

Forestry, sustainable behaviours and behaviour change – a discussion paper¹

Introduction

This discussion paper explores what the current focus on behaviour means for the forestry sector, using evidence from the various review reports (see below). In doing so we outline some of the key principles of behaviour and behaviour change derived from theoretical insights and evidence from the evaluation of interventions.

This document has two main aims:

1. To explore how the contemporary focus on behaviour and behaviour change could be applied to forestry.
2. To identify research questions derived from gaps outlined in the evidence review that are pertinent to forestry.

We will use this document and the ideas developed in it to engage in dialogue with the forestry sector, to disseminate knowledge of behaviour and behaviour change and develop our research programme over the coming years.

Our overall review has resulted in the production of four documents. A [summary report](#) provides an overview of all the elements of our review, outlining the methods used and key findings. The [policy context report](#) highlights how behaviour change has become an increasing focus for government and how a behavioural approach is informing departmental policy making. In the [theory report we highlight key ways of thinking about behaviour and behaviour change](#) along with useful models and tools that help to generate insights into behaviour. The [interventions report illustrates the types of interventions that have been effective and highlights gaps in evaluative evidence](#).

In this paper we firstly explore what a focus on behaviour and behaviour change means for forestry, emphasising that this is not a new area for the sector. We then draw out some of the key behaviour change principles from our review. Following this, we illustrate our ideas and findings with forestry ‘vignettes’ that take a real and current issue as a case study and illustrate how behavioural insights could be applied through interventions to address each issue. Finally, we summarise research gaps identified in our review and illustrate how research can be used to inform future intervention design and delivery. We also set out a list of core research questions that can be used in discussions with the forestry sector to develop a programme for future research in this area.

¹ Contributing Authors: Jake Morris, Mariella Marzano, Norman Dandy, Liz O’Brien

Behaviour and forestry

Influencing behaviour is not a new area for the Forestry Commission and the wider forestry sector in the UK. A range of existing instruments, mechanisms and interventions are already used to encourage or discourage certain behaviours with the ultimate aim of achieving sustainable forest management and other sustainable behaviours. Forestry policy, grants and other incentive schemes, regulation, promotional campaigns, and a diverse range of funded programmes and projects are all examples of relevant activity within the sector. Correspondingly, a substantial amount of research has been done looking at the impacts and efficacy of interventions. The Social and Economic Research Group (SERG) at Forest Research (FR), for example, has carried out work to understand the perceptions, attitudes and motivations of a wide range of stakeholders in order to inform the design and implementation of interventions within the forestry sector². Perhaps of most direct relevance, SERG has evaluated a significant number of social forestry and greenspace interventions in order to assess their efficacy in encouraging or discouraging certain behaviours and to analyse their outcomes (see: <http://www.forestry.gov.uk/fr/INFD-5Z5ALT>). To date, however, the forestry sector's activities and related research in this area have not been set explicitly within the conceptual and theoretical frameworks of behaviour and behaviour change. One of principal aims of SERG's research in this area is to investigate how insights from research and practice within the behaviour change field can help to shape more effective interventions. For the purposes of this discussion paper we have found it helpful to conceptualise relevant existing interventions and behaviours within the forestry sector along lines illustrated in Figure 1 (below).

Firstly, there are those interventions that target behaviours leading to sustainable forest management, which might be referred to as '**input**' behaviours. Examples of this category would be grant schemes to encourage woodland creation, or forest management for biodiversity, or improved public access. Secondly, there are those interventions where the focus is on behaviours that lead to well-being benefits by encouraging and facilitating engagement with, and use of trees, woods and forests. These could be thought of as '**outcome**' behaviours. An example of this would be organising accompanied woodland walks to increase healthy exercise. Thirdly, there are interventions where there is a dual focus on sustainable forest management *and* well-being, these might be called '**input-outcome**' behaviours. Examples could include environmental volunteering schemes where volunteers help with the physical management of woodland sites and, through these activities, gain a range of well-being benefits such as improved physical and mental health. Table 1 (below) provides an overview of the key instruments, mechanisms and interventions used by the FC and other organisations within the forestry sector to encourage a range of input, outcome and input-outcome behaviours.

² See SERG webpage's <http://www.forestry.gov.uk/fr/peopleandtrees>

Figure 1: Conceptualising behavioural interventions within the forestry sector

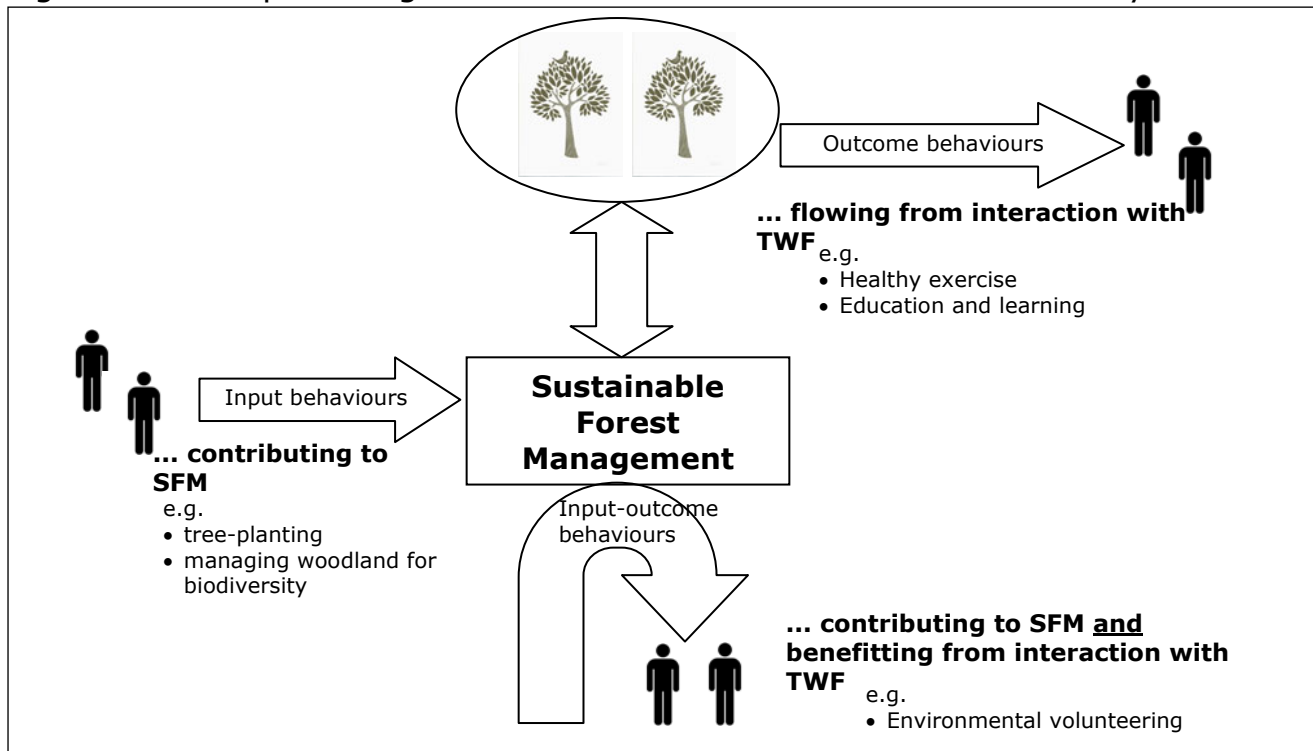


Table 1 (below) provides an overview of the key instruments, mechanisms and interventions currently used by the FC and other organisations within the forestry sector to encourage a range of input, outcome and input-outcome behaviours.

Table 1: Behaviour and current forestry mechanisms, instruments and interventions

Category	Intervention	Example	Targeted behaviour – input / outcome / input-outcome
STRATEGIC	Policy – strategies, targets etc. that give a clear steer and leadership on particular issues	FC country forestry strategies FCS Woods for Health strategy and Woods for Health action plan. FCE Woodfuel strategy FCW Woodlands for learning and the learning country.	Encouraging the use of woods for healthy activity and well-being (input). Encouraging businesses and landowners to adopt sustainable forest management practices and engage in the renewable energy sector (outcome).
	Grant Schemes and Challenge funds	English Woodland Grant Scheme Rural Development Programmes Better Woodlands for Wales Challenge funds – WIAT (Woodlands in and Around Towns), Health WIG (Woodland Improvement Grant), Forest School WIG	Focus on stimulating particular types of sustainable management behaviour and land-use by private forest owners, organisations, communities and business (input).
	Licensing and regulation	Felling licence regime	To maintain Britain’s existing forest cover and ensure forestry practice standards(input).
DELIVERY AND ENGAGEMENT	Targeted and funded interventions (includes Lottery Funded activity).	Active England, Big Tree Plant, WIAT, Heads of the Valleys and Western Valleys, Cyd Coed, Newlands (New Environments through woodlands)	These might have a focus on changing physical activity, improving local community spaces, encouraging use of local woods through woodland improvement. Changes to infrastructure, outreach, organised activities and led activities may also be part of these approaches (input, outcome, input-outcome).
	Education and learning schemes	Forest School, school trips to woods, ranger visits to schools, Forest	Encouraging use of woods by children and parents. Encouraging greater understanding

Category	Intervention	Example	Targeted behaviour – input / outcome / input-outcome
		kindergarten, Forest Education Initiative	about forests and timber, and sustainable forest management (outcome).
	Organised events and activities	Nature walks Health walks	A focus on encouraging use and familiarity with woodlands and increasing well-being (outcome).
	Public engagement	Forest Design Planning Public consultations Involvement in woodland management decision-making	Encouraging people to get involved and contribute to decision-making (input).
	Forest resource, infrastructure and facilities development	Greening NHS Estates in Scotland NHS Forest Mountain bike trails Woodland parks and forest centres	Improving infrastructure, such as walking trails, mountain biking trails, facilities such as cafes, toilets (input).
	Partnership working	Neroche and Grow with Wyre Landscape Partnership Schemes	Delivering more through partnerships by increasing range and scope of activity and expertise (input, input-outcome).
TRANSFER OF KNOWLEDGE / INFORMATION / EXPERTISE	Guidelines and toolkits	UK Forestry Standard and Guidelines Involving people in forestry toolbox Public engagement in forestry	Setting a standard outlines requirements for woodland owners and managers (input). Providing guidance to organisations about how to engage stakeholders and publics (input, input-outcome).
	Champions	Individuals who are proactive and passionate about creating change. Those involved in developing partnership projects (e.g. Neroche), community, recreation, education rangers that enthuse and inspire	Wide ranging depending on the project/activity but could include encouraging people to join a health walk, leading and enthusing volunteers, getting complex projects off the ground (input, outcome, input-outcome).
	Campaigns, promotions and information provision	Active Woods, Visit Woods.	Encouraging use of woods for healthy activity or encouraging the use of woods for a range of activities. Or increasing knowledge about what local woods people can visit (outcome).
	New/social media	Rate my woodland visit on FC web pages Phone apps to find forests to visit FC and other organisations facebook pages Campaign sites e.g. 38 degrees	Encouraging use and engagement with woodlands by providing information (outcome). Campaigns to protect access to woodlands (input).

Forestry Vignettes

In order to initiate discussions around how behaviour and behaviour change might relate to forestry and how behaviour focused research can be directed within the forestry sector, we have taken examples of current areas of policy and delivery and imagined how these might be taken forward. Here we present four 'vignettes' - short narratives describing behaviour-focused interventions that are informed by some of the key concepts, insights and principles to emerge from our review. They follow a common structure, briefly setting out the forest policy or management context and defining the issue, identifying target 'behavers' and behaviours, describing the intervention, and outlining a number of relevant evaluative questions. We have not sought to provide a comprehensive set of vignettes covering every type of intervention – although we do cover each of the three categories of behaviour identified above: input; outcome; input-outcome. Whilst each vignette addresses a real issue or problem, the descriptions of the interventions are fictional and are used primarily to illustrate how the key behavioural principles might be applied. These principles illustrate that interventions should:

- be based on a good understanding of individual's and groups' values, motivations, perceptions;

- target wider social environments rather than focusing narrowly on individuals;
- adopt a multi-faceted approach;
- facilitate active involvement by participants in intervention design and delivery.

Vignette 1: Promoting responsible use of forests to prevent wildfire

The issue

Wildfires (forest fires and grass fires) are increasing in frequency globally. In the UK alone there were over 58,000 wildfire incidents in 2010-11. Every year there are approximately 7,000 recorded wildfires in the Valleys region of South Wales alone (within Coed y Cymoedd Forest District). Tackling wildfires costs the South Wales Fire and Rescue Service (SWFRS) approximately £7m a year. There is strong evidence to suggest that the vast majority of wildfires are deliberately started. Research shows that residents believe that most fires are started by young people. There is also strong evidence that wildfires tend to occur in areas of relatively high social deprivation, which underlines the fact that there are social as well as environmental factors at play. With climate change it is expected that wildfire incidence is likely to increase because drier weather conditions will lead to an increase in the availability of combustible material. There is a clear need for interventions that address the behaviour of young people in wildfire areas to prevent this costly and dangerous activity.

An intervention promoting responsible use as an outcome behaviour

Informed by recent research to understand young people's motivations for fire setting, the SWFRS, working in partnership with Forestry Commission Wales (FCW) decide to initiate a programme of interventions targeted at changing the attitudes, values and behaviours of young people in the region. The research reveals a complex interplay of fire setting motivations, including boredom, thrill-seeking and fun, a general lack of engagement or sense of attachment to the forests and grasslands that surround towns and villages in the Valleys, and a sense of 'malevolent ownership' whereby young people think they have a right to do what they want to the land near to their communities. Research also reveals that young fire setters think of their actions as trivial and victimless. The SWFRS and FCW build on an understanding of these motivations, and develop a programme to encourage positive 'input' behaviours amongst young people.

They adopt a partnership approach and, working with a number of different agencies and organisations, including the police, local schools, parents' groups, youth groups and other community organisations, they initiate a multi-faceted programme both to raise awareness of and change attitudes to the problem, and to start to build positive community engagement with local forests and grassland areas. At the heart of this programme is the realisation that the problem cannot be addressed by local services and public bodies such as the police, fire services and schools working in isolation – families and communities must also get involved in the effort to change the behaviour of their young people. There follows an intense period of outreach and community

consultation to identify community Champions who can help to raise awareness amongst parents and families and to engage with young residents. Also central to the programme is the idea that local communities should be allowed and helped to develop a sense of attachment to, responsibility for and ownership of forests and grasslands. Plans are drawn up to designate special areas of woodland to be controlled by the community and powers are ceded to local community groups to draw up management plans for these areas. In many of these areas, young people are given places to hang out, make campfires and build dirt jumps for their mountain bikes.

Vignette 2: Expanding woodland cover in the UK

The issue

Increasing the area of woodland in the United Kingdom has long been the central mission for the Forestry Commission and remains a very high priority for the current devolved organisations. Recent policy-focused reviews have renewed and re-emphasised this objective with, for example, the *Read Report* identifying that more than 23,000 ha additional woodland per year over the next 40 years was required to help address climate change substantively, and the Independent Panel on Forestry's report suggesting an expansion of England's woodland cover from 10% to 15% by 2060.

As the majority of land in the UK is owned and managed privately, in order to achieve large-scale woodland creation the Forestry Commission must engage with private land-managers and seek to influence their decisions and land-management behaviour. Historically the production forestry mind-set has focused on economics and timber production, identifying less productive agricultural land as the most likely location for planting new woodlands. This has concentrated on forest planning, grants and other financial incentives as interventions to affect decisions and behaviour. However, recently rates of woodland creation and uptake of grants have reached their lowest levels for decades. New behavioural insights are beginning to open up novel ways of thinking about this type of behaviour which move beyond an exclusive focus on rational economic decision-making and recognise different opportunities for behaviour change.

An intervention to achieve woodland creation as an input behaviour

A Landscape Partnership focused on woodland creation is established with the Forestry Commission in a central directive and administrative role. The partnership includes land-agents, non-governmental and membership organisations, and other relevant public bodies such as local authorities. Its over-riding focus is on creating local interest in woodland creation, building momentum behind it to establish it as an 'everyday' dimension of the landscape.

It achieves this by engaging land-managers on a broad front and in a variety of ways; participating in and communicating through trusted existing networks, promoting the

multiple benefits and broad productivity of woodlands, hosting seminars and other events so that land-managers already creating woodland can introduce and demonstrate ideas to their peers, and otherwise facilitating networking amongst potential creators of woodland. Advisory visits are a crucial dimension of the partnership, delivered by various members of the partnership dependent on the specific land-manager's needs and interests. These visits focus on explaining the practicalities (i.e. simplifying) of woodland creation and elaborating the links between woodland creation and the achievement of the land-manager's existing objectives. Resources are targeted so as to identify key opportunities for land-management behaviour change, such as changes in land-ownership or the occurrence of local problems or crises, and engage managers in a meaningful way at critical points in their behavioural transition. The partnership's activities aim to create multiple opportunities for land-managers to reflect on their current practices, with incentives and planning used to ensure that losses are avoided as much as possible.

Vignette 3: Improving biodiversity through conservation volunteering

The issue

The Natural Environment White Paper (NEWP) highlights that we take the services, goods and amenity values that nature provides for granted, and this potentially puts these services at risk. NEWP focuses on the need to protect and improve the natural environment, grow a green economy and reconnect people and nature. One of the NEWP recommendations was to create a Biodiversity strategy; which, published in 2011, sets out plans to prevent further declines in biodiversity over the next ten years. Outcome 4 of this strategy states that "By 2020, significantly more people will be engaged in biodiversity issues, aware of its value and taking positive action". Therefore, interventions are needed that encourage and enable behaviours that can contribute to positive biodiversity outcomes *and* help people understand and value this biodiversity. One of the ways to achieve this is through conservation volunteering, which we can consider as an 'input-outcome' behaviour.

An intervention to increase volunteering as an input-outcome behaviour

To develop an intervention focused on this challenge the Forestry Commission draws on research to identify some of the factors that influence conservation volunteering. These include awareness of volunteering opportunities near to where people live, motivation and willingness to contribute, perceptions that volunteering will be enjoyable, a culture of corporate volunteering, and concerns about the skills required to volunteer. The focus then shifts to which organisations could be involved in encouraging volunteering and generating ideas for how these organisations could influence behaviour through different approaches.

Drawing directly on the 'key elements' model (*Materials & infrastructure; Images/meanings; Skills and competencies*) the intervention identifies businesses and their interests in order to encourage and exemplify corporate volunteering, providing staff with 1-2 days per year to undertake volunteering. The businesses organise the activities in partnership with volunteer providing organisations. A promotional campaign (e.g. Muckin4life) is developed that provides information and ideas of how to make a contribution and which organisations can help people find opportunities. Also, showcasing the image of volunteering as a fun, worthwhile and enjoyable activity. Institutional arrangements are made (e.g. Ecoschools) to encourage skills development through volunteering activities such as tree planting, training of teachers and assistants in outdoor volunteering activity and embedding an ethos of volunteering in school and business activities.

Vignette 4: Improving biosecurity through citizen science knowledge production

The issue

A key element of the 2011 UK Tree Health and Plant Biosecurity Action Plan is to increase professional and public awareness of tree pests and diseases. The need to engage wider society more fully in the safeguarding of UK tree health is now widely acknowledged. A key dimension of this is improving the ability and willingness of citizens to detect and report pests in support of official surveillance schemes. We can consider citizen science as an 'input-outcome' behaviour as it has a dual focus on sustainable forest management and the promotion of biosecure citizenship.

An intervention to increase knowledge production through citizen science as an input-outcome behaviour

Three key groups are targeted: first skilled amateur experts who already participate in species-focussed biodiversity monitoring, second the general public who have an interest in the environment and occasionally/regularly take part in relatively straightforward biodiversity monitoring initiatives (e.g. RSPB Big Garden Birdwatch; the UK Phenology Network), and third individuals or groups who have an attachment to or an interest/stake in local gardens and parks. A further 'group' consists of those who do not participate in outdoor activities or who feel they do not have the time, skills or inclination to volunteer.

The Intervention first requires knowledge of the extent and scope of the volunteer landscape to be able to engage with their values and motivations. For example, volunteer moth recorders are possibly more likely to be interested in pest moth species in their local area. There are a wide range of types of current and potential volunteers and thus a multi-faceted approach is needed to identify gaps in knowledge and other constraints and devise interventions for increasing volunteer skills and confidence in

identifying, recording and reporting tree pests and diseases. Promotional campaigns to recruit general public/visitors are likely to be more effective if the public are asked to look out for specific pests or diseases. As pathogens are difficult to identify, more specialised training will be required for those who are interested. Collaboration with partner organisations such as the Woodland Trust, National Trust and specialised organisations that campaign for and monitor species is essential. These organisations will already have a network of potential volunteers and the infrastructure in place to receive and check data, be available to answer queries and provide feedback. There will also be a need to address potential conflicts related to the social acceptability of pest management measures.

Past experience in biodiversity monitoring suggests that the involvement of volunteers in the design and delivery of interventions is often key to key factor in their success, particularly as clear guidance that encompasses a wide range of experience and skills is needed. Volunteers are also more likely to maintain involvement if they have close contact with organisers, are able to provide and receive feedback and their efforts are acknowledged (and possibly rewarded).

What role for research?

Behaviour focused research can inform policy and practice at multiple levels. It can seek to provide evidence to address specific questions and uncertainties relating to particular interventions or programmes. This might occur prior to the development of an intervention (e.g. through drawing lessons from previous similar interventions) or subsequent to its completion (i.e. evaluative questions pertaining to an intervention's impact on behaviour, either overall, or to the effectiveness of individual components). Behaviour-focused research can also ask broader questions through the application of theoretical insights, recording changes in behaviour over time, and facilitating critical reflection on both behaviours and interventions.

Future SERG research on behaviour and behaviour change could:

- seek to disaggregate the behavioural effects of specific interventions (such as those listed in Table 1 above);
- describe and analyse how behaviours change throughout (i.e. at different stages of) the implementation of a intervention;
- bring explicitly behavioural dimensions to monitoring and evaluation research;
- identify and investigate problems (e.g. political; ethical; practical) associated with particular conceptualisations of, or interventions aimed at, affecting behaviour;
- consider what level of capacity building is needed to facilitate and enable a particular intervention (e.g. citizen involvement in monitoring schemes) and, vice-versa, how can interventions build the capacity required for other sustainable behaviours to develop;
- assess to what extent various interventions have long-term impacts on behaviour beyond their implementation or funding period (e.g. do citizen science initiatives

focused on biosecurity lead to the development of the 'biosecure citizen' as a social norm, or do conservation volunteering result in greener lifestyles?);

- identify and describe the linkages between the Forestry Commission's facilitation role and the sustainable behaviours of other organisations, groups and individuals;
- provide guidance on how and in what circumstances the forestry sector can utilise effective behavioural methods and techniques (e.g. goal setting, self monitoring, the provision of feedback on performance).

Our aim now is to discuss with stakeholders the issues and research questions raised by the review in order to develop and take forward a programme of research that will inform the design of interventions to encourage behaviours that are supportive of sustainable forest management.