LETTER

Motivational functionalism and urban conservation stewardship: implications for volunteer involvement

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Abstract

Conservation in urban areas faces growing financial challenges and inadequate stakeholder involvement. Conservation psychology can mitigate these challenges in many ways. One way is through conservation volunteerism, if we attend to and capitalize on volunteers' motivations. Conservation volunteerism significantly contributes to ecological knowledge acquisition, and public education and awareness of conservation issues. In this study, we explored volunteers' motivations and how those motivations influence frequency of participation in urban conservation activities. We found that volunteers' frequency of participation is most motivated by personal and social benefits rather than by environment-related reasons. Environmental motivations, otherwise marginally significant, were more salient predictors of participation to the extent that personal and social motivations were met. We discuss how ecologically focused strategies are likely to be less effective for motivating more frequent participation than motivationally based appeals to personal and social motivations of urban conservation. We discuss implications for urban conservation stewardship initiatives and suggest ways that decision makers can harness volunteers' personal and social motivations to meet urban conservation practice and policy goals.

Introduction

Urbanization threatens biodiversity conservation, for example, reduces species abundance through habitat fragmentation resulting from landscape alterations (Aswani & Sabetien 2008). These threats have led to calls for conservation in urban areas, but such efforts are increasingly challenged by ever dwindling, or at best stagnant, financial resources (Sanderson & Huron 2011). A question of practical relevance to management is how to restore and conserve urban ecosystems despite limited financial resources.

Advocates for conservation in urban areas, places "where people live and work" and where over half of the world live, are growing (Miller & Hobbs 2002; Cox 2010). Although the Convention on Biological Diversity (CBD) provides opportunities to address global conservation issues through local means, its implementation faces several challenges (Chandra & Idrisova 2011). One such challenge, adequate financial resources, appears prevalent in developing countries (Executive Secretariat of the Convention on Biological Diversity 2007). But this challenge is not limited to developing countries. In the United States, for example, budgets of public institutions charged with conservation are decreasing (Bruyere & Rappe 2007). Even during prosperous economic times with budget surpluses, resources allocated for urban conservation through these institutions remain low (Propst *et al*. 2003).

Despite pointing to humans as the source of many urban conservation problems, there is less than commensurate emphasis on conservation psychology and its needed contributions to conservation (DeCaro & Stokes 2008). Besides serving important ecological functions,

urban biodiversity conservation enables critical social–psychological benefits including fulfilling ethical responsibilities and enhancing human well being (Dearborn & Kark 2009). In this article, we empirically substantiate arguments that these social–psychological attributes deserve more attention from conservation professionals they can play important roles in accomplishing urban conservation goals. Particularly, we illustrate how understanding the influences of volunteers' motivations on participation can enhance voluntary urban conservation stewardship.

Conservation volunteerism

Faced with dwindling financial resources, urban conservation efforts increasingly rely on volunteers—people who devote their time and other resources, without pay, to restore and conserve urban ecologies (Svendsen & Campbell 2008). Voluntary conservation stewardship bridges the gap between conservation needs and available funding, and partially explains the proliferation of volunteer-dependent nongovernmental conservation organizations in urban areas such as the Seattle–Tacoma metro area. Federal, state, and other governmental and educational entities also depend on volunteers to accomplish conservation goals.

Conservation volunteerism has many other functions. Stakeholder involvement is a major challenge to the local implementation of CBD (Chandra & Idrisova 2011). Volunteering can help overcome this challenge—it provides opportunities for urban citizens' involvement in conservation. Volunteer involvement in conservation projects enhances learning among volunteer participants (Evely *et al*. 2011). Volunteering facilitates knowledge generation by citizen science volunteers, collaboration, and the seeding of conservation stewardship that may initiate and/or sustain future civic collaborative actions in other pressing conservation issues (Cohn 2008; Braschler 2009; Krasny & Tidball 2009). (See supporting materials for a detailed discussion of the benefits of conservation volunteerism).

But, volunteerism in many areas in North America is declining (Putnam 2000; Hall *et al*. 2006). Volunteer-dependent conservation organizations are constrained by low volunteer involvement, despite operating primarily in urban areas where many people live and desire to immediately reap the benefits of conservation. More people support volunteerism in principle than act on those attitudes (e.g., Tidwell & Brunson 2008). Central to the success of urban volunteer-dependent conservation, therefore, is the retention of existing volunteers and an increase in their participation frequency. The functional approach to attitudes and persuasion (Smith *et al*. 1956; Katz 1960) suggests that less frequent participation in urban conservation activities could be partially explained by the failure of volunteer planning and management efforts to capitalize on relevant volunteer motivations. In this article, we explore why people volunteer their time for urban conservation within the Seattle–Tacoma metro area in Washington State. We verify how those motivations influence frequency of participation and discuss how our findings could enhance urban volunteer-dependent conservation practice and policy.

Why people volunteer

That people make considerable personal sacrifices to help others has long been of interest to behavioral psychologists. Most recently, scholars in environmental fields have focused on the sacrifices people make for environmental causes. Smith *et al*. (1956) and Katz (1960) introduced the theories of functionalism in their studies of attitudes and persuasion. They showed that the same attitudes serve different functions for different people, arguing that the success of efforts to change attitudes depends on the extent to which such efforts address the functions those attitudes serve. Several scholars have since adopted the functionalist approach to understand and influence attitudes and behaviors (e.g., Omoto & Snyder 1995; Marx 1999). The functionalist approach to volunteerism proposes that, though engaged in a similar behavior, the motivations for such behaviors may be quite different among volunteers. Motivations considerably influence processes that activate and sustain voluntary helping behaviors (Clary *et al*. 1998). In studying volunteers in organizations that provide a range of social and health services, Clary *et al*. (1998) identified six main functions that motivate volunteering behaviors. (See supporting material for detail description of these functions).

Motivational functionalism has been applied to environmental volunteering. That application typically involves volunteers ranking the importance of their motivations to volunteer. In a study of stewardship motivations of University students and rural Australian volunteers (Bramston *et al*. 2011), both volunteer groups ranked the environment as the most important reason for volunteering. Similarly, volunteers ranked the environment as the most important motivator of volunteering for governmental and nonprofit organizations (Bruyere & Rappe 2007). However, these studies did not verify whether importance rankings translated into actual volunteer behaviors—participation and other measures of volunteer involvement. Yet, the findings are interpreted that helping the environment is most influential of such behaviors.

We know of only one study (Ryan *et al*. 2001) that verified whether important motivators are also influential ones. In that study, volunteers ranked "helping the environment" as the most important motivator of their involvement with environmental organizations. But, helping the environment was not a significant predictor of their duration of involvement with those organizations. Instead, organizational and social factors were most salient predictors of volunteers' involvement (Ryan *et al*. 2001). These findings suggest that it is critical not only to understand how important motivations are, but more importantly, to verify whether and how they influence/predict desired behavioral outcomes such as participation and enduring involvement.

From a functionalist perspective, success in volunteers' involvement depends largely on the extent to which relevant conservation practices address the most salient functions that the act of volunteering serves to volunteers (Smith *et al*. 1956; Katz 1960). Therefore, motivating volunteerism requires understanding if, and to what extent, motivations influence participation. To acquire this understanding, we assessed the motivations and participation frequency of urban conservation volunteers. We used regression models to determine the relative influences of these motivations on frequency of participation, and illustratively discuss practical applications and policy implications of our findings to urban conservation.

Methods

Sampling

We recruited study participants during visits to 45 volunteering events between January and March of 2011. The choice of sites visited was based on awareness of the occurrence of volunteer events through recruitment messages on websites, newspapers, radio, word of mouth, and other sources. The events we visited were a mix of governmental, nonprofit, and community-based volunteer events. Many occurred in city parks; some were citizen-based community gardens, including a fruit orchard maintenance event. Thirty-six of the events involved removing invasive species and planting native ones. Other activities included, building raised garden beds, trail maintenance and restoration, erosion control, water quality testing and education, bird tagging, and removal of social trails in parks.

We identified and interviewed key volunteer informants, those who volunteered for urban restoration and conservation efforts several times over the past year. Key informants were therefore involved participants, and appropriate to articulate volunteer motivations. Other volunteers were requested, onsite, to participate in a later survey by providing their email addresses by which the survey was administered. About 25% of requested participants refused to provide their email addresses. We collected 329 valid email addresses from 34 events. There were no volunteers at 11 of the 45 events visited.

Interviews

In a location of their choice, ten interviewees (six women) were individually interviewed. Interviewees were introduced to the functional approach to motivations by stating that people volunteer in part because it performs certain beneficial functions. We did not introduce interviewees to the contents of previous motivation scales, to avoid biasing responses toward preexisting measures of motivations. Following this introduction, we asked open-ended questions about what and how various motivations applied to their particular contexts. Interviews lasted 55 minutes on average. Interviews were recorded, transcribed, and analyzed using NVivo software. We used a deductive approach, based on the functional approach to motivations framework, to analyze interviews (Saldana 2010). Interview transcripts were read and reread before first-cycle coding. First-cycle coding involved placing texts into themes and categories defined by previous studies of volunteer motivations. Second cycle coding sought to confirm the alignment of existing themes with predefined subdimensions of motivations.

Results from interviews were used to generate statements used in a Likert scale assessing volunteer motivations (DeVellis 2012). Volunteers' motivations vary with the type and context of volunteering activity (e.g., Allison *et al*. 2002). Consequently, we adopted this primary instrumentation approach to identifying motivations to ensure that those motivations were grounded in the realities of place and context. By primary instrumentation, we mean that the contents of the instruments were based on the contextual and place-specific realities of, and as articulated by, key-informant volunteers as opposed to using preexisting researcher-determined (secondary) instruments. This approach was necessary because motivational functionalism suggest that for different contexts and people, motivations are different (Smith *et al*. 1956; Katz 1960).

Survey questionnaire

The motivation scale contained 24 items—statements assessing specific motivations to volunteer for conservation. On a scale from 1 (very unimportant) to 5 (very important), respondents rated the importance of these motivations vis-à-vis their decisions to volunteer. Interviewees revealed differential participation between

general volunteering events and those of favorite stewardship organizations, citing social factors as particularly motivating of their volunteering with their favorite organizations. Thus, we included two measures of participation frequency—number of occasions they volunteered for conservation purposes in general, and with their favorite stewardship organization, over the 12 months preceding the study. Questions assessing demographic attributes were included in the questionnaire. The questionnaire was sent to 329 respondents, seven recipients declined to participate. The initial e-mailing was followed by four periodic reminders to nonrespondents (Dillman *et al*. 2009). The study was reviewed and approved by the Institutional Review Board of the University of Washington (IRB #40050).

Data analysis

Principal axis factoring (PAF) with varimax rotation was used to reduce the 24 items to six dimensions that more concisely describe and help understand how volunteers structure their motivations (Tabachnick & Fidell 1996). PAF was chosen because it minimizes measurement error within construct dimensions (Stewart *et al*. 2001). One item with factor loading $\leq$0.44 was eliminated (Tabachnick & Fidell 1996). The reliability of each dimension was assessed by examining Cronbach's coefficient alpha (α) (Cronbach 1951); α values $\geq$0.60 are acceptable (DeVellis 2012). The interitem correlation was computed for the dimension with two items (Tabachnick & Fidell 1996). The aggregate score for each dimension was computed (Spector 1992).

If and how motivations predict frequency of volunteering were tested in multiple linear regression models. Because volunteers ranked the environment as the most important motivation, we tested whether significant predictors moderated the effects of environmental motivations when the environment was not a significant predictor. We introduced interaction terms between significant predictors and environmental motivations. Significant tests were based on a cut-off probability value of 0.05. Values $\leq$0.05 were considered significant, values between 0.05 and 0.1 were marginally significant, and nonsignificant (ns) values were those $\geq$0.1 (SPSS 19, Stepping Methods Criteria).

Results

We received 242 responses for a response rate of over 75%. PAF revealed that volunteers are motivated by six distinct categories of functions (Table 1). They volunteered for environmental purposes, community, career

Table 1 Principal axis factoring results showing constitutive items and respective means, standard deviations, and Cronbach alpha values (interitem correlations in parenthesis) of the dimensions of volunteers' motivations ($N = 231$)

Dimensions of motivations and constitutive items	Mean	Standard deviation	Cronbach α
Environment	4.25	0.61	0.89
To help protect the environment			
To contribute to environmental sustainability			
To help restore some aspect of the environment			
To give back to the environment			
To enhance parks and recreational areas			
To feel connected to my surrounding landscape			
Career and learning	3.10	0.80	0.72
To get my foot in the door for jobs			
To learn job skills			
To learn about the volunteering organization concerned			
To learn more about the type of work being done			
Community	3.96	0.58	0.66
To show my community that I care			
To feel connected with my community			
To show that I can make a difference			
To give something back to my community			
Escape and exercise	3.17	0.84	0.67
To get out of the house			
To get away from the busy demands of everyday life			
To get exercise			
Social interactions	3.70	0.61	0.63
To be with like-minded people			
To be with friends			
To enjoy the experience			
To see people and talk with them about volunteering and other things			
Ego defense and enhancement	3.32	0.81	(0.36)
To feel less guilty about the problems we cause to the environment			
To show that I can make a difference			

Table 2 Influence of volunteer motivations on volunteering intensity in general and with favorite stewardship organizations, ns represent non-significant predictors ($N = 229$)

	General volunteering intensity ($R^2 = 0.08$; $P = 0.009$)			Volunteering intensity for favorite stewardship organization ($R^2 = 0.10$; $P = 0.002$)		
Motivations	β	t	Sig.	β	t	Sig.
Environment	0.131	1.76	0.080	0.132	1.78	0.076
Career and learning	−0.134	−1.78	0.076	−.156	−2.09	0.038
Community			ns			ns
Escape and exercise			ns			ns
Social interactions			ns	0.221	2.77	0.006
Ego defense and enhancement	0.180	2.15	0.033	0.146	1.76	0.079
Interaction effects						
Environment *X* ego			ns			
Environment *X* social interaction (R^2 change, +0.02)				0.165	2.19	0.029

and learning, to escape and get exercise, to socialize, and to defend and enhance the ego. Cronbach α values, for all five dimensions with three or more items were acceptable (DeVellis 2012). The interitem correlation of 0.36 for the ego defense and enhancement motivation was fair (Tabachnick & Fidell 1996).

Ego defense and enhancement was the only significant predictor of the frequency of volunteering in general (Table 2). The more volunteers wanted to feel less guilty about the problems we cause to the environment, and the more they wanted to make a difference in this respect, the more often they volunteered. Helping the environment was a marginally significant predictor of participation. Unlike with participation frequency in general, social interactions was the most significant motivator of participation in volunteers' favorite stewardship organization (Table 2). The more volunteers wanted to be with friends, meet, converse and interact with likeminded people, and enjoy that experience, the more frequently they volunteered with their favorite stewardship organization. The motivation to help the environment, and defend and enhance the ego had marginally significant effects on volunteering with volunteers' favorite organizations. Career and learning were marginal and significant, but negative, predictors of participation in general and in volunteers' favorite organizations, respectively. The interaction between environmental and ego motivations did not significantly predict participation in general, while social interactions significantly moderated the effects of environmental motivations on volunteering for favorite stewardship organizations.

Discussion

As in many other similar studies (e.g., Bruyere & Rappe 2007; Bramston *et al*. 2011), respondents in our study ranked the environment as the most important motivator of volunteerism. But, as illustrated by Ryan *et al*. (2001), the environment was not a significant predictor of volunteers' duration of involvement. These findings suggest that the environment may not be as influential to volunteers' involvement as volunteer rankings of the importance of motivations may propose. Besides the fact that importance may not mean influence, two social psychological phenomena: introspection illusion (Pronin *et al*. 2007), and social desirability (Tourangeau *et al*. 2000) could possibly explain disparities between importance rankings and actual influence of motivations (see supporting material for details as to how these two psychological phenomena may explain the disparities between importance rankings and actual influence of motivations). Thus, it is important not only to understand volunteers' rankings of motivations but also to verify whether such rankings influence actual behaviors.

Conservation volunteer involvement

Many conservation initiatives are challenged by insufficient financial resources and inadequate stakeholder involvement (Chandra & Idrisova 2011). Volunteerism can foster conservation goals, enhance stakeholder involvement, and mitigate some financial challenges. Of the 45 volunteer events observed during the study, 11 of them had no volunteers and many of the remaining 34 events had fewer than the desired number of volunteers. Little or no participation suggests that urban conservation initiatives are underutilizing the potential to mitigate financial challenges, involve stakeholders, and enhance learning and social interactions that fortify networks and strengthen collaboration among conservation stakeholders (Belaire *et al*. 2011; Evely *et al*. 2011).

Empirical findings suggest that a reason for low volunteer involvement in urban conservation activities is that participation appeals, and the planning and management of volunteer events, may be functionally mismatched in that they do not make most salient motivations

cognitively accessible to volunteers. People judge both verbal and behavioral appeals as more persuasive, and will act in favor of such appeals, if those appeals make it obvious how they could satisfy personally relevant motivations (Clary *et al*. 1994). A review of several recruitment appeals used for events observed in this study revealed a consistent underscoring of environmental benefits of conservation without commensurate emphases on the more influential personal and social motivations. One appeal read: "the beauty of our city is ruined by invasive species; we need your help to restore our natural ecosystem." The environmental emphasis of this recruitment appeal is not surprising given that volunteers often rank the environment as the most important motivation. Conversations with volunteer coordinators revealed little or no planned social activities associated with volunteering events, and no measures taken to facilitate social interactions during conservation events. This traditional focus on biophysical features and less on conservation psychology underscores difficulties that conservation efforts face in garnering sustained social support (DeCaro & Stokes 2008).

Communication appeals, and volunteer event planning and management that match the motivations most salient to volunteers are not only matters of recruitment but also of retention. Those already volunteering could be motivated to volunteer more frequently, by nurturing and making salient motivations cognitively available to them. Failure to make these motivations easily retrievable, to be cognitively deployed to influence participation, may partially explain volunteer-retention difficulties facing urban conservation organizations (see supporting materials for detailed descriptions of these motivations).

Conservation practice and policy implications

From a functional persuasive perspective, volunteer recruitment and retention efforts will be more successful if they functionally match volunteers' most salient motivations (Clary *et al*. 1994). Recruitment appeals that make salient these personal and social motivations could read as follows: "volunteering to restore native species is an opportunity to make a difference and feel less guilty about problems we cause to the environment while socializing with likeminded people." Making these egoistic functions (personal and social motivations) more cognitively accessible to volunteers does not conflict with the biospheric motivation to help the environment; they are all achieved by engaging in same activity—volunteering (de Groot & Steg 2009). Volunteer-dependent stewardship organizations could broaden their appeals to other groups and organizations that emphasize similar personal and social motivations. (See supporting material for further insights in support of appeals that match volunteers' motivations).

Results suggest that planning and coordinating of volunteer events could make more room for social-interactive activities—games, food, and drinks. Volunteering events could also facilitate group instead of individual conservation tasks. Forty-three of the volunteering events we visited aimed to accomplish multiple tasks despite low volunteer turnout. Social interactions could be facilitated by having multiple individuals execute a particular task and then move to the next, as a group, rather than assigning individuals to respective tasks.

Our findings have important implications for conservation policy targeting the human dimensions of conservation, especially monitoring, and education and outreach. Articles 7 and 13 of the CBD emphasize the need for "identification and monitoring" and "education and awareness." Volunteer citizen science projects, are one means to achieve these policy goals, especially in developing countries where scarce resources heighten competition between conservation and other priorities (Braschler 2009). In addition, the biodiversity of these countries are relatively unknown and urbanization is leading to loss of traditional ecological knowledge about biodiversity as people-nature connections are lessened (Braschler 2009). Citizen science volunteers can significantly contribute to our understanding of the occurrence and distribution of biodiversity while learning and building awareness about biodiversity and conservation threats. Thus, understanding the influence of motivations on participation and making most salient motivations cognitively available to volunteers may facilitate attainment of the conservation policy objectives of articles 7 and 13 of the CBD.

To motivate citizen conservation stewardship, conservation practitioners must take advantage of the insights that conservation psychology brings to bear on such efforts (Clayton & Myers 2009). One such insight, as illustrated in this study and elsewhere (e.g., Clayton & Brook 2005; Saunders *et al*. 2006; Mayer & Frantz 2008), is the importance of assessing volunteers' motivations and the salience of the motivations' influences on desired behaviors. Volunteers' most salient motivations are then matched in communication appeals, and in the planning and management of volunteer-dependent conservation activities. (Consult supporting material for potential drawbacks to this study).

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Supporting Information

Additional Supporting Information may be found in the online version of this article:

Table S1. Demographic characteristics of volunteer participants

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