Community **Science**

Annual Report 2015

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Contents

Executive summary

In the first year of delivery Community Science has achieved an audience reach of over 9.5 million including television, radio, print and online coverage.

We have engaged 308 individual volunteers (not including TM and OM surveyors) who have committed 1804 volunteer hours (more than a FTE role) to Moorland monitoring. 36 of these volunteers have repeatedly been involved in Community Science activities.

We have extended the network of environmental monitoring sites to the north and south. All environmental monitoring sites have been adopted by a local volunteer group. The annual vegetation monitoring campaign was completed across sites and routine monitoring continues through-out the year.

Through-out spring and summer 2015 2600 bumblebees were recorded during 123 surveys of 30 different transects by 30 individual volunteers. 8 training sessions provided these volunteers with the confidence and skills needed to undertake the bumblebee Targeted Monitoring. 90 volunteers attended these training sessions. Based on feedback from 53 of these volunteers the bumblebee targeted monitoring appealed to a broad age range of volunteers, from under 18 to over 66 years of age. 18% of who were under 25 – a group identified as being under-represented in their access of the natural environment.

September 2015 saw the launch of our new Sphagnum Moss Map survey – an addition to the growing portfolio of Community Science wildlife surveys that can be undertaken all year round. In the last three months of 2015 101 volunteers attended one of 6 sphagnum Targeted Monitoring training sessions and have already submitted data from 22 separate transects.

Our casual surveys - butterflies, birds and the newly launched hare survey – attracted 425 records reporting 1779 wildlife sightings. These surveys were promoted through events, online and via 'picking up a postcard' at one of 359 local businesses, visitor centres or attractions in the Peak District and South Pennines. The addition of the MoorWILD smartphone application increased the variety of ways visitors and local communities can engage with these surveys; increasing audience reach and return rate.

Spring 2016 will see the staggered launch of new Opportunistic and Targeted Surveys, designed by Stockholm Environment Institute. The new surveys will not only add to the suite of moorland monitoring evidencing the impact of climate change on the moorlands of the South Pennine Moors Special Area of Conservation – they will also attract new interest groups and provide additional engagement opportunities for existing and new Community Scientists.

Looking forward the coming year will focus on recruiting, training and supporting a team of volunteer Project Assistants who will become increasingly involved in project delivery. We have also identified a range of potential collaborations and engagement opportunities with external organisations and volunteer groups, including enabling access to green space - and the health and well-being benefits associated with this - to a broader spectrum of volunteers.

Ensuring the legacy of Community Science and continued delivery of its outcomes beyond 2018, including ongoing volunteer recruitment and facilitation of sustainable volunteer journeys, is the Project Boards main priority over the coming years.

Communicating Community Science

The Community Science team have taken a comprehensive approach to promoting the project, engaging communities and reaching new audiences. In the first year of delivery we have presented at local, national and international events, engaged with groups and individuals across a wide social demographic and created an online community of MoorCitizens.

Engagement event planning in the first year has been both pro-active and reactive. We targeted a broad range of public events including large (Hope) and small (Edale) village and produce (Hayfield Apple Day) shows, music festivals (Dronfield) and celebrations (Pennine Way Anniversary weekend). We were also invited to events including Shepley School Eco-day, Crisis volunteer celebration and 'Open garden' days. In total Community Science was represented at 17 engagement events this year. Based on the attendance figures available for eight of these events the estimated audience reach to these eclectic audiences was approximately 850.

Figure 1: Indoor and outdoor public engagement events organised in collaboration with other organisations: Chesterfield Pollination conference (left) with the Bumblebee Conservation Trust, and at Cliffhanger (right) with the PDNPA Rangers and North Lees team.

Cliffhanger is one of the UK's biggest outdoor events for outdoors people. Held in Sheffield it is attended by hundreds of outdoor enthusiasts and members of the public. Whilst we had identified this event as a good opportunity to recruit potential volunteers, the fee for exhibitors was prohibitive for the Community Science project. We were however able to collaborate with the Peak District National Peak North Lees team and were jointly represented on a large stall along with the Peak District National Park Ranger Service, resulting in a really positive promotional weekend both in terms of engaging with members of the public and other teams within the National Park.

Plans for the coming year include revisiting many of these annual events, especially those that yielded the most interest from potential volunteers. Bogtastic, which we were involved in organising with partner organisations, was a particularly successful moorland focussed event aimed at families, which we will certainly be involved in again with hands on demonstrates and displays. Larger shows such as the Hope Show are worth having a presence at however, similarly to Cliffhanger, joint

"…we had a great time… What was nice about the event was that there was an opportunity to learn so much but it sat behind lots of great hands on activities and wasn't too information heavy… MFF spoke to parents with true passion and was really engaging- one of the Dads I was with came over and said, 'She's got a thing about moss, that one!' … such simple pieces of hands on interpretation which, backed up by someone who's passionate about their subject can work really powerfully."
Helen Tuck, National Trust.

representation with other teams from the National Park is likely to be most efficient and cost effective.

As well as temporary displays and demonstrations at events the Community Science team have given 20 presentations to over 600 people at conferences and organised talks this year. Several groups to whom we have presented have gone on to engage in monitoring including Youlgrave Brownie Guides (7-11 year olds) who we later engaged in a separate Opportunistic Monitoring focussed session and Sheffield University Conservation Volunteers who have also engaged in Targeted Monitoring training of both Bumblebee and Sphagnum surveys.

Whilst increasing audience reach these events also presented knowledge exchange and networking opportunities with national and international conservation organisations, academic and business communities including: the national Natural England biodiversity team; Society of National Parks Staff; Coffey International; Hope Construction; Symposium of Ecological Restoration World Conference and at the European Diploma for Protected Areas conference. The later sparked an invitation to apply for a best practice communication award for which we went on to be awarded a special commendation. A Community Science case study now appears on the EUROPARC website: http://www.europarc.org/news/2015/11/community-science-project-communicating-engaging-empowering/?utm_source=hootsuite

Figure 2: Community Science staff (Left to right: Joe, Tom and Sarah) and Moors for the Future Partnership (right) receiving a Commendation for EUOPARCs Best Practice Communication Award of Natura200 sites.

The first year of delivery of Community Science has achieved significant media coverage. Audience reach from 31 of 108 features totalled 9,649,039. This included 4 television interviews, 6 radio features (on breakfast, news and afternoon shows), 81 online pieces and 18 print articles. Press releases covering the Pollinating the Peak conference (led by the Bumblebee Conservation Trust), launch of both the Mountain hare and Sphagnum moss surveys and Community Science photography competition inspired the majority of stories. The largest audiences were reached through television coverage on BBC Countryfile (featuring the HLF logo on a screenshot of the Community Science survey card); BBC Look North and BBC East Midlands News which broadcast interviews with the Community Science team regarding the Mountain hare survey and bumblebee survey respectively. Community Science also featured on SpringWatch Extra (BBC Red button) in an interview with academic collaborator Dr. Sarah West of Stockholme Environment Institute.

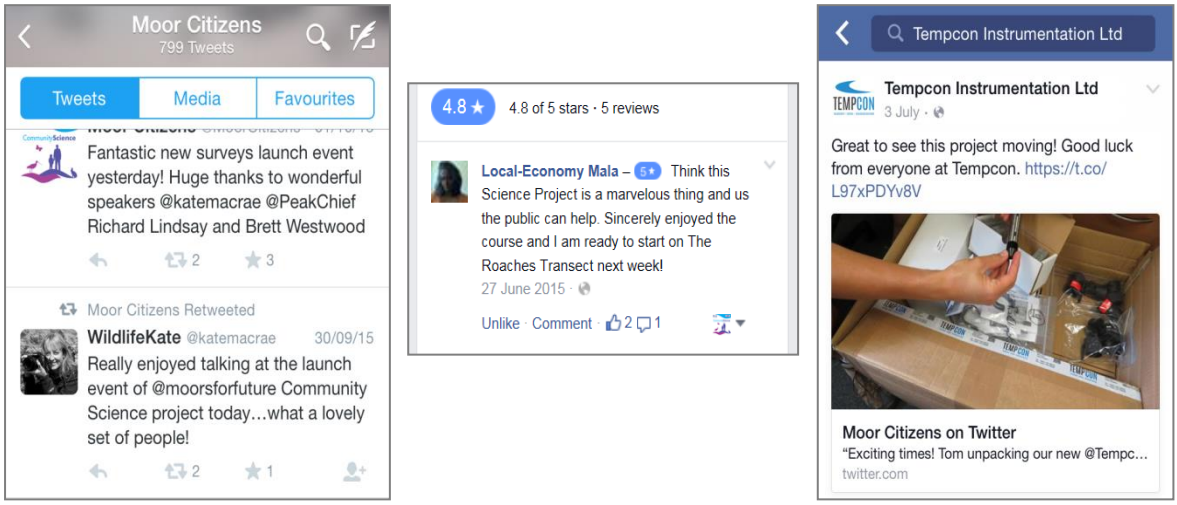

Figure 3: We have built an online community of MoorCitizens with contributions from external individuals and organisations including SpringWatch's WildlifeKate and Tempcon Instrumentation Ltd.

Having developed our web presence we now have a growing online community. We have attracted 1017 MoorCitizens on social media through Twitter (545), Facebook (394), Instagram (61), Pinterest (12) and Flickr (5) – as undoubtedly some individuals will be represented more than once this figure is likely to be a slight overestimate.

By mid-December 452 tweets (more than one per day through-out the course of the year) attracted 4979 profile visits, 680 retweets and 207 mentions, resulting in more than 189,000 impressions (number of times tweets were loaded onto user pages).

"Being engrossed in the job, it is refreshing just to be working steadily outdoors."

Rowan Shand McIntosh, Environmental Monitoring volunteer

2015 enjoyed a combined audience reach of Facebook and Twitter of 240,907, based on impressions, and subsequent engagement of 8113 users.

Similarly on Facebook 314 posts had a total user of reach of 51,725 with an average of 132 unique users engaged daily.

In October 2015 we launched a Community Science blog which has generated 1343 Blogger page views in the last three months. As well as Community Science created content, guest and external blogs have included:

- A celebration of the lifesaving properties of Sphagnum moss by Richard Lindsay, University of London and guest speaker at the Community Science 2015 survey launch (http://richardlindsayartsandletters.org.uk/the-amazing-sphagnum-bog-moss-from-ww1-to-the-climate-war)
- Wildlife Kate (www.wildlifekate.co.uk/my-blog/4553883711)
- November's Environmental Monitoring by volunteer, Rowan Shand McIntosh (http://moorcitizens.blogspot.co.uk/)
- A celebration of the Big Moss Map survey written by a Targeted Monitoring volunteer (http://naturalworldnature.blogspot.co.uk/2015/12/the-big-moss-map-survey.html).

The Community Science competition of the year invited photography entries depicting 'Moorland and Wildlife'. Following internal and external online publicity the competition welcomed 130 entries from Scotland to Surrey, many of whom had not previously engaged with Community Science. Paul Hodson (Photographer whose signed photography book was donated as part of the first prize) and Kate Macrae (Wildlife Kate) judged a shortlist of 25 outstanding photos and selected 4 runners up and 1 winner.

Figure 4: Prize presentation with winner Malcom Mee at the roadside layby (right) where the winning photograph (left) was taken. Malcom is a full time carer who finds time to capture the moorland, often from his car window, including this stunning short-eared owl

"As far as I am concerned, the only way to really get conservation messages out there is to encourage volunteers into participating in citizen science. Exactly what you guys will be doing. It is people like yourselves that help to create the cornerstones of our increasing knowledge of the natural world…'"

David Lindo (The Urban Birder)

To increase the engagement and audience reach of the competition the 25 shortlisted photographs are being prepared for a roadshow in 2016 and will be displayed at a range of venues including libraries, visitor centres and art exhibitions.

Looking forward we aim to maintain the momentum of public relations; working closely with the wider communications of the Moors for the Future Partnership as well as external partners and collaborators. 2016 will also see the development of a team of Community Science Communication and Engagement volunteer Project Assistants.

Volunteer engagement

In 2015 308 individuals volunteered for Community Science – not including Opportunistic or Targeted Monitoring surveyors. Of these 36 community Scientists volunteered more than once; between 2 and 13 times during the year. Collectively volunteers dedicated 1804 hours this year, equating to 258 days – more than a Full-Time Equivalent (FTE) post.

The variety of activities available for volunteers has increased as the project progresses. Over the course of the year volunteers have spent most time (52%) undertaking targeted monitoring training and surveying. Bumblebee survey training commenced three months after the Community Science Officer was recruited, following induction and review of training materials. Through-out the summer months bumblebee monitoring was the only targeted survey available and therefore accounted for all targeted monitoring volunteer time.

"… I'm very impressed with the scale of the work achieved and the vision for the moors. We need more visionary projects of this magnitude."
Brett Westwood (Radio 4)

The new Sphagnum survey launched at the end of September adds to the current spring and summer targeted monitoring calendar enabling existing bumblebee survey volunteers to expand their skill set and diversify into Sphagnum moss monitoring

in winter when bumblebees die off (see fig.13). The Sphagnum moss survey also provides a different species to engage new volunteers. Building a portfolio of surveys across the calendar is expected to maintain a constant, if not increasing, involvement of targeted monitoring volunteers through-out the year.

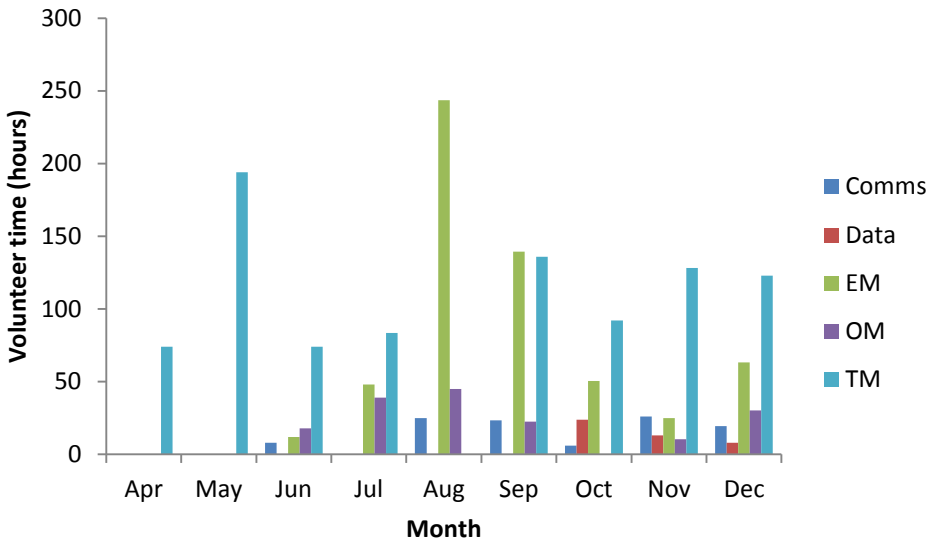

Figure 5: Volunteer activity has increased and diversified as the year has progressed.

33% of volunteer time was spent Environmental Monitoring including training, site set up and surveying. The August peak reflects the vegetation survey campaign and set up of new sites. Routine monthly data downloads continue into the winter along with data management and additional equipment training.

Volunteer time spent Opportunistic Monitoring reflect the casual nature of this survey and low level of involvement required. The lag in volunteer engagement in this survey, with volunteer time reported from June onwards, highlights the lead-in time required to promote the survey following the recruitment of the Community Science Communication and Engagement Officer in March. The above graph will not yet include all volunteer time for December as records collected over the Christmas period were not available at the time of writing.

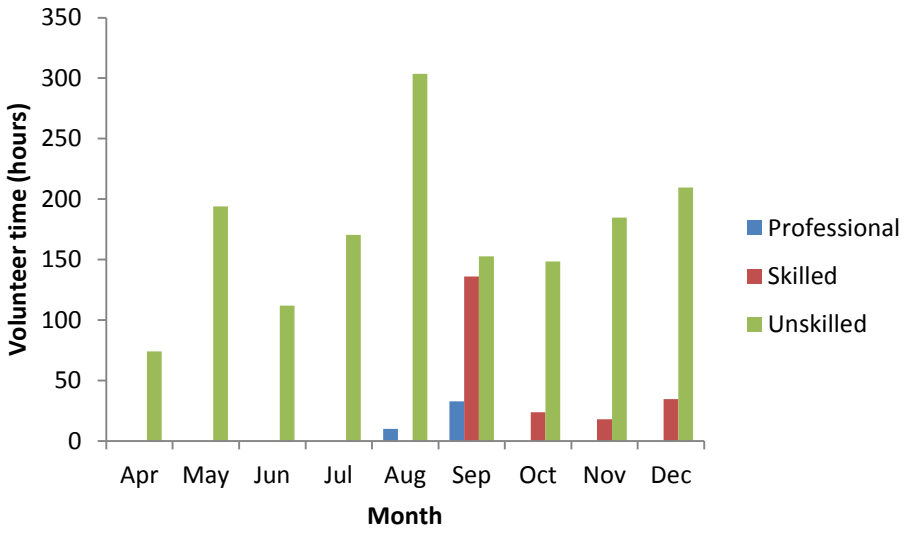

Figure 6: Volunteer time categorised by unskilled, skilled or professional activity.

Following the summer survey campaigns volunteer activities expanded to include data input – a role which will develop to include data presentation and management as the project progresses. Volunteer involvement in communication and engagement activities began prior to the launch of this year's surveys and has continued to play a vital role in the project. Almost a third of volunteer time committed to communication activities to date has been professional including a Public Relations consultant; Brett Westwood – a Radio 4 presenter; Richard Lindsey – a leading Sphagnum expert and Gill Perkins – Bumblebee Conservation Trust's Conservation Manager who have helped us put out press releases and featured as guest speakers at an evening talk and our 2015 survey launch event.

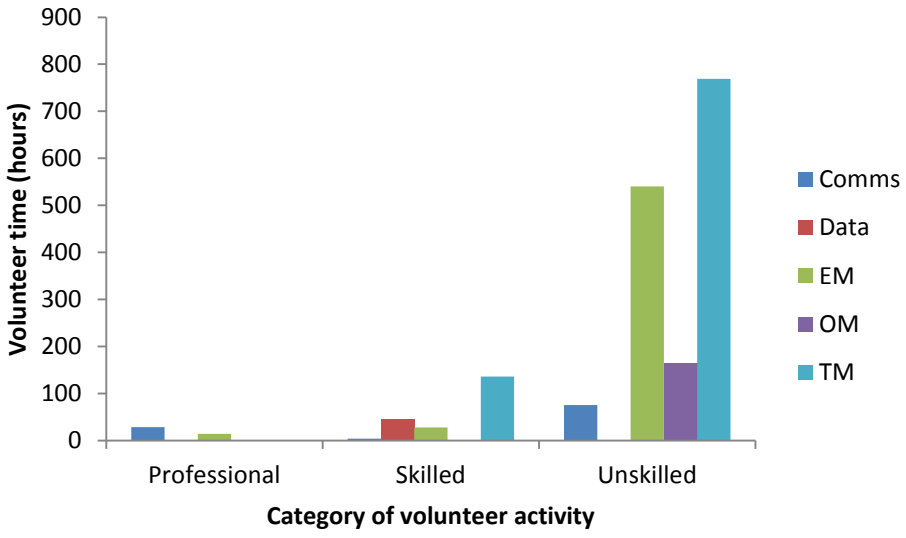

Figure 7: In the first year of delivery the majority of volunteer activities were categorised as 'unskilled'. An increase in 'skilled' activities will develop as volunteers become more confident in undertaking surveys independently.

In September, following training and support, we reported volunteers conducting their own surveys, thus considered to be 'skilled'. During 2015 86% of volunteer activities were categorised as

'unskilled', 12% 'skilled' and 2% 'professional'. In future the proportion of 'skilled' volunteers is expected to increase year on year as more people develop and become confident with the relevant skills needed.

Accessibility and inclusion

Encouraging volunteers to select their own routes to survey, as oppose to restricting individuals to provided routes, enables individuals to select moorland walks that suit their requirements. For some being in close proximity to facilities, being able to reach a location by public transport or being able to follow non-strenuous, clearly marked paths facilitates their involvement. For others walking on open access moorland with no hint of facilities is part of the enjoyment. Knowing these are important factors for volunteers when considering whether to take part we have created a map showing parking and accessibility information (http://www.moorsforthefuture.org.uk/community-science/bumblebee-transects) and encourage people to contact us should they have any particular requirements or concerns.

In place of an off-putting, overwhelming risk assessment requiring volunteer signatures (which had been identified as an area for improvement) we have, in consultation with the Peak District National Park Safety Officer, developed a Health and Safety checklist for all volunteers to consult before exploring the moorland – providing essential information in a positive and supportive format (http://www.moorsforthefuture.org.uk/sites/default/files/csp/HealthAndSafetyGuidelines.pdf).

In addition to engaging visitors and local communities who may be familiar with exploring the green spaces of the Peak District and South Pennines an essential outcome of the project is to inspire and engage individuals and groups for whom moorlands and their wildlife may be a new experience. In doing so we not only increase the audience to whom we are able to raise awareness of moorland conservation but are also providing opportunities for all volunteers to be physically active; connect with people; be more aware of their surroundings; learn new things and be part of a community that is helping out in a big way – all of which contribute to personal health and well-being.

We have been exploring a range of opportunities through which we can engage under-represented groups in Community Science.

Earlier this year we supported a local Wonderscape Eco-arts project funded by O2. Working with them we provided the inspiration, focussed on our Opportunistic surveys, for volunteers to produce their own works of art – a fantastic opportunity to mix arts and science! Groups included young carers, a Sheffield based arts club for older people and Crisis, a national charity for single homeless people. Following this successful introduction to Community Science we have been working with the Crisis Skylight South Yorkshire team who provide work and learning coaching, classes and activities, to develop a Community Science based course which may run continuously through their twelve week terms. The 'Creative Conservation' course will include members being transported to a moorland location by Sheffield Community transport minibus for an outdoor day with the

Community Science team once every three weeks. In intervening weeks members will build on their Community Science experience using it as the inspiration for an art project; creative writing; IT skills training; health and well-being reflection or towards their volunteering goals for example – all of which promote functional skills. Working with the Crisis team we will develop an accreditation scheme to ensure volunteers can capture the dedication, transferable skills and experience they gain.

Figure 8: Collaboration with Moorland Wonderscape - an Eco-Arts project by Madeleina Kay, funded by O2 Think Big and with support of Sheffield University Landscape Department, introduced Community Science to new audiences whilst combining science, nature and art.

We also hope to be able to offer a similar level of engagement with our Opportunistic, Targeted and/or Environmental monitoring – increasing skills and involvement through-out volunteer journeys – with the Peak Park Conservation Volunteers 'Fit for work' scheme; a rehabilitation program for ex-offenders. As with the 'Creative conservation' course emphasis in these sessions will be on enhancing transferable skills and contributing to personal development and employability of volunteers.

Using the above potential opportunities as pilots we aim to expand our engagement of under-represented groups visiting green spaces. Following a meeting with Derbyshire County Council there are shared opportunities to work with Mental Health groups through their Health and Communities team.

In January 2016 we plan to meet with the chair of Peak District Mosaic with whom we hope to collaborate with in future. 'Peak District Mosaic provides opportunities for people from black and ethnic minority communities living in the urban fringe of the Peak District National Park to engage in activities taking place in the Peak Park. Mosaic organises these activities and promotes them to black and ethnic minority communities, and to communities in the Peak District, through Community Champions and publicity materials.'

Whilst we don't expect to follow through all opportunities we will explore potential groups identified as capacity allows.

Looking forward Community Science has been exploring opportunities to forge links with organisations and projects that could ensure new volunteers continue to be engaged beyond 2018. We have been working increasingly closely with the PDNPA Learning and Discovery team to embed

Community Science in the Moorland Indicators of Climate Change Initiative (MICCI) project, engaging secondary school students in moorland monitoring through their schools. This year with be the eight year of the MICCI project and we have the ambition to continue it to 2018 and beyond.

Changes to the A 'Level Geography syllabus may also present an opportunity for Community Science to be included in an outdoor based field course that counts towards a carbon focussed module in the curriculum, potentially increasing the number of teenage Community Scientists engaged.

We are also exploring possible opportunities to embed Community Science as part of Duke of Edinburgh official activities through a company who run Duke of Edinburgh expeditions, and therefore have good links with the programme.

All of the above opportunities would increase the involvement of young people under the age of 25 – an under-represented group accessing the natural environment.

Partnership working

There has been continued financial contribution and delivery support from Community Science partners and strategic steer from the Community Science Steering group.

Partners have independently promoted the project both internally to staff teams (e.g. Environment Agency) and externally to public audiences (e.g. PDNPA visitor centres). We have worked closely with other teams in the Peak District National Park to embed Community Science in volunteer group activities and plan to increase joint working opportunities in future including Rangers; Learning and Discovery; Peak Park Conservation Volunteer and North Lees teams.

Figure 9: RSPB's Dave O'Hara joined the Community Science team to film a feature for BBC Look North on our newly launched Mountain hare surveys.

Partners have also helped us to promote Community Science and the importance of volunteer engagement in moorland conservation through direct involvement or facilitation of media interviews (e.g. RSPB / United Utilities). Severn Trent Water will promote volunteer engagement opportunities to their staff through their newly developed staff volunteering programme in 2016. Environment Agency staff will also directly engage with volunteering activities in 2016. We plan to work with Yorkshire Water to increase volunteer engagement across their land holdings in the South Pennines in the coming year.

Natural England highlighted Community Science as a best practice community engagement project to an international visitor from an equivalent organisation in Australia which generated a valuable knowledge exchange opportunity.

Volunteers of the National Trust in Marsden have been wonderfully supportive of Community Science and, as well as displaying promotional material in their visitor exhibition have adopted one of this year's Environmental Monitoring sites.

The partner support listed above is by no means exhaustive and continued support from partners is much appreciated.

Partnership working to develop the volunteer journey.

As well as volunteer focussed groups we have also been working with conservation groups with overlapping interests including: the Bumblebee Conservation Trust (BBCT); Sorby Natural History Group and the Mammal Society. We have been working with the HLF supported BBCT to create a volunteer journey for Community Scientists interested in our Targeted Bumblebee Monitoring. Currently Community Scientists who develop a real passion for Bumblebee identification, beyond the three species we are targeting, can go on to develop their skills and undertake BeeWalks; recording all bumblebee species.

Figure 10: Making moorland conservation engaging: as part of the Chesterfield Pollination conference a 6ft bee sculpture at the base of Chesterfield's 'Crooked Spire' is a lasting reminder of the importance of 'Pollinating the Peak'.

In April 2015 the Pollinating the Peak conference in Chesterfield successfully galvanised the need to extend education to all groups and schools in villages, towns and cities within the Peak District about the vital role pollinator populations provide. The Polli:lab initiative and the events planned will help in achieving this aim by raising public awareness of the importance of bumblebees and the problems that they face, inspiring individual action and supporting bumblebees through active conservation work to safeguard, restore and create valuable bumblebee habitats, crucially in urban open spaces

and gardens. As poor access to, or understanding of, existing knowledge is frequently a barrier to engagement in conservation this project will aim to ensure that current bumblebee/pollinator knowledge is made easily accessible to the range of stakeholders, essentially including land managers. If the Pollinating the Peak project bid is successful, Community Science, as a project partner, will collaborate closely providing significant added value to both HLF funded projects.

Looking forward

Audience reach and volunteer recruitment have been increasing through the first year of the project. Going forward we aim to increase the number of individual volunteers with repeated involvement. The launch of a new online volunteer registration process and release of Community Science volunteer Project Assistant roles will facilitate this.

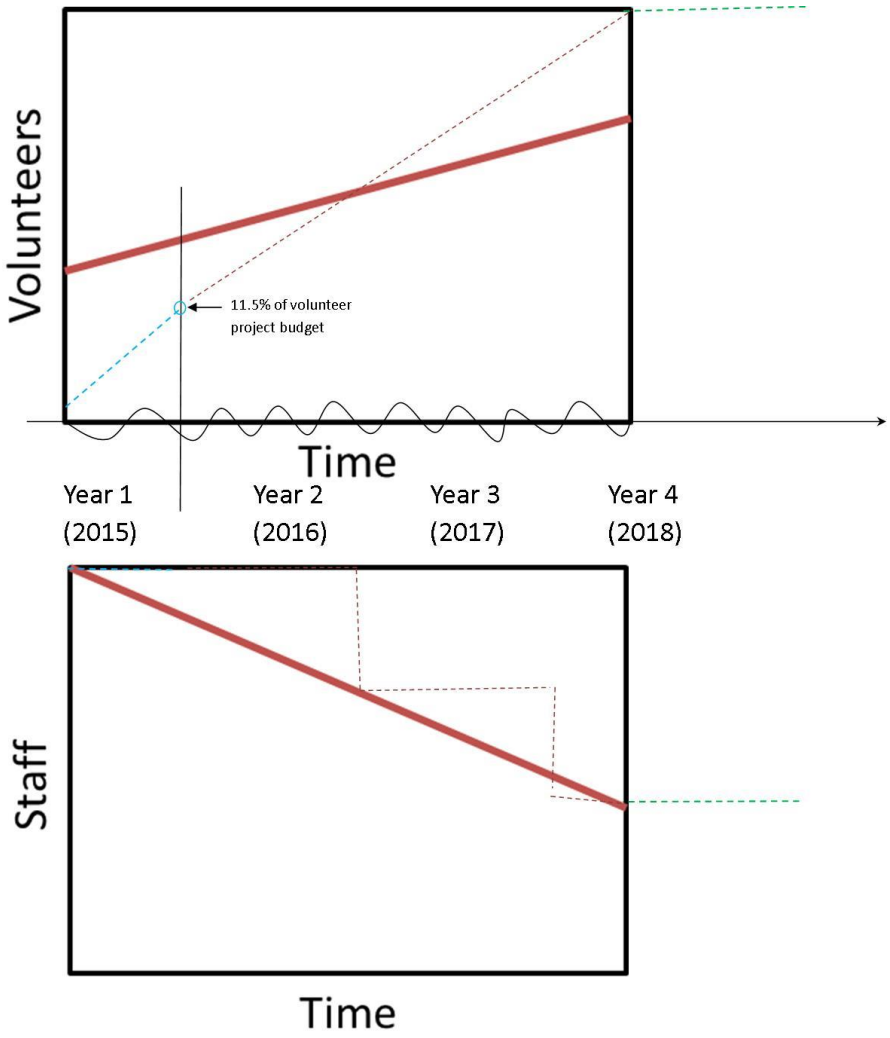

Figure 11: Models of volunteer and staff capacity over time. Red lines show original illustrations. Dotted lines show revised basic models based on learning from the first year of delivery.

In light of the learnings of the first year of delivery we have reviewed the volunteer engagement and staff capacity models created before the start of the project (shown above). There was perhaps less retention of volunteers from the pilot phase than expected therefore volunteer engagement was closer to zero than depicted by the solid red line in the diagram above. The dotted blue line illustrates the recruitment of volunteers during 2015. This equated to 11.5% of the total volunteer time budgeted for this phase of the project. Whilst the uptake of volunteers is unlikely to be as simple as a linear relationship we expect to see a sustained increase in volunteers over time as new projects are added to the Community Science portfolio and Project Assistants are recruited for all roles. Based on this model, although perhaps lower than the expected volunteer capacity for year one, we should exceed expectations by 2018. Legacy planning in early 2016 will begin to address the options for maintaining some staff capacity to ensure ongoing volunteer involvement beyond 2018.

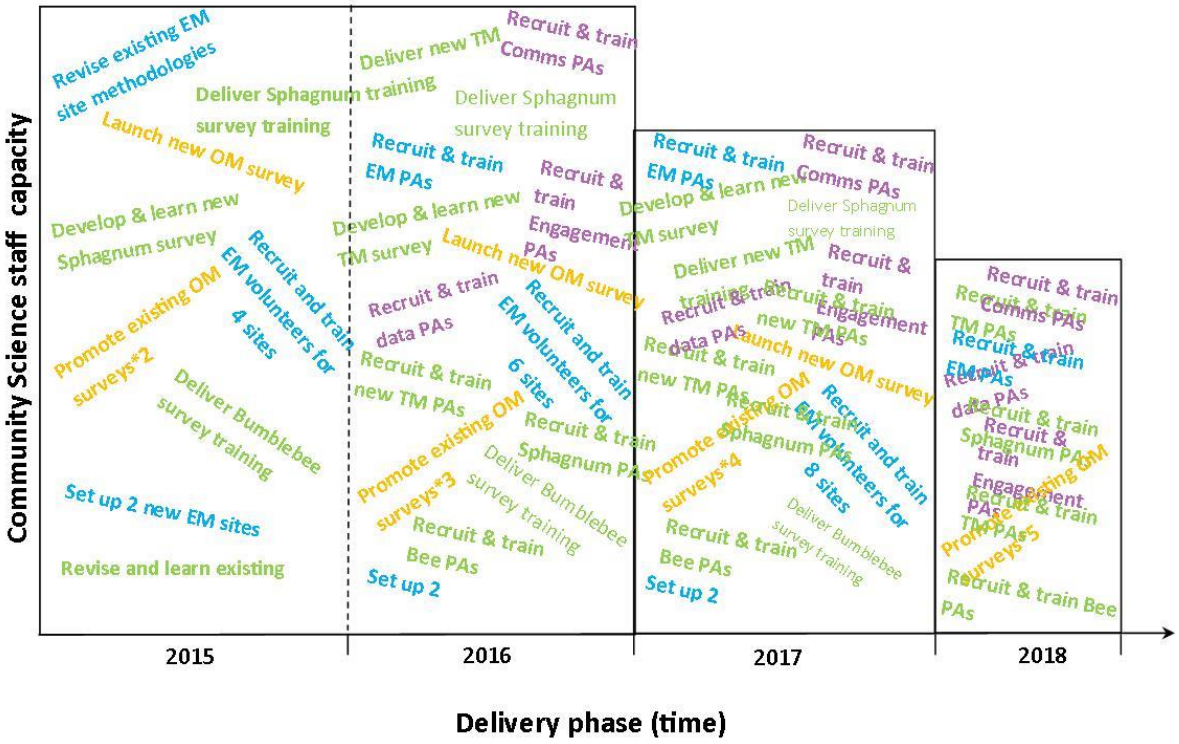

Figure 12: Community Science staff posts taper after the 2nd and 3rd year of delivery whilst the number of surveys and volunteer support increases as Project Assistants are recruited and staff begin 'train the trainers' campaign.

Successful delivery in 2015 was achieved with full time project officers and a project manager. In future years the increase in delivery will be achieved with additional volunteer capacity as project assistants are recruited, trained and increasingly involved in project delivery. There will be an overlap in sustained volunteer recruitment, retention and training through-out the project, as new surveys are launched and new volunteers and project assistants come on board. Volunteers will be increasingly self-sufficient however continual evaluation of staff involvement will be necessary to ensure sufficient volunteer support, successful project delivery and a sustainable legacy.

Science: Moorland monitoring

2015 saw the successful launch of our Mountain hare and Sphagnum moss surveys. These additions expand the Community Science survey calendar; providing year round volunteer monitoring activities.

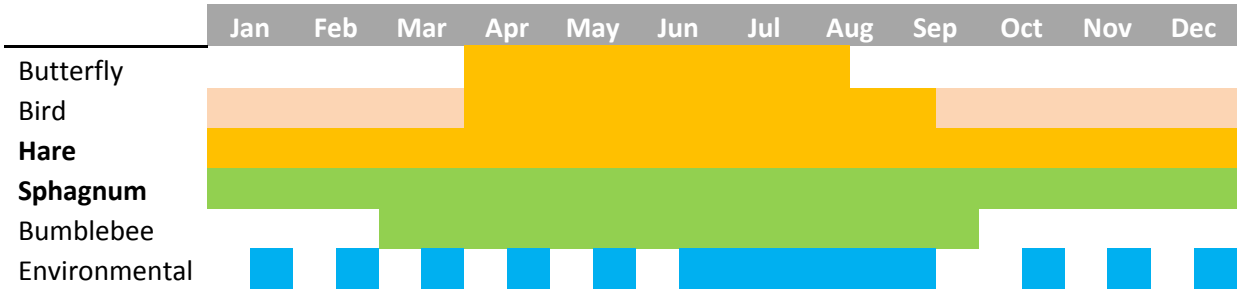

Figure 13: Survey calendar showing: Opportunistic (orange); targeted (green) and environmental (blue) monitoring activities.

Paper based resources are a key engagement tool and formed the basis of the pilot phase of the Community Science project. Through-out 2015 opportunistic postcards and, to a lesser extent, targeted survey guides have been distributed to static locations (e.g. local businesses and visitor centres) and at events.

13,000 opportunistic postcards and 5,000 targeted survey guides were distributed at 359 static locations and given out at 77 events. Static locations included 46 different types of venue including:

- 21 **pubs**,
- 17 **cafes**,
- 10 **libraries**,
- 6 **Youth Hostels**,
- 5 **Peak District National Park Visitor centres**; 5 **tourist attractions** and 5 **council offices**,
- 4 **Post Offices**,
- 3 **campsites**; 3 **book shops** and 3 **charity shops**,
- 2 **veterinary surgeries**; 2 **newsagents**; 2 **leisure centres** and 2 **holiday accommodation lets**,
- a **sweet shop**; a **train station**; a **community centre**; a **gallery**; a **garden centre**; a **pharmacy**; a **phone box** and a **volunteer bureau**…

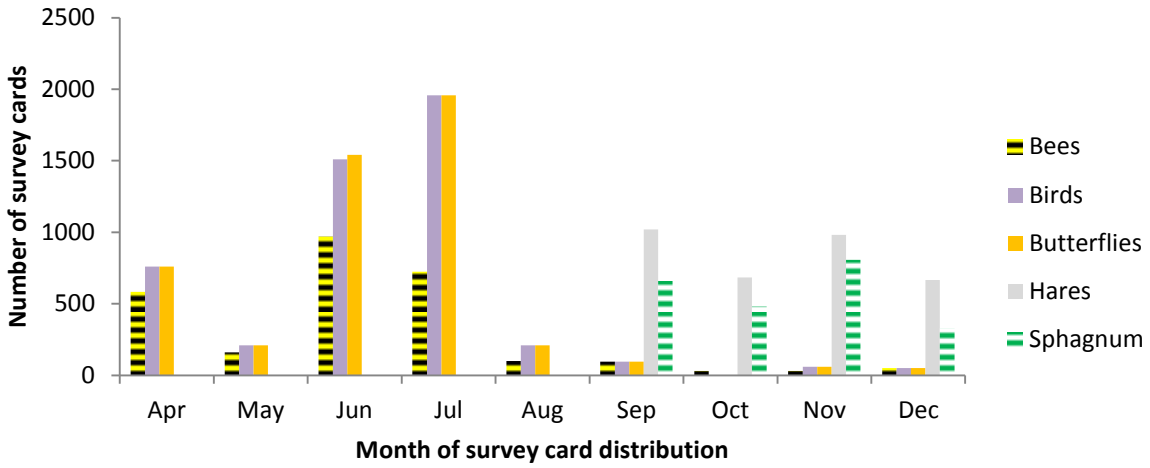

Figure 14: With the launch of the hare and Sphagnum surveys in 2015 monitoring can now be promoted and undertaken all year round.

75 of the 359 static locations had been revisited at the time of writing. Based on the butterfly, bird and bumblebee postcards retrieved from these venues, in favour of the new and more seasonal hare and Sphagnum survey cards (see below); there was at least a 50% uptake of each survey. In total, sampled from 21% of the static locations across which postcards were distributed, there was a known uptake of 1212 opportunistic survey cards and 249 targeted monitoring survey guides.

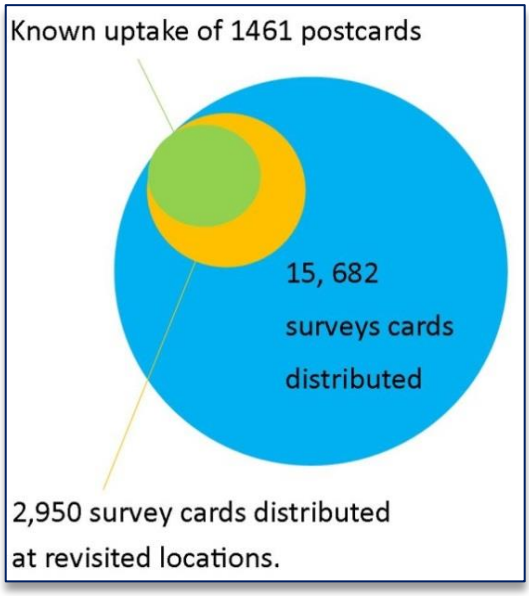

Figure 15: Proportion of known uptake of survey cards sampled from 21% of the static locations at which postcards were distributed.

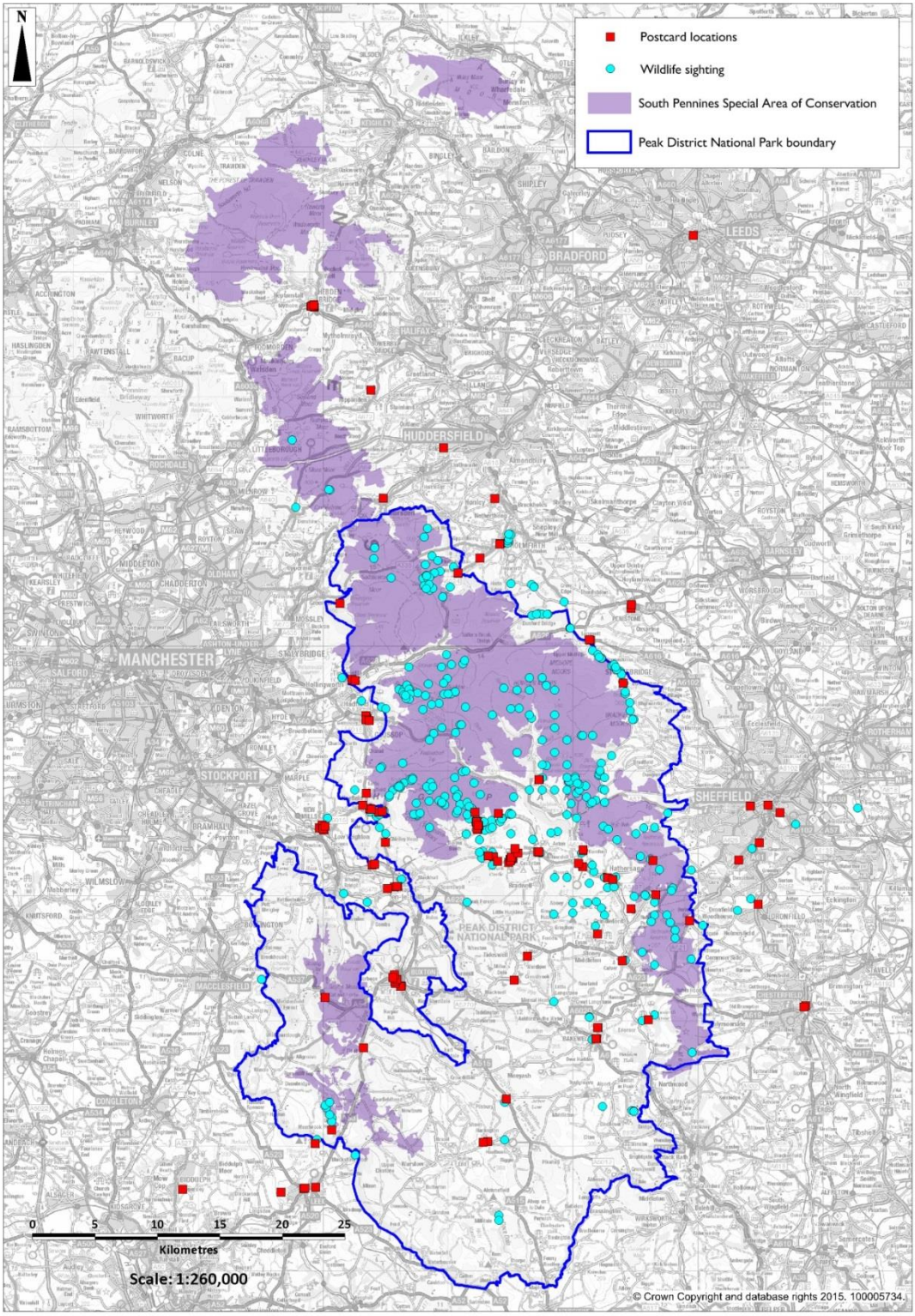

Figure 16: Locations at which survey cards were distributed mapped with opportunistic wildlife sightings submitted.

Spread of postcard distribution locations is up to date as of the end of December 2015. There is a lag in Community Scientists submitting records so uptake of the most recent distribution locations may not be reflected by records yet.

Opportunistic Monitoring (OM)

The initial return rate based on the distribution of 5390 OM postcards between March and June 2015 yielded a 2% return rate of records. Although suggestions from other citizen science projects is that this was an acceptable / expected return rate we felt this could and should be improved. To increase audience reach and improve return rate we added a Smartphone application and web form on the Moors for the Future website as methods for volunteers to submit records. We were able to maximise added value from the existing MoorWILD app developed by the EU funded MoorLIFE project to enable geolocation of Community Science opportunistic species. The utilisation of the different the different ways volunteers can submit Opportunistic records is shown below. The new Hare survey, launched at the end of September, has the widest variety of ways to engage in the survey and an increased percentage of records submitted via the Smartphone App. The success of these methods will be periodically reviewed through-out the project.

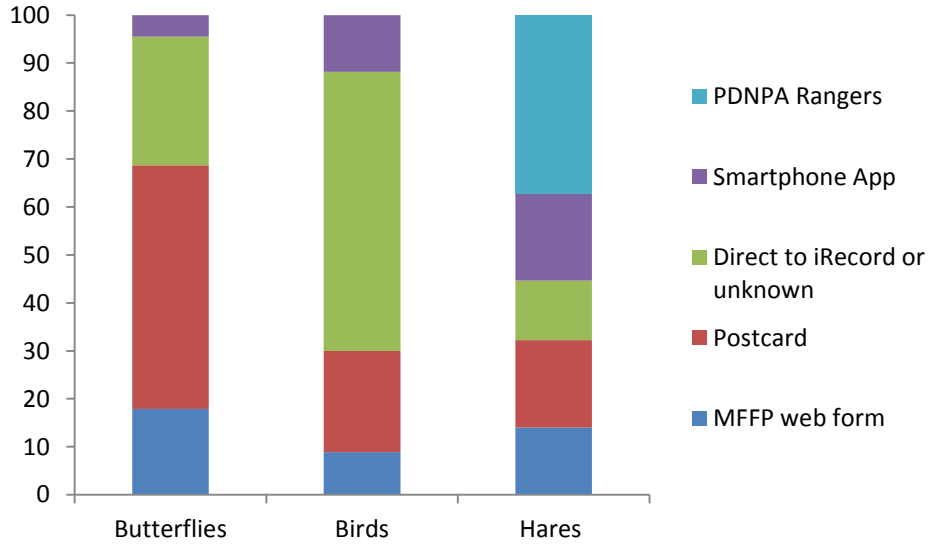

Figure 17: Proportion of OM records submitted by different methods - maximising audience participation by making engagement as easy as possible.

Butterfly survey

In 2015 the Butterfly survey, previously launched in the pilot phase, attracted 67 records of 121 butterflies, mapped below. As 39 of these records were posted or emailed to the office and input by volunteers they appear on the MoorCitizens iRecord account. We therefore can't report the number of individual volunteers who have submitted records as this information isn't captured on the survey cards. Whilst the majority of records were from the Peak District and South Pennines, sightings were also submitted from as far as Northern Ireland and Kent. Most sightings were recorded towards the southern range of the South Pennines Special Area of Conservation.

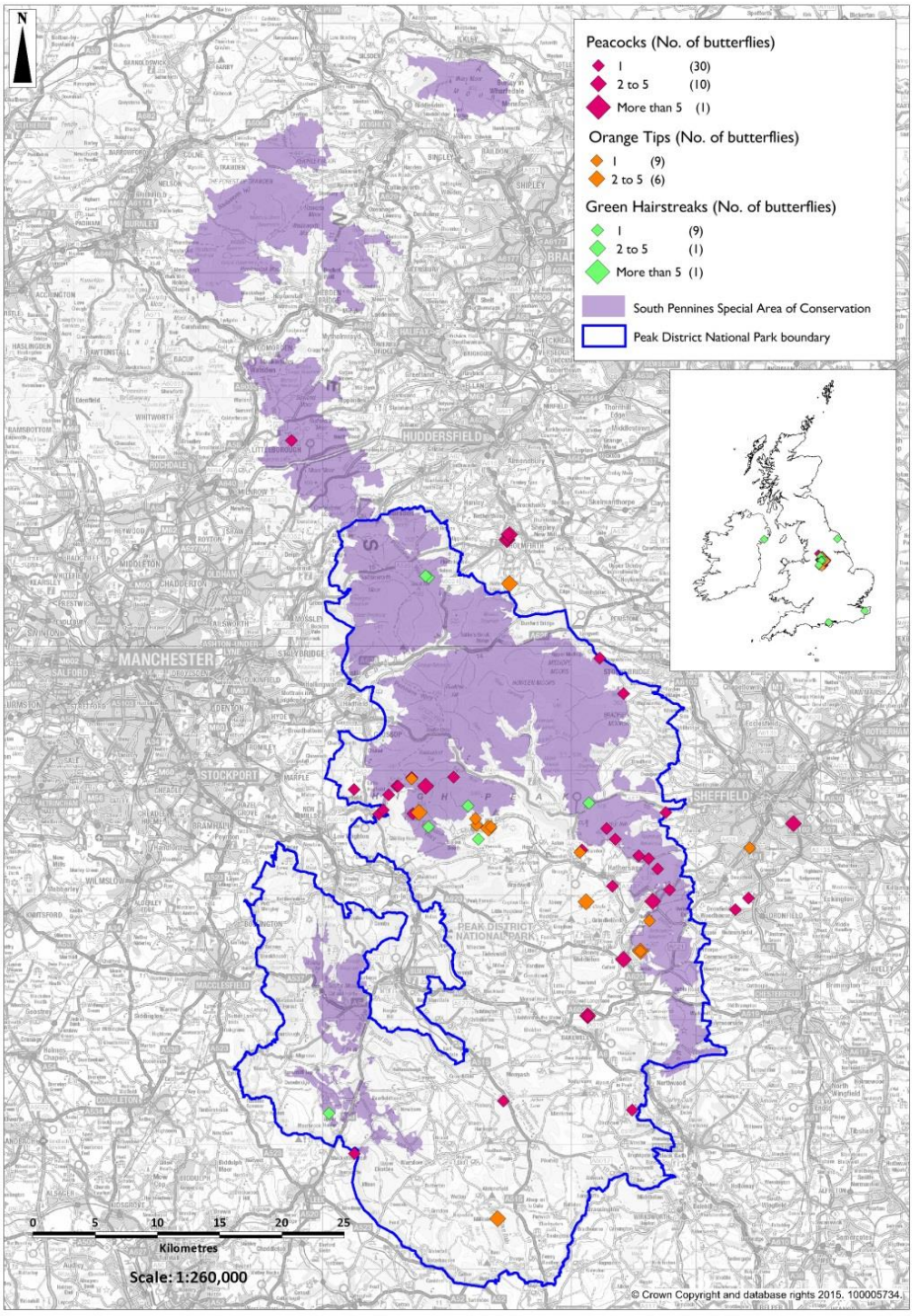

Figure 18: Map of 2015 butterfly records.

Peacock butterflies were the most frequently recorded. This is perhaps to be expected as they occupy more urban habitats and therefore are most familiar to casual recorders. As the largest species in our set of three, they may also be easiest to detect. Results from the national Big butterfly count organised by Butterfly Conservation Trust, suggests Peacock and Orange-tip numbers were lower than normal across the UK in 2015, possibly due to a wet summer. As Green hairstreak butterflies are under recorded Sorby Natural History Society and the National Trust High Peak are collating records of this species for a more in depth picture of the local population – which Community Science are feeding into.

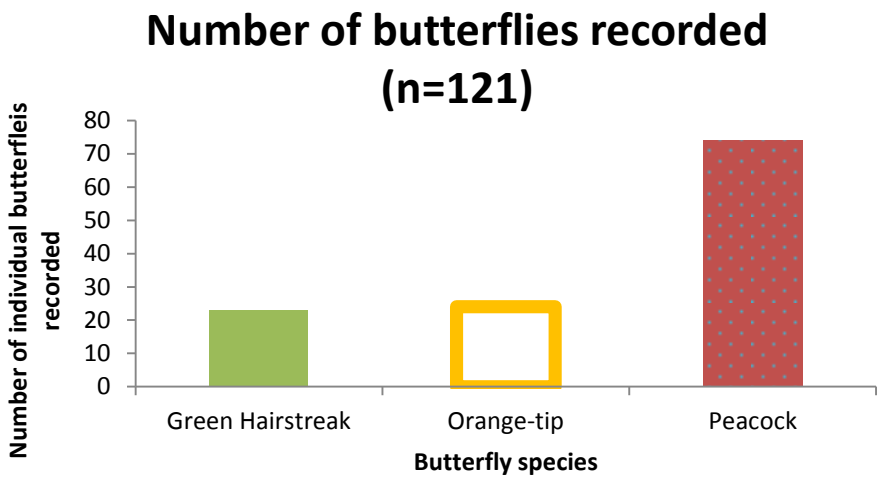

Figure 19: Number of butterfly records submitted in 2015.

Bird survey

Community Scientists sent in 237 records of 1417 bird sightings in 2015. There was highest number of Swallow records submitted possibly due to increased survey effort. Swallows can be seen across urban and rural areas so can be seen outside the south Pennine Moors Special Area of conservation. As there are a higher number of people outside the National Park more records of these species are to be expected than those restricted to moorland habitats. As swallows were selected to monitor long-term temporal changes, i.e. whether migratory swallows are arriving earlier to the Peak District and South Pennines or leaving later, we will be promoting this aspect more strongly in 2016.

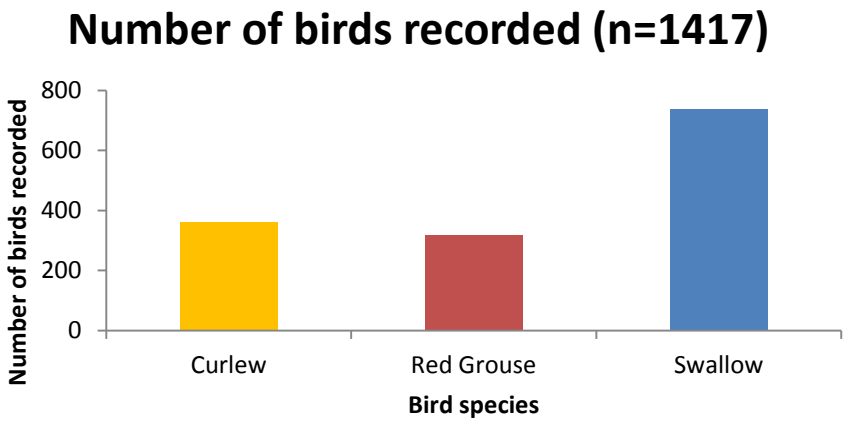

Figure 20: Number of birds recorded in 2015 at the time of writing.

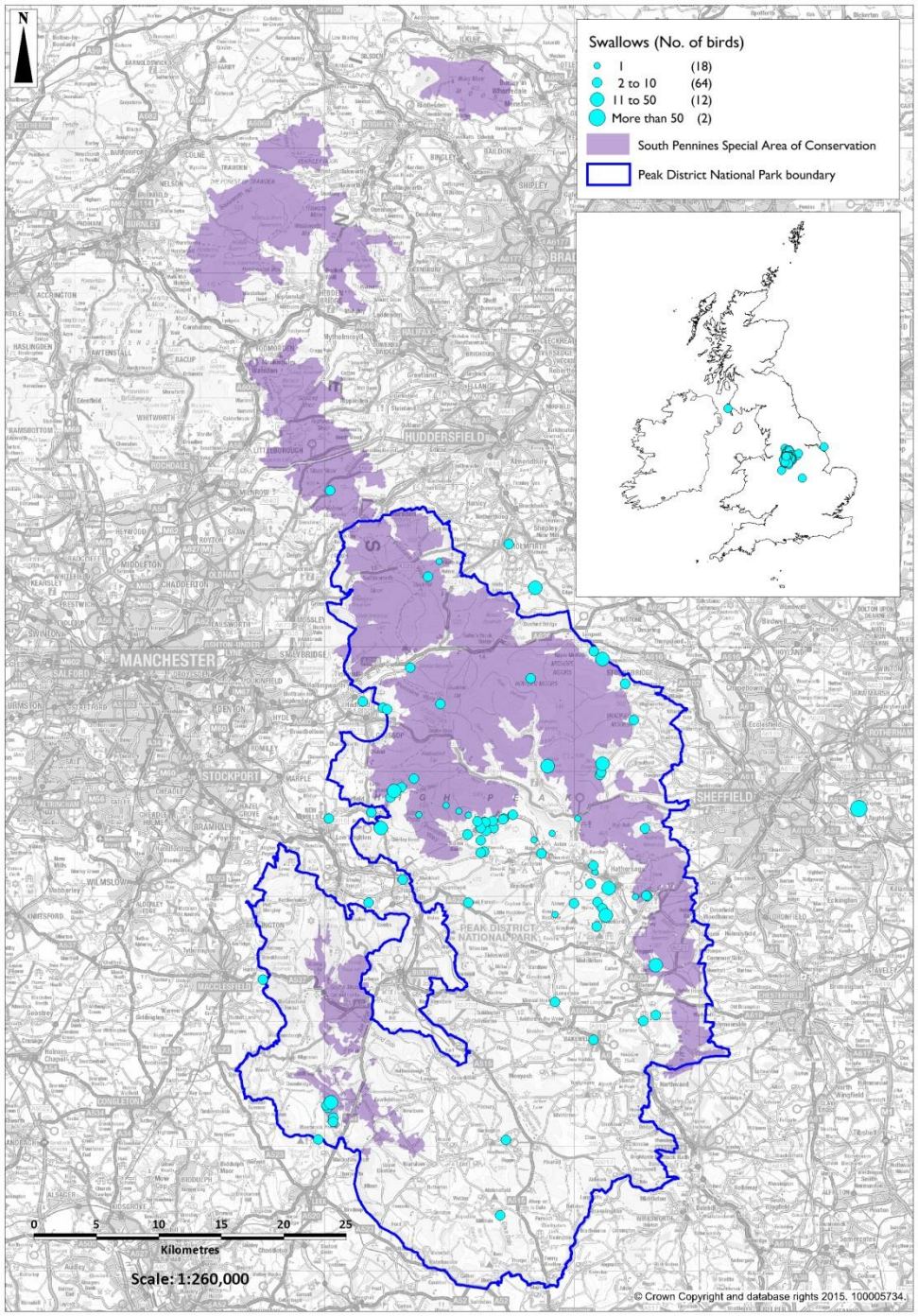

Figure 21: Swallow records submitted in 2015.

Curlew sightings were recorded notably on moorland fringe habitat, often on in-bye land where they breed. The distribution of future records will be compared year on year to capture broad-scale as well as local scale changes. In December 2015 curlew were added to the IUCN red list as a declining species.

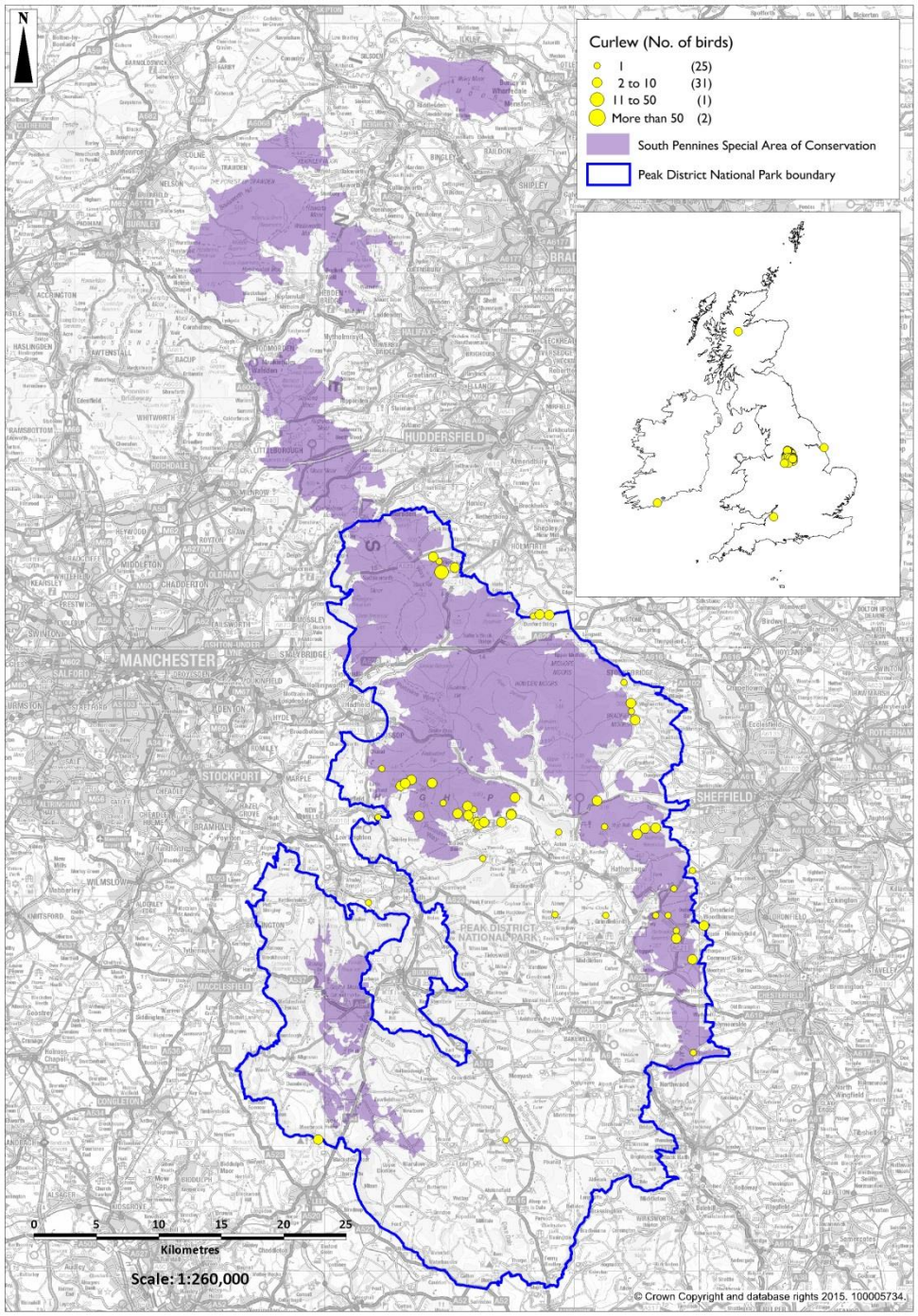

Figure 22: 2015 curlew sightings reported at the time of writing.

Red grouse sightings were surprisingly low in 2015. This could reflect a lack of volunteer engagement in recording this very recognisable bird although red grouse numbers were felt to be low this summer due to the wet weather. Unlike swallows and curlews, verified red grouse records were confined to the moorland.

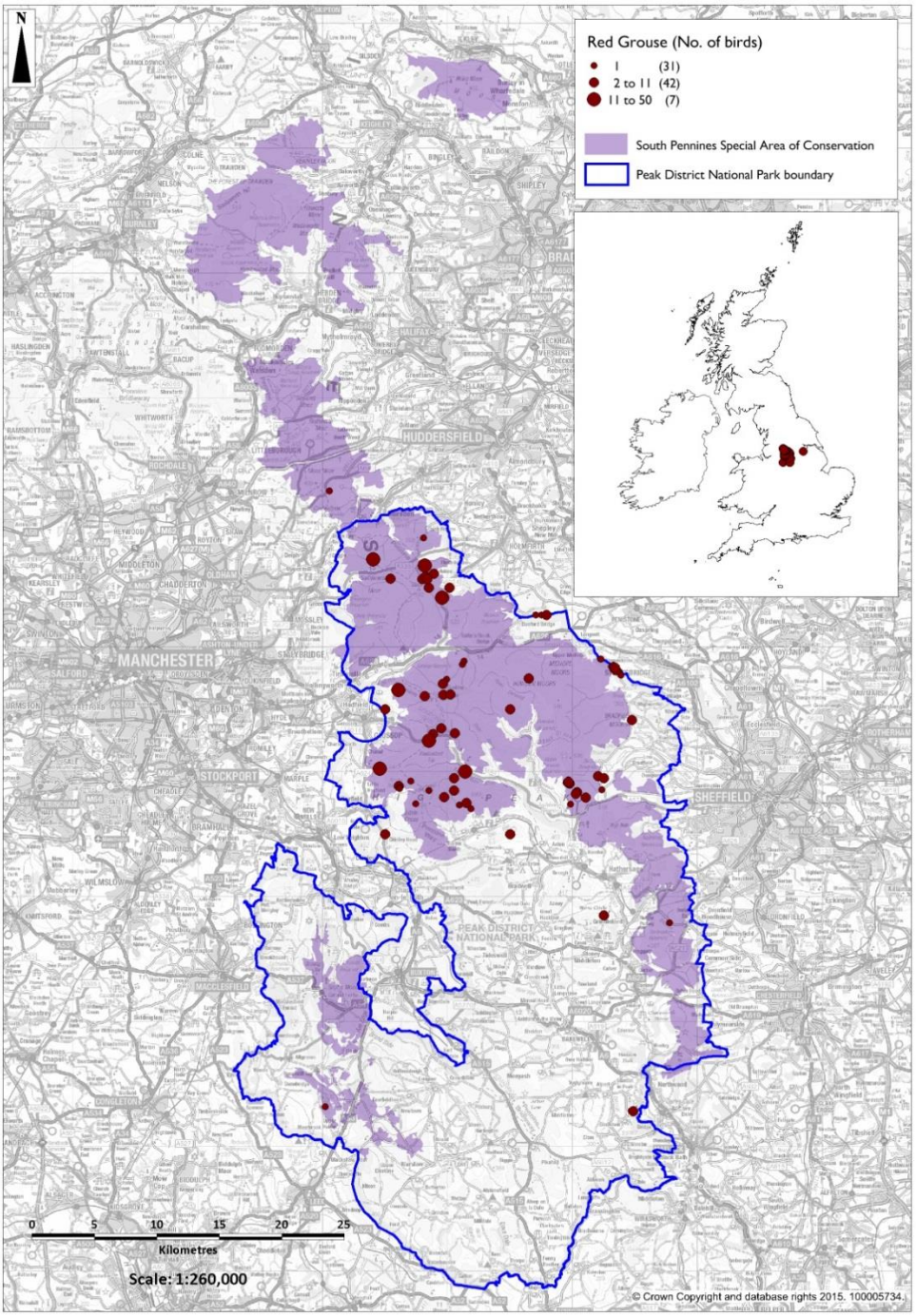

Figure 23: 2015 Red grouse records submitted at the time of writing.

Hares

In the three months since the launch of our Mountain hare survey we have had 121 records submitted of 241 sightings of Mountain hares, brown hares and rabbits – a great uptake with an average of one record per day since its launch. Records shown in the map below are not yet verified but show the impressive geographic spread of records from across the Peak District and South

Pennines to date. We have been collaborating with Sorby Natural History Society (NHS) and the Mammal Society both of whom have been promoting the surveys to their members in. Community Science and Sorby NHS co-authored an article for the Mammal Society's quarterly publication which will be circulated to all Mammal Society members in 2016, promoting Community Science. Community Science volunteers will also be invited to join Sorby NHS's annual marathon hare walk. Community Science mammal records from this year will contribute towards the Mammal Society's new Mammal Atlas.

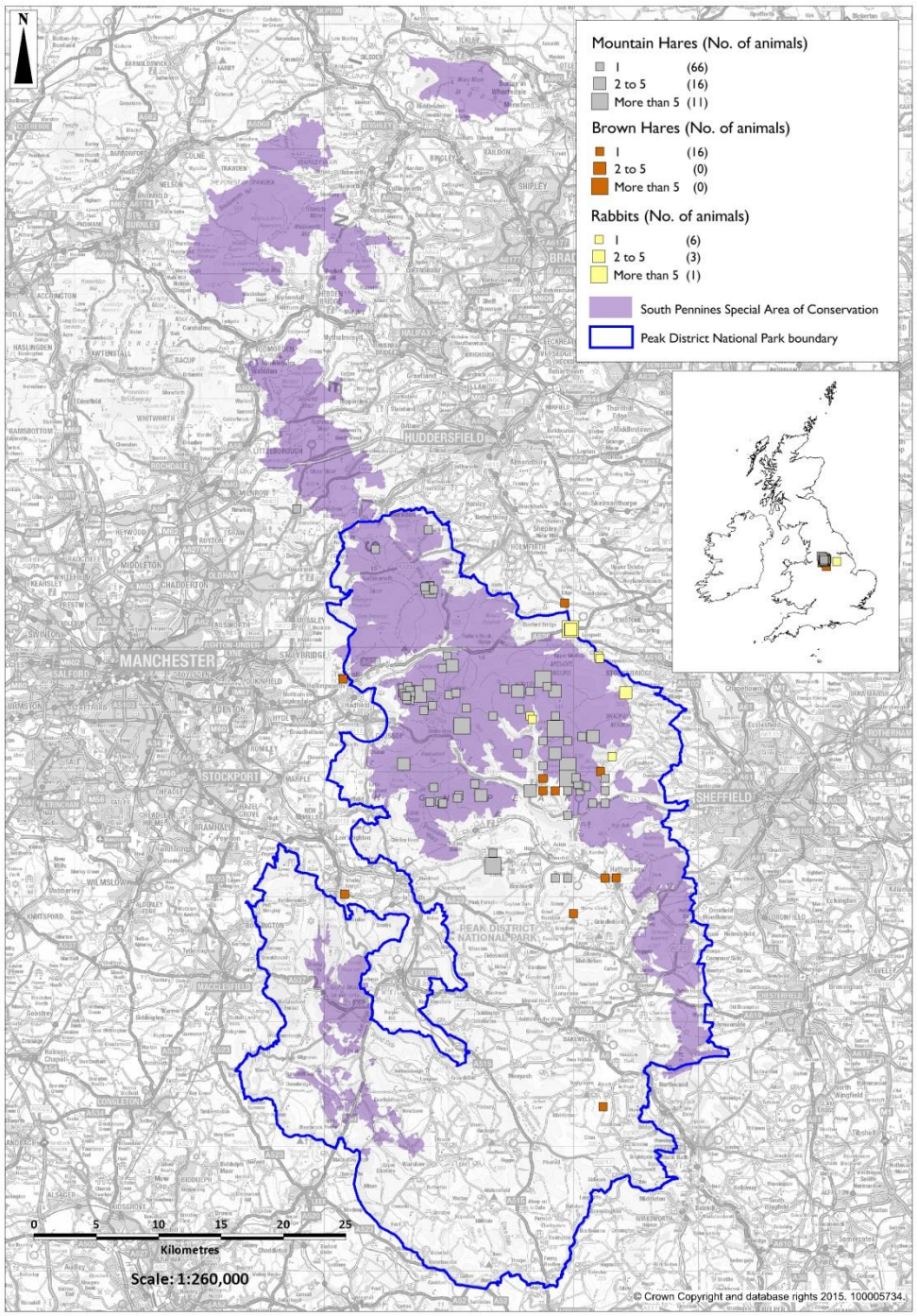

Figure 24: 2015 mountain hare, brown hare and rabbit records submitted at the time of writing. Records are yet to be verified.

The mountain hare surveys have also attracted potential PhD collaborations with two academic institutions, one at the University of Manchester and one in North Carolina which will be developed in 2016.

Not only are mountain hares an iconic upland species and perhaps the most visible indication of the impact of a changing climate on moorlands – they are also wonderfully inspiring and engaging. The surveys generated significant media interest and have lent themselves to broader engagement activities.

Figure 25: In collaboration with the PDNPA Learning and Discovery team and National Trust we introduced the new OM surveys and practiced some hare based activities with Youlgrave Brownie Guides, who produced some great art which we displayed at the survey launch.

Targeted Monitoring (TM)

Bumblebee survey

- 90 individual volunteers attended 8 training sessions
- Of which 30 individuals went on to submit their own survey
- 30 different transects have been surveyed in 2015. (*note*: this doesn't reflect one volunteer per transect)
- 123 transect surveys submitted
- 2600 bumblebees recorded.

> **"I thought the session was excellent. It was very informative and I have now set up my own transect and I'm surveying it weekly."**

A network of bumblebee monitoring transects have now been established across the Peak District. Future years will see the spread of training sessions and resulting volunteer led transects set-up in the South Pennines. The emphasis this year has been on volunteers setting up their own transects on the moorland most accessible to them. An increased sense of involvement and ownership should hopefully ensure annual participation and encourage ongoing engagement with the project.

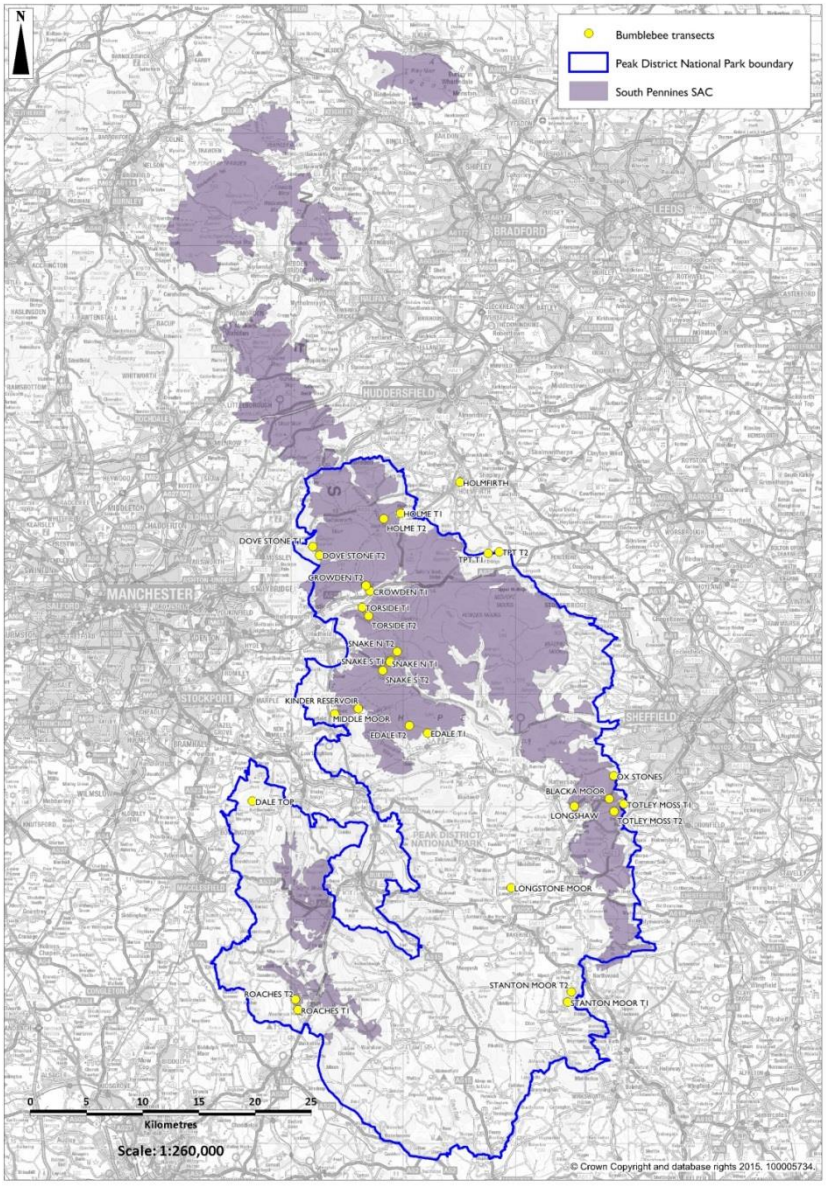

Figure 26: Distribution of bumblebee transects in 2015.

Data submitted across surveys is publically available to view on iRecord and feeds into the Bumblebee Conservation Trusts national database. This year's data illustrates the difference in activity over the summer of the three target species: the tree bumblebee; bilberry bumblebee and red-tailed bumblebee.

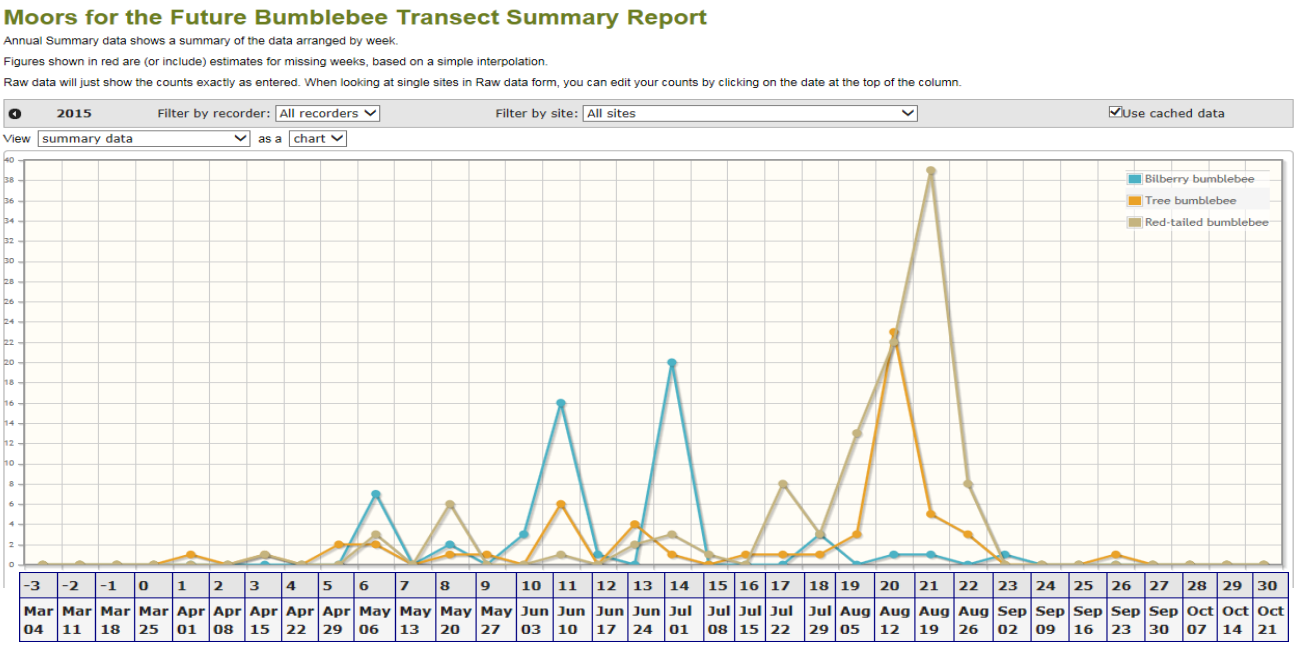

Figure 27: 2015 bumblebee data submitted by and visible to volunteers on iRecord.

Feedback was collected from 53 of 90 volunteers that attended the bumblebee training sessions. We experimented with online submission for the first few training session in an attempt to ensure feedback from everyone, with limited success – we have now settled on providing paper copies at events and requesting completed returns before volunteers leave the room!

A third of volunteers that attended bumblebee survey training heard about the opportunity directly from the Moors for the Future Partnership team (17% through our website, 9% via email and 4% from staff). 25% heard about the training through word of mouth; 17% through a partner organisation and 13% through social media (5 through Facebook, 2 through Twitter). The remaining volunteers (11%) found out about the opportunity to become involved in bumblebee monitoring at the Chesterfield Pollination conference, via University or running club email, in the Peak Advertiser or from a poster.

> **"It was an interesting, well presented session. Your own enthusiasm shone through, which is vital."**

The majority of volunteers (83%) were attending our bumblebee training for the first time. For the remaining volunteers it was either their first (4) or second (5) refresher.

On the five point Likert scale (Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree) all

attendees enjoyed the training session (75% strongly agreed; 21% agreed; 4% didn't respond).

90% of volunteers agreed that their understanding of moorland habitats and/or species had increased during the training – 81% (43) of which strongly agreed. The remaining 10% neither agreed nor disagreed that their understanding had increased (2) or gave no answer (2). 1 volunteer disagreed that their understanding of moorland habitats had improved however they Strongly agreed that they enjoyed the training session and agreed that they had learnt new survey skills and intended to carry out the survey – suggesting they already have a good understanding of moorlands and want to increase their involvement in scientific surveys.

> **"… it's excellent especially the actual walk itself! Our tutors were both knowledgeable, friendly, respectful and professional !"**

The majority of volunteers (87%) learnt new survey skills at our bumblebee training sessions (53% strongly agreed; 34% agreed). One volunteer disagreed that they had learnt new survey skills but had enjoyed the training and intended to set up their own transect, suggesting existing knowledge of biological recording and a keenness to become involved in Community Science.

Our bumblebee survey training met the expectations for 96% of volunteers. One person neither agreed nor disagreed and one didn't respond. All but three volunteers, who neither agreed nor disagreed, felt that the training gave them the confidence to undertake their own survey with 64% intending to survey existing transects and a further 25% intending to set up their own. Only two volunteers were unsure (neither agreed nor disagreed) whether they would survey existing transects and didn't intend to set up their own. More practice was cited as the solution to increasing confidence by those that neither agreed nor disagreed that the training had provided confidence for them to undertake their own survey.

Suggested improvements to the training sessions have been taken on board and implemented where possible including: providing a specimen collection for reference; providing pictures of

> **"Really interesting and professional presentation - thank you!"**

different bumblebees for volunteers to test themselves; providing a laptop with internet access to enable volunteers to familiarise themselves with iRecord on the day; providing more information about facilities at training venues and linking to the Bumblebee Conservation Trust's BeeWalk training tool before sessions – we are still working on "booking better weather" and "more bees"! Additionally, one suggestion was to "Introduce participants – often learn a lot from others attending

the event". We have created an online forum which will go live this Spring to facilitate this beyond the training sessions.

Social mix of volunteers

Volunteers taking part in targeted monitoring covered a broad age range from under 18 to over 66. Compared with the socio-demographic data for Sheffield – one of the closest urban centres to the Peak District (Office of National Statistics, 2012), more Community science volunteers were between 46 and 65 years of age than would be expected based on the percentage of Sheffield residents in those age brackets. 19 to 25 year olds were also over-represented in the Community science population compared to Sheffield residents. We did have an under-representation of volunteers in their late twenties to mid-forties; perhaps as family and work commitments take priority over time spent volunteering. In 2016 we are going to promote the opportunities and benefits for families to take part in monitoring, possibly creating their own transects to walk together in attempt to appeal more to this demographic.

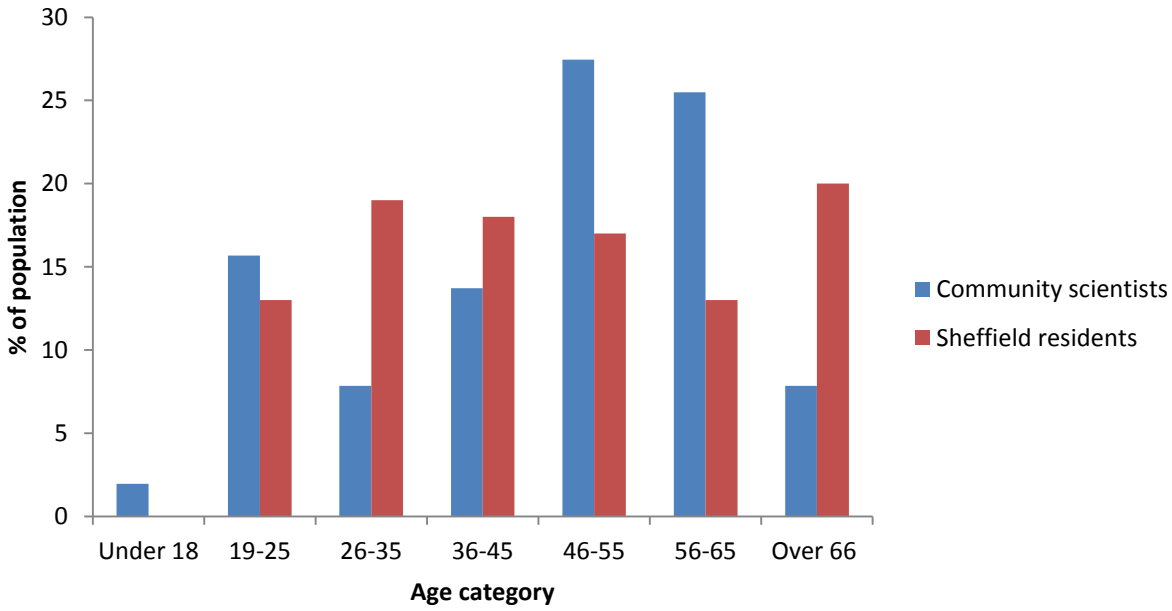

Figure 28: Age range of Community Scientists compared with Sheffield residents.

The majority of targeted monitoring volunteers were in either in full-time (27%), part-time (22%) or self (10%) employment. A fifth of volunteers surveyed were retired whilst the remaining were either in full-time education (12%) or unemployed (10%). Representation from each group suggests communication and engagement, as well as the volunteer activities available, appeal to a broad audience with varying amounts of time commitments.

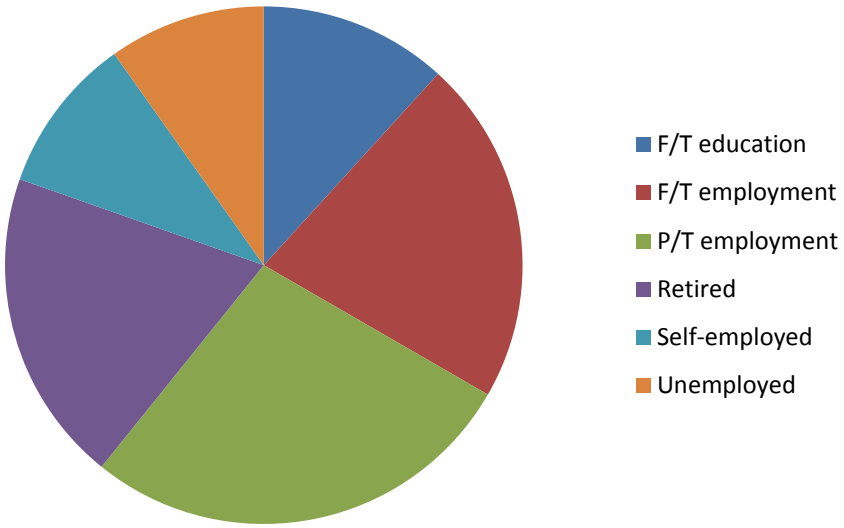

Figure 29: Employment status of Community Scientists attending TM training.

91% of volunteers attending our bumblebee training sessions were of Caucasian ethnicity. 2% of volunteers (1 person) were of Asian ethnicity. The remainder didn't provide a response.

There was almost equal representation of genders with a 44:56 female to male ratio of volunteers attending the bumblebee training sessions.

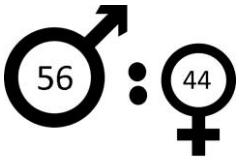

Figure 30: Starting young! Hands (and feet) on displays introduce bumblebee and Sphagnum identification to visitors of all ages at engagement events: 50th celebration of the Pennine Way (left) and Bogtastic (right).

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Sphagnum survey: Big Moss Map

On the 30th of September 2015 we launched this year's new addition to our Targeted Monitoring program.

In the last three months we have run 6 training sessions and trained 101 volunteers. Of these 8 individuals (including our Community Science Officer on his day off!) have already submitted data from 22 separate transects.

Another four training sessions are already in the calendar and a further eleven groups have expressed an interest.

To date the Sphagnum moss map has been a great addition to the Community Science communication toolkit and continues to generate interest from volunteers and conservation organisations.

> **"Thank you to all who made this such a fantastic event… I met with, and chatted to, so many enthusiastic people. I wish them all the best for this great Community Science Project!"**
> *Kate MacRae (on launch event)*

Looking forward, Spring 2016 will see the launch of a new targeted monitoring survey – 'Buds, berried and leaves' – focussed on phenology; timing of events including budding, flowering, fruiting and leaf fall. The plant species selected are important food sources for the wildlife species already recorded enabling us to raise awareness of the importance of ecological connectivity.

Environmental monitoring (EM)

2015 saw the installation of two new environmental monitoring sites on Marsden and Burbage Moors. In addition to the two existing sites inherited from the pilot phase, we now have a network

of four sites across the South Pennine Moors at which long-term changes in environmental variables, indicating the health of these uplands can be monitored. Each site now has a dedicated team of volunteers that are willing to adopt the ongoing monitoring and have spent time with the Community Science Officer setting up sites and undertaking training. Following a review of existing methodologies we have been able to improve the sustainability of the project as well as improving accessibility and ease of use of equipment for volunteers. The new equipment (detailed in the Volunteer handbook and pictured below) allows volunteers to take responsibility of a 'kit box' which contains everything they need for monitoring a site. It also enables volunteers to view the data they have downloaded before sending it the Community Science central repository.

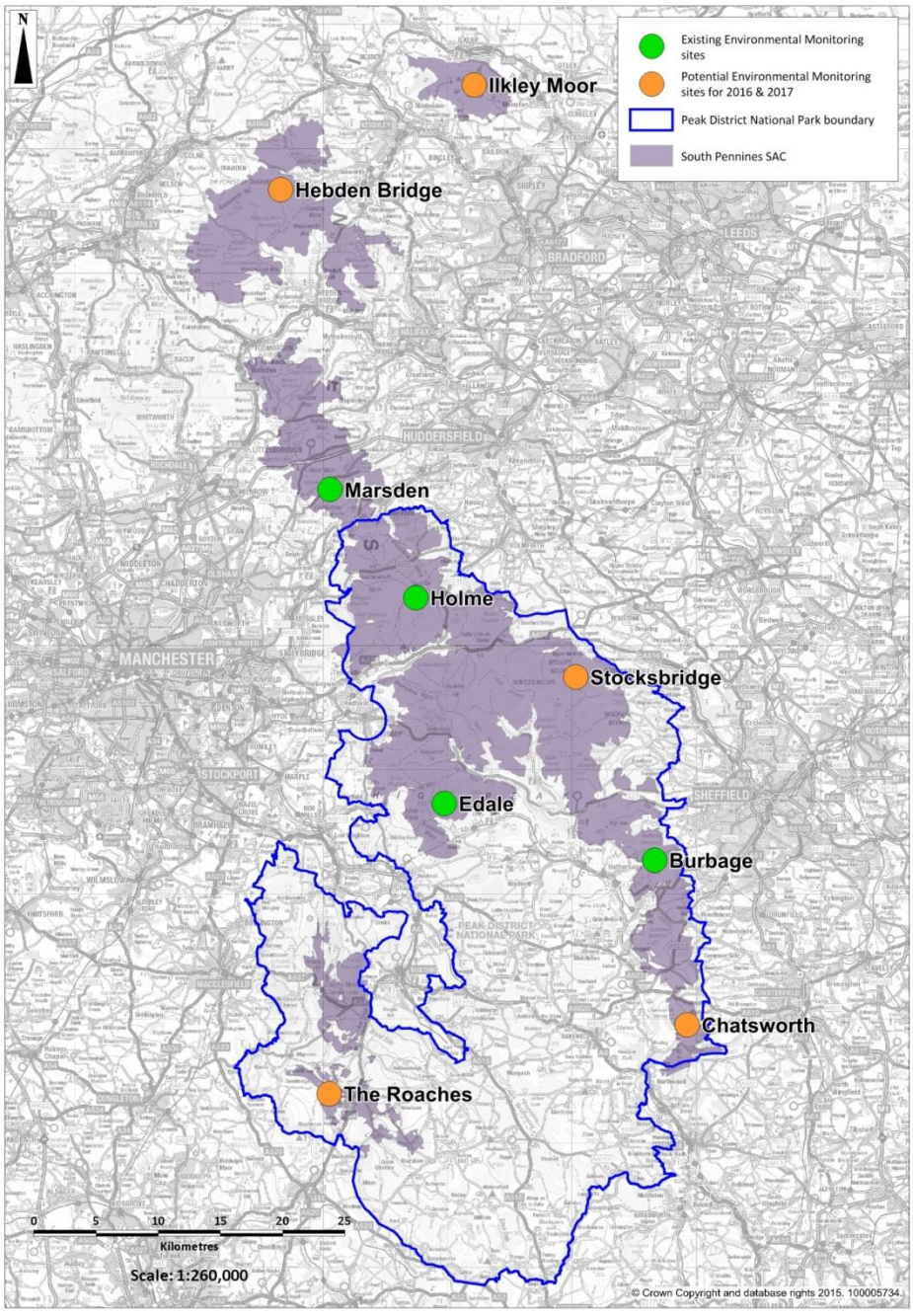

Figure 31: Locations of existing and potential EM sites.

Figure 33: Newly installed automatic water table loggers (left), rainfall gauges, humidity loggers and surface temperature loggers can all be easily downloaded with small, lightweight shuttles (right) then viewed by volunteers at home using software supplied.

Figure 32: New ground markers now indicate vegetation quadrat locations. they are less easily disturbed, more robust and durable than the previously used wooden stakes that were visible on the horizon.

Between induction, training, site set up and surveying environmental monitoring volunteers have dedicated 82 days (571 hours) in 2015.

Edale site

Following an evening talk introducing Moors for the Future Partnership to Edale Society a group of local residents have adopted our EM site on Kinder. Rowan, one of the Edale EM volunteers has recently written a guest blog post - http://moorcitizens.blogspot.co.uk/

Holme site

Holme was the last site to find a local group of volunteers to adopt it. Through-out the year individual EM volunteers have accompanied our Community Science Officer – updating the site for 2015, undertaking the vegetation monitoring campaign and finding innovative ways to dry waterproofs (pictured above) after a very wet day! Although the site will be repeatedly monitored by 'Plus First Holme Valley (Holmefirth) Scouts' in future we hope individual volunteers will continue to engage with all sites.

Marsden Moor site

Volunteers from National Trust Marsden Moor, a Community Science project partner, were involved in selecting the Marsden site, setting it up and taking charge of its on-going monitoring. 2016 will see Community Science working increasingly closely with the Marsden team to maximise added value from potential public engagement activities.

Burbage Moor site

The environmental monitoring site at Burbage is within easy reach of Sheffield and located close to one of the most visited climbing locations in the Peak District – attracting numerous visitors every year – although not always in sunny weather! Whilst the most accessible of all our EM sites the location is set back from the footpath and almost invisible unless you know what you are looking for – ensuring disturbance from passing visitors is avoided. The Eastern Moors Partnership (RSPB and National Trust) has adopted this site along with several Sheffield City Council volunteers and individual volunteers – one of whom filmed our environmental monitoring video: http://www.moorsforthefuture.org.uk/community-science/environmental-monitoring

Data collected from sites across the South Pennine Moors Special Area of Conservation will monitor long-term changes in rainfall (which varies east to west) and temperature (which varies north to south). They also record additional weather variables including humidity (which is characteristically high in the uplands) along with environmental variables which may be effected by changes in climate including vegetation communities and water tables (shown below). By monitoring changes at a number of different locations we can evidence the impact of climate change on moorlands over a long period both at a landscape and local scale.

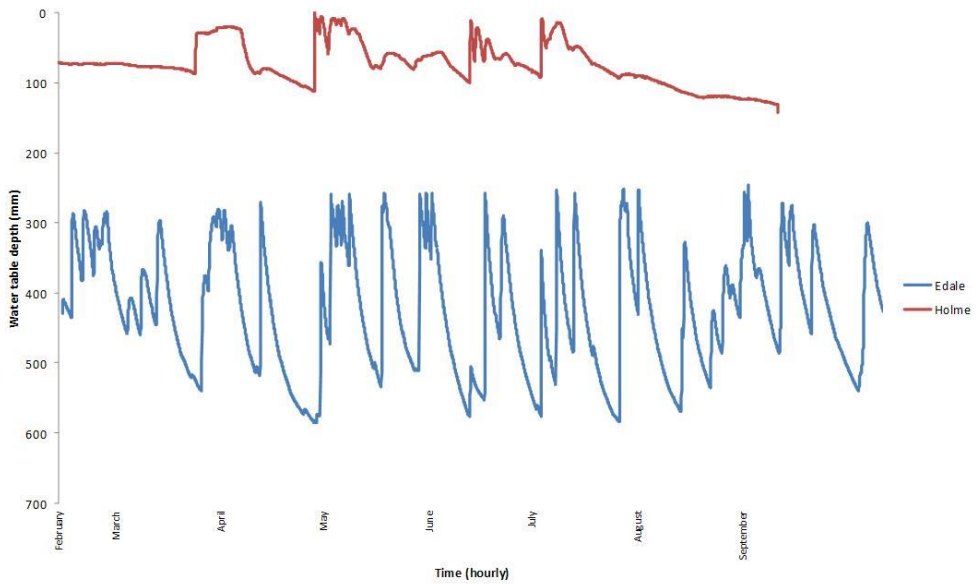

Figure 34: By comparing data such as water table height at a number of different locations, long-term changes can be monitored at local sites as well as at a landscape scale.

2016 will see the addition of camera traps at each of the EM sites to monitor wildlife activity, including mountain hare coat colour change against snow cover – directly linking our environmental monitoring to our wildlife surveys.

Additional skills sessions including navigation and health and safety courses will be provided for interested volunteers starting in 2016 giving volunteers the opportunity to refresh, develop or learn new skills and build confidence in exploring the uplands and undertaking Community Science monitoring independently.

HLF Approved purposes – progress

HLF Approved purposes	Summary of progress in the first year of delivery – 2015.	Percentage complete
Set up the project management structure and recruit appropriately skilled project team members to deliver the project. Ensure timely support and management of the team.	Project management structure established and strong project team in place. Remaining 10% progress is reserved for timely support and management of the team through-out the life of the project.	90
Establish a pool of volunteers that are trained and supported through the life of the project and beyond. Additionally identify 'Super volunteers' to support other volunteers and work with Project staff.	In 2015 308 individuals volunteered for Community Science – not including Opportunistic or Targeted Monitoring surveyors. Of these 36 community Scientists volunteered more than once; between 2 and 13 times during the year. Collectively volunteers dedicated 1804 hours this year, equating to 258 days – more than a Full-Time Equivalent (FTE) post. In September, following training and support, we reported volunteers conducting their own surveys, thus considered to be 'skilled'. During 2015 86% of volunteer activities were categorised as 'unskilled', 12% 'skilled' and 2% 'professional'. In future the proportion of 'skilled' volunteers is expected to increase year on year as more people develop and become confident with the relevant skills needed. Audience reach and volunteer recruitment have been increasing through the first year of the project. Going forward we aim to increase the number of individual volunteers with repeated involvement. The launch of a new online volunteer registration process and release of Community Science volunteer Project Assistant roles in January 2016 will facilitate this.	20
Identify and establish Environmental Monitoring on the Moors on 6 sites plus 2 sites in reserve.	6 sites have been identified for environmental monitoring by 2018. We have extended the network of environmental monitoring sites to the north and south. All environmental monitoring sites have been adopted by a local volunteer group. 2015 saw the installation of two new environmental monitoring sites on Marsden and Burbage Moors. In addition to the two existing sites inherited from the pilot phase, we now have a network of four sites across the South Pennine Moors at which long-term changes in environmental variables, indicating the	40

	health of these uplands can be monitored. Each site now has a dedicated team of volunteers that are willing to adopt the ongoing monitoring and have spent time with the Community Science Officer setting up sites and undertaking training. Following a review of existing methodologies we have been able to improve the sustainability of the project as well as improving accessibility and ease of use of equipment for volunteers. The new equipment (detailed in the Volunteer handbook) allows volunteers to take responsibility of a 'kit box' which contains everything they need for monitoring a site. It also enables volunteers to view the data they have downloaded before sending it the Community Science central repository.	
Work with groups using the moorland and establish Targeted Monitoring.	Through-out spring and summer 2015 2600 bumblebees were recorded during 123 surveys of 30 different transects by 30 individual volunteers. 8 training sessions provided these volunteers with the confidence and skills needed to undertake the bumblebee Targeted Monitoring. 90 volunteers attended these training sessions. Based on feedback from 53 of these volunteers the bumblebee targeted monitoring appealed to a broad age range of volunteers, from under 18 to over 66 years of age. 18% of who were under 25 – a group identified as being under-represented in their access of the natural environment. September 2015 saw the launch of our new Sphagnum Moss Map survey – an addition to the growing portfolio of Community Science wildlife surveys that can be undertaken all year round. In the last three months of 2015 101 volunteers attended one of 6 sphagnum Targeted Monitoring training sessions and have already submitted data from 22 separate transects. We are continuing to work with groups who are under-represented in their access to the moorlands of the South Pennines.	33
Create and deliver Opportunistic Surveys for tourists and day visitors.	Our casual surveys - butterflies, birds and the newly launched hare survey – attracted 425 records reporting 1779 wildlife sightings. These surveys were promoted through events, online and via 'picking up a postcard' (one of 15,682 distributed) at one of 359 local businesses, visitor centres or attractions in the Peak District and South Pennines. The addition of the MoorWILD smartphone application increased the variety of ways visitors and local communities can engage with these surveys; increasing audience reach and return rate.	33
Work with partners to deliver the project and enable the sharing of data. For example the Stockholm Environmental Institute at York	There has been continued financial contribution and delivery support from Community Science partners and strategic steer from the Community Science Steering group. Partners have independently promoted the project both internally to staff teams (e.g. Environment Agency) and externally to public audiences (e.g. PDNPA visitor centres). We have worked closely with other teams in the Peak District	33

University, Landowners, Environment Agency, Utilities and others.	National Park to embed Community Science in volunteer group activities and plan to increase joint working opportunities in future including Rangers; Learning and Discovery; Peak Park Conservation Volunteer and North Lees teams. Partners have also helped us to promote Community Science and the importance of volunteer engagement in moorland conservation through direct involvement or facilitation of media interviews (e.g. RSPB / United Utilities). Severn Trent Water will promote volunteer engagement opportunities to their staff through their newly developed staff volunteering programme in 2016. Environment Agency staff will also directly engage with volunteering activities in 2016. We plan to work with Yorkshire Water to increase volunteer engagement across their land holdings in the South Pennines in the coming year. Natural England highlighted Community Science as a best practice community engagement project to an international visitor from an equivalent organisation in Australia which generated a valuable knowledge exchange opportunity. Volunteers of the National Trust in Marsden have been wonderfully supportive of Community Science and, as well as displaying promotional material in their visitor exhibition have adopted one of this year's Environmental Monitoring sites. The partner support listed above is by no means exhaustive and continued support from partners is much appreciated. As well as volunteer focussed groups we have also been working with conservation groups with overlapping interests including: the Bumblebee Conservation Trust (BBCT); Sorby Natural History Group and the Mammal Society. We have been working with the HLF supported BBCT to create a volunteer journey for Community Scientists interested in our Targeted Bumblebee Monitoring. Currently Community Scientists who develop a real passion for Bumblebee identification, beyond the three species we are targeting, can go on to develop their skills and undertake BeeWalks; recording all bumblebee species.	

Table of Figures