Abstract

Volunteers support wildlife conservation, but engagement is often limited and short-term. This article examined the demographics, commitment, retention, and turnover among volunteer managers of bluebird nest boxes. Based on a survey, respondents were older, more educated, and more rural than the general population. Volunteers committed large amounts of time and money. Motivations to manage a bluebird trail were conserving bluebirds, experiencing nature, and seeing bluebirds; key benefits were enjoyment, health, and experiencing nature. Respondents will stop their activities eventually, citing mobility, time, and health constraints, but had taken little action to recruit replacements. To address turnover among bluebird trail managers, conservation organizations should diversify the volunteer base, offer flexible commitment levels, meet expectations, maintain motivations, and support the transition from retiring volunteers to new volunteers. The article's results will be helpful in recruiting and managing volunteers for other wildlife or natural resource conservation projects.

Keywords: bluebirds, volunteers, stewardship, commitment, turnover

Introduction

Volunteers provide valuable services to science and wildlife conservation (Greenwood, 2007; Holroyd, 1987). Many conservation agencies depend on volunteers to support their work and some conservation programs would not exist without volunteer contributions (e.g., Christmas Bird Count, North American Breeding Bird Survey). It is important to develop a deep understanding of the demographic characteristics of volunteers, motivations for volunteering, benefits from volunteering, specific volunteer contributions, and of the sustainability of the conservation projects in light of these volunteer characteristics (Campbell & Smith, 2006; Greenwood, 2007).

Volunteer commitment and turnover

Researchers have written about volunteers in diverse settings, time periods, and target groups (Gidron, 1985; Grano, Lucidi, Zelli, & Violani, 2008; Jamison, 2003; Omoto & Snyder, 1995). Penner (2002, p. 448) defines volunteerism as "long-term, planned, prosocial behaviors that benefit strangers and occur within an organizational setting." The core components of volunteerism are broadly applicable to wildlife stewardship volunteers: they usually participate on a regular basis, they have thought about their involvement, they help others (in this case, other species) rather than themselves, and they often participate with the support of an organization.

In general, most volunteers develop their values about volunteering during their youth and are strongly influenced by role models throughout their lives (Gotlib Conn & Barr, 2006). Decisions to volunteer are complex, but are often influenced by age, gender, affluence, occupational status, personality type, and attitude (Gotlib Conn & Barr, 2006; Martinez & McMullin, 2004). There are many types of motivations and benefits related to volunteering, including skill development, well-being, sense of belonging, integration into a new area, and

more (Volunteer Canada, 2018). Once engaged, some volunteers are strongly committed to their causes, in terms of the amount and frequency of time given (Omoto & Snyder, 1995).

For context to this study, the Federal, Provincial, and Territorial Governments of Canada (2014) reported that 13% of Canadian adults volunteered in nature conservation away from their homes in 2012, including actions such as restoring or cleaning habitats, monitoring species, teaching others, and managing conservation organizations. These volunteers donated an average of 33 days per year and spent an average of 556 CAD per year; 59% of the volunteers reported that their involvement was stable, and 25% reported that their involvement had increased over the past five years. However, volunteering for nature conservation volunteers occurs in many countries and environmental contexts (Brightsmith, Stronza, & Holle, 2008).

Wildlife stewardship volunteers share many of the same characteristics as general volunteers. Guiney and Oberhauser (2009) found that most stewards had developed a strong connection to nature before they turned 15 years old through activities such as camping, family activities, birding, living near nature, and watching wildlife. Regarding motivations, volunteers with high and medium rates of participation typically want to learn, be close to nature, be outside, give back, have fun, improve nature, educate others, be with similar people, meet new people, get exercise, get away, and develop a network (Bowser et al., 2013; Guiney & Oberhauser, 2009; Hobbs & White, 2012; Hvenegaard & Fraser, 2014; Tremblay & Hvenegaard, 2008). Typical park volunteers have strong pro-environmental attitudes, identify with nature, and are attached to local places (Dresner, Handelman, Braun, & Rollwagen-Bollens, 2015). For ecological restoration volunteers, the key benefits were getting away, engaging in meaningful action, making new friends, developing group cohesion, growing personally, increasing confidence, improving fitness, and increasing one's fascination with nature (Miles, Sullivan, & Kuo, 1998). Factors that increased benefits of

volunteering were longer involvement, increased frequency of participation, higher levels of commitment, and assignment of specific responsibilities (Miles et al., 1998).

Of particular interest for the present study is how long the volunteers stay involved. Sustained volunteerism is valuable to a wildlife stewardship organization or project because volunteers gain substantial long-term benefits, become invested in the program, receive training, learn local circumstances, and develop skills that can increase the impacts of their work. Sustained volunteerism is influenced by the volunteer role identity, initial motivations, social norms, personal beliefs and values, prosocial personality, organizational attributes, relationship with the organization, and demographic characteristics (Penner, 2002). Volunteer commitments may be constrained in initial participation, frequency, intensity, or duration by barriers such as time available, relevance, costs required, forgetting commitments, technological knowledge required, skills needed, relocation, illness, or dissatisfaction (Frensley et al., 2017; Hobbs & White, 2012; Jamison, 2003). If a volunteer begins a commitment, but then stops, this starts a process of turnover which involves substantial time, energy, and financial costs of finding, training, supporting, and retaining a new volunteer (Jamison, 2003). Retention, or the "ability to keep volunteers involved" (p. 117), is tied closely to turnover. Gidron (1985) identified variables that distinguished volunteers that stay versus those that leave, including adequate preparation for the tasks, achievement of tasks, positive relationships with other volunteers, and satisfaction with the tasks themselves.

Turnover is an issue for many organizations (Chacón, Vecina, & Davila, 2007), including wildlife stewardship projects that are dependent on volunteers or that have urgent or time-specific tasks required. For Purple Martin conservation, many volunteer stewards are in the senior age category, resulting in ongoing attrition (Cousens, Lee, Darling, Finlay, & Gillespie, 2005). Greenwood (2007) notes the same concern but suggests an ageing cohort is a result of natural growth patterns. Older environmental volunteers have a strong

environmental commitment, particularly to a lasting legacy (Warburton & Gooch, 2007). People involved in fishing, hunting, and wildlife watching recreation, the most likely participants in wildlife stewardship projects, are considerably older than the average citizen (U.S. Department of the Interior, U.S. Fish and Wildlife Service, and U.S. Department of Commerce, & U.S. Census Bureau, 2014). Volunteer turnover in citizen science projects is different from more active versus less active volunteers, and each group requires different amounts of feedback and support (Kobori et al., 2016). Interestingly, Project FeederWatch in Canada uses a self-funding model for the project, but even with an annual retention rate of 70%, still requires a recruitment of 3,000-4,000 people per year (Bonter, 2012).

Caring for species through stewardship is central to maintaining healthy bird populations (Rosenberg et al., 2016). The importance of volunteers to nest box monitoring is evident from a case study of Purple Martins (*Progne subis*) in British Columbia, Canada. Purple Martins are obligate cavity nesters and aerial insectivores (Darling et al., 2004). Due to competition for nesting sites from invasive species, Purple Martin populations in British Columbia declined to just five observed breeding pairs in 1985. By 2004, between 50 and 70 volunteer stewards provided approximately 1,100 nest boxes to Purple Martins, resulting in populations rebounding to 300 observed breeding pairs (Cousens et al., 2005; Darling et al., 2004). Moreover, continual maintenance was required to ensure the success of the nest box program. After cleaning out nest boxes at one martin colony that had fallen into disrepair, the number of breeding pairs jumped from 21 to 31 pairs in just one year (Cousens et al., 2005).

Bluebird conservation and nest boxes

The populations of many landbird species have declined sharply and even relatively abundant species are at risk of destabilization (Rosenberg et al., 2016). In particular, populations of aerial insectivores have declined more rapidly than other bird species (Nebel, Mills, McCracken, & Taylor, 2010). The Mountain Bluebird (*Sialia currucoides*), the Eastern

Bluebird (*S. sialis*), and the Western Bluebird (*S. mexicana;* hereafter, collectively referred to as bluebirds) are North American songbirds that are both aerial insectivores and obligate cavity nesters that will readily nest in human-made nest boxes (Bent, 1964; Daniel et al., 1992; Power & Lombardo, 1996).

The key threats to bluebird populations are pesticides, habitat change, and competitors (Nebel et al., 2010). Specifically, pesticides affect bluebird populations by reducing the availability of insect prey. Habitat changes through the human removal of older trees reduces nesting cavities for bluebirds - a key limiting factor for bluebird populations (Newton, 1994; Pinel, 1980; Power, 1975; Power & Lombardo, 1996; Purcell, Verner, & Oring, 1997; Zeleny, 1976). Native cavity nesters, such as bluebirds, have lower reproductive success due to invasive species that outcompete native species for breeding cavities; already, these nest site competitors are implicated in the extinctions of some cavity nesting species (Robinson, Walshe, Burgman, & Nunn, 2017). In the 1960s, bluebird populations declined alarmingly due to competition for nesting habitat with House Sparrows (*Passer domesticus*) and European Starlings (*Sturnus vulgaris*; Daniel et al., 1992).

Thanks to dedicated volunteers who established and managed nest boxes (Daniel et al., 1992), along with some natural and human-induced recovery of tree-nesting habitat, bluebird populations have rebounded in certain areas (Gowaty & Plissner, 1998; Pinkowski, 1976). Bluebird numbers generally increase when nest boxes are available and properly managed (Campbell et al., 1997; Munro & Rounds, 1985). Bluebirds appear to be very reliant on nest boxes, with 85% of reported nesting locations occurring within nest boxes (Campbell et al., 1997), and increased nesting success and number of fledglings associated with the use of nest boxes versus natural cavities (Purcell et al., 1997). Nest box design, placement, and management, such as blocking entrance holes until bluebirds return from migration, annual cleaning, or removing invasive species, also contribute to bluebird nesting success rates

(Dhondt, 2012; Kibler, 1969; Pearman, 2005). Managing a bluebird trail (an accessible, linear series of nest boxes that can be checked regularly by a volunteer wildlife steward) contributes to bluebird conservation (Davis & Roca, 1995; Pearman, 2005; Zeleny, 1976).

Despite the current threats, all three bluebird species are currently listed as secure in Canada (Environment Canada, 2011) and as "least concern" internationally (BirdLife International, 2016) because they have large ranges and relatively high abundances. Eastern and Western Bluebird populations have increased 178% and 36%, respectively, between 1970 and 2014, but Mountain Bluebird populations have decreased by 44% over the same time period (Environment Canada, 2011). To stress the importance of stewardship responsibilities in maintaining healthy populations, the Mountain Bluebird is designated as a US-Canada Stewardship species due to its smaller population and negative population trend compared to other the bluebird species (Panjabi, Blancher, Dettmers, & Rosenberg, 2012).

Given the need for ongoing stewardship activities to support bluebird conservation and concern about retention and turnover among volunteer bluebird trail managers, the research question driving this project is: What are the key variables driving commitment, retention, and turnover of volunteer bluebird trail managers?

Methods

Data collection proceeded on two fronts. First, we surveyed participants of the North American Bluebird Society (NABS) Conference held July 8-10, 2016 at the Ellis Bird Farm near Lacombe, Alberta, Canada; this conference included 82 Canadians from 5 provinces and 40 Americans from 17 states (S. Westervelt, personal communication, January 14, 2017). The NABS is "a non-profit education, conservation and research organization that promotes the recovery of bluebirds and other native cavity-nesting bird species in North America" (NABS, 2018). The NABS holds a major conference every three to four years. We invited all participants aged 18 years and older to take part in the study. Given that participants travelled

from as far away as Ontario and Florida to attend, their level of commitment to bluebird stewardship was likely high. We analyzed data only for those respondents who managed a bluebird trail. Of the 100 surveys that were returned (89% response rate), 73 participants managed a bluebird trail and were considered in the analysis.

For the survey, we adapted questions from other studies about environmental volunteers (Asah, Lenentine, & Blahna, 2014; Caissie & Halpenny, 2003; Dresner et al., 2015; Hunter & Rollins, 2010; Measham & Barnett, 2008; Miles et al., 1998). Respondents self-administered a survey consisting of eleven close-ended questions and six open-ended questions. The questions focused on:

- Commitment: how respondents support bluebird conservation, number of nest boxes managed, activities conducted along the bluebird trail, days involved per year, amount of money spent per year, and years involved
- Motivations: reasons for managing the trail
- Benefits: ways in which respondents personally benefit from trail activities
- Future plans: number of years respondents expected to continue managing the trail and why
- Barriers: constraints to managing the trail, reasons for giving up the trail eventually, and plans for the trail after 'retirement'
- Demographics: age, highest level of education, gender, and residence (rural versus small towns [< 10,000 people] and cities [> 10,000 people])

Second, we used snowball sampling (Newing, 2011), a form of purposive sampling (Vaske, 2008), to identify bluebird trail managers in central to southern Alberta, starting with three known bluebird trail managers in central Alberta. By following up on referrals, we invited nine people to participate in semi-structured interviews in person, on the phone, or through email. Personal and phone interviews were recorded and transcribed. The interviews

focussed on motivations, commitment, constraints, potential for new bluebird trail managers, knowledge of other managers giving up their trails, how to engage others in bluebird trails, and benefits to self, society, and birds. The response rate was 100%. These interviews ranged in length from 30 to 120 minutes. The results from this sample were not used to indicate trends or population level summaries, but only to provide a deeper context about motivations, commitment, constraints, and potential turnover for the bluebird trail managers. In particular, as explained by Corden and Sainsbury (2006), we selected quotes for three purposes: (1) to deepen understanding of the categories used; (2) to illustrate the breadth and depth of responses for some of the categories identified; and (3) to allow respondents an opportunity to speak for themselves in the research analysis process.

For quantitative data from the conference surveys arising from the first part of the study, we analyzed the data with SPSS 24.0. For closed-ended questions with pre-set categories, we entered coded data into our database directly. To test for differences between groups, we used *t*-tests. To examine correlations, we used the Pearson regression analysis. To examine relationships among nominal variables, we used Chi-square tests. For comparisons, statistical significance was set at $p < 0.05$.

For the qualitative data with open-ended questions from both parts of the study, we coded the open-ended questions for common themes, based on Newing (2011). This involved reading responses, initial annotations for themes, review with the co-authors for ambiguities and redundancies, and finalizing the codes. Some categories were established in the literature, while other categories emerged after a full review of the data (Newing, 2011). For closed-ended questions with pre-set categories, we entered coded data into our database directly.

Results

Demographics

Of the 73 respondents to the survey, gender was split evenly between males and females. The mean age was 68.3 years (Table 1), which was substantially older than the mean age for the general Canadian and American populations. Respondents were more educated than the general Canadian or American populations, with 23% having completed some form of graduate-level education and 27% having completed a university degree (Table 1). Respondents were predominantly urban (77%), but less so than general Canadian and American populations.

Of the nine respondents to detailed interviews, seven were men and two were women. The mean age was 64.4 years. Regarding education, two respondents had some university, two had a college diploma, one had a bachelor's degree, and four had a graduate degree. In summary, bluebird trail managers were older, more educated, and slightly more rural than the general population.

Commitment

The 73 respondents managed about 8,320 nest boxes in total to benefit bluebirds. The mean number of nest boxes managed per trail was 118.9, but the mode was 78 (range = 2 - 1,052; Table 2). The mean time invested in a bluebird trail per year was 34.7 days (mode = 24), but some respondents invested greater than 200 days per year. The mean amount of money spent on bluebird trail activities per year was 529 CAD (mode = 300 CAD), mostly resulting from travel expenses (e.g., gasoline), but some spent more than 3,000 CAD. Having already invested a mean of 18.4 years on their bluebird trails, respondents planned to spend a mean of 14.8 more years managing their bluebird trails. Age was positively correlated with the number of years operating a bluebird trail ($r = .494$, $p < .001$), but negatively correlated with the number of years volunteers planned to continue operating a trail into the future ($r = -.576$,

$p < .001$). Furthermore, urban residents had operated their trails for less time (25.5 years) than the combined group of rural and small town residents (16.5 years; $t = 2.562$, $p = .013$). The number of boxes, days per year, and money spent on the trail per year were not significantly related to age, gender, education, and place of residence.

Participants supported bluebird conservation in several ways. Most participants reported educating people about bluebirds (81%). Most were members of (84%), donated money to (59%), or volunteered for (51%), a bluebird organization. Similarly, most participants maintained nest boxes on their trails (93%), put up new nest boxes (85%), and/or recorded bluebird nesting data (85%). Fewer participants banded bluebirds themselves (37%), gave tours of their bluebird trails (34%), helped others band bluebirds (22%), provided mealworms (a supplemental feeding technique during very wet or cold weather when bluebirds cannot feed; 16%), or coordinated nest box monitors (3%). Some participants conducted research about bluebirds (27%). Men were more likely to report conducting research along their trails than women (39% versus 17%; $\chi^2 = 4.431$, $p = .035$), although banding bluebirds and recording nesting data was not significantly influenced by gender. As one respondent said, “banding would provide some sense of identification and tracking the bluebirds’ activity.” Banding would sort of put a name to each bird, to get to know their history and continuity form year to year.” Overall, bluebird trail managers have committed substantial amounts of time, money, and effort on various bluebird conservation activities, particularly the maintenance of bluebird nest boxes.

Motivations and Benefits

When asked the main reasons for managing a bluebird trail, most respondents mentioned conserving bluebirds (“biodiversity is key to the sustainability of our ecosystems”), experiencing nature (“I love being outdoors”), or seeing bluebirds (“that spring, I was going somewhere with a group and I spied this male bluebird sitting on a post

and it was the most beautiful bird"; Table 3). Far fewer respondents mentioned collecting data, teaching, making a difference, enjoyment, or mental stimulation. From the in-depth interviews, other motivation categories arose. Some indicated the influence of friends, teachers, family members, local residents, or bluebird conservation organizations, the desire to maintain habitat, and wanting to fit into a philosophy of land management.

When asked about the ways that they personally benefit from managing bluebird trails, most respondents spoke about the categories of (Table 3) satisfaction or enjoyment ("Getting around the trails regularly and enjoying the beautiful birds"); experiencing nature ("The birds are flying around and you start to forget that you are on a farm--you're part of a whole ecosystem"); exercise and health ("It's interesting, plus good exercise…. Monitoring is at least a 2 mile walk"); mental stimulation (I get to "be attentive to the nest box environment"); seeing bluebirds ("It's so nice to be outside and see the birds flying around"); stress relief ("It forces me to get out more and relax while enjoying nature"); making a difference ("Bluebirds are lovely and deserve to be preserved"); and social interaction ("I get to meet and talk with the land owners, get to know them a bit and what is happening in their lives").

In summary, the key motivations to manage a bluebird trail were conserving bluebirds, experiencing nature, and seeing bluebirds, while the prominent benefits were satisfaction or enjoyment, exercise and health, and experiencing nature.

Turnover

The most frequently mentioned constraint for managing bluebird trails was time (56% of survey respondents) since the bluebird season corresponded with competing interests such as recreational activities, family, or work. Poor fitness and health (16%), long travel distances (11%), difficult terrain (5%), lack of assistance (5%), and poor weather (4%) also constrained bluebird trail managers. Bluebird volunteers suggested some ideas to support new or existing

trail managers, including the provision of recommendations about nest box designs and building materials.

When asked about the most common reason that they will eventually give up their bluebird trail, respondents mentioned poor mobility (45%), poor health (23%), getting older (22%), moving their place of residence (4%), or an inability to drive (3%). Other participants stated that only death (8%) would prevent them from managing a trail. For example, one interview respondent said "as long as I can walk and breathe I still want to be able to maintain it. I fear not knowing what will happen to my trail."

The future of a bluebird trail after a manager's retirement was often unclear; only 18% of respondents had recruited someone to take over, 69% planned to recruit someone, and 14% planned to give up their trail. One respondent was realistic about finding a replacement: "For as long as we are able, we will manage the trail, but if we do have to move away, given our age, we will likely have to come back and clean them out every year, but if we don't do anything, what happens, will happen." A few respondents reflected on the experiences of other trail managers who had to give up their trails. In one case, "The trail was abandoned with nobody cleaning or repairing the nest boxes. The roofs blew off or [the boxes] became full and are no longer used by the birds." In another case, the trail was "taken on by the monitors who have our old trail." In yet another case, there was some middle ground: "Some was inherited by me, and some was inherited by another person, but the rest was left abandoned."

For those who had successfully recruited a replacement manager already, common methods of recruitment included finding volunteers from bluebird or nature-related organizations (36%), family members (18%), tours and promotions (18%), or friends (18%). Of those that planned to recruit someone to take over their trail, 37% gave no plan on how they were going to enlist a replacement. Of the 36 participants that did outline a plan,

recruiting from a bluebird society or nature organization was most commonly cited (31%), followed by recruiting through tours and promotions (25%), mentoring (22%), or recruiting family members (11%). One respondent said that he is "constantly looking for people in the neighbourhood who are interested in taking over some of my boxes," but is realistic since "125 boxes is a long day of monitoring." Another respondent was frustrated with a lack of communication with the local bluebird association: "We asked the bluebird trail association to recruit a replacement, which resulted in several years of confusion and crossed wires. At one point, the association recruited a monitor, but failed to inform us, and we recruited another monitor." A different respondent focused on recruiting in schools and from nature organizations: "I think what I need to do is make more contacts within the school. As I have done trips with homeschoolers before... you know kids can't do this themselves, they need an adult take them to show them stuff. I suppose if you could form a nature club and have moms and dads with their kids involved that would be a good thing." Still another respondent who runs broad-based farm tours has mentioned the bluebird trail to tour participants.

The dominant constraints to managing, or reasons to give up managing, a bluebird trail were available time, poor health or mobility, and long travel distances. Some trail managers have thought about the future of their trail, with potential recruitment strategies.

Discussion and Implications

The primary goal of this article was to develop a deeper understanding of people volunteering as bluebird trail managers, in terms of demographics, commitment levels, motivations, benefits, and potential turnover. These results have implications for supporting existing trail managers, recruiting new participants, and dealing with the potential transition from outgoing to incoming managers. The results are also relevant to recruiting and managing volunteers on other environmental conservation projects (e.g., bird species such as

Purple Martins that require well-maintained nest boxes or wildlife species with very specific life history requirements).

Demographics

The demographic characteristics of bluebird trail managers (i.e., even gender split, somewhat older, more educated, and slightly more rural) are fairly similar with other conservation volunteer populations, but with some differences. For example, for park stewards in Portland, Oregon, volunteers had an even gender split and were highly educated, but were younger than the current study (Dresner et al., 2015). Among master naturalist groups in Minnesota and California, volunteers were slightly older (but younger than this study) and more educated, but had more women than in the general population (Guiney & Oberhauser, 2009; Merenlender, Crall, Drill, Prysby, & Ballard, 2016). For nature conservation volunteers in Canada, the gender split was almost even, but volunteers were slightly older, more educated, and more rural than the Canadian population (Federal, Provincial, and Territorial Governments of Canada, 2014); these characteristics correspond closely to the bluebird trail manager population.

Older volunteers are common in environmental stewardship activities (Warburton & Gooch, 2007), and older volunteers are reliable and experienced (Formosa, 2011). Kouri (1990) recommends that recruitment strategies for older volunteers should recognize appropriate moments in a volunteer's life, namely before or shortly after work retirement, and should target locations well used by older volunteers. Kouri (1990) suggests that organizations match volunteers to their jobs, develop clear job descriptions, provide effective training, and recognize volunteers meaningfully. Many current trail managers sought to recruit younger replacements, albeit with mixed success, suggesting the need for other strategies (e.g., gaming technology, online reporting; Bowser et al., 2013). For any target age, recruitment strategies should be focused, long-term, and supported with training and

recognition (Merenlender et al., 2016). Organizations should recognize that volunteer motivations, beliefs, and attitudes change over time (Grano et al., 2008).

The high education levels among bluebird volunteers suggests that, when recruiting among specific groups, explaining reasons to get involved and providing ongoing updates will be important because educated people tend to desire explanations before engaging in new behaviours (Ballantyne, Packer, Hughes, & Dierking, 2010; Hvenegaard, Shultis, & Butler 2009; Wilson & Tisdell, 2001). Even though other wildlife conservation user groups have a lack of gender diversity (Merenlender et al., 2016), this study showed an even split between genders. Thus, any recruitment or support campaigns should target both genders.

Commitment

Bluebird trail managers invested large amounts of time and money into their stewardship activities, amounts that were similar to investments by other nature conservation volunteers in Canada for all of their conservation activities (Federal, Provincial, and Territorial Governments of Canada, 2014). The high levels of commitment by bluebird volunteers is laudable, but potentially daunting to new recruits who only want to participate at lower levels or only sporadically. Recruitment strategies should consider offering opportunities with varying levels of commitment to new trail managers, so new recruits can select an opportunity that matches their availability.

Bluebird trail managers focused their bluebird conservation on education, organization membership, financial donations, and volunteer time. Along their bluebird trails, most respondents maintained nest boxes, put up new nest boxes, and collected nesting data. For studies of other volunteer programs, common actions include citizen science, education, stewardship, activism, restoration, and sustainable living (Measham & Barnett, 2008; Merenlender et al., 2016; Weston, Fendley, Jewell, Satchell, & Tzaros, 2003). Among their typical activities, Virginia Master Naturalists rated the ones with greatest impact to be

stewardship, followed by citizen science and educating and engaging the public (Merenlender et al., 2016). Volunteer commitment levels can also change over time (Ryan, Kaplan, & Grese, 2001). For example, new volunteers might want to start with small commitments or the commitments of older volunteers might be limited by health constraints.

Motivations and Benefits

For bluebird trail managers, there was considerable overlap between the categories for motivations (i.e., conserving bluebirds, experiencing nature, seeing bluebirds) and benefits (i.e., enjoyment, experiencing nature, exercise and health). This pattern of overlap is important because most original motivations had close matches with the resulting benefits, with three exceptions. The conservation category was more common as a motivation than as a benefit, but enjoyment and exercise were less common as a motivation than as a benefit. Identifying these mismatches can help provide accurate information to potential recruits (Hvenegaard & Fraser, 2014). Higgins and Shackleton (2015) also found that enjoyment was a primary benefit for volunteers in civic environmental organizations. Similar to changing commitment levels, volunteer motivations also change over time (Grano et al., 2008). Given that some bluebird volunteers have managed trails for a long time period, their motivations might have changed as well. For example, new volunteers might be motivated by an important mentor, but long-time volunteers might be more motivated by bluebird conservation. To attract younger volunteers, organizations should address their unique motivations, such as using new technology, competition, success, learning, and the public good (Bowser et al., 2013).

Keeping trail managers motivated is critical to the ongoing expansion and maintenance of bluebird trails to benefit bluebird populations. Most participants cited conservation reasons as a motivating factor for managing bluebird trails (e.g., providing nesting sites for bluebirds and conserving their environment). The motivation to conserve the

local environment is mirrored in other studies of conservation-related volunteers (Bramston, Pretty, & Zammit, 2011; Caissie & Halpenny, 2003; Duff & Logan, 2008; Hunter & Rollins, 2010; Jacobsen, Carlton, & Monroe, 2012; Kidd, Kidd, & Zasloff, 1996; Measham & Barnett, 2008; Merenlender et al., 2016; Selinske, Coetzee, Purnell, & Knight, 2015; Weston et al., 2003).

Turnover

Even though bluebird stewards are highly committed to their volunteer work, the most important constraints were time, poor health, and difficult terrain. Similarly, the most common reasons that respondents will have to give up their bluebird trails were poor mobility, poor health, and ageing. For Canadian nature conservation volunteers, the top barriers or reasons to not volunteer were similar: lack of time, being unaware of opportunities, personal choice, health, and cost (Banack & Hvenegaard, 2010; Federal, Provincial, and Territorial Governments of Canada, 2014). Frensley et al. (2017) reported that the key reasons for dropping out of a project were time commitments, struggles with online data reporting commitments, lack of tangible impact, and limited social interactions. Frensley et al. (2017) also found that volunteers were more likely to persist in a project if they had more experience prior to participating in a citizen project and had higher gross incomes than those with less experience and smaller incomes. Gidron (1985) indicates that preparation, achievement, relationships with other volunteers, and self-expression on the job predicted retention in a volunteer position. In other studies, the key variables indicating retention were satisfaction, pre-service training, effective volunteer management, in-service training, and work challenge (Ando & Hirose, 1999; Jamison, 2003; Skoglund, 2006).

Interestingly, a few respondents would not consider giving up their trail until they died, but most respondents recognized that they would have to give up their trail in the next 15 years. Very few respondents had recruited someone to take over; far more respondents

planned to recruit someone (but with little thought about how), and only a few planned to give up their trail. The methods of planned or actual recruitment were finding volunteers from bluebird or nature-related organizations, family members, tours, or friends. For other groups, many older volunteers want to pass on their environmental stewardship activities to a younger generation, which would involve training, mentoring, educating, and inspiring incoming volunteers (Warburton & Gooch, 2007).

If actual and anticipated turnover continues, as suggested by the ageing nature of bluebird trail managers, many bluebird trails could become abandoned. Similar trends of aging stewards are being observed in Purple Martin stewards in British Columbia, coupled with lack of time and eroding interests of volunteers that could result in colony sites becoming neglected (Cousens et al., 2005).

Given that bluebird volunteers are ageing, there are important implications for both recruiting new volunteers and managing existing volunteers. Hager and Brudney (2011) suggest that recruitment should focus on clarifying responsibilities and identifying volunteer opportunities, in the context of varying motivations associated with the project. If recruitment appeals are relevant to the motivations of potential volunteers, those volunteers are more likely to act in favor (Asah, Lenentine, & Blahna, 2014). In general, these broad motivation categories relate to skills, affiliation, a way of life, achievement, and power (Connors, 2011). For bluebird volunteers, the motivations related to achievement (conservation) and a way of life (experience nature). However, as Miles et al. (1998) note, every volunteer is unique; thus, strategies must be flexible and tailored to specific subgroups.

For managing existing volunteers, most successful volunteer organizations provide ongoing education, ensure effective project management, clarify goals, share information freely, recognize volunteers, provide feedback, keep current with technology, make impacts visible, and promote social interactions (Connors, 2011). Since most bluebird volunteers were

part of a larger bluebird organization, these organizations can play a vital role in supporting their volunteers (e.g., providing tips for managing trails, connecting volunteers). For volunteers who are not members of an organization, they can be connected in other ways (e.g., internet, workshops). It is important to continuously understand the characteristics of a volunteer group to effectively recruit and manage them (Warburton & Gooch, 2007). When faced with a similar turnover dilemma regarding Purple Martin stewards, Cousens et al. (2005) recommended ongoing communications between volunteers and coordinators, as well as reminder notices, a program newsletter, and volunteer appreciation awards to sustain volunteer motivation. Such communications should highlight the tangible impacts, both positive and negative, of bluebird stewardship efforts (e.g., Measham & Barnett, 2008), since volunteers want to be part of meaningful projects (Miles et al., 1998).

Ongoing success of bluebird trails will require attention to inevitable turnover. When turnover occurs with bluebird trails on public land (e.g., road allowances), recruitment strategies have to address the characteristics of the new volunteer (e.g., motivations, abilities, and constraints). However, when turnover occurs with bluebird trails on private land, strategies also have to address ongoing access. This may be one reason why ageing bluebird volunteers want to recruit family and friends into bluebird stewardship roles. In addition, even though bluebird volunteers want to recruit much younger replacements, their peer groups will most likely be of a similar age. Recruiting replacement volunteers who will likely retire shortly after recruitment is not a problem; it just means that recruitment will have to occur more frequently for the same trail. Even better, to diversify the volunteer base, recruitment strategies should target participants from across the demographic, commitment, and motivational spectrums.

Limitations and Future Research

Overall, bluebird trail managers were older, more educated, and more rural than the general population. They committed large amounts of time and money to stewardship activities. Volunteers were motivated to conserve bluebirds, experience nature, and see bluebirds; the major benefits were enjoyment, health, and experiencing nature. The key constraints to managing a bluebird trail were mobility, time, and health. As turnover occurs among bluebird trail managers, wildlife conservation organizations can help recruit new volunteers and manage existing ones. Recruitment and management strategies should help diversity the volunteer base, be flexible in commitment levels, meet volunteer expectations, maintain motivations for experienced volunteers, and support the transition of managing a bluebird trail from a retiring volunteer to a new recruit.

There are some limitations to this article. First, given that data collection for the survey occurred at a conference involving considerable travel, sampling was skewed to those able to afford the time and cost of travel. This likely resulted in a sample that was highly affluent and already committed. Similarly, the respondents participating in detailed interviews came from central and southern Alberta, likely resulting in a focus on issues and topics relevant to this region, but might have neglected topics important to bluebird stewards from other parts of the continent. Furthermore, it is difficult to draw out broader principles for managing wildlife volunteers because we only investigated a single type of wildlife volunteer.

Future research should examine the effectiveness of various methods of recruiting younger generations of bluebird trail managers, and of various methods of addressing the constraints identified by current managers (i.e., time and financial commitments). Other research should examine the role of bluebird or wildlife conservation organizations in recruiting and supporting bluebird stewards. These organizations can play many roles in

meeting the needs of stewards, including skill development, social connection, connection to place, and sharing of tangible results (Greenwood, 2007). In addition, it would be valuable to identify which actions from bluebird organizations to support or recruit volunteers were most efficient and effective.

Funding

This work was supported by the University of Alberta's Endowment Fund for the Future – Support for the Advancement of Scholarship Research Fund.

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Table 1.

Demographic characteristics of bluebird trail managers.

Category	Bluebird Trail Managers	Canadian[a]	American[b]
Mean age (years)	68.3	40.6[a]	37.3[d]
Gender (% of population)			
Male	50	51	51
Female	50	49	49
Highest level of education (% of population)			
Below high school	0	13	12
High school	14	23	30
Some post secondary	8	17	18
College or 2 yr diploma	28	21	10
University degree or 4 yr diploma	27	19	20
Graduate (PhD, Master's)	23	7	11
Residence (% of population)			
Urban	77	81	81
Rural	23	19	19

[a]Statistics Canada (2011a); Statistics Canada (2011b); [b]United States Census Bureau (2012).

Table 2.

Annual commitment of bluebird trail managers.

Variable	Mean	SD	Median	Range
Number of nest boxes managed	118.9	186.8	78	1,050
Number of days per year invested in trail	34.7	38.8	24	249
Money spent on bluebird trail per year (CAD)	529.0	643.3	300	3,000
Years managing bluebird trail	18.4	12.6	18	49
Years planning to continue	14.8	8.0	13	38

Table 3.

Motivations and perceived personal benefits for bluebird trail managers.

Category	Motivations (% of participants)	Personal benefits (% of participants)
Conservation	60	8
Experience nature	40	32
See bluebirds	12	12
Collect data	8	6
To teach	8	4
Make a difference or give back	7	11
Satisfaction or enjoyment	7	34
Mental stimulation, achievement, or to learn	7	15
Social interaction	6	11
Clean and repair boxes	3	0
Stress relief and relaxation	3	12

Exercise and health reasons	1	30
To be humbled	0	1
Routine	0	1
Other	1	0