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NATURE ON PRESCRIPTION



PROMOTES GOOD MENTAL HEALTH

A Handbook for Nature on Prescription to Promote Mental Health



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A Handbook for Nature on Prescription to Promote Mental Health

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Acknowledgements

The authors wish to thank all of the stakeholders that took part in interviews and workshops that helped shaped the content of this resource. Please see the Acknowledgements section at the end of the document for a full list of those people who consented to acknowledgement and who generously gave their time. Thank you to Nature England and the Wildfowl and Wetlands Trust for the use of their photos within this handbook. Thanks also to Donatella Esposito and Scriberia for working with us to produce the infographics throughout the document.

Disclaimer

This guide was developed by the Nature on Prescription Research team. The research was funded by the Medical Research Council (MRC) Public health Interventions Development Scheme. The views expressed are those of the authors and not necessarily those of the MRC or the University of Exeter.

This guide contains independent research supported by the National Institute for Health Research (NIHR) Applied Research Collaboration South West Peninsula. The views expressed in this publication are those of the author(s) and not necessarily those of the NIHR or the Department of Health and Social Care

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Images on page iv: Dr Lucy Loveday and Jim Johnston/WWT

Images on page 24: Jim Johnston/WWT

Images on page 25,31,33: Forestry England

Images on pages i [inset] & 29: Dr Rebecca Lovell

Suggested citation

James Fullam, Harriet Hunt, Rebecca Lovell, Kerryn Husk, Richard Byng, David Richards, Dan Bloomfield, Sara Warber, Mark Tarrant, Jenny Lloyd, Noreen Orr, Lorna Burns, Ruth Garside (2021) *A handbook for Nature on Prescription to promote mental health*. Version 1. University of Exeter.

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A HANDBOOK FOR NATURE ON PRESCRIPTION TO PROMOTE MENTAL HEALTH

<https://www.ecehh.org/research/nature-prescription-handbook/>
 FULLAM, J, HUNT, H, LOVELL, R, HUSK, K, BYNG, R, RICHARDS, D, BLOOMFIELD, D, WARBER, S, TARRANT, M, LLOYD, J, ORR, N, BURNS, I, GARSIDE, R. (2021)

HOW DOES NOP WORK?



WELL-DESIGNED NOP CAN MITIGATE RISKS

PHYSICAL RISKS

MENTAL HEALTH RISKS

COMMUNICATION AND INFORMATION SHARING IS KEY TO GOOD NOP PRACTICE

CAN EVIDENCE ACTIVITIES & SUPPORT IMPROVEMENT

GOOD NOP PRACTICE DEPENDS ON THE SKILLS OF EVERYBODY INVOLVED

Forewords

“As someone who has long advocated for the benefits of nature connection and experience, for our mental health and holistic wellbeing, I wholeheartedly welcome the publication of this handbook. Encouragingly, there now exists an established and growing body of scientific evidence to support this initiative too. This guide aligns with national priorities set out in the NHS Long Term Plan with regards to personalised care, social prescribing and a forwards focus on community-based programmes and is interconnected with the overall ambition to deliver a Net Zero National Health Service.

As a qualified GP and experienced medical educationalist, I am entirely committed to realising the integration of nature-on-prescription within mainstream healthcare in my lifetime. Having dedicated years to developing a green prescription project for disadvantaged young people, I have some insight into the reality and complexity of the landscape and the potential barriers & challenges that exist, particularly when setting out to implement a nature-based intervention in this context. I believe this handbook is unique in that it offers an invaluable, expert informed and comprehensive resource to support others as they embark on the journey too. I only wish it had existed when I began! The very existence of this handbook signifies the beginning of an urgent and important paradigm shift in health care and I am very hopeful that this resource will serve as a gentle reminder to collectively ensure we place nature at the heart of a recovery for all. Together we can rebuild a more equitable, sustainable future for the health of humanity and the health of the planet.”

“This handbook gives valuable guidance for organisations such as the Wildfowl and Wetlands Trust who are looking for evidence-based suggestions for how to implement high quality schemes in the new social prescribing landscape. The handbook contains lots of tools for discussion and practical suggestions for organisations new to or experienced in providing nature-based interventions that are targeted towards people with common mental health conditions such as anxiety and depression, and helps to navigate systems and partnerships to make the most of the opportunities out there.”



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Project***



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Glossary

Context: ‘any feature of the circumstances in which an intervention is conceived, developed, implemented and evaluated’. For example, this may be a social, political, economic or geographical context¹.

Clinical Commissioning Groups: Clinically-led statutory NHS bodies responsible for the planning and commissioning of health care services for their local area.

Green space: In this document we intend it to include the full diversity of green and blue spaces from parks or gardens to beaches or countryside footpaths.

Intervention (in the context of mental health): Any intentional programme of activities designed to result in an improvement in symptoms of common mental health conditions.

Mechanism: Mechanisms describe how it is that programmes and interventions contribute to outcomes².

Nature: the phenomena of the physical world collectively, including plants, animals, the landscape, and other features and products of the earth

Nature on Prescription: People with a social prescription can access a variety of activities, groups and programmes, Nature on Prescription encompasses activities and programmes that include exposure to nature as a core element.

Personalised Care: Care based on ‘what matters’ to patients and focussed on individual strengths and needs. Aims to give individuals more choice and control over the way their care is planned and delivered³.

Prevalence: The proportion of a population with a particular condition.

Primary Care Network: A GP network (group of GP practices) that typically serve populations of 30,000 to 50,000 people.

Nature-based provider: Providers of Nature on Prescription interventions/programmes.

Social Prescribing: Social prescribing is a mechanism for linking people to the voluntary sector and community organisations to support their health and wellbeing⁴.

System: ‘a set of things that are interconnected in such a way that they produce their own pattern of behaviour over time’⁵.

Acronyms

GP: General Practitioner

NHS: National Health Service

LGBT+: Lesbian, gay, bisexual and transgender, plus other non-normative gender or sexuality groups

PCN: Primary Care Network

VCSE: Voluntary, Community and Social Enterprise Sector

Purpose of the Handbook

This handbook is about how Nature on Prescription can be used to support people's mental health, and makes evidence-based suggestions for how to develop and implement a high-quality scheme, in the new social prescribing landscape. The handbook is primarily aimed at nature-based providers of group nature-based interventions that target common mental health conditions, and that are (or will be) delivered via social prescribing schemes. The content will also be of interest to link workers, general practitioners, mental health practitioners, and researchers with an interest in social prescribing. The content is intended to assist development of interventions that are beneficial, safe, and sustainable. We hope this handbook may: help avoid pitfalls that may lead to Nature on Prescription failing to support people appropriately; make the most of programmes from the earliest stages; help reach desired outcomes for both organisations and participants; and help in designing appropriate evaluations.

In this handbook we draw on research evidence and learnings from past and ongoing nature-based interventions, and from other relevant fields. There is a wealth of experience from people who have been involved in delivery of nature-based interventions in the UK. The content of the handbook is also informed by interviews carried out with these individuals and other relevant stakeholders¹.

How to use this Handbook

If you are new to Nature on Prescription this handbook will provide an overview of the area, including background on mental health in the UK, the implementation of social prescribing, and an outline of Nature on Prescription itself, with specific focus on what makes it a complex intervention (**Sections 1-3**).

Subsequent sections of the handbook can be used by new or existing nature-based providers as an aide to guide development, to refine practice, or to guide efforts to improve outcomes:

Section 4 examines appropriate referral to Nature on Prescription.

Section 5 explores the active mechanisms of group nature-based interventions, identifying and developing theory about how and why Nature on Prescription works.

Section 6 considers some of the challenges for Nature on Prescription with a focus on (i) equitable access and (ii) supporting sustainable, lasting change for participants.

Section 7 addresses evaluation and some of the practical issues around evaluation that are relevant to Nature-based providers.

¹Interviews and workshops with stakeholders including social prescribing link workers, patient/user representatives, general practitioners, Nature-based providers, and VCSE representatives.

This information in the Handbook is not intended to be prescriptive - we recognise that a wide variety of activity is described as “Nature on Prescription” and groups have access to different types of experience, and location - but to provide broad guidance and pragmatic advice.

Throughout the handbook we aim to provide practical guidance, highlighting practices or components that are key for successful provision of Nature on Prescription. Specific sections of the handbook may be of interest to different roles within organisations (e.g. group leaders, managers, link workers).



Table of Contents

Forewords	iv
Glossary	v
Acronyms.....	v
Purpose of the Handbook	vi
How to use this Handbook	vi
Section 1. Common Mental Health Conditions in the UK	1
Prevalence of Common Mental Health Conditions	1
Risk factors of Common Mental Health Conditions and at-risk groups.....	2
The experience of common mental health conditions	2
Section 2. Social Prescribing	4
Social prescribing policy	4
Social prescribing practice	5
Social prescribing process	6
Section 3. Nature on Prescription.....	9
Nature on Prescription is a ‘Complex Intervention’	10
Avoiding unintended and adverse consequences	11
Section 4. Nature on Prescription: Appropriate and Successful Referral	14
Participant factors.....	15
The relationship between provider and referrer.....	16
Section 5. Nature on Prescription: How and why it works	19
Activities, Mechanisms, and Outcomes in Nature on Prescription	20
A Note on Outcomes.....	21
Relationship with Nature	22
Other Mechanisms.....	23
Physical Activity.....	24
Creating.....	25
Making a Difference.....	26
Having Fun	27
Being Outside.....	29
Caring	31
Personal Growth	33
The Group Mechanism.....	35
Section 6. Considerations for Nature on Prescription	38
Building an equitable sector	38

Supporting lasting change.....	39
Co-creation.....	41
Section 7. Monitoring and Evaluating Nature on Prescription.....	42
Social Prescribing	42
Nature on Prescription.....	42
Monitoring	43
Evaluation	43
Acknowledgements	46
References	48
Additional Resources	54



The point is that it's so much more than a walk in nature, it's about developing a base for someone to have a sense of belonging to something and that might be the natural world, they might not have otherwise been able to access. So, by prescribing it you're in some way giving it value as a worthy thing to engage with.

- GP and Nature-based provider

Section 1. Common Mental Health Conditions in the UK

Nature-based providers are not expected to have detailed understanding of the diagnostic criteria or features of specific mental health disorders or diagnoses. However, a broad appreciation for the complexity of mental health, the range of physical and mental symptoms and behaviours associated with common conditions, and the highly variable experience of conditions between different individuals is necessary for delivery.

Prevalence of Common Mental Health Conditions

Every year one in four people will experience a mental health problem of some kind⁶. On any given week in England one in six adults will be experiencing a mental health problem⁷ and this is report to have worsened during COVID⁸. Nearly half of adults think that they have had a diagnosable mental health condition at some point in their life (35.2% of men and 51.2% of women)⁹. Even what may be termed ‘mild’ mental illness is associated with increased risk of premature death¹⁰.

Despite significant increase in the availability of mental health treatment services in the last two decades, close to two thirds of people with a common mental health problem are not being treated⁷. Whilst what constitutes a ‘common mental health condition’ is often debated, Table 1 below gives an indication of the prevalence of specific diagnoses considered common in the UK (from most recent figures available).

Table 1. Prevalence of Common Mental Health Problems (UK Adult Psychiatric Morbidity Survey 2014, figures refer to prevalence in past week among respondents) ⁷

Generalised Anxiety Disorder	5.6%
Depression	3.3%
Phobias	2.4%
Obsessive Compulsive Disorder	1.3%
Panic Disorders	0.6%
Common Mental Disorders not otherwise specified	7.8%



Risk factors of Common Mental Health Conditions and at-risk groups

What causes common mental health problems is not well understood, but in many people a multitude of factors are likely to play a role. It is clear that social factors including; poverty, housing, social isolation, and social and familial relationships⁹ are associated with mental health problems. We also know that physical health and mental health are closely linked. Evidence indicates that people with long-term physical health conditions are two to three times more likely to experience mental health problems than the general population¹¹. Although anyone can be affected by mental health problems, some groups in the UK experience a higher prevalence⁹; Black, Asian and minority ethnic groups; refugees and asylum seekers; people with learning disabilities; LGBT people; carers; victims of domestic violence; the homeless; and those with substance abuse issues.

The experience of common mental health conditions

Any mental health intervention aimed at improving peoples' lives must aim to modify the symptoms, and experiences, which cause distress and negatively impact their quality of life. In Figure 1 we list some of the experiences and symptoms of common mental health conditions. The list is not exhaustive, but is intended to illustrate the wide variety of ways in which individuals can be impacted and which it may help nature-based activity providers to be aware of. Although, it is beyond the scope of this handbook to examine in detail the differential individual experience of the various common mental health conditions, it is essential to recognise that individual experience can be hugely variable. For individuals with the same diagnosis, for example, mild to moderate depression, the symptoms that are present and the intensity or severity of symptoms can differ greatly and may change over time. The context in which people deal with various conditions, for example the presence or absence of familial or social support, or a person's financial situation, and many other factors also have bearing on individual experience. The relationship between symptom, experience and outcome in mental health can be multidirectional, and can occur with positive and negative feedback loops. Social isolation, for example may occur as a result of poor mental health, or may be a contributing factor. Bearing these considerations in mind, the figure below summarises some of the key symptoms and experiences that negatively impact people's lives. These are the tangible targets for Nature on Prescription, or in other words Nature on Prescription should aim to alleviate these symptoms or positively impact an individual's ability to manage them.



Figure 1 Common symptoms and experiences that can negatively impact people's lives (based on information from mind.org)

Nature-based Provider Advice: Understanding mental health

- Nature-based providers must have a basic understanding of the complexity and prevalence of common mental health conditions.
- Basic mental health awareness training for staff and volunteers can provide this.
- Accredited Mental Health First Aid training should be considered a minimum essential requirement for nature-based provider staff.

For more information about mental health in the UK see Additional Resources



Section 2. Social Prescribing

Social prescribing policy

Over the last two decades, UK health policy has increasingly sought to address the shortcomings of mental health services and to achieve ‘parity of esteem’ with physical health in terms of resource allocation¹². This has resulted in progress, but there remains significant unmet need. The NHS Long Term Plan¹³ published in 2019, commits to supporting people in managing their mental health by providing a large increase in access to adult psychological therapies and by mandating the rollout of *social prescribing* (see Figure 2), the *NHS Mental Health Implementation Plan 2019/20 – 2023/24* notes that mental health will be a priority for social prescribing, and specifically references support from social prescribing link workers for older people *with multimorbidity and/or frailty and those who may be lonely and socially isolated*. Social prescribing is not intended to be a crisis response for individuals with acute needs, or (for the most part) those with challenging and complex needs that require the input of mental health professionals. However, beyond this the remit, scope and overlap of the various mental health services and social prescribing varies in different localities and is not made clear in current policy documents. A goal of social prescribing is to address weak or non-existent links between health services and community organisations, and so alleviate pressure on health services, particularly primary care, in the UK¹⁴.



Figure 2 NHS Social Prescribing structure¹³

Social prescribing practice

Social prescribing is a mechanism for linking people from primary care, social care or other/self-referral routes to the voluntary sector and community organisations⁴ to support their health and wellbeing. It emerges from the recognition that some physical and mental health problems are linked to social conditions, and may be better addressed by social, rather than medical, intervention. Social prescribing aligns with the NHS “Personalised Care Model”, a model of care based on personal choice, effectively seeking to ask ‘what matters to the individual’ rather than ‘what is the matter with an individual’.

The groups that social prescribing target are broad, unlikely to be static in terms of size and distribution and vary regionally. There is significant local variation in provision of mental health services, social prescribing schemes, and local spending for these services and schemes. As a consequence, the population with mental health problems served by social prescribing is hard to define in detail but is likely to include: people seeking help who may not meet the thresholds for other mental health services, or who cannot access these services in a timely manner; people who may not wish to engage with ‘traditional’ mental health services or treatments; individuals who are engaged with other services and for whom social prescribing is complementary to other treatment (such as pharmaceutical therapy and/or talking therapies).

Social prescribing provides opportunities to address unmet needs in communities, and offers a support pathway that is not as constrained by diagnostic and eligibility criteria as other forms of support for mental health available via the NHS. For nature-based providers this illustrates the importance of fostering links with local link workers and social prescribing services and link workers will need to understand what kinds of nature-based programmes are available locally in order to ensure a good match with patient need.

Social prescribing link workers are funded in multiple ways; however, the ‘new’ NHS investment is intended to be provided through Primary Care Networks (GP networks that typically serve populations of 30,000 to 50,000 people). Primary Care Networks receive money to employ link-workers or fund some other element of their social prescribing service. Some Local Authorities and Clinical Commissioning Groups (clinically-led statutory NHS bodies responsible for the planning and commissioning of health care services for their local area) have funded social prescribing schemes that have included nature-based provider funding but this is not standard practice and the majority are still funded by traditional 3rd party VCSE funding routes.

Social prescribing process

Social prescribing consists of a ‘pathway’ of relationships linking the individual with health services, as well as with the activities or interventions that are eventually provided in the community¹⁵.

There are multiple referral routes into group nature-based interventions, including via primary care, community groups, support and advice centres, community mental health services and self-referral (see Figure 3 below). Some people may have personal funding to support their route into nature-based programmes; particularly in social care referral systems. The key consideration here is that referral routes vary by region, sector and individual need.

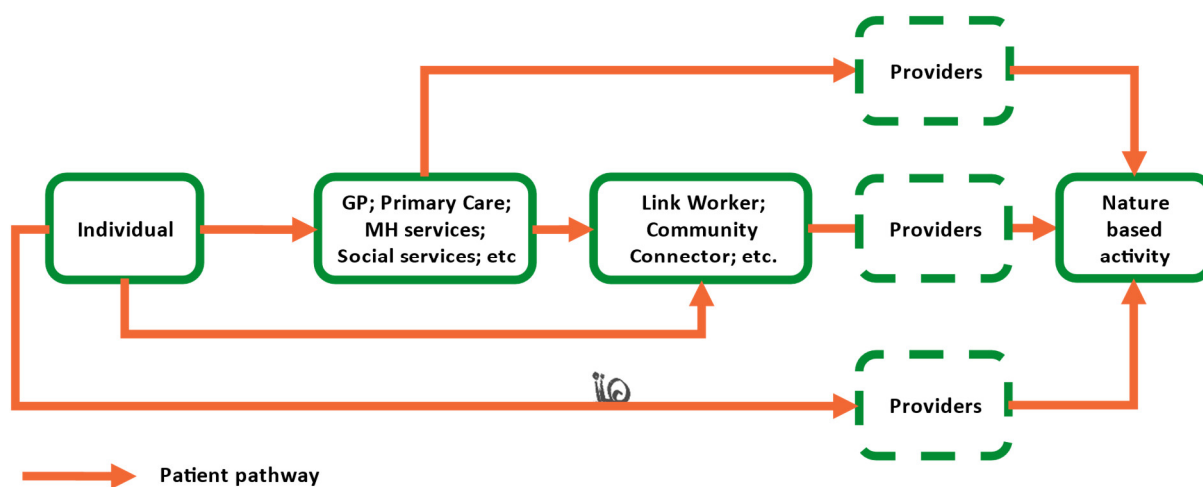


Figure 3 the patient pathway through the social prescribing process



Coming to see the site makes a massive difference, I think, in GP understanding of what we offer and that we are safe and actually seeing it in the flesh. But not all GPs have time to do that, so we've found that within the GP surgery there's a couple of GPs that really champion us and have been to see us.

- Nature-based provider

Primary care referral will usually involve a link worker. These individuals have a variety of role titles (including Social Prescriber, Social Prescribing Link Worker, and Community Connector) and may be employed by the NHS or the VCSE sector. It is their role to work with individuals, listen to what they need, and then connect the person to groups, programmes or interventions to address mental health issue(s).

This forms part of the ‘personalised care’ approach, which is based on acting on ‘what matters’ to people and their individual strengths and needs.

It is important for those making referrals in the health and social care sector, including link workers, to understand the needs of providers of nature-based programmes, and vice versa. Many of provider organisations are smaller organisations and lack the time or resources to fully engage with and understand the many interacting components that constitute referral systems.

Link workers may need to gather complex information about many different opportunities within their localities. It is important for all the individuals in the pathway to understand the pressures, drivers and constraints on others in order for the most successful referrals to be made. As such we include advice for a) nature-based providers and b) link workers and people making referrals.

The key thing is marketing materials, if I'm honest with you. We have information where we've worked really hard to pinpoint and summarise what we offer... then it's about showing them we have something that is a practical intervention that's supported by appropriate people.

- Nature-based provider

Nature-based Provider Advice: Understanding the local system

Nature-based providers must understand the model of social prescribing employed in their region, including the available referral pathway(s) and the roles of the various individuals in the pathway(s).

Local variation in the structural elements and practice of social prescribing can affect important aspects of the Nature on Prescription process, including the level of support a link worker will provide to an individual, before, during and after referral to the nature-based provider. In terms of the local social prescribing landscape nature-based providers should have some understanding of the roles of various entities within the NHS and social services which include a mental health remit, as potential participants may be engaged with one or more of these services.

Local Public Health teams are often involved in the coordination of social prescribing, and Local Clinical Commissioning Groups (see glossary) and Sustainability and Transformation Partnerships (see glossary) may be involved in the commissioning and funding of social prescribing, as such it may be useful to understand the social prescribing-related role of these bodies in a nature-based provider's region.

Link Worker Advice: Information needs and understanding providers

Be clear with the Nature-based providers about the information you need about their activities that their activities in order to make an appropriate referral. Fully understanding the processes and practices of any Nature on Prescription activity, and how they would benefit (or not) different mental health needs, will help ensure appropriate and successful referrals. Many Nature-based providers are happy to host taster sessions.

Many smaller Nature-based providers struggle to identify how to engage with the system or lack the capacity to devote time to contacting all link workers in their area. You may need to be proactive and also use aligned roles such as Community Builders where possible to identify relevant groups. Consider using something like a “patient passport” to help ensure key information which may affect the participant’s experience of the activity (e.g. need for alone time, fear of dogs, access to toilets) are taken into account by the Nature on Prescription nature-based provider. Be clear with the Nature-based provider regarding any data needs you have and ask about their own data needs for their funders/evaluators. Where possible, share experiences and recommendations with your professional local, regional and national networks about Nature on Prescription.

For more information about Social Prescribing in the UK see Additional Resources at end of document



Section 3. Nature on Prescription

People with a social prescription can access a variety of activities, groups and programmes, Nature on Prescription encompasses those social prescribed activities and programmes that include exposure to nature as a core element. The new National Academy for Social Prescribing (<https://socialprescribingacademy.org.uk/>) includes nature-based activities as one of its four core 'zones' of social prescribing (in addition to physical activity, arts, and advice and guidance).

The main types of Nature on Prescription activities are outlined below. Typically, any one Nature on Prescription programmes will include multiple types of these activities, and they are not intended to be considered in isolation. For example, an activity such as forest bathing¹⁶, may have elements of wilderness activities, and integrate both alternative and talking therapies. There may be primary or cornerstone activity that is augmented by others, or the activity types within a given programme may be tailored according to the needs and desires of the group, or may be adjusted due to other factors such as weather.

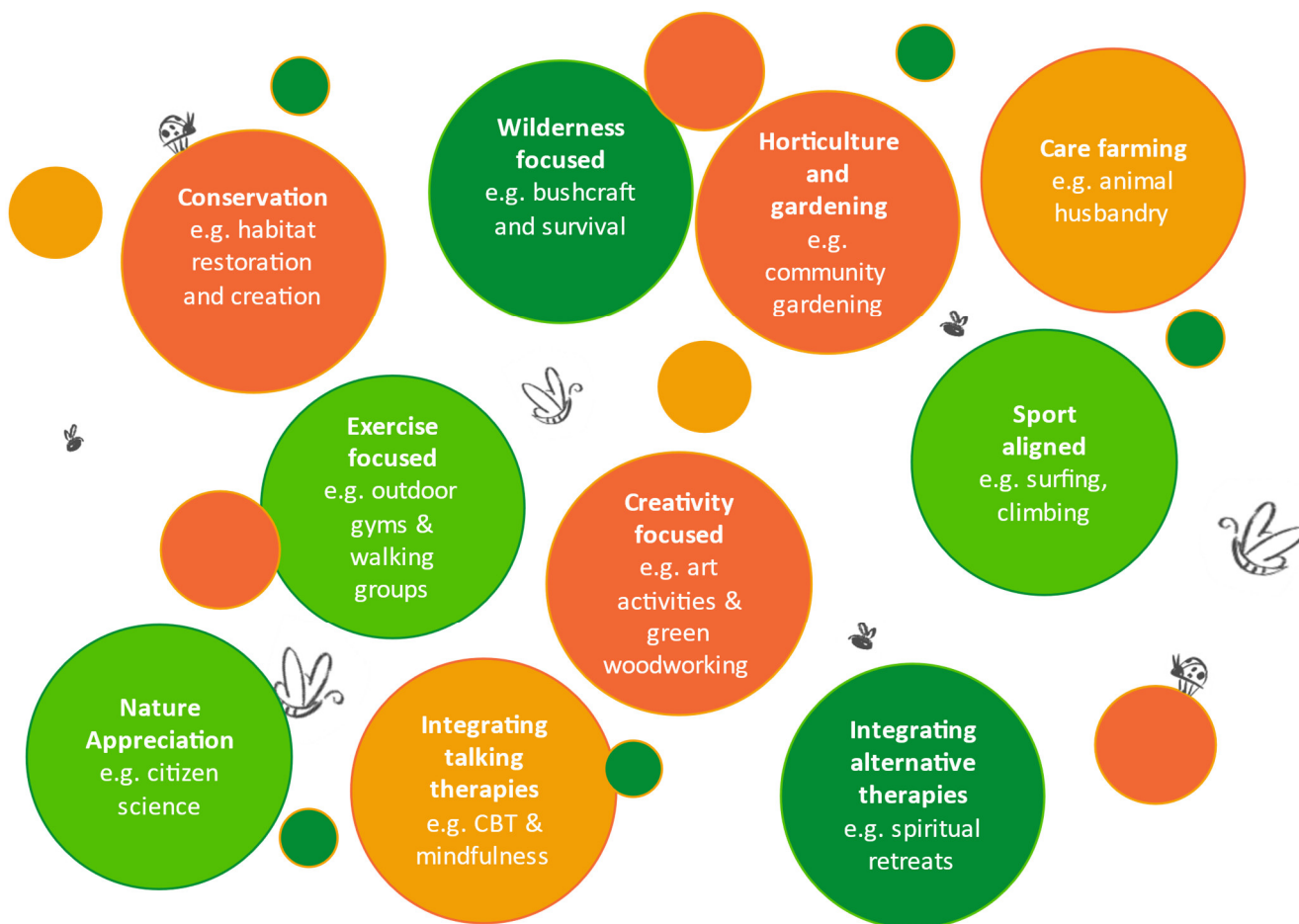


Figure 4 Types of Nature on Prescription

The evidence linking exposure to natural environments to improvements in mental health¹⁷ underpins nature-based offerings as a core referral option in social prescribing. There is long and rich history of nature being used as a therapeutic tool or setting to support mental health by a variety of communities of practice (for example eco-therapy, outdoor learning and education practitioners, conservation groups, and various community groups and organisations). However, new approaches to working more closely with the healthcare system present challenges, including the involvement of nature-based providers who may not have experience in developing interventions with therapeutic aims, or of working with people with common mental health conditions. The ability of Nature on Prescription to address underlying social and economic factors that drive poor mental health is limited. However, Nature on Prescription activities can facilitate engagement with a social world that supports resilience, recovery and contributes to the building of social networks which help to connect people and can help to maintain good mental health and wellbeing. Nature also benefits, through people building a relationship with, and interest in, the natural world.

Nature on Prescription is a ‘Complex Intervention’

When we try to understand “what works”, and what the impact of an action is, there is a difference between relatively ‘simple’ interventions (such as taking a pharmaceutical pill), versus those interventions that might have more complex pathways to benefit (i.e. *how* it works). Those pathways may be through behaviour change for instance. Interventions, such as Nature on Prescription, that contain several interacting parts or components, and often rely on relationships between people, are often described as ‘complex’. In complex interventions, these components contribute to the outcomes, and can operate both independently or in combination together¹⁸.

A contemporary framing of complex interventions also involves thinking about the complex systems in which these interventions are delivered, and how the process of the interventions disrupts (or displaces) prior ways of working or introduces new ones. These changes in how the system operates can also impact outcomes¹⁹ and can aid our understanding of how components interact to influence outcomes²⁰. It is essential to acknowledge that the effects of complex interventions vary by context and local tailoring is essential in implementation²¹.

Nature-based Provider Advice: What makes Nature on Prescription a complex intervention?

There are multiple interacting components producing effects in Nature on Prescription e.g. the effect of nature, group/socialisation effects, the way in which individual interventions are designed and conducted, and who delivers them:

- Nature on Prescription operates across a number of different systems, including the healthcare system, VCSE system, and sometimes local council and social care system.
- There are a range of behaviours, expertise and skills required by those delivering and those receiving the intervention.
- There is a high degree of flexibility or tailoring of the intervention or components to accommodate individual needs and preferences.
- Often the intervention could have an effect on a number of outcomes of relevance and importance to both the healthcare system (such as reduced primary care visits) and participants (e.g. quality of life).
- There are multiple pathways by which intervention components may affect outcomes, and how these pathways operate will vary by context.

Nature on Prescription is concerned with addressing common mental health conditions which are complex in and of themselves. Individuals may be experiencing more than one condition at a time, and the symptoms of specific conditions can vary greatly in their presentation in different individuals and how they are experienced by individuals.

Avoiding unintended and adverse consequences

Who's got first aid training, the what-ifs, getting out of the van, traffic, external dangers, wind speeds the whole lot, and you do that and then you apply it specifically to the cohort, risks to themselves, to the other people... the approach of a really good risk assessment gets you to really think about the cohort, the person you're dealing with but also your confidence in the person you're referring to it. What would tell me that they could deliver that session.

- *Commissioner/Provider*

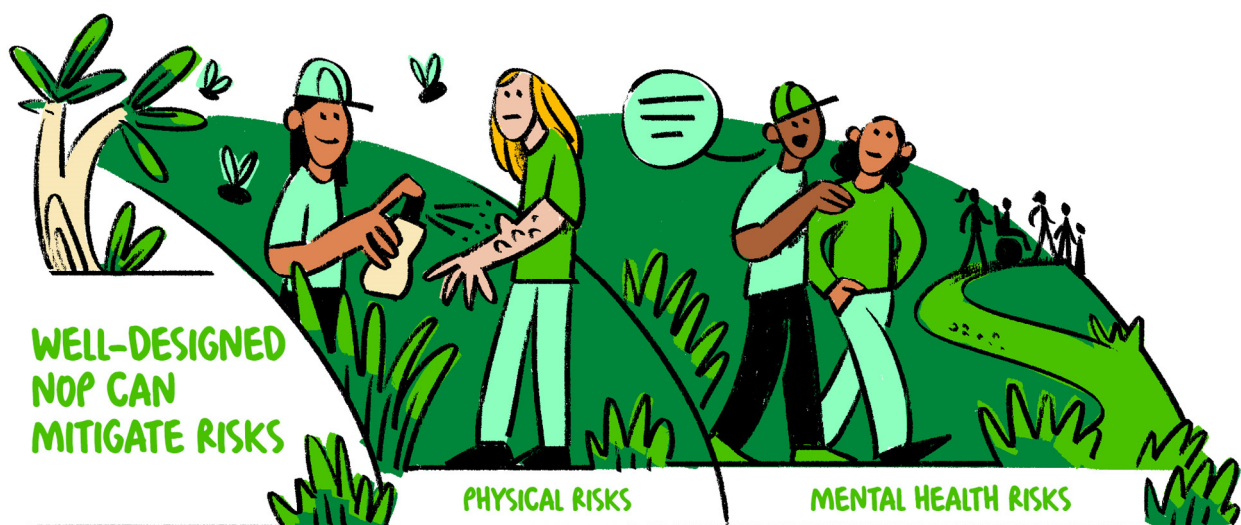
The best intentioned of interventions across the spectrum of public health can and do fail ²².

Interventions can have unintended consequences and may cause harm to participants ²³. We are beginning to develop ways in which to identify and anticipate potential risks and harmful effects of interventions in complex social systems ²⁴. Being

aware of these possibilities and applying the principles of high-quality intervention development in Nature on Prescription may help to avoid negative impacts.

Comprehensive intervention development, where you are clear about how you think the interventions works, for whom and in what ways, minimises the risk of:

- Wasting scarce resources, e.g. money and nature-based provider time.
- Causing distress or provoking anxiety in participants²⁵.
- Exacerbation of existing health inequalities²⁶.
- Physical harm to participants, staff or to members of the public.
- Wasted effort in the context of potential contribution to evidence²⁷.



The idea is that they've then got the capacity and the ability to go off and use nature for their own mental health off their own backs. There's going to be a huge proportion that don't, and they go on a six-week programme and then they never do anything again. But we know from the pilots, each of the individuals got memberships, so we know that those people from the pilots, they're using the Centre still and they're coming back here.

- Nature-based provider

In recent decades our understanding of how to develop effective complex interventions has become more sophisticated²⁷. Applied in practice, these principles (see figure 5 below) should result in interventions that (i) *are acceptable and feasible in the real world*; (ii) *wanted by end users* (iii) *consider long term sustainability*; and (iv) *provide research evidence for publications and funding*²⁸.

Successful outcomes cannot be guaranteed in any approach tackling something as complex as mental health, however, taking the time to think carefully about how interventions will operate in the real world, for example by developing insight and understanding of the health care systems and

of processes such as the referral process (which may change rapidly and necessitate continued revisiting), in the development phase, offers some protection against unintended negative outcomes²⁹.

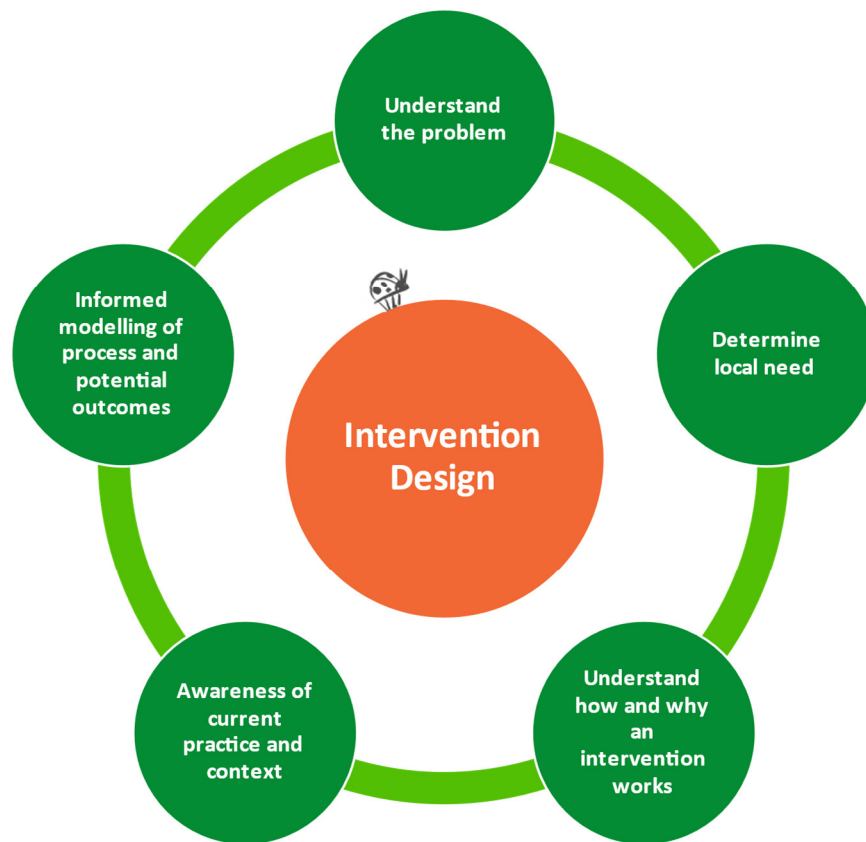


Figure 5 Complex intervention Development – adapted from Bleijenberg et al 2018²⁷



Section 4. Nature on Prescription: Appropriate and Successful Referral

This section highlights the importance of the referral process in social prescribing.

Appropriate referral ensures a good match between the needs of the individual and the specifics of the Nature on Prescription activity and avoids the waste of resources associated with inappropriate referral. The processes involved in social prescribing referral are evolving (as is the policy and organisational landscape in which they are made) and may be different depending on the specific scheme and between areas. The guidance in this section is intended to be generalisable to different types of schemes.

To achieve an appropriate referral, it is crucial that the intervention developer is aware and able to communicate the specifics of the intervention, the ways in which it might benefit health, who it is suitable for and so on. This information may need to be communicated differently to the link worker and to the potential participant. Being explicit about: the assumptions that underlie what you are doing; the people that activities are targeted towards; and the nature of any training that nature-

We do get people, sometimes, when they sit down with you and they have an idea of what they would like to do, it is a fantasy. And then, when you get them engaged, the reality is far from what they imagined it was going to be. So, it's not skipping around a meadow and lots of wild flowers and that sort of stuff, it's getting wet, it's getting muddy, it may be getting hit with a shovel by accident or something like that...you have the people that don't respond well to it and will disengage or can become confrontational.


- Link Worker

The need to be flexible is vital in this instance; we need to make sure that we could support a young mum or a young dad who perhaps wanted to access these kinds of services but then had to get back to the school run or maybe had a poorly child at home and they don't have access to public transport. There's a whole range of barriers that they can see, which would perhaps prevent them from even bothering to try and access these things.

- Nature-based provider

based provider staff have or require will help communicate your plan to different stakeholders (please see Additional Resources for guidance on developing a basic logic model to help illustrate how an intervention is meant to work).

There are examples of nature-based provider organisations creating their own referral form, as a "needs profile" created with and owned by the participant and containing essential information on likes, dislikes, strengths, and goals. Good communication will help the Link




What we like to do is both get the [community] group leaders out, as a group, to have an experience, both to show them – this is how you do it, this is where you can go, this is where the toilets are, this is where the café is, if it rains, you can do this. So, they have that experience, they can then go back to their communities and say “Not only do I know now where we can go, but I actually felt much better about myself”

- *Nature-based provider*

Participant factors

Whether or not the participant believes that social prescribing (including Nature on Prescription) will do them good can be an important factor in engagement and outcome³⁰. However, it is important to note that people’s attitudes and beliefs toward nature and how these interact with behavioural and physiological response remain poorly understood³¹, and while those that who have an intuitive belief in nature as therapy may engage more readily with Nature on Prescription, this should not preclude those who do not hold such beliefs. As noted in the previous section there are a diverse range of activities that fall within the scope of Nature on Prescription, which individuals may be more or less attracted to, or amenable to partaking in. This is important for link workers to explore with participants. For some potential participants for example, aspects such as walking, being with people like them, or opportunities for creativity, might be more appealing to focus on than the nature specific elements of a programme. There are also likely to be people who legitimately do not



When you’re referring out, you’ve got to keep safeguarding, so you’ve got to think about what checks need to be done to make sure that group that you’re referring out to is legitimate.... So, if an organisation is carrying a logo like the Lottery, ESF, whatever it is, you know they’ve gone through all of those checks.

- *Link Worker*

Worker ‘match’ the person to the intervention and will help the participant understand what is being offered. It is important that a link worker or other referrer understands the reality of what is being offered and can communicate this to a potential participant. Even where the best effort has been made to describe a programme, there is a possibility that reality will not match a participant’s expectations, and both organisations and link workers should be aware of this.

want to take part in Nature on Prescription, there are alternatives that may be more suitable for these individuals. This is a core tenet of the ‘what matters to you’ approach of social prescribing.


The relationship between provider and referrer

Social prescribing is a series of relationships all of which need to function in order to respond effectively to the referred persons needs and ultimately improve that person's life¹⁵. From the Nature-based provider's perspective their relationship with whomever is referring participants to their intervention is absolutely key to an effective process, and key to increasing the numbers of people attending (where capacity exists).

Nature-based Provider Advice: Key Information for nature-based providers to share with link workers/potential participants

- Target cohort: Age range, gender, degree of physical fitness required.
- The capacity of the organisation in terms of numbers that can be accommodated.
- What clothing, food, equipment or PPE may be required and if this can be provided.
- Expected group size and make up – some people may prefer single sex groups, or groups organised for specific communities.
- Detailed site description, including physical features, availability of toilets, and presence of café or shop.
- Weather conditions that should be expected for different times of year.
- To what extent people with limited mobility may be accommodated.
- Transport availability.
- Flexibility of programme e.g., to what extent sessions/programmes can be adjusted to accommodate periods where physical or mental health needs mean individuals may not be able to attend.
- The experience of staff in dealing with specific mental health conditions.
- Detailed description of what will take place at the first session, and an overview of the activity/activities.
- Length of session and number of sessions.
- Opportunities for formal/informal learning and skill development.

There are multiple referral routes into nature-based interventions, including via primary care, community groups, support and advice centres, community mental health services and self-referral, as well as through link workers. This handbook is primarily focussed on referral via primary care and, as such, the referral to a programme or activity will most often be made by a link worker. These



I think the first thing is finding a story that resonates, collecting those case reports and data to help the clinical community and the system understand and recognise the benefits of helping communities and individuals reconnect with nature.

- GP + Nature-based provider

office based). It is their role to understand people's preferences and connect them to the most appropriate groups, programmes or interventions suitable to address the individual's specific set of needs and mental health. This forms part of the 'personalised care' approach, which is based on 'what matters' to people and responds to their individual strengths and needs. Matching people to programmes or interventions requires openness and flexibility, (within the limits of what is available). Site visits and taster sessions may be very valuable for some participants who may have limited experience of nature-based activity and may be nervous about committing to a full programme.

There are number of key facets to the Nature-based provider-Referrer relationship:

- a) honest and accurate information sharing (as discussed above),
- b) establishing trust between referrer and nature-based provider so that they are confident in the safety and potential efficacy of the intervention, and
- c) ensuring that referrals are appropriate.

Although a link-worker based model does appear to underlie most existing and emerging social prescribing schemes in the UK, and establishing relationships with link workers may be the most constructive approach for nature-based providers moving forward, some nature-based providers have cultivated direct relationships with GPs, accepting direct referral from the GP or having the GP signpost to a self-referral process.

individuals have a variety of role titles (e.g. Link Worker, Social Prescriber, Community Connector) and may sit within the NHS or the VCSE sector. This does mean that link workers will have different capacities and resources available to them (e.g. some may be able to visit a nature-based provider site or accompany a client on a first visit, whereas others will be fully

Nature-based Provider Advice: Establishing Trust

Some Nature-based providers will have been accredited by recognised bodies, however for many, particularly smaller operations this is often not available. This can make it challenging for referrers to be confident that an organisation provides a safe environment and uses safe practices. Ways to build trust with link workers and other potential referrers include:

- Provide risk assessments (especially important in the case of vulnerable individuals, and those with disabilities) (see resource list for link to guidance)
- Offer site visits and/or taster sessions to potential referrers (Link workers and GPs)

Note: It may not always be possible for nature-based providers to establish a direct relationship with a link worker or number of link workers. In these instances, it is important that the Nature-based providers offer is included on a database that maps local services and programmes available to link worker. Depending on the area these databases may be maintained by different organisations. These databases can be hosted, searchable and well maintained, or more informal, e.g. routine update emails sent out to link workers.



Section 5. Nature on Prescription: How and why it works

A unique strength of group nature-based interventions are the many ways in which they can impact the experiences and symptoms of common mental health conditions. In this section we will focus on the mechanisms (by mechanisms, we mean *how* we think something works) of Nature on Prescription.

Comprehensive intervention development, as noted in Section 3, involves being able to identify and describe the active components of interventions. This section of the handbook should enable nature-based providers to describe what is going on in their specific intervention. This knowledge is also important for replicating successful interventions across different settings, and adjusting these components in different environments for different populations. Using and building on this knowledge allows link workers and nature-based providers to make informed decisions about what type of nature-based intervention might work for specific individuals, to understand why it might work for them, and to have an awareness of the context in which an intervention is most likely to be beneficial, and produce sustained benefit for a participant.

We first examine Relationship with Nature, a mechanism unique to Nature on Prescription. We then examine other mechanisms that are not unique to nature-based interventions but are known to be important in the treatment of common mental health conditions, and where nature provides a setting that may amplify the effects of these mechanisms. Finally, mechanisms that are associated with the social or group element of Nature on Prescription are explored.

Although we present mechanisms individually for the sake of clarity, we do not intend to mask the complexity of these types of intervention. In reality, mechanisms are often interlinked and will interact in multiple ways. The presence or intensity of effect of any given mechanism will depend on the features of specific interventions, and mechanisms will have variable effects in different individuals, the cumulative effect of multiple mechanisms is also important³². In this handbook, we focus on potential mechanisms found in the research literature, reported by nature-based providers and participants of nature-based interventions as having impacted on mental health. Our own research with Nature on Prescription stakeholders also provides some context to these findings. For those interested in the broader literature, a list of resources is provided in the resources.

Activities, Mechanisms, and Outcomes in Nature on Prescription

We have mapped the evidence-based pathways between nature on prescription activities (green circles), the mechanisms of action (central orange circles) and the outcomes (red circles on right) (Figure 6 below). Visit <https://kumu.io/beccalovell/nop-activities-to-outcomes> for an interactive model of the pathways.

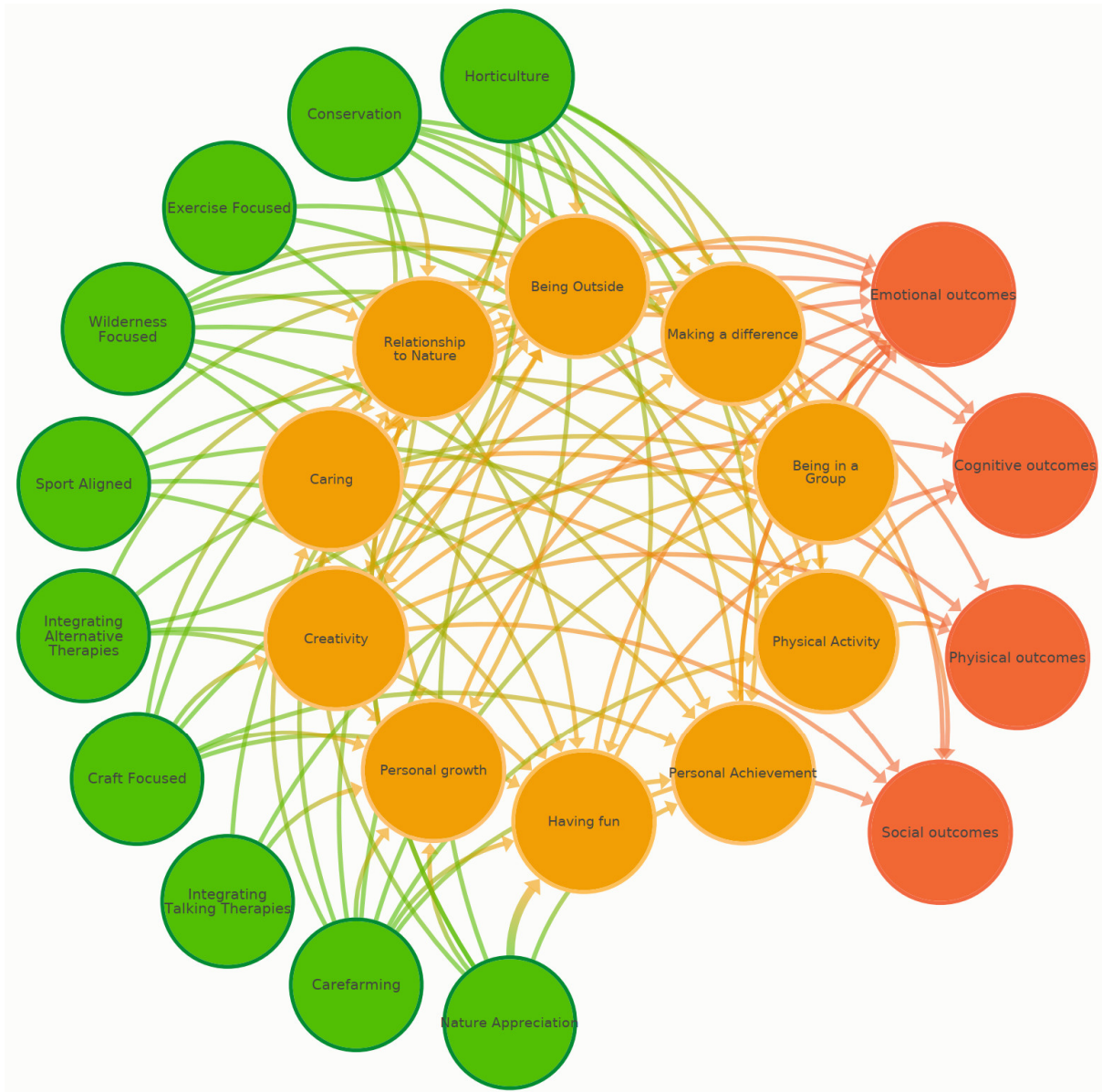
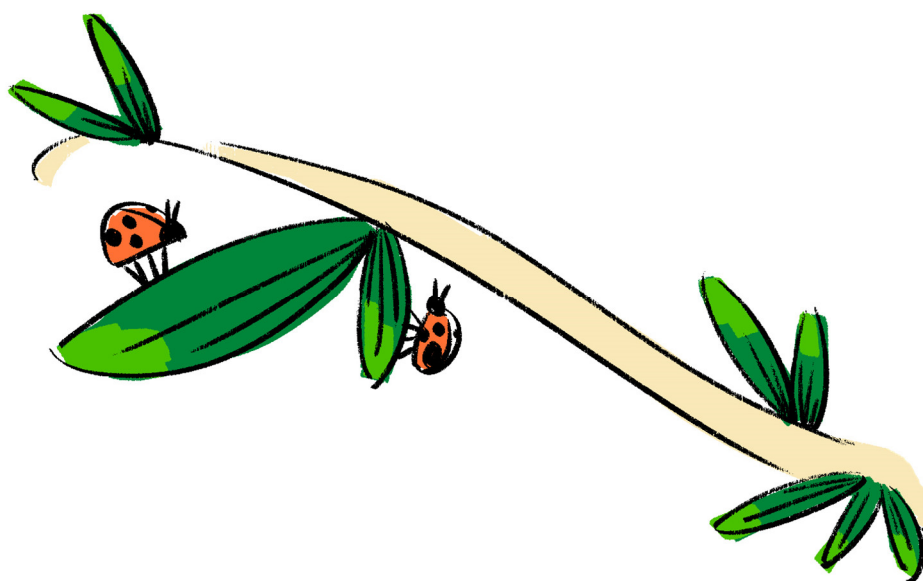


Figure 6 Pathways between Activities, Mechanisms and Outcomes

A Note on Outcomes

In the first Section of the handbook we presented the symptoms and experiences of common mental health conditions. In this section we will refer to outcomes. An outcome is simply something that reflects a presence, or quality, of some aspect of physical, mental or social wellbeing. Using evidence provided by participants and nature-based providers of nature-based interventions, we have generated a set of outcomes targeted by Nature on Prescription.

Physical Outcomes	Poor sleep; Restlessness; Fitness; Pain
Cognitive Outcomes	Forgetfulness; Difficulty concentrating; Dissociation
Emotional Outcomes	Worrying; Rumination; Not enjoying life; Difficulty with decision making
Social Outcomes	Social Isolation; Loneliness; Not engaging; Poor social functioning





Relationship with Nature

There are many different ways in which exposure to and engagement with nature through an intervention can affect health, both physiologically and psychologically³², and these effects can vary between different people³³. Various theories have been proposed to explain the mental health benefits of exposure to natural environments. These include improving mental health by *counteracting stress* and *increasing the ability to focus and concentrate*, known as ‘Attention Restoration Theory’^{34,35}. Emerging evidence around *enhanced immune function, and improvements in the cardiovascular and respiratory systems is promising*^{16,32}, and provides some basis for observations linking better health with time spent in nature^{36,37}.

The type and quality of the environment has been linked to the degree of connection with nature and the psychological effect on individuals. Better quality spaces, whether ecological or in terms of maintenance and presence of facilities are linked to more positive experiences and better health outcomes. In relation to how people *form* a connection or relationship with a place, our understanding is limited to studies which have focused on people with a pre-existing connection, and so our knowledge of how those relationships come about is still partial³⁸. For some, experiencing and identifying with natural cycles – such as growth, dormancy, regeneration and flourishing – can resonate with, and support, their own mental health journey.

I think that sensory awareness and being aware of oneself and the world around you and taking notice and appreciating those things, you know: “Wow, the sun’s shining, the birds are singing!”

- Nature-based provider

Although Nature on Prescription is a set of group-based interventions, the study of the solitary experiences in nature can also help contribute to our understanding of how nature can impact on a person’s mental health. For example, one study of transformative experiences across a diverse range of long distance hikers found that nature was experienced by individuals as an “active agent”, something that can “...*elicit meaningful personal issues in concrete situations that call for complete physical and emotional involvement, providing opportunity for new awareness of self and, ultimately, profound change*”³⁹.



Other Mechanisms

While sometimes nature itself provides the mechanism through which interventions have their impact, it may also be thought of as a setting for other beneficial processes or mechanisms. Nature may help to initiate or moderate the impact of these other mechanisms.

In this section we provide a summary of mechanisms common to many types of Nature on Prescription. Using findings from the research literature we have illustrated graphically how these mechanisms are linked to specific outcomes, and also identify the types of nature-based interventions that are likely to give rise to these mechanisms.

The biggest thing is providing opportunities for individuals to have that connection with nature but also to do something positive where they feel valued, valuable and they're actually making a contribution... He's a great destruction technician, shall we say, so he likes to do things where he can look back and see what he's done, you give him a chainsaw or a brush cutter and he's in his element, he loves that, 'cos he can see what he's done. And then, obviously, year on year you see the benefit. I think that's really important: connection with nature, somebody that you can trust and depend on but also seeing that you are contributing in a very valuable and positive way.

- Nature-based provider



Physical Activity

Exercise is not a panacea for common mental health conditions, including depressive and anxiety disorders, but there is no doubt that there is a strong connection between physical and mental health⁴⁰. The connection is well researched and the findings are consistent, exercise and physical activity has beneficial effects on both physical and mental health⁴¹. In a study of 1 million Americans, regular exercisers matched with sedentary individuals (controlling for age, sex, education and income) reported 12 to 23 percent lower rates of mental health problems⁴². In terms of specific effects, exercise has *modest but significant positive effects on aspects of cognitive function including memory*⁴³ and *improves quality of sleep*⁴⁴. Physical activity interventions improve outcomes in depressed older people, a key target group for social prescribing⁴⁵. Finally, and of particular relevance to Nature on Prescription, *exercise in outdoor natural environments is more beneficial*, in terms of self-reported mental wellbeing, than that taking place indoors⁴⁶.

Nature-based Provider Advice: Physical activity

Moderate physical activity could be incorporated into Nature on Prescription where appropriate. Guidelines recommend at least 150 minutes per week of moderate intensity activity per week for adults.

Nature on Prescription can be an important contributor to activity levels. It is strongly recommended that nature-based providers try and ensure opportunities for physical activity are offered in a way that is sensitive and flexible to needs and abilities. It should not be something that causes distress to participants or negatively impacts group dynamics.





Creating

The What Works for Wellbeing Centre's review of the impacts of visual art activities, which included active processes of 'making', found some evidence of benefit to wellbeing⁴⁷.

Nature based creative activities, including gardening, have been linked to mental health through refuge from stress and self-development⁴⁸. The places and spaces of creative activities, and processes of 'place making' (which can be considered to take place with some activities, such as conservation activities), mediate or enhance some benefits of creative activities⁴⁹.

Individual studies have indicated that craft activities, making things and acts of creation relate to wellbeing through self-management and empowerment⁵⁰, coping mechanisms⁵¹, enjoyment and meaningful activities^{52,53}, performance and, for some populations, reaffirmation of identity⁵⁴.

Creative approaches may also help participants access and articulate their sensory experiences of nature, which may otherwise be fleeting or difficult to express⁵⁵.

Nature-based Provider Advice: Creating

Creating as a component of programmes and interventions should be considered at both the individual and at the group level. Individual acts of creation serve to allow people to express themselves and allows for personal agency and control.

Groups creating things together (e.g. gardens, environmental enhancement) can help to foster a sense of collective achievement. Nature-based providers should consider that some individuals will have a preference for creating for the sake of creation (i.e. producing art), versus creation with the intention of producing practical output (e.g. green wood working), or vice versa.





Making a Difference

“Making a difference” is a mechanism whereby individuals perceive that they have made tangible and appreciated improvements to the environment, and/or to their community. The link between achievement (at a scale beyond that of personal achievement) and contribution to mental health, social function, and wellbeing is well evidenced⁵⁶. Longitudinal research has suggested that committed social and political involvement promotes greater life satisfaction⁵⁷. This is supported by the UK’s Mental Health Foresight review which concluded that intentional activities, including ‘striving towards goals that reflect deeply-held values rather than being driven by external rewards’, are strongly related to psychological wellbeing⁵⁸. Much of the evidence supporting this mechanism comes from research on formal volunteering, which has repeatedly been shown to be related to good health and wellbeing outcomes⁵⁹. Volunteering activity, post retirement, has been linked to better self-rated health, functioning, physical activity and life satisfaction as well as to decreased depression and mortality^{60,61}.

One of the points of social prescribing is change. So, it’s creating a change in a person. In order to do that it has to be change all round, the environment and everything has to change, to reinforce the changes that you’re trying to make for that individual.

- Nature-based provider

Activity directed toward making a difference can promote a condition whereby participants feel that their work and personal recovery becomes something that is *part of a larger ‘whole’, in which they feel less isolated and more empowered*⁶². Moving the focus from personal to natural recovery can be a positive experience for some, and people can form a metaphorical identification with nature and cycles of growth and recovery.

Making a difference can foster a sense of shared purpose that operates in a nested way within and beyond the boundaries of the intervention setting; making a difference personally, to the group, to the community and to the wider ecosystem. Contemporary awareness of the threats from climate change and loss of biodiversity (which in and of themselves are a source of anxiety for many people⁶³) are something that may be leveraged, actions directed toward these threats allows people to be part of a *collective action* that operates from local to global levels. Even without deep environmental knowledge or training individuals that have been involved in conservation recognise

that is of *direct help* to their communities and that there are multiple benefits to environments⁶². This can act as a source of meaning in people's lives, and they may derive a sense of reciprocity from this positive relationship (with nature) where they become more open to creating or motivating change in their own lives⁶⁴.

Nature-based Provider Advice: Making a difference

For nature-based providers it can be useful to explore ways in which their activities can make a contribution to their local communities.

Framing social or environmental contribution appropriately for participants can help them to understand the significance of the part they are playing, the difference they are making, and may provide motivation to engage with Nature on Prescription.





Having Fun

“Having fun”, or enjoyment, is an important component of wellbeing⁶⁵, helping contribute to a worthwhile and satisfied life. Importantly for Nature on Prescription enjoyment is linked to completion and adherence with health related interventions⁶⁶. At the population level enjoyment of life has been linked to greater healthy life expectancy⁶⁷. For individuals, undertaking an enjoyable activity can lead to the state of ‘flow’.

Flow is where an individual is ‘fully involved in the present moment’⁶⁸ and includes deep concentration, loss of a sense of time and a sense of undertaking an intrinsically rewarding activity⁶⁹.

In thinking about fun and enjoyment, the idea of seeking pleasure, also known as hedonia, is also important to consider. One of the key benefits of hedonia is that it provides a sense of *carefreeness*, activities motivated by pleasure *release people from their concerns and worries*⁷⁰. There are considerations when thinking about how to design or present interventions that promote pleasure seeking, the positive effects of hedonic pursuits may fade more quickly over time as opposed to activities that serve to produce meaning in people’s lives such as making a difference⁷⁰, both are important to wellbeing.

Nature-based Provider Advice: Having fun

For nature-based providers trying to help individuals achieve a state of ‘flow’, it is important to note that this is best achieved where the challenge level of the activity is broadly equal to the skill level of the individual (e.g. not too easy, nor too hard)⁶⁵.

Having fun need not be an overtly emphasised or forced, the conscious pursuit of enjoyment can sometime undermine the very enjoyment that people seek⁷¹.





Being Outside

Although conflation of “being outside” and “relationship with nature” is possible, we believe it is valid as a stand-alone mechanism. *Everyone says that, when we get the patient feedbacks people say: “Felt better for going outside”. Now there’s no tool for measuring that. (Link worker)*

Both participants in nature based interventions and traditional conservation volunteers have noted the importance of being away from stressors⁵⁶. Participants in nature based interventions describe the outdoor environments as simple, peaceful, and, crucially, ‘away’ or ‘other’ to their usual environment^{62,64,72,73}. It has been suggested that one of the primary benefits of environmental enhancement and conservation programmes for people suffering from mental ill health was that they took place in neutral environments which had significantly calmer and more positive atmospheres than the more traditional setting of the mental health services day centre⁶⁴. Being outside can facilitate multi-sensory experiences of different weather, sounds, scents and sights.



So, what I say to sustainability is that it’s ultimately portable, nature is everywhere even in the bleakest places, it’s there, in the middle of the desert, it’s there if you take notice.

- Nature-based provider

another four walls. This is something outside, it’s something bigger than myself. p9⁷⁴

It has been suggested that working side by side, or being around a fire, facilitates conversations and support that are more difficult in other scenarios.



One of the most common bits of feedback that we get from people is that they don’t feel judged and they feel that they are able to be themselves and they feel safe. So that makes you realise how unsafe people feel a lot of the time in their lives. They come to the wild woods and they feel safe.

- Nature-based provider

The experience of a taking part in a therapeutic intervention in an outdoor setting may also provide a welcome contrast with the more common indoor interventions, as expressed by this participant of a wetland-based intervention for mental health; *When we go to other projects, I am just switching four walls for*

Virtual access to the outside is also an option, which may provide opportunities during the current Covid pandemic and in a post-Covid environment, or may offer a way to enable participants to keep in contact with each other and the environment after a formal fixed term programme has ended.

Nature-based Provider Advice: Being outside

Although the intention in taking people outside and into new spaces is to remove them from everyday stressors, it can potentially be a source of stress, and potentially overwhelming if people find themselves in natural environments with which they are unfamiliar, especially if their previous interactions with natural or more wild spaces are limited. Nature-based providers should carefully manage the introduction to new spaces to try and avoid this.





Caring

All programmes may trigger opportunities to care for nature generally, for others in the group and for recognising the need for self-care. Systematic reviews focusing on gardening and horticultural therapy for people with mental conditions have noted significant findings for *reduction of depression and anxiety, improved self-esteem and social function, improved mental and psychological well-being, improved cognitive function and better sleep/rest*^{75,76}. The evidence in these reviews includes some randomised controlled trials and cohort studies, which bolsters the predominantly qualitative evidence of effects found in this area.

In terms of how it works as a mechanism, *caring and nurturing can help people to find solace*⁷⁷. The sense of accomplishment in creating life and helping it to thrive can be a powerful promoter of wellbeing for people, it can represent an important personal achievement.



It's the nurturing side of what horticulture is, that is helpful for somebody's wellbeing...you plant this dot of a seed, which looks like nothing, and within weeks it's a beautiful pink flower or purple flower...and you care for it...you've helped it to survive. Not only have you survived but you've helped something else survive and thrive.

- *Therapeutic horticulture Participant*

It provides *something to have a responsibility for which can be an important self-motivation factor*⁸⁰ and *provides a sense of purpose*. Gardening is also an activity that can be performed indoors to a certain extent, which some participants may prefer.

A recent systematic review of care farms, where animal care and husbandry is often an important characteristic of the intervention, found some evidence that they might improve depression and anxiety⁸¹.

Another factor noted as important in horticulture and gardening is the perception that they provide reflective and relaxing opportunities, *there is time for appreciation and enjoyment*⁷⁸. Maintaining farms, orchards, and gardens is a collective endeavour, a focus on individual performance and results that can be a source of stress can be put to the side⁷⁸.

Gardening has also been reported to ameliorate the loneliness endured by some older people⁷⁹.

Nature-based Provider Advice: Caring

Nature-based providers should be aware of the timescales inherent in caring and seeing tangible and appreciable results. For example, there will be a delay between planting and subsequent flowering, or fruit/vegetable production. Nature-based providers should ensure that participants have the opportunity to enjoy and appreciate the output of their work.





Personal Growth

Some degree of personal growth is likely to be a feature of most Nature on Prescription interventions, however as a distinct mechanism we consider it in the context of activities that are based on, or include as a principal component, some form of established talking therapy or alternative therapy. It is beyond the scope of this handbook to explore in detail how and why talking therapies and alternatives therapies work in the context of common mental health conditions, but we will summarise some of the contemporary evidence and note some of the key pathways associated with this mechanism. Personal growth can also be linked to personal achievement, in order to mark progress and reinforce agency and self-esteem. For some, it may be appropriate to document, plan and mark as 'done' specific milestones to feed a sense of achievement. For others, this may not be appropriate or rewarding. This should be tailored to individual groups and circumstances, with recognition of individual motivating factors where helpful.

Mindfulness is well-established as feature of many nature based interventions, and perhaps the most familiar to nature-based providers in terms of promoting personal growth. It can be the defining characteristic of an intervention, where there is some systematic training in the practice, or may also be included in a more

'informal manner' whereby it sits alongside other activities such as walking in a natural area; forest bathing is a good example of this and is an activity type with a growing body of supporting evidence¹⁶. Overall, evidence does support positive effects of mindfulness in natural settings, and the type of environment seems to moderate the effects; environments characterised as forests/wild nature obtain larger effects than environments characterised as gardens or parks⁸². Mindfulness sits in a family of meditation practices that aim to train people *to direct and/or sustain attention processes and strengthen the capacity to be aware of the processes of thinking, feeling and perceiving*⁸³. Nature based interventions can also be built around more spiritual approaches well-being, where activities are concerned with *perceptions of reality, states of being and consciousness*⁸⁴.

A well-known form of talking therapy is Cognitive Behavioural Therapy (CBT). Although it is sometimes used as a comparator in studies of nature based interventions⁸⁵, low intensity forms of



It's not just looking physically at what they've done, it's that social input from people who have no vested interest really in patting them on the back.

Nature-based provider

CBT, and related approaches such as behavioural activation, can be adapted into Nature on Prescription, leveraging a strong evidence base⁸⁶. There are also useful learning to be adapted from CBT training development (in the UK) in terms of training a non-professional workforce to work competently⁸⁷ and safely with individuals with mental health issues.

Nature-based Provider Advice: Personal growth

Including talking therapies as a component of an intervention will require appropriate training for nature-based providers.

It is important for nature-based providers to recognise the boundaries of their practice and ensure they are working in a way that is safe both for participants and the nature-based provider. Pre-existing attitudes can be an important factor in how well participants engage in interventions, in the case of both talking and alternative therapies it is particularly important that these are considered in the referral process.





The Group Mechanism


For a number of important reasons, group based interventions tend to be favoured in Nature on Prescription. There are different types of group, from those organised for a multi-week group-based programme compared to a collection of people who turn up *ad hoc* for less structured activities such as an ongoing community gardening project. It is important to

recognise this variation and note the intent behind the group, in order to make the group functional and welcoming.



Figure 7 potential benefits of being in a group

Beyond group types there are clear issues of scale and feasibility, and it may be more economical and sustainable to work with groups than with individuals. More importantly, the incorporation of a social element in interventions can be linked to beneficial impacts on the symptoms of common mental health conditions. When *positive and meaningful psychological connections* are established between group members the content of health interventions may be enhanced⁸⁸. Nature on



We also run a group of conservation volunteers which is something that has existed longer than we have effectively, so we manage them, and we will invite people to join that group or suggest that they go and volunteer somewhere else if there's something nearer.

- *Nature-based provider*

Prescription can target individuals who may be socially isolated, this isolation may be as a result of mental health issues or may be a factor that contributes to poor mental health.

Reduction of social isolation, the creation of meaningful and lasting relationships and increased confidence in the ability to interact socially have been reported as outcomes of group nature-based interventions⁷⁴. Sustained engagement is important in any intervention,

the experience of belonging to a community has been noted as a key motivation to engagement in therapeutic horticulture⁸⁹. Being in group where there is an element of shared life experience between the participants can contribute to a safe environment where there is no judgment and mental health issues are accepted but can put to the side^{74,89}.

Qualitative studies of nature-based interventions for mental health have identified some of the features of being in a group that have contributed to positive experiences and outcomes for participants:

Benefits of groups...

- Draw individuals out of social isolation and facilitate positive relationships and friendships⁹⁰.
- Create the opportunity to share experience and achievements, and provide or benefit from peer support^{89,90}.
- Can contribute to respite from trauma by virtue of the experience of positive social interactions⁹⁰.
- Foster confidence in individuals' ability to interact socially⁷⁴ (Maund et al 2019).
- Provide a sense of community, which acts as motivation to engage in sustained way with the intervention^{74,89}.
- Increase people's confidence to be in nature⁷⁴.
- Can provide a contrast with a difficult social life outside of the intervention⁸⁹.

Nature-based Provider Advice: Groups

Nature-based providers must create the conditions for early active participant engagement. If nature-based providers can facilitate and nurture the development of *positive and meaningful shared social identity* between participants this may enhance delivery of the other components of the intervention or programme⁸⁸.

For referrers and nature-based providers there must also be careful consideration of group dynamics and the potential for participants to find groups intimidating or unaccepting. Individuals can feel at odds with the other members of a group if they differ in their preferences (for activities) or abilities (for example, walking speed)⁷⁴. The possibility of individuals being disruptive and causing distress to other group members must also be considered when forming and managing groups.

Bearing in mind the potential benefits of groups, nature-based providers should be aware that time for individuals to spend alone may also form an important component of Nature on Prescription. Both participants and nature-based providers have found this to be valuable. Allowing '*private time*' allows participants to seek out spaces that they perceive as having '*having special value*', '*being on its own terms*' or '*placing no demands*' and as such provide moments of respite and comfort⁹¹.

Nature-based providers should consider whether offering activities for specific groups of people, and ensuring these are culturally appropriate, in their locality may be useful – for example community gardening for refugees, or walking groups for South Asian women.



Section 6. Considerations for Nature on Prescription

In this section we discuss some key factors for successful Nature on Prescription practice.

Building an equitable sector

The 2019 Monitor of Engagement with the Natural Environment found that people strongly agreeing that ‘my local greenspaces are within easy walking distance’ are more likely to be aged between 35 and 64, from white backgrounds, live in the most affluent areas and those who live in more rural areas⁹². People from black, Asian and minority ethnic communities make up a tiny percentage of the numbers of people that visit National Parks and Areas of Natural Beauty in the UK⁹³. Racism, disenfranchisement, being part of an urbanised culture, and historic association of nature with hardship and struggle, are among the reasons that people from BAME communities in particular spend less time in nature⁹⁴.

There are deeply entrenched disparities in the ways nature is used and accessed by different socio-economic groups, and those from different ethnic backgrounds in the UK, barriers to access are complex and systemic. Awareness of this is important, as Nature on Prescription risks operating along the lines of existing societal inequalities, where some of those groups most at risk of poor mental health are excluded from participation.

Nature-based providers must recognise that a community’s attitude to nature, or how they have accessed or experienced nature in the past, may mean that they don’t see it as a viable or preferred way in which to address their mental health issues. This should not preclude them from Nature on Prescription. Where certain groups don’t feel comfortable or safe in nature it is important to be responsive to this and to build mitigating approaches into practice. A major strength of Nature on Prescription is the diversity of settings and activities that can be utilised. It means that there are opportunities to develop a highly inclusive sector, and to tailor activities with appropriate materials and accessibility to specific groups of people or to specific needs including those with different abilities, disabilities, language differences, ethnic and cultural variations. Social prescribing models can be Euro-centric and carry underlying assumptions which require sensitive and critical consideration. Above all, the importance of seeking buy-in from the community that these activities serve is key to adoption and sustainability. We hope this handbook will help to guide and support these conversations.

Nature-based Provider Advice: Facilitating access

Audit past and current participants to investigate if there is disparity between those attending and at-risk groups (including ethnic minorities, and those with disabilities) in the target area.

Individuals that do not traditionally access nature may be part of other community groups or networks. Link workers and nature-based providers can work to identify and create links with these groups.

Be creative with regard to referral pathways, some individuals may find it easier to refer themselves or avoid dealing with certain professionals for a variety of reasons (including negative past experience with health and/or social care services).

Avoid labels and language with negative connotations or may have stigma attached, mental health issues in particular are stigmatised in certain communities.

Consider whether interventions may incur costs for the participant, for example PPE and outdoor clothing that, can it be provided at low cost or free of charge.

Supporting lasting change

Supporting lasting change or enduring benefit for participants is a key feature of successful intervention development and delivery ²⁸. For some participants in Nature on Prescription the most critical phase will be when it comes to an end. We still lack evidence for the long term effects of Nature on Prescription, but do know that the effects of other complex interventions such as those aimed at improving physical activity dissipate relatively rapidly⁹⁵. Participants of physically demanding and immersive nature-based interventions have reported emotional emptiness and a longing for the respite provided by an intervention after it has ended ^{90,96}. The loss of the social support or camaraderie that participants have become accustomed to when an intervention comes to an end can be challenging ⁹⁷. Below we examine intervention considerations that may help to avoid recovery set-back and support lasting change for participants.



Nature-based Provider Advice: Sustaining impact

Site considerations

Proximity to participants, public transport links, and public access to sites can all have a bearing on whether participants will continue use a site post-intervention. It is not always possible or practical to use sites that are open to the public. In these cases it is helpful for nature-based providers to help participants identify places they can access, where they can apply the skills or practices learned in the original intervention. Where privately owned sites are used, extended entry/membership schemes may be considered as part of the intervention offer, management decisions that address programme legacy can play an important role⁹⁸.

Teaching 'portable' skills

The skills that may be thought as part of a Nature on Prescription (for example meditation, mindfulness, journaling, team building, leadership skills) should have some *universality in daily life*⁹⁹, meaning that the experience can be applied to everyday stressors, situations and relationships. Something that serves to underscore coping skills associated with a natural environment is demonstrating to participants that nature is always within reach. This may involve a reframing of what participants think of as nature which can be powerful exercise in and of itself.

Facilitating social connection in the post-intervention period

Nature-based providers or link workers can provide signposting to local voluntary groups that are nature-focussed, for example conservation and natural heritage groups. While some nature-based providers or link workers may have existing networks to leverage in identifying suitable groups, for some developing these networks will be an important element in initial Nature on Prescription development. Some nature-based providers have avenues whereby participants can subsequently become volunteers and group leaders with the nature-based provider themselves, or they assist 'completed' members to set up their own group. This provides some continuity for individuals, from both nature-exposure and social perspectives.

Co-creation

In discussions with Nature on Prescription stakeholders co-creation of interventions and programmes with end users was frequently cited as an essential component of successful development and delivery¹⁰⁰. In public health co-creating interventions is increasingly advocated to provide more effective and sustainable solutions¹⁰¹. Co-creation can include workshops that are characterised by participatory and appreciative action and reflection¹⁰², but can extend to more sophisticated levels of engagement whereby new interactions and experiences (focused on co-creation) are continually built upon in partnership with end-users¹⁰³. Much like when patients are treated as true partners rather than participants in health research¹⁰⁴, in Nature on Prescription development end users should be treated as equal to other stakeholders and invited to the same meetings¹⁰⁵.



Section 7. Monitoring and Evaluating Nature on Prescription



Social Prescribing

There are multiple examples of general social prescribing scheme evaluations, often commissioned by clinical commissioning groups and councils. These evaluations are largely non-experimental in design and do not include a control group¹⁰⁶, but do provide useful data on the outcomes of specific schemes when looked at in the context of their limitations. It may be useful for nature-based providers to discuss evaluation with link workers and /or the coordinators of the social prescribing schemes with which they are involved, both to avoid duplication of data collection and identify opportunities whereby data from participants involved in Nature on Prescription specifically may be analysed separately from that of other offer-types in schemes. It may not be appropriate to apply findings related to general social prescribing schemes to Nature on Prescription, which is a unique offering within the broader social prescribing system.

Nature on Prescription

Qualitative data, including the stories of individuals that have taken part in Nature on Prescription and well selected quotes associated with these stories can be a powerful means by which to illustrate the impact of programmes. Indeed much of the evidence collected using qualitative methods in this area indicates benefit to participants' mental health⁵⁶.

At this point high quality quantitative evaluation of Nature on Prescription (and social prescribing in general) is limited and is complicated by a number of factors. Despite a trend suggesting positive outcomes for participants and the health services, closer interrogation of the evidence shows a lack of consistency in findings and a lack of research using robust study designs. Low numbers and variation in intervention components make it difficult to carry out high quality evaluation of nature-based interventions. This has led to repeated calls for better evidence in this area. As of May 2021, moves are being made to commission robust effectiveness evidence in this area. Some quantitative data may allow for economic (e.g. cost-benefit) analyses, and may provide data that may be of particular interest to commissioning groups, and enables comparison with other types of treatment (for example talking therapies).

Very few studies have examined the longer-term outcomes for participants in social prescribing. One study that did follow participants in a social prescribing scheme for up to two years found that many had experienced setbacks and that there was a lack of suitable and accessible voluntary and

community services for onward referral after the initial intervention¹⁰⁷. These types of observations are extremely important in the context of both general social prescribing and Nature on Prescription. Unfortunately, the short-term nature of many funding cycles does not encourage a long term view with regard to evaluation. A longer-term perspective with respect to evaluation must be considered moving forward.



Monitoring

Monitoring in Nature on Prescription, that is, keeping records about the demographic information of participants is important to aid the understanding of who is being served and whether there are segments of the population that are being missed or excluded by a nature-based provider. At a minimum, participant data gathered by nature-based providers should include, gender, age, ethnic identity and referral pathway. This data may be of interest to prospective funders and should be of particular interest to link workers that are not familiar with the work of specific nature-based provider organisations. It may also be important to understand who does not join, or complete a programme after initial referral. This may form part of the decision making process in deciding whether to refer a client (or types of clients) to a specific nature-based provider.

Evaluation

Evaluation of a complex intervention such as Nature on Prescription can be done in many ways, the extent of an evaluation and the methods used will depend on many factors, including, but not limited to; the resources and skills available for data collection and analysis, the type and length of Nature on Prescription programmes/activities, the target audience of the evaluation, and characteristics of the participants in Nature on Prescription. As such, comprehensive guidance with regard to evaluation is beyond the scope of this handbook. However, a number of key

considerations are discussed below. Bearing these considerations in mind and reference to the resources signposted in the resources should give nature-based providers a practical basis upon which to base an evaluation plan.

For many nature-based providers experience of evaluation to-date has been dictated by the requirements of funders or for funding applications. Specific types of data, be it quantitative, qualitative or a combination of the two (mixed-methods) can be used in evaluation and all of these types of data have a role to play in truly comprehensive evaluation of the outcomes and/or delivery of Nature on Prescription. However, certain audiences may understand or value one type over another and as such it is important evaluations are conducted with a target audience in mind. The primary role of service evaluation is to identify ways in which the intervention can be improved. Effective evaluation should capture the impacts of interventions in timescales that are relevant to those people making structural and funding decisions related to Nature on Prescription¹⁰⁸. A guide to quality assurance in social prescribing was produced in 2019 supported by the National Social Prescribing Network, and aims to support the ongoing development of social prescribing. A link to this work is in the Resources section of this handbook.

Different professions and sectors will have their own vocabularies and understandings of how the world works. This is a particular issue in Nature on Prescription where tensions are frequently evident with regard to the perceived efficacy of nature-based interventions, and even with the notion of “prescribing” of nature – which can be seen as medicalising these activities. It is important to acknowledge that individual stakeholders’ views will have been shaped by their experience, training and communities. There is inherent value in all perspectives and social prescribing offers a valuable opportunity for learning across sectors. Ultimately, all stakeholders have a common goal, the improvement of people’s lives. Nature based interventions often require *a coordinator who is able to speak (at least) two different ‘languages’: the language of healthcare and practice; and the language of nature and environmental engagement*¹⁰⁹. This is perhaps most essential when it comes to evaluation. A recent comprehensive review of outcomes in social prescribing reached a number of striking conclusions. To date outcomes measured are predominantly of the biomedical type, yet outcomes associated with the *social determinants of health are routinely not measured despite their relevance in social prescribing*¹¹⁰.

For further information about outcomes in social prescribing see the Additional Resources section at end of document



Nature-based Provider Advice: Outcomes

When choosing an outcome measure(s) there should be a logical mechanism or pathway (evidence based preferably) that links any outcome with the structure or activities of the Nature on Prescription intervention. The common outcomes framework for social prescribing is a useful point of reference¹¹¹.

- Use validated outcome measures that have been tested and shown to measure what they purport to measure, and are considered reliable and consistent.
- Collect baseline data. It is not possible to establish the degree of change in an outcome without data collected pre-intervention.
- Avoid selection bias, that is, avoid choosing who to include in an evaluation or using data from individuals or groups that are not representative of the target population.
- If possible, data should be collected from a control group, this is the only means by which to prove causation of effect using quantitative methods. It is also important to understand characteristics of those who do not complete the course, or who withdraw part way through.
- The practicalities of data collection should be considered, time may be limited and the only setting available to conduct evaluation work may be outdoors, as such, quick and easily administered outcome measures may be most appropriate.
- It is important to be sensitive to the impact of outcome data collection and potential burden of evaluation. Some individuals referred to Nature on Prescription are likely to have had significant prior interaction with health and social services and may be put off by further form-filling.
- Be aware of responsibilities with regard to data protection and privacy.
- Use quality criteria in the design of evaluation plans, specify the methods being employed.
- Longer follow-up periods should be considered, both to investigate whether changes mental health and wellbeing have been sustained, and to identify if there may be strategies/changes to programme content that may facilitate sustained improvement in outcomes.

Patient-centred, patient-generated outcome measures should be a consideration in Nature on Prescription. These measures are concerned with a person's unique experience of psychological distress, rather than focussing on defined disorders such as depression or anxiety. PSYCHLOPS is a good example of this type of measure (<http://www.psychlops.org.uk/about>).

Acknowledgements

We wish to acknowledge the crucial contribution of all those who have guided this handbook from inception to completion.

Organisations represented at our original stakeholder day on the eighth of February 2019 in Exeter:

- Aquafolium
- Butterfly Conservation (Devon Branch)
- Devon Local Nature Partnership
- Devon Patient Participation Group Network
- Eden Project
- Health and Environment Public Engagement group, ECEHH, University of Exeter
- Lived Experience Group @Mood Disorders Clinic, University of Exeter
- Nature Workshops Cornwall
- Newquay Community Orchard
- Somerset Wildlife Trust
- Surf Action Cornwall
- The Conservation Volunteers
- The Mersey Forest Team
- The Wildlife Trusts
- Wiltshire Wildlife Trust



The following organisations and individuals have consented to being publicly acknowledged for their contributions to our co-development workshops held in Spring 2021:

- Abi Sweet, Community Gardens Manager, Alive Activities
- Amy Plowman, Bumblebee Conservation Trust
- Anna Squires, Warwickshire Wildlife Trust
- Dr Martin Longley, Natural England
- Dr Simon Opher MBE, Walnut Tree Practice
- Elaine Bradley, Nature Prescriptions, RSPB Scotland.
- Ellen Devine, Forestry England
- Emily Crawley, The Ernest Cook Trust
- Emma Houldsworth, Founder/Director PLOT 22, Brighton & Hove
- Emma Molony, Double Elephant Print Workshop
- George Zito Inspired Neighbourhoods CIC

- Jenny Bailey, trustee & operational lead, Muddy Fork
- Jo Woodhams, Wiltshire Wildlife Trust
- Julie Plumley Director Future Roots/Countrymen UK
- Katie Davies, Active Dorset
- Kirsten Pullen, Wild Planet Trust
- Lizzie Moore, Public Health Registrar, PHE South East
- Lorna Fox, Head of Engagement and Learning, Gloucestershire Wildlife Trust
- Maria Clarke, Dorset Local Nature Partnership
- Natalie Ganpatsingh, Director, Nature Nurture CIC
- Orlando Rutter, Dartmoor National Park Authority
- Sam Henderson-Palmer, The Wave Project
- Stephanie Smith, Purpose Steps
- Victoria Peet, Froglife, Leaping Forward for Dementia
- The other participants who contributed to the workshops

And especially to

- Jonathan Reeves and William Walton-Freeman, Ecosystems Health and Social Dimensions Unit, Wildfowl and Wetlands Trust

We thank everyone who attended and gave their time so generously.



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Additional Resources

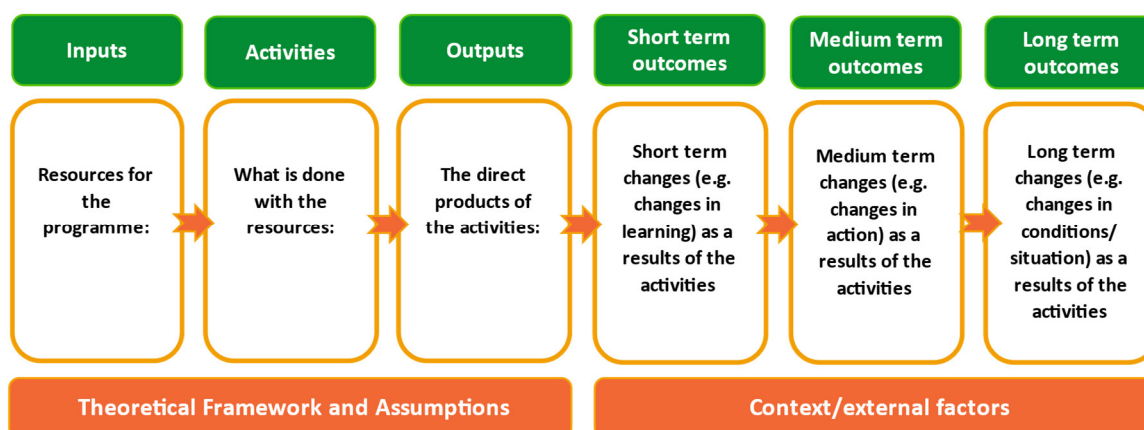
Further resources for learning about mental health in the UK

- The [mental health charity Mind](#) provides excellent information on mental health including introductions to common mental health problems.
- Estimated prevalence's of common mental health conditions broken down by a comprehensive set of demographic and social factors are [provided by NHS Digital, and National Statistics](#).

Further resources for learning about Social Prescribing in the UK

- A number of local social prescribing networks are now active in the UK and can provide information and support to existing and prospective Nature-based providers. [The National Social Prescribing Network provides information on regional networks](#).
- The [NHS England Social Prescribing Collaboration Platform](#) provides a resource for networking and collaboration.
- The King's Fund provide a [useful explainer on Social Prescribing](#), with links to further relevant policy and to recent evaluations of individual schemes and the different models employed in the UK.
- Some Local Nature Partnerships [have active health-focussed sub-groups](#) which are involved in regional development of nature-based interventions.
- The Kings Fund provide an explainer on the [how NHS England functions](#).
- [Information on Elemental](#), one of the systems used to collect information on Social Prescribing.
- Guidance from the [British Medical Association](#) on ensuring social prescribing is effective.

Further resources for describing and designing an intervention



Steps in developing a Theory of Change

- Guidance from the [Outdoor Learning Institute for Statement](#) of Good Practice on developing Outdoor Mental Health Interventions.
- Formal guidance on developing Complex Interventions by O’Cathain and colleagues.
- Understanding successful development of complex health and healthcare interventions and its drivers from the perspective of developers and wider stakeholders [by Turner and colleagues](#).
- The [What Works Wellbeing](#) centre has guidance on wellbeing, evaluation and intervention development.
- The [University of Derby’s](#) Five ways closer to nature resources.
- Resources for ensuring [quality assurance in Social Prescribing](#).





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