

Volunteer Experiences in Red Squirrel Conservation

Insights from the Red Squirrels United Project



Dr Mike Dunn

Marlène Baudet

Dr Mariella Marzano

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Executive Summary

- The Red Squirrels United (RSU) project relies on RSU staff, contractors, volunteers assisting with project management and managing of contractors, and volunteers with overlapping aims but no involvement in project management.
- This report examines the experiences of the volunteers, whose collective contributions are vital for red squirrel conservation. Specifically, the findings are designed to improve understandings of how and why volunteers get involved, how motivation is maintained, what barriers and challenges are faced, and how experiences could be improved. It is hoped that those supporting and collaborating with volunteers can use the findings to attract new individuals and ensure sustained, positive relations.
- The findings presented are derived from activities carried out between April 2017 and January 2018, namely 25 semi-structured interviews with volunteers from the Red Squirrels United case study areas, and a further 3 non-RSU volunteers operating on the periphery of a case study area; two focus groups with 12 and 5 RSU volunteers respectively; and 2 community workshops comprised of various stakeholders including RSU volunteers. While all of the participants play a role in squirrel conservation, many are also members of other conservation/environmental organisations.
- Audio recordings of the volunteer interviews and focus groups were transcribed verbatim and uploaded to a qualitative analysis software package (NVivo) along with extended notes from the community workshops. The data then underwent thematic coding allowing for responses to specific issues to be compared, contrasted and counted.
- Volunteers undertake many roles pertaining to red squirrel conservation. These range from promoting events, recruitment, squirrel monitoring, data input, website management, filling feeders, applying for funding, grey squirrel control, and in the case of Red Squirrels Trust Wales (RSTW), project management and management of contractors. Monitoring and feeding are among the most common means of involvement, with other duties typically carried out by a small core of volunteers or an RSU staff member or contractor.
- Volunteers perceive a need for grey squirrel control on the grounds that they are an invasive species harmful to red squirrels and the wider environment. A minority have come to accept greys but still believe control is needed in certain areas in order to conserve red squirrels. However, around half of the volunteers stated that they would not be prepared to take part in control activities.
- Live capture followed by cranial dispatch is the most commonly cited control measure owing to its perceived specificity, effectiveness and humaneness.

Shooting is uncommon but occasionally employed including after live capture. The use of methods which are not species specific - such as kill traps (snap traps) and poison - is extremely rare. Attitudes towards emerging controls including an immunocontraceptive and the reintroduction of pine marten (as a form of biological control) are generally very positive, though these controls are not considered suitable for every location or circumstance.

- The vast majority of volunteers are primarily motivated by a desire to conserve the cherished native red squirrel. The species is considered symbolic to a number of areas creating a sense of place as well as an opportunity to benefit the local economy (e.g. through tourism). Many volunteers have developed a special affinity for red squirrels either as a result of childhood experiences or more recent close encounters in their immediate surroundings.
- Contributing to what is seen as a worthy cause provides many volunteers with a sense of purpose. Volunteers also realise a number of other benefits from their activities and involvement in red squirrel conservation. Social benefits are extremely important to some volunteers, many of whom are post-retirement age. Physical and mental well-being benefits were also reported by those whose roles involve being active and spending time in nature. Volunteering also provides valued opportunities for learning and skills development through exposure to new information, training and participation in practical tasks.
- Insufficient time is the biggest barrier for volunteers wishing to make a greater contribution, and this factor almost certainly prevents other would-be volunteers from becoming involved. Many do not begin to get involved until retiring from paid employment. However, even those without full-time jobs may struggle to find time for volunteering due to other commitments (e.g. family and involvement with other organisations/clubs). More could be done to raise awareness of the scope of roles available, and the fact that even a small amount of time can be extremely valuable to the cause. In addition, organisers of events such as trapping and dispatch training and knowledge fairs should locate and schedule events so that they are as accessible as possible.
- The fact that red squirrel groups often rely heavily on retirees and/or a small core of active volunteers has led to concerns about the sustainability of a number of the groups. These concerns are compounded by groups' difficulty in identifying and securing the long-term funding needed to sustain their activities.
- Almost all volunteers commented on a need to raise awareness in their communities. It is thought that a greater appreciation for the grey squirrel's status as an invasive species and its negative impacts, as well as the opportunity to protect and expand the range of the native red squirrel, could help to attract new volunteers and group members. However, the necessity for red squirrel conservation to include grey squirrel control is seen as a significant barrier to recruitment in some areas.

- While a number of groups have experienced the theft or vandalism of cameras and traps, these instances are rarely attributed to opposition to the groups' activities. None of the volunteers reported having been threatened in any way as a result of their association with a group or its activities, though some have been in a position in which they were required to explain the presence of traps to concerned members of the public. One volunteer also reported having lost friends as a result of their involvement in trapping. Such experiences can result in volunteers being reluctant to declare their roles.
- In some areas, lack of landscape level collaboration is a barrier to grey squirrel control. Some landowners are reportedly motivated to control grey squirrels irrespective of an interest in red squirrel conservation, for example if greys are considered a pest due to bark stripping or eating produce. However, some landowners prove difficult to engage with, particularly if residing elsewhere. Further research into landowner attitudes and motivations is needed.
- There is much confusion among the volunteers about the large number of squirrel related organisations/projects and their respective roles and jurisdictions. The more casual volunteers do not typically concern themselves with these subtleties. In fact, only around one-third of the volunteers participating in the research were aware of RSU, despite their group's association or involvement with the project and its delivery areas.
- Although the RSU supports a number of volunteer groups, where these groups are not themselves part of the project's management board, there are sometimes disagreements regarding what RSU should be delivering in the respective area. However, in the case of the volunteer led partner RSTW, the partnership has facilitated the groups aims, for example, by financing contractors. At least one emerging volunteer group has also benefitted from the publicity RSU generated, which served to grow its prominence and membership.
- Some of the more established groups associated with RSU see the partnership as a potential threat to their autonomy. Owing to RSU partners' differing resources, objectives and composition (e.g. volunteers), support and relationships with volunteers varies markedly across the delivery areas. For those partners that aren't volunteer led, time spent becoming familiar with a local groups' goals and challenges will aid future collaborative arrangements. In addition, formalising what support and assistance each partner/group will provide could reduce misunderstandings while also providing accountability.
- Communication and feedback is highly valued by volunteers, particularly when helping to demonstrate how their efforts have influenced changes in squirrel populations and range. Provision of feedback is an opportunity to credit volunteers and sustain their motivation and involvement. Presentations, e-newsletters and in-person dialogue can all serve as effective means of providing feedback and updates.

Introduction

Conservation of the red squirrel (*Sciurus vulgaris*) can encompass multiple roles including the filling of feeders and monitoring of populations. However, conservation also involves controlling the invasive grey squirrel (*Sciurus carolinensis*) which poses a threat to red squirrels through transmission of a deadly squirrel pox virus (SQPV), and through consumption of valuable food sources (Gurnell et al., 2004; Rushton et al., 2006). Faced with (often) limited resources to address a wide scale problem, conservation organisations are indebted to the contributions of volunteers, without which the plight of the native red squirrel would be substantially worsened. It is therefore essential that the experiences of these crucial individuals and groups is better understood so that those supporting and collaborating with volunteers can foster sustained, positive and effective relations.

Silvertown et al. (2013) assert that the success of conservation programs involving volunteers depends on factors such as recruitment; skills, training and supervision; feedback and recognition; and time commitments. However, red squirrel conservation warrants specific attention given the often inseparable practice of grey squirrel control (i.e. the killing of one species to conserve another). Despite labels such as 'alien', 'invasive' and 'pest' many people have become accustomed to the now common grey squirrel, making red squirrel conservation an especially complex and at times controversial issue (Rotherham and Boardman, 2006; Crowley et al, 2018; Dunn et al, 2018).

The study summarised in this report set out to improve understandings of how and why volunteers get involved in squirrel management, how their motivation is maintained, what barriers and challenges they face, and how their experiences can be improved. This was achieved through a series of interviews, focus groups and community workshops carried out between April 2017 and January 2018 with volunteers operating in areas where red squirrel populations remain but are under varying degrees of threat from the presence or encroachment of a grey squirrel population. Specifically, we carried out 25 semi-structured interviews with volunteers from Red Squirrels United (RSU) delivery areas (Figure 1), and a further 3 with volunteers operating in Cumbria; 2 focus groups with 12 and 5 RSU volunteers respectively; and 2 community workshops comprised of various stakeholders including RSU volunteers (Table 1).

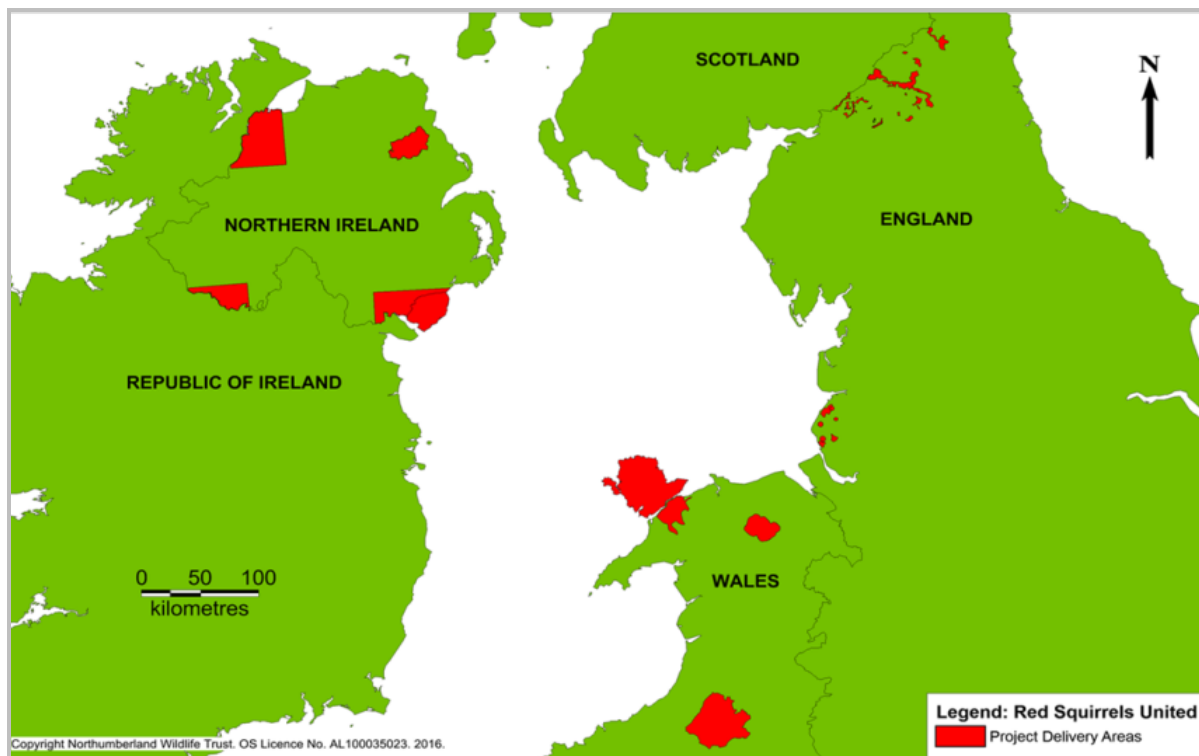


Fig. 1 - The Red Squirrels United Delivery Areas

Table 1 – Summary of Data Collection Methods in Study Areas

Location	Methods
Cumbria (non-RSU area)	Community workshop and Interviews
Merseyside	Interviews
Mid-Wales	Focus group and Interviews
Northern Ireland	Interviews
Northumberland	Community workshop
North Wales	Focus group and Interviews

Recordings from the interviews and focus groups were transcribed verbatim and transferred to NVivo for qualitative analysis, along with extensive notes from the workshops. Statements from the volunteers were then categorised with the aid of a coding framework reflecting the research questions. The resulting findings are presented in the following order: Part 1 explains what motivates volunteers to begin and continue in their roles, as well as the personal benefits their involvement brings; Part 2 addresses the volunteers' attitudes towards, and involvement in, grey squirrel management; Part 3 details the barriers and challenges volunteers and their groups face. Finally, Part 4 considers how organisations and partnerships, such as Red Squirrels United, can improve the experience of these volunteers, who are so critical to red squirrel conservation.

Sample Characteristics

All but one of the volunteers interviewed for this study considered themselves to be a member of a red squirrel group, with the exception preferring to work independently while maintaining good relations with their nearest group. A large majority of the volunteers participating in the study are retirees, and it was reported that in many cases this is reflective of the groups' wider memberships.

Nine of the 28 volunteers participating in an interview stated that they are involved in their groups' administration and management. As well as coordinating activities, these volunteers also reported involvement in activities such as promoting their group's work and participating in public events including guided woodland walks, knowledge fairs, Red Squirrel Day, or manning stands at agricultural shows. As these individuals have a good overview of their group's work they were frequently recommended for inclusion in the study by their peers relative to less involved volunteers. Furthermore, their role(s) and knowledge made them particularly amenable to participating. As a result, this type of volunteer is over-represented in this study.

Those volunteers confining themselves to administrative tasks and community management (e.g. maintaining webpages, logging sightings, or responding to enquiries) generally took on such tasks having gained relevant expertise and experience from their roles in paid employment. Similarly, groups tend to rely on one or two individuals for more specialist tasks such as monitoring with camera traps, and editing the resulting footage. Such roles are typically taken by the most active and committed volunteers (or an employee/contractor funded through RSU), whereas a groups' wider membership typically prefer tasks such as monitoring (both ad-hoc and established transects), filling up feeding stations, informal attempts at recruitment, and raising awareness among their own peers and networks. Seven of the 28 volunteers interviewed stated that they had carried out grey squirrel dispatch. Many of the groups stated that a small minority of their members are prepared to engage in dispatch activities, indicating that this group too are over-represented in the study.

PART 1 – MOTIVATIONS AND BENEFITS

1.1 Complementing an Interest in Wildlife

Almost all of the volunteers confessed to having an existing interest in wildlife before becoming involved with their local red squirrel group. In some cases this interest could be explicitly linked to childhood experiences. A small number of volunteers have reportedly built or consolidated a connection to wildlife through their studies and employment, but most described a more general interest in nature, distinct from their careers.

"I think it's a childhood thing, I've been living in Norway for three years as a child, and we had red squirrels in the garden there [...] my parents were very fond of them. And then we came back and I lived as a child near Cumbria."

(Volunteer from Northern England)

"When I worked it was always in finance so I never had a job that had anything to do with conservation, but it has always been a lifelong interest for me."

(Volunteer from Northern Ireland)

"I think I was born loving animals, definitely, but living in London I didn't have any opportunities, so when we came here, we've seen... We've got a hedgehog in the back, and we foster squirrels, and I've got a pond with fish -not goldfish, and frogs and we've always enjoyed working with different environmental groups."

(Volunteer from Merseyside)

Volunteers' involvement in red squirrel conservation was often found to be either secondary or subsequent to involvement with other conservation groups or projects. For example, around half of the volunteers are members of other conservation or wildlife organisations, most commonly the RSPB. Hearing about opportunities to support red squirrel conservation from existing volunteers (either through other conservation activities or informal discussion with volunteering peers), word of mouth, and exploration of a group's website represent the most common means by which individuals became attracted to their local group.

The precise combination of motivations for joining a red squirrel group differs from one individual to another, yet these are almost exclusively underpinned by a strong desire to save the red squirrel from extinction, whether locally or for the UK as a whole. Despite this underpinning it is possible to distinguish between two types of volunteer: those with a special affinity for the red squirrel, and those to whom the red squirrel is akin to any endangered species in need of conservation efforts.

"People actually love red squirrels and I think the number of people who you talk to and they say, "We've seen a red squirrel today." They're elated because they've seen a red squirrel. I think it's because it's become such a relatively rare creature, to see one now is something really special." (Volunteer from North Wales)

"I believe that we should try and preserve them, so I'm glad that we came to help with that, but I wouldn't say I have a particular affinity to the red squirrel as opposed to anything else." (Volunteer from Merseyside)

1.2 Sense of Place

Red squirrels are also iconic for particular localities in Britain, including a number of the RSU case study areas. Like Rotherham & Lambert (2012), volunteers paid tribute to Beatrix Potter and her creation, Squirrel Nutkin, for generating an affinity for the red squirrel.



Beatrix Potter's Tale of Squirrel Nutkin

"Are they special? Yes, I think, because they are an iconic species for this area." (Volunteer from Merseyside)

"It is almost a symbol of the Lake District; I find it hard to contemplate the Lake District without having red squirrels in it. I was once told by one of our ecologists that when the grey squirrels arrived you might as well forget it, that the red squirrels would disappear within fifteen years, and that was just worth the challenge to me. That was something I wasn't prepared to put up with on my watch." (Volunteer from Northern England)

Thus, the presence of red squirrels and their enshrinement in popular culture has created a 'sense of place' and the development of an ecological identity which can serve as a strong motivator for volunteering (Gooch, 2003), as observed in areas of Merseyside and other parts of North-west England. In fact, many volunteers acknowledged becoming besotted with their local red squirrels, using terms such as "lovely creature" and "beautiful animal" when describing their encounters. Several volunteers have accumulated an assortment of squirrel themed items and artwork in their homes.

1.3 Importance of 'Local' for Encounters and Convenience

Proximity to red squirrels has undoubtedly been important in establishing and maintaining the motivation of many of the volunteers. The most notable examples of this influence come from those who have first-hand interaction with red squirrels, for example, through feeding them in their gardens or photographing them nearby.

"People like the idea that they are there, the red squirrels, they have a substantial local ownership, and they are very endearing creatures [...], very photogenic." (Volunteer from Northern England)

"With feeding them in the garden over the past ten years, initially it was just me feeding the squirrels, and then I started to hear about other groups in the area that were looking at red squirrels, so I started to get involved. [...] Having a red squirrel in my garden was very, very important, because when you've got an endangered animal in your garden, you feel very protective of it [...] It started to build up and be more and more important over time, so initially it was "that's an unusual animal in the garden" and now whenever I get the chance, [I] go out and see it in the garden, put photos on Facebook... it's a daily occurrence now." (Volunteer from Merseyside)

"Because it's here on my doorstep, I feel I can look after stuff here. We can see what we're doing is working, because the red squirrel population is going up." (Volunteer from Northern Ireland)

Activities required for red squirrel conservation (such as establishing and maintaining feeders, presence monitoring, and setting traps for grey squirrels) are all more convenient when close to volunteers' homes. Some volunteers stated that they wouldn't keep on doing their work if they were required to travel or carry out activities outside of their immediate surroundings.

1.4 Helping Animals in Need

In addition to proximity, volunteers' awareness of the red squirrel's threatened status is an important factor in their attachment to the species, and their willingness to involve themselves in activities to support its conservation.

The effects of the squirrel pox virus outbreaks related to the presence of grey squirrels have been documented in both local and national media (e.g. 2008 in Merseyside, 2011 in Tollymore, Northern Ireland, and 2015 in Northern

England). Furthermore, many volunteers have been exposed to the impacts of the disease either first-hand, or through images circulated by members of their local red squirrel group. This scenario has reportedly catalysed volunteer interest. Elsewhere, the effects of habitat change and an associated reduction in available food were highlighted as a further threat to a local red squirrel population:

"When I moved to Ainsdale, I wasn't interested, and then, when the squirrel pox came through, I just started to see red squirrels in my garden, red squirrels disappeared because of the pox, and I started to get interested at that point."
(Volunteer from Merseyside)

"I think if you're in Formby, red squirrels are normal so you have nothing to worry about, if you are in Southport, red squirrels are normal so there is nothing to worry about. It's only at the borders between reds and greys that I think you get a lot of people with enthusiasm." (Volunteer from Merseyside)

"the [Forest Service] came along and cut down all of our trees, and didn't appear to have any plans for the wildlife, and we felt like we would lose all of our red squirrels if we didn't have some kind of system to look after them and feed them because the trees were gone - the trees that they used for food. So that's why I'm here to volunteer with the group." (Volunteer from Northern Ireland)

These quotes demonstrate how the plight of the red squirrel has engendered an increase in volunteers' interest and activities. This interest in assisting rare and threatened creatures was also observed by Weston et al. (2003) when studying motivations of volunteers involved in bird conservation.

1.5 Reds as a Visitor Attraction

Aside from the joy that seeing and saving red squirrels brings to volunteers, there can also be more circuitous benefits associated with the presence of a red squirrel population. Discrete zones, commonly referred to as "red squirrel areas" are capable of attracting an assortment of wildlife enthusiasts, researchers and students, as is the case in the Formby area of the Merseyside case study area. Volunteers from several of the case study areas proudly recounted anecdotes about people traveling from outside of their respective region to see red squirrels.

"It has often been on television, on the local news, it has been on Springwatch! [...] We feature as well in the local press, even my friend from London's daughter, she came to stay in Chester, with a friend, and then they all came out to here, to see the squirrels, from London." (Volunteer from Merseyside)

"Anglesey is making use of it as a tourist attraction.[...] they're promoting it as the red squirrel island [...] the number of times it's been televised as well on national television, it's been in the programme telling about the story about the red squirrels on Anglesey is really positive for the island." (Volunteer from North Wales)

"I quote this phrase that "Reds sell beds". I firmly believe that so many hotels and guesthouses in the Lake District, they do base part of their appeal on the fact that "if you come and stay with us, you might be able to see a red squirrel"." (Volunteer from Northern England)

While the benefits that red squirrels create for the local economy were rarely described as the principal motivation for volunteers' involvement in the species' conservation, it does serve to further reinforce the value of the species in the volunteers' minds.

1.6 A Dislike of Grey Squirrels?

A number of different perceptions of grey squirrels emerged from discussions with volunteers. One attitude is that grey squirrels are not at fault, but rather unfortunate to be in the wrong place at the wrong time. Three (of 8) volunteers in Merseyside made statements about grey squirrels which included positive sentiments. However, even in cases where there is little animosity towards the grey squirrel, the volunteers' awareness of its impacts justifies their support for controls.

"I don't have a bad feeling about the grey squirrel, because you know the grey squirrel is all over this country, you go to parks, cities around them, you know they are not without some qualities, they are wild animals, you know I see people feeding them, they don't regard them as an evil." (Volunteer from Merseyside)

"They are nice creatures to see, it's nice to see them running around, we have them in our garden, they are interesting animals, but their populations are out of control." (Volunteer from Merseyside)

"I think [grey squirrels] are pretty to watch... they are part of the wildlife scene. It just happens that they are not compatible with a very rare species, and I don't like species dying out." (Volunteer from Merseyside)

Other volunteers spoke more disparagingly of grey squirrels, considering them to be vermin and making comparisons with magpies, rats and foxes. A final discourse revolves around the grey squirrels' status as an invasive alien species regarded as having "devastating effects" on native woodland and wildlife. Examples of the descriptions used by volunteers from these latter two groups

included: “they bully the others”, “tree rats”, “vermin”, “they are quite greedy”, “aggressive”, “they look cute but they were born killers”. Such comments demonstrate that although many of the volunteers consider themselves animal lovers, this does not preclude concern over the impact of some species.

While a proportion of the British public may consider the grey squirrel as a cuddly or charismatic pest (Barr et al, 2002), this view is less common among red squirrel conservation volunteers. Perhaps this is because the wider public are generally observing the grey squirrel in settings where their impacts on other species are less sizeable and tangible (e.g. away from red squirrel populations). Moreover, there is evidence to suggest that those with greater knowledge about a species (and its impacts) are most accepting of the need for controls (Selge et al, 2011; Dunn et al, 2018), indicating that if the wider public were as familiar with the grey’s ecological impacts as the volunteers, their acceptance for controls would likely increase. While more than half of the volunteers demonstrated awareness of the grey squirrel’s bark stripping behaviour, the species is primarily disliked for the threat it poses to red squirrels, though this view may be disproportionately represented in this study given that all volunteers featured operate in areas with a threatened red squirrel population. The idea that grey squirrels are a threat to bird species through predation of individuals and nest sites did not emerge as a prominent theme, although four volunteers noted that the grey’s presence at their garden bird tables and feeders had been detrimental to the birdlife and the volunteers’ birdwatching experience. Scientific studies into the grey squirrel’s impact on bird populations have so far proved inconclusive (Hewson & Fuller, 2003; Newson et al, 2010a; 2010b).



(L) The native red squirrel making use of a manmade feeder
(R) A notice about grey squirrels akin to a wanted poster

Some behaviours (such as bark stripping) which are used to vilify grey squirrels have also been reported in red squirrels (Bryce et al, 1997). One volunteer also perceived both red and grey squirrels to negatively impact birdlife. However, negative impacts of the red squirrel were rarely mooted by the volunteers.

Where the behaviours of the two species were compared, the red squirrel's behaviour was viewed as less problematic, either due to the species' rarity (and thus less widespread impact), the behaviour being less prolific, or because the grey's status as an alien invasive species inherently made its behaviour more unnatural and intolerable. A small number of volunteers further demonstrate their disapproval of invasive species by taking part in the monitoring of Japanese knotweed and Signal crayfish.

"Well they'll take the eggs and stuff actually, I mean reds would do that too [...] maybe the very young chicks as well, maybe they'll do that sort of thing. They are not just vegetarian, the squirrels, they can be a little ruthless and that sort of thing, especially the greys." (Volunteer from Merseyside)

"I think that invasive species should be eradicated, totally. [...] Most of the invasive species do a lot of damage and a lot of these mammals or animals are North American bullies, like the grey squirrel, the mink..." (Volunteer from Mid-Wales)

"I never looked upon [grey squirrels] with the same enjoyment that we have looked on the red squirrels we have here. They were always regarded as an alien species." (Volunteer from Northern England)

"I think in the long term maybe as time goes on that attitude will change, especially if the reds do become extinct, within the UK, and then the grey will be our native squirrel, you know, that would be accepted." (Volunteer from Merseyside)

While the last of these quotes on increased tolerance for grey squirrels represents an unthinkable scenario for many of the volunteers (who have dedicated their time and effort to conserving red squirrels), it does lend further credence to the idea that the species' native and non-native statuses underpins the willingness of some volunteers to occupy and stay in their roles. In fact, 13 (of 28 interviewed) volunteers specifically referred to the grey squirrel's alien/invasive/non-native status when discussing its impacts and/or their support for the population to be controlled. Its status was also referred to in both focus groups and community workshops. Thus, while Van Der Wal et al. (2015) concluded that perceptions about abundance and damage to nature and the economy, rather than non-nativeness, inform attitudes towards species management, our findings mirror Coates' (2012) suggestion that perceptions about the extent of a species' impact (and willingness to support controls) may be amplified by its non-native status. Similarly, Pagès et al. (2018) found that the emergence of volunteer groups is often triggered by a first-hand witnessing of the expansion of an alien species and rising sense of urgency to take action where remnant communities and populations could still be saved.

1.7 Additional Benefits

Although volunteers are primarily driven by the desire to protect red squirrels or to limit the impact of the invasive grey squirrel, it is clear that many have realised other benefits from being part of an organised conservation effort. Several volunteers believe that their involvement in squirrel conservation provides a sense of purpose which complements their interest in nature. Thus, volunteering allows them to pursue an interest and connect with nature while enjoying the fulfilment that comes from knowing they are making a positive contribution to a cause.

"Interest in wildlife, passion and making a difference, those are the three things that really motivate me." (Volunteer from Mid-Wales)

"when you do the transects, you are walking in the woods, I walk around them all the time anyhow but we see something different each time, if you don't see a squirrel you'll see something else happening, activities with other species going on while you're looking out for squirrels, so that's obviously interesting."
(Volunteer from Merseyside)

"[I] highly recommend people first of all to get out into the forest and get close up with the wildlife and nature. It can be life-changing and I really mean that. I wouldn't have thought that, I wouldn't have thought walking or anything could, but I know it now first-hand. And volunteering is a very rewarding thing."
(Volunteer from Northern Ireland)

Although a small number of volunteers prefer to work in isolation - which can provide a greater sense of freedom and an increased chance of observing wildlife - the majority of volunteers stressed that their involvement helped to make them feel part of a community. Undoubtedly, the social benefits of volunteering are incredibly important for certain volunteers.

"We've been working as members of a team and you make new friends for a start, don't you? ...with likeminded people." (Volunteer from North Wales)

"From the committee, the volunteers, the rangers, they're just a likeminded people. There's a great social aspect to it; our events, our walks, we take tours, people come along. I bring up the rear but there's speakers that'll tell you about it along the way, but days like that are fantastic." (Volunteer from Northern Ireland)

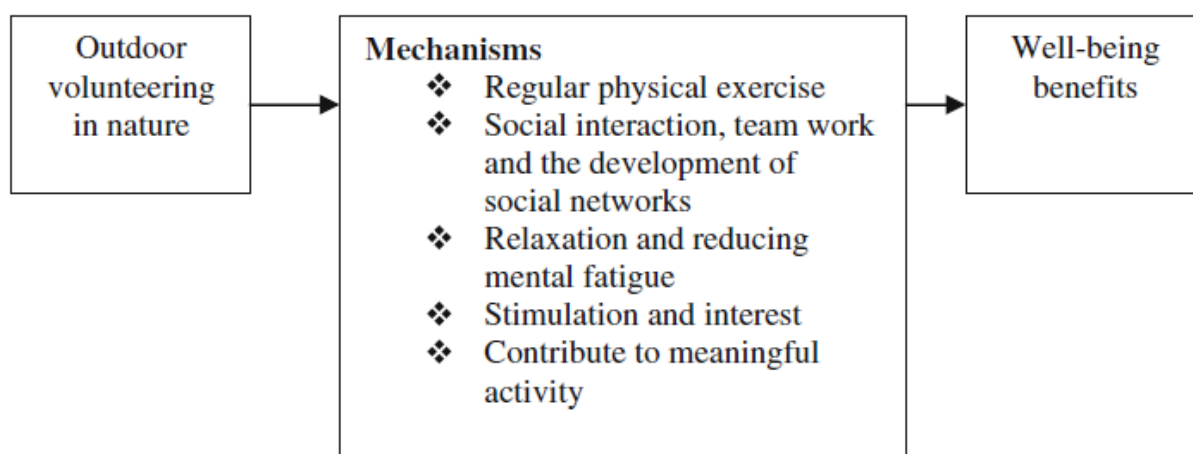
Similarly, volunteers have come to realise that the activities associated with their roles serve to improve personal well-being through the provision of various physical and mental benefits. This is particularly true for those volunteers whose roles demand that they are active and spend time in nature.

"I would be fatter, a lot fatter, if I didn't have that forest and the motivation to go to it, because it's all weathers you know, you've got to go, the squirrels need

fed, if they didn't I'd likely say oh, I'll stay here today." (Volunteer from Northern Ireland)

"Walking and events and volunteering like this is one fantastic way to lift depression and stress, it's a stress-relieving thing. The thing I do in the morning with [my dog], get up and walk around the forest, and I see squirrels every morning, but by the time I get back here I'm ready for the day, I could do anything. You go up thinking about things, you come down thinking about nothing, it's fantastic." (Volunteer from Northern Ireland)

These benefits are comparable to those reported by Bell et al. (2008), Guiney & Oberhauser (2009) and O'Brien et al. (2010) following studies of those volunteering for environmental or conservation projects (improved fitness, keeping alert, meeting others and reducing stress levels).



Source: O'Brien 2010.

In addition, several of the volunteers in our study commented on the growth in knowledge they had accumulated as a result of their interaction with other volunteers and RSU project partners. Attendance at formal events such as RSU's annual knowledge fair and community level meetings often involving RSU partners serve as opportunities to hear the latest news in squirrel conservation as well as updates on local level successes and challenges. However, learning is also taking place informally through trial and error (e.g. which feeds are most desirable) and as volunteers engage in discussions with others while carrying out their duties. Development of skills has also been noted, from learning how to detect the presence of squirrels using cameras and signs (e.g. nibbled cones), to constructing nest boxes and feeding stations used to attract and maintain a red squirrel population. Wider studies suggest that these opportunities together with volunteers' dedication to their interest can lead to a level of expertise rivalling or even surpassing their professional counterparts (Stebbins 1992:3, 2001; Greenwood, 2007).

"There's always something new to learn about the countryside, and by doing the transects and working with a group like this, there is always something new, you're never too old to learn. So I'll say it's mainly obviously red conservation, but there are other things attached to it, a bonus really; you see different things at the same time." (Volunteer from Merseyside)

"When you do all this you get a lot of knowledge, you're bound to. And when I talk to people who have got degrees and I tell them what I know, they say, "You know a lot more than I do"." (Volunteer from Mid-Wales)

Bell et al. (2008) notes that learning opportunities, whether formal or informal, often constitutes a key factor in ensuring volunteers remain loyal to their network. Despite the existing opportunities for our volunteers to acquire knowledge and gain new skills, some of the senior red squirrel group representatives expressed an appetite for additional training courses, particularly for activities such as trapping and dispatch.

PART 2 - ATTITUDES AND INVOLVEMENT IN SQUIRREL MANAGEMENT

2.1 Attitudes towards Grey Squirrel Management

All of the volunteers interviewed believed that a degree of grey squirrel control was necessary in order to protect red squirrel populations, although opinions differed with respect to the extent to which control should occur. Volunteers participating in this study frequently identified themselves as animal lovers, with a majority justifying the use of their groups' (lethal) controls on the grounds that it assists red squirrel conservation. For these volunteers, there is a reluctance to support the culling of grey squirrels in areas where reds are absent. However, a small number of volunteers are supportive of more widespread grey squirrel control (for reasons noted in section 1.6)

"Somewhere in the equation there's a situation where reds and greys can be numerically in the right ratio [...] so both can exist... I wouldn't want a grey elimination from the scene; I would like them in the right ratio so they can coexist with the reds." (Volunteer from Merseyside)

"if people realised the damage that [Grey squirrels] cause, not only to trees and red squirrels but also to songbirds, by preying on their eggs and babies, then they too would agree that we should at the very least reduce the numbers of grey squirrels" (Volunteer from Northern England)

"In conservation, you can't be all woolly, [...] in fact we should have a larger eradication of the grey squirrel and there're a lot of people who believe that we can't just continue doing it in small areas." (Volunteer from Mid-Wales)

Volunteers were asked to comment on the use of several different means of grey squirrel management, spanning lethal and non-lethal methods. These included: live trapping followed by dispatch, shooting, kill traps, poisoning, biological control, contraception and habitat alteration (to favour red squirrels).

Through immersion into the world of squirrel conservation, the volunteers have typically become very knowledgeable about the methods on which their respective groups rely for grey squirrel control. As a result, the volunteers have been able to develop informed opinions on these measures. Understandably, knowledge and awareness was found to be much more varied in respect of the more novel and scarcely used methods (biological control, contraception, habitat alteration).

Live trapping followed by cranial dispatch/shooting was found to be the most commonly used method among the groups. This approach is largely

considered to be acceptable, with one volunteer from Northern Ireland describing it as the “*best, cleanest and quickest*” method. Similarly, there was a consensus that the use of **poisons such as warfarin** is unacceptable. The primary reason attributed to this opposition is the method’s lack of specificity and thus the possibility that non-target species (such as red squirrels) could be inadvertently affected. Interestingly, the use of an (as yet undeveloped) **immunocontraception** is generally considered very favourably, with more than one volunteer in Merseyside describing it as an “*ideal solution*”. Although largely very supportive of an immunocontraception, several volunteers included a caveat that it would need to be delivered in a way which did not threaten other non-target species (including red squirrels). A further limitation of immunocontraception raised by volunteers is its inability to prevent sterilized squirrels from passing on the pox virus to the red squirrels in the short term, leading some to prefer methods capable of removing grey squirrels from the environment with immediate effect.

These reflections on trapping, poisoning and contraception mirror the findings of an earlier study into the acceptability of grey squirrel control methods among UK organisations and private individuals with an interest in squirrel management and conservation (Barr et al, 2002). The general public, however, consider a contraceptive to be substantially more acceptable than live capture and dispatch (and poisoning), possibly due to a greater reluctance to consider any lethal method as humane (Dunn et al., 2018).

The use of pine marten (*Martes martes*) as a form of **biological control** for grey squirrels represents a further novel technique. Volunteers are largely supportive of this possibility though awareness of the method is typically low relative to immunocontraception. Support for pine marten control is strengthened by perceptions of its naturalness, and removal of people from the dispatch process.

“That is wonderful, really, because that’s an animal feeding on another which is a very natural way of doing things.” (Volunteer from Merseyside)

“We like the pine marten, but that’s not to say a pine marten wouldn’t take a red and have it for its breakfast. [...] But the pine marten lived successfully for aeons here with the red squirrel, not the grey. And the mere presence of a pine marten can drive greys out of an area [...] so I would take my chances with having the pine marten in as a friend to the reds.” (Volunteer from Northern Ireland)

However, volunteers from Merseyside - the most urban of the RSU case study areas - voiced concerns about the pine marten’s suitability to the local environment. In addition, a number of volunteers expressed concern that pine martens may have unintended consequences, namely preying on other non-target species.

"Actually, when I was talking to my friends, they would be happier with pine martens doing the control than with humans doing the control. They say that it's more natural, but I don't know how you get pine martens to survive in this area being suburban, there wouldn't be enough other food, so if they start to go for pets, it will be a lot harder to justify having pine martens in Formby if they are getting cats or small dogs" (Volunteer from Merseyside)



(L) An example of a live capture trap used in an RSU case study area
 (R) The pine marten (*Martes martes*) is considered a favourable means of grey squirrel control in some settings

Finally, **alteration of forest habitat** to favour red squirrels was largely unconsidered by the volunteers as a means of managing grey squirrels, unless they had prior experience of forestry.

In recognising the relative merits and drawbacks of the various control options, the volunteers routinely noted that a combination of several methods should be relied upon, rather than the exclusive use of any single method.

"I think the nearest to an ideal where we would get to is [for] four acceptable techniques in the toolbox; that we have the vaccine, that we have pine martens, if they are shown to be affecting greys and not reds, but that I think that they will all, in the proximate future anyway, have to be accompanied by trapping and human dispatch or by shooting." (Volunteer from Northern England)

As well as a range of methods, the dispatch of grey squirrels commonly requires a range of actors, such as a network of individuals with the training and willingness to dispatch humanely.

2.2 Willingness to Partake in Dispatch

Despite a consensus among the volunteers that some degree of grey squirrel control is necessary, the volunteers stated that their groups' wider membership is largely unwilling to participate in dispatch activities.

"Grey squirrel control is a problem. People don't like that, even members of the committee. They know what happens and they accept that as being part of the rule of our group." (Volunteer from Northern Ireland)

"I wouldn't like to risk just to not hit it in the right place or not hard enough to be able to kill it. That's why I wouldn't do that myself actually." (Volunteer from Merseyside)

Around half of the interviewed volunteers stated that they wouldn't be able to kill a grey squirrel, while the others have participated in dispatch, or declared that they would be willing to do so if it were required of them (i.e. if the grey squirrel population expanded into their immediate surroundings, or current dispatch efforts were insufficient). Those volunteers involved in grey squirrel dispatch routinely had a background in hunting, are a member of a gun club or have received training. In some cases training has been organised by RSU partners. These experiences provided volunteers with the skills and confidence to carry out the dispatch in a quick and humane way. Having some experience or training was paramount for all supporters of dispatch, not only for the animal's welfare, but also so that volunteers are able to defend the killing of greys to anyone who may oppose or criticise their actions. For the vast majority of volunteers who have participated in dispatch activities, it is clear that no pleasure is derived from the process.

"I would have to see how I feel after the first one, 'cause I don't even like killing mice; I don't like killing insects... it doesn't sit well with me. But I think it's a responsibility thing, you have to do it." (Volunteer from Merseyside)

"Yes, I could do the dispatch, yes. I am a retired veterinarian surgeon so I could probably do the dispatch if needed." (Volunteer from Northern England)

"I started cranial dispatch, I Youtubed it [Sic], my Dad had showed me dispatch, it is the same for other animals [...] they catch it and hit them over the head. So, the next squirrel I caught, it was successful. The squirrel had died straight away, which was good, because I feel if I had done it wrong, I may not have continued doing it [...] but probably ask how the first time doing dispatch was for anybody, any volunteer, that wouldn't be a very nice experience." (Volunteer from Northern Ireland)

The role of volunteer training for activities such as dispatch is further discussed in Part 3.

PART 3 - BARRIERS AND CHALLENGES

3.1 Demands on Time

Insufficient time was the single most commonly cited barrier for volunteers wishing to make a greater contribution to their group's work. Those engaged in employment or with commitments to family members (children and those requiring care) frequently considered themselves unable to dedicate additional hours to volunteering. Others noted that their passion has inadvertently led to an increasing and unsustainable workload.

"My frustration at the moment is I'm self-employed so my time is pulled a bit thin, so I'm not actually volunteering as much as I'd like to." (Volunteer from North Wales)

"I volunteer because I retired and I had the time to do it, certainly wouldn't have had the time to do it when I was working but I would have been very supportive." (Volunteer from Mid-Wales)

O'Brien's (2010) larger study found that those with more free-time such as students, the unemployed and retirees made up more than half (52%) of the participating environmental volunteers (n=88). In our study, a volunteer of a red squirrel group in Northern Ireland estimated the average age of its members to be fifty. While many red squirrel groups have similarly come to rely on older volunteers, there is recognition that this reliance could lead to problems as physical mobility declines and certain tasks become infeasible. It is also notable that around half of the volunteers reported having a membership with another conservation group, and more still with other organisations and clubs. Thus, even those without employment or dependents often face competing demands for their time.

3.2 Group Sustainability

The red squirrel groups to which volunteers belong range from well-established, highly autonomous groups with a large number of members, to newly established or emerging groups attempting to grow their membership base from previously untapped communities.

"We've got about 290 members, we've got other people who are interested in our work and receive our newsletter, with everybody I think we've got about 500 people on the mailing list, and not all of them are members but that doesn't matter because we have a wider group of people who know we are here."

(Volunteer from Northern England)

"We have had some kind of recruitment evening in the village, and quite a lot of people came along, but we wondered why they didn't really get heavily involved in it, I don't know why, it's difficult to say [...] We send regular emails out to all the people we have contacts, we'll tell them what we are doing, but you can't force people if they don't want to come..." (Volunteer from Northern Ireland)

Despite the disparity in the total number of members in the different areas, it is notable that many of the groups tend to be reliant on a small active core. In some cases this may be as few as two or three individuals, acting as "charismatic leaders" whose voluminous workload may include raising awareness of the group and its activities through newsletters and social media, attending events and meetings, collating incoming data, and carrying out practical aspects such as feeding and dispatch. In some cases such as Merseyside, North Wales and Mid-Wales, these responsibilities are largely overseen or supported by RSU partners/contractors, whereas in Northumberland and Northern Ireland - where volunteers do not serve as project partners - there is a tendency to operate with greater self-sufficiency. While the right individuals are capable of ensuring that a group is well managed, the sheer level of responsibility on a (typically) small number of people means that there would likely be serious implications if one of these individuals left. While the volunteers are aware of this risk, it has often proved difficult to circumvent as even those groups with a large membership base have historically struggled to bolster their core of active volunteers.

"Recently I compiled a list of stuff I had to do for the group and I threatened myself that I would bring it to them and say "look I just can't do all this". I haven't done that yet, but my list's getting bigger and bigger." (Volunteer from Northern Ireland)

"We're always getting new members but [the problem] is getting us spread, because we need people around us, and then somebody will retire or even die, and you know, suddenly you've got a gap." (Volunteer from Northern England)

"In this last two years I've probably recruited about 25 members [...] maybe two out of those 25 get involved and do things." (Volunteer from Northern Ireland)

In some areas a lack of funding and training opportunities for volunteers in dispatch techniques is noted as a problem, limiting the number of trappers and their effectiveness. In the Northumberland case study area, volunteers are reportedly responsible for carrying out around 80% of grey squirrel dispatches. However, a community workshop (overseen by Red Squirrels United staff) revealed a feeling that this impressive figure could be improved upon were the right training made available to red squirrel group members. Volunteers from numerous groups acknowledged a shortage of personnel who are willing and trained to assist with dispatch, which may not necessarily undermine a group's sustainability, but certainly its effectiveness.

Even though many members of red squirrel groups are wholly inactive in terms of roles and responsibility, one group still benefits from these individuals by charging an annual membership fee which is used to cover expenses such as squirrel feed. However, this is not a typical source of income for most groups. Some groups have sought to identify and apply for grants such as the Rural Micro Capital Grant, Rural Development Grant, and the Community Funded Grant. Success in this endeavour was routinely put down to having internal expertise or assistance from within an existing network. The provision of resources from supporting organisations, such as the Forest Service in Northern Ireland who supply feed, was also credited with sustaining a number of groups in this locality. However, these arrangements vary considerably from place to place, and volunteers from many of the groups harbour fears that they will be under-resourced when their existing funding arrangements and/or the support they receive through RSU expires.

A lady I know, she got three groups to apply together for shared items, so we ended up [with] two big TV screens for running our videos and promotional stuff at events and a share of a PA system. We have quizzes and stuff to raise money. And a printer which we haven't used yet but we've access now to a big laser printer where we can run off our own fliers. (Volunteer from Northern Ireland)

I've done a lot of applying for funding and that's a lot of work, people don't realise this and without funding, you won't get anything else; funding is so important, you can't go forward without funding (Volunteer from Mid-Wales)

"To control the greys, it has to be done on a wider basis, which it is at the moment because we've got funding to do it. What will happen when this [RSU] Lottery money will be over, I mean there is less and less funding, and the funding from Europe... I think it's going to be suppressed." (Volunteer from Merseyside)

3.3 Lack of Awareness and Interest

Almost all of the volunteers commented on the need to raise awareness in their communities and among the wider public in order to attract new members and to improve the wider prospect of ensuring the red squirrel's continued survival. Several volunteers attribute a lack of interest in red squirrels (and nature in general) to a lack of exposure – the very thing that many volunteers credit for sparking their own interest. Given the impetus that interacting with red squirrels can provide to involvement in volunteering, it is perhaps unsurprising that those who are furthest removed from red squirrel strongholds (or least interactive with the environment) are considered the hardest to engage.

"If I go home, I would say 90% of the people that live on this side have never seen a red squirrel." (Volunteer from Northern Ireland)

"But how you get that interest from people who don't have reds on the premises or they're never going to see a red, that's a bit of a thankless task." (Volunteer from Mid-Wales)

Exposure to red squirrels can involve bringing people to strongholds for events such as nature walks, or luring reds into public spaces with feeding stations. In addition, increased publicity centred on squirrels and volunteer groups was suggested as a potential means of reaching those lacking first-hand experience with squirrels. Studies such as Bell et al. (2008) highlight the potential of news columns, TV and radio magazine programmes as recruitment vehicles capable of raising awareness and promoting opportunities. Unfortunately, reporting on squirrel management by the media has at times been detrimental to groups, as misinformation is occasionally conveyed about their intent and the control methods used. Furthermore, where local communities have become accustomed to the grey squirrel – as in parts of the Merseyside case study area – there may be unwillingness to support red squirrel conservation if this involves grey squirrel control. This disparity in attitudes towards grey squirrels led Crowley et al. (2018) to propose that clear, explicit consideration of how and why animals are both killed and 'made killable' should be a key component of any wildlife management initiative that involves lethal control.

"Talking to my friends, many weren't aware that red squirrels were still around, and were that close to where they are, and I have a friend who... She gets grey squirrels in her garden, but she doesn't realize that there are red squirrels a mile away, and I explained to her that if she gets rid of the greys, over time the reds would recolonize, but she just said red squirrels aren't that cute, and that's it..." (Volunteer from Merseyside)

"I think in this area particularly they don't realize how close they are to red squirrels, and so they see people wanting to kill greys, but offering nothing in return. I think if there was more information about how close the reds are, [...] give it a little bit of a push, they could replace the greys with reds. I think people would be interested in that, but if they just say "we are going to kill greys", it doesn't help because they just react to 'kill greys', instead of 'here is the red squirrel instead'". (Volunteer from Merseyside)

"It's a lot easier to get them involved in other species, like the hedgehogs, they are quite happy to do that because it doesn't mean killing anything, but with the red squirrel thing, it means killing greys, and they are a lot less happy to get involved in that." (Volunteer from Merseyside)

While the community members the volunteers refer to are unlikely to ever be persuaded to engage in dispatch activities, fostering greater awareness of the

benefits of red squirrels (and the negative impacts of grey squirrels) may assist in less contested means of support, such as hosting a feeder or participating in monitoring of the two species. Many groups are attempting to engage with youth groups and schools. For example, volunteers of a red squirrel group in Northern Ireland were able to educate students before setting them the challenge of engineering a squirrel feeder. It is thought that this type of engagement can ignite a child's passion and also instigate a family's involvement. In the Merseyside case study area, Lancashire Wildlife Trust has similarly sought to increase interest and awareness by offering several interactive events in conjunction with the Sefton Coast Festival.

3.4 Public Opposition

Several groups have experienced their traps and monitoring cameras being stolen or vandalized, although it is suspected that this is simply opportunistic vandalism rather than as a result of objection towards the use of controls. More trivial instances of interference such as removal of peanuts from squirrel feeders have also been noted.

"It's very difficult and hard when you've got someone coming in behind your back stealing your traps, I had ten traps stolen and one damaged and I'd put a lot of time and effort into it every day [...] you've got to have a hard exterior and continue doing it" (Volunteer from Mid-Wales)

The cameras are a loss when you lose them, because they are expensive, and the thing is you can only do so much, you put locks on them but they just steal, just break it, you know,... but nothing that would be against the work we do, nothing against grey squirrel control, the traps are stolen for other reasons, that wasn't for the fact that we were culling greys." (Volunteer from Northern Ireland)

Although objection from animal welfare campaigners is recognised as a potential issue for volunteers (Vane & Runhaar, 2016) such objection is infrequently administered face-to-face or directed at individual volunteers. None of the volunteers reported that such objections had deterred them from their work. The most common challenge volunteers reported facing themselves (as opposed to their group) is from members of the public curious or concerned about why controls are being carried out in their local area. Attitudes towards these individuals differed among the volunteers: some expressed the frustration of trying to justify their actions, especially if interacting with an individual that was seen as unwilling to listen. Other volunteers perceive any dialogue as an opportunity to connect and educate, which may reduce opposition since increased knowledge of the grey squirrel and its impacts is likely to increase the perceived acceptability of controls targeting the species (Dunn et al. 2018).

However, one volunteer spoke about the impact their involvement with control activities is having on their relationships with friends and family, who remain opposed to lethal controls.

"Every complaint is a gift. If people complain, it provides us with an opportunity to go and explain to them what we are doing and why we are doing it. So very occasionally, we will get, for example –this is a real example, somebody was walking through the woodland, walking their dog, in an area where we had a trap, and it just happened that they walked past the trap, just after a grey squirrel had been caught. So the squirrel was racing around in the cage, and the dog was barking, and the member of the public was very disturbed by this, so they complained about the fact that this trap was there. But that gave us the opportunity to write to them and explain why it was there, and that satisfied them, I mean they understood after that what we were trying to do, they might not agree with it but as I said it satisfied them, that it was all legitimate."

(Volunteer from Northern England)

"On a personal basis I've told lots of people about what I'm doing, but I'm also a bit guarded because I've actually lost friends as a result... who don't like the idea of grey squirrel control." (Volunteer from Mid-Wales)

Control involving trapping and/or shooting and cranial dispatch remains relatively unacceptable to the wider public, perhaps because of an association between 'lethal' and 'inhumane' (Dunn et al., 2018). However, through RSU initiated training courses and informal learning, those volunteers likely to engage with members of their local communities have gained enough knowledge and confidence to discuss such issues and justify the actions being taken. During this interaction, it is sometimes deemed necessary to stress how and why a control method is implemented. This can help to reassure the public that controls are being carried out competently and humanely.

"I think there is a strong argument for shooting at the moment, because I am supporting it I am quite happy to argue that, but, as long as it is done properly I believe it is important [...] So I am quite happy to argue if that is required... yes, I don't have any problem with that." (Volunteer from Merseyside)

"People will say "ok, you are clubbing grey squirrels to death, you're leaving the baby squirrels to die, to starve", so you have to have an argument, to say "this is why", and it has to be accurate, cause if you give somebody bad information, that can basically come back on yourself and they'll say "you were just lying", so you have to be accurate, consistent, and I think that's one of the main things that I'm learning from it all, dealing with people" (Volunteer from Merseyside)

The degree to which this opposition occurs varies from case study to case study, reflecting the differing levels of tolerance for grey squirrels, and appreciation for red squirrels. In general, a local community's opposition towards controls tends to be highest in localities where the grey has firmly established, such as the

more urbanised component of the Merseyside case study area, away from the red squirrel strongholds. Rotherham and Boardman (2006) suggest that perceived acceptability of controls is lower in such areas because in the absence of red squirrels, people have become accustomed to grey squirrels' "interesting and sociable behaviour". In contrast, where a viable red squirrel population remains and is perceived as being threatened from an increase in greys (such as in northern England), local opposition to controls is reportedly much lower.

3.5 Lack of Landscape Level Collaboration

Volunteers from a number of case studies highlighted a lack of collaboration among landowners as a further issue. This is a particular problem with regard to monitoring and grey squirrel control activities which may be necessary at the landscape level to prevent the spread and establishment of greys in and around red squirrel strongholds. The complexity of coordinating a landscape level approach to squirrel management is inherently related to the number of different landowners in a given area. In some circumstances, such as when attempting to engage absentee landowners, it can prove difficult to establish who the appropriate contact is and how accessed may be gained.

"There is a big area down there, about three acres of woodlands, private, nobody has ever built things on that, there is no real access to it so it may sustain the population of reds." (Volunteer from Northern Ireland)

"To actually do it effectively, even in this area, ideally you want to be able to do it wherever you can, the trapping, and the difficulty, one of the hardest parts is establishing where you can do it and where you can't." (Volunteer from North Wales)

In some cases it was reported that private landowners are proactively carrying out grey squirrel control irrespective of dialogue with volunteer groups, though these activities are not necessarily related to a desire to conserve red squirrels but to alleviate other problems grey squirrels cause such as bark stripping on young trees. Of course, the motivation to support squirrel management is likely to differ among individual landowners, shaped by factors including personal experiences and residence in an area for which the red squirrel is historically symbolic.

Some of these landowners are very good [...] A lot of land at the back [...] is owned by just a couple of landowners, people [that] have been around for years, and they have gamekeepers, mainly for the pheasant shooting, and they have, over the years, always kept down the greys". (Volunteer from Merseyside)

"One of the couple was shooting the greys, so he was against the greys anyway... mainly because they were encroaching on his garden and eating trees and vegetables. Another neighbour has grey squirrel problems eating her apples and various other things. So, they were against them from that point of view."
(Volunteer from North Wales)

"The majority of people we talk to in the immediate locality of Cumbria, they would look upon grey squirrels as a pest and an invader, and would be happy to shoot, trap and eliminate them, and would be keen to do so to preserve the population of reds, which are quite cherished in Cumbria." (Volunteer from Northern England)

While these comments refer to private landowners, volunteers expressed particular frustration towards a number of landowning organisations who they perceive to have (or should have) squirrel management as part of their remit. It is felt that some organisations fail to adequately align themselves with the need for controls (perhaps for fear of public backlash), or while supporting the notion of controls, fail to dedicate the necessary resources or collaborate sufficiently to address the issue.

"it's essential [for public bodies] to say that they are in favour of the control being done on grey squirrels, and so the public will come out and say that, I mean they would say that it costs too much money, but it is needed I think."
(Volunteer from Northern Ireland)

"[The local authority] have stopped shooting in public parks now because of the outcry of people so I've been around about last year, handing out leaflets in houses all around the park, trying to get people to notify if they have got greys there, and then we actually approached the individuals instead of taking out the greys in the park [...] people wouldn't like it if they thought they would have been killed in the public park." (Volunteer from Merseyside)

It was noted that even if landowners are unable or unwilling to carry out control activities themselves, negotiating access for contractors and/or volunteers could help to stem the movement of greys across the landscape. Provision of clothing which demonstrates an affiliation to an official group was suggested as a means of legitimising these individuals requiring access, and thus tempering concerns about unwanted or unrestricted access.

PART 4 – LESSONS LEARNED: IMPROVING THE VOLUNTEER EXPERIENCE

4.1 Clarity of Organisations and Objectives

Given the enormous reliance on volunteers in red squirrel conservation, it is important that those groups and organisations sharing this goal effectively support and collaborate to ensure volunteers are recognised, informed and valued. Those volunteers participating in events organised by the RSU partnership commented on how their association with the project has helped to engender a sense of community and shared visions, while also providing opportunities to network and learn from what other volunteers were doing elsewhere.

“I think it is good, I mean everybody seems to have the same issues, so I think that the [RSU] forum is definitely a good support, just to see what else is going on, really.” (Volunteer from Northern Ireland)

“I have actually attended a couple of [RSU] group things where they were presenting the research they were up to, what people were doing in the local areas and I think that work is good, networking is important, and we also share ideas, information, and just generally keep things moving forward.” (Volunteer from Merseyside)

Attending the RSU events and meetings has at times proved an effective way of recruiting new volunteers, while news stories and promotional material featuring RSU are also credited for raising the profile and influence of the volunteer groups. However, for many volunteers it is unclear how RSU fits within the wider squirrel landscape, specifically how it differs or aligns with the plethora of other red squirrel conservation organisations and projects. To some volunteers, the large number of organisations and projects serves to demonstrate the importance of red squirrel conservation, yet to others it engenders confusion and highlights the need for a unified voice.

“[Involvement in RSU allows for] More effective results, yes, a better line of communication, you can talk to the national media, you can get national newspapers involved, you get more celebrities who potentially get involved that way, so you can change opinions by changing the minds of the opinion-makers, so it becomes more national that way.” (Volunteer from Merseyside)

“I do think there are too many organisations. I don’t say that as a criticism because I think it is pouring out of passion that we all have for red squirrels, so it is borne out of the best of intentions, but when I talk to groups locally, regionally and nationally, and talk about the whole range of organisations that exists, that

has somewhere squirrels in the line of their objectives, you can see they are a bit confused.” (Volunteer from Northern England)

“The RSU project, saying we want to raise a 5000 army of volunteers to control grey squirrels. And then on the same day, the Red Squirrel Survival Trust I think it was, issued a press release about a grey squirrel fertility program. Now the combination of the two created a sort of perfect storm [...]. If we can get the organisations to sign up to the UK Squirrel Report, and to work more closely together, to share key messages, that would be a big step forward.” (Volunteer from Northern England)

Despite the alleged benefits of an association with RSU, only around one-third of the volunteers interviewed in this study had heard about the project, or were aware of how their group was allied. This is not to say that no dialogue between the RSU’s project management board and external volunteer groups exists, but rather information about RSU isn’t routinely circulating among all groups’ volunteers. While some volunteers with a specific role or interest in local squirrel management may be uninterested in the RSU project, the lack of awareness does signify a need to improve communication between and within those volunteer groups not embedded in the project’s management, so as to help raise the project’s profile.

4.2 Communication and Feedback

Updates and feedback on a group’s activities are highly valued by the vast majority of volunteers. Examples of this communication cited during the interviews included: changes to the number and range of red and grey squirrels observed during monitoring periods; reviewing of control success; synopsis from notable meetings; and implications of emerging news and research. Feedback regarding activities the volunteers themselves have been involved in is particularly valued. This process provides recognition of the volunteers’ efforts and achievements, engendering a sense of pride. Notice of a group’s success or setbacks also serve as continued motivation for volunteers, who often strive to ensure their continued efforts will result in demonstrable improvements for their local red squirrel populations.

“The feedback is the most important, how what you do is contributing, and what the picture is, generally, you know. If you just did the surveys and put the results and then heard nothing, what’s the point of this you know, whereas if someone says ‘well, we can see from this that...’ [...] It’s good, it motivates you to carry on doing it.” (Volunteer from Merseyside)

“That’s important. That’s reward. I think the Wildlife Trust should do that, making you feel that you are important, that you’re not just slogging through,

that's important because the amount of time and effort I have put in is unheard of, especially when you work full time because a lot of the volunteers don't, they're retired, they could do it when they want and some of them have it on their doorstep and I have to go quite long distances" (Volunteer from Mid-Wales)

"[Feedback] just reiterates that there is a problem. The problem hasn't gone away, and the more we know the more we are able to address the problem."
(Volunteer from Merseyside)

The value of feedback in motivating volunteers of other conservation NGOs has been highlighted by Liarakou et al. (2011), Weston et al. (2003) and Bell et al. (2008). Provision of feedback also serves as an opportunity to thank and credit volunteers for their work, rather than the plaudits being directed towards larger umbrella groups, organisations or projects. As Silvertown et al. (2013) put it: "rewarding volunteers through recognition is how an organization expresses thanks for donated time, energy and expertise. Recognition should be frequent and meet the expectations of the volunteers". The most commonly favoured formats for feedback (as expressed by volunteers in our study) are presentations and newsletters via email, although more specific information for individual volunteers is also commonly communicated via phone or in-person.



RSU partners presenting feedback to volunteers in Northern England (L) and North Wales (R).

A small number of those volunteers familiar with the RSU project initially felt there was a lack of feedback from the RSU project management board, prompting partners to reassess their efforts in presenting and distributing updates. It was also noted that while feedback can serve as a means of helping to ensure long-term motivation, the absence of feedback may result in a decline in volunteer numbers and/or activity. For example, having assisted with informal monitoring activities for some time, one volunteer recounted temporarily giving up reporting sightings as a result of insufficient feedback, understandably concluding that their information must no longer be needed. Volunteers of some groups also called for greater dialogue and consultation with other RSU partners

so that their valuable first-hand experiences could be used to shape practices and materials. Close relationships built on effective and open communication should thus be considered vital elements in fostering volunteers' sense of belonging, and in increasing the likelihood of their collaboration, sharing and associating with a wider partnership.

4.3 Autonomy and Resourcing

For those volunteer groups not part of the RSU project management board, there were different expectations about what the partnership should be delivering in the groups' respective areas. This may be a result of the RSU partners having a focus on a particular set of activities and locations, variation in the way RSU is communicated in each area, and the differing needs of the groups (owing to their level of establishment and their perceptions about the squirrel management challenges in their respective areas).

For recently established volunteer groups, an association with RSU has allowed for profiles to be raised, new members to come forward and stronger connections and knowledge exchange with other groups. RSU has supported groups with, for example, the provision of feed, bait, cameras, traps, and the financing of contractors. In addition, involvement in the RSU network has led to training opportunities on nest box construction, operation of cameras, and trapping and dispatch (for example in North Wales and Northern Ireland). Several studies have emphasized the importance of this kind of practical training, which cover the actual tasks volunteers subsequently take on (Newman et al. 2003; Foster-Smith & Evans 2003).

Although many volunteers highlighted benefits of their association with RSU, some of the more established volunteer groups operating out-with the project management board initially regarded the partnership as a potential threat to their established practices and autonomy. For example, RSU partners may have requested that monitoring and control efforts are carried out in particular locations or at particular times, with a stipulation that the resulting data should be recorded in a standardised format. While these activities allow for more rigorous comparisons of squirrel populations and the efficiency of control efforts, the need to alter a group's established practices risks propagating discontent, particularly if the group doesn't receive or perceive some benefit or recompense.

In addition, some volunteers noted past instances in which RSU partners had failed to deliver on agreements about what their groups would be provided with, including resources such as feed and cameras. In such instances, volunteers noted feeling used and let down, particularly in those cases where their group's

practices had been altered or additional effort invested to accommodate an RSU partner's requests. Furthermore, there have been instances where the introduction of RSU staff into areas with an already established volunteer group has been perceived as a threat to the group's legitimacy and future (a stance juxtaposed with RSTW, whose role as a partner enhanced their prominence).

"We don't want anything to be taken away from us, we are a very, very small group, and [the Wildlife trust] can totally wash us away in two minutes, with their two-year projects or three-year projects funding, and after that what are we going to have, are they going to walk away or, I don't know the future, I don't know." (Volunteer from Northern Ireland)

More generally, some volunteers question RSU's objectives and use of funding. In the sparsely populated Northumberland case study area where focus has been given to developing an early warning system, the associated monitoring data provides a valuable insight into the changing number and range of red and grey squirrels from year to year. However, volunteers participating in community workshops in this area fear that investment in these activities - as opposed to the employment of rangers to carry out control activities across comparatively vast and remote areas - may be jeopardising the long-term survival of local red squirrel populations by failing to adequately prevent an increase in grey squirrel numbers.

4.4 Timing of Events

Altering the timing of events emerged as the other notable means by which the RSU partnership could improve the experience of volunteers. For those volunteers in employment, it is often very difficult to attend training, feedback and networking events particularly if they are scheduled during weekdays or require long-distance travel. Even for those without strict work schedules, such as the many retired volunteers, there may be other commitments with family, other voluntary groups or social clubs.

"They have been trying to get me to go to training days, it's just because it's on Saturdays and I'm booked with other commitments, I just can't make it."
(Volunteer from Northern Ireland)

While it is impossible to schedule events to suit all volunteers, it was felt that the RSU partnership should give ample notice about any upcoming training and meetings so that would-be attendees are able to plan accordingly. It may also be possible to schedule repeat sessions of training events on differing days in the hope of increasing participation over a period of time. The partnership's decision to revise the scheduling of its annual knowledge fairs to weekends represents an

example of how the needs and comments of volunteers led to well-attended events, with numerous visitors coming from as far afield as Scotland and Northern Ireland.

4.5 Parting Thoughts

The RSU staff and partnership have promoted the value of red squirrels and the threats they face not only through their existing networks but also through exposure in regional and national media. Red squirrel groups have benefitted from this publicity through sporadic influxes of new members and volunteers. The partnership has helped to establish a number of new groups in key red squirrel areas, including parts of Northern Ireland. In mid-Wales and Merseyside, RSU partners have played a key role in coordinating volunteers to ensure more joined up and strategic working. Some volunteers believe that having an association with RSU enhances the visibility and impact of their work by allowing for it to be considered as part of the bigger picture, and generating greater recognition from funders and policymakers. For RSTW in North Wales, the opportunity to serve on the project's management board has not only allowed for their own ambitions to be met, but has also provided an avenue for volunteers to influence the project's direction and activities. The provision of resources, such as traps and cameras in Merseyside, Northern Ireland and mid-Wales respectively has ensured that volunteers can more effectively target and dispatch grey squirrels. Additionally, the images resulting from camera loans enthuse volunteers and help to build up and clarify how squirrel populations are changing, which many volunteers use as a measure for success in their local area. Engagement with groups through interactive craft sessions, red squirrel walks and training (e.g. supervised building of squirrel nest boxes in North Wales) has helped to raise awareness of the project in local communities while also fostering learning and wellbeing benefits for participants. Furthermore, RSU led meetings at the community level (such as those in Northern England) and the larger annual knowledge fairs (open to all volunteers involved in squirrel conservation, including those without an association to RSU) provide opportunities for networking and sharing of lessons across and beyond the partnership. Despite these benefits and successes, partnerships such as RSU face an ongoing challenge to attract, motivate and meet the expectations of volunteers. Meeting these challenges primarily depends on effective communication, acknowledging the invaluable contribution volunteers make, and helping to grow mutual benefits that are possible through collaborative working. Partnerships such as RSU also have a duty to consider how their presence and activities can impact the practices of established groups, as well as their future sustainability. Without sensitive consideration of these issues - and the

opportunity for two-way dialogue - volunteers may become unsupportive and disengaged. Project partners thus need to demonstrate a degree of flexibility and invest time in understanding the spectrum of needs, desires and capabilities of different groups. Only by working *with* volunteers can a partnership hope to become and remain harmonious and effective.



RSU staff, volunteers and supporters at the 2018 knowledge fair in Bangor, Wales

Photo by Peter Muldoon

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