



The Buxtonian

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Buxton's Natural Environment

Mission Statement

"The Buxtonian is the house journal of Buxton Civic Association and seeks to promote, BCA objectives, awareness of the Civic movement and Buxton's environment both built and natural through articles and research papers."

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The Buxtonian will be published twice a year with the theme alternating between the natural and built environment.

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Think Globally Act Locally

If the recent pandemic has taught us anything it is surely that having access to a healthy, robust and diverse nature is important for our wellbeing and mental health. We are lucky living in Buxton, on the edge of the Peak District and surrounded by woods and green open spaces, to have access to the healing benefits of the natural world. The climate crisis is the most profound threat that we as a species face and as the planet's climate systems become unstable and summers become hotter and winters become wetter, these woods and green spaces play an increasingly important role in keeping us both safe and sane.

Last summer the temperatures broke all previous records and reached 40C. In Buxton we had to contend with 37C and the woods provided an oasis of relief from the heat, a cool green tranquil space to calm overheated minds and bodies. Whether the wood be Gadley, with its stream, or the old town tip at Hogshaw, the cooling benefits of these spaces are increasingly vital.

However, the warming climate does not just mean that things only get hotter. Our winters are becoming wetter as the heat increases instability. Rainfall become more intense and frequent and storms more severe. The woods and green spaces come to our aid again, acting as giant sponges soaking up the water and enabling it to be slowly released into the river catchments, reducing the risk of damage to life and property through flooding.

One of BCA's remits is to look after the woods and these green spaces. In our journal we will be able to present research being carried out locally, with a focus on the natural world. In this first volume, the impact of BCA Stronger Roots Project is explored. We were fortunate to receive Heritage Lottery Fund funding to allow a huge range of family friendly activities to be carried out following the pandemic lockdowns. You can read about the remarkable impact this has made. We also include an update on Fairfield Common, following the construction of the new roundabout. Along with the butterfly survey and other materials, we hope that you find something of interest.

The scale of the climate and biodiversity crisis is at times overwhelming. What can we and our small town do to help reduce the terrifying impact of the greenhouse gas pollution that ravages our planet? We can recognise that, though technological progress and inventions will play a part in mitigating the climate crisis, perhaps the most beneficial for our well-being is to work with nature and allow her to provide us with the help we so desperately need.

In our next edition we will explore our Built Environment.

Happy New Year

January 2023

Connecting with Nature

Jon White

The Stronger Roots project and this report is funded by the Government's Green Recovery Challenge Fund. The fund was developed by Defra and its Arm's-Length Bodies. It is being delivered by The National Lottery Heritage Fund in partnership with Natural England, the Environment Agency and Forestry Commission.

Abstract

A review of recent research into the impact of connecting with nature reveals that it has a positive impact on our well-being. Recognising this, Buxton Civic Association (BCA) promoted a wide range of woodland activities through the Stronger Roots project, inviting the public to take part. The project was funded by a grant from the government's Green Recovery Challenge Fund. Feedback was provided through open questionnaires which were made available to participants, with interviews and personal reflections on their woodland experience being recorded. It was found that the public engaged readily with the many activities, finding that there was a marked uplift to their general health and well-being. It was also noted that the activities increased the confidence of participants' to use the woods and so become more comfortable in a natural environment. Activities also enhanced participants understanding of woodland management. It is anticipated that this will provide long term benefits and enhance the physical and mental health of the communities served by the woodlands.

Literature Review

BCA owns and manages 10 woods around Buxton. These consist of a discontinuous ring of woodland of around 160 acres, ranging from extensive dense untouched areas to small copses. These are maintained by a professional woods team and volunteers. The public have free access to all BCA woodland; there is signage guiding walkers and a range of printed route guidebooks are available. There is a purpose-built visitor centre, housing a café and shop. This also serves as the entrance to the Poole's Cavern cave complex which is also owned and managed by BCA. The entry fees from the Cavern and profits from the shop and café allow BCA to manage the woodland effectively.

It was observed that during 2020, the woods were used extensively by a wide range of people during lockdowns. As a charity which serves the Buxton community, BCA sought to explore ways in which it can support local people and visitors to better connect with nature as experienced in the woods. As such, research is to be conducted as part of the Green Recovery Challenge Fund grant to evaluate our current provision and to support the planning of future initiatives. The grant allowed BCA to employ one full-time and two part-time staff members to deliver the activities, working with the regular BCA team and woodland manager. A Stronger Roots Steering Group was established to ensure that the project team were supported effectively by BCA's trustees.

The importance of connectedness with nature has been explored extensively as the relationship between connectedness to nature and health has emerged. Vitman-Schorr et al (2020) document the connection between perceived access to nature and lower depression rates, citing the importance of maintaining good social relationships across all age groups. The restrictions which have been imposed on the population, preventing normal social interaction in practice for many months, have especially impacted on BCA woods users. Our first step would be to explore strategies to encourage woods users to return in larger numbers, with increasing empathy for nature our later goal.

It is noted that users of our woods are frequently parents with young children or older people in small groups. As one of BCA's goals is to increase the number of younger Association members, we want to encourage adolescents to connect with nature independently of their parents. Krettinauer et al (2020) suggests that a decline in nature connectedness in adolescents will result in a general decline in pro-environmental behaviours later in life. There is a clear imperative for us to implement activities which engender pride in the natural environment and a resulting satisfaction to be gained from children engaging in pro-environmental activities which will reduce the decline in connectedness during adolescence. Capaldi et al (2014) recognises that connectedness to nature is a predictor of future health and well-being, something that BCA has long believed and encouraged not only through the provision of many miles of pathways but through interactive (seasonally adjusted) signage, activities and woodland sculptures of woodland flora and fauna. This, together with the expanded Forest Schools programme, nature-based play activities and arts projects with local artists combine to provide opportunities for many people to connect with nature more effectively.

However, simply providing opportunities and having good intentions is not enough. We recognise that connectedness to nature is a concept, which has been extensively explored but is a difficult concept to measure, provoking concerns that our good intentions may not reach beyond those individuals who would use the woods without our intervention. Perrine and Benassi (2009) proposed a scale of emotional connectedness, but it has been problematic to differentiate cognitive beliefs from emotional experiences, especially in children. Mayer and Frantz (2004) proposed a Nature Connectedness scale, adapted by San Jose et al (2017). Both Scales and



Comments from our woodlands yoga sessions included;

"Coming away feeling soothed + excited with joy of being in the forest. I loved seeing the canopy + bright green of the leaves."

"I've never been to a yoga class before - I loved Noelle's encouraging attitude, the welcome of the group and the canopy overhead - its been a long while since I looked so closely at it, or the bark of the tree I lean against. I would try this again if I had the chance!"

Indices emerging from this work were challenging to both implement and interpret. Sobko et al (2018) recognised the importance of parental support when engaging children (in particular confidence and previous experience of outdoor environments), demonstrating the importance of simple "Enjoyment of Nature" as a key factor for both parents and children. However, the methodology employed in this research was critiqued for its sampling, using as it did an online reporting system that may have biased the population involved.

We recognise that pathways to engagement will connect with participants in a range of interconnected ways. Lumber et al (2017) proposed the following domains of natural experience.

Domain	Outcome
Contact	Simply enjoying being outdoors
Beauty	Appreciation of the aesthetics of nature

Meaning	Understanding the importance of natural balance
Emotion	Feeling part of a connectedness with the wider world
Compassion	Being prepared to care for nature

It suggests that there is an intersection between psychology, health and an aesthetic appreciation of nature. It is anticipated that increased connectedness with the natural world will have a holistic range of internalised and external benefits to individuals, families and the communities in which they live and work. This is reciprocal, as there will be benefits to our woodland flora and fauna communities from the increased sensitivity of users.

DEFRA (2018) proposed a 25-year plan which recognises that there is a general increase in the prevalence of nature deficit disorder. This exhibits itself as a disconnect from the natural world and a reluctance to engage with environmental campaigns. It is as though that is "the responsibility of someone else" and "nothing to do with me". BCA believes that one of our key goals is to dispel the myth that we are disconnected from the natural world and that in fact we are part of the living ecosystem that is our world. Connectedness to nature is a goal for Early Childhood Education, with Barrable (2019) referring to a pedagogy of connectedness; early years settings strive to ensure that all aspects of teaching and learning embody the principles of "one earth" and recognises that we are a "keystone species", part of a greater whole.

BCA recognises that visitors to our woods come for a great variety of reasons. Each visitor brings their own experience and expectations. We recognise the importance of supporting them on their journey of exploration: one size does not fit all and as an organisation we need to recognise that our appeal needs to be to a diverse visitor base. A traditional modernist agenda, where the woodland experience is provided on a take-it-or-leave-it basis is being replaced by a more post-modern approach, as we become aware that each visitor, irrespective of their age and previous experience, is on their own woodland journey with its own personal trajectory. Taylor (2017) discussed the sensory impact of taking a walk in the woods, reporting that participants across a range of age-groups would see and hear more each time they visited. Cheng et al (2012) suggests that there is a constructivist narrative at work, in which responses from participants are grounded in their shifting experiences over time. Recognising that many Buxton residents live some distance from the woods and may have a long walk even to get to the woods, we note the UNESCO (2017) concerns that the children who have the greatest need to connect with nature are likely to be those with the greatest barriers to such access. We needed to start by taking nature to the people. This involved recognising that there is a difficult first step to be taken and that first step is ours. It is also recognised that this is not only a challenge in the UK, but across many countries. However, it is possible for these initiatives to be successful when supported by research. For example, Haluza *et al* (2014) explored the health benefits of engaging with the outdoors and made recommendations to the Austrian Health Board which were adopted across the country.

The first visit made to a wood may be the hardest. Harvey et al (2020) have explored the woodland experience, identifying the perceived experience of users through their reporting of the three good things which they took away with them. Understanding this through the experience of the user may give us a framework to enhance future engagement

BCA connectedness research provides an opportunity to better understand how provision can;

1. Improve community participation in woodland activities, both formal and informal.
2. Contribute to the well-being of woodland users, both younger and older.

3. Better inform woodland users of our management strategies, both short and long term, to increase the feeling of community participation in the woodland experience.



Methodology

Comments from participants in our tai-chi groups included;

"Calm now. Will visit woods again, want to tell everyone how great tonight was."

"Today was lovely to be outside, I have done a little tai chi before but in the open air was new!"

"Peace & calm in nature."

In planning this exploration of the outcomes of the Stronger Roots project, the research team recognised that there were several key issues to be considered in planning the activities and when working with participants.

We were likely to encounter participants from a wide range of ages and social backgrounds. Many may not have taken part in woodland activity research and may be reluctant to share their honest opinions. The views of both adults and children were sought and we wanted to provide them with opportunities to communicate freely and without constraints. We anticipated involving participants who would have a range of disabilities and mobility impairments so we would need to ensure that they were fully able to participate.

We are bound by an ethical code of conduct. While not being part of a formal research body, we recognised that we represent Buxton Civic Association (BCA) and our approach to participants, the conduct of the research and the language used in the research must reflect the values of BCA. Regular meetings were organised with the delivery team and representatives of the Steering Group to monitor the progress of both the project and the research.

Finally, we were constrained by time and place. The research design was constructed to be completed within a specific time scale and in a specific geographical location. The research team recognised that the volunteers involved were giving freely of their time and that it necessitated designing materials which were readily accessible and yet provided the opportunities to express opinions accurately.

Planning

Early discussions into the theoretical constructs which would guide the design, identified that there were two competing research paradigms. We considered the use of a positivist approach, in which participants would be invited to complete questionnaires and answer using scales and so generate data for analysis. However, we agreed that this approach would be unlikely to engage all participants effectively and had the possibility of generating data which, while straightforward to analyse, would not reflect genuine thoughts and feelings. It would be likely to lack the necessary reliability to construct valid conclusions.

We opted for a more interpretivist strategy, in which participants had the freedom to respond in their preferred way when invited to share their experiences. A narrative approach was invited, with participants using art, reflecting on the impact of the activities through video recordings as well as through questionnaires relating to their experience over time. We were able to discuss the project activities with participants, using the conversations to search for deeper meanings through narrative analysis and personal anecdotes.

Materials design

A generic feedback form was designed and piloted with early volunteer groups. Some minor modifications were applied and then the generalised response sheets were circulated within the groups. Some participants had little experience of woodland activity, while others were regular visitors to the woods. Some were unfamiliar with the activities, while others had practiced them before, although not in a woodland setting. We recognised that this diversity made constructing response frameworks difficult, but a review of recent research into connectedness with nature provided some insights into successful strategies which we adapted to our context.

Of particular concern was to gain insights to the view of younger participants. Initially we designed a series of feedback sheets involving "Happy / Sad" faces, inviting children to point or mark their feelings but these were not taken beyond the piloting stage. We were, however, able to conduct short video interviews, where children were invited to share their feelings and explore how the activities had made them feel. Using these strategies, alongside scrap books and drawings, we were able to build a mosaic to better understand the experience of the child.

Population and sampling

It was recognised that participants would be coming to the Stronger Roots events from a wide range of places and spaces. As such, our population comprised local residents, visitors to Buxton and children and young people involved in forest school or community arts projects.

Our research used an opportunity sampling approach, with all participants being invited to reflect on their experience. We recognised that some did not wish to provide feedback, but the majority were willing to share their thoughts and feelings about the activities, how they felt these had impacted on them and how their future behaviours might change in the short and long term.

Ethical considerations

Our starting point was that we required informed consent to be given, with participants knowing who is conducting the research, what will be involved and how the research will be used. This was enabled for adults by a short explanation at the start of the activity and a statement on the feedback forms. When working with children, informed consent was acquired from each child and a responsible adult. If the child was visiting with family, consent was sought from a member of the family.

We advised all participants that their involvement was at all times voluntary. They were able to take part, or not, and we recognised that they needed to understand that withdrawal was always an option. Following completion of any paperwork, drawings or video recordings, these could be removed from the research at a later date. However, participants were advised that withdrawal of their feedback would not be possible following the publication of the report.

While the majority of the research was anonymous, in some situations we invited participants to engage with further discussion with the research team and if they wanted this, they provided contact details. At all times, confidentiality was assured and that the materials provided would only be used in the production of the research report.

Analysis and interpretation

Returned questionnaires from individual activities were analysed with regard to the replies to each category of question. Any trends were explored in relation to the initial aims of the project. These are presented as a narrative analysis of the themes, trends and outcomes.

A similar approach was taken with the interviews and filmed discussions, with responses being categorised in relation to how participants felt the activities had affected their health, confidence

and interactions with the natural world. Of particular interest were the perceptions of how the activities have changed their behaviour and attitudes in the short and long-term.

Implementation

The research team began collecting responses following the completion of the pilot run. The first replies were received in April 2021, interviews were conducted through the summer and into autumn and the collected materials were collated in November 2021.

The first draft of the report was planned to be delivered in late January 2022, with a final report anticipated in March 2022.

Findings

The findings from the research tools were identified in a range of forms.

- **Video recordings (Appendix 2)** - Participants were invited to answer a range of short open questions which could be recorded.
- **Questionnaires (Appendix 3)** - Participants were invited to answer a variety of questions on a single page questionnaire. They were given the opportunity to discuss their responses should they wish.
- **Drawings (Appendix 4)** - Participants were invited to communicate their post activity feelings through an open drawing through the questionnaire..

Analysis and Discussion

The analysis will proceed in order of the goals of the Stronger Roots project identified in the literature review.

Theme 1: To improve community participation in woodland activities, both formal and informal.

A range of activities taking place in the woodlands have been offered to individuals, groups and school parties. These included

- i) Community arts activities, including visual art, crafts and storytelling
- ii) Community theatre workshops and production
- iii) Tai Chi
- iv) Yoga
- v) Nordic walking
- vi) Mindfulness
- vii) Forest bathing
- viii) Forest schools
- ix) Bushcraft and woodland skill workshops

Participants have engaged with all of these activities and provided feedback. The majority of participants came from Buxton and the surrounding area. The ages were from under 5 years old to senior citizens of around 85 years. From responses received, it appears that the range of activities appealed to a wide cross-section of the community, many of whom were experiencing the woods and the activity for the first time.



Comments from participants in Play Wild forest schools included;

"Lorna made me feel welcome and accepted. Grinlow Woods made me feel calm and mindful of all the beauty we have on my doorstep. The Forest school group made me feel not alone in having a child with additional needs."

"Seeing the children explore the natural world."

"Walking through woods made me feel relaxed. Making things made me feel involved."

Some specific engagement was experienced by children and young adults who are on the autistic spectrum. The social activity and activities in safe spaces were able to provide opportunities for growth. The children connected with the woods and gained from being able to interact with others in activities. In particular, simple social play in the natural world promoted a new level of benefit for participants. Parents were able to see their child interacting in new ways, finding new levels of security in the activities and with other children. Repeat visits served to increase this development. From some of the comments, it was clear that parents were able to benefit from peer support. Having something local with which they could engage was seen as being particularly beneficial rather than having to travel an hour to Derby or Chesterfield for autism-specific services.

It was noted that some of the instructors were carrying out their classes in a woodland environment for the first time and observed that this added an unexpected dimension to their group work. One yoga teacher has published an article in the magazine about how these sessions have influenced her practice, disseminating the woodland yoga practice to a wide readership.

The range of provision allowed local residents to engage with an activity appropriate to their ability and interest. While the number of people using the woods is not monitored, it was recognised that there was a general increase in woodland use, with activities such as Storytelling / Forest Theatre and Forest Yoga being the most popular.

Participants were invited to indicate how far they had travelled on the day of their activity, with many coming from Buxton and the local environment, while a small number came from nearby towns and villages. Most appear to have travelled by car or to have walked, suggesting that a regular scheduled bus service may well have further increased participation.

The weather did not appear to deter participants and it was noted in many responses that the trees provided more shelter from light rain than was expected. There was a period of very hot

weather too and, as with the rain, many participants noted how pleasant it was in the woods compared with the heat outside.

As such, the overwhelming majority of participants reported that they now have the confidence to be returning to the woods on their own or in family groups for leisure activities. There were numerous requests for more activities to be scheduled and, while the Stronger Roots activities were free, the Steering Group will be discussing the possibility of imposing a small charge for participation.

Theme 2: To contribute to the well-being of users, both younger and older.

In the feedback many users reported a significant increase in their feeling of being better connected to nature and that the activities helped them gain mental and physical confidence. Several parents noted that they now have a much better idea of what they can do in the woods with their children and that the woods were safer than they expected. There was a recognition that the activities had given them a mental boost, by just being outdoors and doing something with others. Several parents identified that their children particularly enjoyed mixing with others their same age in a woodland setting. They emphasised that this provided mental stimulation and a sense of adventure. Satisfying their curiosity together, whether in parent / child groups or child/child groups, provided a welcome relief from their regular daily routine.

For many families, the months leading up to the school summer holidays had been disrupted by school closures and on-line teaching. This also extended into the Autumn term. Several reported informally that the Stronger Roots activities had provided a lifeline at a difficult time and that they could not understand why schools did not make more use of the natural world as part of the normal teaching and learning process. Nevertheless, there was anecdotal evidence that many schools and early years' settings are making increased use of natural resources in their provision.

Post-activity assessments indicated that many participants only had the vaguest idea of what some of the activities would entail. There was therefore a recognition of the value of a taster session, principally to reassure potential participants that the activity would be within their capabilities. Several suggested that they did not really know what would be involved but were very pleasantly surprised as to how well they coped.

Many reported positively with regard to the group facilitators. They were praised for giving



sufficient time and space to individuals to ensure a comfortable level of engagement and ensuring that the activities were light and enjoyable. In the interviews, several facilitators indicated that it was their first experience of offering their activity in the woods (or even out of doors) and that this environment enhanced the engagement of their usual group members: the yoga teacher was particularly forthright in this.

Theme 3: To better inform woodland users of Buxton Civic Association (BCA) woodland management strategies, both short and long

Comments from participants in our woodland skills / bushcraft groups included;

"I thoroughly loved the course. Pete was very knowledgeable and explained everything brilliantly. It was so nice to be out in the woods, learning a new skill. A perfect Sunday morning."

"Love being in the wood and freedom for little ones to run about."

"Lots of new skills learned."

term, so as to increase the feeling of community participation in the woodland experience.

The Stronger Roots delivery team worked closely with the Buxton Civic Association woodland manager and his team to provide activities which are complemented by the available woodland environment.

It is recognised that within the woods there is a serious issue of ash die-back and this has required the cutting down of many trees which, to the inexperienced eye, appear quite healthy. It was remarked on by many participants informally that they were surprised by how many trees are being felled but when they had the reasons behind the felling explained, they readily understood the reasoning. It was also necessary to ensure that the re-planting policy being employed by BCA is clearly understood as, while BCA has the responsibility to manage the woods, we recognise that we are custodians and the woodland has a life and future of its own.

Participants were taken to a variety of sites in the woodland. They had the opportunity to read the multiple information boards which tell them about the animals and plants of the woods. There are also a great many small wooden sculptures of woodland plants and animals to enjoy. It was recognised informally that many participants had not previously appreciated the depth of the wood experience and that the woods were a valuable local resource available to all at no cost.

One area which contributed effectively to the community participation was the seed collection, seed processing and tree planting events. This practical activity engaged volunteers of all ages who could learn about woodland management and begin to appreciate the enormity of tree life cycles.

Following their activities, many participants retired to the cafe at Poole's Cavern. As well as light refreshment, there are several information boards telling stories about BCA and the ways in which it manages the woodlands around Buxton. Many participants expressed surprise when told of the activities taking place in the woods and Poole's Cavern throughout the year. Involvement with

schools across Derbyshire and beyond, engagement with theatre in the Summer Festivals, together with visitors to the show cave, gave visitors an idea of how extensively the woods are already being used by the High Peak community and how they could be welcomed again in the future.



Comments from participants in our community arts events included;

"This was lovely. I am loving how these events are providing new ways of being more alertly and consciously in the woods."

"Very inclusive! Opportunity to craft, talk, create and spend time as a family. Gordon and Frag were fantastic at engaging the children and exploring different plants and animals with the children."

"Organised activity ensured both children went out - fresh air, good fun. Without an activity to attend we may not have pushed ourselves to head out."

"Very calm and relaxing - beautiful natural environment with an engaging activity."

Summary

It is evident that the Stronger Roots activities have enabled many people to spend time outdoors and engage with activities which bring them closer to nature. A sense of biophilia has been engendered, enabling participants to heighten their sense of being part of the natural world and to be more in themselves. It is recognised (Sobko et al 2018) that well-being and mental health are enhanced by connecting to nature and this has been reported by many participants in this project. While it is clear that Covid regulations have been very difficult for many to manage, and illness has blighted many families, the opportunity to connect with nature has been a welcome lifeline.

Cross-generational activities have been encouraged by the Stronger Roots team. *More Years, Better Lives* (2020) research found that activities are even more beneficial when they are undertaken by people from different generations working together. The success of the Storytelling and Puppet Making workshops was a testament to the value of this approach. However, it was in the community arts and community theatre activities where there were greatest numbers of participants of all ages and valuable intergenerational mixing.

Throughout the research into the outcomes of the Stronger Roots project, there has been a recognition that there are often hidden meanings in the responses of those involved. It is recognised that listening to the voices of those who do not often have the opportunity to speak for themselves has been challenging; in the case of young children, they may lack the vocabulary and not all adults are happy to complete questionnaires. The silences of children in the interviews perhaps reflected shyness in front of a camera, but also may have been taking the chance to think and retain control of their interview and its process (Spiros, 2009). It was appreciated at an early stage that we would need to engage with multiple literacies (Mancy, 2013) to enable expression and engagement to be truly representative of participant views. Yet the wider we explored, the more difficult it became to predict long term changes in behaviour so we are now recognise that our interventions have paved the way for further activities and that we will be able

to use this as a framework for enhanced future engagement. The feedback we received came in many forms, but one little boy summarised it for all of us with the comment;

"Being in the woods was fun and it made me feel great!"



Above: Five photographs of the nature based wellbeing programme – including forest bathing, yoga, tai chi and Nordic walking.

Left: Performance by the Babbling Vagabonds of "The Lost Tales of Grinlow"

Critical Reflections; Summary notes from Interviews

Each participant verbally consented to being interviewed and having their comments shared publicly in the context of the research project.

The four interviewees were the key management and delivery personnel, interviewed in February 2022. Two of the interviewees were part of the BCA Management Board; Sarah Males (Trustee) and Simon Fussell (Business Development Manager). The other two interviewees are directly

associated with the management and delivery of the project; Will Ward (Project Manager) and Frag Last (Community Engagement officer).

Question 1: What were your expectations of the project?

The general expectations were related to community involvement, with an expectation that families who do not visit the woods would have the confidence to engage and would see the benefits of doing so on a regular basis. SM had an expectation that a range of community arts activities would be offered and that these would provide opportunities for families to enhance their well-being.

Several interviewees wanted an outcome to be that the woods were for everyone. FL made a very clear statement that his expectations were that participants had a high-quality woodland experience. To that end, his planning and delivery focussed on the quality of the experiences rather than simply having large numbers of participants.

Question 2: What is your role in the Stronger Roots project?

SM and WW ensured that there was effective liaison between teams on a daily basis. Strategic decisions were made at regular Steering Group meetings which involved all interviewees and other members of the delivery team as required. Oversight was maintained by Peter Philipson, the Chair of BCA.

Interviewees all emphasised that the channels of communication had been good and that there had been support from BCA when needed to ensure that the project was delivered on time and on budget.

WW particularly noted that the project was new and the delivery team had to establish their aims and protocols from scratch, requiring both good management and communication.

Question 3: What do you consider to be the achievements of the project?

The interviewees all reflected on the wide range of participants who had engaged with the project and that the feedback noted significant benefits to mental health during the time when Covid restrictions were in place.

Particular successes were working with the autism services and families who saw significant developments in communication levels with many of the children following their time in the woods. FL reported that return visits served to enhance this increase in levels of social interaction.

It was also reported that many participants explained that they were appreciating the importance of biodiversity in new ways and that they were now aware that they and their families were part of the natural world rather than seeing the woods just being somewhere to visit.

WW made a particular point that the forest school for children with autism activities had linked effectively with the Education, Health, & Care Plans (EHCPs) of the children. WW and FL, working with Forest School delivery teams, were able to create safe spaces for the children and families in which they could experience the natural world at their own pace and in their way.

SM felt that the community arts and storytelling group activities had opened the eyes of many people to the possibilities in the woodland. SM noted the feedback from the forest bathing, yoga and Tai Chi as being very encouraging.

FL saw a success from the feedback received suggesting that there is great short-term benefit to mental health (reduced anxiety and loneliness) leading to significant long-term health improvements, but recognised that quantifying the long-term impact is difficult.

Question 4: What do you see as the future of the Stronger Roots project?

Each interviewee saw the future as involving more community engagement. In the 14 months of this first phase, many connections have been made with children's and adult services, with future plans involving more connections in Buxton and beyond. WW recognised the need for stability in the team and security in the funding so that planning can be more targeted.

While BCA are underwriting the cost of the project, SF recognised that further innovation is needed to ensure that the project is financially sustainable. *[Since time of interview, additional external funding has been secured].*

Over the coming months, WW was pleased to be able to build on existing work and have time to involve community groups in the co-design and co-production of activities.

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Appendix 1: Events overview and attendance

Programme area	Description	Number of events	Number of people attending¹	Number of feedback forms
Community arts - public events	Activities run by Creeping Toad, environmental artists and storytellers – primarily arts and crafts activities in our woodlands for families, but also activities for adults such as sketching.	23	880	34
Community arts - school events	Arts sessions in local primary schools to engage local pupils with the woodlands, run by Creeping Toad.	9	900	0
Community theatre	A series of community theatre workshops and performances by local outdoor theatre company Babbling Vagabonds, themed on regeneration in the woodlands.	15	519	0
Forest school - Autism	Weekly 2-hour forest school sessions for children with autism and their parents/carers, run by Greenwood Growth.	27	251	0
Forest school - Play Wild	Weekly 2-hour forest school sessions for children aged 0-5 years-old parents/carers, run by Greenwood Growth.	25	373	13
Local schools forest school	Woodland educational and exploration sessions with local primary school pupils and teachers, run by the Community Engagement Officer.	22	490	0
Nature based wellbeing	Sessions run by a range of local practitioners, focusing on wellbeing activities in the woodlands – including forest bathing, mindfulness, tai chi, yoga and Nordic walking.	33	171	134
Nature care for people	Outdoor wellbeing sessions in our woodlands run by the Community	3	25	0

¹ This is the total number of attendances across the project as a whole. In some cases, this number may be made up of people attending a six week programme multiple times (e.g. Play Wild forest school); at other times, each attendance is an individual person where we have worked with a wider cohort (e.g. Local schools forest schools, where we have worked with each class across multiple schools once).

with additional needs	Engagement Officer with people with mental health needs and/or learning disabilities.			
Seed events / Tree Nursery	Events run by our Community Engagement Officer to collect, process and plant seeds for shrubs and trees that we will grow on in our tree nursery before planting out in the woodlands to support their regeneration.	7	109	0
Social prescribing groups	A six-week pilot programme run by our Community Engagement Officer for adults referred to us from the local social prescribing team, often presenting with social isolation or low mood. This included a series of woodland of activities co-designed with the group.	6	22	4
Woodland Conservation volunteers	Weekly conservation volunteering activities including dead hedging, path improvement, tree planting and other ecological restoration, run by the Woodlands Assistant and Woodlands Manager (existed as an activity prior to Stronger Roots, but delivery now supported by the new Stronger Roots Woodlands Assistant).	35	220	0
Woodland skills / bushcraft	Sessions run by Red Oak Bushcrafts for families / adults on shelter building, water purification, crafting using elder and brambles and using tools safely.	18	165	27
Youth engagement	Youth volunteering sessions in the woodlands with NCS (National Citizen Service groups) of 15 – 17 year-olds.	4	53	0
Total		227	4178	212

Appendix 2: Video recordings

A 10-minute video with verbal feedback from beneficiaries across the project, as well as outdoor practitioners who ran sessions can be found on [Buxton Civic Association - YouTube](https://www.youtube.com/channel/UCv2j-2qKc) channel or at https://youtu.be/1D_v2j-2qKc

Appendices 3 – 5 are redacted from this version of the report.

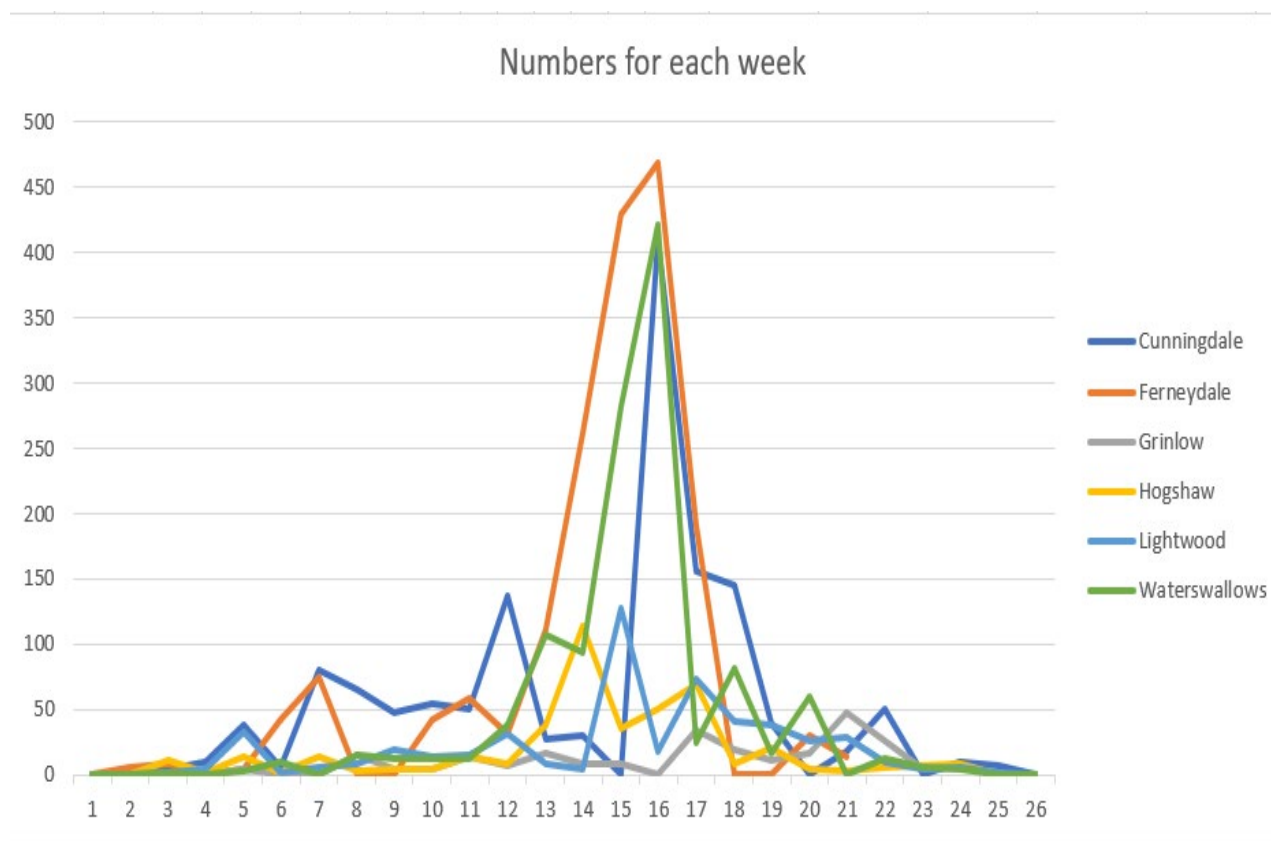
Buxton Butterfly Survey Report 2022

Steve Orridge

Thank you once again to all the recorders that made this report possible and thank you for their many hours spent and the many miles walked to gather the data. At the end of last year's recording season, I wrote "Compared to previous years, 2021 was one of the worst in terms of numbers". There is some good news for 2022 but overall, the weather has not been kind and there were some days when it was too hot to go out for the recorders and indeed the butterflies. The lack of rain and the intense heat in Mid-July and Mid-August brought the flowering season to an early end. Fortunately, the Devil's-bit Scabious on some of our sites played a small part in feeding our butterflies but our gardens probably played a bigger part.

There have also been many sightings of Hummingbird Hawkmoth both locally and nationally with one lucky Buxton householder reporting 4 at one patch of Red Valerian. For a detailed view of the weather pattern please check out the records from our garden weather station which can be found in the Appendices.

Below are the numbers from each week from the six sites we survey in Buxton. Unfortunately we do not have the complete records from Ferneydale but even with the missing weeks it was clearly the overall winner in terms of numbers.



Notice how weeks 15 to 18 (July) tend to provide the highest numbers.

Below will be a more detailed breakdown of the number of species for each site. As per previous reports I will start with our records for Grin Low which we have been surveying since 2015.

Grin Low 2022

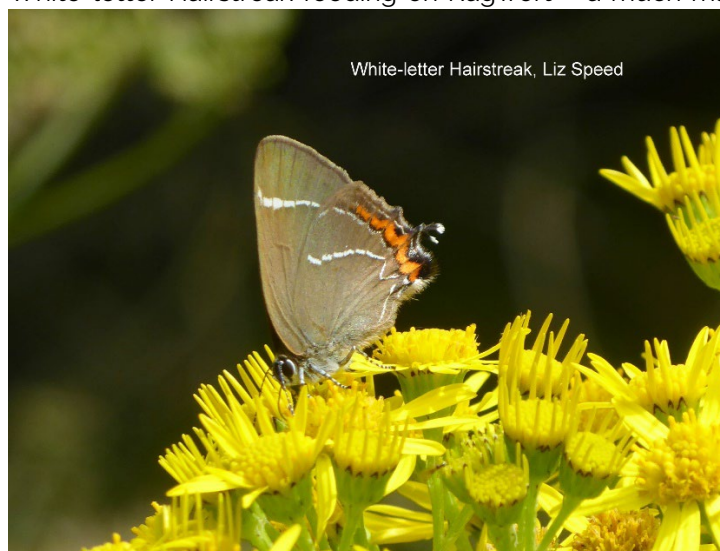
The first week of the survey was cold with strong Westerly winds and the thermometer not getting much above 8 degrees Centigrade. Not surprisingly no butterflies were seen and it wasn't until April 18 in week 3 when a solitary Green-veined White was recorded by Harry Taylor. We had to wait another two weeks to see any more butterflies (four of two species). The highlight of this season was two White-letter Hairstreaks feeding on Ragwort, seen in section 8 by Liz Speed, July 27th. This was a new record for Grin Low and takes our species list up to 24. The season hobbled along with a maximum count in week of 48 in week 21, 34 of these being Red Admiral. At the end of our 26 weeks of surveys we had recorded 251 butterflies of 19 species.

Below you can see how the numbers of our most common species change through the years. The Nymphalids (the top three rely on the Devil's-bit Scabious). They are most common in Grin Low towards the end of the season when they "fuel up" on the nectar from the scabious. They are three of the five butterflies (the other two being Brimstone and Comma) that will find somewhere to shelter from the winter ahead.

	2015	2016	2017	2018	2019	2020	2021	2022
RED ADMIRAL	4	55	483	10	125	26	12	52
SMALL TORTOISESHELL	6	4	8	47	28	42	21	13
PEACOCK MEADOW BROWN	18	29	51	163	112	61	34	18
BROWN RINGLET	197	125	168	333	178	115	67	45
	9	12	9	58	74	41	25	15

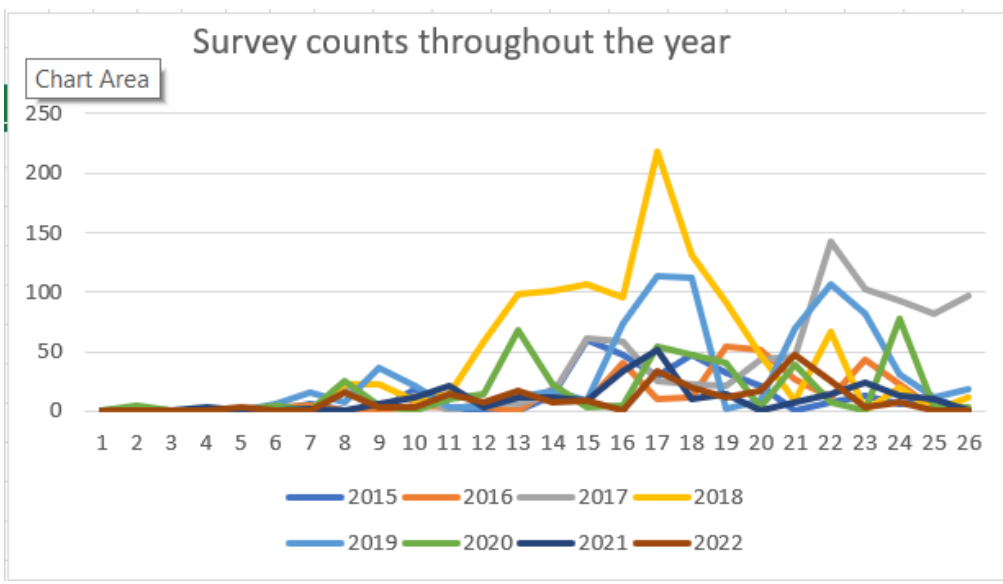
As can be seen from the table, 2018 was the best year in terms of overall numbers but it was a better year for Red Admiral in 2017 (mostly seen in section 5 where we have the most Scabious).

White-letter Hairstreak feeding on Ragwort – a much maligned "weed" but an important nectar



source for our insect community

[Here is the complete record of all the butterflies recorded in 2022](#)

[illegible]

Lightwood 2022

We have been recording in Lightwood since 2016 and we have seven complete years of butterfly survey results. As well as a butterfly recording team, we now have a volunteer maintenance team

in Lightwood managed by Derbyshire Wildlife Trust. As well as maintaining the physical structures (fences, steps, et cetera) we have also spent time on reducing some of the scrub on the meadows, to open them up for our wildflowers which will provide a nectar source for our butterflies and other invertebrates. It is too early to see the benefits of the scrub clearance and this year's baking summer did not help to make our meadows more butterfly friendly. We hope to see better results next year.

It was a slow start to our survey season and the first butterflies were not recorded until week 3. We didn't reach double figures until the last day of April (week 5) when Shirley Johnson recorded 33 butterflies of four species. Although sightings of White-letter Hairstreak are pretty much guaranteed on a targeted visit to Lightwood, due to the standard method of surveying butterflies (walking a steady pace counting the butterflies seen 2.5 metres either side, and 5 metres in front) we did not record any on our surveys. The survey season ended disappointingly, despite the best efforts of Graham Jowett with only one butterfly giving him a brief glimpse but hiding its identity. Which meant it had to be recorded as an "Unidentified Brown".

Below is a complete list of everything we recorded in 2022. A total of 22 confirmed species. The other 44 did not hang around long enough for a positive identification.

Lightwood 2022	Week Number																													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	Total	Present	Max	
SHALL SKIPPER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	1	13	4	2	0	0	0	0	0	0	0	39	1	19	
ESSEX SKIPPER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LARGE SKIPPER	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	1	8	
DIRTY SKIPPER	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	
CLOUDED YELLOW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BRIMSTONE	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	2	
LARGE WHITE	0	0	0	0	0	0	5	0	0	0	0	0	0	1	4	1	1	1	3	2	1	0	2	0	0	0	21	1	5	
SHALL WHITE	0	0	0	0	0	1	0	1	1	1	1	0	0	0	0	1	0	3	8	0	0	3	0	0	0	0	20	1	8	
GREEN VEINED WHITE	0	0	1	1	10	0	3	0	6	4	10	1	0	2	0	4	0	1	0	6	3	0	0	1	0	0	53	1	10	
ORANGE TIP	0	0	1	0	9	0	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	1	9	
GREEN HAIRSTREAK	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	
PURPLE HAIRSTREAK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WHITE LETTER HAIRSTREAK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SHALL COPPER	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3	0	0	1	1	1	0	0	0	4	0	0	11	1	4	
BROWN ARCHES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COMMON BLUE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	2	1	1	
BOLLY BLUE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RED ADMIRAL	0	0	0	0	0	0	0	0	0	0	1	1	0	0	3	1	0	0	0	0	0	3	0	1	1	0	11	1	3	
PAINTED LADY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	2	1	1	
SHALL TORTOISESHELL	0	0	0	0	0	0	1	0	0	0	1	2	0	0	3	0	1	0	0	0	1	1	0	0	0	0	10	1	3	
PEACOCK	0	0	0	0	3	1	0	0	0	0	1	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	8	1	3	
COMMA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	
DARK GREEN FRITILLARY	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	
SILVER WASHED FRITILLARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SPECKLED WOOD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	2	1	1	
WALL BROWN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HARDLED WHITE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GATEKEEPER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	19	8	13	3	4	0	0	0	0	0	48	1	19	
MEADOW BROWN	0	0	0	0	0	0	0	0	0	0	0	0	1	1	7	3	13	1	3	5	7	0	0	0	0	0	41	1	13	
RINGLEY	0	0	0	0	0	0	0	0	0	0	0	0	5	0	74	0	5	1	0	0	3	0	0	0	0	0	88	1	74	
SHALL BEATH	0	0	0	0	0	0	0	0	4	3	2	17	1	1	8	4	17	18	6	5	7	0	2	0	1	0	96	1	18	
UNIDENTIFIED SKIPPER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UNIDENTIFIED WHITE	0	0	0	2	10	0	0	1	6	4	0	1	0	0	2	0	2	1	0	3	0	1	0	0	0	0	33	1	10	
UNIDENTIFIED BROWN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	2	2	1	0	0	1	0	0	0	1	11	1	4	
Total	0	0	2	4	33	2	6	8	19	14	16	32	8	5	128	18	73	41	38	26	29	10	4	6	2	1	525	22		

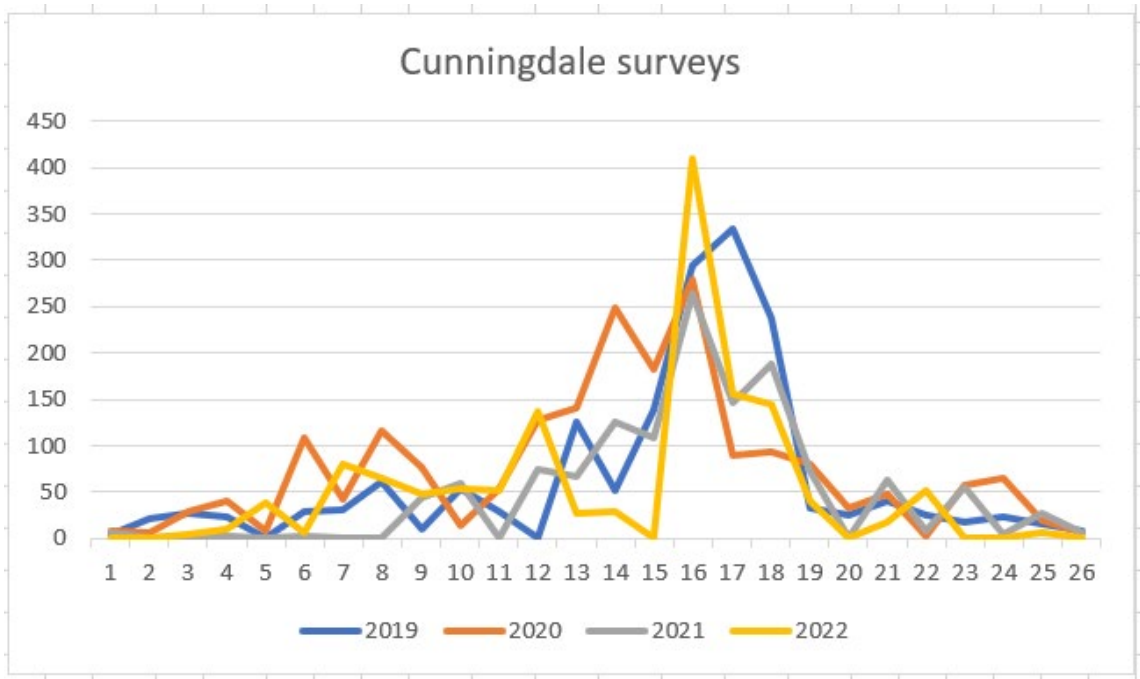
Cunningdale 2022

Although Cuning Dale is one of our shortest survey routes with only 6 sections, it is one of the most productive in terms of species (24) and numbers. We have been surveying this dale for 4 years and 2022 bucked the trend and was better than 2021 in terms of numbers, mainly due to a good

count of Orange Tip in weeks 5 through to week 12. Below is a table showing the numbers of each species seen every week for the complete season. Unfortunately, week 15 was not recorded

Cunningdale 2022	Week Number																										Total	Present	Max
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26			
SMALL SKIPPER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	32	17	8	0	0	0	0	0	0	0	90	1	33
ESSEX SKIPPER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LARGE SKIPPER	0	0	0	0	0	0	0	0	0	1	9	34	5	0	0	0	0	0	0	0	0	0	0	0	0	0	49	1	34
DINGY SKIPPER	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	3
CLOUDED YELLOW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BRIMSTONE	0	0	1	0	0	0	1	0	2	3	2	5	1	0	0	0	0	1	0	0	0	0	0	0	0	0	16	1	5
LARGE WHITE	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	2	5	3	0	4	5	0	1	0	0	26	1	5
SMALL WHITE	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	6	11	8	1	0	5	8	0	0	1	0	44	1	11
GREEN VEINED WHITE	0	0	0	0	1	0	5	5	1	3	2	2	0	0	0	0	2	12	1	0	5	2	0	0	0	0	41	1	12
ORANGE TIP	0	0	1	8	25	3	58	42	24	20	15	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	219	1	58
GREEN HAIRSTREAK	0	0	0	0	0	1	7	1	5	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	1	7
PURPLE HAIRSTREAK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WHITE LETTER HAIRSTREAK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SMALL COPPER	0	0	0	0	0	0	2	2	2	1	3	0	0	0	0	0	2	0	5	0	1	7	0	0	2	0	28	1	7
BROWN ARGUS	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	3	0	0	0	0	0	0	0	0	0	0	13	1	10
COMMON BLUE	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	2	0	0	0	0	0	2	0	0	0	0	7	1	2
HOLLY BLUE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RED ADMIRAL	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	1	2	0	0	0	0	6	1	2
PAINTED LADY	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	3	0	0	1	0	6	1	3
SMALL TORTOISESHELL	0	0	1	2	6	0	0	0	0	0	0	0	0	0	0	16	2	9	0	0	0	5	0	2	0	0	43	1	16
PEACOCK	0	0	1	0	2	0	3	0	1	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	10	1	3
COMMA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	7	1	7
DARK GREEN FRITILLARY	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	12	5	3	3	0	0	0	0	0	0	0	25	1	12
SILVER WASHED FRITILLARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SPECKLED WOOD	0	0	0	0	0	0	1	1	0	1	1	0	3	0	0	0	0	0	0	0	0	3	0	1	3	0	14	1	3
WALL BROWN	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	4	1	2
MARbled WHITE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GATEKEEPER											0	0	0	0	0	20	0	3	0	0	0	0	0	0	0	0	23	1	20
MEADOW BROWN	0	0	0	0	0	0	0	0	3	0	1	12	9	9	0	54	54	48	9	0	1	1	0	0	0	0	201	1	54
RINGLET	0	0	0	0	0	0	0	0	0	0	0	7	18	0	201	34	22	3	0	0	0	0	0	0	0	0	285	1	201
SMALL HEATH	0	0	0	0	0	2	1	1	8	7	30	0	3	0	23	1	3	1	0	1	0	0	0	0	0	0	81	1	30
UNIDENTIFIED SKIPPER											0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UNIDENTIFIED WHITE	0	0	0	0	5	2	1	12	5	4	4	10	1	0	0	17	11	13	6	0	0	10	0	6	0	0	107	1	17
UNIDENTIFIED BROWN	0	0	0	0	0	0	0	0	0	0	1	4	0	0	0	16	0	0	0	0	1	0	0	0	0	0	22	1	16
Total	0	0	4	10	39	6	80	65	48	54	51	137	28	30	0	410	156	145	40	0	18	51	0	10	7	0	1389	24	410

In the "Present" column there is a formula which gives a "1" if we have recorded a butterfly. The more observant readers may notice that there are actually 26 "1"s but as they are unidentified they are not included in the count. Unfortunately, we have no record for week 15 so the final total would probably have been higher.



Dark Green Fritillary, we recorded 25 in 2022 which is lower than previous years.



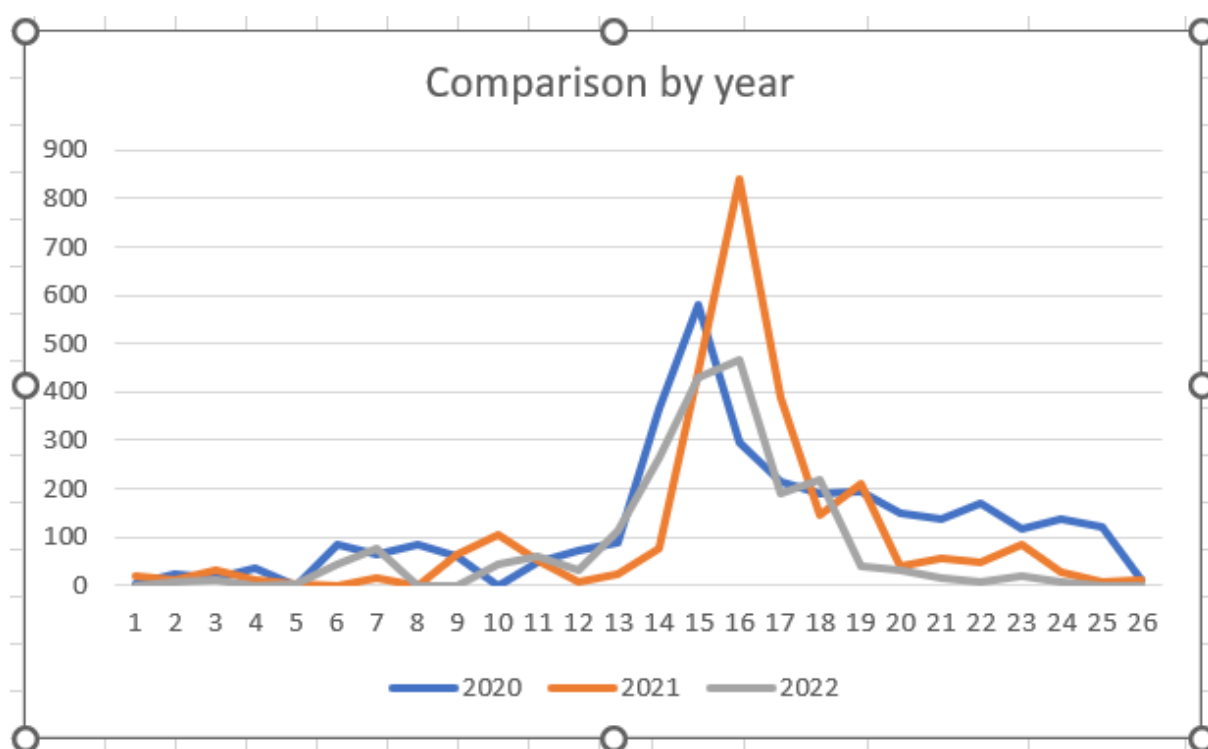
Ferneydale 2022

Ferneydale is another important area for our wildlife. We have been recording the butterflies here with a small team. Next year, in 2023, we are looking for a few extra volunteers to provide holiday and emergency cover. We missed five weeks of the survey season in 2022 but this important reserve was again top of the league table in terms of butterflies counted.

		Buxton Butterfly Records 2022																											
	Week Number																												
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	Total	Species	Max
Cunning Dale	0	0	4	10	39	6	80	65	48	54	51	137	28	30	0	410	156	145	40	0	18	51	0	10	7	0	1389	24	410
Ferneydale	0	6	9	0	4	42	75	0	0	42	59	32	111	262	429	468	191	220	40	30	14	5	20	8	0	0	2067	22	468
Grinlow	0	0	1	0	4	0	0	16	4	4	14	7	17	8	9	0	34	20	11	17	48	26	4	7	0	0	251	19	48
Hogshaw	0	0	11	2	14	2	14	3	4	4	14	9	39	114	35	51	69	9	21	5	3	6	7	9	1	0	446	17	114
Lightwood	0	0	2	4	33	2	6	8	19	14	16	32	8	5	128	18	73	41	38	26	29	10	4	6	2	1	525	22	128
Waterswallows	0	0	2	1	3	10	1	16	12	12	13	38	107	94	282	421	25	82	17	60	0	12	6	4	0	0	1218	20	421

Ferneydale highlights the stark contrast between grassland and woodland. Compare Ferneydale's grassland habitat with Grin Low's predominately woodland habitat. These two sites are very close to each other.

Here we see the changing fortunes of our Ferneydale butterflies over the last three years.



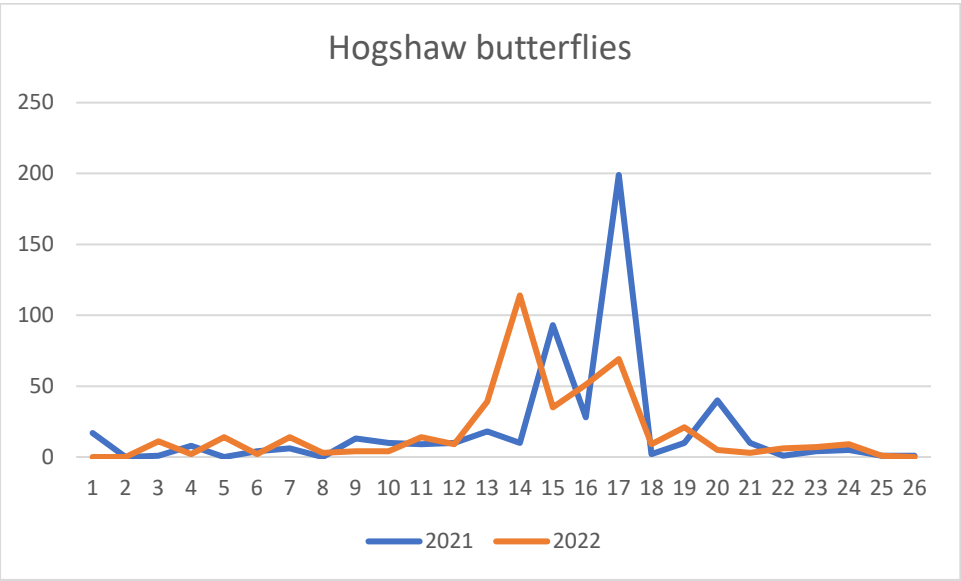
The peak in week 16, 2021 was due to two species, Small Skipper and Meadow Brown. There was much lower numbers of these two species in 2022

Hogshaw 2022

We have now completed 2 years of surveys here. When we set this up in 2021 we were unsure whether we would get a complete year of results due to the proposed building. This site has potential. It is still recovering from the extension to the railway and should, if allowed, produce higher numbers in future years.

We have recorded 17 species so far with some of the common ones yet to be seen. These include Large Skipper, Brimstone and Comma. It's worth noting that we have seen only one Red Admiral during the two years of surveys. These "missing" butterflies have all been seen in earlier years, in the area that was modified to take the longer rail track. Maybe they will return in 2023.

Below is a graph comparing the numbers over the two years.



As can be seen from the graph the numbers peak at different times between the years. In 2021 the Ringlets reached their maximum numbers in week 17 (the last week of July). Whereas in 2022 maximum numbers were reached by week 14 (the first week of July). We recorded a total of 500 butterflies of 17 species in 2021 and 446 butterflies of 16 species in 2022.

Below is a comparison of our more numerous butterflies between the two years

	2021	2022
SMALL SKIPPER	34	46
LARGE WHITE	16	22
SMALL WHITE	101	59
ORANGE TIP	24	10
SMALL TORTOISESHELL	38	19
MEADOW BROWN	31	60
RINGLET	128	139

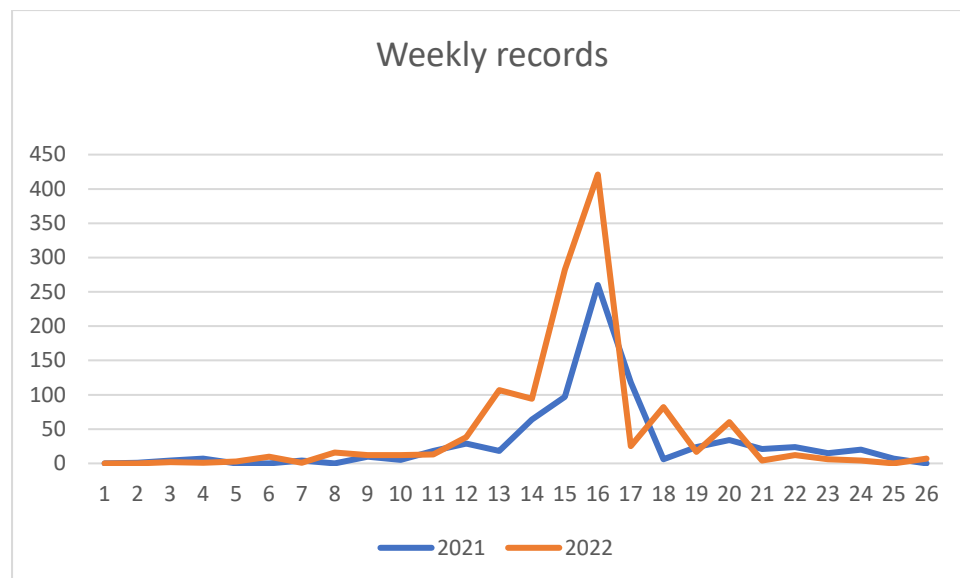
Waterswallows 2022

As mentioned in an earlier report due to the construction of a new pipe line from Rockhead Spring to the Nestlé Bottling Plant our first survey in 2020 had to be abandoned. So, we have two full years of surveys as detailed below.

	2021	2022
SMALL SKIPPER	18	63
ESSEX SKIPPER	0	0
LARGE SKIPPER	21	9
DINGY SKIPPER	0	0
CLOUDED YELLOW	0	0
BRIMSTONE	2	0
LARGE WHITE	13	34
SMALL WHITE	24	23
GREEN VEINED WHITE	22	17
ORANGE TIP GREEN	7	18
HAIRSTREAK PURPLE	0	0
HAIRSTREAK WHITE LETTER	0	0
HAIRSTREAK	0	0
SMALL COPPER	2	11
BROWN ARGUS	1	12
COMMON BLUE	45	31
HOLLY BLUE	0	0
RED ADMIRAL	13	2
PAINTED LADY SMALL	0	5
TORTOISESHELL	69	62
PEACOCK	16	6
COMMA	0	0
DARK GREEN FRITILLARY	9	17
SILVER WASHED FRITILLARY	0	0
SPECKLED WOOD	4	5
WALL BROWN	11	9
MARbled WHITE	0	0
GATEKEEPER	9	28
MEADOW BROWN	112	358
RINGLET	245	426
SMALL HEATH	91	56
UNIDENTIFIED SKIPPER	1	0
UNIDENTIFIED WHITE	30	25
UNIDENTIFIED BROWN	21	12
Total	786	1229

Notice that 2022 was a much better year than 2021. It was also a better year for Small Skipper and most of the Browns.

Below is a graph comparing the totals for each week. You will notice that each year reaches a peak in week 16 (the third week of July)



The area around Waterswallows is rich in butterflies as well other wildlife and I thank Simon for alerting me to its potential. It is turning up lots of interesting records and is an important wildlife refuge in Buxton. A new species discovered this year was a moth, a Six-belted Clearwing which as far I am aware was a new record for Buxton. What else remains to be found here?



This is the end of the report for 2022. Let us all wish for a better year in 2023 and hopefully many more butterflies to come.

I hope you found this report interesting. It has only been possible with the dedication of all our volunteers. I would like to thank everyone in the survey team, and I hope to see you all again next year.

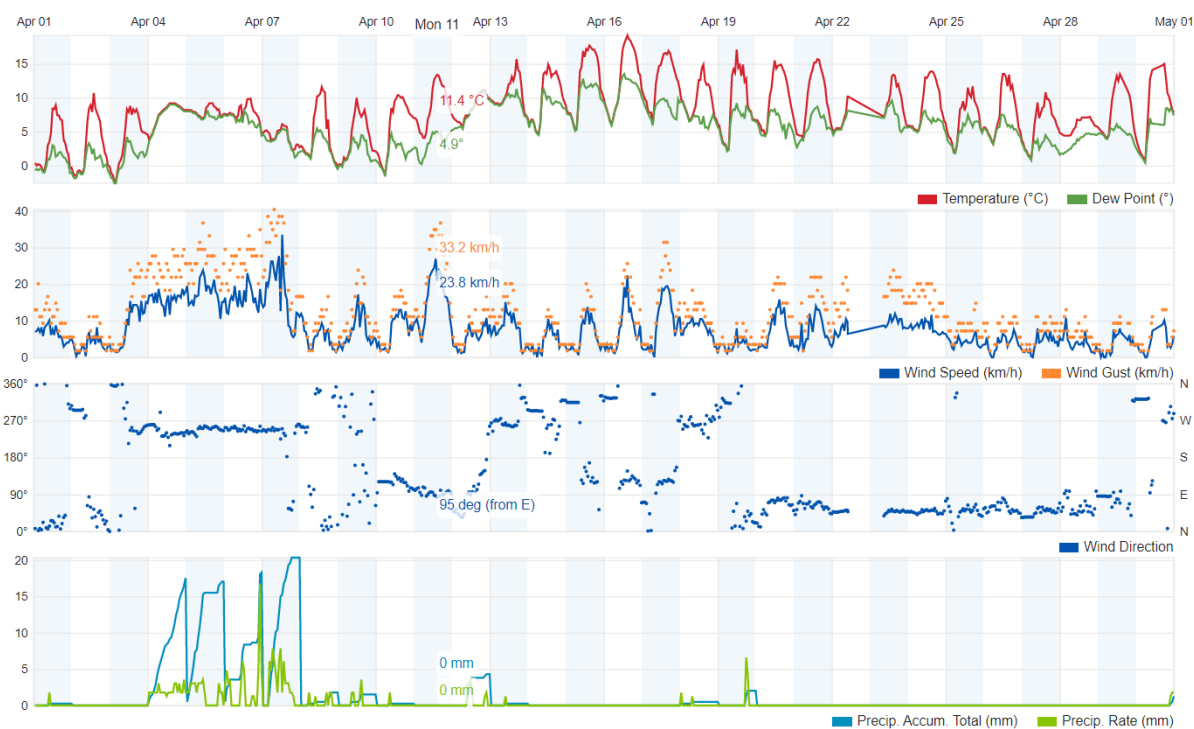
A big thank you to

Gil and John Boardman ,Claire Chable, Susan Cross, Debbie Fox and Julian Cohen, Simon Fussell, Carole Garner, Shirley Johnson, Graham Jowett, Rachel and David Purchase, Liz Speed, Sheila Stubbs, Harry Taylor, Jane Tyler, Lindsey and Rowan Wakefield

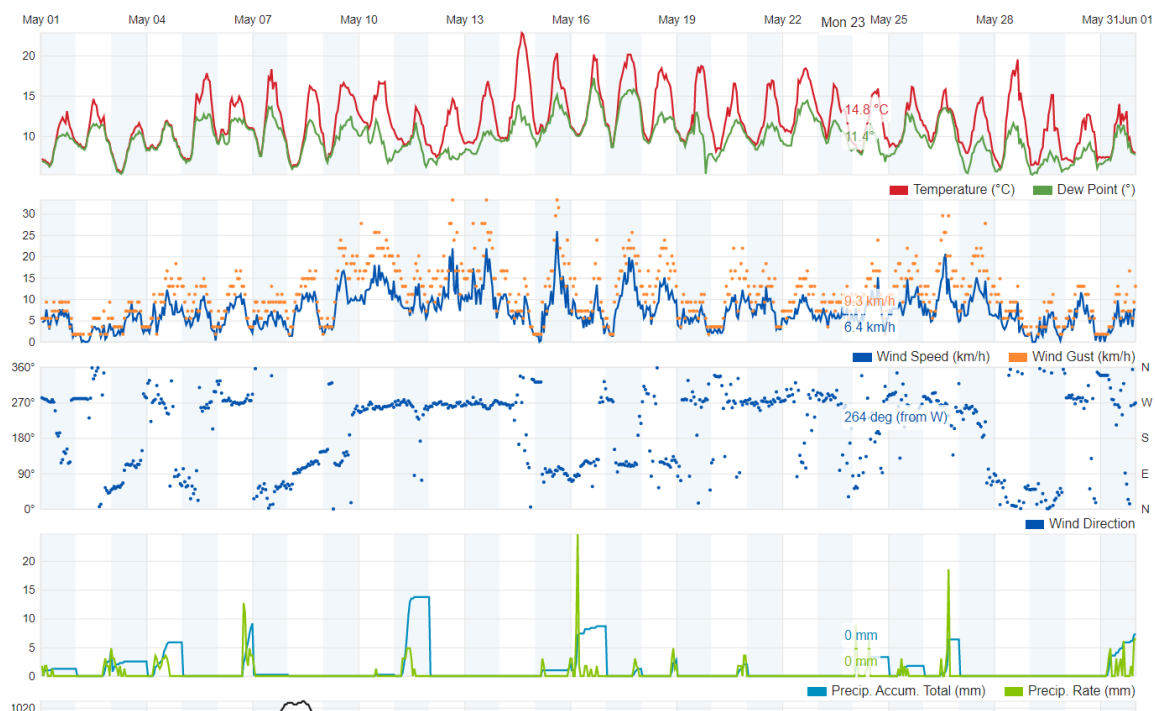
In addition, not forgetting Bob Billing who was with us on our very first surveys, introduced two surveyors to the team and only put away his notebook last year. Hope you are enjoying your retirement.

Finally, a big thank you to my wife, Lin, my constant survey companion who is always there to indulge me in my pursuit of the next butterfly. 😊

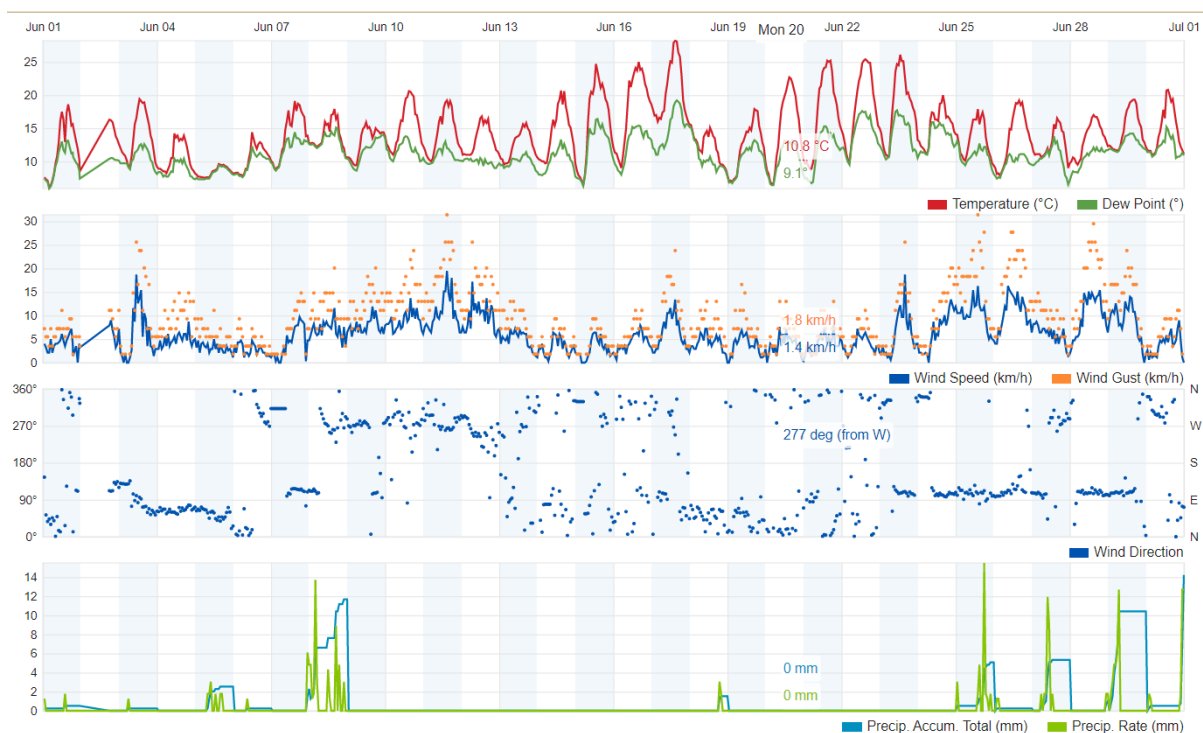
Butterfly Survey weather conditions

Buxton Weather conditions during the 26 survey weeks**April 1, 2022 - April 30, 2022****May 1, 2022 - May 31, 2022**

Butterfly Survey weather conditions

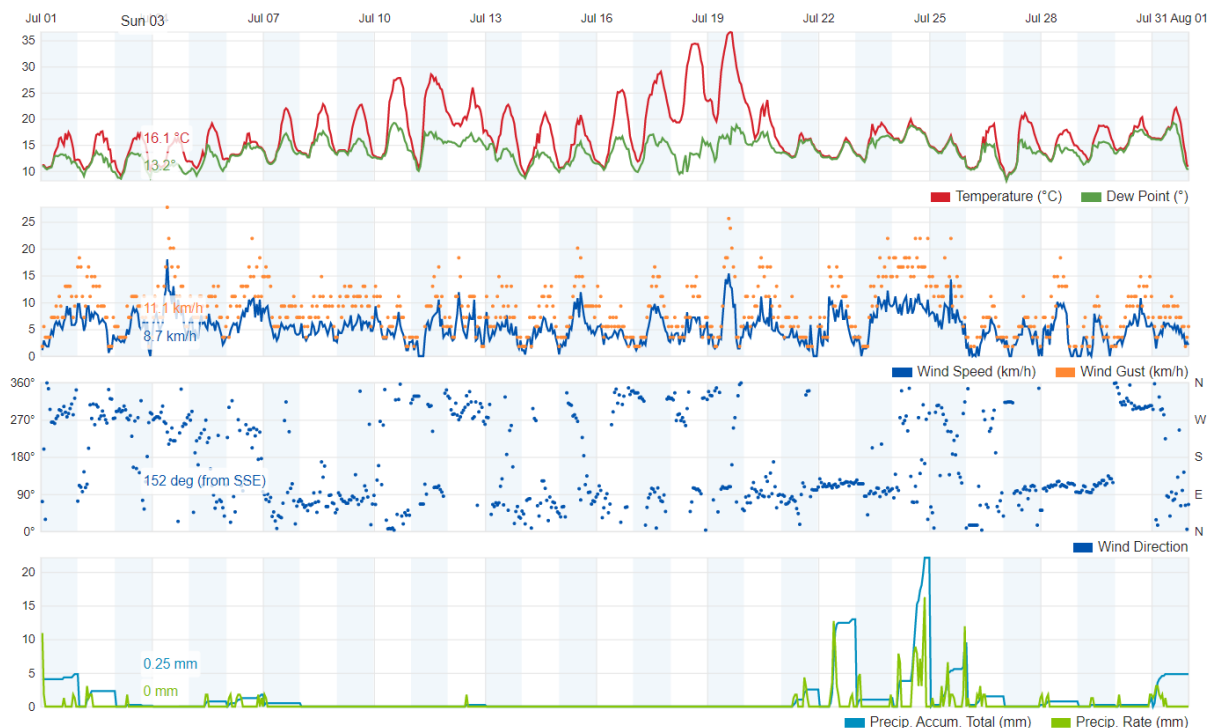


June 1, 2022 - June 30, 2022

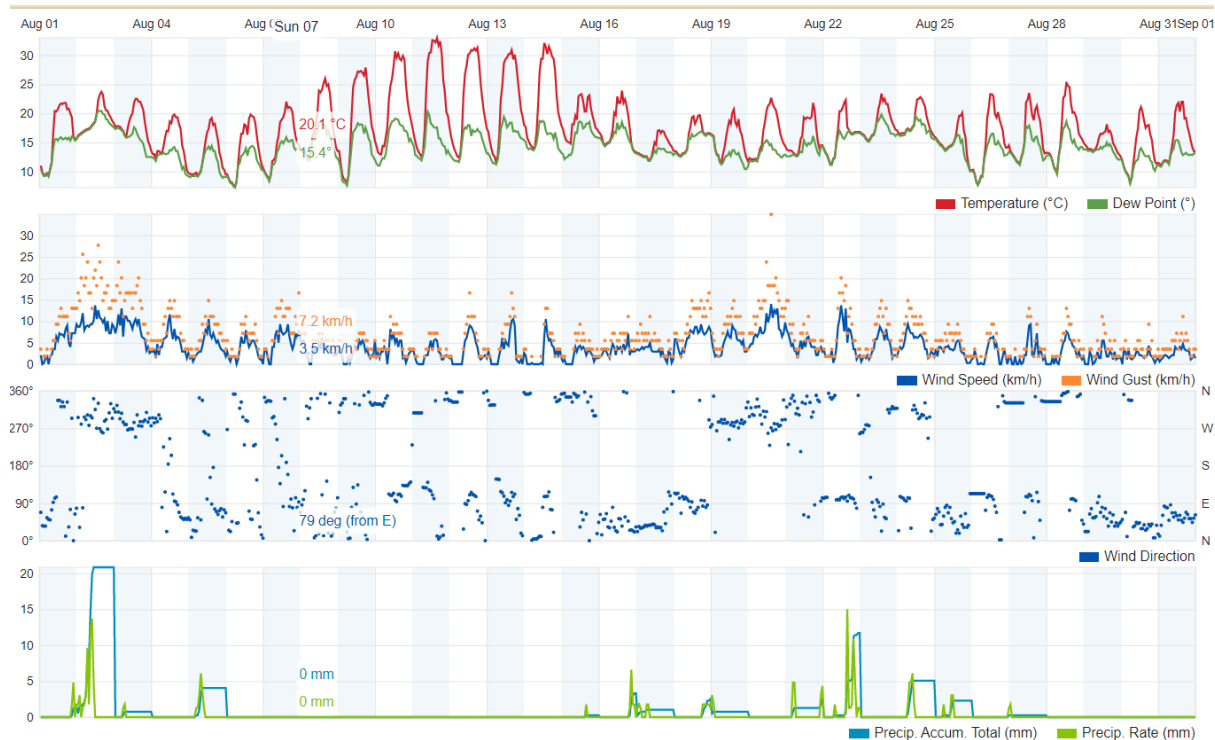


July 1, 2022 - July 31, 2022

Butterfly Survey weather conditions

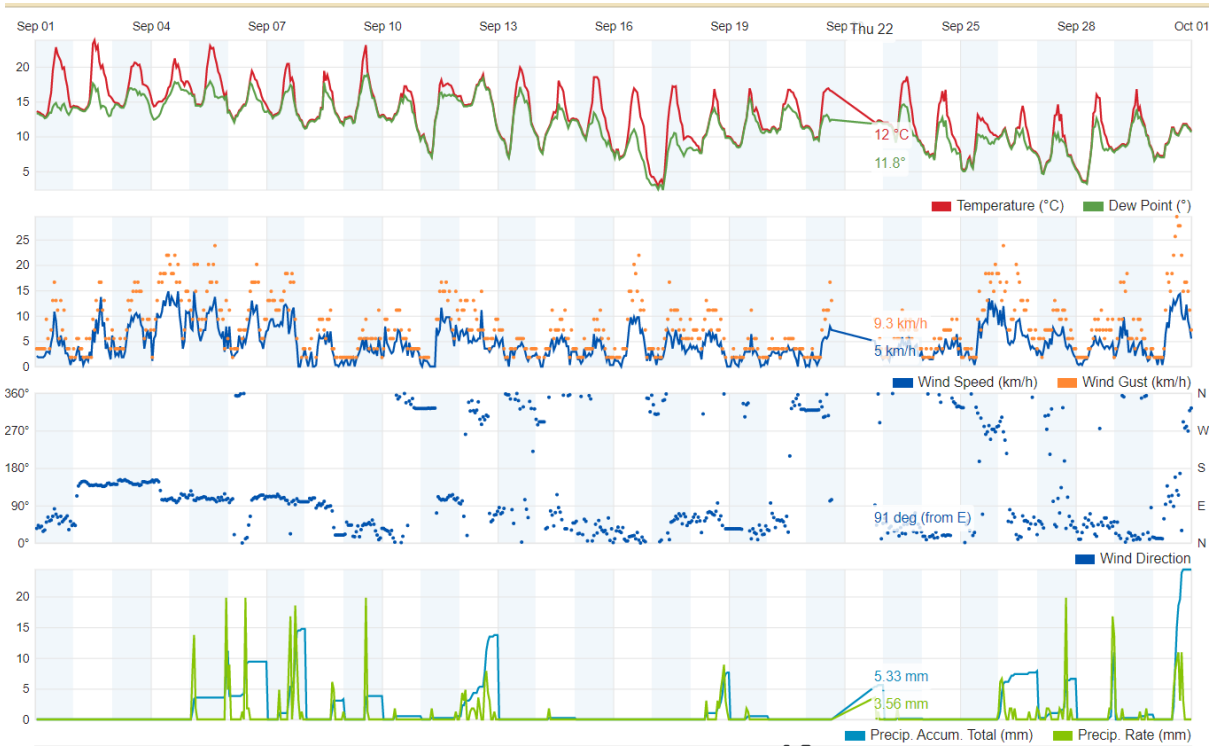


August 1, 2022 - August 31, 2022



September 1, 2022 - September 30, 2022

Butterfly Survey weather conditions



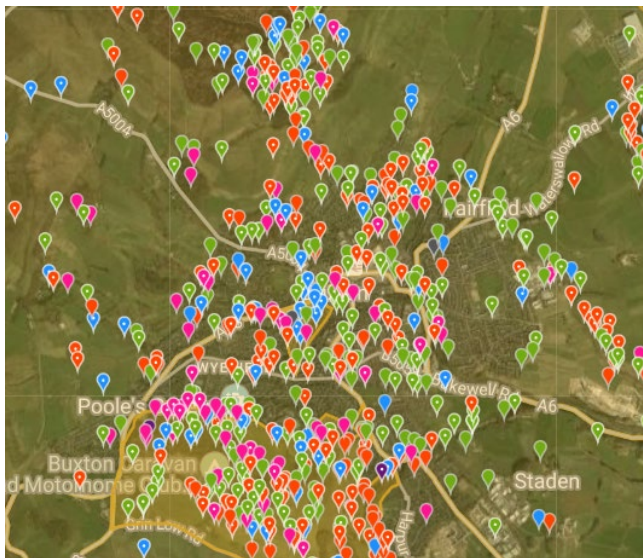
Recording the flora and fauna of Buxton

Steve Orridge

If you have any interest at all in our natural wildlife then Buxton is a wonderful place to live, surrounded by woodland, limestone dales, and gritstone moorland our town provides a diverse range of habitats. If you enjoy watching our wildlife, then please go one step further by ensuring your records are available for all to see. There are county recorders for the Derbyshire flora and fauna but rather than send individual records to each, there are other alternatives. The two leading recording apps are iRecord and iNaturalist, both of which are free to download onto your computer or phone. There is a particularly good explanation on the Buxton Field Club web page. Once on the site, click on "How to join in" and then click on "How to record Wildlife."

As part of the Buxton Biodiversity Group there is a project to pick up all records submitted by anyone who posts to iNaturalist. At the last count we had over 9600 observations recording 2400 species. If you are looking for a particular species, iNaturalist also provides a map to show where to see them. I recommend to everyone with an interest in our wildlife to join and add your own records.

Below is a map of dots of a selected area in Buxton. Each dot represents a species.



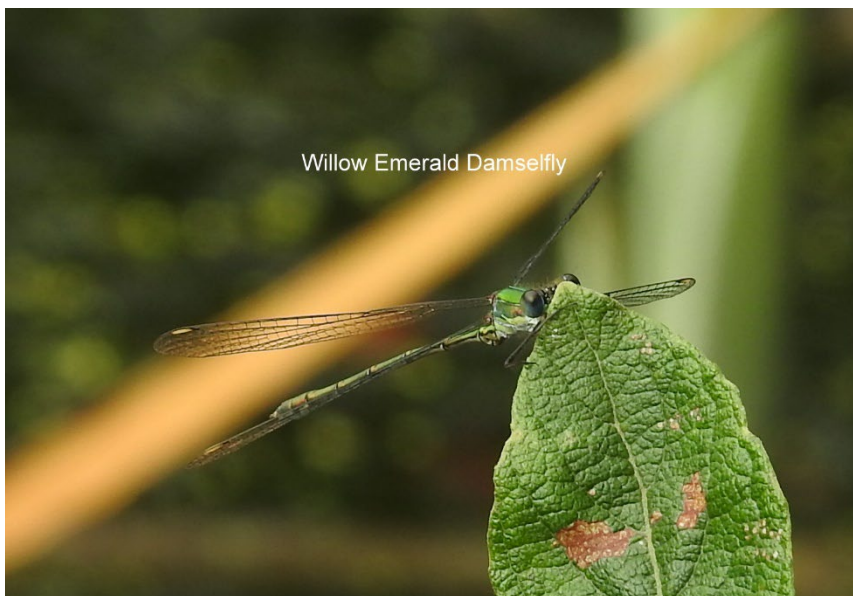
I recommend finding your own patch and getting to know the species there. My favourite patch is Lightwood and I have spent many hours here and taken thousands of photos. On my last check I found I had tagged over 35,000 photos taken over many years of visits. It has a mix of habitats and constantly turns up new species. My knowledge of its flora and fauna has grown, as I walk through the changing seasons around this wonderful site. And as I visit other places, I can apply what I have learnt in Lightwood to identify what I find elsewhere. Lightwood has no special status as a wildlife reserve, but we have already recorded over a thousand species of flora and fauna here and there are still more to discover. An entire day can quickly go by, wandering around the site and there is a deep sense of satisfaction looking at each species in turn and being able to identify it. I have not got to that stage yet but that it is the attraction of observing our wildlife. There is always a new challenge and always new species to discover. When you have an interest in nature, there is so much to learn and never enough hours in the day. Lightwood constantly adds new firsts, whether it is a new species for Derbyshire, the first (12 March 2017) and last sightings (8 November 2017) of Wheatear in Derbyshire, the highest recorded altitude for Roesel's bush-cricket or the most easterly Derbyshire record for Willow Emerald Damselfly.



Last Wheatear of 2017, 8th November

As you get to know your own patch you learn where to view that elusive species that wildlife enthusiasts want to see and as I walk around Lightwood, I get to meet visitors from all over the county and beyond who have come to ensure a good chance of seeing their chosen species.

Lightwood has many iconic species that attract naturalists to this special place. Our latest addition is Willow Emerald Damselfly, first recorded in East Anglia in 2009 and has since rapidly colonised the country, much to the delight of our Dragonfly enthusiasts. Golden-ringed Dragonfly and Black Darter also breed here. In Lightwood we have recorded sixteen species of Odonata (the group name for Damselflies and Dragonflies) and there should be more to come, such as Black-tailed Skimmer which I have recorded in the Goyt.



Willow Emerald Damselfly

We also have recorded twenty-four species of Butterfly, our latest addition being White-letter Hairstreak. This butterfly spends most of its time in the tops of trees, the caterpillar feeding on Wych Elm. If you devote a little time, at the right time of year, you have a chance of spotting them feeding on the patches of creeping thistle in the meadow. One butterfly enthusiast recorded five individuals on one visit. We are always on the lookout for new species of butterfly in Lightwood

and there are two species recorded outside of the Buxton boundary - Silver-washed Fritillary and Essex Skipper which we hope will one day make it here. Will 2023 be the year we see them?



White-letter Hairstreak

In springtime we witness the migration of the frogs and toads. They come in their thousands to breed in the four ponds we have in the valley. The sight and sounds of our amphibious visitors attract people who wish to see this spectacle and on certain days you must tread carefully to avoid stepping on a mating couple. If you are lucky, you may also spot our two resident newts, the Common and the Palmate.

Each season brings with it its own families of visitors

Springtime is also the season to hear the plaintive calls of our returning Curlew and Lapwing. The meadows are carpeted with the yellows of Buttercup and Coltsfoot. And the air is full of the buzzing sound of our spring bumblebees, busy preparing their nests for a new family.

Very soon the sound of our returning Chiffchaff, Willow Warbler and Whitethroat follows. Once the Meadow Pipits begin their nests you may also hear the unforgettable call of Cuckoo which visits most years. In Summer, Lightwood is a wonderful place to see our Common Lizard. Personally, I have seen twenty-eight on a short walk, but this is not a record; others have recorded more.



The flowers in Lightwood can also be spectacular in summer; the purples of Thistle, Knapweed and Orchid replace the yellows of spring. We have recorded more than 270 plants, including at least five species of Orchid (we see Bee Orchid every year). The Marsh Orchids are a puzzle to me, but Southern and Northern Orchid (and their hybrids) may also be present. Whatever your wildlife interests there are plenty of species to bring you to Lightwood. Each season brings a different group of visitors

In Autumn we see the Swallows and House Martins hawking over the ponds, stocking up with an insect dinner to prepare them for their long migration. This is the season I inspect every remaining flower to catch the last glimpse of the last few butterflies, bees, and hoverflies. There may also be one or two late Dragonflies flying in October, not letting go of their short span as winged hunters. They have done their work and the next generation will spend one (or several) years underwater growing and preparing for their transformation into their short aerial life.

Winter brings us a new cast of characters. The Fieldfare and Redwing will feed on the abundance of berries and if it is a good beechmast year the treetops will be alive with the chatter of Brambling. Below, if you are patient, you may also see one of our stoats in its winter coat. This is the time of year when they are easier spot, especially if the snows haven't kept their side of the bargain.

The list of species found in Lightwood goes on and on, and there are many stories to tell. If you can sit a while and absorb its wonders, very soon you will have story to tell of your own.

Poole's Cavern and its contribution to understanding the impact of climate change on limestone caves.

Robin Irwin

Poole's Cavern became the British Cave Science Centre in 2018 with a memorandum of understanding signed between the Buxton Civic Association and the British Cave Research Association (BCRA). Even before this agreement Poole's Cavern had been a veritable hotbed of scientific research mostly focusing around the poached egg stalagmites, such as the Hartland et al. paper published in *Cave & Karst Science* (the journal of the BCRA) in 2010. These earlier papers would often require scientists who wanted to do studies within the cavern to bring their own equipment and other such sundries to be setup and support their research, now though with the co-operation of TinyTag, a manufacturer of scientific logging devices, there are several permanent pieces of equipment sited within the cavern.

The devices currently situated in the cave monitor a variety of different variables; some are equipped with thermistors in order to measure temperature changes, while others have barometers for pressure monitoring. Others still record carbon dioxide changes, or log each drip falling in particular locations. Each of these loggers is assigned a unique serial number for the purposes of identifying them and mapping out their locations within the cavern (figure 1). All of this data is then transmitted by the devices in the cave to a server located within the visitor centre, and from there it is uploaded to the BCRA servers and eventually online. When the system is working fully the data stream available online to researchers is almost instantaneous with the loggers recording every ten minutes.

Since 2018, there have been eight student projects created from data provided by the loggers, along with four research papers published, primarily within *Cave & Karst Science*. While many of these projects also involved specialist equipment, being able to use the logger data as a baseline would prove to be a useful tool of comparison.

The COVID-19 pandemic has also provided an interesting set of logger data. A paper published in 2021 by Gunn, Rowberry and Smith looked at temperature variations within the cavern in June 2019 when it was open to the public, and June 2020 when it was closed due to the pandemic. One of the key pieces in this paper was showing that there is a marked difference in temperature within chambers of the cavern and that it was possible to track tours on their route through the cave. This presence of tourists steadily increased the ambient temperature of the cavern, before it fell slowly over night to start again the next day. The data provided by 2020 would provide a baseline for this to be measured against, as the data showed the temperature staying almost constant throughout the month. Despite providing rather striking graphs, the data did not prove any significant difference in temperature variation and concluded with a note that further research would be need to be conducted.

Further climate research has been done in a paper published in 2022 again by Gunn & Rowberry. This paper looked at the January 15th 2022 Tongan volcanic eruption and the subsequent atmospheric pressure waves released. The data available from loggers both within the cave and without revealed two noticeable anomalous events, one between 18:30 and 20:30UTC on the 15th of January and another between 01:30 and 02:30UTC on the 16th of January. These events may have been triggered by a Lamb wave, an elastic wave that propagates in spheres, encircling the Earth following the volcanic event. Further manual monitoring of the barometric pressure loggers revealed a continuing chain of smaller events until the 19th of January that automated detection did not pick up. Further research opportunities have been identified in order to confirm the existence of the later anomalies as well as link the data conclusively to South-East Asian volcanic events in the future.

Another piece of research within the cave is led by Professor Mike Rogerson (personal communication, July 27, 2022) from Northumbria University and involves studying the impacts of tree planting on limestone areas. As limestone is a durable and long lasting carbon sink and able to keep carbon stored for much longer than the life of the tree, tree planting on these areas may present an ideal opportunity to assist in efforts tackling global climate change. Conversely, limestone areas are predominantly calcite, which is vulnerable to acidic erosion and can result in the release of the stored carbon both into atmosphere and into water systems, the majority of this being carbon stored millions of years ago and therefore stymieing human efforts to mitigate carbon release. As part of this research drip, loggers and water collectors have been installed in the cavern and are collected once a month in order to add to the data used for analysis. As the project is still young, no firm conclusions can be reached at this stage with only a years' worth of data collection.

Over the summer of 2022 at least two student projects have been proposed to take place using the data available from Poole's Cavern. Both of these projects come from Northumbria University, one a masters thesis and the other an undergraduate dissertation. As of the time of writing the undergraduate has yet to contact the cavern to confirm the scope of the project, but the masters student is intending to directly investigate the impacts of tourism on the cavern ecosystem (N. Mclean, personal communication, June 28, 2022). The research is conducted by looking at the visitor numbers and timing of tours and comparing them to the wealth of data on offer from the loggers positioned within the cavern. The thesis project builds upon a student project previously undertaken by a member of cavern staff who looked at visitor numbers against carbon dioxide levels within the cave in detail as opposed to all other variables, this was due to the fact that the Cave Science Centre didn't exist in its current form when the first study was undertaken.

So far the British Cave Science Centre at Poole's Cavern has proven immensely valuable, to both speleological studies on the cavern itself and to atmospheric and climate change related studies. Should projects such as the Tongan volcanic eruption study continue and expand in scope then having dedicated underground pressure monitoring will continue to be useful well into the future. Alongside that, the ability for students to access the freely available data and use it both undergraduate and masters level projects and perhaps even Ph.D. projects will continue to advance student understanding of the natural world and humanities impact on it.

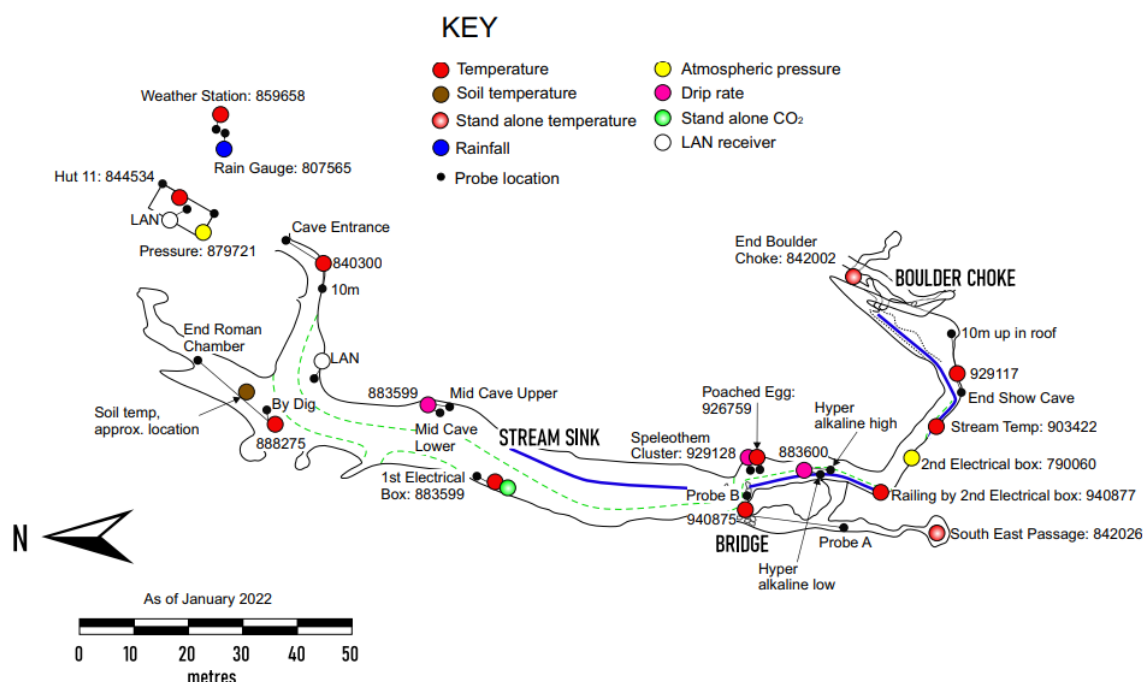


Figure 1: A map of Poole's Cavern showing the location of each installed logger site. Source: The British Cave Science Centre via their cave survey data (<https://www.cave-science.org.uk/monitoring>)

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Gunn, J., Rowberry, M., Smith, A. (2021). Exploring the impact of tourists on cave air temperatures: a Covid-19 case study from Poole's Cavern, Derbyshire, UK. *Cave and Karst Science*, 48(3), 121-128.

Rowberry, M. & Gunn, J. (2022). Atmospheric pressure anomalies at the British Cave Science Centre triggered by catastrophic volcanic eruption in Tonga on 15 January 2022. *Cave and Karst Science*, 49(1), 14-18.

Publications published using Data from Poole's Cavern

Student Research Projects

Scott (formerly P.) Ambler (2018): The microclimatic factors influencing calcite precipitation from hyperalkaline drip waters: Cave monitoring in Poole's Cavern, Derbyshire, UK. Masters Thesis, Lancaster University.

Benedict Wynn (2020): A comparison of different carbon dioxide meters to assess their suitability for long-term, high-resolution monitoring in caves. Undergraduate Thesis, University of Durham.

Georgina Wilmot (2020): The microclimatic effects of tourists on cave microclimate and calcite precipitation: Cave monitoring in Poole's Cavern, Derbyshire. Undergraduate Thesis, Lancaster University.

Georgina Shaw (2020): Investigation of trace elements and partition coefficients in cave drip waters: Poole's Cavern, Derbyshire, UK. Undergraduate Thesis, Lancaster University.

Sarah Beswick (2020): Investigating the use of the DGT technique in analysing trace metal concentrations of the drip water in Poole's Cavern, Buxton, England. Undergraduate Thesis, Lancaster University.

Alistair Morgan (2021): Phosphorous in caves: Phosphate-oxygen isotopes as a novel speleothem palaeothermometer. Masters by Research Thesis, Lancaster University.

Simon Morris (2021): Exploring cave air temperature and ventilation regimes at Poole's Cavern, Buxton. MSci Thesis, Lancaster University.

Paula Garbin (2022): Investigation of microclimatic change in Poole's Cavern following the impact of the COVID-19 lockdown. Undergraduate Thesis, Lancaster University.

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Blewett, P., 2019. The Tinytag Connect System and its application in the British Cave Monitoring Centre. CREG Journal, Vol. 108, 17–20.

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Trees, Golf and Fairfield Common

Jon **White**

Introduction and Historical Context

The present lush and extensive tree cover on the area of land known as Fairfield Common has not always existed. Going back several hundred years, the land was cleared for livestock farming, being later developed as a horserace track. Complete with a circular mile long course and a substantial stand for viewing, the racetrack was closed in 1837.

After a quiet period, there appeared a Mr W. Bryden, from Devon, who started a small Golf Club, which became known as Buxton and High Peak Golf Club, formally initiated on 8th June 1887.

One of the earliest photographs shows a group of gentlemen playing on the 18th fairway. The photograph is dated 1898 and shows few trees on the Common, with little else except grass and scrub.



It shows the line of the A6, but it is very sparse, reflecting the use of the Common for livestock grazing.



Over the years which followed, the Golf Club developed the course into the rich tapestry which can be seen today. The Greens Management has followed a traditional approach, balancing the requirements of golfers with a respect for the natural world.

This old photograph shows St Peters church in the background, showing that the golf course from this view had virtually no trees at all.

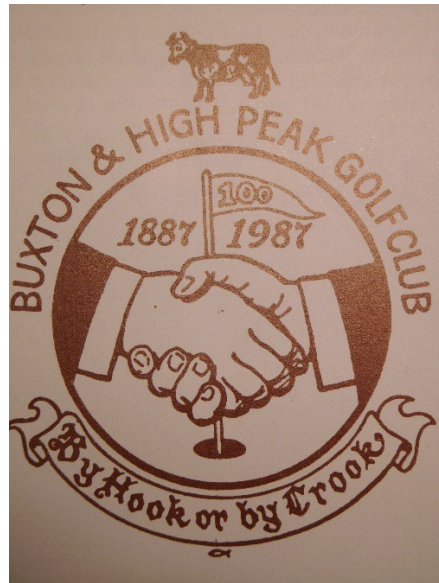


In the years following, the course has gradually acquired the character of a typical inland golf course, with some suggesting that it resembles a links-type, found in many coastal regions. However, the principal features are the altitude of the course and the limestone substrate on which it is situated. These two features make the course quite challenging in the winter months,

being somewhat prone to snow. It also makes it very free draining, so is often playable while other local course are closed.

These features also impact on the flora and fauna of the Common. Buxton and High Peak Golf Club have a "mascot" which, while it has evolved over the years, reflect the historic farming roots of the area.





Sadly, this beast has not been spotted for some time. Nevertheless, there is an abundance of typical Peak District wildlife on the course, attracting kestrels and occasionally other birds of prey. Partridge nest and there is a healthy community of amphibians in the large pond.

The Norton family maintained the golf course and it is with some pride that Will Norton is now the fourth generation of this family to be Greenkeepers. He is following in the footsteps of his father (Steve), grandfather (Raymond) and great-grandfather (Bill).



Trees have become a feature of the course, but there cannot have been many planted with such care or in such auspicious company as the one seen below this picture, taken in the 75th year of the Club (1960) shows a new tree being planted at the back of the 15th green.

In the photograph below the tree is being planted by Mayor George Morris, watched by the Golf Club Committee. The background indicates that there were still few trees on some parts of the course as recently as in 1960.



It is recognised that the Greens Team approach the management of the Course with a view to encouraging biodiversity. There are significant areas of rough which are left undisturbed apart from the occasional retrieval of a miss-hit golf ball. This allows some rare and fragile plants to flourish, for example this beautiful orchid. I am grateful to Mr John Barber for bringing this little beauty to my attention.



Recent Developments

I am indebted to Dr Robert Scott, the ex-Chairman of the Golf Club and to Mr Steve Leigh for the information they provided in order for this review to take place.

High Peak Borough Council, in partnership with Homes England, have agreed terms with B&HPGC to create a new roundabout at the top of Fairfield Road. This takes a small section from the course, requiring the green on the 14th hole and the tee of the 15th hole to be moved back some 30 meters. A number of trees and bushes had to be removed in order for this work to take place. As part of the agreement, a significant replanting has taken place and it is to this development that I now turn.

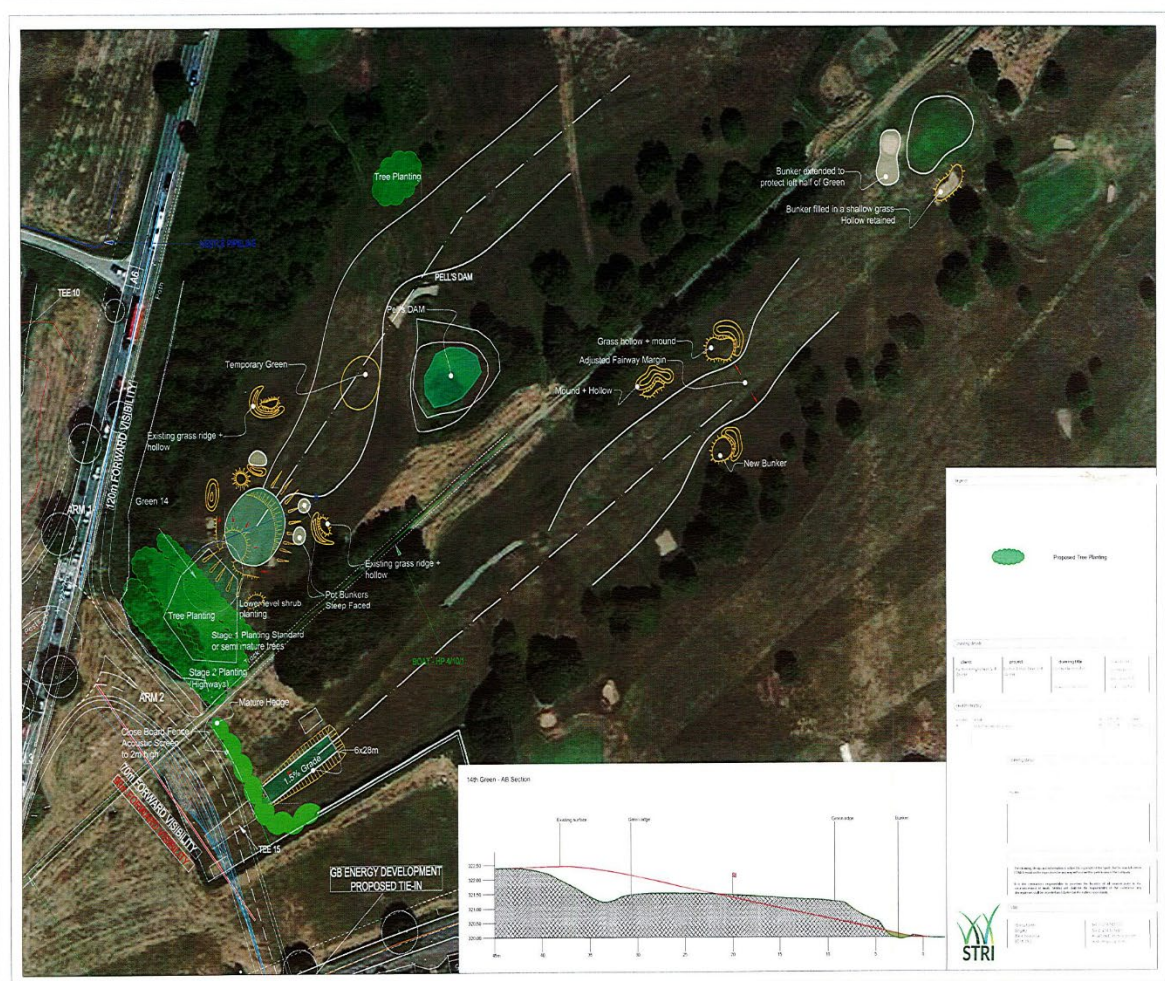
A prime consideration was that there should be a minimum of disturbance to wildlife. While there is an active badger set nearby, this was not disturbed. There is a community of moles on the common, but these are normally found in other areas of the Course. Nesting birds were also

planned for and the works commenced at the end of the breeding season so as to minimise any impact on them.

Professional expertise was brought in by both High Peak Borough Council and B&HPGC, supporting the input from Homes England. A planting map was agreed. All parties involved recognised that this was going to be a long and complex operation, needing to meet the conflicting demands of the key stakeholders. B&HPGC had an Extraordinary General Meeting of members to agree the terms which received almost unanimous support.



The services of STRI were employed to make an environmental assessment and design the changes required. This photograph is typical of their work and shows a STRI specialist making an assessment of water vole habitats prior to drainage adjustments on a golf course.



There are several points of interest to note.

The raised green of the 14th hole is backed by a planting of semi-mature and standard trees. This gives it a very attractive and natural look which will only increase as the trees mature. There has been a variety of native trees planted and it is anticipated that while not all will survive, it is hoped that the majority will grow to maturity. Nearly 2000 new trees have been planted.

Another significant feature is the "Willow Wall" at the back of the new 15th tee area. Of concern to the stakeholders was the potential for disturbance due to traffic noise from the roundabout. To mitigate this, a soundproofing fence was erected, supplemented by a living wall of willow trees. These photos were taken in July 2022 when the wall had been in place for about a month. It is expected that once the trees are established, it will be a green living wall which will provide a wildlife pathway between the mature areas on either side of the tee.



The area to the right of the willow wall has been planted with a mixture of trees and shrubs to provide continuity with the existing tree line.



Another area of extensive planting is at the rear of the ninth green. For those who are not familiar with the course layout, this is the fairway that is seen on the right of the A6 as you drive into Buxton. It is the home of the Great Racetrack, a unique feature of the Common. A very early impression is included here.



While nothing remains of the original "stands", the ninth hole is named "Standside" out of respect for the history of this area. While some believe that the racetrack was two long straights connected at each end by a curve (as in the film *Ben Hur*), the actual route took riders across the Common on a mile-long circular route. At the rear of the ninth green, a new stand of trees has been planted which will provide another attractive backdrop.



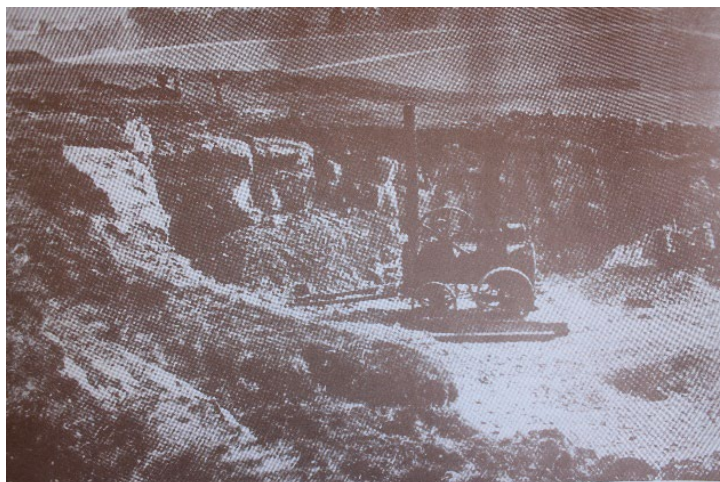
Crossing over the A6 takes golfers to a very challenging hole – the 11th. A key feature is a line of trees planted in the 1940s. These had a dual function as they provided some protection to the traffic from mis-hit golf balls, as well as providing guidance to those tasked with finding the A6 following heavy snow!



The original line of trees now curves away from the road at the end but there have been 550 new "whips" planted all along this line: we have the children and teachers from Fairfield Junior School to thank for this work which we hope they will see grow to maturity in the coming decades.



If you are walking across Fairfield Common (do take care to watch out for golfers and golf balls), it is impossible not to be struck by the changes imposed on this landscape. It has elements of history hidden within it e.g. the old quarry



The top photo shows the workings at around 1900. As the photo above shows, nature has gradually reclaimed the land. The remains of limekiln workings provide an interesting feature on the 17th fairway as shown in the photo below.



Future Developments

The golf course is still a "work in progress" and as we can see from the old maps, this golf course (the oldest 18 hole course in Derbyshire) will be sure to continue to evolve over time. In its first 135 years, it has been transformed from a windswept heathland for grazing to a flourishing golf course providing a rich and diverse wildlife habitat. But what of the next 50... 100... 200 years? How will climate change impact on this common land? Of course, none of us knows for sure, but if the trend continues for milder winters, wetter summers and more extreme weather events, we hope that the extensive planting of new native trees will make a big difference to our special "place and space".

Acknowledgements

I am grateful to the Governing Council of Buxton and High Peak Golf Club for permission to take photographs on the Course.

I also acknowledge the source of some of the photographs used as being

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Other photographs were kindly provided by Mr Steve Norton, Head Greenkeeper, from his family collection.

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Appendix

Planting Lists

PART B Landscape planting																				
Latin Name	Common Name	Form	Height (cm)	Girth (cm)	Specification	Note	Individual trees	Number of plants	Woodland edge (A)	Number of plants	Woodland edge (B)	Number of plants	Hedgerow	Number of plants	Shrubs	Number of plants	Instant hedge	Number of plants	Total number of plants	UNIT
Pinus sylvestris	S Scots pine	Standard	200 - 250	8 to 10	Root Ball	Pit planting	45%	7	15%	26									33	Items
Corylus avellana	Hawean	Standard	275 - 300	8 to 10	Root Ball	Pit planting					15%	41							41	Items
Salix alba	Whitebeam	Standard	275 - 300	8 to 10	Root Ball	Pit planting					15%	41							41	Items
Fagus sylvatica	Beech	Standard	275 - 300	8 to 10	Root Ball	Pit planting	16%	3	5%	9									41	Items
Quercus robur	Oak	Standard	275 - 300	8 to 10	Root Ball	Pit planting	28%	4	15%	26									12	Items
Carpinus betulus	Hornbeam	Standard	275 - 300	8 to 10	Root Ball	Pit planting				5%	9								30	Items
Betula pubescens	Birch	Standard	275 - 300	8 to 10	Root Ball	Pit planting					15%	41							9	Items
Viburnum	Small leaved tree	Standard	275 - 300	8 to 10	Root Ball	Pit planting													41	Items
Prunella lauro	Ald cherry	Forestry transplant	45-60	N/A	1 x 1 Forestry transplant	Ketch planting			10%	17	10%	28							10	Items
Crataegus	Holly	Forestry transplant	45-60	N/A	1 x 1 Forestry transplant	Ketch planting			15%	26	15%	41	10%	68	10%	38			41	Items
Cotoneaster	Swallow	Forestry transplant	45-60	N/A	1 x 1 Forestry transplant	Ketch planting							30%	204	20%	70			274	Items
Conifera arvensis	Hazel	Forestry transplant	45-60	N/A	1 x 1 Forestry transplant	Ketch planting							10%	68	30%	166			174	Items
Pinus sylvestris	Radiata	Forestry transplant	45-60	N/A	1 x 1 Forestry transplant	Ketch planting							15%	102					102	Items
Abies balsamea	Alder	Forestry transplant	45-60	N/A	1 x 1 Forestry transplant	Ketch planting							18%	68					121	Items
Larix laricina	Field maple	Forestry transplant	45-60	N/A	1 x 1 Forestry transplant	Ketch planting			15%	26	15%	41	15%	102					169	Items
Taxus baccata	Elder	Forestry transplant	45-60	N/A	1 x 1 Forestry transplant	Ketch planting							2,50%	17					17	Items
Juniperus communis	Honeylocust	Forestry transplant	45-60	N/A	1 x 1 Forestry transplant	Ketch planting							2,50%	17					17	Items
Salix caprea	Soft willow	Forestry transplant	45-60	N/A	1 x 1 Forestry transplant	Ketch planting							2,50%	17					17	Items
Tilia cordata	Tree	Forestry transplant	45-60	N/A	1 x 1 Forestry transplant	Ketch planting							2,50%	17					17	Items
Ulmus campestris	Goose	Forestry transplant	45-60	N/A	1 x 1 Forestry transplant	Ketch planting			15%	26	15%	41			40%	141			208	Items
Salix helix	Ray locust	Standard	200	N/A	2m trough flipped hedge or 42 angle clipped plant	trench/ pit planting											40%	68	68	Items
Phytolacca	Cherry laurel or common laurel	Standard	200	N/A	2m trough flipped hedge or 42 angle clipped plant	trench/ pit planting											20%	34	34	Items

[illegible]

*Cost to include supply and planting + specified support

A Review: High Peak Borough Council response to the Climate Emergency

Jon **White**

I am very grateful to Councillor Jean Todd, Executive Member for Climate Change, Environment and Community Safety and to her colleague Gillian Wright for their time and contributions to this review.

HPBC are fortunate to have recently engaged Gillian Wright as Climate Change and Biodiversity Officer. Gillian brings considerable industrial expertise and is tasked with engaging community groups, monitoring the performance of the Council and tracking emissions and emission data. Leadership in this area is very welcome and supports the development of new partnerships, increased public engagement and activities in the local community and beyond.

Background

It is widely accepted that the UK is being affected by rising temperatures, with a variety of impacts on the way we live and how the natural world functions. In the High Peak, there have been more extreme weather events in recent years. The Climate Change Act (2008) introduced the UK's first legally binding target to reduced greenhouse gas emissions. This was amended several times, most recently in April 2021, with a target that the UK reduces its emissions by 78% by 2035, when compared to 1990 levels. A report was issued to local authorities which considered their role and how "Net Zero" can be achieved.

The key messages are that regional agencies and local authorities will need to have an agreed framework for delivery, have appropriate financial support available and be flexible in how they deliver policy. It was also recognised that there is a need for education and training of staff to implement the necessary changes.

While High Peak Borough Council (HPBC) has been conscious of the need for a formal response to the climate emergency for some years, this became a reality on 15th October 2019, when HPBC passed a resolution declaring a Climate Emergency.



In January 2020, there was a Climate Emergency summit meeting in New Mills. Invitations were sent to an eclectic range of organisations, interest groups and individuals, generating ideas and recommendations on six themes.

1. TRANSPORT
2. WASTE MANAGEMENT

3. ENERGY
4. DOMESTIC BUILDINGS
5. COMMERCIAL BUILDINGS
6. AGRICULTURAL LAND USE

At this event, the Council reaffirmed its commitment to being Carbon Neutral by 2030.

Since this summit meeting, there have been published Action Plans. These are substantial documents, available on the HPBC website and summarised here.

Climate Change Action Plan (1)

It was recognised from data gathered that the High Peak is a unique area, making the response to the climate emergency particularly challenging. Quarry work and cement manufacture are important local industries which generate carbon dioxide but they are central to the economy of the area. It was also acknowledged that the Council has a significant role but does not have the power to make all these things happen on its own. As such, a Working Group was established to support the implementation of the public consultation and it is the outcome of these initiatives which form the *Aiming Low: Climate Change Action Plan (2)*, published in Autumn 2021.

The Current Situation

While domestic, transport and land use produce typical quantities of emissions, the industrial process of cement manufacture results in the High Peak having overall high emissions when compared to other districts. As such, the Tyndall Centre for Climate Change Research (2021) advises that emissions from cement production are a national challenge and should not be included in the target setting data. Nevertheless, emissions relating to office buildings, leisure facilities and council vehicles have been calculated and provide a baseline measurement from which future progress can be evaluated.

Since the initial assessments of emissions were made, the first steps have been taken to enable change. These include carbon literacy training, data collection on emissions and a review of the powers embedded with HPBC to promote change. Meetings have taken place with partners, including Derbyshire County Council, the Peak District National Park (PDNP), the High Peak Green Network, Buxton Civic Association, Derbyshire Wildlife Trust and a range of other local community groups.

HPBC Plan of Action

It has been established as policy that the climate change response should underpin every decision made by HPBC, including heating buildings, staff travel and procurement of materials. This includes an audit of Council vehicles by the Energy Saving Trust and AES (the Council owned company responsible for waste collection, street scene and parks maintenance) looking at options in relation to developing technology and investment in electric vehicle infrastructure. While the Council does not have baseline data for procurement at this time, there is an expectation that quick wins will be possible in many areas and this is reflected in the awaited 2022 / 23 updated plan.

Specific Actions

The Local Authority has an overarching duty to support the economic health and social well-being of the communities it serves. Working in conjunction with outside agencies and advisory bodies, HPBC will use its planning powers over buildings and transport, enforcing building regulations and will ensure that buildings meet basic energy efficiency standards. For example, HPBC ask for hedgehog runs, swift boxes, biodiversity enhancement and EV charging when

considering planning applications. Waste management and emissions from travel and transport, housing, agriculture and land use are also being prioritised when new developments are proposed.

The Council's Climate Change Working Group also have a duty to manage risks associated with flooding and to protect the environment, wildlife and heritage and has commissioned work by *Antithesis consultants* to produce data on the Borough's greenhouse gas emissions and to model the pathways by which these emissions can be reduced.

HPBC work closely with Derbyshire Wildlife Trust to create and promote a biodiversity strategy and has stopped the use of weed killers in our open spaces and parks (except for dealing with plants such as Japanese Knotweed) in 2019.

Climate Change Action Plan (2) Aiming Low: The Way to Net Zero 2030

As Councillor Todd explains in the introduction to this document, HPBC aims to be ambitious but also realistic regarding what it can and cannot do. A joined-up approach, involving businesses, residents, community groups and visitors supports what HPBC builds on.

What Does The High Peak Thinks about Climate Change?

Aiming Low explores in some detail public attitudes to climate change and whether responding to its impact is seen as a priority. Climate change is a matter of concern to 87% of rural citizens. Of particular relevance to the High Peak is that 60% of rural citizens believe that they are already feeling the impact of climate change, compared to 54% of those who live in urban areas.

[Note: the impact of recent heatwave and drought on public opinion are yet to be determined]

When Future Focus Research randomly surveyed 500 High Peak residents on their attitudes to climate change in September 2021, it was found that there were a wide range of concerns, with environmental and habitat destruction featuring prominently. Actions to improve recycling and avoidance of single use plastic were high on the agenda, although many respondents cited a lack of knowledge and information available. There appears to be uncertainty in the minds of many people with regard to food packaging, recycling and what it means to be a "green" citizen.

HPBC Responses

Following on from The Climate Change Act (2008) and summits in Kyoto (1997), Paris (2015) and more recently in Glasgow (2021), HPBC established a Single Use Plastic (SUP) working group in 2018 to advise the Council and followed this with a commitment in the 2019 – 2023 Corporate Plan to "Protect and improve the environment including responding to the *climate emergency*" as one of the four aims of the Council. (10 Oct 2019). This led to the creation of a Climate Change Working Group to advise the Council on future plans and courses of action.

Anthony McKeown, Leader of High Peak Borough Council reiterates this commitment by setting the target for the Council to being carbon neutral in its internal operations and the services by 2030.

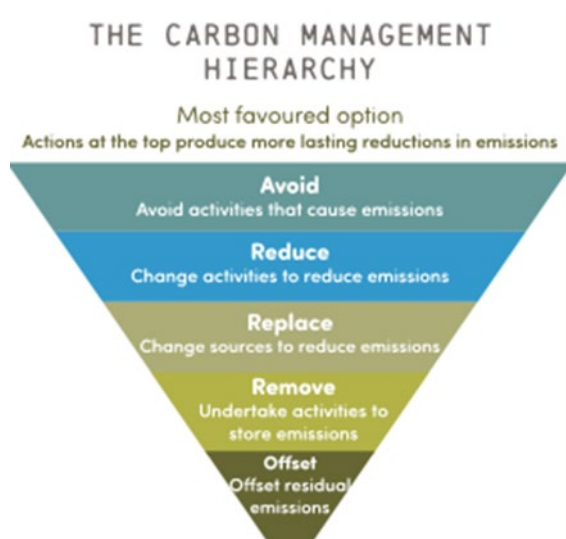
He further commits to using the tools, levers and powers of the Council to apply its Management Hierarchy to "The Seven Ways to Net Zero". Using the theme of "The Way We", this framework explores themes originally established in the Climate Summit in Jan 2020.

A summary of the "Seven Ways" is presented here.

1. The way we .. Live: energy efficient buildings and reducing fuel poverty.
2. The way we ..Travel: promote EV use and alternatives to cars.

3. The way we ..Work: workplace energy from renewable sources.
4. The way we .. Make energy: using solar panels and green energy sources.
5. The way we .. Look after our environment: extending the green environment both locally and regionally
6. The way we .. Manage waste: encourage recycling and repurposing of waste.
7. The way we .. Help change to occur: responding to the climate emergency should underpin all Council decisions and policies.

A key element of HPBC response is to work with local business to reduce their carbon footprints using the "Seven Ways to Net Zero" framework. However, in addition to this, it was necessary to establish a Carbon Management Hierarchy.



This concept proposes that HPBC should prioritise AVOIDING activities that cause emissions. If that is not possible, then these activities need to be REDUCED or REPLACED. Ultimately, emissions may need to be REMOVED FOR STORAGE and, if unavoidable, may need to be OFFSET as a last resort.

The successes and progress made in these areas is reported by HPBC twice a year. These reports are available for the public to view following the hyperlink in the reference list.

Personal Action

At the end of *Aiming Low*, there are recommendations made to High Peak residents, with the acknowledgement that HPBC cannot act alone. The support of business, the public sector decision-makers and individual residents is needed. Working together, we can make a difference.

Some specific recommendations are made.

Food

- Only buy what you are going to use. This reduces food waste.
- Avoid food which has been air-freighted to the UK so that we can have out-of-season foods.
- Buy food which has been grown locally.
- Never leave home without a reusable cup.

Electricity

- Basic steps: turn lights off, hang washing out to dry, wash clothes at lower temperature, keep showers short.
- Wear a jumper rather than turning heaters up.
- Insulate your home better: there is often help available. Even small things can make a difference to the fuel bill.
- Ask your energy supplier if they are "green" and whether they invest in renewable power supplies.

Transport / car care

- Fly less.
- Drive less.
- Use public transport
- Keep your car well serviced so that it lasts longer.

Purchases

- Buy less. Make your things last longer by looking after them.
- Buy from local suppliers.
- Buy goods which have a long life and can be recycled or repaired.
- Choose energy efficient white goods.

Investments

- If you have money to invest, put it into funds which support green initiatives such as renewable energy research and reforestation.
- Avoid investing in fossil fuel companies and projects which contribute to pollution.

In Conclusion

While responding directly to the climate emergency will bring clear benefits to High Peak residents, it is also important to recognise the indirect benefits which can emerge. E.g., reducing car journeys may lead to healthier lifestyles, better insulated homes may reduce fuel poverty and enhance the quality of life, while increasing green spaces and places enhance a feeling of community.

Buxton Civic Association (BCA) commentary on this article.

BCA commends HPBC for its leadership in responding to the climate emergency. It supports the principles imbedded in these strategies and welcomes the opportunity to engage with HPBC in future consultations.

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Abundance: Nature in Recovery, by Karen Lloyd. Bloomsbury Publishing.

John Phillips

Buxton has become a focus for nature writing, thanks to the partnership between the town's International Festival and internationally influential yet home-grown author Mark Cocker, who has brought many of the leading names of the genre here each year for round-table debates.

And a new way focussing on the way nature is under attack by human activity is the theme of one of Mark's 2022 guests, Karen Lloyd, in her new book, *Abundance: Nature in Recovery*.

In a collection of essays, many of them despatches from the front lines of conservation across the world, she urges us all to find new ways of paying attention to a problem which ranges from the health of the microscopic organisms on which we all depend to what a philosopher has dubbed "hyperobjects," things too vast and unwieldy for us to grasp.

These latter include the fact that more than half of all carbon emissions in human history have been produced since pop singer Taylor Swift was born in 1989.

"The lens we are not looking through is smeary with neglect," says Lloyd. "We have not been looking at the middle ground or the further away (time; distance, the rate of loss) nor the closer at hand (what is no longer here that always was)."

Later she says: "The natural world needs to be placed at the centre of everything we do, at the centre of all our seeing."

The essays take us around the globe to see who is doing exactly that, including a suburb of Costa Rica's capital city which is protecting bird and insect pollinators by granting them "citizenship" rights as part of a plan to convert every street and neighbourhood into a biocorridor. It's a fitting response to what one author 30 years ago decried as "the consequences of those one-sided declarations of the right of a single species to disregard the natural rights of every other species."

But there is hope. Lloyd's adventures take us to the Netherlands, where the occasional wolf can now be seen wandering around urban streets at night, which makes her wonder just how well the successful Dutch campaign to make this acceptable to locals would go down in the UK.

She finds some unlikely success stories, such as the pelicans saved by Greece's Junta of Right-wing colonels in the 1970s, and beavers who, by building a new future in the Lake District, might return the favour to humans by building dams which help alleviate the devastating floods the area has suffered in recent years.

Lloyd meets Romanian forest rangers who brave murderous illegal loggers in the Carpathian mountains as they protect bears, once hunted there by Romania's dictator Nicolae Ceausescu. Mind you, his toadies had to drug them and chain them before he took aim. He still missed, unlike his countrymen when it came to his own execution.

Much of this is told with poetic turns of phrases. A falcon attacking starlings is "Superman, arms fastened against his sides;" blocks of flats in Romania are "the new fortress walls of the 21st Century."

But unfortunately, Lloyd's poetic licence deserves a lot of penalty points. She quite rightly makes much of the fact that we are living in the Anthropocene Age, so called because of mankind's dramatic influence, and yet she frequently resorts to anthropomorphism.

"The natural world doesn't have an opinion on this;" "Does the lone hawthorn suffer from loneliness?"; "the presence of a single apex species drives — no, *nurtures*—healthy ecosystems

(author's italics); "I wonder if the stag is expressing high dudgeon at such an unnatural imposition (someone imitating the sound of a jackal) into the world it believes it controls."

This is despite giving an excellent example of why anthropomorphism is a dangerous habit. In a fascinating discussion on the role of beavers, the lack of which some scientists believe might have been behind the creation of the world's deserts, Lloyd discovers that these vegetarians are persecuted by the salmon industry because of a false belief that they eat their stock.

This myth is blamed by many on C S Lewis, who tried to combine religion with evolution in a half-way house theory of his own, portraying Mr Beaver and family eating fish in *The Lion, The Witch and The Wardrobe*.

Beatrix Potter is also featured, but for her very level-headed and practical views on nature, so it would have been interesting to have a discussion about how this creator of Peter Rabbit and pals managed to separate her own highly profitable anthropomorphism from her extremely successful animal husbandry.

Abundance has so much going for it, and better minds than mine have heaped praise on the book, including Tim Smit of the Eden Project, who said: "If I was (sic) to recommend one book people should read for their well-being, it would be this."

But I couldn't help feeling I was banging my head against Lloyd's unnecessary stylistic roadblocks, including frequent clunky passages at odds with her obvious talent. Examples include: "the beariness of bears" (which pops up twice, followed by the observation that a bear was "bear-like"); a bird being released from a house which then "clocks the outsideness and flies"; and "the thingliness of the subjects under observation"... Most of these "nesses" are written in italics, which usually means the author *really, really* means them to be taken seriously.

And Lloyd never defines what she means by abundance: what was the point when nature ceased to be present in abundance? What constitutes abundance for a specific species? Can we have genuine abundance for one species if all the others aren't abundant? Can abundance ever be achieved again?

I really wanted to love this book, but as is abundantly clear, I didn't.

Notes

Volume 1 No 2 will focus on Buxton's built environment. The anticipated publishing date is July 2023.

If you would like to contribute a paper or article, please contact us at;

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giving brief details of your proposal.



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