



Practical Implications of Understanding the Influence of Motivations on Commitment to Voluntary Urban Conservation Stewardship

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Abstract: *Although the word commitment is prevalent in conservation biology literature and despite the importance of people's commitment to the success of conservation initiatives, commitment as a psychological phenomenon and its operation in specific conservation behaviors remains unexplored. Despite increasing calls for conservation psychology to play a greater role in meeting conservation goals, applications of the psychological sciences to specific conservation behaviors, illustrating their utility to conservation practice, are rare. We examined conservation volunteers' motivations and commitment to urban conservation volunteering. We interviewed key informant volunteers and used interview findings to develop psychometric scales that we used to assess motivations and commitment to volunteer. We surveyed 322 urban conservation volunteers and used factor analysis to reveal how volunteers structure their motivations and commitment to volunteer for urban conservation activities. Six categories of motivations and 2 categories of commitment emerged from factor analysis. Volunteers were motivated by desires to help the environment, defend and enhance the ego, career and learning opportunities, escape and exercise, social interactions, and community building. Two forms of commitment, affective and normative commitment, psychologically bind people to urban conservation volunteerism. We used linear-regression models to examine how these categories of motivations influence volunteers' commitment to conservation volunteerism. Volunteers' tendency to continue to volunteer for urban conservation, even in the face of fluctuating counter urges, was motivated by personal, social, and community functions more than environmental motivations. The environment, otherwise marginally important, was a significant motivator of volunteers' commitment only when volunteering met volunteers' personal, social, and community-building goals. Attention to these personal, social, and community-building motivations may help enhance volunteers' commitment to conservation stewardship and address the pressing challenge of retaining urban conservation volunteers.*

Keywords: conservation psychology, homophilia, stewardship motivations, volunteer retention

Implicaciones Prácticas del Entendimiento de la Influencia de Motivaciones sobre el Compromiso de Voluntarios de Conservación Urbana Asah & Blahna

Resumen: *Aunque la palabra compromiso prevalente en la literatura de biología de la conservación y no obstante la importancia del compromiso de la gente para el éxito de las iniciativas de conservación, el compromiso como un fenómeno psicológico y su operación en conductas de conservación específicas permanece sin explorar. A pesar de los llamados para que la psicología de la conservación juegue un papel mayor en el logro de las metas de conservación, son raras las aplicaciones de las ciencias psicológicas a conductas de conservación específicas, para mostrar su utilidad para la práctica de la conservación. Examinamos las motivaciones y compromisos de voluntarios de la conservación para trabajo voluntario en conservación urbana. Entrevistamos voluntarios informantes clave y utilizamos los resultados de las entrevistas para desarrollar escalas psicométricas que usamos para evaluar las motivaciones y compromiso para el trabajo voluntario. Sondeamos a 322 voluntarios de conservación y utilizamos análisis factorial para revelar como estructuran sus motivaciones y compromisos para trabajo voluntario en actividades de*

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conservación urbana. Del análisis factorial emergieron seis categorías de motivaciones y 2 de compromiso. Los voluntarios fueron motivados por deseos para ayudar al ambiente, defender y reforzar el ego, carrera y oportunidades de aprendizaje, escape y ejercicio, interacciones sociales y consolidación de comunidades. Dos formas de compromiso, afectivo y normativo, vinculan psicológicamente a la gente con el trabajo voluntario en conservación urbana. Utilizamos modelos de regresión lineal para examinar como influyen esas categorías de motivación en el compromiso de los voluntarios para hacer voluntariado de conservación. La tendencia de los voluntarios a continuar trabajando para la conservación urbana, a pesar de deseos contrarios fluctuantes, fue motivada por funciones personales, sociales y comunitarias más que las motivaciones ambientales. El ambiente, por lo demás marginalmente importante, fue un motivador significativo del compromiso de los voluntarios solo cuando el trabajo cumplió sus metas personales, sociales y de consolidación comunitaria. La atención a estas motivaciones personales, sociales y de consolidación comunitaria puede ayudar a reforzar el compromiso de los voluntarios para dirigir acciones de conservación y atender el creciente reto de retener voluntarios de conservación urbana.

Palabras Clave: homofilia, motivaciones para dirigir, psicología de la conservación, retención de voluntarios

Introduction

Over 50% of the world's population now live in urban areas and that percentage is projected to rise to 70% by 2050 (United Nations 2009). The total size of urban areas, in the United States for example, is less than the total area set aside for conservation (McKinney 2002). Thus, due to its sheer size and that urban ecosystems are now home to most of the world's population, attention to urban conservation is important.

There are other reasons for urban conservation, including social and educational values (e.g., Miller & Hobbs 2002). Conservation in cities challenges one to examine what is being restored and conserved and to include in conservation the "special and necessary human connection to the natural world" (Sanderson & Huron 2011). Higher perceived connectedness with nature increases people's likelihood of adopting conservation behaviors (e.g., Mayer & Frantz 2004; Gosling & Williams 2010). An increasingly important means by which people achieve that connectedness, especially in urban and urbanizing areas, is through volunteering to restore and conserve ecosystems (Asah et al. 2012).

Conservation volunteers provide otherwise unavailable services that enable attainment of conservation goals notwithstanding financial constraints. In 2007, 95% of the City of Seattle's urban-forest restoration projects were accomplished with the help of community volunteers (City of Seattle 2007). Experiences with nature, through volunteering for example, lead to broader ecological understanding and may engender involvement in local conservation issues (Miller & Hobbs 2002). It is desirable that local support and involvement in conservation issues endure beyond particular conservation projects. Thus, conservation success necessitates people's commitment to the conservation cause (Griffiths & Pavajeau 2008). Consequently, the term *commitment* is prevalent in conservation-relevant empirical discourses and commentaries (e.g., Ehrenfeld et al. 2009; Mills et al. 2010). Yet, commitment as a psychological phenomenon—its

cognitive operation vis-à-vis engagement in conservation-oriented behaviors—remains unexplored in conservation biology.

Unlike biophysical conservation science, conservation practice is about behavioral change (Schultz 2011). Thus, the science of conservation psychology holds a significant stake in achieving conservation goals (Clayton & Brook 2005; Ehrlich & Kennedy 2005). However, to achieve sustained conservation, behavioral changes must endure the pressures to fall back to anticonservation behaviors. During field observations for this study, volunteer-dependent conservation organizers consistently expressed difficulties retaining volunteers—securing volunteers' commitment is a challenge to urban conservation practice. Thus, understanding the concept and cognitive operation of commitment, the attitude of enduring urges to volunteer less or not at all, is important for sustained conservation. Many efforts to foster conservation stewardship focus on information and education, but motivation is a stronger driver of behavioral change (McKenzie-Mohr 2011). Thus, it is helpful to understand, plan, and manage for the functions that motivate commitment.

We examined the nature and cognitive operation of commitment to voluntary urban conservation stewardship. We assessed motivations to volunteer for urban conservation and the extents to which various motivations affected volunteers' commitment. We provide suggestions, for volunteer-dependent conservation practitioners, on how to plan and manage conservation initiatives in ways that enhance commitment to voluntary urban conservation stewardship. By so doing, our study brings conservation psychology to bear on conservation practice, as requested by many (e.g., Orr 2008; Clayton & Myers 2009).

Commitment to Conservation Volunteering

Commitment, a force that stabilizes individual behavior under circumstances where the individual would

otherwise be tempted to change that behavior, is a mainstay of research and practice in vocational behavior and occupational psychology (e.g., March & Simon 1958; Reichers 1985). Commitment has been used to explain and influence people's enduring involvement and loyalty to particular walks of life, organizations, products, and causes (e.g., O'Reilly & Chatman 1986; Henderson et al. 2011). Different types of commitment operate differently to psychologically bind people to organizations and behaviors and to explain outcomes, such as employee turnover and performance, and health and well being (Meyer et al. 2002). Relational commitment to the environment positively predicts proenvironmental intentions and behaviors and willingness to sacrifice for environmental causes (Davis et al. 2009; Davis et al. 2011). Thus, increasing concerns about volunteer retention amidst growing dependence on volunteers to meet restoration and conservation goals makes commitment an especially relevant phenomenon to conservation practice.

Nevertheless, applications of commitment to vocational behavior present some problems. *Commitment* has several definitions. By Meyer and Herscovitch's (2001) account, there exists over 20 definitions. There is considerable variation and confusion in how commitment is conceptualized (Meyer & Herscovitch 2001). Some conceptualize commitment as a unidimensional construct (e.g., Brown 1996); others view it as multidimensional, with as many as 5 dimensions in some cases (e.g., Cohen 1999). Conceptual confusion of commitment extends to labeling. Value commitment has been variously labeled attitudinal, psychological, and affective commitment. Commitment to stay has been termed calculative, exchange based, and continuance commitment (Mayer & Schoorman 1998).

The empirical application of commitment also poses measurement and operationalization problems. Mowday et al. (1979) developed the Organizational Commitment Questionnaire (OCQ)—the first and widely used psychometric scale to measure organizational commitment. Researchers who have used OCQ (e.g., Angle & Perry 1981) distinguish 2 dimensions of commitment. Allen and Meyer (1990) developed another psychometric scale that assesses 3 dimensions of commitment. Meyer et al. (1993) continue to modify their scale, and it has been shown to have mixed results for discriminant and construct validities (e.g., McGee & Ford 1987; Ko et al. 1997). The Allen and Meyer's scales and OCQ continue to be used; sometimes concepts and measures are interchanged and constituent items are modified to fit the context. In addition to organizational commitment, there exists varied foci, conceptualizations, and consequent measures of commitment, for example, work commitment (Rink & Ellemers 2006), career commitment (Blau 1985), and goal commitment (Zhang & Chiu 2011).

What is central to all these definitions, conceptualizations, and measurements is the view of commitment

as a psychological force that binds individuals to entities, causes, or behaviors (Brown 1996). Different definitions, conceptualizations, and measurements reflect differences in how these bonds develop (Mathieu & Zajac 1990), and the differences in definitions, conceptualizations, and measurements are explained by cultural and contextual differences in meaning and operation of commitment (Clugston et al. 2000). Accordingly, different definitions, conceptualizations, and measurement instruments have been used to assess relational commitment to the environment (Davis et al. 2009).

However, commitment has rarely been used to understand and manage conservation volunteerism. As far as we know, only Ryan et al. (2001) have explored what predicts volunteers' commitment to environmental programs and no one has related commitment to volunteering behavior. Although programs last only so long, the conservation cause prevails. Ryan et al. (2001) operationalized commitment as the duration of program involvement, which is less insightful regarding the psychological phenomena that bind people to particular behaviors. As a force that binds someone to a behavior, even in the face of counter attitudes and urges (Brown 1996), and given the fundamental nature of volunteer work (unpaid and without any obligations), we examined what else motivates people to commit to voluntary urban conservation stewardship.

Motivational Functionalism and Volunteerism

Psychological functionalism refers to the purposeful coping and adaptive mechanisms used to meet personal and social goals (Snyder 1993). Smith et al. (1956) and Katz (1960) introduced the concept in their classic theories on the functional approach to attitudes and persuasion. Functionalism proposes, among other things, that the success of efforts to change attitudes and behaviors depends on the extent to which such efforts address the functions those attitudes and behaviors serve. Smith et al. (1956) and Katz (1960) conceptualized 5 categories of such functions: values, understanding, social, career, and ego protection and enhancement. These functions—the personal and social processes that initiate, direct, and sustain human action—are referred to as motivations (Clary et al. 1998).

In studying volunteers in organizations that provide social and health services, Clary et al. (1998) used factor analysis of the Volunteer Functions Inventory (VFI), generated through conceptual analysis of the functional approach to attitudes and persuasion, to identify 6 main functions that motivate volunteerism: values, understanding, social, career, protective, and enhancement. These results provided evidence that underlying volunteer motivations could be identified and precisely measured on the basis of the theory of psychological functionalism (Smith

et al. 1956; Katz 1960). Using open-ended questioning in another context, Allison et al. (2002) identified 3 new domains of volunteer motivations not captured by the VFI.

Applying the VFI to environmental volunteering presents further conceptual and operational limitations. Measures of motivations to help the environment and to be part of and build community are absent in the VFI but are important motivations of environmental volunteerism (e.g., Bramston et al. 2011). These findings confirm propositions that motivations vary among volunteers and contexts (Smith et al. 1956; Katz 1960).

The functional approach to environmental volunteerism revealed several personal, social, and environmental motivations (e.g., Miles et al. 1998). But, the relative effects of motivations on commitment are rarely explored. Understanding what motivates commitment may help practitioners plan and manage conservation activities to match volunteers' motivations to commit to volunteering. Managing conservation events to functionally match volunteer's salient motivations may help move urban conservation objectives beyond biodiversity conservation toward an integration of conservation with other societal goals (Sanderson & Huron 2011), which may facilitate an autonomy supportive environment for conservation (Decaro & Stokes 2008). Motivational functionalism posits that efforts to secure volunteers' commitment to urban conservation are successful only to the extent that such efforts address the most salient of volunteers' motivations (Smith et al. 1956; Katz 1960). Thus, securing volunteers' commitment entails understanding not only if, but to what extent, different motivations predict commitment to voluntary conservation stewardship.

We addressed the following questions: how do committed volunteers conceptualize their commitment and motivations to volunteer for urban conservation initiatives? What motives should conservation volunteer organizers make more cognitively obvious to and obtainable by volunteers? And, how could volunteer events be planned and managed to maximize the cognitive obtainability of salient motivations for deployment to enhance commitment and volunteer retention?

Methods

Sampling

Study participants were recruited onsite during volunteer-dependent conservation events in the Seattle-Tacoma metro area in Washington State. We visited 45 such events, January–April 2011, and asked volunteers if they would participate in an email survey about their motivations and commitment to urban conservation volunteerism. We recruited participants when weather was inclement so our sample would be representative of com-

mitted volunteers. About 25% of volunteers refused to provide email addresses. We collected 329 useable email addresses.

During event site visits, we identified and later interviewed key informant volunteers. We used results of interview analyses to develop the content of the survey questionnaire. Key informants were people who had volunteered over extended periods. Therefore, key informants were most appropriate to articulate their commitment and motivations to volunteer.

Key Interviews and Qualitative Data Analyses

A fundamental criticism of how commitment is conceptualized and measured is the lack of emphasis on the individual's own experience of being committed (Reichers 1985). Researchers do not directly or indirectly ask research subjects for their own perspectives on what it means to be committed. Consequently, current measures of commitment may not correctly reflect how people experience their own bonds with particular entities and behaviors (Reichers 1985). Thus, it is important to understand commitment from the standpoint of the committed. Moreover, measures of commitment as a psychological force that binds people to voluntary urban conservation stewardship are nonexistent. We expected urban conservation volunteers' experiences and conceptualizations of commitment to reside in frames of references specific to that context.

We adopted a context-specific approach to meaning attribution, conceptualization, and measurement. We asked key informant volunteers what it meant to them to be committed and motivated and how commitment and motivation operate in the setting and context in which they volunteer. We incorporated these meanings and expressions of their contextual operation in the way we defined and measured commitment. This ensured that we based measurement on the contextual and place-specific realities of, and as articulated by, volunteers rather than simply using preexisting (secondary) measures that may be contextually irrelevant. We favored this approach for 2 additional reasons: while staying within the theoretical groundings of the commitment and motivation concepts, we sought to provide insights of practical utility to volunteer-dependent urban conservation initiatives, and the fundamental theory of motivational functionalism suggests motivation differs in different contexts and with different people (Smith et al. 1956; Katz 1960).

Key informants were each introduced to the concept of commitment as that which binds them to the volunteering cause, and to the functional approach to volunteer motivations. Then key informants were probed with a series of nondirective open-ended questions soliciting meaning, conceptualization, and operation. After 10 key-informant interviews additional interviews yielded little further insights about volunteers' motivations and

commitment (Kvale 1996). Characteristics of key informants are in Supporting Information. Interviews, lasting on average of 55 minutes, were recorded, transcribed, and analyzed with NVivo software. We used the results to develop the motivations and commitment scales used in the survey questionnaire.

Survey Questionnaire

Results of the analyses of key informant interviews revealed that volunteers were motivated to help the environment, build community, get exercise, socialize, learn, get away from demands of everyday life, and to protect and enhance the ego. Interviewees defined their commitment, essentially, as the psychological attachment to urban conservation volunteerism. They conceptualized commitment on the basis of their emotional attachment to and identification and involvement with volunteerism, their ability to resist urges against volunteering, and their normative obligation to continue to volunteer. These definitions and conceptualizations are consistent with the essences of those in many studies of vocational behavior (e.g., Blau 1985; Allen & Meyer 1990).

We developed a psychometric scale to assess the motivations identified in the interviews and used it in the questionnaire (DeVellis 2012). The motivations scale consisted of 24 items. Respondents were asked to rate the importance of the motives conveyed by these items, on a scale from 1 (very unimportant) to 5 (very important), as factors influencing their decisions to volunteer. Except for relevant minor modifications to preserve the authenticity of interviewees' expressions, contents of the motivations scale are similar to those in other studies of environmental volunteerism and the VFI (Clary et al. 1998; Measham & Barnett 2008).

A psychometric scale of 15 statements assessed volunteers' commitment. Respondents were asked to rate the extent to which they agreed or disagreed with these statements on a scale from 1 (strongly disagree) to 5 (strongly agree). Items in the commitment scale were designed to preserve the authentic expressions of interviewees—they were somewhat different from those used in past studies. However, the essential meanings of many scale items were similar. For example, and to retain interviewees' authentic expressions, the statement *I enjoy talking about volunteering with friends*, included in the commitment scale captured the essence of Allen and Meyer's (1990) affective commitment item *I enjoy discussing my organization with people outside it*.

The questionnaire also assessed various measures of participation and volunteers' demographic attributes (Supporting Information). We sent the questionnaire to 329 volunteers and followed up with nonrespondents in 4 periodic reminders (Dillman et al. 2009). Seven volunteers declined participation.

Data Analyses

We analyzed all quantitative data with SPSS (version 19; SPSS, Chicago). We used principal-axis factoring to reduce the number of statements in each scale to dimensions that more concisely describe and would help one understand how volunteers structure their motivations and commitments to volunteering (Tabachnick & Fidell 1996). We extracted factors with the criteria of eigenvalues ≥ 1.0 and the leveling point of the scree plots of eigenvalues. Statements with factor loadings ≤ 0.44 were eliminated (Tabachnick & Fidell 1996).

We used Cronbach's (1951) coefficient alpha to assess internal consistency for overall scales and their dimensions (DeVellis 2012). We computed the aggregate scores of each dimension of the motivation and commitment scales (Spector 1992) and of the entire commitment scale (i.e., the overall tendency to continue to volunteer under circumstances where they would otherwise be tempted not to do so). We tested 3 multiple linear-regression models, each with all dimensions of motivations as predictors of affective, normative, and overall commitment. Because the environment is widely reported as the most important motivation to volunteer (e.g., Measham & Barnett 2008), subsequent stepwise regression models tested interaction effects examining whether other motivations moderated the effect of environmental motivations on commitment (Jaccard & Turrissi 2003). In the first block, we entered motivations as predictors of commitment. In subsequent blocks, we introduced interaction terms between other motivations and environmental motivations when environmental motivations, by themselves, were not significant predictors of commitment. We excluded motivation dimensions in the interaction terms from the first block so we could determine the variance explained only by the interaction terms. Correlations between overall commitment and different measures of volunteer participation were conducted to verify whether volunteers' commitment corresponded with actual volunteer behaviors. We based significant correlations on a cut-off probability value of 0.05. Values between 0.05 and 0.1 were marginally significant (SPSS 19, stepping methods criteria).

Results

We received 242 responses to our email survey, a response rate of slightly over 75%. More than half of respondents were 40 years or older. The overall commitment scale was highly reliable, $\alpha = 0.88$ (DeVellis 2012). Principal-axis Factoring resulted in 2 correlated ($r = 0.37, p = 0.000$) dimensions of commitment to conservation volunteering that explained 52.7% variance (Table 1). We called the first dimension affective commitment (also referred to as attitudinal or value commitment). We called the second dimension normative commitment

Table 1. Constitutive statements and respective loadings, means, standard deviations (SD), and Cronbach α for affective and normative commitment to volunteering.

<i>Dimensions of commitment and constitutive statements</i>	<i>Factor loading</i>	<i>Mean</i>	<i>SD</i>	<i>α</i>
Affective commitment		3.75	0.71	0.89
volunteering plays a vital role in my life.	0.831			
volunteering is among the most satisfying things I do.	0.764			
volunteering says a lot about who I am.	0.748			
I find a good part of my life organized around volunteering.	0.746			
volunteering is among the most enjoyable things I do.	0.735			
volunteering is very important to me.	0.703			
when I am volunteering, I can really be myself.	0.651			
to change my preference from volunteering to other kinds of activities would require major rethinking.	0.619			
I enjoy talking about volunteering with friends.	0.572			
I prefer volunteering because it comes close to reflecting my lifestyle.	0.567			
Normative commitment		3.31	0.77	0.79
I feel morally obliged to volunteer as much as possible.	0.854			
I feel personally obliged to volunteer as much as possible.	0.830			
people like me should do everything they can to volunteer more.	0.721			
volunteering is the morally right thing to do.	0.629			
I feel guilty when I pass up a volunteering opportunity.	0.540			

given the emphasis of its constituent items on volunteering as an obligation and the right and moral thing to do. Both dimensions were highly reliable.

The overall motivation scale was also highly reliable, $\alpha = 0.84$. The principal-axis factoring of the motivation scale revealed 6 distinct dimensions of motivations that explained 61.7% of variance (Table 2). Respondents volunteered for environmental, community, and career and learning purposes; to escape and get exercise; for social interactions; and to defend and enhance the ego (i.e., to protect the ego against negative features of the self and to maintain or enhance personal affect). All dimensions were significantly ($p \leq 0.05$) and positively correlated with each other. Correlations ranged from 0.16 to 0.52. The reliability of these dimensions ranged from high to moderate.

Table 2. Constitutive statements and respective loadings, means, standard deviations (SD), and Cronbach α for dimensions of volunteer motivations.

<i>Dimensions of motivations and constitutive statements</i>	<i>Factor loading</i>	<i>Mean</i>	<i>SD</i>	<i>α</i>
Environment		4.25	0.61	0.89
help protect the environment	0.856			
contribute to environmental sustainability.	0.846			
help restore some aspect of the environment.	0.844			
give back to the environment.	0.831			
enhance parks and recreational areas.	0.709			
feel connected to my surrounding landscape.	0.571			
Career and learning		3.10	0.80	0.72
get my foot in the door for jobs.	0.775			
learn job skills.	0.724			
learn about the volunteering organization concerned.	0.703			
learn more about the type of work being done.	0.566			
Community		3.96	0.58	0.66
show my community that I care.	0.771			
feel connected with my community.	0.629			
show that I can make a difference.	0.586			
give something back to my community.	0.583			
Escape and exercise		3.17	0.84	0.67
get out of the house.	0.724			
get away from the busy demands of everyday life.	0.664			
get exercise.	0.635			
Social interactions		3.70	0.61	0.63
be with like-minded people.	0.753			
be with friends.	0.668			
enjoy the experience.	0.530			
see people and talk with them about volunteering and other things.	0.449			
Ego defense & enhancement		3.32	0.81	0.53
feel less guilty about the problems we cause to the environment.	0.777			
show that I can make a difference.	0.485			

Social interactions and community were significant predictors of affective commitment ($R^2 = 0.24$; $F = 11.34$; $p = 0.000$) and of overall commitment ($R^2 = 0.24$; $F = 12.35$; $p = 0.000$), whereas community and ego defense and enhancement were significant predictors of normative commitment ($R^2 = 0.15$; $F = 6.87$; $p = 0.000$) (Table 3). The motivation to help the environment was a marginally significant predictor of affective commitment and did not significantly predict normative and overall commitments. The motivation to protect and enhance the ego was a marginally significant predictor of overall commitment.

Table 3. Motivations as predictors of affective, normative, and overall commitment to volunteering.

Motivations	Affective commitment		Normative commitment		Overall commitment	
	β	p	β	p	β	p
Environment	0.13	0.052	−0.08	0.246	0.06	0.361
Career and learning	−0.01	0.854	0.07	0.290	0.03	0.698
Community	0.16	0.042	0.28	0.000	0.27	0.000
Escape and exercise	−0.05	0.502	−0.06	0.441	−0.04	0.585
Social interactions	0.33	0.000	−0.07	0.338	0.21	0.003
Ego defense and enhancement	0.06	0.411	0.23	0.023	0.13	0.072

The more volunteers wanted to socialize with others, the more they were emotionally attached to, identified with, and got involved with volunteering (affective commitment) and were likely to continue to volunteer under circumstances they would otherwise be tempted not to do so (overall commitment). Similarly, the more volunteers wanted to experience and build and enhance community, the more they affectively committed to volunteering, felt obligated to volunteer (normative commitment), and held an overall commitment to volunteer. The more volunteers wanted to feel less guilty about the harm, humans cause to the environment (protect the ego against negative features of the self) and to make a difference in that respect (volunteer to enhance personal affect by feeling less guilty), the more they were normatively committed to volunteer. The motivation to help the environment was a marginal predictor of only one commitment dimension: affective commitment.

The motivations to interact socially and to build or enhance community had significantly positive moderating effects on the environment's influence on affective and overall commitment (Table 4). The motivation to protect and enhance the ego significantly moderated the effect of the motivation to help the environment on affective, normative, and overall commitment. The desire to help the environment was a significant predictor of volunteers' commitment only when volunteering activities met their desires to socially interact, fortify their senses of community, and defend and enhance their egos.

Overall commitment was significantly correlated with frequency of volunteering in general over the 12 months preceding the study (Spearman's $r = 0.22$; $p = 0.001$), number of hours spent volunteering for a typical volun-

teering activity ($r = 0.17$; $p = 0.013$), and volunteering intensity for favorite stewardship organizations in the 12 months preceding the study ($r = 0.24$; $p = 0.000$).

Discussion

Our findings are somewhat consistent with 2 other studies of motivations predicting volunteers' involvement. In one study, Ryan et al. (2001) found that social interactions and project organization significantly predict the duration of volunteer involvement and that helping the environment is not a significant predictor of duration of volunteers' involvement with the organization. Asah and Blahna (2012) found that volunteers' urge to defend and enhance their egos and to interact socially with others are significant predictors of participation, whereas the environment was not a significant predictor of participation. Consistent with Ryan et al.'s (2001) findings, our results suggest that the environment is a less salient motivator of commitment to conservation volunteering than personal, social, and community motivations. That personal, social, and community motivations significantly moderated the environment's influence on commitment to conservation volunteering is a substantial finding for conservation volunteer-dependent practice. It suggests that the environment is not necessarily an unimportant motivation for commitment to conservation volunteering. However, helping the environment was an important motivator of commitment only when conservation volunteering efforts met volunteers' desires to defend and enhance the ego, socially interact, and build community.

Table 4. Motivation interaction terms as predictors of affective, normative, and overall commitment to volunteering.

Interaction term	Affective commitment			Normative commitment			Overall commitment		
	β	ΔR^2	p	β	ΔR^2	p	β	ΔR^2	p
Environment $\times$ career and learning	0.04	−0.001	0.586	0.02	0.000	0.805	0.04	0.001	0.568
Environment $\times$ community	0.22	0.028	0.005	0.13	0.010	0.110	0.23	0.033	0.002
Environment $\times$ escape and exercise	0.04	0.001	0.553	−0.10	0.007	0.168	0.003	0.000	0.964
Environment $\times$ social interactions	0.37	0.087	0.000	−0.12	0.010	0.108	0.21	0.030	0.003
Environment $\times$ ego defense and enhancement	0.15	0.014	0.046	0.15	0.014	0.055	0.17	0.019	0.018

Relational commitment to the environment has positive effects on proenvironmental intentions and behaviors (Davis et al. 2011). Similarly, overall commitment had significant positive correlations with various measures of volunteer participation and thus illustrated the commitment construct's relevance to voluntary urban conservation behaviors. That people's desire to defend and enhance egos, socialize, and build communities are more salient predictors of commitment to conservation volunteering than environmental motivations suggests that biophilia may not completely explain conservation stewardship behaviors. Homophilia—the psychological tendency to be attracted to humans—can also help us understand urban conservation stewardship behaviors. The significant interaction effects suggest that biophilia and homophilia are mutually inclusive and reinforcing sister ethics for conservation volunteerism. Volunteers will commit more to volunteering for conservation activities if such activities meet their more pertinent personal and social goals of connecting with and giving back to their communities, socially interacting with other volunteers, and defending and enhancing their egos. Organizers of volunteer-dependent conservation projects could match volunteers' personal, social, and community-oriented desires to enhance volunteers' commitment to urban conservation volunteerism.

Some scholars argue that conventional management structures may hinder volunteer engagement with environmental causes (e.g., Barnes & Sharpe 2009). Our observations of volunteers and planners and managers of volunteer-dependent activities reinforce such arguments. Volunteer events are often planned and managed in ways that ineffectively match volunteers' most salient motivations (i.e., there is little or no explicit socially interactive and community-building activities). Thus, it is likely that difficulties retaining volunteers is partially explained by conventional management practices. Most people now live in urban areas, where social relationships and consequent networks are less dense and traditional forms of community vitality are declining (Putnam 2000). Some people feel guilty about environmental problems, and others sense the absence of community in their lives. Thus, they desire opportunities for social interactions and meaningful action (Kaplan & Kaplan 2008) to protect the ego against feelings of guilt and to rebuild community and social relationships lost as a result of urbanization. These represent underused opportunities to tap into an ever-growing human resource base to meet social goals while meeting urban conservation objectives. Conservation psychology can play a significant role in these regards (Saunders et al. 2006) by providing understanding of what motivates commitment. Such understanding may enable practitioners to plan and manage volunteer events in ways that make the most salient motivations cognitively accessible to volunteers.

To motivate urbanite engagement and commitment to conservation, we believe a paradigm shift could be useful. Conservation initiatives are increasingly dependent on volunteers to accomplish goals. Traditionally, conservation practitioners used environmental problems to incite people's involvement in conservation initiatives. Practitioners could be more effective and efficient if they were to use personal and social functions, especially community motivations, as a means to secure volunteers' commitment to conservation issues. These personal, social, and community motivations could be planned to occur during, or related to, voluntary conservation efforts. For example, retention efforts could facilitate social interactions among volunteers if practitioners plan and manage volunteer activities so that they are intrinsically linked to social events where food and drinks are served and volunteers are encouraged to socialize through activities such as games. Volunteering activities could also be organized around existing communities to emphasize the community aspect of volunteering. It is worth not restricting communities to biophysical spaces; communities include communities of interests—those interested in social interactions and community building. Accordingly, conservation practitioners could broaden their interactions with other groups and organizations, such as churches and neighborhood associations, that emphasize social and community goals.

Some volunteer-dependent conservation groups understand and are beginning to inculcate community in their operations and in portrayals of their organizations. Tag lines such as “community and conservation” and “building communities through environmental service” appear on websites of such organizations. Some organize and host annual breakfast events. Although these are steps in the right direction, a lot more could be done to sustain volunteers' commitment. Volunteer-relevant social and community events are insufficiently frequent and often large and formal. Such events may not effectively facilitate meaningful social interactions and, consequently, community connections. Furthermore, when held at times and locations that are too temporarily and spatially distant from the immediate communities and volunteering activities, the interaction effects of personal, social, and community motivations on environmental motivations may be difficult to cognitively retrieve and deploy to influence commitment.

Effective functional matching of volunteers' motivations and their interactive effects to enhance their commitments requires such events be more spatially localized around specific communities and more temporarily proximal to volunteering events. Furthermore, conservation practitioners could use clinical validating communications, during and beyond volunteering events, to match volunteers' desires for ego defense and enhancement. By clinical validation, we mean acknowledging and validating people's feelings of guilt, for instance, while

articulating how volunteering enables the buffering of such feelings. For example, statements such as *we all feel guilty for the problems we cause to the environment but, thankfully, volunteering gives us the chance to make a difference* may make volunteers' desires for ego defense and enhancement more cognitively obtainable. The essence of motivationally based persuasive planning and management of volunteer events to secure volunteers' commitment lies, not just in organizing and hosting volunteer events, but in the efficient and effective use of communication and practices that encourage social interactions. Practitioners in volunteer-dependent conservation entities could, as an integral conservation goal, make volunteering events more people-centered in order to meet the secondary and perhaps more important goal of conservation.

Although conservation biologists have made significant contributions to the understanding of the biophysical aspects of conservation, conservation practice is a matter of influencing human behavior and is largely the scientific domain of conservation psychologists (Clayton & Myers 2009; Schultz 2011). In addition to conserving the environment, a formidable task in and of itself, conservation biologists are called upon to educate and engage the public (e.g., Stokes et al. 2008). Education alone does not necessarily lead to changes in behavior; rather, motivation is the primary factor in behavioral change (McKenzie-Mohr 2011). Conservation cannot be achieved without behavioral change (Schultz 2011). Thus, calls for education as the means to conservation ends are somewhat misplaced. Understanding and affecting the functions that motivate proconservation behaviors could be considered at least as important as education in efforts to achieve sustained conservation (Saunders 2003; Clayton & Brook 2005). But more research is needed. For example, our study has several limitations. We focused on committed volunteers in a region where general volunteerism is high; different motives may apply to less-committed volunteers and in other regions. The moderate variance explained for different commitment types speaks to this limitation—the motivations of committed volunteers may be different from other volunteers and undoubtedly many other factors are likely to affect commitment to conservation volunteerism.

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Supporting Information

The demographic information for key informant interviews, survey participants, and the survey, are available online (Appendix S1). The authors are solely responsible for the content and functionality of these materials. Queries (other than absence of the material) should be directed to the corresponding author.

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