature (Rissman &amp; Sayre 2012; Cooke <i>et al.</i> 2012).</p> <p><b>Stewardship Incentives</b> A landowner is interested in the extrinsic incentives offered by the Stewardship Program (i.e., land tax exclusion, income tax reduction, recognition, and financial help in managing land; Miller <i>et al.</i> 2010; Moon &amp; Cocklin 2011).</p> <p><b>Social Network</b> The Stewardship Program gives the landowner an opportunity to expand their social network by meeting new people (Pasquini <i>et al.</i> 2009).</p> <p><b>Perceived Behavioral Control (demotivation subscale)</b> Landowners may feel a loss of control due to land use restrictions being placed on property. (Miller <i>et al.</i> 2010; Moon &amp; Cocklin 2011).</p> <p><b>Place Attachment</b> The landowner enrolls into the program as a result of a strong emotional relationship with the land often referred to as "a sense of place" (Farmer <i>et al.</i> 2011; Cross <i>et al.</i> 2011).</p>

The SFI consists of 12 subscales measuring the functions of motivation to participate in PLC (Table 1) and is founded upon the six motivation subscales of the VFI (Clary *et al.* 1998). The 30 items comprising the six VFI subscales were modified to fit the context of private land stewardship. Six new a priori subscales comprising 27 items were developed from the findings of stakeholder focus groups previously held by CapeNature and a review of published PLC literature. A Satisfaction/Commitment scale comprising six questions related to the general contentment of a landowner's experience and future commitment to renew the CNBSP contract and remain in the program (Clary *et al.* 1998) was included. A Willingness-to-Sell scale measured a landowner's likelihood of selling their land (Guerrero *et al.* 2010), providing insight into potential ownership turnover. The SFI, Satisfaction/Commitment scale, and Willingness-to-Sell scales consisted of Likert statements scaled from one (strongly disagree) through five (strongly agree; see Supplementary Materials for SFI, Satisfaction/Commitment, and Willingness-to-Sell scales and the CNBSP Survey).

The internal consistency and reliability coefficient McDonald's Hierarchical Omega ( $\omega_h$ ) was used to test

subscale validity as it is a more robust test than Cronbach's Alpha ( $\alpha$ ), the most commonly reported test of internal consistency, which problematically assigns higher variance levels to a scale with multidimensionality (Zinbarg *et al.* 2005). Within each subscale items reducing internal consistency were removed. Means and inter-item correlations were calculated for all subscales.

Exploratory factor analysis (EFA) was used to explore the structure of subscale constructs and latent relationships between constructs by quantifying the factor loadings of each item. Only factor loading values  $\geq 0.32$  were considered (Tabachnick & Fidell 2001). Multiple regression analysis tested relationships between the distribution free, dependent variables of the responses, such as means of motivations and satisfaction.

## Results

Of the 88 landowners contracted to the CNBSP, 75 participated: 35 surveyed and 40 interviewed (85.2% response rate). Most landowners (62.7%) were aged over 50 and 75.5% derive primary income from CNBSP land. English speakers comprised 58.7% of the respondents, Afrikaans

38.6%, with 2.7% speaking other languages at home. Approximately 40% of the participants entered their land into in perpetuity contracts (see Supplementary Materials for details of contract types).

EFA supports seven groups of motivation subscales (Table 2). Five of the 12 initial subscales maintained structural integrity, three had low factor loading values and were excluded (Perceived Behavior Control, Social Networking, and Stewardship Incentives) and four merged into two subscales. In contrast to Clary *et al.* (1998), the VFI Ego Protection and Ego Enhancement subscales loaded entirely on a single factor. The Understanding subscale and the Stewardship Partnership subscale items loaded together on a single factor creating a Social Learning function. Perceived Behavioral Control, Stewardship Incentives, and Social Networking subscales items had low factor loading values ( $<0.32$ ) and are not considered viable. Two Place Attachment items loaded with the Conservation Values subscale. Of the resulting seven subscales (Table 3) five exhibited strong internal consistency ( $\hat{\omega}_i \geq 0.60$ ) and two had less than adequate internal consistency ( $0.50 > \hat{\omega}_i > 0.60$ ). The internal consistency and reliability test split the satisfaction scale into two Commitment and Satisfaction subscales.

The three highest means of the nine motivation subscales were Conservation Values  $\bar{x}$  ( $= 0.60$ ), Place Attachment  $\bar{x}$  ( $= 0.4$ ), and Social Learning (Understanding + Partnership)  $\bar{x}$  ( $= 0.20$ ). The two lowest means were the subscales Ego Maintenance (Ego Enhancement + Ego Protection)  $\bar{x}$  ( $= 0.60$ ) and Business  $\bar{x}$  ( $= 0.60$ ; Table 3). Multiple regression analysis of motivations (independent variables) and satisfaction (dependent variable) showed a correlative relationship between the Social Learning (Understanding + Partnership) and Satisfaction subscales (Table 4). A correlation also existed between Satisfaction as the independent variable and a landowner's Commitment to remaining in the program as the dependent variable. Willingness-to-Sell was low: 88% intended to leave contracted property to family and only two wished to sell their land within the next 5 years.

Mean satisfaction values were relatively high  $\bar{x}$  ( $= 0.80$ ), but the qualitative analysis revealed that there are five categories to landowner satisfaction. Landowners fall into five categories: completely satisfied (42.6%); partially satisfied recognizing CapeNature is doing the best with the limited resources available (42.6%); previously dissatisfied but feel the program has improved in the last year (6.7%); and dissatisfied with a specific program component (5.30%). Only 2.7% were entirely dissatisfied.

Lack of communication and management support were the main causes of dissatisfaction. Landowners expected increased extension support with 71% seeking three or more visits per year  $\bar{x}$  ( $= 0.42$ ,  $SD = 2.87$ ). The primary

**Table 2** Summary of exploratory factor analysis: factor loading pattern of SFI items

Subscale	Factors						
	1	2	3	4	5	6	7
<b>Conservation Values</b>	0.62						
	0.65						
	0.74						
	0.54						
	0.81						
<b>Business</b>		0.81					
		0.77					
		0.73					
		0.93					
		0.82					
<b>Ego Enhancement</b>			0.32				
			0.77				
			0.54				
			0.53				
<b>Ego Protection</b>				0.74			
				0.60			
				0.79			
				0.79			
<b>Understanding</b>					0.40		
					0.77		
					0.76		
					0.66		
					0.56		
<b>Stewardship Partnership</b>						0.39	
						0.44	
						0.68	
						0.35	
<b>Place Attachment</b>							
	0.61					0.51	
						0.41	
						0.64	
	0.52						
<b>Stewardship Extension</b>							0.44
							0.38
							0.56
							0.51
							0.65
<b>Social (Normative)</b>							0.42
							0.47
							0.66
							0.61
							0.36

All numbers represent an item's highest factor loading  $\geq 0.32$ .

**Table 3** Means, standard deviations, McDonald's Omega ( $\omega_h$ ), and interitem correlation for SFI Motivations and Satisfaction, Willingness-to-Sell subscales

Subscale	Mean $\bar{x}$	Standard deviation $\sigma$	McDonald's Omega $\omega_h$	Interitem correlation $r$
<b>Conservation Values</b>	4.60	0.43	0.72	0.48
<b>Place Attachment</b>	4.30	0.65	0.74	0.45
<b>Social Learning</b> <b>(Understanding + Partnership)</b>	4.20	0.50	0.67	0.38
<b>Social (Normative)</b>	4.00	0.37	0.59	0.37
<b>Stewardship Extension</b>	3.70	0.76	0.54	0.38
<b>Business</b>	3.40	0.96	0.88	0.68
<b>Ego Maintenance</b> <b>(Ego Enhancement + Ego Protection)</b>	3.20	0.72	0.72	0.45
<b>Satisfaction</b>	3.80	0.90	0.64	0.48
<b>Commitment</b>	4.00	1.20	0.80	0.67
<b>Willingness-to-Sell</b>	1.70	0.63	0.77	0.54

Italicized motivations are original VFI motivations

**Table 4** Summary of multiple regression analysis of SFI motivations predicting CNBSP satisfaction and CNBSP satisfaction predicting commitment

Independent variable	Coefficient estimate B	Standard error SE	t Value	P value
<b>Conservation Values</b>				ns
<b>Social Learning</b> <b>(Understanding + Partnership)</b>	0.88		7.70	**
<b>Ego Maintenance</b> <b>(Ego Enhancement + Ego Protection)</b>				ns
<b>Social (Normative)</b>				ns
<b>Business</b>				ns
<b>Stewardship Extension</b>				ns
<b>Place Attachment</b>				ns
<b>Satisfaction<sup>a</sup></b>	0.56		2.05	*
<b>Adjusted R<sup>2</sup></b>		0.63		
<b>F-statistic</b>		15.7		**

Significance levels are designated by asterisks (\* $P < 0.05$ ; \*\* $P < 0.001$ ; ns = not significant).

<sup>a</sup>Satisfaction predicting Commitment.

benefit of involvement in the CNBSP was land management assistance (68.6%) notably alien plant clearing. Five landowners felt they received no benefit from involvement in the CNBSP.

## Discussion

Most studies examining motivations for joining PLC programs aim to provide insights for improving the design and recruitment of these programs (Moon & Cocklin 2011; Sorice *et al.* 2013). The strongest motivations for joining the CNBSP were Conservation Values and Place Attachment, findings aligned with previous studies (Ryan *et al.* 2010; Farmer *et al.* 2011). However, the SFI indicated that the Social Learning motivation had the strongest link to landowner satisfaction. Salient motivations reveal

why a landowner joins the CNBSP, or other similar programs and their fulfilment is the foundation of participant satisfaction. Yet, solely addressing these motivations is insufficient for understanding the functions that ensure landowner commitment, notably retention and possibly compliance to management agreements (Asah & Blahna 2013). Qualitative analysis revealed dissatisfaction stemming from the lack of tangible support for clearing invasive alien plants, perceived program inefficacy, and fewer visits from CNBSP staff than desired. Our results indicate that functions delivering satisfaction post-enrollment are in part based on landowners' unstated expectations met, benefits delivered, and their interactions with CapeNature.

CNBSP staff requires a deeper understanding of individual landowner's expectations, motivations, and drivers of satisfaction. Landowners are initially motivated



to join the CNBSP to conserve their land but this alone is inadequate to maintain satisfaction and commitment without an active partnership with CapeNature. This partnership manifests through a landowner's relationship with an extension officer and is a primary driver of satisfaction. Overall the number of visits sought by landowners is higher than anticipated, or delivered, by CapeNature (65.1% seek three or more visits annually), which poses substantial logistical and financial challenges.

While shared goals and collaboration between landowners and conservation authorities may be drivers of landowner participation (Cooke *et al.* 2012; Rissman & Sayre 2012), social learning has not been previously identified as a motivation in PLC studies. CNBSP management must facilitate a mutual learning experience between extension staff and the landowner whereby the landowner gains land management knowledge and the extension staff learns from and values the landowner's local ecological knowledge. Given the multidimensionality of an individual's reasons for entering PLC initiatives and the variety of functions defining their satisfaction, effective programs will be structured as thoughtfully designed optimal mixes of instruments, incentives and institutions (Erickson *et al.* 2002; Knight *et al.* 2010) that meet the majority of landowners motivations and satisfactions.

Satisfaction correlates with contract commitment. However, satisfaction is dynamic and can change over time depending on CNBSP service and delivering benefits, in the context of landowners changing circumstances. The SFI provides a tool for monitoring a landowner's satisfaction and therefore likely retention in PLC. Over 60% of CNBSP enrolled land is held in time limited contracts. These landowners eventually face decisions to extend, or not, their PLC contract. The prospect of economic and/or governmental changes may encourage decisions to cease their involvement, for example, when not wanting to foreclose potential future opportunities for their children (Miller *et al.* 2010). This challenge, coupled with program dissatisfaction, elevates the risk of losing high conservation value properties and a declining return-on-investment. Inefficient programs also create disincentives for other landowners to join (Pasquini *et al.* 2009).

Our results are applicable in a variety of PLC contexts. Countries with established programs, such as Australia and the United States, may use a version of the SFI to incorporate into monitoring protocols. Nations developing PLC programs will find use of the CNBSP example to guide PLC planning and implementation. CapeNature used SFI results to support structural changes to the CNBSP program and tailor incentives to individual

landowners. Areas of lower participant satisfaction were identified and the corresponding extension officer consulted. More focus was put on Social Learning and extension officer outreach. Nationally PLC programs are developing a Stewardship Forum as a way increase Social Learning and interaction between landowners. Current budget shortfalls have reinforced the need for CNBSP to focus on servicing current landowners and shoring up their satisfaction rather than expanding the program and stretching resources further. NGOs within South Africa establishing offshoots of the Biodiversity Stewardship Program are using these results to inform development of PLC programming.

Evaluating the social, and not simply the biological or ecological, "ingredients" of effective PLC programs is critical for understanding obstacles to implementation and measuring effectiveness (Rissman & Sayre 2012). We must broaden our definitions of the principles defining effective PLC programs, and protected area networks more generally, to holistically address the drivers of effectively managed social-ecological systems. Application of psychology theory and practice can improve the effectiveness of PLC programs by fostering landowner commitment that facilitates sustained behavioral change (McKenzie-Mohr 2011; Asah & Blahna 2013).

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## Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's web site:

**Supplementary 1.**  
**Supplementary 2.**  
**Supplementary 3.**

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