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Tracking the Impact

A valid monitoring approach for the
Buckinghamshire and Milton Keynes Local
Nature Recovery Strategy?



Linnet by Roy McDonald

Kath Daly and Lisa Meaney



Commissioned by Buckinghamshire and Milton Keynes
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Executive Summary

This work was commissioned to answer the question of whether Tracking the Impact (TTI) – a landscape-scale nature recovery monitoring programme developed by the Chilterns Conservation Board – could be scaled to work across Buckinghamshire and Milton Keynes to support the forthcoming Local Nature Recovery Strategy.

Overall, stakeholders expressed support in principle for the development of an extended monitoring scheme based on the TTI model.

Through workshops, and 1-2-1 interviews conducted as part of this work, stakeholders identified the necessary requirements for a monitoring scheme for Buckinghamshire and Milton Keynes. These requirements were grouped under the headings: pragmatic, scientifically robust, flexible, engaging, providing appropriate data, and, motivating and enabling action.

A broad consensus emerged that the existing TTI approach had the potential to largely meet these requirements. However, it was noted that certain aspects needed further clarification. Specifically, there was a need to clearly define the questions to be asked of the data in a scaled-up version of the scheme. Additionally, early indications suggested that adopting a TTI-style scheme could foster (rather than over-stretch) greater volunteer engagement, however, this requires further investigation.

Significant practical and resourcing challenges must be addressed for a scaled-up scheme to be viable. The long-term nature of the scheme would require long-term funding. An appropriate host organisation, potentially from an existing nature recovery anchor organisation in Buckinghamshire and Milton Keynes, would need to take responsibility for the initiative. In addition, ideally, the extended scheme should commence before the current Chilterns TTI scheme concludes in 2025. This timing is crucial to avoid loss of momentum and to retain valuable capacity including staff and volunteers.

The authors propose that a scaled-up scheme should be overtly recognised by all involved as a system. This system includes volunteers, farmers and land managers, data specialists (both national and local), environmental organisations, local authorities and funders – all playing integral and mutually dependent roles. To function well it is essential that individuals in different parts of the system understand each other's contributions and impacts, and can evolve the whole system together.

To achieve this, environmental organisations across the area need to deepen their collaboration in volunteer engagement, training, support, and development. There needs to be stronger emphasis on the need for monitoring to catalyse action as part of a wider plan for nature recovery, and on its role within an integrated package of support to land managers.

A scaled-up version of TTI offers an opportunity for environmental organisations of all sizes across Buckinghamshire and Milton Keynes to collaborate on monitoring. This collective effort could lead to broader collaboration for nature recovery action.

Several principles were proposed to guide the development of a scaled-up monitoring scheme, these include:

- Building and nurturing volunteer communities
- Understanding monitoring as part of a broader plan for nature recovery
- Supporting the whole system of which the monitoring scheme is a part
- Encouraging greater collaboration among environmental organisations
- Ensuring the data is available where it is needed and works hard for nature recovery

Three recommendations were put forward:

Recommendation 1: Initiate the establishment a TTI-style scheme across Buckinghamshire and Milton Keynes subject to the principles set out on p31. Aim to launch before the Chilterns TTI scheme comes to an end in 2025.

Recommendation 2: Make overt that the purpose of the monitoring scheme includes informing and catalysing appropriate action and reframe its structure as an integrated system.

Recommendation 3: Ensure adequate resources are secured before implementing the scaled-up scheme.

1 – Introduction

Tracking the Impact (TTI) is an award-winning landscape-scale wildlife surveying programme in the Chilterns National Landscape. It was developed as part of the Chalk, Cherries and Chairs Landscape Partnership funded by the National Lottery Heritage Fund.

Since 2020 when the TTI scheme was first developed, a team of over 250 volunteers have gathered over 20,000 species records in the Central Chilterns. TTI adopts tried-and-tested protocols used by National Monitoring Programmes, including the Breeding Bird Survey, Wider Countryside Butterfly Survey, and National Plant Monitoring Scheme.

Volunteer training and ongoing engagement and support in survey methodology and species ID is central to the success of the scheme, with a blend of online and in-field training plus ready access to local expertise including through an active WhatsApp group.

The TTI survey methodology generates estimated population and distribution trend data for birds, butterflies, and plants, across 78 x 1km squares in the central Chilterns. The aim is over the long term to provide a proxy for the state of nature at a landscape scale.

For more background information on TTI including scheme design see Appendix 1.

The Environment Act 2021 introduced a legal duty on responsible authorities to develop Local Nature Recovery Strategies (LNRS) across England. Although there is a requirement in the statutory guidance for future iterations of the LNRS to identify the actions for nature that have been carried out since the strategy was last published, and to map where significant actions have been taken in support of the strategy's priorities, there is no specific requirement to carry out monitoring of nature recovery as part of the LNRS, and no funding to support this. However, local partners in the NEP felt this was an important omission, particularly given the potential link between monitoring and action, and the need to provide essential data about trends and nature recovery for future iterations of the LNRS.

This prompted the commissioning of this brief research project to investigate whether scaling up the TTI scheme could serve as a valid monitoring approach for the LNRS and nature recovery efforts across Buckinghamshire and Milton Keynes. The main question to be addressed by this project is:

Is Tracking the Impact a suitable monitoring approach for the Buckinghamshire and Milton Keynes LNRS?

The brief suggested addressing this question primarily through expert input gathered via workshops and one-to-one interviews, supplemented by desk-based research.

This research was commissioned by the Buckinghamshire and Milton Keynes Natural Environment Partnership with funding provided by Natural England.



Duke of Burgundy on Cowslip by Roy McDonald

2. Methodology

The work took place over a 4-month period from November 2023 to March 2024.

During this timeframe, the methodology and key focus areas were refined through discussion with the Project Steering Group. Certain aspects of the brief were expanded upon. In particular, we decided to include volunteer citizen scientists as experts in delivering TTI on the ground. This led to the addition of a volunteer focus group to the research activity as well the authors' attendance at 2 volunteer events for the Central Chilterns TTI, and the involvement of volunteers in the stakeholder workshops and the project validation session.

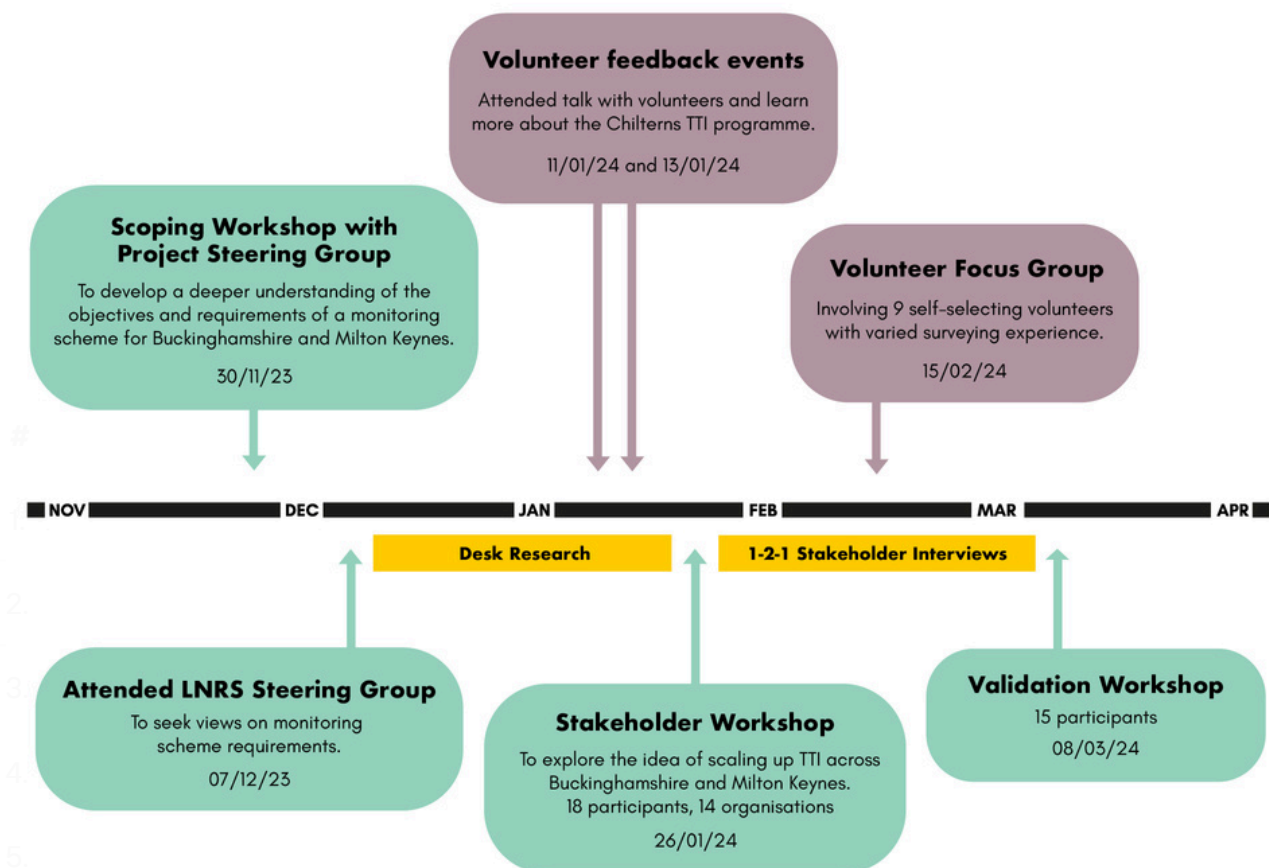


Fig 1: Methodology timeline

7. How important are factors such as price, convenience, and quality when making a purchase?

3. Key Findings

3.1 Requirements of a landscape-scale environmental monitoring scheme for Buckinghamshire and Milton Keynes LNRS

Stakeholder views on the desired requirements of a monitoring scheme were gathered through discussions with the Project Steering Group and LNRS steering group. These views were further refined through the stakeholder workshop, volunteer focus group and individual interviews.

A summary of the feedback received is presented in Figure 2, below, and serves as a baseline for subsequent discussions in this study. The diagram groups the requirements into 3 distinct but interconnected aspects:

- Process design
- Monitoring outputs
- Outcomes

Overall, there was a strong convergence of views amongst those we spoke to regarding these requirements.

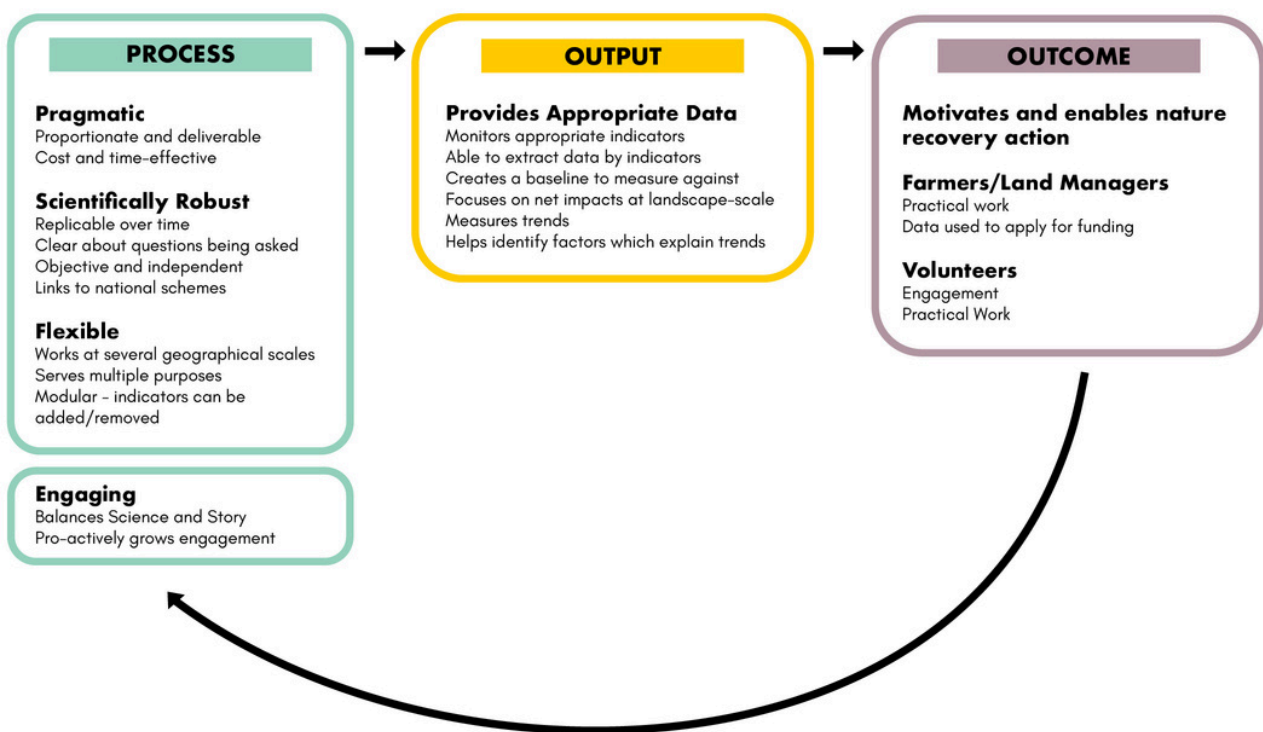


Fig 2: Stakeholder views on key requirements of a landscape-scale monitoring scheme for the Buckinghamshire and Milton Keynes LNRS

Key points raised by stakeholders in relation to requirements of a scheme:

1. Being scientifically robust is a fundamental requirement, meaning the scheme should be objective, replicable over the long term and independent of individual projects. It should also clearly define the specific question/s the data is intended to answer in relation to the priorities of the LNRS.
2. The scheme should be pragmatic, focusing on cost and time-efficiency, while capturing key trends and tracking the aggregated 'net' impact of all measures affecting the landscape, rather than individual projects or actions.
3. Adopting a modular approach where elements could be added or removed based on available resources and local priorities - could enhance cost-effectiveness. For example, a core set of indicators (e.g. birds, butterflies and plants) could form the basis of the scheme, with additional optional indicators added or removed subject to resources or other factors.
4. Flexibility is essential, allowing the scheme to operate and extract data at more than one geographic scale. There is also a need to be able to extract data by specific indicators or groups of indicators e.g. farmland birds.
5. Selecting the right indicators for monitoring, is key to providing appropriate data for the landscape in question, along with being able to measure trends and help identify factors that explain reported trends.
6. Engaging, motivating, supporting, and training volunteers are essential components for a successful monitoring scheme, not a 'nice-to-have'.
7. Enabling action for nature recovery through the story the data can tell is important.

***' Data tells an accessible and engaging story
- it excites people, it's not just a graph.'***

Steering Group Member

8. Stakeholders acknowledged the linkages and trade-offs between different requirements. For example, balancing the comprehensiveness of data ('monitors appropriate indicators') with its deliverability ('proportionate and deliverable'). Similarly balancing the ability to work at different geographic scales with the survey effort required to be 'scientifically robust'; and linkages between positive engagement with volunteers and robustness of data.

3.2 How well would a scaled-up TTI scheme meet these requirements?

We asked stakeholders to assess the strengths and weaknesses of a scaled-up TTI-style scheme for Buckinghamshire and Milton Keynes. We then compared this to the scheme requirements outlined earlier.

Overall, there appeared to be a good fit between what a scaled-up TTI scheme could offer, and the scheme requirements identified by stakeholders. However, in some cases, a more detailed scheme design or feasibility study would be needed to form a definitive conclusion. (See figure 4, p27)

It is important to note that this exercise involved assessing a hypothetical future scenario, with a degree of fluidity around what constitutes the fixed characteristic of a TTI-style scheme. Therefore, these findings should be viewed as a general guide only, subject to full feasibility and scheme design.



Stakeholder Engagement Workshop for Environmental Organisations College Lake, Buckinghamshire, by Kath Daly

Key reflections from this exercise are as follows:

1. Funding and economies of scale

Scaling up could potentially bring efficiencies of scale, especially if it builds upon an existing scheme like the Chilterns TTI scheme, currently due to end in Spring 2025.

NB: this research explicitly excluded feasibility and cost-benefit analysis, so these aspects would still need addressing as part of any proposals for a scaled-up scheme.

2. Scientific robustness

TTI was carefully designed to be scientifically robust, incorporating features such as an adequate sample size (sufficient squares for statistically valid results), a semi-randomised distribution of squares, and high-quality support and training for volunteers.

With appropriate technical guidance, investment in volunteer training and an understanding of necessary compromises around what to include or exclude it seems reasonable to assume that scientific robustness could be maintained in a scaled-up scheme.

3. Flexibility

TTI meets many of the identified requirements around flexibility. For example, TTI has been designed to address the challenges of multi-scale monitoring using national protocols, and careful design around how the local scheme data is used within the National Monitoring Schemes.

TTI was highlighted as a case study in a recent JNCC review of monitoring biodiversity effectively at different scales [1]. The review concluded that there is 'significant potential for improving environmental recording, and for increasing the applicability and efficiency of data collected' through multi-scale biodiversity monitoring approaches, potentially leading to 'increased ability to make robust recommendations for policy and conservation action.'

An added feature of the TTI scheme is that the same 1km squares are used for recording the three different taxonomic groups. This co-location of recording opens up the future potential to explore correlation/ attribution of change across taxa. This is something that JNCC are currently exploring.

[1] Harris, M. and Hoskins, H. (2024) Review of monitoring of biodiversity effectively at different scales (Guidance report) JNCC Report 756

4. Engaging and motivating volunteers

Growing the engagement of volunteer surveyors was considered critical to success. It was noted from discussion with stakeholders that this should not be taken for granted in a scaled-up scheme as it requires the right blend of skills, resources, and scheme design to make this work effectively.

Retaining the sense of community within the volunteer network at a larger scale was identified as a potential challenge.

5. Explanatory factors

TTI survey data cannot directly provide explanatory factors for species trends identified, however, it can provide a basis for further investigation. For example, whilst not directly monitoring habitat condition, TTI data does potentially provide an indication of areas for further investigation into reasons behind species population change in different habitats.

'There is increasing awareness that changes in bird populations may be used to identify changes in the quality of particular habitats or signal wider environmental decline.'

[BTO website](#)

6. TTI monitors appropriate indicators

Broadly speaking, the indicators selected for TTI (birds, butterflies, and plants) were seen as a good foundation for a scaled-up scheme. These three indicators were carefully selected for the Central Chilterns scheme based on being relatively accessible to citizen scientists, widespread, responsive to environmental change and relevant to the main habitat types across the area. These same factors would equally apply across the expanded area.

Additional indicators could be considered and potentially added to an expanded scheme, (see 3.6 for further discussion), but these would best be decided once the LNRS is further progressed and priorities and measures for nature recovery have been agreed.

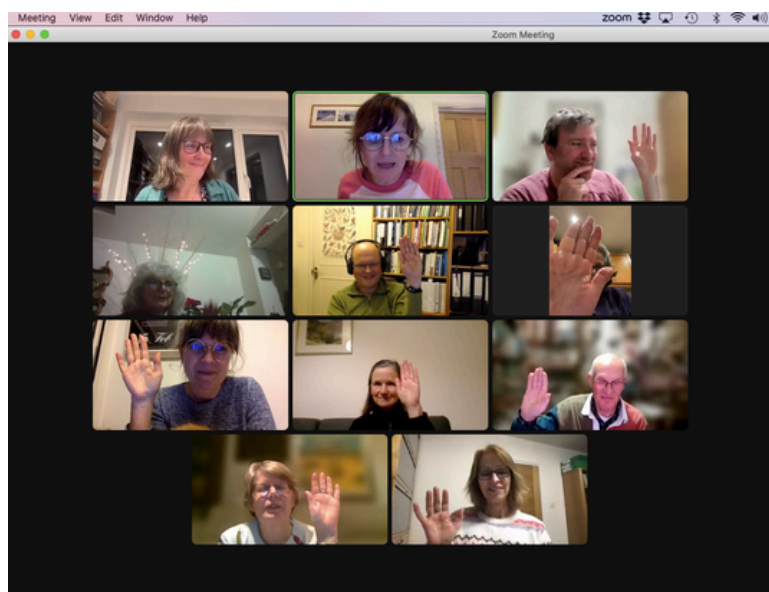
3.3 Added Benefits – Volunteers

TTI volunteers at the focus group spoke of their experience in a variety of ways: the joy of learning, of getting to know a local patch and understanding more about how it works, and the experience of being in and developing a better connection with nature. Some spoke directly about how their involvement with TTI had enhanced their health and well-being. They also spoke in positive terms about the quality of the online and in-field training (survey methodology and species identification).

These findings aligned well with those from a TTI volunteer survey carried out in 2022 by the independent evaluator for the Chalk, Cherries and Chairs Landscape Partnership, and completed by 44 volunteers which found that ‘overall, people are finding the TTI volunteer programme overwhelming positive.’

Table 1 (below) groups the benefits arising from volunteering as identified by TTI volunteers at the focus group under 5 themes: learning, sense of purpose, sense of place, nature connectedness and health and wellbeing.

During our discussions, we heard anecdotal examples of a wider ‘ripple effect’ of involvement with TTI, for example of people inspired to do more for nature either independently or through their community networks, in one case going on to set up a new environmental group. It would be useful to track these wider impacts and explore how prevalent they are amongst the volunteer cohort as part of a more in-depth evaluation of the scheme.



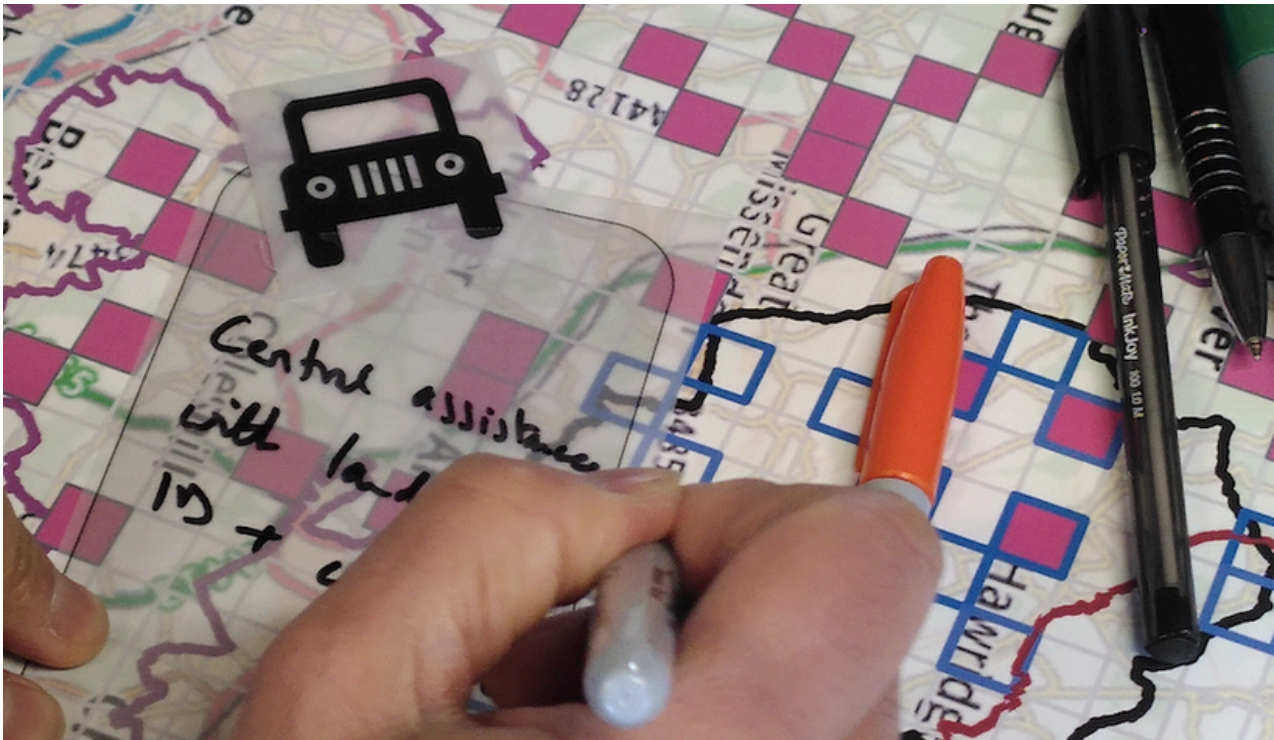
Online volunteer focus group session, by Lisa Meaney

Theme	Added benefits - Volunteers
Learning	<ul style="list-style-type: none"> • Putting learning into practice • Can access trainers all year • High standard and local relevance of the training • Passing on knowledge to family, 'infecting' friends!
Sense of purpose	<ul style="list-style-type: none"> • Being outside and with a purpose • Helping to turn things around • Helping the landowner and having an end goal for nature • Contributing to a bigger project
Sense of place	<ul style="list-style-type: none"> • Getting to know my patch • Already doing practical volunteering - completes the circle
Nature connectedness	<ul style="list-style-type: none"> • Pleasure of glancing at a butterfly and knowing what it is • Enjoyment of beautiful mornings • Connecting to particular birds in particular trees
Health and wellbeing	<ul style="list-style-type: none"> • Contact with people opportunity to talk about nature • Gives you confidence - your world expands • Good for mental health, relaxing, makes you look and hear

Table 1: Volunteer feedback on benefits of involvement in TTI based on volunteer focus group 15/2/24



TTI Volunteers, supplied by CCB



Sharing perspectives on landowner engagement, workshop for environmental organisations, College Lake, Buckinghamshire, by Lisa Meaney

3.4 Added Benefits – Farmers and Land Managers

Relationships with farmers and other land managers were highlighted as integral and significant aspects of the TTI approach in the Central Chilterns. Providing farmers and land managers with information from the surveys was seen as helping catalyse and support positive action on the ground, and was described as ‘making conversations with farmers easier’. This was partly enabled by the existence of project funding to support the Central Chilterns farmer cluster and practical conservation initiatives. Nonetheless, the sense that their survey data had led to positive action was an important source of motivation for many of the volunteers we spoke to.

Time constraints meant that we were not able to meet with farmers/land managers as part of this research (and it was not a part of the brief) however, a previous case study looking at the Central Chilterns Farmer Cluster referenced the way that farmers had come to appreciate the wildlife surveys taking place on their land.

Building trust and confidence between different parts of the system (farmers/ land managers, volunteers, and conservation organisations) is crucial.

3.5 Blockers and Enablers

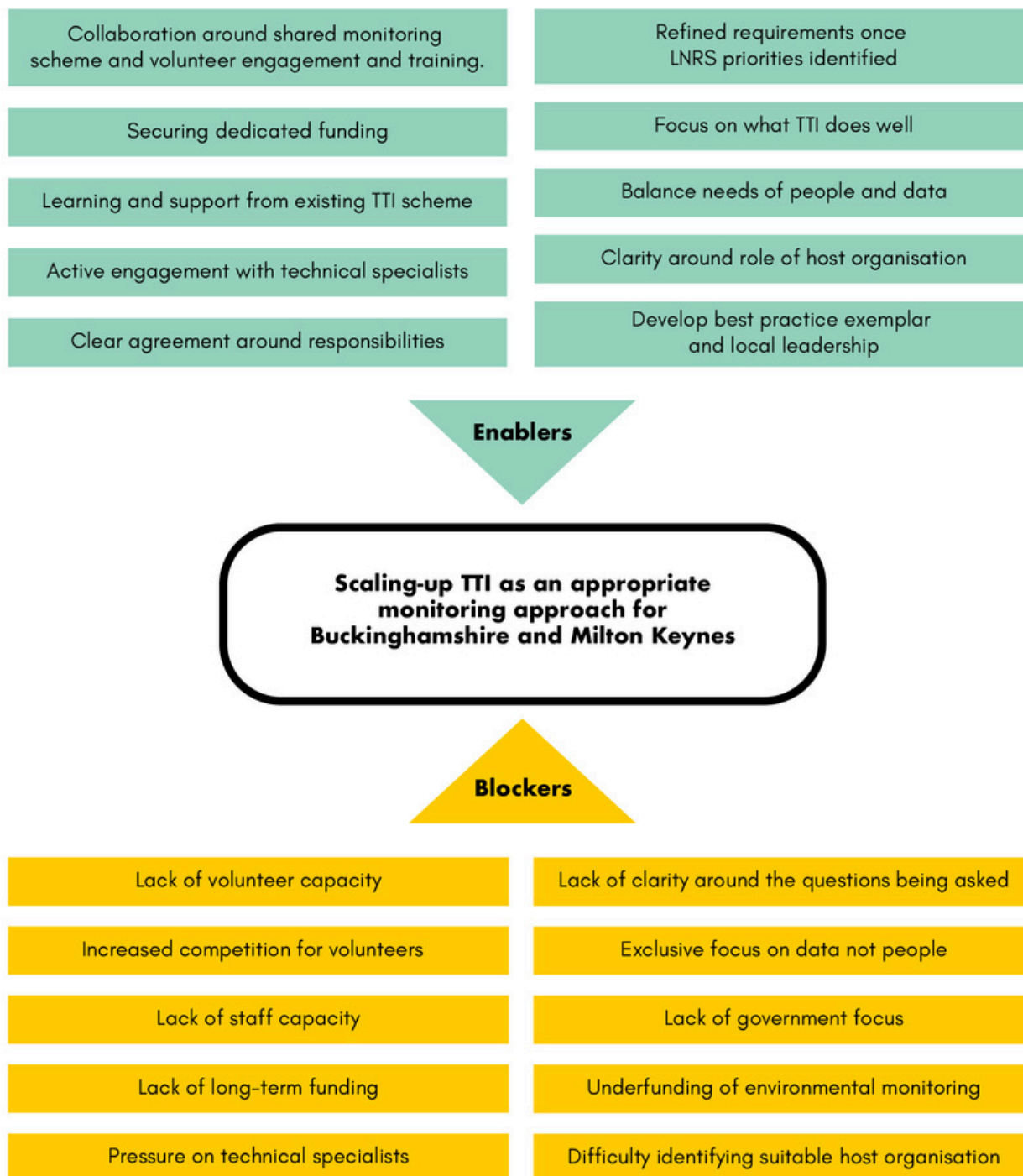


Fig 3: Blockers and enablers to scaling up TTI

In this section, we summarise and reflect on stakeholder views on potential blockers and enablers to scaling up TTI across Buckinghamshire and Milton Keynes.

We have reviewed these issues under 3 broad headings:

- Capacity and resources.
- Data and technical expertise.
- Leadership and inspiration.

3.5.1 Capacity and resources

Theme	Blockers	Enablers
Volunteers	<p>Concern about volunteer capacity and increasing competition for volunteers</p> <p>Over-emphasis on data above the needs of those who collect it.</p>	<p>Strengthened collaboration within the environmental sector to support volunteer training and engagement, creation of a volunteer community and signposting volunteers to a range of opportunities across the sector.</p> <p>Achieving a balance between the needs of data and of the people who collect it</p>
Staffing	<p>Lack of staff capacity to undertake key tasks including: developing and managing the scheme, engaging, training and supporting volunteers, building a sense of community between different parts of the system, managing and analysing the data, and interpreting and communicating the findings.</p>	<p>Learning and support from the existing scheme</p>
Funding	<p>Lack of long-term funding</p>	<p>Embedding a strong collaborative approach to monitoring as a key component of the LNRS delivery could strengthen the case for long-term funding.</p>

Volunteers:

Volunteer capacity was seen by some stakeholders as a significant challenge. Concerns were expressed around whether a scaled-up scheme would take volunteers away from existing surveys or practical conservation activity and increase competition between organisations for volunteers and resources.

There were early indications from this research that the approach taken through TTI in fact had the potential to expand rather than over-stretch the volunteer base and lead to more volunteering overall. None of the volunteers we spoke to at the focus group described doing any less for nature since taking on the TTI surveys; many described doing more because of their involvement in TTI - see Appendix 2. Volunteers pointed out that the time required to undertake the surveys was relatively modest at around 10 - 12 hours per season per square/taxa, including time for setting up and carrying out the survey and data entry.

It is important to note that the volunteer focus group was relatively small (9 people) and self-selecting, so could not necessarily be considered a representative sample. However, the findings seem to align with a 2022 TTI volunteer survey which found that 72% of respondents (total number respondents = 44) were either new to or returning to surveying after a break, or had expanded their volunteering to take on TTI.

There are other encouraging indications too that TTI has the potential to expand the volunteer base. None of the national schemes have reported a drop in their coverage in the area covered by the existing TTI, and some have reported increased coverage - for example, the British Trust for Ornithology reported the highest-ever Buckinghamshire coverage this year. (TTI squares are counted separately to the main National Monitoring Scheme squares.)

Of the possible 78 x 1km survey squares available in 2023, 72 were covered for the Breeding Bird Survey, 47 for the Wider Countryside Butterfly Survey and 43 for the National Plant Monitoring Scheme. This is a very good level of take-up particularly for the bird surveys.



A TTI Volunteer sharing their experience at the stakeholder workshop for environmental, organisations College Lake, Buckinghamshire, by Lisa Meaney

In addition to the survey squares, many of the volunteers also take up additional training and surveying opportunities offered, for example, amphibian and reptile surveys, site-based rapid habitat assessments, farmland bird surveys. Around 120 people - mostly volunteers or prospective volunteers attended the 2 volunteer thank-you events this January.

A strong investment in volunteers through the existing TTI programme seems to have produced very positive results in developing an expanded pool of enthused volunteers. This has been the result of a clear engagement plan with a significant focus on training and support, and on making clear how important the work of the volunteers is, and communicating its impact.

A scaled-up scheme could be treated as an opportunity for organisations to come together across the sector and invest in the development of a skilled, and enthused volunteer base with the hope that many of them would go on to work across multiple initiatives and organisations. Again, we would recommend a volunteer survey to begin to drill into this further.

A strong sense of community has been developed within the existing scheme, including through a dedicated and active WhatsApp group with 150 members, a mix of experts and volunteers contributing to ongoing and informal discussions around a wide range of wildlife and survey-related topics. There are also opportunities to meet through training and feedback / 'thankyou' events. Volunteers we spoke to saw this community as an important component of the success of TTI. Replicating this in a scaled-up version was seen as a potential challenge, albeit not insurmountable. It may be that there needs to be several different landscape-based groupings across the area, each with its own training and support programme.

Balancing the needs of data and people can be a challenge. For example, from a data perspective, survey squares with little wildlife interest are as important as those teeming with rare species. From a surveyor's perspective, dull squares can be demotivating - although some volunteers manage to find interest in the dullest squares.

'My square is one of the most boring ones if you look at it on the map, but it can still provide some interest in unexpected ways'

TTI Volunteer

Volunteers at the focus group had several ideas for maintaining surveyors' interest and confidence, for example through buddying/mentoring more and less experienced surveyors.

Other suggestions to build public engagement included a two-tier system with several options for involvement from a sightings-based approach to the full survey. The aim would be for people to move through to the full survey in time. Alternatively, there is the option of developing rolling surveys where people cover different sites, although this would take more organisation.

Staffing:

One of the challenges identified was recruiting the right staff to develop and manage the scheme. The coordinator needs an understanding of the requirements of the data and survey protocols, but also highly developed people skills, capable of engaging, enthusing and orchestrating a wide range of volunteers, together with technical specialists, and land managers/ farmers.

The success of the current scheme was seen as strongly linked to the skills, knowledge, and highly engaging approach of the current coordinator.

Some volunteers indicated a potential interest and willingness to play a role in volunteer coordination. This is an approach successfully adopted by the national schemes which have voluntary local organisers.

Funding:

Funding was identified as a significant challenge by many stakeholders. The methodology requires many years of data before conclusions can be reliably drawn, so there needs to be a level of confidence that funding will be long-term, not a sequence of short-term projects in different locations. A phased approach was suggested as an option, starting up across one part of the area at a time, so long at sufficient scale to ensure the robustness of the data, and so long as once started each area could be continued.

Embedding landscape scale monitoring into the LNRS raises the prospect of developing a funding model whereby all funded activity to deliver the LNRS priorities seeks to include, as a matter of course, a contribution towards the Buckinghamshire and Milton Keynes-wide monitoring programme.

3.5.2 Data and technical expertise

Theme	Blockers	Enabler
Technical specialists	Pressure on capacity of technical / ecological specialists (locally & nationally)	<p>Continued active engagement with technical specialists (local and national) maintaining positive support</p> <p>Agreement on who is responsible for data analysis and its interpretation and communication.</p> <p>Dedicated funding for specialist / technical input as required</p>
Clarity and limitations of data	<p>Lack of clarity around the questions the monitoring is designed to answer</p> <p>Trying to do everything with one monitoring scheme</p>	<p>Identified LNRS priorities, will point to clearer questions</p> <p>Focus on what TTI does well</p>

Technical specialists:

Technical and ecological specialists (local and national) have played a crucial role in the development and operation of the Chilterns scheme, and it will be important to ensure the right expert input is available to develop a scaled-up scheme.

The degree to which this is a challenge is likely to vary between organisations. One of the national organisations involved has already indicated that expanding support to the whole of Buckinghamshire and Milton Keynes would be manageable, another indicating that more resource may be needed if the current scheme were to be scaled up. Extending such a scheme across other LNRSs is likely to require additional funding for the national schemes.

Clarity about questions and limitations of data:

There was broad agreement that a scaled-up scheme could provide valuable, scientifically robust landscape-scale data, over the long term.

There was a call for clarity around what questions TTI and a scaled-up TTI can and cannot answer, the limitations of the data and how it would be used.

Rather than trying to be an 'all singing and dancing' scheme, the sense was that a scaled-up TTI scheme should focus on what it does well and that in doing so it had the potential to make a crucial contribution to monitoring nature's recovery across the area.

From a data perspective, it was noted that the need is not just for a certain number of volunteers but also for an element of predictability in skill level and experience. It was advised that ideally many volunteers would be involved long-term, becoming more experienced and skilled over time.



Female Yellow Hammer, College Lake, supplied by CCB

3.5.3. Leadership and political will

Theme	Blockers	Enablers
Leadership	<p>Lack of focus on landscape-scale monitoring across DEFRA policies and programmes</p> <p>Budgetary constraints and underfunding of environmental monitoring</p>	<p>JNCC and various national initiatives in particular the <u>Natural Capital and Ecosystem Assessment Programme</u> (NCEA) are actively exploring ways of designing schemes that can address the need for landscape-scale monitoring that works at local and national levels.</p> <p>Local leadership in Buckinghamshire and Milton Keynes see the need for and benefit of environmental monitoring at the landscape scale.</p> <p>Opportunity for shared learning and influence by putting in place a best practice scheme.</p>
Hosting	Difficulty identifying suitable host organisation	Opportunity for leadership

Leadership:

There is a lack of clear government focus on landscape-scale environmental monitoring as part of the LNRS and other DEFRA policies and programmes such as ELMS. Nonetheless, there is a requirement for a review once every 3- 10 years of progress in delivering LNRS priorities. Inevitably, data will be required to support this review.

National:

There is a large research project underway across the DEFRA group - the Natural Capital and Ecosystems Assessment Programme (NCEA), which may bring more focus on monitoring over time. The NCEA was set up to 'collect data on the extent, condition and change over time of England's ecosystems and natural capital, and the benefits to society.'

JNCC meanwhile are developing a resource library for local monitoring, to encourage consistent use of methods across the UK. Within this TTI could become a key case study demonstrating how landscape scale monitoring can be achieved. In addition, JNCC are currently investigating analytical uses of the TTI data, to share with others who may want to use TTI methods.

It is possible that in time these initiatives will enable a stronger link between land management policy, practical action on the ground and landscape-scale monitoring of nature recovery. Meanwhile, local partners are showing leadership for example through commissioning this research and exploring ways of embedding monitoring into the LNRS.

A host organisation would be needed to manage a scaled-up scheme, to ensure that the right systems were in place and to employing dedicated staff. This host organisation would need to sit above and be separate from the management of individual projects and have a clear understanding of the needs of TTI volunteers as well as TTI data. Whilst a host is needed, shared ownership of and partnership support for the scheme would also be key to success.

Shared learning and influence:

Tracking the Impact is attracting interest as a model for multi-scale environmental monitoring. This includes winning the 2022 BTO Marsh Award for Local Ornithology for TTI's potential as a replicable landscape-scale monitoring model, and TTI being highlighted as a case study in a JNCC guidance report (Harris, M. and Hoskins, H., 2024). This recognition creates an opportunity to garner support and resources as well as potentially influence practice more widely through case studies and shared learning.

3.6 Additional indicators

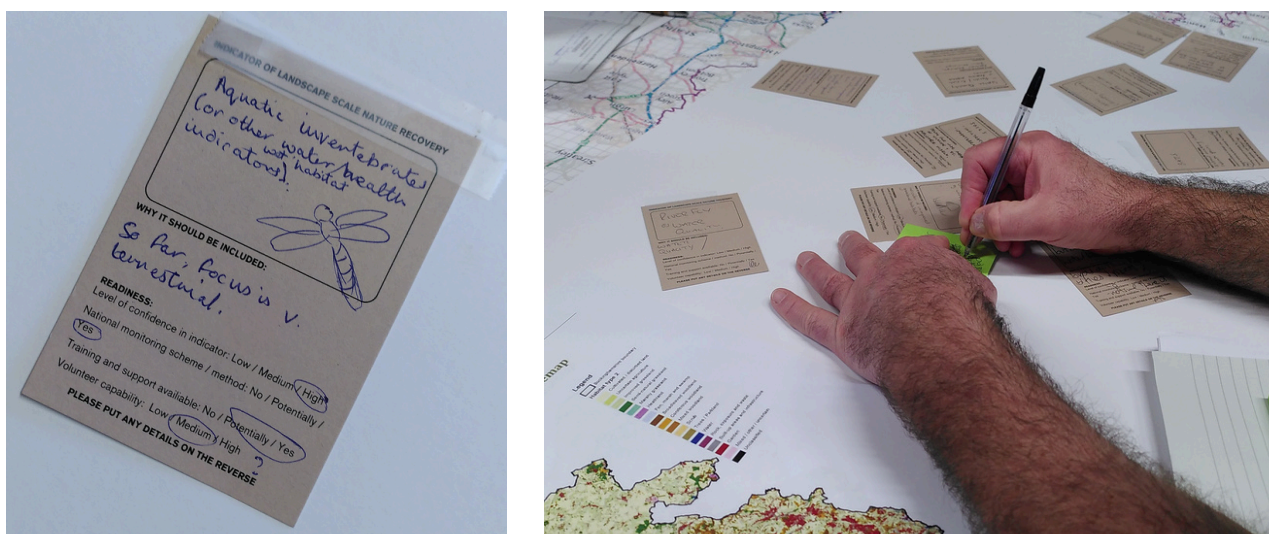
We asked people for their thoughts on indicators for landscape-scale monitoring of nature recovery in Bucks and Milton Keynes, and whether there was a case for any additions to existing scheme indicators (birds, butterflies, and plants). It is important to acknowledge that as the LNRS has not yet been developed, decisions on indicators would be premature, as they would need to reflect decisions on the specific questions to be asked **of the data**. The addition of any indicators would need to be justified based on the ability **of** additional data to answer key questions of interest.

We found good support in principle for the continued use of the existing indicators for a scaled-up scheme. These indicators were carefully selected based on their responsiveness to changes in the environment, suitability for citizen scientists to survey and having national monitoring schemes in place.

Various additional indicators were suggested, and people were asked to score each suggestion in terms of confidence about the suitability, existence of a national monitoring scheme, volunteer capability, training and support available.

As a result of this process, bats emerged as the strongest contender to be considered for an extended scheme, depending on the final decisions about questions to be answered by the monitoring. The Bat Conservation Trust host several different national monitoring schemes, and provide good support for these schemes, several of which are appropriate for non-specialist surveyors. Bats rely on several different habitats so are a good indicator of habitat diversity and connectedness as well as invertebrate availability.

River fly monitoring was suggested as another potential addition, however, whilst a useful group to monitor (and there are several different monitoring schemes available), the conclusion following discussion with stakeholders was that this is outside the scope of the TTI scheme as river fly monitoring is river corridor-based and not designed to give trend data on species populations.



Exploring indicators of nature recovery at the stakeholder workshop for environmental organisation, College Lake, Buckinghamshire, by Lisa Meaney

Invasive non-native species were suggested as a negative indicator however, as far as we are aware, other than for individual species, there are no national monitoring schemes in place suitable for a citizen science based approach.

3.7 Extraction of data to multiple geographies and distribution of squares

At the Stakeholder Workshop (26/01/24) we invited participants to consider whether there were areas within Buckinghamshire and Milton Keynes that they would want to be able to extract trend data for. The main needs identified were: Milton Keynes Council area
Buckinghamshire Council area, Chilterns National Landscape.

There was also a request to consider being able to cut the data to river catchments, particularly where there is a river catchment partnership.

There is a precedent for adding in river catchments, with the Chess Catchment having been added into TTI in the Central Chilterns. However, the benefit and practicability of replicating this across the whole area is not clear-cut for several reasons, including the variety of different river catchment areas (main river, sub-catchment etc) and differing views around the merits of which to use. Also, there was a query around whether it would be any more useful for the catchment partnership to have trend data on part of their catchment than simply looking at the Buckinghamshire and Milton Keynes-wide data
This needs further consideration at the design stage.

There was significant interest in including urban areas in the monitoring particularly in Milton Keynes. The Chilterns TTI methodology excludes squares considered to be primarily urban, for several reasons, including difficulties in recruiting interested volunteers, user experience and sampling issues. It was suggested that to monitor species within urban areas a more customised approach should be considered. Useful guidance on urban biodiversity monitoring can be found in Marion,S. & Hoskins, H. (2024) (2).



Considering the geographic boundaries of trend data at the stakeholder workshop for environmental organisations College Lake, Buckinghamshire, by Lisa Meaney

(2) Marion, S. & Hoskins, H. (2024) Review of opportunities for urban biodiversity monitoring (Guidance report). JNCC Report 754, JNCC, Peterborough, ISSN 0963-8091

4. Conclusions

Tracking the Impact meets most of the identified requirements and there is strong support in principle for developing an extended scheme across Buckinghamshire and Milton Keynes.

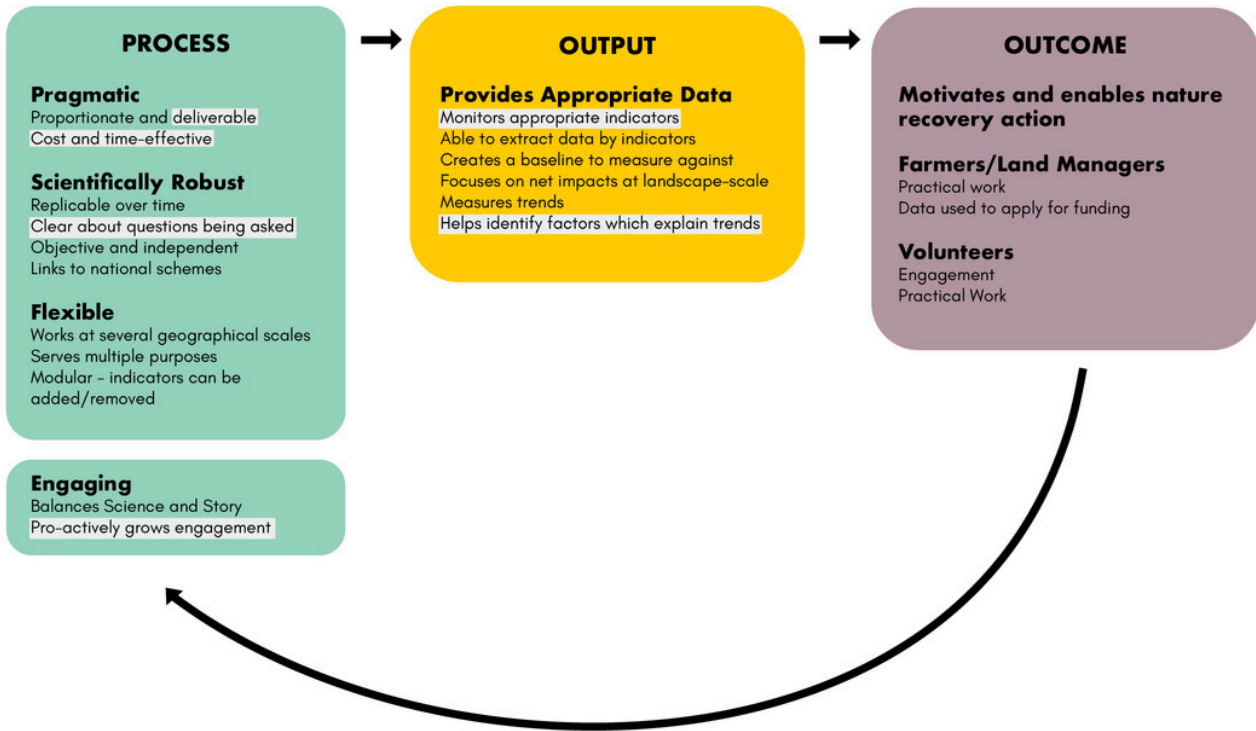


Fig 4: Diagram showing in white requirements that need further design or feasibility study

Volunteers at the focus group were also strongly supportive of the idea of a scaled-up scheme and had ideas for ways in which existing volunteers might support this development.

There are several practical challenges which need addressing if the scaled-up scheme is to go ahead:

—The need for ongoing funding. Costs and feasibility, along with potential funding sources were out of the scope of this work and will need to be addressed at the next stage.

—The scheme needs a host organisation. The host organisation would need to be specifically resourced to carry out this function and would either need an existing remit to work across Buckinghamshire and Milton Keynes, or an agreement to be put in place to carry out this work. It is essential to ensure, whichever organisation were to host that they have the support of a strong collaborative partnership of organisations involved with and supporting the scheme.

– Without further funding, the Chilterns TTI scheme will come to an end at the end of this survey season. The existence of the Chilterns scheme is potentially a significant source of expertise and support for the development of an extended scheme and its loss would be a significant setback to this.

– Many organisations raised concerns about volunteer capacity, and questioned whether an extended scheme result in spreading the volunteer resource too thinly, or increase competition between organisations for volunteers and resources. The feasibility of recruiting and retaining additional volunteers for an extended TTI was also questioned. It was noted that organisations have a growing list of aspirations for volunteer time and a sense that this could dilute effort.

However this research found early indications that with a well-designed scheme and the right support, an extended TTI could grow rather than diminish the pool of volunteers, with potential benefits to a wider range of local initiatives. This needs further testing, and we have made a recommendation that a volunteer survey would begin to test this.

‘Ultimately people will gravitate towards opportunities they find engaging enjoyable and work for them. Volunteers are not a resource to be deployed in a top down way.’

TTI Volunteer

Tracking the Impact can be part of but not the whole solution to understanding the trends in nature recovery across Buckinghamshire and Milton Keynes. It needs to be seen as complementary to other monitoring approaches for example in relation to rare and protected species, surveys requiring specialist skills or site-based surveys. It is important to understand the limitations of the data. It is also important to clearly articulate the reason for collecting the data and how it will be used to inform and contribute to nature recovery as part of the case for support and communication of findings.

Building trust, understanding and confidence, between different parts of the system is key: farmers/ land managers, volunteers, and conservation/advisory organisations. This research has highlighted the links between data and action, thus involving land managers/ farmers so that they are able and willing to hear and act on what the data is showing is essential. It is important to continue to build understanding of how different system interact and how those relationships might best be supported. Given its remit and reach, the NEP is well placed to support the development and operation of these relationships as a system.

There was an appetite amongst several of the volunteers we spoke to for a stronger relationship with the farmers /landowners whose land they were surveying which warrants further consideration. In considering this it is important to recognise potential issues in terms of management of volunteer expectations and supporting ongoing motivation even where the population trends are not improving on the square they are surveying.

Reflecting on the discussion around volunteer capacity, there is also a case for looking more closely at the relationships between environmental organisations within the area and how to shift the dial more from competing to collaborating around recruitment and support of volunteers.

'If the land managers aren't joined up as well, then you're just collecting data and recording how many deck chairs are on the deck of the Titanic at the moment before they get washed away'

Conservation group member



Bee Orchids, supplied by CCB

5. Principles for landscape-scale monitoring in Buckinghamshire and Milton Keynes

Principle 1:

Building and nurturing volunteer communities is as important for the long-term success of the monitoring as ensuring the scientific robustness of data.

Principle 2:

Landscape-scale monitoring is part of a wider plan for nature recovery, it supports and acts as a catalyst to action as part of an integrated approach.

Principle 3:

The monitoring scheme functions as a system.
Volunteers, farmers and land managers, data specialists, environmental organisations, local authorities and funders are all part of this system.

Principle 4:

Environmental organisations of all sizes across Buckinghamshire and Milton Keynes are invited to collaborate to create the landscape-scale monitoring scheme and support volunteers.
This joint effort drives wider collaboration for nature recovery action.

Principle 5:

Data is available across the system where it is needed, and is made to 'work hard' to support action on nature recovery

6. Recommendations and next steps

Recommendation 1: Initiate the establishment of a TTI-style scheme across Buckinghamshire and Milton Keynes subject to the principles set out in the previous section. Aim to launch before the Chilterns TTI scheme comes to an end in 2025.

This research indicates a strong case for supporting a scaled-up TTI-style scheme across Buckinghamshire and Milton Keynes to provide landscape-scale monitoring for the LNRS. Nationally there are very few examples of time and cost-effective landscape-scale monitoring (Tinsley-Marshall, 2021) and Tracking the Impact is recognised as a well-designed and successful model, already operating in parts of Buckinghamshire. So long as the Chilterns TTI scheme is still operational there is an opportunity to develop the extended scheme alongside it, which would bring efficiencies and potentially mutual support and assistance. Current funding for the Chilterns TTI scheme ends in spring 2025.

To build the case for support we recommend a further round of engagement, including further exploration of issues with existing and potential volunteers.

Next steps:

- Seek a response from the LNRS steering group to the conclusions and recommendations of this report.
- Identify host organisation.
- Form a small advisory group including representatives for each part of the system, to guide the establishment of an extended scheme.
- Seek initial funding to support detailed design, partnership building and initial hosting costs.
- Conduct a survey of existing TTI volunteers, and volunteers elsewhere across Buckinghamshire and Milton Keynes to sense check and explore in more depth the findings of the volunteer focus group. There may be an opportunity for a TTI volunteer survey to be carried out as part of the independent evaluation of the Chalk, Cherries and Chairs Landscape Partnership.
- Hold a focus group with land managers/ farmers to seek their input on scheme design.
- Hold a gathering of environmental groups of different scales that foster volunteering to seek their views and input to scheme design.

Recommendation 2: Make overt that the purpose of the monitoring scheme includes informing and catalysing appropriate action. Reframe the scheme to function as an integrated system.

The goal of landscape-scale monitoring for the LNRS should be twofold: first to gather information and secondly to inform and serve as a catalyst for positive actions that ultimately support nature recovery. Whilst a TTI-style approach does not in itself detail which specific species trends are linked to which actions, the population trend data generated can spark investigations into causality, and thus appropriate action?

It is crucial to clearly articulate this aspect, both to inspire volunteers and to highlight the scheme's relevance to delivering LNRS priorities.

Recognising that the monitoring scheme functions as a system, there is a need to clearly communicate this concept and develop buy-in to this approach.

Next steps:

- Consider how to represent all parts of the system in the ongoing development and steering of the scheme, including volunteers, farmers and land managers, environmental organisations, technical specialists, and the local authorities.
- Explore the human learning system approach and agree how to communicate TTI as a system; create learning opportunities so that the whole system learns together and from each other ('Human Systems Learning Approach').

Recommendation 3: Ensure adequate resources are secured before implementing the scaled-up scheme.

Implementation can be phased, but it is essential to ensure that the scheme is adequately funded and resourced to fully adhere to the five principles set out in the previous section. This means allocating enough resources – both financial and personnel – to support the scheme's requirements and objectives effectively.

Next steps:

- Develop detailed scheme design and costings to provide the basis for funding bids. Include technical review of additional indicators, and geographic boundaries for data extraction.
- Develop funding proposal and case for support.

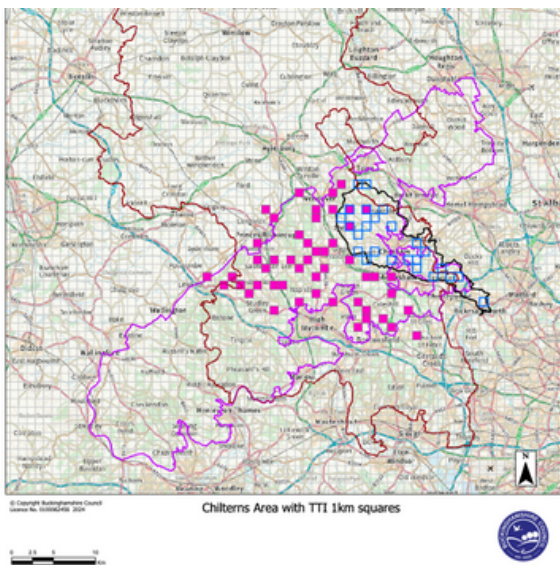
Appendices

Appendix 1: Background to Tracking the Impact

Tracking the Impact (TTI) is an award-winning landscape-scale wildlife surveying programme in the Chilterns National Landscape, part of the Chalk, Cherries and Chairs Landscape Partnership hosted by the Chilterns National Landscape and funded by the National Heritage Lottery Fund.

TTI is entering its fifth survey season this spring (2024). To date a team of over 250 citizen science volunteers have gathered over 20,000 species records in the Central Chilterns. TTI adopts tried-and-tested protocols used by National Monitoring Programmes, including the Breeding Bird Survey, Wider Countryside Butterfly Survey, and National Plant Monitoring Scheme to record bird, butterfly and plant species across 1 km squares. The original number of squares was 50. This was expanded in 2023 to include 22 squares in the Chess Catchment as part of the Thames Water funded River Chess Smarter Water Catchment project and 6 squares on National Trust land in the Buckinghamshire Chilterns bringing the total number of 1 km to 78.

The map below shows both the original TTI squares (in pink) and the added Chess Catchment squares in blue.



The surveys will, in time, produce estimated population and distribution trend data for birds, butterflies, and plants with the aim of providing a proxy for the state of nature at a landscape-scale.

TTI was developed by the CCB in partnership with Butterfly Conservation, Plantlife, British Trust for Ornithology, BMERC, BBOWT and the UK Centre for Ecology and Hydrology. The use of existing national survey protocols has had many advantages, including support for data entry, storage, validation, and management, as well as access to training materials which have then been customized for a more local delivery.

TTI is based on a stratified semi-random sample of 1km squares, taking account of the distribution of woodland and farmland across the project area. Squares considered to be primarily urban or with more than 30% outside the project boundary are excluded.

The three different surveys (birds, plants, and butterflies) are co-located, with volunteer opportunities to undertake all three surveys on the same square. This co-location of recording opens up additional opportunities to explore correlation/ attribution of change across taxa. This is something that the JNCC are currently exploring.

A programme of volunteer training and ongoing support in survey methodology and species ID is central to the scheme, with a blend of online and in-field training plus ready access to local expertise including through an active WhatsApp group.

In addition to the structured surveys, volunteers are offered opportunities to get involved in other, more site / farm-based initiatives with associated training including reptile and amphibian surveys, Rapid Habitat Assessment of chalk grassland sites, and farmland bird surveys.

TTI was designed within the context of a wider approach to farmer engagement, habitat restoration and land management as part of the NLHF funded Chalk, Cherries, and Chairs Landscape Partnership. This integrated approach - linking advice and engagement, practical work, and citizen science - is evident when looking at impacts and the experience of those involved.

Appendix 2: Workshop + Focus Group Summaries

Scoping Workshop – Project Steering Group, The Gateway, Aylesbury
30/11/2023

Participants:

Lewis Dickinson	The Parks Trust, Milton Keynes
Charlotte Newberry	Berkshire, Buckinghamshire, and Oxfordshire Wildlife Trust
Caroline Svendsen	Natural England
Nicola Thomas	Buckinghamshire and Milton Keynes Natural Environment Partnership
Nick Marriner	Chilterns Conservation Board

Purpose: To explore steering group member views on the requirements of a monitoring scheme for Buckinghamshire and Milton Keynes.

Table 1: Scheme requirements as identified by the Project Steering Group.

Scheme requirements	Explanation
Pulls in and out of national schemes	Links to national schemes where relevant and appropriate. Feeds into, and can extract data from national schemes.
Helps identify explanatory factors	Helps identify factors which explain the trends.
Measure trends	Measures changes over time.
Proportionate and deliverable	Simple enough to be deliverable at scale, within available resources, whilst detailed enough to capture the key trends. Tracking aggregated impact not individual projects.
Cost and time efficient	Cost and time efficient.

Able to extract data by theme	The data can be extracted from the survey results by theme (species, habitat condition and extent, other environmental factors e.g. soil, air quality).
Sets appropriate themes	The monitoring themes chosen (e.g. species taxa, assemblages, habitats, soil, and air quality etc) are representative of the local landscape area and answer the questions set.
Sets a baseline	Creates a baseline to measure against.
Scientifically robust	Quality assured, robust method agreed by experts.
Objective and independent	Is outside of and independent of specific projects, sitting above and across them.
Replicable over time	The survey can be replicated in the long term.
Modular	Elements of the survey can be added or removed depending on resources and capacity.
Works at many scales	The survey works at many geographic scales - both in terms of being carried out and extracting data. It works for the different habitats present across Bucks and MK.

Stakeholder Workshop -The Barn, College Lake Nature Reserve
26/01/2023

Participants:

Nick	Bowles	Butterfly Conservation Trust
Lorna	Clark	Forestry Commission
Lewis	Dickinson	Parks Trust, Milton Keynes
Colin	Duncan	Tracking the Impact Volunteer
Alison	Harrell	Parks Trust, Milton Keynes
Neil	Harris	National Trust
Martin	Harvey	Independent Advisor & UK CEH
Debbie	Lewis	Berkshire, Buckinghamshire, and Oxfordshire Wildlife Trust
Nick	Marriner	Chilterns Conservation Board
Charlotte	Newbury	Berkshire, Buckinghamshire, and Oxfordshire Wildlife Trust
Rebecca	O-Shea	Environment Agency
Hilary	Phillips	River Thames Conservation Trust
Amy	Read	Buckinghamshire and Milton Keynes Environmental Record Centre
Matthew	Sharp	Buckinghamshire Council
Gavin	Siriwardena	British Trust for Ornithology
Phil	Snell	Milton Keynes Council
Caroline	Svendsen	Natural England

Purpose: To seek stakeholder opinions on the appropriateness of scaling up Tracking the Impact across Buckinghamshire and Milton Keynes, and the Strengths, Weaknesses, Opportunities and Threats of such an approach. Participants asked to assume role of 'critical friend.'

The workshop began with an overview of the Tracking the Impact scheme: Nick Marriner, Chilterns Conservation Board gave a general overview, Colin Duncan, Tracking the Impact volunteer described the volunteer experience and Gavin Sirwardina, British Trust for Ornithology discussed survey methodology and data management.

Activity 1: Indicators of nature recovery at landscape scale

Using 'Top Trumps' style cards, participants were asked to share ideas about potential indicators. This included giving reasons for their suggestion and indications of readiness - by describing for instance whether relevant National Monitoring Scheme and volunteer training and support programmes already exist for the indicator. Participants were also asked to comment on the suitability of the indicator for volunteer surveying. As a separate question the boundaries for extraction of data were discussed.

The indicator that were suggested with the highest levels of confidence were bats and aquatic indicators e.g. riverfly.

Table 1: Stakeholder suggestions for potential additional indicators for landscape-scale monitoring scheme

Indicator of landscape scale nature recovery	Why should it be included?	Readiness			
		Confidence in value as indicator	National Monitoring Scheme Y/N	Training and support available	Volunteer capability needed
Bats	National monitoring schemes & indicator species	High	Yes	Yes	Medium
Bat species presence/community structure	Easy to record/ repeatable	Medium	Potentially	Yes	High
Hedgerows, veteran trees, bats	Connectivity of habitat across landscape				
Hedgerow trees	Hedgerow continuity. Trees diseases				
Woodland Condition: area under management plans (including deer and squirrel management plans)	May already be indicated by other species. Monitoring of essential actions for improvement	Medium	Yes		
Water quality of ponds and rivers	Consider discharge from sewage				
Riverfly / water quality	Water quality				
Riverfly monitoring (ARMI scheme)	Water quality indicator	High	Yes	Yes	Low/ Medium
Aquatic invertebrates (or other water/ wet habitat indicators)	So far, focus is very terrestrial	High	Yes	Yes	Medium
Water quality, riverfly	Sensitive to changes	High	Potentially	yes	High
Soils infiltration	Proxy for wide array of wildlife & ES Applicable	Medium	Potentially	Yes	Low
Soils	Foundations of environment				
Euplacmasic lichen	Air Quality				
Pollinators	Important ecoservice Popular	Medium	Yes (species)	Potentially	Medium /High
Splat squares' to track biomass	Kent Wildlife Trust is trialling this now		No	No	Medium
Dragonflies/ damselflies	Easy to record (relatively)		No		
Invasive Species	Monitoring and early warning	Medium	Potentially	Potentially	Medium
Grassland Fungi e.g. waxcaps	Indicators of unimproved grassland habitats	Low	Potentially	No	Low
Existing indicators are good, hard to imagine what needs to be added					

Activity 2: SWOT Analysis

Participants were asked to share the most important thing from their individual reflections. These are summarised below.

Strengths

- Increase knowledge of key species and habitats, and motivation to conserve them
- Would be the best-quality environmental monitoring of this kind in the UK (& the world)
- Robust, transferrable, replicable methodology
- Complements existing surveys
- Well-being benefits for participants (including landowners?)
- Train and encourage local champions
- Positive feedback loop to inform land management
- Engaging and enthusing volunteers and landowners/ farmers
- Increasing skills and awareness

Weaknesses

- We haven't defined the question (what will the data be used for/ how?)
- Only engaging certain demographics
- Possible diversion of resources from practical conservation
- Resources - long-term need for volunteers, funds, staff
- Can't attribute changes to actions - landscape scale trends only
- Very terrestrial - gap in wetland (and some river health monitoring)
- Length of time it takes to get to really useable landscape scale data
- Gaps include rare species
- This is only one (super-important) piece of the monitoring needed
- Access - permission needed on private land to survey (especially plants)

Opportunities

- Provide free learning opportunities and experience to keen naturalists
- Encourage other areas to collect data in the same way thus generating better local, regional, national data
- Could assess effectiveness of LNRS by comparing recovery outside vs inside LNRS priority areas
- Increased ecological literacy - awareness that nature is everywhere
- Create early warning system for change
- Linking Citizen Scientists with technology
- Create a movement for change
- Engage a large new group of people in their LOCAL wildlife (local patch = awareness that nature is everywhere)
- Tap into LNRS funding

Threats

- Who owns this across Bucks and MK? BMERC? Who anchors it, where is it best managed from?
- The wider the area the greater the risk of opposing responses from stakeholders
- Lack of long term funding
- Demographics of volunteers
- Lack of political will/ government focus
- Lack of engaged volunteers
- Technology - mobile devices
- Diverse local recording methodologies cause confusion
- Narrow focus
- Diversion of resources (people, money)

Activity 3: Volunteer capacity

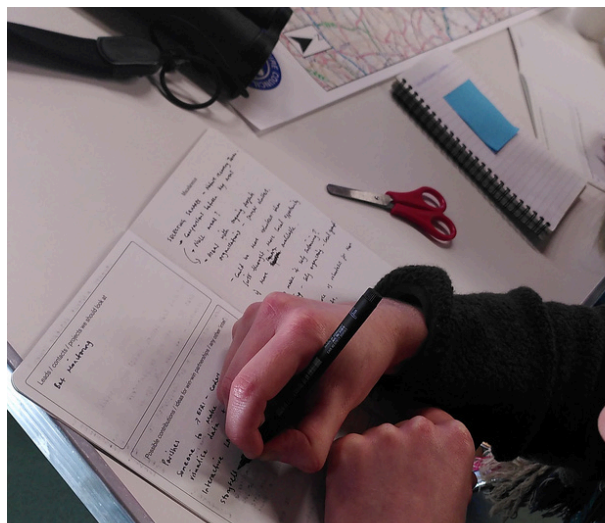
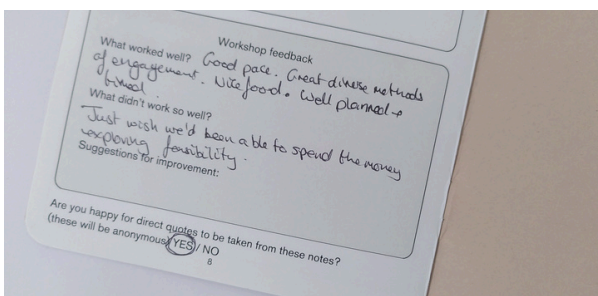
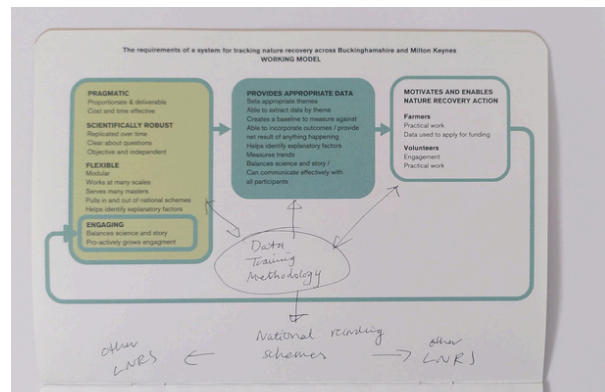
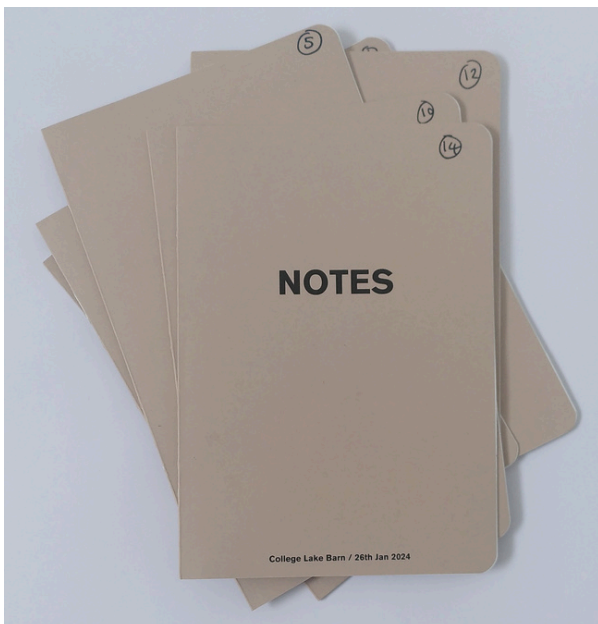
Participants were asked for reflections on building volunteer capacity.

The key themes that emerged were:

- Need for resources for training, and volunteer coordinator
- The role of the coordinator is critical
- Supporting volunteers at scale brings new challenges
- Importance of focusing on volunteer needs
- Need to manage volunteer expectations especially with less interesting squares
- Engaging on multiple platforms
- Potential to involve existing volunteers in expanding the networks

Activity 4: Personal note book reflections.

Participants were provided with individual customised notebooks. These were used to record personal reflections throughout the workshop. The notebooks contained a number of prompts and diagrams for annotation. These included an early diagram describing the requirements of a landscape scale monitoring scheme, a SWOT template for a scaled up version of TTI, prompts to share leads, contacts and ideas for win-win partnerships that might support a scaled up scheme, and an invitation to share feedback on the workshop. These notebooks were used as a source for this report.



Activity 5 - Conclusion

Participants were asked to record their current thoughts on TTI as a monitoring approach for Buckinghamshire and Milton Keynes. The overall response was a clear but qualified yes.

Quotes in participant notebooks responding to the question of whether a scaled-up scheme should be developed are transcribed below:

"Yes, if we can get sustainable funding it will be well worth it to evidence the change that is happening and how we can further focus efforts and resources"

"Yes, - properly resourced and with river/ wetland monitoring included."

"The idea is sound and TTI is great proof of concept, but the focus needs to be articulated clearly."

"TTI looks well-coordinated, sound, a great model to roll out further - tweaks needed to ensure fewer biases."

"Will need more work to get us all clear on the question but go for it."

"Resourcing will be a huge sticking point...also what is the approach not telling us"

"Let's get it planned and delivered ASAP!"

"It depends on what we are trying to monitor."

"Yes, we should support scaling up the existing scheme, but we need to define why/what we are collecting data for or else it will fail."

"I would absolutely use the TTI model for a cross B&MK project."

"TTI would be a great method to use when combined with other methods for more rare species monitoring,

"Get on with it as we need to get the baseline going!"

Volunteer Focus Group - Zoom call

15th February

Participants: Tracking the Impact volunteers - Barbara, Colin, Emma, Lavinia, Mark, Maryann, Sarah, Sue & Tim

Participants were recruited through a general invitation on the TTI WhatsApp group. There was a good range of experience amongst the participants, from those who had only done the training so far to those who had carried out surveys for all 3 seasons. There were volunteers on the call involved in each of the three survey types (birds, butterflies, and plants)

Note: This focus group was not part of the original brief, however the authors felt it was important to hear the voices of the surveyors/ volunteers who actually carry out the work on the ground. This view was reinforced after attending the TTI volunteer celebration events on 11th and 13th January. Here the interconnectedness of different parts of the TTI system were highlighted. For example, the link through to practical action with the farmer cluster and also the fact that volunteer activity under the TTI 'umbrella' was far broader than the three core surveys, extending for example to rapid habitat assessment and reptile surveys.

Purpose: To find out about the volunteer experience on the existing TTI scheme as it is now, and volunteer perspectives on the possibility of a scaled-up TTI across Buckinghamshire and Milton Keynes.

Activity 1: Quick fire group discussion

What is it that brought you to volunteer for TTI?

Was in a local project – sought out related things, saw I could benefit from training and bring it back to local project

Change of habitat (out of home area)

Contributing to knowledge of what nature was doing and influencing policy

Working with Chiltern Rangers – practical volunteering for nature's benefit – TTI enables me to complete the circle

Always interested in nature – wanted to improve ID skills and contribute to nature recovery

Prepared to involve anyone with no experience and not have expectations

There is a special partnership between vols and professionals which is very rewarding

What works well about TTI?

Feedback about how nature recovery is progressing – hearing about the results

WhatsApp chat where people share things – you learn so much

Showing what you found to landowners – raising awareness

Seeing places that I wouldn't otherwise see

Having access to expertise

Building relationship and changing landowner perceptions

Seeing things that are not in your realm! E.g. scarlet fungi.

Fantastic training

Brilliant because it gives you confidence – you end up talking to people – your world expands

What keeps you volunteering?

Keeping learning & enjoyment – someone will always tell you something you didn't know

Contact with people – opportunity to talk about nature locally – including with farmers

Connecting to particular birds in particular trees – the most relaxing thing, good for mental health. Coming home from London and talking about butterflies. Connects you to what is important, makes you concentrate on what is happening around you.

Getting to know my patch – recognising and noticing – feeling attachment

I believe that without nature we are badly affected – enables you to learn and help – turning things around

Pleasure of glancing at a bird or butterfly and knowing what it is

Contributing to a bigger project – having sessions where Nick tells us what we know from the surveys and what we are contributing to

Being outside and with a purpose

Beautiful mornings, stunning

If we are doing it, we can encourage others to join us

Activity 2: Hands up if...

We asked participants to raise their hand if yes was their response to the following questions:

You stopped doing something else environmental to start doing TTI?

- 0 / 7 hands up

If you didn't do any environmental volunteering before TTI?

- 7 / 9 hands up

If you think TTI leads to action on Nature Recovery

- 8 / 9 hands up

Activity 3: How could volunteers support a scaled up TTI? – Group Discussion

The key themes that emerged were:

- Sharing resources e.g. ID tools etc and transport
- Spreading the word and helping to recruit other volunteers
- Supporting each other – mentoring and helping to set up survey squares
- Organising social meet-ups and swapping notes with others surveying the same or neighbouring squares

Appendix 3: Desk research summary

We carried out a rapid desk research exercise, seeking to identify examples of comparable landscape-scale environmental monitoring approaches from elsewhere in the UK. As mentioned in several of the reports below, compared to site-based monitoring, landscape-scale monitoring is complex and very much in its infancy.

Nature's Sure Connected: Kent Wildlife Trust, 2021 [1]

This Kent Wildlife Trust (KWT) initiative set out to develop a framework and practical approaches to landscape-scale monitoring. The work was developed by KWT together with over 100 conservation organisations around the UK in recognition of the challenge and complexity of landscape-scale monitoring, and the lack of coherent frameworks and guidance.

The project report (Tinsley-Marshall et al., 2021) sets out five key themes, one of which – arguably the most relevant for this current research project – was biodiversity trend assessment at landscape scale.

Stakeholder consultation highlighted how few organisations were able to effectively evidence the outcomes of their landscape-scale conservation actions and underlined the need for approaches to be efficient and cost-effective.

P30 of the report refers to a piece of work by Pocock et al. (2015)[2] which lists and prioritises relevant attributes of biodiversity monitoring programmes. There is a strong alignment between this list and the requirements identified for a Buckinghamshire and Milton Keynes scheme.

Chapter 7 looks specifically at biodiversity trend assessment at landscape scale and considers the advantages and disadvantages of such monitoring schemes including the Breeding Bird Survey, the National Plant Monitoring Scheme and the UK Butterfly Monitoring Scheme. Interestingly, the Chilterns TTI scheme successfully addresses two of the three key disadvantages identified (thanks to NLHF funding) – ‘not resourced adequately to provide sufficient coverage at county and sub-county/ landscape scale’ and ‘insufficient data to generate trends at county and sub-county scales.

Overall, this is a useful piece of work which offers helpful insights and case-studies. There was a good alignment with many of our findings, and it would be useful to refer to this work at the design stage for a Buckinghamshire and Milton Keynes scheme.

[1]Tinsley-Marshall, P.J., Riggs, A., Skilbeck, A., Ball, L. & Still, R. (2021) Nature's Sure Connected: A practical framework and guidance for evidencing landscape-scale outcomes of landscape-scale conservation. Kent Wildlife Trust.

[2]Pocock, M.J.O., Newson, S.E., Henderson, I.G., Peyton, J., Sutherland, W.J., Noble, D.G., et al. (2015) Developing and enhancing biodiversity monitoring programmes: a collaborative assessment of priorities. *Journal of Applied Ecology*, 52, 686–695.

Linking the Landscape. BBOWT, 2019 [3]

One of the objectives of this 5-year landscape-scale NLHF funded project was to 'measure the biodiversity health of the landscape, assess the impact of our conservation work and increase our understanding of species and habitat ecology on a landscape scale'. The scheme covered 27 square kilometers - relatively small scale in comparison to the focus of this research. The methodology included collection of before and after data across three core habitat types, (woodland, wetland, and heathland) with monitoring tailored to each habitat, recording key fauna present and habitat condition across 200m² sample squares.

Lessons learned from the project included the lead in time required to train up volunteers to confidently undertake the habitat condition surveys, and the short-term nature of the project. One of the conclusions of the report was 'species surveys were not entirely helpful in assessing trends on a landscape-scale in the relatively short timescale of the project'.

Lessons from this project have informed and align with the approach taken in TTI.

Wendling Beck Environment Project in Norfolk are working on appropriate application of national methodologies as part of a test and trial. The work is at a relatively early stage but the learning from this work should be reviewed when it is further developed.

Martin Down Farmer Cluster members have been carrying out species monitoring and baseline surveys across all farms in the cluster since 2017, supported by volunteers, members of the local community and students on placement. We understand that the cluster has been using national protocols in a similar way to TTI. It would be interesting to look at the approach and lessons from this work when the information is available.

Other useful reports:

JNCC Report 754: Review of opportunities for urban biodiversity monitoring, 2024 [4]

During the TTI research stakeholders expressed the wish to include some kind of urban biodiversity monitoring as part of a Buckinghamshire and Milton Keynes scheme. This is not an issue that has been addressed as part of the current Chilterns TTI. The JNCC report provides a useful review of potential approaches that could be considered.

JNCC Report 756: Review of monitoring biodiversity effectively at different scales, 2024

[5]. This report provides a useful review of the challenges and guidance around the question of multi-scale biodiversity monitoring approaches and provides a detailed case study of the Chilterns TTI scheme as an appendix.

[3]Phillips, H. (2019) Linking the Landscape. A project to connect local people with the extraordinary natural heritage of the West Berkshire Living Landscape, and to link up and strengthen its threatened wildlife habitats. BBOWT

[4]Marion, S. & Hoskins, H. (2024) Review of opportunities for urban biodiversity monitoring (Guidance report). JNCC Report 754, JNCC, Peterborough, ISSN 0963-8091

[5]Harris, M. & Hoskins, H. (2024) Review of monitoring biodiversity effectively at differing scales. JNCC Report 756 (Guidance Report), JNCC, Peterborough, ISSN 0963-8091.