# Evaluation of the West Yorkshire Health and Care Partnership Green Social Prescribing Funding Programme

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# Executive Summary

## Funding rationale

A growing body of evidence shows health, wellbeing and ecosystem benefits of investment in green space and the provision of green social prescribing.

In West Yorkshire, there are significant disparities in access to greenspace and access to nature-based activities, so, the WY H&CP (West Yorkshire Health and Care Partnership) took the decision to fund nine Green Social Prescribing Projects. This report summarises the health, wellbeing and environmental benefits of these projects. It also explores challenges and wider successes of the projects and sets out some recommendations to support Green Social Prescribing going forward.

## Funded projects

Healthcare and VCSE (Voluntary, Community and Social Enterprise) organisations were funded. The projects ranged from food growing projects on hospital sites, to an urban food growing farm maintained by children and young people, tree planting and the creation of health walks, to 'wellbeing' activities in greenspaces. Seven of the nine projects involved creating new or enhanced greenspaces, most of these were in areas of deprivation. Initially, ten projects were funded, however staffing and COVID-related issues prevented one of the projects from going ahead.

The projects teams worked with partners across a huge range of organisation types including, including NHS Mental Health and Acute Trusts, Yorkshire Ambulance Trust, GP practices, local authorities, national and local charities and community groups, schools, and some private sector sponsors.

The projects worked with groups known to face additional barriers to accessing nature, including people living in areas of deprivation, people from minority ethnic groups and people with mental health conditions including addiction and learning disabilities.

## Aims & Methods

The purpose of the projects was to support and improve mental health and wellbeing among the targeted user groups and to develop and enhance natural spaces. The evaluation methodology used participant questionnaires, one-to-one interviews with service providers and an environmental survey.

## Results

### Reaching target groups

The results indicated that target groups were reached successfully through the projects, including adults with learning disabilities, people with mental health problems, those overcoming addiction, people facing isolation, refugees and immigrants, non-white ethnic groups, carers, people living in areas with high deprivation, with lower-than-average income and educational attainment and people referred by the probation services.

### Health and Wellbeing outcomes

Five health and wellbeing outcomes emerged from thematic analysis of the one-to-one interviews with the service providers:

1. Peace & restoration; interviewees referred to the restorative and replenishing effects of being in nature on the participants.
2. Self-determination; participation supported autonomy and self-determination and there was evidence of 'up-skilling' and education.
3. Curative; natural environments were considered to aid recovery, support overall health as well as 'rekindle' a zest for life.
4. Social cohesion; combatting isolation and supporting community cohesion was a benefit of the projects.
5. Biophilia;[1] facilitating an innate connection with nature.

### Environmental outcomes

Interviews with service providers indicated positive environment impacts which were:

- Learning to grow food
- Distributing food that was grown to local population
- Learning to cook fresh produce
- Developing environmental awareness and sustainable behaviours
- Supporting sustainable models of healthcare
- Creating and enhancing greenspaces

[1] The concept of biophilia refers to the idea that connecting with nature is fundamental to human nature and wellbeing (Barbiero and Berto, 2021).

The Polli:Nation survey was used to measure biodiversity on two of the project sites, however, a lack of baseline data on the characteristics of the meant it was not possible to quantify the any changes.

### Success factors

The following themes were identified, via interviews with service providers, as factors that contributed to the successful implementation and continuation of the projects.

- Partnerships and recruitment; All the projects reported that they formed partnerships across a variety of organisations.
- Creation of green spaces; a number of new green spaces were created that are likely to last beyond the funding period.
- Flexibility and adaptation to local /users' needs; projects took account of, and adapted to, local and individual users' needs.
- Leadership; the project managers demonstrated leadership skill in establishing and managing the projects. They were often guided by strong personal values and beliefs.
- Continuation; All the projects had plans to continue to deliver their service past the end of the funding; some had already secured future funding and others aimed to become self-sustaining.
- Project visibility; project leads made their projects 'visible' in various ways, for example by proactively contacting potential service users, physical placement where passers-by could see the projects and join in and snowballing/word of amount where participants encouraged others to attend and the projects thus became integrated into habitual community offer.
- Ongoing impact; interviewees anticipated that the impact of the programmes on the people who took part would last beyond their participation in the programme including changing attitudes, upskilling, educating and giving people the ability to continue to enjoy nature for their wellbeing and health.

### Challenges faced by projects

Challenges and barriers to implementation included issues with project set up, participant retention and the evaluation methodology:

- Bureaucratic/logistical challenges for example in getting risk assessment and health and safety checks causing delays.

- COVID-19 and Lockdown resulted int lower participation and staff absence and hesitancy among participations because of fears of transmission.
- One project reported vandalism on site which they needed to repair and pay for.
- Retaining participants could be difficult particularly when people couldn't remember about attending sessions or in extreme weathers
- Engaging with healthcare providers, including GPs who were perceived as 'too busy' to engage with the project leads.
- Some felt that there was not enough institutional support for green social prescribing in terms of the way that funding was diverted to social prescribers rather than the actual projects and that there is no deeper systemic change or commitment to sustainability.
- It was difficult to source a biodiversity survey that included a relevant range of biodiversity metrics.
- The evaluation methodology was difficult to implement because it was not practice for service providers to administer these in an outdoor setting while supervising vulnerable users. They were not trained in administering questionnaires so the few questionnaires that were returned were not useable.
- Consistent funding and integration with other local services such as farmers markets were suggested as ways to support the duration and deliver of the projects.

## Recommendations

The support the continuation of these projects and their successful scale up and additional projects, the following recommendations are made:

- Expand the GSP funding programme
- Increase the offer to other priority groups to increase the numbers of people who can benefit
- Support connections between healthcare providers and the projects to enable prescribing pathways and share best practice about what factors enable success of SP interventions.
- Share learning to support further take up of GSP
- Develop a narrative around SP and the need for systemic change at institutional level to support provision of services
- Continue to use the ICS platform to leverage a biodiversity agenda
- Share learning about ‘best practice’ in how GSP projects can be adapted to meet diverse needs
- Provide practical support for projects including; addressing typical bureaucratic challenges, supporting users with additional needs, shelter for extreme weather events, disseminating information about the schemes to raise awareness
- For future projects co-produce an evaluation in collaboration with service providers and earmark evaluation funding from the outset with a clear plan for dissemination and sharing learning and including measures of biodiversity.

# 1. Introduction and overview of projects


## 1.1 Background: Mental and physical health benefits of nature

Natural capital in the form of green space (e.g. parks, allotments, and woodlands) and blue space (e.g. rivers, canals, and lakes) is increasingly recognised as an important component in the delivery of place-based public health solutions (PHE, 2020), especially in urban contexts. There is considerable evidence that exposure to and living nearer green space is beneficial to physical health. A recent systematic review of 19 studies showed that people who are exposed to green spaces, especially at neighbourhood level, have a reduced risk of type 2 diabetes and obesity, and a higher propensity to undertake physical activity (de la Fuente *et al*., 2021). Residential and neighbourhood green space has also been shown to be associated with a 7% reduction in the risk of cardiovascular disease (CVD), even after accounting for social and economic status (Dalton & Jones, 2019).

Furthermore, prospective data has shown that use of publicly accessible green space is associated with reduced prevalence of CVD risk factors and reduced risk of diabetes, and living further away from green space increases the risk of fatal and non-fatal CVD.

The association between exposure to green space and mental health and wellbeing is also well established. A large cohort study in the UK showed that residential greenness is consistently associated with lower odds of depression, especially among women, people younger than 60 years old, and residents living in highly urbanised areas or areas with low neighbourhood social and economic status (Sarkar et al., 2018). Increased green space within the public health prescribed distance of 300m of residential homes is also associated with increased wellbeing as measured by life satisfaction and happiness (Houlden et al., 2019).

In addition to the evidence for the health benefits of living in close proximity to green space there is growing evidence that connection with and immersion in nature is critical to promoting general health and wellbeing (Martin et al., 2020). People who have contact with nature for up to two hours a week are more likely to report good health or high wellbeing (White et al., 2019), suggesting that significant health gains could be achieved by supporting access to nature-based outdoor activities among the general population. In a non-systematic review Natural England reported that social and therapeutic gardening and food growing, environmental conservation, and care farming were all associated with mental health benefits (Natural England, 2016). Howarth *et al.* (2020) in their scoping review of the impact of gardens and gardening on health and wellbeing captured evidence from a broad range of systematic reviews that showed viewing gardens, taking part in gardening or undertaking therapeutic activities were associated with improved wellbeing, increased physical activity and reduced social isolation. There is some evidence that health benefits achieved from spending time in the natural environment appear to be moderated by the characteristics of nature, or biodiversity. Time spent in places of higher biodiversity levels may bring about greater improvements in mental health (Methorst et al., 2021).

Beyond general population level benefits there is also emerging evidence that contact and immersion in nature can positively affect the health of specific sub-

groups, including children and young people. There is good evidence that contact with nature can positively improve physical activity and mental health in children (Fyfe-Johnson et al., 2021), and that these benefits might also extends to children with special education needs, including autism spectrum disorder (Li et al., 2019). Furthermore, contact and connection with nature has been found to be an important component of wellbeing and life satisfaction among children with attention deficit hyperactivity disorder(Barfield & Driessnack, 2018).

There is also increasing evidence that nature-based activities can confer mental and physical health benefits to clinical populations with long term conditions (Taylor *et al.* 2022). A recent systematic review of experimental evidence of nature-based interventions for adults showed nature-based interventions can effectively improve depressive mood and positive affect and reduce anxiety, and negative affect (Howarth *et al*., 2020). In particular there is evidence that horticultural therapy can improve positive and negative symptoms of schizophrenia (Lu *et al*., 2021). Among people with dementia, horticultural therapy is associated with improvements in wellbeing that sustain beyond initial exposure to the intervention (Hall *et al.,* 2021). Compared with urban walks, woodland walks have been shown to produce psychological and physiological relaxation effects, including reduced heart rate, in middle aged hypertensive individuals (Song *et al.*, 2015).

## 1.2 Background: (Green) Social Prescribing

Social prescribing involves the referral of patients to services within the community to support their health and wellbeing (Buck & Ewbank, 2020) and is a high priority policy for NHS England (NHS England, n.d.). By referring patients to non-clinical services, social prescribing reduces demands on health and social care and enables the delivery of personalised care in line with the ambitions of the 2019 NHS Long Term Plan (LTP) (NHS, 2019). Social prescribing is underpinned by the concept of supporting people to manage their own health, build community resilience, and make informed decisions about their healthcare.

Nature-based interventions delivered as part of social prescribing schemes have been found to be efficacious in improving mental health (Leavell *et al.,* 2019). This is referred to as green social prescribing. Green social prescribing links people with

structured and facilitated nature-based interventions that have been specifically designed for people with defined health needs. Chief among nature-based interventions are social and therapeutic horticulture (using gardening, food growing and plants to support wellbeing); care farming (involving the therapeutic use of agricultural landscape and farming practices); and environmental conservation (activities designed to support conservation and management of natural places for health and wellbeing). Green social prescribing (GSP) is growing in popularity and is an important component of the government's COVID-19 mental health recovery plan.

Evidence shows that more deprived groups accrue disproportional benefit from living in areas with more blue and greenspace (Public Health England, 2020). As such, nature-based interventions are potentially equigenic (Mitchell *et al.,* 2015) with greater health benefits for people with low socioeconomic status (Rigolon *et al.* (2021). Prescribing people into GSP schemes can support people who would not normally take part in these types of activities to engage with natural environments.

The same value from GSP could be gained from other groups who typically face greater barriers to accessing nature, which includes people with low incomes ethnic minority backgrounds (Cronin-de-Chavez, Islam & McEachan, 2019).

While some of the barriers to accessing nature are sociocultural, others are related to the availability of locally accessible greenspaces to these groups (PHE, 2020). For this reason, attempts to facilitate access to nature for underrepresented groups has increasingly been seen as something that needs tackling both by increasing the provision of targeted nature-based activities and by investing in new and improved greenspaces in areas where there is a deficit.

**Ecosystem benefits of Green Social Prescribing**

As well as improving physical and mental health, investment in green social prescribing can also be beneficial for nature. Through activities carried out in green social prescribing projects, natural environments can be maintained and improved to achieve both well-being and environmental benefits. These benefits can relate to biodiversity, as well as climate change mitigation and further ecosystem services, such as pollination, flood risk regulation, cooling of urban areas and educational and cultural benefits. Additional environmental benefits may be seen if some of the investment in Green Social Prescribing goes towards improving the quantity or

quality of green infrastructure, for example through creating new habitats or improving existing ones such as by planting of wild flowers and native trees.

Nature-based interventions as part of social prescribing pathways also have the potential to be a low carbon, sustainable and cost-effective ways to reduce demands on the health and social care system. The value of socially prescribed nature-based interventions in Scotland was estimated as £8600 per QALY, which is considered cost-effective using National Institute for Health and Care Excellence (NICE) willingness to pay thresholds (Willis *et al.*, 2016). A recent review showed that ecotherapy (A therapeutic treatment that takes place in nature) can both offer mental and physical quality of life benefits during the period of the intervention, as well as cost savings from reductions in demand for care services and medication (Hind, Bojke & Coventry, 2021).

## 1.3 West Yorkshire Health and Care Partnership Green Social Prescribing Grant Scheme

The West Yorkshire Health and Care Partnership (WY H&CP) is an Integrated Care System (ICS) that supports 2.4 million people across five local areas: Bradford District and Craven, Calderdale, Kirklees, Leeds, and Wakefield.

In April 2021, the WY H&CP committed £100K to funding ten green social prescribing projects. The funded projects either involved supporting people to access nature-based activities in existing greenspaces or involved the delivery of activities in greenspaces that were newly created as part of the funding.

The decision to fund the projects was initially a response to the impact that COVID-19 had had on the health and wellbeing of communities across West Yorkshire. This decision was further reinforced by green social prescribing's overlap with several of the WY H&CP's wider priorities. These priorities are:

- *Improving Population Health*

The funding scheme was put together and financed by the WY H&CP's Improving Population Programme and supported by funding from the Children and Young People's Programme. The Improving Population Health Programme aims to reduce health inequalities due to social, geographical and other barriers. It looks to address the preventable differences and wider determinants of health that contribute to

inequality, such as the environment in which people. Inequalities in access to greenspace is one such priority area.

- *Climate Change*

The WY H&CP has aspirations to be a global leader in tackling climate change. Supporting nature-based recovery and investment in greenspace is a key part of this work. Helping the ICS to transition towards more sustainable models of care is another priority area. This means focusing more on prevention, identifying ways to reduce demands on health and social care and reducing its associated carbon footprint.

*Providing Personalised Care*

The WY H&CP is committed to providing personalised care. Personalised care is about enabling people to have greater say in how their care is planned and delivered. Social prescribing is a key part of this – as patients are referred to non-clinical services that meet their specific needs. The WY H&CP supports the scale up of social prescribing, in keeping with the NHS' long-term plan that within five years over 2.5 million more people will benefit from social prescribing.

**Funding aims and grant criteria**

The grant scheme had a number of aims, this included:

- Supporting individuals who typically face additional barriers to access greenspaces and nature-based activities
- Improving the mental and physical health of service users, particularly given the impact of COVID-19
- Supporting the creation of greenspaces in areas where there was a deficit of access to public greenspace
- Delivering environmental benefits
- Supporting projects that would have an enduring impact within their communities

A £100K funding pot was identified and grants of between £5K and £10K were made available.

Funding applicants had to meet the following criteria:

- The lead bidder had be a voluntary, community or public sector organisation operating within West Yorkshire.

- Funded projects had to connect people to nature and improve their physical and mental health. This could be achieved by
    - Enabling access nature-based activities e.g., outdoor arts, outdoor education, conservation projects, walking groups, community food growing projects etc.
    - Involving the creation of new greenspaces e.g. pocket parks, spaces to grow food etc.
    - A combination of the above

- Projects were required to target people from one or more of the following groups, who have been identified as facing additional barriers to accessing nature:
    - people living in areas of deprivation
    - people from black, Asian and minority ethnic backgrounds, including refugees and asylum seekers and gypsy and traveller populations
    - people with mental health conditions, learning disabilities or autism
- The projects must take place within West Yorkshire. Initially these were required to take place between March and September 2021, but due to COVID-19 projects were not penalised if they overran

Full details of the funded projects are provided in the Aims and Methods Sections.

# 2. Aims and methods

## 2.1 Aims of the evaluation

This evaluation was commissioned to examine health and wellbeing and environmental outcomes of the projects, assess project sustainability, and identify challenges and learning opportunities that could inform scaling up GSP across the region

The aims of the green social prescribing evaluation were to:

- Understand whether the projects delivered health and wellbeing benefits.
- Identify whether the funded projects targeted the priority groups who typically face additional barriers to accessing nature-based activities
- Identify whether there were any environmental benefits, including the establishment of new and improved greenspaces

- Identify wider benefits and achievements and key facilitators of success
- Understand and challenges and barriers encountered
- Set out a series of recommendations and future aspirations to support the longevity of projects

## 2.2 Background to the projects

Initially, ten projects were funded, however staffing and COVID-related issues precluded one of the projects from going ahead. The remaining nine projects went ahead but Project 9 did not submit any data so no outcomes are reported from this project. Table 2.1 sets out details of the projects which take a range of forms and targeted user groups. The projects were distributed over West Yorkshire Health and Care Partnership's five 'local places'; Bradford, Airdale & Craven; Leeds; Calderdale; Kirklees and Wakefield. The distribution of the projects is pictured in Figure 2.1.

**Table 2.1: Projects overview**

| Project number | Project Type/Intervention | Users | Location |
|---|---|---|---|
| Project 1 | Allotment, cooking meals, individual therapy, outdoor mindfulness. Supporting mental health and user-led empowerment | 100+ Early Interventions in Psychosis service users | Keighley, Bradford |
| Project 2 | Urban farm for food growing, wellbeing and wildfire area to support mental health, improving opportunities for the community and young people | Young people | Leeds |
| Project 3 | Community orchard/growing site, various activities which include Play, food growing, picnics, events, celebrations, games, wildlife, meeting neighbours and working together | Open to all, particularly aimed at supporting adults with poor mental or physical health who are social prescribed from the GP practice | Huddersfield, Kirklees |
| Project 4 | Allotment; teaching people how to grow own food, manage and maintain allotment, prepare health meals. | People with additional support needs including mental health conditions, physical disabilities or frailty. | Leeds |
| Project 5 | Greenspace for food growing. A trained horticultural therapist running weekly sessions supporting patients and patient recovery. | Primary target group were people within the Wakefield district with a range of mental health conditions and learning disabilities or autism. | Wakefield |

| | | | |
|---|---|---|---|
| Project 6 | Nature based activities. Tailored activity programme to meet participants' interests. | People with mental health difficulties from the local community/area who have self-referred and people referred by the GP practice | Skipton, Craven |
| Project 7 | Regeneration of disused land in deprived are into food growing area, garden and wood workshop. Integrating social prescribing, upskilling and aiding recovery. | People in recovery from drug and alcohol addiction and the wider community and people experiencing social isolation. | Halifax, Calderdale |
| Project 8 | 'Follow the Hare' QR code walking trail, aiming to bring organisations together including schools, healthcare groups, GPs, St James' Hospital Compton Centre, neighbourhood policing, faith workers/groups | Children and adults in a deprived ward of Leeds (targeted based on deprivation) | Harehills and Gipton, Leeds |
| Project 9 | Nature based activities and workshops including creative activities, sports, and activities with a therapeutic purpose. Building resilience, improving emotional wellbeing and developing confidence | Children and young people who are struggling with their mental health from at risk groups. | Calderdale |
| Project 10 (did not go ahead) | Pocket park for food growing, relaxation, exercise, gardening, play. Support wildlife and biodiversity, community hub, resting point on Girlington GreenLine Mile. | All | Girlington, Bradford |

**Figure 2.1: Map of West Yorkshire Health and Care Partnership's five 'local places' with project logos indicating in which of the five 'local places' the projects are located**

All of the funded projects focused on one or more of the population groups that previous research has identified as experiencing poorer access to nature and that formed part of the funding criteria. Some projects were also open to the wider community. Table 2.2 sets out the number of projects by target group.

### Table 2.2 Number of projects by target group

| Target group | Number of projects |
|---|---|
| Children and young people | 2 |
| People with mental health issues | 4 |
| Areas with high deprivation | 6 |
| Asylum seekers/refugees/migrants | 2 |
| People with learning disabilities | 2 |
| Isolation | 3 |

All projects included some component of nature or the natural environment in contributing to health and wellbeing benefits for people who engage with them. Most of the projects involved growing food and most of them had more than one activity and purpose. Several of the projects included ‘wellbeing’ activities which included things like a community picnic, craft and mindfulness, mindfulness walks, yoga and tai chi as well as a places just to ‘be’. Other projects created wildlife spaces specifically where biodiversity could thrive. The activity types are summarised in Table 2.3.

### Table 2.3 Project activity types

| Activity | Number of projects |
|---|---|
| Allotment/food growing | 7 |
| Cooking | 3 |
| Mindfulness/wellbeing events | 5 |
| Physical activity | 2 |
| Woodwork | 1 |
| Supporting wildlife/biodiversity | 3 |

A variety of organisations were involved in the delivery of the projects but were led by voluntary/community groups, charities or healthcare organisations, including an

NHS Trust, General Practice and an Ambulance Trust. Table 2.4 summarises the projects by project lead type.

**Table 2.4 Project leads**

| Project lead | Number of projects |
|---|---|
| Charity/community/voluntary | 6 |
| Ambulance Trust | 1 |
| GP Practice | 1 |
| NHS Trust | 1 |

## 2.3 Methods

### 2.3.1 Health, wellbeing and behaviour user questionnaires

Participants were asked to complete health and behaviour questionnaires before and after taking part in the activities. These 'before' questionnaire included baseline demographic data. The main purpose of the questionnaires was to ascertain if there were changes in health and wellbeing, perceptions and attitudes towards the environment and social cohesion following participation in the activities. Questionnaires were designed to be completed before starting the projects and after completing the course of nature-based activities. An alternative questionnaire was provided for projects where it was envisaged that participants may only attend on a single occasion rather than for a consistent period. Questionnaires were posted to project leads for each of the evaluation projects with a pre-paid returns envelope. Data were inputted by researchers at the University of York and analysed in Excel.

### 2.3.2 Interviews with service providers

One-to-one interviews were carried out with service providers. The interviews took place online and were scheduled around providers' availability. Each interview lasted between 30-60 minutes and were carried out by Anna Kenyon (University of Central Lancashire) and Sarah Knight (University of York). The interview topic guide was designed to address the following outcomes:

- Health impact on service users
- Environmental benefits of the project
- Impact on the organization delivering the intervention

- Impact on the wider community
- Impact on other stakeholder organisations such as GPs and voluntary sector.
- Key facilitators for and barriers to success
- Future aspirations/changes they would like to see

Interviews were recorded and transcribed using Microsoft Teams transcription software and edited by Sagarmoy Phukan (University of York). Transcripts were analysed by Anna Kenyon using thematic content analysis to identify the themes emerging from the data.

### 2.3.3 Biodiversity and ecosystem services, including climate change

In this project, we considered how biodiversity would be related to health and well-being and the broader environmental benefits of green social prescribing projects in terms of enhancements to biodiversity and ecosystem services and changes in environmental behaviours.

It was important to use a method of assessing biodiversity that was not overly dependent on technical knowledge and was relatively accessible to be applied by non-specialists. We selected the Polli:Nation survey from the OPAL project (Open Air Laboratory) as a suitable approach to conduct site biodiversity surveys. The OPAL project has produced several free survey guides, is designed to be easy to use and so could be conducted alongside or by participants of green social prescribing projects. The Polli:Nation survey was selected because it involves collecting information about habitats, land uses, common flowering species and easily identifiable pollinator insects. Pollination is also recognised as a key provisioning service. The Polli:Nation survey has a number of benefits for capturing the biodiversity of a green social prescribing project. It has an easy to follow and consistent, repeatable protocol that enables data capture on species and habitat richness regarding an important ecosystem service that is well recognised. It captures additional improvements made to the site, such as raised beds and bee houses, and captures broad site characteristics such as land use, which enables the user to establish a good understanding of the site. This is important when relating characteristics of the natural environment to the health and well-being of its users, as it is likely that different characteristics provide different benefits to individuals, and this will also depend on the aim and the activities of the green social prescribing

project itself. For example, both projects focus on growing food, which is a hands-on activity, whereas the Project 5 site has also created spaces for quiet nature enjoyment (benches by the bird feeders and a peace garden). Using an established and easy to follow survey that has been used for national survey efforts is also beneficial as it can be carried out by project participants and leaders and does not require a subject expert. This participation by project participants may in itself lead to well-being benefits.

### 2.3.4 Project update/evaluation forms

As part of the funding, monthly project updates and a post project evaluation were requested. These forms were used to extract qualitative information about health and wellbeing, environmental benefits and other positive outcomes, the long-term sustainability of the projects and challenges and future steps. Data from these forms were extracted and incorporated into the report by Anna Kenyon.

# 3. Results: Researching target population groups


One of key success indicators of the projects as detailed in Section 1 was to successfully target those most in need of access to nature-based activities.

The majority of the funded sites were located in areas of deprivation (see Table 5.1). Four of the seven sites were situated in areas identified as the 10% most deprived in England, with a further one in the 20% most deprived. Project 7 did not have a single location; sites were located across Gipton and Harehills. While wards do not have a single measure of IMD, out of the 17 Lower Super Output Areas within Gipton and Harehills, 16 are classified as within the 10% most deprived areas of England. Project 5 was classified as within the 30% most deprived, but this was part of a hospital site providing a range of mental health, learning disability and community services. It must be noted that the presence of a hospital itself affects postcode IMD classification. This indicates that the grant scheme was successful in the creation of new and improved greenspaces targeted towards the core population groups that experience greater barriers to accessing nature. In addition to deprivation, 5 projects (1,3,4, 5,8) involved other priority groups, including people with mental health

conditions, learning disabilities and asylum seekers and migrants. Moreover, three sites are accessible to the wider community (3,7,8) and one is accessible to young people (2).

Data on service user demographics were extracted from the service provider one-one-interviews and evaluation forms and participant questionnaires. Data from progress evaluation forms is coded as (F) and from interviews as (I).

### Table 3.1: Description of participants from service provider evaluation forms ('F') and interviews ('I')

| Project | Description of participants |
|---|---|
| 1 | Service users, carers, and families under the Early Intervention in Psychosis service and community mental health service users. (F) |
| 2 | Children typically aged 11-17 years. (I). People from poorer backgrounds and non-British migrants (I) |
| 3 | People with mental health difficulties from the local community/area who have self-referred (I). People referred by the GP practice (I) |
| 4 | Vulnerable adults including those with mobility issues (F), people with mental health issues (I) |
| 5 | Service users and in patients from a mental health hospital who range from low to high risk (I). |
| 6 | 88 adults (18+) with mental ill-health and learning disabilities (F) |
| 7 | People who are recovering from addiction (F, I), individuals from the local community, usually if they have an interest in community activities or gardening specifically, and have heard about it through word of mouth (F), people who have been referred from the probation service. (F) |
| 8 | People from a deprived area of Leeds, including immigrants, recovering addicts and deprived 'kids' (I) |
| 9 | *Not supplied* |

A total of 13 self-report questionnaires were returned with valid consent forms which were from two of the projects. Demographic characteristics relevant to the target groups are displayed in Tables 3.2-3.6. Totals do not always add up to 13 because not all respondents answered every question.

Of the 13 respondents, there was a spread of participants between gender and age ranges, a higher number of ethnic minority, lower than average income, higher than average proportion with a disability and lower than average educational attainment. However, given the low number of respondents from only two projects, no clear conclusions can be drawn based on this dataset, about whether the projects generally reached target groups. Furthermore, as no researcher was present at local sites during data collection, there may have been sampling bias, for example, those

with highest need might have been given more help to complete these forms and therefore were more likely to return them.

Half the respondents identified as white British and half of the respondents identified as another ethnicity (Table 3.2, n=6). This is a higher proportion of people from ethnic minority groups than for West Yorkshire which is 78% White British (ONS, 2017) and the UK as a whole which is 86.0% White British (Gov.UK, 2020).

**Table 3.2: Ethnicity. Respondents' answers to the question 'What is your ethnic group?' (n=12)**

| **Ethnicity** | ***n*** |
|---|---|
| White British | 6 |
| Caribbean | 1 |
| Indian | 4 |
| Mixed: Asian & white | 1 |
| Total | 12 |

Table 3.3 shows that average educational attainment was low; half of the respondents said they had no qualifications at all, 3 had GCSE or equivalent qualifications and 3 had further or other qualifications. In the UK as a whole, 6.3% of adults have no qualifications (StatsWales, 2022) suggesting that the small number of respondents who answered this question had well below average educational attainment. Higher educational attainment is associated with better health outcomes and lower likelihood of engaging in health risk behaviours such as smoking and low physical activity (The Kings Fund, 2017).

**Table 3.3 Educational attainment. Respondents' answers to the question 'What is your highest educational qualification? (n=12)**

| **Highest qualification** | ***n*** |
|---|---|
| Diploma / foundation degree or other level 5 qualification (level 5 award, certificate, NVQ, diploma) | 1 |
| GCSE / O-Level or equivalent | 3 |
| None | 6 |
| Other | 1 |
| Undergraduate degree with honours (for example BA Hons, BSc) | 1 |
| Total | 12 |

Tables 3.4-3.6 are measures of income. Of the nine respondents to the question on income, most said they didn't know what their household income was (Table 3.4, n=5), three said it was between £10,000 -£19,000 and one said it was below £10,000. The median household income in the UK for financial year ending 2021 was £31,400 (ONS, 2022) suggesting that the very small number of respondents to this question had much lower than average income. However, when asked about eligibility for free school meals (Table 3.5), another indicator of low income, seven of ten respondents said that someone in their household was in education but that they were not eligible for free school meals. Subjective interpretations of wealth (Table 3.6) revealed variation in how comfortably off people thought they were. Of nine respondents, five felt they can afford everything, or about everything they want whereas four said they can afford only some of the things they want or necessities only.

**Table 3.4 Household income. Respondents' answers to the question 'Which of the following best describes your household income in the last 12 months, after deductions (e.g. tax, national insurance)? (n=9)**

| **Income Category** | ***n*** |
|---|---|
| £1 - £9,999 | 1 |
| £10,000 – £19,999 | 3 |
| Don't know | 5 |
| Total | 9 |

**Table 3.5 Eligibility for free school meals. Respondents' answers to the question 'Is anyone in your household in education and entitled to free school meals?' (n=10)**

| **Response** | ***n*** |
|---|---|
| No | 7 |
| Not applicable (no one in education in household) | 2 |
| Prefer not to say | 1 |
| Yes | 0 |
| Grand Total | 10 |

**Table 3.6 Perceived income. Respondents' answers to the question 'How would you describe how well your household income can meet your needs?' (n=9)**

| **Response** | ***n*** |
|---|---|
| Can afford about everything I want | 2 |
| Can afford about everything I want and still have enough money left over | 3 |
| Can afford some of the things I want but not all I want | 1 |
| Can meet necessities only | 3 |
| Total | 9 |

Table 3.7 shows that most of the respondents reported having a disability or long-term health condition. More than half of people who responded to the question '*Are your day-to-day activities limited because of a physical or mental health condition or disability which has lasted, or is expected to last, at least 12 months*?' said that they were limited to some degree (n=7). This is a much higher proportion than the 20% of

the UK population who report having some sort of disability (Department for Work and Pensions, 2020).

**Table 3.7 Disability. Participants' answers to the question 'Are your day-to-day activities limited because of a physical or mental health condition or disability which has lasted, or is expected to last, at least 12 months?' (n=12)**

| **Disability** | ***n*** |
|---|---|
| No | 5 |
| Yes- limited but not substantially | 5 |
| Yes, limited substantially | 2 |
| Total | 12 |

In the one-to-one interviews, service providers commented on shared experiences of poverty and vulnerable/ minority group participation:

*'I think one of the big shared experiences is a shared experience of poverty. And I think the area that the CATCH is situated within, the kinds of young people that are coming are overwhelmingly from poor backgrounds…* [most people] *I can say quite confidently, are not British. They are Eastern European or Asian, and mainly Romanian. And so yeah, poor and sort of migrants as well. It is kind of the overwhelming number of people that helped out on the projects.'* (Project 2).

*'Some people who had learning difficulties or …we've got a couple actually with anxiety, which has definitely not been helped by COVID. A couple of with mental health issues as well. It could include, like stress, and loneliness, there's a chap who was one of our first ones and he had insomnia.'* (Project 4).

*'…because most of the people that have been involved in this one has come from the existing wards and units on the hospital or groups that work at a hospital… it's a mental health hospital so the range goes from low to medium to severe risk.'* (Project 5).

*'…we are working predominantly with recovering addicts, and alcoholics, that's a naturally diversified field anyway, because addiction affects anybody… You may get people who've just been completely isolated, you know, for many years in addiction. … It's open to absolutely anybody, friends, family of addicts, addicts themselves.*

*Anybody who hears about any community, service or community, we have it regularly on a Thursday and Friday, every single week*.' (Project 7).

'*…there are lots of really bored kids that were* [involved in] *the Harehills riots, setting fire to things, fireworks thrown in people's houses, all that type stuff. So, they're kind of working with them to kind of get them a bit more community engagement, they've been given a big field, they've got all their raised beds in…'* (Project 8).

### Summary of service participant demographics

Although the demographic data from the questionnaires should be interpreted cautiously, the findings suggest that the projects were successful in engaging with the pre-specified target groups: i.e., people living in areas of deprivation, ethnic minority backgrounds, and people with mental health conditions and learning disabilities.

# 4. Results: Health & wellbeing outcomes

Feedback about health and wellbeing was gathered from one-to-one interviews and the evaluation forms with and submitted by the service providers. Although the primary intended method of collecting data on health and wellbeing outcomes was intended to be participant questionnaires, the questionnaires were not returned successfully from the projects (see Section 7).

The projects provided a chance for engagement with nature that could sometimes be the only time participants spent in natural environments and thus the only chance to gain the types of benefits from nature discussed in Section 1. '*I can confidently say it is the only green space that a lot of our young people have. Yeah, 100%.'* (Project 2). The projects also provided an opportunity for carers of vulnerable people to

socialise and offered respite from caring duties; '…*there were two ladies. Yeah, two ladies, they've been doing yoga and they were coming with the husbands, and both husbands got dementia…. and luckily husbands were happy to walk… So, there was an hour for them to just enjoy, enjoy the sessions.*' (Project 6).

Five additional health and wellbeing themes emerged, which fit with theories about how and why nature based interventions can support health and wellbeing. The themes from the service provider data, selected quotes and associated theoretical constructs that emerged are summarised below.

## 4.1 Peace and restoration (Theme 1)

Interviewees referred to the restorative and replenishing effects of being in nature on the participants.

'…*you forget and just be in the moment and forget all your problems, even if it's only for half an hour or a day.'* (Project 4)
*'…just being out there and being in the green space a lot of people just benefit from sitting out there and really the space and just being able to feel connected with nature and being in that environment.*' (Project 5).

*'…you can just sit and just watch* [the bees] *and just watching the world go by and, and lots of different colours there. And there are always people coming and going that you can chat to. And hearing the birds as well under something about, like having the actual sun on your skin, you know, on the skin,'* (Project 4).

'… *doing the work in the gardens, you know, it's very good for their* [participants'] *behaviour and their moods, and they enjoy it.'* (Project 2).

## 4.2 Self determination (Theme 2)

Several of the project leads commented on the potential of participation to support autonomy and self-determination. There was evidence of 'up-skilling' and education whereby it was anticipated that the participants would continue to benefit from what they had learned after the projects were completed.

'*I once asked someone, you know, 'Why do you like, you know, building the raised beds," and yeah, he said, "It's like the one chance that he gets to build something or to be creative." And I found that a really nice thing because otherwise they can't build or manipulate their environment.'* (Project 2).

*'…feeling like you've achieved something like if you go home and you feel like you've done something with your day, something worthwhile. I think that's definitely something. And to be able to see the changes well over time, I've planted this and now it's growing. And now it's growing really tall. And now it's produced whatever… and then you can eat it as well as it's just like another level of just tastes so much better when you've grown it yourself like, "This is my hard work, I'm tasting here." Yeah, I think that's it*.' (Project 4).

*'It allows participants to design their own solutions and go at their own speed…It recognises that participants have skills to offer and makes space for them to be part of the solution.'* (Project 6).

*'There are many health benefits to the allotment. Firstly, our service users are learning how to grow vegetables and fruit and of how easy this is, and beneficial for their health to grow natural fruits and vegetables, we hope our service users will be able to replicate this at home and continue to grow their own fresh produce.'* (Project 1).

One project lead spoke of a 'role reversal' whereby older patients were able to instruct younger hospital staff about growing and gardening which in turn made them feel more valued '*they're* [the patients] *able to actually give their experience and feel a bit more valued because they've got knowledge that they can pass on, and I think there's been an improvement in terms of relationships between staff and patients from that point of view say improvement and self-esteem, making them realise that they've got something to give back as well.'* (Project 5).

## 4.3 Curative (Theme 3)

The potential of natural environments to aid recovery was mentioned several times by the project leads. They spoke of better overall health as well as a rekindling or spark, and a sense of wonder.

*'I think it's one of the things that addiction strips from you, when you literally end up in the place where you empty inside. If you don't find any meaning in simple things like trees, and birds. You're driven by a one-track mind about the obsession to get and use substance so you don't have any time or room or space, or mental energy, or value left in that stuff, whatsoever. So, when you come out of that, and you get into recovery, it's almost like a little bit of a rebirth kind of process where a lot of people talk about their senses, really firing colours are brighter, you start to find meaning in that stuff again, and that's the important thing. You notice it more, everything's brighter, but it's actually got some meaning again, whereas I think you'll get a real shock as to how empty you've been because you start to see what you'd lost in very simple things like rivers, trees, birds and stuff.'* (Project 7).

*'Many of our patients put on weight with the medication they take for their psychosis so through healthy eating we can address this weight gain, also through doing some physical exercise on the allotment, again this can be addressed.'* (Project 1).

*'There is evidence that being out in nature and engaging with the environment is good for our mental health and wellbeing, also evidence that growing your own produce is again good for our mental health as we nurture our own plants and watch them grow.'* (Project 1).

*'…it's almost like a little bit of a rebirth kind of process where a lot of people talk about their senses, really firing colours are brighter, you start to find meaning in that stuff again…you'll get a real shock as to how empty you've been because you start to see what you'd lost in very simple things like rivers, trees, birds and stuff.'* (Project 7).

## 4.4 Social cohesion (Theme 4)

Social cohesion, combatting isolation and supporting community cohesion was mentioned as a benefit of the projects.

*'…things like respect and trust and kindness are really important values. And every session that we do, we have a briefing at the beginning, where we also check-in in a big circle and as a debrief at the end. So, there is a great deal of structure … and I*

*think that's important for things like safeguarding and all the other things associated with quite vulnerable young people.'* (Project 2).

*'…there was one Chappie who when he started with us, he was quite … 'grunty,' …And now he's really come out of his shell...He is really good with all the group actually speaks to all of them now when he has a good laugh'.* (Project 4).

*'I think with the discussions in the Mindfulness, they did build those friendships… and, you know, they relaxed, they could relate to each other as well what they've been going through with isolating and loneliness because that really, that was another big thing.'* (Project 6).

*'Some people mentioned that the project gave them a reason to actually leave the house because they had to wake up, they dress up on time because otherwise, they would stay at home for the whole day.'* (Project 6).

*'…a lot of us have been behind the curtain, kind of in quiet, very isolated, very cut-off, often quite paranoid states. So, it's important to try and get people willing to get back out into the world and it's because it's in a safe space.'* (Project 7).

*'…it's also a chance for them to share and get things off their chest with people that they're encouraged to do this all the time. This is what when we come in, and we do things in the group setting, we're encouraging them to share and find some honesty around their feelings and stuff… we encourage all anything that we do as community is, is always geared towards them, being around their recovery, building a recovery network, you know, I'm building trust and carrying on kind of talking about where they're at, honestly.' (*Project 7).

*'We have created an allotment group where our service users are all socialising with each other, we have included carers… The carers can chat to other carers who are in similar situations to them and have discussions…We also hope that by other allotment holders seeing and potentially interacting with service users it will help to break down stigma and concerns that they may have about people with mental health conditions, which in turn will help create greater understanding and empathy with these individuals leading to improved community cohesion'* (Project 1).

*'…we have seen some of the most vulnerable and isolated individuals in the local area get outdoors, get active and connect with their community again.'* (Project 7).

## 4.5 Biophilia (Theme 5)

The concept of biophilia refers to the idea that connecting with nature is fundamental to human nature and wellbeing (Barbiero and Berto, 2021). This was mentioned multiple times in the interviews with project leads:

*'…there's something about the authentic-ness of old buildings with the stone showing or being in a forest, something, something real and natural about it, that, that connect, that helps us feel a bit more real and natural.'* (Project 3).

*'I think what I've noticed is there's amazement sometimes of nature and often this is manifested in, 'they can't believe the size of the pumpkins that we've grown together,'* (Project 2).

*'It was very beautiful to just be led on a yoga mat, looking at the trees.' (*Project 6).

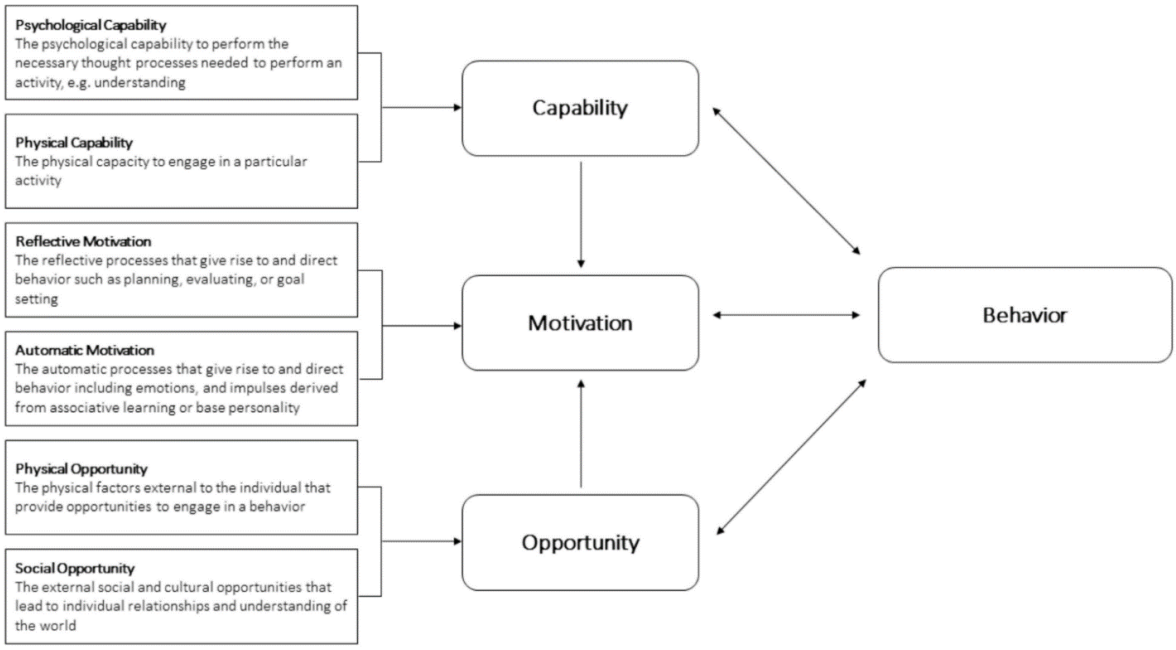
One person mentioned that the unpredictability of natural environments was likely to support wellbeing; '*I think there's something about having it's unpredictable in the natural environment, you don't know what the weather's gonna be like, it might be sleety, there might be birds or insects that surprise you. So, you have to be aware, you have to be your consciousness needs to be outside rather than inside. And so maybe that's good for us.'* (Project 3).

## 4.6 Relating the finding to psychological theory on the links between nature based experiences/exposure and health/social/well-being outcomes.

Themes from the current qualitative data set, can be mapped onto health behaviour frameworks such as the COM-B model of behaviour change as well as psychological theories linking social and psychological well-being to nature-based experiences and exposures. The COM-B model suggests that behavioural change is dependent on understanding what influences behaviour. According to the COM-B model, behaviour is a result of psychological/physical capability to perform/engage in activities, motivation that generates and directs, and physical/social opportunity to engage in

targeted behaviour (Figure (4.1) If the behavioural change we are focusing on is spending time in nature and building up social cohesion, from the qualitative findings, we can identify a number of interesting trends. Firstly, participants reported being more aware and in touch with their psychological needs of autonomy relatedness, and competence (Themes 2 & 4). Satisfying such needs through nature-based activities can contribute to both intrinsic motivation to re-engage in such activities in future and feeling good about it when doing them. Another aspect relating to psychological capability building has been evidence of ‘up-skilling’ and education whereby it was anticipated that the participants would continue to reap the rewards of what they had learned even after the projects were completed. Secondly, participants reported to be thankful of having such opportunities supporting the notion of the need of building up social structures that remove barriers for participations. This refers in the COM-B model to the environment in which the person lives, which may include the social environment required to support the behaviour, for example, their income; the physical environment; or the facilities available. Thirdly, the reported lived experiences across projects indicate the joy and deep involvement participants felt over their activities and the willingness to incorporate some of them into their daily routines (e.g., incorporating nature into life through walks or gardening). In the COM-B model this relates to a person’s motivation to adopt a new behaviour, which would require the desire and intention to change and to alter existing habits.

## Figure 4.1 The interaction of the COM-B components and subcomponents within a behavioural system




(*Michie, S.; van Stralen, M.M.; West, R. The behaviour change wheel: A new method for characterising and designing behaviour change interventions. Implement. Sci. 2011, 6, 42*).

In addition, the qualitative findings of this report provide further evidence that nature contact may be a promising intervention for social cohesion. The results show that the feeling of contact by individuals in local communities involved increased perceptions on several social indicators: safety, welcoming social relations, friendliness, trust and mutual respect, organisation and cohesion within the community.

The findings also demonstrate the potential benefits of the effects of being exposed to nature or spending time outdoors in organised green activities Results support the idea of the broad positive effects of nature in enhancing connections with the community. This suggests that the biophilia hypothesis' (Theme 5) claim that we are intrinsically drawn and connected to natural environments and self-determination

theory's explanation of the relatedness need and its positive effects together provide a theoretical underpinning from which to draw a greater understanding of the positive effects of nature on social interactions.  Previous research had already established that city living can increase the risk for some psychiatric disorders. While the specific mechanism behind the risk is unknown, those dwelling in cities have higher neural activity, which is linked to higher stress levels. We know, for example, from past research that nature-based activities can contribute to replenishment (Chaudhry & Banerjee, 2020) and many participants in our evaluated projects reported feelings of inner peacefulness and restoration through engaging with nature – escape from the daily information overload/ mental 'noise'.

Taken together, the diversity of findings here and in the literature suggests that the impact of nature experience on psychological functioning may be both widespread and robust We also know that early experiences in childhood seem to shape and influence adulthood environmental preferences (Wells & Lekies, 2006).

A multi-pronged approach to improve nature-based user's capability, opportunity, and motivation to engage in nature-based activities—targeting aspects such as preconception to nature activities and facilitation of equitable access to local opportunities—is likely to have the greatest impact on participants in local settings.

# 5 Results: Environmental outcomes

## 5.1 Broader environmental outcomes

Environmental outcomes were taken from interviews with service providers and their evaluation and progress reports. Themes that emerged were; learning to grow food, distributing food locally, learning to cook fresh produce, developing environmental awareness, encouraging sustainable behaviours and supporting sustainable models of healthcare. These are summarised under the headings below, with selected quotes included to illustrate key points.

### 5.1.1.Learning to grow food

*'…they have been involved in the construction of the raised beds. Things like the transportation of the soil, digging out plots for the pumpkin patch, doing all the planting of all the seeds, the transplanting of the young plants into the raised beds, the harvesting of the crops…. So…. they've been involved in everything from literally understanding how to read seed packets, and how to plant in, you know, little raised in little trays right through to harvesting in big raised beds, either in our polytunnels or outdoors. So, all aspects of gardening and building they have been involved with.'*

*'…they learn how to clear and prepare an allotment for planting, plant vegetables and fruit, manage and maintain an allotment through the growing season and learn how to harvest food.'*

*'And I think the harvest festival that we did last week was a nice endpoint for showing the journey that they've, they've made in the garden. You know what, like planting seeds in the rain in April, being really quite cold to giving out bags of produce in the summer. It was really rewarding.*

### 5.1.2 Distributing food locally

*'What I would love to do next year is maybe to professionalise the giving out of the food a little bit more, because it's very ad hoc at the moment. You know, I would love a little café while we have a café, I would love a little stall or something that young people could run and give out, or even sell at a very discounted rate the 'produce' that we've grown.'*

*'We're hoping to provide food again, for the housing block the local area, there's enough, you know, there's 11, big flower beds, we got them all turning over, there's the potential to produce a lot of food, which is great.'*

*'I think there's a bit of vegetable evangelism as well that, if people have grown something for the first time they're so proud of it they want to take it home or if they've got surplus they'll knock on their neighbours door and say I've got too much*

*beetroot do you want to take some and that has a way of spreading that message of healthy eating and getting people interested in doing it in a way that agencies always struggle to do.'*

### 5.1.3 Learning to cook fresh produce

*'The main aim… was to show youngsters how to grow healthy food and how to cook with this food to promote a healthy lifestyle and hopefully convince their families to follow suit.'*

*'…we've done a bit more on healthy eating this time, which would not really cover that much in previous years. We've made like 'recipe cards' and things … and OK, this recipe is not going to be suitable for some with low reading levels or low eyesight levels… so we just we've been able to adapt and simplify it and just make it into fewer steps.'*

*'…we have a WhatsApp group on each site so you see the conversations that are going on between people that now are people saying, like, someone' saying okay someone has given me some beetroot What do I do with it, and then somebody else will come out with, well, I, I use this recipe and I'll post the recipe … there were also cooking workshops setup to use the grown vegetables.'*

### 5.1.4 Developing environmental awareness

*'…[we did] some activities with some schools doing seed planting … talking about … getting soil and putting them in on Peat Free Soil, talking about climate change, talking about the reasons why we're doing this and, you know, what you eat and all that type of connectivity aspect.'*

*'Two of our staff have qualified as Carbon Literate and made commitments to contribute towards Carbon net zero, the allotment being part of this.'*

*'We engaged with over 50 children at several school fairs whilst making seed bombs. The funding was used to provide the resources for the making of the seed bombs. Over 200 seed bombs were made by the children. Conversations were had*

*with the children about plant growing, what they grow at home, climate change and the green spaces that they use in the area.'*

### 5.1.5 Encouraging sustainable behaviours

*'This is a successful model for communities to tackle big problems locally, like climate change, food insecurity, and the impact of industrial-scale farming. This model can be replicated across the country. Young people have the energy and desire to do something about big ecological challenges, but they don't always have the space to make a difference. Empowering them with their own educational farm to grow their own food means they can translate their anxieties about the future of the planet into positive action.'*

*'[We] provide information on the health benefits of walking routes around the area to encourage children to walk and cycle to school … 2000 maps [have been] created and distributed.'*

*'And they've started doing their own garden stuff. They've got a garden outside and I think it was just a bit of a 'where do we even start with something,' where they've learned things through us, and then gone to replicate it in their back garden.'*

*'Wherever possible we are sourcing and using recyclable materials. We are reclaiming old cabinets from hospital sites to use as COSHH cupboards.'*

*'…is just like confidence, we've been outdoors and [they've developed] a level of awareness that they just know what to do in the garden and can just pick up and go and run with things. So, there's like 'behavioural changes over a longer period.' But certainly, with Grow Together Project, I've seen changes in their confidence in being outdoors, sort of applying their skills'*

*'We have been sharing left over materials with other allotment holders helping them out wherever possible.'*

### 5.1.6 Supporting sustainable models of healthcare

'[the Council] *have ratified a 'Green Space and Biodiversity Plan' recognizing the need to encourage service users and staff to engage in nature. The allotment will be an important tool to help achieve the aims of this Plan…. The Trust has limited green space within its own Estate, therefore cultivating offsite helps to achieve our goals.'*

*'The area that we've chosen as part of our green social prescribing project is essentially one of the most deprived areas in the whole of Yorkshire, which is Harehills and Gipton and we have really bad health outcomes. And so, there's a lot of people who don't know how to tap into the health system and they basically leave it right to the very end….Yeah, so my kind of role is looking at how we green the ambulance service from within but also how we work in the middle of a climate emergency and minimize our impact and what we need to do in order to get to net zero, which will on the route have a lot of different impacts in different areas and hopefully positively as well.'*

In response to the question: 'What went well': *'Developing links between sustainability and nature, and models of care, particularly for community mental health service users.'*

*We* [Project 8] *supplied Leeds Teaching Hospitals with tools to help their staff with gardening and green social prescribing projects.*

## 5.2 Creation and enhancement of greenspaces

This section draws on data from feedback from service providers in the one-to-one interviews and from their project progress/evaluation forms to explore the environmental benefits of the projects including whether they resulted in the creation of greenspaces indicator as well as other indicators of success and identified strengths of the projects. A summary of seven sites is provided in Table 5.1.

### Table 5.1 Summary of sites showing IMD and Greenspace characteristics

| Project | Site characteristics | IMD | Greenspace created |
|---|---|---|---|
| 1 | Keighley, allotment | 10% most deprived | Bradford District Care Trust have transformed an allotment into a space for its Early Intervention in Psychosis service users.<br>The site is being used to grow a variety of herbs, fruit, and vegetables. It contains a large planting area, a number of raised beds, a greenhouse, shed, pergola, wildflowers to attract bees and a therapeutic space for outdoor mindfulness and individual and group therapy sessions. The site is wheelchair accessible. |
| 2 | Leeds, neglected piece of land adjoining the Catch site | 10% most deprived | Catch have created an urban farm producing large quantities of organic fruit and vegetables in an area where there is a deficit of fresh produce. The site contains two 36-foot polytunnels for food growing, a large pumpkin patch, 10 outdoor raised beds, a large wildlife garden and a wellbeing space with seating for young people to immerse themselves in nature. |
| 3 | Kirklees, community orchard open to the local community | 20% most deprived | Greenhead Family Doctors have worked with Friends of Highfields Community Orchard to enhance the site and made it more accessible to individuals with different mobility needs and enable it to be better used for green social prescribing from the neighbouring GP practice. The site has been enhanced with seating, wildflowers, raised beds and other food growing areas. |
| 4 | Leeds, overgrown | 10% most deprived | Groundwork have transformed an overgrown allotment. The site produces a wide variety of fruit and vegetables and herbs, including chillies, |

| | | | |
|---|---|---|---|
| | allotment site | | cabbage, herbs, tomatoes, broccoli, garlic, spinach, kale, pumpkins, beetroot, raspberries, potatoes, onions, tomatoes, peas, rhubarb, and strawberries.<br>They have adapted the site to provide level access to meet the needs of wheelchair users and individuals with mobility issues, as well as adapting it to meet the needs of users with visual impairments. |
| 5 | Wakefield, hospital site | 30% most deprived | Grow Wakefield have enhanced part of their hospital site to provide patients with the opportunity to grow food and benefit from time spent in nature. The site includes a number of food growing areas, including raised beds and a greenhouse, as well as seating areas, wildflowers, bird boxes, bug motels, bat boxes, hedgehog houses and bird feeding stations. |
| 7 | Halifax, disused greenspace in a residential community | 10% most deprived | The Basement project have transformed a neglected piece of land into a space for its service users and the wider community. The site includes 11 flower / food growing beds, a new shed and greenhouse. Landscaping of the site is ongoing and they have plans to build a pond area, a mindful garden space, workshop space and a barbeque area with painted art-work. |
| 8 | Various sites across Gipton and Harehills | | Yorkshire Ambulance Service have worked with a variety of VCSE and public sector organisations to deliver a number of green space projects across Gipton and Harehills. They have provided trees, wildflower seeds and food growing infrastructure to a number of community sites. This included providing Denbigh Heights (a council owned tower block) with a wide soil, seeds, compost bins, raised |

| | | | |
|---|---|---|---|
| | | | beds, and tools to develop an outdoor space for their residents<br>They have also created a number of health walks and provided wildflowers and seeds for school children to plant in and around the Gipton and Harehills area.<br>They also provided one of the other funded projects (CATCH) with 50 trees to create a full orchard as well as wood for the construction of their outside classroom. The funding was also used to support Nowell Community Centre, who work with SEN children to plant a number of fruit trees. |

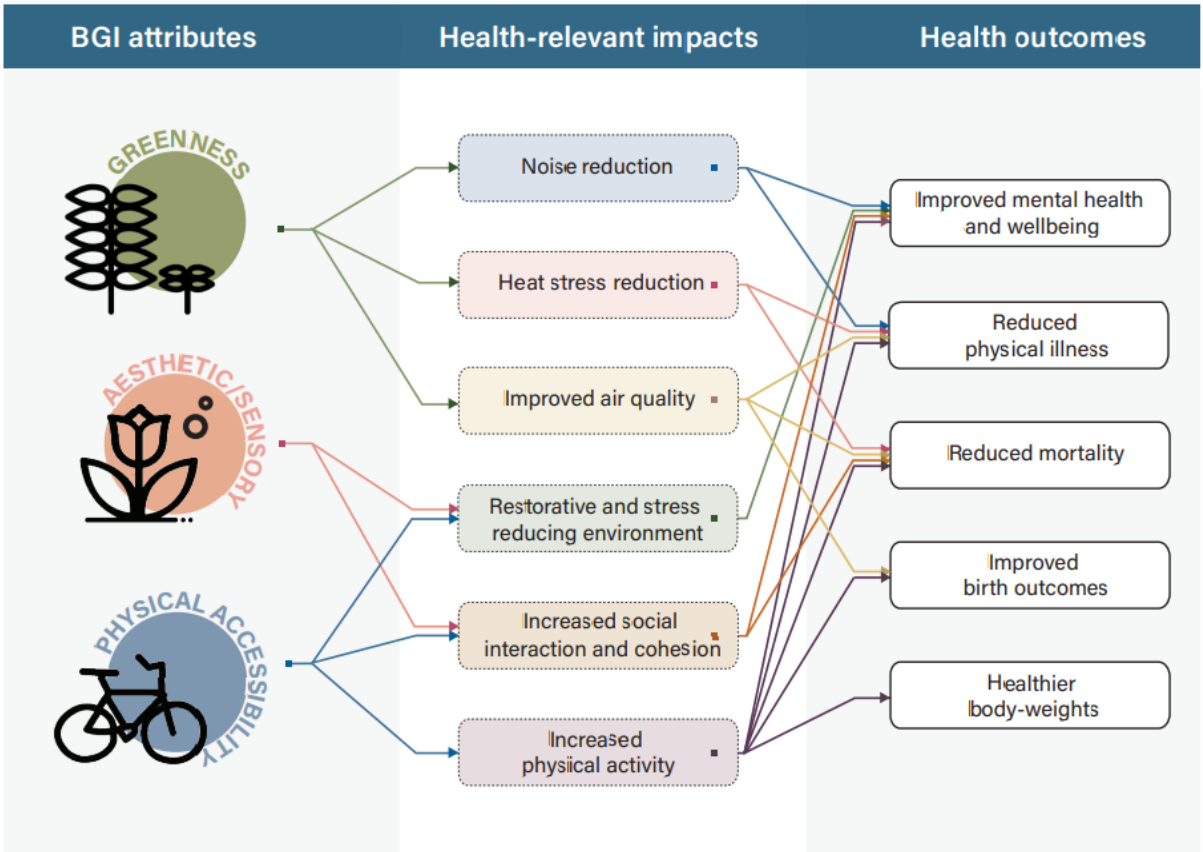
All of the sites enhanced or transformed the spaces that were used and included significant food growing areas which this was the primary purpose of five sites (1,2,4,5,7). A number of the sites also included seating areas and spaces for reflection and nature immersion (1,2,3,5,8) or had ambitions to add them 76). Some sites included tree planting (1,2,8). One project (7) funded an outdoor classroom on another site (2). One project (8) created a corridor of greenspaces as part of nature walks, as a means of encouraging walking and cycling in the local area (7).

All of the projects used the majority of their funding for green infrastructure (e.g., trees, plants, seeds, raised beds, greenhouses, sheds) and equipment. Only a very small proportion of funding was allocated to overheads and/or staffing costs to deliver nature-based activities. This funding formula was seen by the project leads as an important way to support the continuation of the projects beyond the funding period.

The development of urban greenspaces can continuously deliver environmental and health/wellbeing benefits. Figure 5.1 shows the schematic pathways of relationships between natural spaces and environmental and health outcomes and illustrates how different types of attributes of natural spaces (whether it can be used for physical activity, aesthetic and sensory benefit or by its inherent characteristics) can lead to

environmental (noise and heat stress reduction, improved air quality) and health (physical, mental and social) impacts, which in turn have been found to have tangible beneficial health outcomes (Choe, Kenyon and Sharp, 2020). Although specific data were not captured on each of these outcomes, these generic benefits arise from the way in which the projects created and maintained blue and greenspaces, which in turn supports their potential to deliver sustainable benefits.

**Figure 5.1 Schematic pathways showing different attributes of blue and green infrastructure (BGI), and their relationship to environmental and health and wellbeing outcomes**




*Kenyon, A. & Choe, E. Y. (2020) in Choe E.Y., Kenyon, A. & Sharp L., 'Designing Blue Green Infrastructure (BGI) for water management, human health and wellbeing: summary of evidence and principles for design'*

## 5.3 Biodiversity and ecosystem services

*Pollination survey*

Two projects were surveyed (Projects 2 and 5) in September 2021 Project 5 is on a hospital site that provides mental health, learning disability and community services in Wakefield. The project has developed a care garden and, through the GSP funding, have built raised beds for growing vegetables. Project 2 is a charity based in Harehills, working with adults and young people in a deprived neighbourhood in Leeds. The charity hosts a community centre, café, and garden. This project has developed an allotment area with raised beds and a polytunnel. The users of this site are 13–18-year-olds from Harehills.

The Polli:Nation survey at Project 5's site found 4 different habitat types, 8 of the listed flowering plant species present, and 13 further flowering species not on the survey list. The majority of these species are categorised as woody or garden plants. We found 4 different pollinator groups/species, such as honeybees and butterflies.

The survey at the Project 2 site found 5 different habitat types, five of the listed flowering plant species present, and two further flowering species not on the survey list. The majority of the species present are categorised as wild plants. We found three different pollinator groups/species, such as solitary bees and flies.

A comparison of the survey results from Projects 5 and 2 in Leeds shows that the Project 5 site was slightly more biodiverse than the Project 2 site, in terms of flowering plant and pollinator species richness. The Project 2 site was more 'wild' than the Project 5 site, since the Project 5 site was also managed as a care garden and therefore had a different set of uses and aims, for example, sitting peacefully on benches to observe nature. One of the future aims of the Project 2 site is to incorporate more formal planted areas to encourage its use for more reflective enjoyment of nature as well.

The introductory section of the survey included a question asking if the site has been changed and gives a number of options for how it might have been changed, e.g. adding raised beds, planting trees and building a pond. Project 5 has introduced several of these changes to their site already (raised beds, flowerpots, planted

shrubs and built a bee hotel), and the Project 2 site has made one of the changes listed (raised beds).

*Other ecosystem services including climate change*

Sites used for green social prescribing can provide ecosystem services, such as food provision through allotment activities, cultural services through nature enhancement activities to increase nature enjoyment (e.g. bee hotels, bird feeders, hedgehog houses). Green social prescribing sites also contribute to climate regulation through the greening of urban environments and the provision of shade, building energy efficient and reusable resources such as water butts, and by encouraging pro-environmental behaviours. The development of ponds and bluespace may also contribute to flood regulation.

There is a range of indicators and metrics for assessing different ecosystem services that can be applied at the site level. However, many of these measures are dependent on good site-level information and/or access to specialist expertise and equipment. A lack of baseline data on the characteristics of the sites in this project meant that it was not possible to quantify the benefits of the sites for broader ecosystem services. Clearance of vegetation such as woody vegetation to prepare them for green social prescribing activities, and change of use to food production, may in fact be detrimental to some ecosystem services such as carbon storage and sequestration. However, the small scale of the sites means that their impacts on large-scale ecosystem services such as carbon sequestration and climate change mitigation are likely to be minimal. The principal benefits of the changes on the sites are likely occur within cultural ecosystem services, which includes health and wellbeing, and particularly around environmental education and the potential impact on changing attitudes and behaviours. Some of these wider benefits are explored below.

# 5. Successes and indicators of durability of projects

Interviews with the service providers and indicated some key areas that were considered to have worked well. These are summarised thematically below.

## 5.1 Partnerships and recruitment

All the projects reported that they formed partnerships across a variety of organisations including:

- Local authorities
- Primary Care
- Secondary Care
- Housing associations
- Addiction recovery support services
- Probation services

- Other charities
- Mental health services
- Private organisations
- Cultural organisations
- Schools
- Faith organisations
- The Police

Some partnerships were already established from previous projects whereas others were formed as a result of the GSP projects:

*'We were approached just this week by one of our inpatient wards who have been inspired by our project and want to start something similar on their ward. They have asked us to share input and ideas and advise them how to start this up. They are going to funding this week so asked our advice regarding this. They are going to visit site at the end of the month and we are hoping to work collaboratively with them so that they may visit site with their patients both now and when their patients are discharged they can continue their work and access our allotment.'* (Project 1)

The project leads often spoke of partnership formation as an iterative ongoing process that 'snowballed' as the projects progressed:

*'…there's lots of long-standing relationships with how services work together, and it's constantly evolving, constantly looking for the charities to link into looking for the charities we on and services we can support and vice versa.'* (Project 7).

Developing links with social prescribers was also one of the aims of the projects. Although some organisations reported difficulties in engaging with the healthcare sector (see Section 7), five of the projects said that they used socially prescribed referral pathways. Prescribing routes came from voluntary organisations, charities, mental health support groups, primary and secondary care. Mostly it was a mix of referrals from a variety of organisations as well as self-referral. For example;

*'…you'll have some walk-in, self-referrals, you'll have some referred from GPS, you'll have some referred from detoxes, hospitals, or the Recovery Services. Mixture!*' (Project 7)

The partnerships formed had a positive impact on the durability of the projects, for example partnerships developed by Project 5 with NHS and voluntary organisations led to the development of two further projects, one a Sanctuary Garden for asylum seekers and refugees and a Forest School camp on the grounds of the hospital.

Collaborations and partnerships between different agencies has been identified as an indicator of a successful approach to community interventions (PHE, 2015) and have been identified as an effective component of community interventions for tackling health inequalities and delivering benefit for the local community (Castillo et al, 2019, 2011, Estacio et al, 2017). Partnership between primary, community, mental health and social care services form part of the NHS Long Term Plan for Integrated Care Systems (Morris et al, 2020, NHS, 2019). Such partnerships are considered to leverage sustainable interventions by changing the systemic environments (Castillo et al, 2019, Estacio et al, 2017) and form part of the local health ecosystem. That the projects reported a large number of diverse partnerships despite the setbacks of COVID-19 is a good indicator of the likely ability of the projects to be sustained and continue to support local participants.

## 5.2 Creation of green spaces

Green spaces were created that are likely to last beyond the funding period (see Section 5). As outlined in Section 5 this is indicative that the projects can continue beyond the funding period as well as support environmental, health and wellbeing outcomes associated with blue and green spaces (Figure 5.1). The development of greenspaces also supports the NHS climate change targets (NHS, 2022). One project (Project 8) installed health walks around the area interlinking green spaces, health and wellbeing, fitness and accessibility to the local environment and supporting active travel which is a public health priority (PHE, 2016).

## 5.3 Flexibility and adaptation to local /users' needs

Project leads took account of local and individual users' needs. There were many examples of this, including one project that used co-design to develop the activities that took place in order to ensure that these met users' interests and need including

adapting the projects' environment, activities and supporting people who could not remember to attend the sessions.

*'Two of the ladies who attend the groups who are less able physically and therefore cannot do the heavy digging have started to make bunting to hang around the arbour, which will personalise the arbour and make it pretty, also will deter the birds from using it'* (Project 1).

*'All the activities were participant led – no pressure, no judgment, only encouragement, praise and support have been offered.'* (Project 8).

*'We could see that [a participant] he was really unsteady on his feet...So, we've been flattening this path out. And he …comes out on the path, no problems, he's really grown in confidence.'* (Project 4).

*'So, if someone wasn't able to go to the allotments, on, on Fridays, we had sessions on Thursday in a park, so this planter was another activity to take part in, as well we delivered coffee and chat on Thursdays… we introduced this in mid-July for those who, who aren't interested in like structured activities but they just wanted to have like social interaction.'* (Project 6).

*'And sometimes it will be a text, and one lady struggles with memory so, you know, it was just, "Oh, can you just give me a quick ring on a Wednesday, even though I've got it written down…I would always check in then afterwards you know, just all okay, you know, because it's not always a good day it for everybody and even though they've said [*it was] *last week, it might not be in the following week so I was, we will vary. What, what's the word 'aware' of that.' (*Project 6).

*'Some of them weren't keen on walking for a longer distance, some of them would come and sit like, sit out those 10-15 minutes and wait for the rest of the group. And it was kind of agreed with the participants, what they wanted to do. So, it was structured kind of, at the beginning but then it evolved…' (*Project 6).

Adapting the height of the raised beds for wheelchair users and people who had 'bad backs' (Project 5).

Several of the project leads mentioned ways of engaging with teenagers and young people, despite these being perceived as groups with whom it is more difficult to get involved with nature

'*…small things like I'll trust some of them to do use a drill, for example to help of drilling their own stuff, building carrying digging. All of these things that I've tried to sort of emphasise this is your space… trusting them and I give them loads of loads of positive reinforcement as well. And that kind of stuff. I think that's really helped and overcome coming that barrier of, you know, working in nature is not cool.*' (Project 6).

*'For some reason, young, young people, especially young lads really like to dig so we have even, you know, from age nine, have been helping more formally with things like digging and stuff like that.'* (Project 2).

*'…one of the guys was because of experience of schools, very sensitive to feeling like he was being told, you've got to do something…because he saw you as a teacher or an authority figure. And they are bad experiences at school. You have to be really careful how you worded even the suggestion that…*' (Project 7).

These reported approaches reflect the commitment to person-centred care outlined in the 2019 NHS Long Term plan and a central tenet of the Integrated Care Systems agenda (NHS, 2019, NHS England, 2022). Adaptable approaches that personalise service to users' needs and co-design is increasingly recognised as the most beneficial approach for community interventions that aim to support health and wellbeing (Cooper et al, 2022, NHS, 2019, Morris et al, 2020). A recent review of social prescribing by Husk et al. (2019) found that people were more likely to participate in socially prescribed activities if these met their needs and expectations and recommend that interventions that meet people's 'needs, personality and cultural background is crucial and should continue to be supported.' (Husk et al, 2019). The adaptability is thus indicative of projects' longer-term sustainability.

## 5.4 Leadership

The project managers demonstrated leadership skill in establishing and managing the projects. They were often guided by very strong personal values and beliefs in the service that they were providing, which they did despite the added difficulties and setbacks due to COVID-19, one described how the project reflected his personal experience being '*…to do with my own positive experience of coming back to green space, taking some green therapy, being connected to nature, again, in terms of the big changes I've made in my life, it's been fundamental to my mental health, and my recovery, and life in general.' (*Project 7).

Activity leaders who are skilled and knowledgeable, empathic and able to engender trust have been found to increase adherence to activity programmes (Husk et al, 2019). Where project leads were able to demonstrate these qualities the projects are likely to be sustainable.

Project leads took actions to develop trustful relationships with the service users:

*'… people have a lot of fear around that, you know, around mixing with new people. So, the fact that we can offer them that in here and facilitate it for them in the recovery group where they feel safe, is really important.'* (Project 7).

*'And some at the beginning, some of them, the anxiety, it was extremely high, because they've been obviously, isolated through the lockdown and I would actually contact each of them weekly to check-in'.* (Project 6).

Empowering the service users was also mentioned.

*'It's the trust that has been put into the young people to be empowered with their own kind of direction. And so often, they're given keys to the gate so they can come and they can open up… I think what makes a success is the level of autonomy that young people are given. I think it's very, very unique for youth charity for so much trust and faith to be placed in, on young people. And I think that's what makes it such a rewarding place.'* (Project 2).

*'The service users are welcome to have any input from idea level up to the actual labour itself. They can also reap the benefits of food production, they can basically take a lead i.e., if they're trusted enough to be a supervisor, there, they can basically get involved as much as they want and are encouraged to do so.'* (Project 7).

There was evidence of determination to make a success of the projects which was at least in part due to the dedication of the people running the projects. One project lead described how they thought that smaller funding grants could be more successful than larger ones if run by people with a passion for what they do.

*'…getting five grand for some smaller organisations just has such an enormous impact across the board to many more people because people have got passion. And it can be a really huge project that comes out in a little tiny little seed research*.. (Project 8).

*'…participants have been contacted every week by phone in order to confirm their attendance… The main issue affecting the attendance were mental health issues, such as anxiety.'* (Project 6).

## 5.5 Continuation

All the projects had plans to continue to deliver their service past the end of this round of funding.

*'The project will restart in October, similar sessions will be offered but indoors. 11 participants are continuing online mindfulness sessions and will return to the project next month.'* (Project 6).

*'…what I'm hoping for in the next few months is to kind of work with the additional aspect…I wanted to create a map of the area of so where these, all the green spaces are, get them out to the GPs, get them out of the hospital, get them out to the all those things, have some set routes. They've got a tool that enables you to calculate how far you walked. And kind of look at your BMI and all the rest of the stuff. So, interlinking with healthcare systems, but then also do some leaflet drops, and kind of get it in people's houses, get it in various different social centres.'* (Project 8)'

*'… the plan is to provide food for there's various kind of minority sort of social clubs, and things like that dotted around that area that we can link in with. We're also linking in with other mental health charities … probation and we are linking to it as well. So, yeah, we're going to have open community days, we've had our own gate access put in so that we're not bothering the reception of the housing block and we*

*can have it as a more accessible thing for the wider community and offer them the food that we produce. And plenty of other ideas come in, as well*.' (Project 7).

*'Long term plans are for this project to continue to run. We are involving other teams within the trust so we can ensure this is fully utilised.'* (Project 1).

One project had plans to use a Town Hall going into the winter '*…it's the same setup sessions plus Tai-chi so it's nice for winter, because I think we don't know what to expect and, and, and it's, it's just that. Yeah, given them that something through winter I think it's really important.'* (Project 6).

Several projects had already secured future funding:

*The site has the potential to generate new funding or support ideas and this is something we and our volunteers can consider as the project matures'* (Project 1).

*The project will continue… the funding has been secured and the project coordinator has been appointed. The project will take place indoors during autumn and winter months*…funding has been secured to provide [a] Wellbeing Café.' (Project 6).

*we've got funding from other groups as well. So, we're just going to keep on with us and something that we're hoping to start in January. There'll be a bit more like craft and woodwork type thing.'* (Project 4).

*So that's sort of developed in the direction of getting more health funding, especially mental health lately. And then we've got sort of spin-out projects like wood-working groups and urban harvesting groups, that have come from that as well*.(Project 5)

Other projects aimed to become self sustaining:

*'We hope to see the site become self-sustaining and once all of the landscaping and facility improvement has been completed, we aim to have teams of volunteers using the space to produce food and other items for a minimal outlay.'* (Project 7).

*'…getting those two big polytunnels has been amazing, and funding for like the raised beds in the soil. So once we have those, they can last for years. So, I think we're quite fortunate with the nature of the project that the costs that we've had up front, we can benefit from the years to come. So, there are no large operational costs every year. I mean, we're going to have to rebuy seeds, rebuy, you know, some*

*compost, perhaps, but we're very fortunate that what we have, well, we'll be able to benefit from, for years.*' (Project 2).

*'I quite like the fact that mistakes that we've made, or problems we've had, have been learning experiences. And we have made mistakes, you know, even something simple like planting the pumpkins to close together initially and then couple weeks later, you know I'm freaking out saying we have to move them further apart because these things are going to get huge*.' (Project 2).

## 5.6 Project visibility

Project leads made their projects 'visible' in various ways, for example by proactively contacting potential service users and checking in with them (Project 6).

The projects planned ongoing participation through established referral and involvement routes described at the start of this section. In addition to forming partnerships with other organisations, projects reported a snowballing effect where people found out about the projects through word of mouth and encouraged one another to attend (where numbers were not restricted). This is another indicator of success and sustainability of the projects as they become known as part of the local community offer.

Another aspect for generating ad hoc participation was the placement and physical visibility of some of the projects which encouraged passers-by to come to get involved. For example one project lead said that the building of raised beds was noticed by 'teenagers' who were encouraged to then get involved. Another project described how passers-by got involved when tea and chat sessions were put on '*for participants who preferred unstructured activity and casual passers-by met in the park.'* (Project 6).

Other projects made use of social media, posters and visiting relevant community and medical centres to publicise their projects:

*'We have to make it visible as an option. To start with, we have to present the information on different platforms, we do it face to face in our recovery groups, we do it on a social media platform. We have a … Facebook group that has 1000s of members. We can do it through visible posters, virtual posters, we have a WhatsApp*

*community where timetable gets updated every week. And there's a lot of word of mouth as well, that goes through the service. So, it's our job, first of all, to let them know it's available*.' (Project 7).

## 5.7 Ongoing impact

Interviewees described how they anticipated that the impact of the programmes on the people who took part would last beyond their participation in the programme. They spoke about changing attitudes, upskilling, educating and giving people the ability to continue to enjoy nature for their wellbeing and health.

*'It's not like it's a one-time thing and then forgotten. They're tracking the progress…You know, last week we also delivered food parcels of produce that we've grown, and a little recipe for healthy Curry and those were sent out with the young members to their community as well…. our hope is that it might change young people's attitudes towards their future careers, whether they want to work in something like farming or something outdoors. I would really love to say that they can take this home and grow for themselves*.' (Project 2).

*'Recovery doesn't happen in six months, that's just the timeframe in the programme, it gives you an opportunity to show you can live without drinking, drugs, all the other things dotted around, like the green space projects and the rest of it are all designed to create a community that's that lives on beyond what you do in your own individual recovery programme*.' (Project 7).

*'We always have a group of service users staying within our residential service who will be involved with the general upkeep at the site.'* (Project 7).

*'Participants have already joined other groups…: Pioneer Projects art and craft sessions, swimming sessions…coffee mornings… leisure activities offered at GP surgeries, Tai Chi* '(Project 6).

# 6. Challenges and future aspirations

This section outlines some of the challenges encountered by the project leads as well as suggested ideas to support the longevity of the projects.

## 6.1 Participant recruitment and retention

The projects leads reported some challenges in recruitment and sustained participation. Difficulties in motivating attendance are typical of social prescribing schemes (Husk et al, 2019). This group of participants experienced issues with lack of confidence, additional needs with memory or organisational skills for example one provider explained, *memory is often an issue with people'… not everyone remembers what we did last week, to be honest.*'

*'…participants have been contacted every week by phone in order to confirm their attendance – unfortunately the process was very time consuming and tedious.'* (Project 6).

The weather was also reported as a demotivating factor:

*'…it's one thing to encourage people to come to a lovely garden setting in the sunshine, it's a totally different story when it's raining. And I think that's always going to be the case.'* (Project 7).

Conversely, when there was hot weather shelter was needed*, 'it's too sunny you need some sort of shelter'* (Project 6).

Another project lead found that behaviour and communication could be a barrier due to the participants not speaking English, *Behaviour is a big barrier, especially when you have young people that are struggling in school, … The fact that English is a second language for, I would say, over 90% of the people I've worked with, can mean sometimes that, well it requires me to be very clear and articulate and … sometimes the young people will speak to each other in a different language and I will have to say, 'Please remember to speak English when you're in the garden so that we can all understand each other and you can practice your language skills as well.'* (Project 2).

## 6.2 Challenges of partnership working

Some of the projects experienced difficulties engaging with healthcare providers or other services, and two of them specifically reported difficulty with engaging with GP practices and perceived that GPs were disinterested or did not have time to engage, '*GPs … they literally, you know, don't have time for that'.* (Project 8).

## 6.3 Systemic change at institutional level

Some of the service providers voiced frustration with the contingency of the projects in which they have invested so much time and energy to make them succeed and a frustration with rhetoric that was not supported by broader systemic change to support the development of the projects. One described a need for a paradigm shift in the way that the process and institutions involved were organised: '*It takes a system change and it takes a council overriding a lot of challenges and taking away*

*people's parking which God forbid, but those conversations need to be had* (Project 8).

The same project lead also felt that efforts to meet health and sustainability needs 'downstream' were not always recognized, for example by supporting active travel and reducing the number of cars '*directly correlates with the health of patients, because of its air quality'* (Project 8*).* She also felt a lack of vision of the 'big picture', for example biodiversity, '*It's not an obligation anywhere to look at biodiversity. Yet, we're all writing biodiversity plan.' (*Project 8).

Another project lead felt that there was too much focus on social prescribers and that it would be better to direct efforts and funding directly into community services:

*'…generally, what seems to happen is that they* [social prescribers] *kind of persuade and cajole people into taking part in community activities that they think will be good for them. And that that's fine. But I think, I think if they worked more with local community groups and organizations to help them reach out to their communities, that might be a better way around. I don't think it needs a third party to persuade this person to come here if you put that same resource into helping the community groups, engage with their local community, and then I think people could do a lot of the activities together without necessarily needing professionals and I'm not saying that that will solve whole of health problems, but I think it will help health and well-being and relationships and in a more sustainable way'* (Project 3).

Previous research into the potential of policy integration to leverage a shared sustainability agenda indicated that while small scale projects can be successful often through the 'key actor' investing significant personal energy, the enduring remit of the projects is limited by the institutional context. For example, short term funding and lack of institutional structure and expertise to support developments (Willems, Kenyon, Sharp & Molenveld, 2020). It is likely that wider institutional and systemic change would better support the projects in the long run, as these are part of a wider health and social care ecosystem: 'even with deep understandings of those [individuals'] needs and robust links between health and provider services, social prescriptions are unlikely to be a panacea and effectiveness will be dependent on complex interactions and relationships between patient, context, resources and services.' (Husk et al, 2019, p.320).

## 6.4 Biodiversity and ecosystem services, including climate change

The Polli:Nation survey has some limitations. It focuses on specific species groups, namely flowering plants and pollinator insects, and therefore may omit many other metrics of biodiversity that might be important for health and well-being. For example, diversity of plants more broadly (many vegetables were being grown at the two sites) and bird species richness have been associated with well-being. Additionally, despite the survey asking questions about habitats and site changes, these are not asked in detail and certain characteristics of a site that might be important for human welfare may not be captured, for example bluespaces.

## 6.5 Bureaucratic/logistical challenges

Project leads mentioned getting risk assessments and health and safety checks done as being one of the hurdles to initiating the projects which caused delays and frustration These problems were compounded by communication difficulties during the COVID-19 period. One service provider mentioned that they would engage with health and safety at the start of the project in future to avoid delays. Smaller or newer projects may benefit from information and support relating to obtaining health and safety and risk assessments.

'*The most difficult challenge was to pass the health and safety required, this has been the longest delay to the start of the project. In particular the First aid component which resulted in us outsourcing the first aid course to speed up the process. We have started our group with a trained first aider onsite (EIP's physical health nurse), until the rest of the team are trained, as we do not want to miss another summer of growing.' (*Project 1)

*'Communications between many departments to begin with was very challenging with many departments working from home due to Covid. Communicating through email and phone calls was very difficult and time consuming as responses were often not immediate. One example is the time taken to get risk assessments approved for the different onsite tasks. However, even with these approved, we were not permitted to have service users onsite without a 3-day trained First Aider, even*

*for talking therapy using the pergola. In future, we would engage H&S at the very beginning and ask them to set out exactly what will be required so preparation can take place concurrently.'* (Project 1).

Service providers also spoke of challenges in institutional hurdles and the difficulty of knowing who and how to contact to make changes, however, this was viewed as a learning curve rather than something that prevented the project taking place

*'We have found it challenging to work the project around the needs of the social housing service that owns the site. Difficulties relating to risk-assessment arose that were solvable; yet needed extra time and planning to find solutions.'* (Project 7).

*'I was trying to get work with the council to say, "Look, could we put some raised beds in and help you out?" The … bureaucracy that goes with that was just a nightmare and not achievable in six months, let alone three years, I think…"No, we can't have that there, because there's a pipe that runs there…there's a cable there".'*

*'What happened is I spoke to the highways, and they went, "Oh well! Have you got liability insurance? If that drops on somebody's head and kills them then you need to have at least 5 million pounds…'* (Project 8).

## 6.6 COVID-19

Lockdown and COVID-19 inevitably impacted on the projects. This resulted in lower uptake and participation than anticipated because people were unable to leave or nervous about leaving isolation and taking part and because passing footfall was lower. It also resulted in increased staff shortages and a need to adapt to the projects around changing lockdown restrictions and for one project a loss of funding. However, only one of the projects was unable to go ahead due to COVID-19, the others found methods to make sure that the projects took place despite the additional hurdle of COVID-19.

*'…the pandemic has cut about 75% of… funding because a lot of the way that they raised money was through room hires and room bookings. So, businesses, other charities, NGOs will come to book the rooms out and catering and things like that. And that just stopped for nearly 18 months.'* (Project 2).

*'…when you come into recovery, you are immediately told isolation is no good, this has to be reversed. One really hard thing to, for people to change, you know, they spent years like that to then get around people. So those that already come into recovery and to have that taken away and asked to go and isolate, again, really tough… we're now trying to get people back out of isolation again, you know, their own addiction related isolation and enforced isolation together now. So, it's almost like there's more work to do in that area*.' (Project 7).

*'We had four events over the summer that were all cancelled because of COVID-19. And that we would have hit probably about 10,000 people because they're all sizable big events. And I just really getting quite annoyed with the progress, but what else do we expect in the middle of the pandemic, so just had to go off in a slightly different route to kind of go and do various other things and such.'* (Project 8)'

*'There was a group of people who would usually come with the social prescriber. And there was, unfortunately, the case she got ill with COVID-19. And so, I think, three or four weeks, they didn't come because there was no leader for them to come but* [one of the project leads] *managed to kind of gather them back to the park. And yeah, It was, it seemed like another kind of, I would say, excuse but another obstacle for them. Basically, to wobble them a little bit to get back to, you know, to the park or whatever the kind of normal life.'* (Project 6).

## 6.7 Vandalism

One project reported vandalism on site which they needed to repair and pay for. Future work may benefit from measures to project sites from vandalism or a support fund to help if this occurs.

*'The site itself has been subject to some vandalism, costing us some material losses and repair work. Cameras may need to be installed to act as a deterrent.'* (Project 7).

## 6.8 Evaluation methodology

Although all projects took part in the one-to-one interviews, most found it difficult or impossible to complete the questionnaires that were designed to measure change in health and wellbeing. The reasons for this were explored in the interviews and the three main barriers to completion were primarily (i) practical and logistical difficulties as well as (ii) concerns about inappropriate content and (iii) lack of awareness or

understanding about how to complete them. Logistical challenges to questionnaire completion included the absence of suitable places to complete the questionnaires or lack of paper and pens, variable weather conditions, staffing shortages, and simply not having enough time to devote to administering questionnaires whilst running and organising the event. The questionnaires were not always appropriate for the type of participation. In some of the projects people turned up ad hoc and stayed or left as they chose. One service provider said:

*'I think the questionnaires were assuming it was a more… that there was a cohort of people who were moving through an exercise. And what we've got is a patch of land, that's primarily a community greenspace that people use all the time, but we don't, we're not there. And then we've got some activities that support recovery or running, which they have been engaging with a small number of people. And they've been doing their evaluation forms. But to add on another evaluation form to every session is probably not realistic for them either. So, we might need to think of another way of trying to capture some views on this, I think.'* (Project 3).

Other service providers felt that being confronted with a questionnaire could be off-putting and they wanted to encourage participation. One of the projects felt that the questionnaires would be distressing for the participants to complete and therefore declined to participate in the questionnaire aspect of the evaluation but did consent to be interviewed. This participant was working with psychiatric service users. Some of the project users were already being asked to complete evaluation forms on behalf of their referring organisations so it was considered overly onerous to ask them to complete questionnaires twice.

It also appeared that service providers were not necessarily aware of how to complete the questionnaires given that of those that were completed most were largely unusable except from some demographic information that could be further extracted and used. Thirteen sets of 'before' and 'after' self-report questionnaires were returned from two of the projects, however, these were both completed on the same day which negates their value. We received three single activity PANAS state questionnaires, which were initially designed to be completed on the same day, but were submitted without signed consent forms, so could not be used. One of the projects completed questionnaires but did not complete consent forms rendering the

questionnaire data unusable. One of these projects completed at the end of the project and asked participants to 'think back' to how they felt when they had started the project 7 weeks earlier which was an understandably pragmatic approach but meant that the data could not be used. The projects dated the questionnaires incorrectly, inputting the date that the questionnaires were returned rather than the date that they were completed. This suggests that the project leads had not received adequate training on the data collection requirements or were not in a position to complete these correctly. Another service provider appeared to be unaware of what the data collection tasks were at all saying '*I guess is that I never really fully figured out what's expected of us. I mean you guys gave us some money. I know that you want some feedback in terms of data and statistics and obviously, … what are the, you know, at what point do you guys say well this* [sic] *hasn't really done what he said it was going to do or is that even a scenario?'* (Project 7).

Due to budgetary constraints the transcription of the interviews was carried out using Otter Artificial Intelligence rather than a professional transcription company. This meant that some of the transcripts are inaccurate the one from Project 5 was unusable due to transcription errors made by the software.

## 6.9 Future aspirations

One project commented that consistent funding would help and two of the projects mentioned that additional expertise or expansion would help the projects to continue;

*'…it's constantly having to raise money all the time. It doesn't get any large grants from the council, for example, or anything like that. It has to raise some money*..

' (Project 2).

*'I would love a little stall or something that young people could run and give out, or even sell at a very discounted rate the 'produce' that we've grown… someone who has experience with could help guide us with that like, whether it's someone that's got a community farm or farmers market something like that they could come in and they could show us how to prepare food.'* (Project 2)

*'We need people to commit, we need people who, as I said before, give it a chance enough to see what good it will do to them. So, we've got, you know, a never-ending pool of potential. It's about, you know, keeping what we do, making sure we're doing*

*our jobs to give them that opportunity to let them know it's there. Keep selling them that the wider vision, and if we need manpower, that's what we need, you know, people, labour, all that stuff*.' (Project 7).

# 7. Recommendations


The WY H&CP GSP grant scheme has demonstrated a wide range of positive benefits for health and wellbeing, the environment and wider community. The evaluation of the projects indicates that the projects engaged with their target groups and delivered robust interventions addressing health and wellbeing as well as environmental aims despite the challenges of COVID-19. To support the continued success of these projects, they should continue to be allowed to adapt and include different users' needs, but also be supported to develop and promote their project and to continue to develop leaders' skills and connect with relevant professionals to continue to enable skills building.

The evaluation has also helped to highlight areas where future schemes may further support the scale up and successful investment in GSP across the West Yorkshire region:

## 7.1 Developing a GSP agenda

To develop the GSP agenda further throughout the following recommendations are made:

8.1.1 To expand the GSP funding programme, identifying means of funding future grant schemes, which focus on the groups this scheme focused on (as these are ICS priority groups) but also look to expand the offer for other priority groups within the ICS which could include people who have diabetes, stroke, other long-term conditions, carers, cancer patients, children and young people – two projects were funded but many more could benefit .

This project didn't specifically include supporting people who have physical disabilities or sensory disabilities, although many service users who benefited from the projects did have sensory or physical disabilities. The grant scheme could be extended to projects that support these groups as they also face additional barriers to accessing nature.

8.1.2 Support those in new prescribing roles in primary care (e.g., link workers and care coordinators) and mental health services (e.g. psychological therapy teams) to maximise reach and connectivity with nature based organisations/projects that offer green and blue activities.

8.1.3 Sharing learning from the projects on hospital or GP sites with our primary care and acute/mental health trust networks to encourage further take up.

8.1.4. Work with primary and secondary care providers to support recruitment into the projects

8.1.5 Continuing to develop a narrative around social prescribing and the need to systemic change at institutional level alongside the provision of services to ensure that services are provided in a supportive context that supports the provision and development of socially prescribed activities across levels, supporting the development of a systems approach to health and wellbeing.

8.1.6. Continue to use the ICS platform to discuss the benefits of biodiversity and investment in greenspaces and how this can be tied to corporate objectives e.g., environmental, social and governance (ESG) concerns and Green plans, financial savings, health promotion agendas.

8.1.7. Sharing learning about how greenspace project can be adapted to meet service user needs e.g., sharing information sources on adaptations for example for wheelchair users and people with visual impairment. Sharing learning could be facilitated by developing web resources or an inventory or directory of projects along with details about the benefits of outdoor green activities. A one-stop shop for GSP could maximise visibility, and also be a useful resource for those working in primary care and the VCSE sector to push GSP and improve throughput and uptake.

8.1.8 Continue to expand the ICS's understanding of the health economic and environmental benefits of the projects funded by the ICS and use this information to diversify the different funding streams the ICS can access to expand the programme

## 8.2 Practical support for future projects

Several of the projects mentioned practical and logistical hurdles that the ICS may be able to support with for future projects.

8.2.1. Explore how the ICS can support small projects bearing in mind that smaller providers may not have as much experience writing bids or fit within traditional social prescribing models, so working out how we can address this is important

8.2.2. Supporting project visibility – the ICS has a wide network of people interested in GSP, so sharing details of the projects may support take up and help projects secure additional funding

8.2.3 Helping to address some of the commonly reported issues e.g., difficulty with engaging with GP practices. For example, the ICS could deliver a webinar to our primary care network. We have also included GSP in our primary care plan, which may help with a shift in awareness and attitude.

8.2.4 Support with engaging and supporting users who have additional needs and may require support to attend.

8.2.5. Providing practical support for contingent weather issues, for example, providing a sheltered space or shade.

8.2.6. Addressing frustrations with institutional support/bureaucracy, for example by providing written advice about typical issues such as liability insurance at the start of

the project and a contact who may be able to help with practical hurdles such as getting permission from landowners.

8.2.7. Supporting social prescribers and activity providers to facilitate these key factors that have been identified in the literature as strengthening engagement may support further success and longevity of green social prescribing schemes. A realist review by Husk et al (2019) found key factors that were likely to support participation in social prescribing schemes, these were if:

- patients believe the social prescription will be of benefit
- the referral is presented in an acceptable way that matches their needs and expectations, and concerns elicited and addressed appropriately by the referrer.
- the activity is both accessible and transit to the first session supported.
- the activity leader is skilled and knowledgeable
- changes in participants conditions or symptoms are supported through the scheme.

## 8.3 Developing an evaluation strategy

All the projects who were able to begin their project as planned agreed to and took part in a one-to-one interview with a researcher. The high agreement and response rate indicates that a 30-60 minute online interview was an acceptable and feasible method of data collection. Four of the eight projects that went ahead submitted at least one or more progress update/evaluation forms when prompted. Future evaluations could work with service providers prior to commencing the projects to codesign evaluation strategies so that it provides a better ‘fit’ with the projects rather than imposing a method after the project has been agreed. Better training or using a professional researcher to perform research tasks may also increase data yield and provide a more workable solution

8.3.1 A key obstacle for this evaluation was obtaining data on health and wellbeing outcomes. There are several ways in which this may be improved:

- Co-produce with partners in the nature and wellbeing sector an evaluation framework so that the data collection strategy matches what is feasible for the projects and project participants.
- Build data collection into the grant programme itself employing a researcher to ensure high-quality and consistent data, with an emphasis on measuring downstream impacts on health and wellbeing in end-users but also
- Include measures of upstream service level impacts on front line health services (e.g. reducing GP contacts; reducing demand for medications; admissions prevention).
- Prospectively monitor uptake and impact of GSP activities, leading to consistent collection of a minimum data set.
- Consider including evaluation measures at the point of referral. This would enable data collection to be gathered on the number and type of successful referrals and on any differences between those who do and do not chose to participate which would support the development of future engagement activities.
- Upskill workforce engaged in GSP across ICS and within nature-based organisations in use and interpretation of evaluation metrics and indicators to enhance reporting of impact of green activities
- Asking for demographic data as a part of funding (anonymised) to better characterise the profile of participants with a view to informing more tailored and bespoke green offers to support the development of GSP from a generic offer to a more personalised health intervention.

8.3.2. Consider several survey types to capture different aspects of biodiversity. Potential future approaches could include:

- Incorporate citizen science which would also contribute to the potential of the projects to offer ‘upskilling’ to participants through involving participants in GSP initiatives in undertaking some measurements of wider environmental quality and ecosystem services. The use of citizen science for biodiversity and environmental monitoring is expanding rapidly (Tweddle et al., 2012; Pocock et al., 2017) but participation in many citizen science projects requires a degree of specialist knowledge. Below we have identified some examples of environmental characteristics which can

be measured in ways that are less dependent on specialist knowledge and equipment, and which are therefore more readily applicable to use with participants in GSP initiatives.

- Assess water quality. Some sites used for green social prescribing activities may have water bodies on site. The health of these can be assessed and change monitored over time using the OPAL Water Survey (OPAL, 2015a). This develops a set of scores based on water clarity, acidity/alkalinity and the range of different invertebrates found to provide an overall score indicative of the health of the water body. Some basic equipment and identification is needed, but the identification is quite straightforward, and OPAL has published a freshwater invertebrate identification guide (OPAL, 2015b), which is well illustrated and simple to use.
- Examine carbon storage: Natural Resources Wales has produced a carbon calculator (Natural Resources Walks, n.d.) that can be applied to estimate the amount of carbon being stored in different size trees on a site. This requires the measurement of the circumference of each tree on the site at chest height, and a conversion of this to an estimate of dry weight and subsequently the amount of carbon stored. The calculator also provides a means of estimating the age of different trees, based on species-specific growth rates.
- Measure other environmental characteristics. A number of other OPAL survey guides can be used to provide assessments of conditions such as soil quality, air quality and tree health (OPAL 2015c, OPAL 2015d, OPAL 2015e). Although these surveys are designed to be accessible to the public, they are a bit more involved and require slightly more specialist skills. Moreover they were originally designed in order to contribute citizen science-based results to national surveys, so they do not result in a single score that can be used to provide a rapid assessment of condition or monitor change over time.
- Survey biodiversity measures before and after the project intervention, including if possible in successive years, to enable changes to be quantified.

- Consider the use of more generic survey approaches, in addition to biodiversity-specific ones, to assess other site characteristics such as facilities (benches, toilets, cafe) associated with cultural ecosystem services, which are known to improve wellbeing outcomes from engagement with the natural environment, water bodies, and shared site features (e.g. on a hospital site or community centre). An existing tool such as RECITAL (Knobel et al., 2021) could be used a means of assessing multi-dimensional aspects of a site, including biodiversity alongside factors relating to its amenities, access, surroundings and facilities.
- Alternative surveys and methods. While we focussed on using the Polli:Nation survey, these other surveys and/or study groups would be useful in future research; OPAL Bugs measures invertebrate species richness and abundance, OPAL air quality measures tree cover/species and lichen species as indicators of air quality, RSPB Big Garden Bird Watch measures species richness and abundance of the most common bird species, Bumblebee ID guides (Bumble Bee Conservation trust), important/protected species - bats, hedgehogs, newts.

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