



Back from the Brink - *Late 2019 Audit of Species Monitoring Activity*

A report prepared for:
The Task & Finish Group of the BftB Partnership



JUST ECOLOGY ENVIRONMENTAL CONSULTANCY LIMITED
Brookend House, Old Brookend, Berkeley
Gloucestershire, GL13 9SQ

January 2020

Updated December 2021 by Footprint Ecology

© JUST ECOLOGY
ENVIRONMENTAL CONSULTANCY LIMITED
2020

Contents

1	Executive Summary	1
2	Background and methods	3
2.1	Background	3
2.2	Scope of the work	3
2.3	Methods	4
3	Audit outcomes.....	5
3.1	Coverage of species.....	5
3.2	Coverage of sites	6
3.3	Consistency of methods	7
3.4	Data security and sharing.....	8
3.5	BftB metrics.....	8
3.6	Fit for purpose methodologies	9
3.7	Evidence of recovery	10
4	Matters arising from this audit	10
4.1	Coverage of species and sites.....	10
4.2	Monitoring methodologies.....	11
4.3	Data security and sharing.....	11
4.4	BftB metrics.....	11
4.5	Detection of population change.....	12
5	Related actions re-stated from the interim evaluation.....	12
5.1	Pre-BftB baselines	13
5.2	Documentation of BftB methodologies.....	13
6	Appendices	2
	Appendix 1 – Updated audit sheets for species monitoring activity, November 2019.....	2
	Appendix 2 – BftB primary species monitored in 2018 and 2019 or intended for 2020.....	67
	Appendix 3 – Collation of audit comments/recommendations for each BftB project.....	72

Acknowledgements

Just Ecology is grateful for the cooperation of the project leads and other contacts for the BftB projects, and to members of the Task and Finish Group for comment, discussion and direction.

1 Preface

This is an updated version of the late 2019 audit of species monitoring for BftB undertaken by Just Ecology. Updates are based on the final reports submitted by each project. For clarity, short summary text boxes have been provided where updates are relevant. Updates in the individual project reviews have been made in blue text. Note that, from the information available, it was not always possible to determine whether recommended actions had been carried out or whether 2020-21 surveys were completed according to plan.

2 Executive Summary

This short report aims to summarise the key outcomes of a rapid audit of species monitoring activity for the single-species and integrated projects within the BftB programme. The aim was to establish the details of what monitoring had taken place in 2018 and 2019, how data had been shared and used and how this compares with what had been planned. Questionnaire returns from the groups provided the key information for the audit.

All single species had been monitored and all but 5 primary species from integrated projects, together with some secondary and additional species are thought to have been at least surveyed. .

All of the single species projects had been surveyed as well as all but 12 of the 91 primary species from the integrated projects. Some additional species were surveyed for. Some species are planned to be surveyed for the first time in 2020 but it is likely that some species will not be surveyed at all for the BftB programme.

Good coverage of survey sites was achieved but, in some cases, sites were omitted or changed or only incompletely covered. These changes in site coverage need to be documented in updated species monitoring plans), themselves important as part of the legacy of BftB.

There was some deviation from the methods documented at the project planning stage and, in some cases, additional methods were used. There was sometimes uncertainty over whether the implemented methods were consistent with baseline survey information. The changes to methods need to be documented in updated species monitoring plans.

Data were generally backed up but were shared in different ways (in a small number of cases this may have led to duplication). Data collation has been carried out in different ways - summary datasets are not available

The collated data had been backed-up and shared for the majority of the monitored species but not for all. This work should be prioritised on an on-going basis and it will be important to ensure that the data are secure and shared before the end of the BftB programme.

Only half of the single-species projects had calculated the BftB abundance and distribution metrics, and, likewise, these metrics had not been calculated for all of the priority species in the integrated projects. The importance of these metrics should be stressed and BftB programme managers should arrange for the metrics to be finalised, calculated, shared and reported.

It is thought that distribution and abundance metrics were calculated for most species – these data were available for review where presented in Species Summary

There was not always confidence that the methods and coverage being achieved were reliable enough to detect population change over the longer term, e.g. for four of the single-species and for a significant proportion of the primary species in integrated projects. Where there are deficiencies, there is a need to clarify whether and how the monitoring of particular species can be improved and, if not, the implications for status assessment and recovery monitoring (including for Recovery Curve assessments).

It was not possible to detect population change for many species, particularly those with long life-cycles, naturally fluctuating abundance (e.g. annuals), or those with habitat requirements that take a long time to establish (e.g. veteran trees)

In many cases, more years of data would be needed for species recovery to be demonstrated although for 5 from 12 single-species there was some evidence of recovery, at least at some sites (black-tailed godwit, lesser butterfly orchid, Cornish path moss, field cricket and pine marten) and recovery is being seen for the chequered skipper (re-introduction) and wood white butterflies (*Rockingham Forest* area), and for the wormwood moonshiner beetle (*Shifting Sands* project).

As well as an overview of the audit findings, the report includes updated audit sheets (Appendix 1), a list of the species being monitored (Appendix 2) and a collation of audit comments/recommendations on a project by project basis (Appendix 3).

Overall collation of species responses to recovery trials would have allowed meta-analysis at the programme level e.g. for taxon groups/intervention types/similar

2 Background and methods

2.1 Background

A final rapid audit was carried out in December 2021 based on the information provided in the Final Project plans and/or monitoring plans, species recovery curve submissions and Species Summary Sheets. Summarised data in monitoring plans would have facilitated consideration of the actual data and meta-analysis of results were relevant

This is a short report produced for the benefit of the Task and Finish Group of the Back from the Brink (BftB) partnership programme. It aims to summarise the key outcomes of a rapid audit of species monitoring activity for the single-species and integrated projects within the programme. The Task and Finish Group should decide how to disseminate the audit and whether to act on any of the recommended actions at this stage in the programme.

An interim audit of planned species monitoring activity was completed in March 2019 and is reported in Just Ecology (2019). This included details of the planned monitoring activity for each of the 19 BftB projects, mainly in the form of completed species monitoring templates. This information was audited with respect to the completeness of the information and the suitability of the monitoring proposed. Guidance was provided and recommendations for further work were made (see Just Ecology 2019).

One of the recommendations made for the interim audit was to carry out annual audit of species monitoring activity but to focus now on the implementation of the monitoring methodologies and the analysis and sharing of the monitoring data. However, the focus of these audits, and the mechanisms involved, were to be agreed with the Task and Finish Group.

The overall outcomes and recommendations of the interim audit were deliberated by the Task and Finish Group, and the Programme Steering Group, through the spring and summer of 2019. A decision was taken to undertake an audit in late 2019, with the Programme Steering Group keen to have the results available early in 2020 and in advance of the main monitoring seasons of spring and summer 2020.

2.2 Scope of the work

In early October 2019, Just Ecology was instructed to carry out the recommended audit. The scope of the work was to:

- Establishing what species monitoring had taken place in 2018 and 2019, inclusive of the species included, coverage, methods used, data storage, analysis, sharing and reporting of BftB metrics.
- Update the project-by-project audit sheets generated for the interim evaluation, expanding them as needed to cover the topics above.

As for the interim evaluation, the scope of the works was restricted to monitoring activity for the single-species projects and for the primary species only within the integrated projects of BftB.

2.3 Methods

Given the relatively short timeframe for this work, an e-mailed request to the groups was selected as the most efficient means of gathering information necessary for the audit. A series of questions to ask was first agreed with the Task and Finish Group and these were then incorporated into spreadsheets sent to the groups (single-species and integrated projects) on 24th October 2019. Returns were encouraged by the 15th November and ultimately by the 29th November 2019. Clarifications were provided by e-mail and/or telephone discussion.

The questions sent to the groups were as follows, with a response requested for each of the species being monitored (single species and primary species only for the integrated projects):

Late 2019 Audit Questions
Was the species monitored in 2018? If not, please explain why.
Did the 2018 monitoring cover all sites that were identified in the species monitoring plan?
If not, which sites were omitted and why?
Was the species monitored in 2019? If not, please explain why.
Did the 2019 monitoring cover all sites that were identified in the species monitoring plan?
If not, which sites were omitted and why?
Will the species be monitored in 2020?
Did the methods used conform to those identified in the species monitoring plan and annexed protocols?
Were the methods consistent between years?
If appropriate, please describe how the methods were changed from those in the species monitoring plan.
Are the methods consistent with any pre-BftB baseline data?
Are the monitoring results stored on paper? If so, where?
Are the monitoring results stored electronically? If so, where?
What software has been used to capture these data?
Are the data 'backed-up'? Please describe how.
Have the data been shared with others?
If the data have been shared, which individuals / organisations have received a copy of the data?
If the data have not been shared, do you intend to share the data, with whom and when?
Have you calculated the agreed abundance metric for each of the survey years? If not, please explain why.
Have you calculated the agreed distribution metric for each of the survey years? If not, please explain why.
Have you shared these metrics with others and, if so, who?

Do you believe that the methods / coverage will provide a reliable indication of change in abundance? If not, please explain why.
Do you believe that the methods / coverage will provide a reliable indication of change in distribution? If not, please explain why.
To date, is the monitoring information leading you to believe that populations are starting to recover?
Please add any other comments you feel are relevant to the any of the above.

The completed spreadsheets were collated and are available separately. The information was used to complete the audit sheets for each project which are presented in Appendix 1. Building on the approach adopted in the interim evaluation, a traffic-light type assessment was used to visually illustrate the current status of each project against each of the audited topics, in addition to commentary where needed. The traffic light colours, and their meanings, are as follows:

	Identified shortcoming that pre-dates BftB or that can't be completely resolved.
	Full compliance, meaning that the monitoring activity matches closely what was planned.
	Near compliance with minor shortfalls only and/or with work clearly programmed to be completed.
	Identified shortcomings against what was intended and/or an ideal monitoring scheme.
	Information supplied is incomplete or not sufficient to allow audit status to be determined and thus further information is needed.

To assess compliance, we compared what monitoring activity had taken place against what was intended by reference to the interim evaluation report, as far as this was possible.

A brief commentary on each of the audited topics is provided in the following chapter of this report.

3 Audit outcomes

A brief overview of the audit outcomes is provided here. For the full detail please refer to the returned spreadsheets (available separately) and the audit sheets (Appendix 1).

3.1 Coverage of species

Ideally, coverage of all single species and all primary species in all years (2018, 2019 and 2020) would be the perfect outcome from the BftB

In practice, a more pragmatic approach was understandably taken by integrated projects, as annual monitoring for each species was not necessarily required or achievable.

monitoring. Note that some primary species had been excluded from monitoring at the planning stage (Just Ecology 2019).

As summarised in Appendix 2, all single species are being monitored and the project leads indicate that all are likely to be monitored in 2020 also.

For the integrated projects, all but 12 of the 91 primary species were surveyed in either 2018 or 2019 or in both years. There was a stated intention for four of the 12 un-surveyed species to be surveyed for in 2020. Overall this is a good result given that some of the included species are extremely difficult to monitor.

Species coverage was high, with surveys for all but 5 species documented.

Woodlark was surveyed for in the *Dorset Heathlands* project but not in *Shifting Sands* project. Additional species surveyed for, and included as primary species in the spreadsheet returns, were the lichen *Pyrenula nitida* (*Ancients of the Future* project) and rabbit and dingy skipper (*Shifting Sands* project). The rare spring sedge *Carex ericetorum* is being surveyed in 2020 (*Shifting Sands* project). The matted bryum was searched for during fieldwork for the *Gems in the Dunes* project but is thought to be locally extinct. Overall, there is good, but not complete, coverage of the intended focal species for the BftB programme.

3.2 Coverage of sites

Coverage of sites was generally good although it was not necessarily clear from the information available where this had been changed (e.g. as a result of the Covid-19 pandemic).

The ideal outcome here is for all of the sites included in the species monitoring plans for individual species to have been surveyed as planned. This has been achieved for the single species projects except the coverage for grey long-eared bat, although improving year-on-year, is not yet complete, but is intended to be complete by 2020.

For the integrated projects, good coverage of sites was achieved for all primary species in two projects (*Dorset Heathlands* and *Cotswold Limestone Grasslands*). For the others, some species were omitted altogether (detailed in 2.1 above); sites were changed; for some coverage was patchy or less than anticipated; and for others the coverage achieved was not made clear in the audit response. The main reasons given for lack of coverage included lack of access permissions and lack of time / resources, including from contractors and volunteers.

3.3 Consistency of methods

Not all methods will continue to be suitable going forwards e.g. where monitoring techniques were focussing on response to recovery solution trials rather than wider population changes. As requirements change (e.g. a greater number of sites or more self-lead volunteer surveys) and over time (e.g. intervention-specific monitoring becomes less relevant) methods may need to change.

The species monitoring plans developed for the interim evaluation defined the methodology for the proposed surveys in most cases; for a relatively small number of species, the proposed methods were not clear or had not been finalised (Just Ecology 2019). The ideal outcome for this audit was for the methods to have been implemented as described (where appropriate) and for the methods to be consistent between years and with any baseline (pre-BftB) survey information, where such exists.

For the single species projects, there was a slight non-conformance to methods noted for the grey long-eared bat, and some variation / additional methods adopted for the ladybird spider (to be clarified). There was also some uncertainty about whether the implemented methods were consistent with baseline survey information for three species (black-tailed godwit, ladybird spider and narrow-headed ant) despite the interim evaluation indicating that there would be methodological consistency with earlier surveys.

For the integrated projects, most projects achieved compliance by implementing the methods as planned and in a consistent way between years. For the *Colour in the Margins* project, some methods appear to have changed, and for the *Rockingham Forest* and *Shifting Sands* projects some additional methods have been used and others have only been partly adhered to (to be confirmed).

These changes are not, in themselves, a problem and are likely to have been made for good reasons. The changes to methods, however, need to be suitably documented.

With a very small number of exceptions, data appeared to be backed up and shared. All population data (not necessarily behavioural data from radio tracking etc.) should have been made available to relevant national schemes and NBN and ideally also local records centres. Where data were shared to the schemes via local records centre there will be a delay, and in some cases there may be duplication where data were sent to both.

3.4 Data security and sharing

Another aspect of key interest for the audit was whether the data collected from species monitoring were secure by means of back-up protocols and by sharing outside of the project team that collected / collated the data. Ideal outcomes here are that the data are duplicated / backed-up, and thus safely stored, and that they are shared or made accessible to others.

Such procedures were stated to be in place for most, but not all, of the single species projects. There was apparently no back-up or share for the black-tailed godwit or lesser butterfly orchid projects and perhaps also for the willow tit project (to be clarified).

For the integrated projects, it appears that the majority of the monitored species data have been backed-up for all projects except perhaps for the *Cotswold Limestone Grasslands* project (to be confirmed). Sharing of data outside of the project team is incomplete for all of the projects.

Across all of the projects, a variety of paper and electronic systems and software applications were being used to record and store the survey data, with no overall consistency of approach. Information sharing is taking place in a variety of ways also (details within the returned spreadsheet information).

3.5 BftB metrics

BftB metrics (i.e. simple measures of actual / relative abundance and distribution), that can be calculated from the monitoring data, and reported and shared, were agreed for many of the species included in the monitoring programme prior to the interim evaluation. As noted in the interim evaluation report, there were some gaps in the metrics, and some needed to be improved to provide some overall consistency and clarity when reporting (Just Ecology 2019).

An ideal outcome would have been for metrics to be finalised, calculated and shared for each of the years that the species had been monitored. Half of the 12 single species projects stated that they had calculated the metrics. The remainder hadn't and some stated they were unaware of the metrics.

For the integrated projects, abundance and distribution metrics have been calculated in most projects, either for all or some of the included species, or this work is in progress. There has been no calculation of

In general, BftB metrics were shared in the Species Summary Sheets. An abundance metric was not always realistic (e.g. Pine Marten, Barberry Carpet Moth, Narrow-headed Ant). A distribution metric was not necessarily relevant where monitoring was very targeted (e.g. ground beetles in Colour in the Margins).

metrics in the *Ancients of the Future* project.

3.6 Fit for purpose methodologies

Methods were generally fit for purposed (or were a necessary compromise). However, methods to assess population changes resulting from solution testing are not necessarily appropriate methods for ongoing monitoring, and therefore methods are likely to change going forwards in many cases. It was not generally clear whether this had been addressed in legacy planning for monitoring. Further work is needed to refine methods in some cases (e.g. Ladybird Spider, Willow Tit, Cosnard's Net-winged Beetle

At the planning stage, methodologies were designed so that population change could be detected, even if only at a broad scale. Key aspects of population change were changes in abundance and distribution, ideally so that BftB activities could be seen to have helped bring about an improved conservation status, i.e. more of each species and, ideally, in more places.

An ideal outcome here would be for the BftB project leads to have confidence in the monitoring scheme, both in terms of methods and coverage, so that methods/coverage are considered reliable enough to detect population change over the longer term. This was indeed the case for 8 of the 12 single species projects, where the monitoring being undertaken can be concluded to be fit for purpose. For two of the remaining species (ladybird spider and pine marten) it was not certain that changes in overall abundance could be reliably detected. For another two (shrill carder bee and willow tit), the project leads were similarly not confident for changes in abundance or distribution to be reliably detected.

For the integrated projects, there was mostly confidence that population change could be detected for the majority of species on the monitored sites, but further years of data would be required, and the drivers of change may not be easy to decipher. For the *Ancients of the Future* project, only for one species at one site (moccas beetle) was there confidence that the methods/coverage will reliably detect population change. For the *Shifting Sands* project, population change may only be detected for a small number of the included species.

A useful output would be a summary of species monitoring data appended to each monitoring plan in accordance with the BftB metric specified. It was not possible as part of this review to obtain copies of monitoring data, therefore the monitoring plans submitted as part of each Final Report have been taken at face value.

3.7 Evidence of recovery

Monitoring data should be spatially linked to interventions (where relevant). It is not clear from all plans whether this took place. It would have been beneficial to incorporate this requirement into monitoring plans; this would have allowed a meta-analysis of responses to interventions across the programme.

Although not audited as such, a very pertinent question asked for each of the projects was whether the monitoring information gathered so far was indicating that populations are starting to recover.

On a somewhat sad note, as mentioned above, matted bryum may already be extinct in the *Gems in the Dunes* project area (Sefton Coast).

However, encouraging to note is that for almost half of the single species projects (5 from 12) there is some evidence of recovery, at least at some sites, the species involved being black-tailed godwit, lesser butterfly orchid, Cornish path moss, field cricket and pine marten. For the integrated projects also, recovery is being seen for the chequered skipper (re-introduction) and wood white butterflies in the *Rockingham Forest* area, and for the wormwood moonshiner beetle BftB intervention at College Heath Road has led to second highest-ever count for this species in the UK (*Shifting Sands* project).

An increase in abundance and or distribution was recorded for a variety of species but further monitoring is generally required to assess whether these early indications will result in longer-term population recovery. For many species, a longer time frame is in any case needed, e.g. those with long life-cycles, naturally fluctuating abundance or those which require habitats that take a long time to develop.

For all species, most of the project leads noted that further years of monitoring will be needed for population recovery to be confirmed, even where there are early signs of recovery.

4 Matters arising from this audit

The updated audit sheets provided in Appendix 1 have highlighted where further clarifications are needed or where there are shortcomings relative to the planned or an ideal monitoring scheme. The full details are provided there and are not repeated here. Appendix 3 provides a collation of the audit comments from which it is easier to gain an overview of the audit recommendations.

4.1 Coverage of species and sites

As noted above, there was good, but not complete, coverage of the intended focal species for the BftB programme. Some species are planned to be surveyed for the first time in 2020 but it is likely that some species will not be surveyed at all for the BftB programme. Note that a few extra species are being surveyed though.

For some projects, sites were changed, missed or only partly covered and in some cases the coverage achieved was not clear from the audit response. It will be important to document the actual coverage achieved

within updated species monitoring plans (*Dorset Heathlands, Ancients of the Future, Colour in the Margins, Rockingham Forest* projects), themselves important as part of the legacy of BftB. The importance of having site maps showing the boundaries of the surveyed areas was emphasised in the interim evaluation report (Just Ecology 2019).

4.2 Monitoring methodologies

As noted above there were some changes in the methods used for surveys compared to what was planned in the species monitoring templates and, in some cases, additional methods were used (ladybird spider). As for the coverage of sites, these changes need to be captured within updated species monitoring plans so that they can be documented for the future (*Dorset Heathlands, Ancients of the Future, Colour in the Margins, Rockingham Forest, Shifting Sands* projects).

Generally, there was consistency in methods between years within the BftB programme, which is excellent. In some cases, there was uncertainty about whether the implemented methods were consistent with baseline survey information and it would be important to clarify this with the teams involved (e.g. black-tailed godwit and ladybird spider projects).

4.3 Data security and sharing

It would be unfortunate if BftB monitoring data were lost and so good back-up procedures and, ideally, sharing of data widely, would help to protect against this happening. In some cases and for some species, there is stated to have been no back-up or share to date or that these activities are incomplete, or it is not clear whether this has happened (black-tailed godwit, lesser butterfly orchid, Cornish path moss, willow tit and all integrated projects). Where there are deficiencies, this work should be prioritised and will need to be repeated on an on-going basis and completed before the end of the BftB programme.

4.4 BftB metrics

The audit revealed an inconsistent approach to the calculation of BftB metrics, ranging from projects that had calculated them to others that were unaware of the need. There was a similarly inconsistent approach to the sharing of metrics with a wider audience. It should be noted also that not all metrics have been finalised; some are missing and some need to be improved, as noted in the interim evaluation report (Just Ecology 2019). The calculation of metrics should also include the baseline year where suitable data exists, even if this pre-dates BftB.

In general metrics were provided (but not necessarily collated by project or overall). Note that both abundance and distribution data are not necessarily required to show population change, particularly over longer time scales.

Methods were considered reliable to detect changes in abundance/distribution for majority of species, but with limitations for a sizable minority (8 projects). For some species methods need adapting (e.g. Necklace Ground Beetle) or coverage increasing (e.g. Sand Lizard), or only one of distribution and abundance could be assessed due to complex ecology, natural fluctuations or monitoring techniques used (e.g. Pine Marten, Barberry Carpet Moth (note that these have been categorised as amber below for consistency with the 2019 audit, although distribution data are adequate to detect change in occupancy/range. Abundance is not necessarily an appropriate measure for annual species over a short timespan).

BftB metrics were conceived to have resonance with members of the public when BftB wishes to describe the impact of programme activities on the species in question. The intention was for these to be used as headline statistics, or to feed into headline statistics, that can be communicated widely (Just Ecology 2019). The Task and Finish Group is best placed to decide on the relative importance of this aspect of the BftB programme and, if promoted, to arrange for the metrics to be finalised and calculated and clarify how the metrics should be shared and reported.

4.5 Detection of population change

The derived methods were intended to provide, where possible, reliable estimates of abundance and distribution for the included species over time. This would allow the ‘fortunes’ of the species to be tracked, both through BftB and subsequently (Just Ecology 2019).

Although many commented that a longer time series of data would be needed to detect and confirm population change, some indicated that the methods and coverage being achieved are not always fit for this purpose (with respect to the monitoring of abundance, distribution or both).

In this regard, and for the particular species in the projects that highlighted this (ladybird spider, pine marten, shrill carder bee, willow tit, *Ancients of the Future*, *Gems in the Dunes*, *Rockingham Forest* and *Shifting Sands* projects), it would be important to clarify whether and how the monitoring of particular species can be improved and, if not, the implications for status assessment and recovery monitoring (including for Recovery Curve assessments).

5 Related actions re-stated from the interim evaluation

As noted above, the late 2019 audit focused on the current status with respect to the implementation of monitoring, data security and the analysis and sharing of the monitoring data. However, an ideal monitoring scheme would also have reliable baseline information from a known point in time and a well-documented fit-for-purpose methodology in place for each of the included species (Just Ecology 2019). These aspects are important and have been retained in the audit framework (Appendix 1 & 3).

5.1 Pre-BftB baselines

Lack of baseline survey information (pre-intervention, rather than pre-BftB) was problematic for many projects and obtaining data should be included in development work for future species recovery projects wherever feasible.

With respect to baselines that pre-date BftB, it should be noted that these were generally not planned nor resourced. However, some of the single species projects had suitable baseline data and many of the integrated projects were compiling pre-existing records for each species in order to see whether a baseline could be assembled. The extent to which reliable baselines have been assembled for each species should be clarified, and whether these provide robust information on both abundance and distribution. It should also be clarified whether these baselines would allow a reliable back-calculation for the BftB abundance and distribution metrics, which would allow comparisons with the metrics from the BftB programme.

Of course, BftB will itself provide definitive baseline for each of the included species, at least for the included sites, which will be an important component of the legacy from the programme.

5.2 Documentation of BftB methodologies

As noted above, individual species monitoring plans need to be updated in order to reflect any changes in sites and methods. At the same time, the interim evaluation reported noted that there were gaps and uncertainties in the supplied information and that some species monitoring plans needed to be improved and finalised. The updated and finalised species monitoring plans are an important output from the programme and a key part of the legacy of BftB.

6 Appendices

Appendix 1 – Updated audit sheets for species monitoring activity, November 2019.

A further comprehensive update would have required a repeat of the audit method, which was not possible at the end of the projects. However, the RAG status for each project has been updated. It should be kept in mind that this was based on information provided in the Final Reports, Monitoring Plans and, where available, Species Summary Sheets plus the Species Recovery Curve submissions and it was not always possible to tease out all the detail needed.

Project Code	SP01	Project Name	Barberry Carpet Moth
Project Lead(s)	Fiona Haynes & Mark Parsons, BC	Auditor	Dr JS Kirby, JEEC
Report version	2.0	Date(s)	October 2017 – November 2019
Primary Aim	To strengthen known existing colonies and create new ones.	Key SR Outputs	1. 3000 barberry bushes planted over 4 years. 2. Six colonies ‘strengthened’ over 4 years.
Key SR Objectives	1. Survey all extant populations at least once a year. 2. Survey selection of planted barberry bushes.	Key Notes	There exists perhaps 11-12 colonies (PP). The focus for BftB is the 9 colonies listed below.

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	2021 Review notes
1	Reliable baseline information available from a known point in time.	<ul style="list-style-type: none"> - Documented baseline year. - Documented methods. 	<ul style="list-style-type: none"> - 2017. - All known sites/sub-sites visited annually (ideally Aug/Sep). Sampling is by the beating-tray method. The number of established bushes sampled is recorded, as is the number with larvae and the number of larvae. A 	Baseline methods allow a good indication of relative abundance and a broad indication of the distribution of the species. More precise estimates are difficult given the ecology of the species and the risk of damage to populations.	- Baseline available for distribution but not abundance

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	2021 Review notes
		<ul style="list-style-type: none"> - Reliable estimate of abundance. - Reliable estimate of distribution. 	<ul style="list-style-type: none"> proportion of newly planted bushes are also surveyed (when they are old enough or of a suitable size for sampling) at current and new sites. The number of these, the number with larvae and the number of larvae is recorded. - Presence/absence recording only. Surrogate will be number of bushes sampled and number with larvae. - Recorded as number of sub-sites (extant and new) surveyed and number with confirmed presence. 		
2	Fit for purpose methodology in place for ongoing monitoring.	<ul style="list-style-type: none"> - Documented field methods. - Methods allow comparison with baseline. - Methods will provide reliable estimates of abundance and distribution. - Timetable for monitoring in place. 	<ul style="list-style-type: none"> - Same as baseline. - Yes, although there may be differences in coverage and surveyor effort which need to be considered when reporting results. - Yes, but with same limitations as per baseline survey. - Annual surveys in June or, ideally, late August / September. 		- Distribution

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	2021 Review notes
3	Clear targets set for species recovery.	<ul style="list-style-type: none"> - Quantitative target for abundance. - Quantitative target for distribution. 	<ul style="list-style-type: none"> - No target for abundance. - On account of delay in planted habitat becoming suitable then 2020 target remains at 10 colonies. 		-
4	Monitoring methodology being implemented to plan.	<ul style="list-style-type: none"> - Species was monitored in 2018 or 2019. - All sites monitored. - No significant changes to methodology. - Monitoring results consistent between years and with baseline (where one exists). 	<ul style="list-style-type: none"> - Species monitored in both years with all sites covered. - Methods not changed and are consistent between years and with baseline. 		- Years not clear in final report
5	Monitoring data are safely stored and have been shared or made accessible.	<ul style="list-style-type: none"> - The data are duplicated / backed up. - Data have been shared outside of the immediate project team. 	<ul style="list-style-type: none"> - Data are backed up and stored in several places. - Data have been shared. 		- Confidential data held by BC, moth trapping data also on iRecord
6	Data have been analysed with change assessment in mind.	<ul style="list-style-type: none"> - Abundance and distribution metrics have been calculated for all years. 	<ul style="list-style-type: none"> - The agreed abundance and distribution metrics have not been calculated. 	Distribution data only	- Abundance limited to presence/absence due to potentially damaging survey method
7	Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term.	<ul style="list-style-type: none"> - Monitoring indicates population change likely to be detected. 	<ul style="list-style-type: none"> - Methods/coverage considered reliable to detect change. 	Distribution data only	- See above re abundance

Any other points to note:

Surveyors have to be licensed and the survey method is potentially damaging so is kept to the minimum necessary. The number of larvae recorded is influenced by survey effort, time of year, suitability of barberry bushes etc. and so does not provide a reliable indication of abundance from year to year. [Longer time span needed to assess success of project.](#)

The BftB Project is focussing on these colonies: Kington St Michael; Hullavington; Westonbirt; Long Newnton; Ashley; Crudwell; Hankerton; Kemble; Stourpaine

Late 2019 Audit – Species Monitoring for BftB

Project Code	SP02	Project Name	Black-tailed Godwit
Project Lead(s)	Hannah Ward / Charlotte Kinnear, RSPB	Auditor	Dr JS Kirby, JEEC
Report version	2.0	Date(s)	November 2017 – November 2019
Primary Aim	Increase number of breeding pairs of black-tailed godwit at Nene Washes.	Key SR Outputs	1. Coordinated breeding surveys at Nene Washes
Key SR Objectives	1. Stable/increasing abundance at main site, Nene Washes 2. Establish presence at a new site.	Key Notes	Currently no documentation of integration with survival and productivity studies.

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	2021 review notes
1	Reliable baseline information available from a known point in time.	<ul style="list-style-type: none"> - Documented baseline year. - Documented methods. - Reliable estimate of abundance. - Reliable estimate of distribution. 	<ul style="list-style-type: none"> - 2015 (with data back to 1970s). - 1-2 surveys during breeding season to determine number of pairs. - Yes. 46 pairs at Nene Washes in 2015. - Yes, at Nene Washes. Baseline distribution relates to just one study area where birds are allocated to mapped fields / washland sectors. 	<p>Appropriate baseline methodology.</p> <p>Abundance measure = peak number of breeding pairs (per site and overall).</p> <p>Distribution measure = Number of occupied compartments with breeding pairs per site and overall.</p>	
2	Fit for purpose methodology in place for ongoing monitoring.	<ul style="list-style-type: none"> - Documented field methods. - Methods allow comparison with baseline. - Methods will provide reliable estimates of abundance and distribution. - Timetable for monitoring in place. 	<ul style="list-style-type: none"> - Robust approach to determining number of breeding pairs across Nene Washes, consistent with baseline monitoring. - Yes. - Yes, at site level and overall. - Annual and in perpetuity. Two survey visits to be 	<p>Continued use of breeding godwit surveys – enhanced by more detailed assessment of productivity and survival</p>	

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	2021 review notes
			carried out in late April/May.		
3	Clear targets set for species recovery.	<ul style="list-style-type: none"> - Quantitative target for abundance. - Quantitative target for distribution. 	<ul style="list-style-type: none"> - 50 breeding pairs at Nene Washes in 2020. 65 pairs across the Nene/Ouse meta-population. - Two occupied breeding sites; so an additional site to Nene Washes. 	Realistic target for abundance at site level, and distribution in terms of expanding a meta-population. Target for distribution driven by fields being managed for future suitability. Within-site distribution measure is not a key focus on this project, but habitat mapping and field suitability can be used to index change. No quantitative target set – but will be monitored.	
4	Monitoring methodology being implemented to plan.	<ul style="list-style-type: none"> - Species was monitored in 2018 or 2019. - All sites monitored. - No significant changes to methodology. - Monitoring results consistent between years and with baseline (where one exists). 	<ul style="list-style-type: none"> - Species monitored in both years with all sites covered. - Methods not changed and are consistent between these years. - It is not clear whether they are consistent with pre-BftB baseline surveyed. 	It is not stated whether the 2018/2019 surveys are consistent with baseline surveys.	- Data consistent between years, to 2021
5	Monitoring data are safely stored and have been shared or made accessible.	<ul style="list-style-type: none"> - The data are duplicated / backed up. - Data have been shared outside of the immediate project team. 	<ul style="list-style-type: none"> - It is not clear whether the raw data are backed up. - Data have not yet been shared outside of the project team. 	It is not stated that the data are backed up and thus safe. It is not stated that data have been shared outside of the project team.	- Data have been shared outside of project team.

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	2021 review notes
6	Data have been analysed with change assessment in mind.	- Abundance and distribution metrics have been calculated for all years.	- The agreed abundance and distribution metrics have been calculated.		
7	Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term.	- Monitoring indicates population change likely to be detected.	- Methods/coverage considered reliable to detect change.		

Any other points to note:

Detailed information available in the 'Project Godwit Saving Godwits in the UK' report by Jones *et al.*

Monitoring to date indicates that populations are recovering [but are reliant on head-starting, recovery likely to cease if this is discontinued](#). Long-term recovery depends on [landscape level changes to increase suitable habitat](#).

Project Code	SP03	Project Name	Grey long-eared bat
Project Lead(s)	Carol Williams / Craig Dunton, Bat Conservation Trust	Auditor	Dr JS Kirby, JEEC
Report version	2.0	Date(s)	October 2017 – November 2019
Primary Aim	Ensure four most challenged maternity roosts (all in Devon) have sufficiently high-quality foraging habitats around them. Facilitate landscape connectivity between roosts.	Key SR Outputs	1. All 8 roosts monitored annually, four in Devon and four elsewhere in southern England.
Key SR Objectives	1. Engage and train volunteers to assist in the long-term monitoring of the species.	Key Notes	Nationally there are thought to be c.1,000 animals (Razgour, 2011).

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
1	Reliable baseline information available from a known point in time.	<ul style="list-style-type: none"> - Documented baseline year. - Documented methods. - Reliable estimate of abundance. - Reliable estimate of distribution. 	<ul style="list-style-type: none"> - No baseline. - N/a - N/a - N/a 	The lack of a baseline is a recognised shortcoming but not one that can be rectified.	Not an issue as any impacts will be seen in future years, so project surveys will provide baseline
2	Fit for purpose methodology in place for ongoing monitoring.	<ul style="list-style-type: none"> - Documented field methods. - Methods allow comparison with baseline. - Methods will provide reliable estimates of abundance and distribution. - Timetable for monitoring in place. 	<ul style="list-style-type: none"> - Roost counts using NBMP methodology for brown long-eared bats (RES2). Eight roosts identified for inclusion. - N/a - Yes. Peak count per roost and for 8 roosts combined. Locations of the 8 roosts mapped. Measure is number of occupied roosts. - Annual (2018 onwards); two counts of each roost per year. 	Good methodologies for surveys in place.	<ul style="list-style-type: none"> - 7+ sites surveyed (year not documented in final report) - Measure going forward likely to be peak count (or min/max) per roost to assess impact of habitat management, not just presence absence

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
3	Clear targets set for species recovery.	<ul style="list-style-type: none"> - Quantitative target for abundance. - Quantitative target for distribution. 	<ul style="list-style-type: none"> - No target set. - No target set. 	Projections for future targets for abundance and distribution are not possible as it is not known how the species will respond.	
4	Monitoring methodology being implemented to plan.	<ul style="list-style-type: none"> - Species was monitored in 2018 or 2019. - All sites monitored. - No significant changes to methodology. - Monitoring results consistent between years and with baseline (where one exists). 	<ul style="list-style-type: none"> - Although there was some monitoring of this species in both years, coverage was incomplete but is improving. - Methodology not completely adhered to. - No previous or current complete baseline. 	7+ roosts monitored.	<ul style="list-style-type: none"> - no indication that methodology was not adhered to in Final Report.
5	Monitoring data are safely stored and have been shared or made accessible.	<ul style="list-style-type: none"> - The data are duplicated / backed up. - Data have been shared outside of the immediate project team. 	<ul style="list-style-type: none"> - Data are backed up. - Data have been shared. 		.
6	Data have been analysed with change assessment in mind.	<ul style="list-style-type: none"> - Abundance and distribution metrics have been calculated for all years. 	<ul style="list-style-type: none"> - Respondent unaware of the agreed metrics. 	Metrics were agreed with the project team and documented in the interim evaluation report (see also row 2 above).	no indication that methodology was not adhered to in Final Report.
7	Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term.	<ul style="list-style-type: none"> - Monitoring indicates population change likely to be detected. 	<ul style="list-style-type: none"> - The team is confident that the methods will detect change in the population over the longer term. 		Peak count or min/max should pick up changes going forward (but not presence absence as suggested above)

Any other points to note:

Since the interim evaluation, target date for full baseline survey amended to 2020, from 2019 (C. Williams, in litt.), and this is taken account of here.
[A measure of the improvement of habitats surrounding the roosts would also be really useful \(entry into scheme is a proxy\)](#)

Long term monitoring is required to assess population recovery of a species with a slow reproductive rate. Likewise, habitat enhancement measures are gradual and long-term and as such will also be slow and gradual to impact on species recovery. Another aspect to consider is the difficulty in monitoring this species.

Project Code	SP04	Project Name	Lesser Butterfly Orchid
Project Lead(s)	Mike Ingram / Mike Waller, Plantlife	Auditor	Dr Jeff Kirby, JEEC
Report version	2.0	Date(s)	January 2018 – November 2019
Primary Aim	Elucidate reasons for decline and demonstrate improvements in population size in response to management	Key SR Outputs	<ol style="list-style-type: none"> 1. Increased population size at two known sites (Dunsdon NNR, Devon; Greena Moor Nature Reserve, Cornwall) 2. Confirm presence at new sites (Leigh Tor, Aish Tor and Crousa Down, Devon)
Key SR Objectives	<ol style="list-style-type: none"> 1. Improved knowledge of species 2. Better approaches to habitat management 	Key Notes	<ul style="list-style-type: none"> • Dunsdon – ??? • Greena Moor – not recorded since 2015. • Leigh Tor – c.200 recorded in 2013. • Aish Tor - ??? • Crousa Down – 2 recorded in 2017.

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
1	Reliable baseline information available from a known point in time.	<ul style="list-style-type: none"> - Documented baseline year. - Documented methods. - Reliable estimate of abundance. - Reliable estimate of distribution. 	<ul style="list-style-type: none"> - No baseline survey. - N/a - N/a - N/a 	The lack of a baseline is a recognised shortcoming but not one that can be rectified.	Not clear whether baseline was set up in project
2	Fit for purpose methodology in place for ongoing monitoring.	<ul style="list-style-type: none"> - Documented field methods. - Methods allow comparison with baseline. - Methods will provide reliable estimates of abundance and distribution. 	<ul style="list-style-type: none"> - Baseline year will vary between sites (2018 or 2019). Count number of flowering spikes at main sites along defined transects or within defined fields. - N/a - Yes. Abundance = Number of flowering spikes per site and overall. Distribution = Number of sub-sites (extant and new fields) surveyed 	Methodology: <ol style="list-style-type: none"> 1. Counting of flowering spikes over defined transect route to ensure adequate coverage of site. 2. GPS co-ordinates to be taken to record patches and individuals as appropriate. 3. GPS co-ordinates taken to show extent of populations. 	- Final report not available during review so methods not confirmed.

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/ Yellow/Red), With Explanation where needed	Review comments
		<ul style="list-style-type: none"> - Timetable for monitoring in place. 	<ul style="list-style-type: none"> and number with confirmed presence. - Annual (June surveys) 	<ul style="list-style-type: none"> 4. Recording form used to collate number of plants/habitat type etc. 5. Separate form to collate information from individual recorders. 6. Information collated sent to landowner, county recorder, Plantlife data base, biological Records Centre. 	
3	Clear targets set for species recovery.	<ul style="list-style-type: none"> - Quantitative target for abundance. - Quantitative target for distribution. 	<ul style="list-style-type: none"> - Yes. - Yes. Includes discovery of the species on new areas at Dunsdon and Leigh Tor and re-discovery at Greena. 	Quantitative targets: <ul style="list-style-type: none"> • Dunsdon – 2 new sites on reserve. • Greena Moor – 5 plants by end of project. • Leigh Tor – 220 plants and 3 new sites discovered by end of project. • Crousa Down – 10 plants by end of project. 	-
4	Monitoring methodology being implemented to plan.	<ul style="list-style-type: none"> - Species was monitored in 2018 or 2019. - All sites monitored. - No significant changes to methodology. 	<ul style="list-style-type: none"> - There was some monitoring of this species in both years, with coverage said to be complete in 2019. - Methodology is being followed. 		<ul style="list-style-type: none"> - SRC only mentions monitoring at one site – not clear if monitoring was carried out at other sites in 2020-21

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
		- Monitoring results consistent between years and with baseline (where one exists).	- No previous or current complete baseline.		
5	Monitoring data are safely stored and have been shared or made accessible.	- The data are duplicated / backed up. - Data have been shared outside of the immediate project team.	- It is not clear that the data have been backed up or shared outside of the project team.	Not sure if the data are secure.	- Data are not secure – Dunsdon data remains with site managers
6	Data have been analysed with change assessment in mind.	- Abundance and distribution metrics have been calculated for all years.	- Respondent unaware of the agreed metrics.	Metrics were agreed with the project team and documented in the interim evaluation report	Anecdotal data only indicating increase in abundance
7	Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term.	- Monitoring indicates population change likely to be detected.	- Respondent remains confident that change can be reliably detected.		If carried out and data available

Any other points to note:

Monitoring will need to be long-term as flowering success is widely variable between years based primarily on climatic fluctuation.

Monitoring shows positive change at one site. **However these data are unavailable so results remains anecdotal**

Project Code	SP05	Project Name	Cornish Path Moss
Project Lead(s)	Mike Ingram / John Sproull, Plantlife	Auditor	Dr J Kirby, JEEC
Report version	2.0	Date(s)	January 2018 – November 2019
Primary Aim	Maintain species that is restricted to just two sites in the world – both former copper mines in Cornwall	Key SR Outputs	1. Maintain populations at two known sites: Phoenix Unit Mine and Crow's Nest Mine 2. Find new populations
Key SR Objectives	1. Elucidate reasons for decline 2. Understand species ecology 3. Trial management 4. Raise awareness	Key Notes	Crow's Nest: Scattered over the site with maps available to show distribution. Phoenix Mine: Largely confined to scrapes completed in 2015 (map available).

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
1	Reliable baseline information available from a known point in time.	<ul style="list-style-type: none"> - Documented baseline year. - Documented methods. - Reliable estimate of abundance. - Reliable estimate of distribution. 	<ul style="list-style-type: none"> - No baseline survey. - N/a - N/a - N/a 	The lack of a baseline is a recognised shortcoming but not one that can be rectified.	Baseline provided by 2018 data
2	Fit for purpose methodology in place for ongoing monitoring.	<ul style="list-style-type: none"> - Documented field methods. - Methods allow comparison with baseline. - Methods will provide reliable estimates of abundance and distribution. 	<ul style="list-style-type: none"> - Baseline survey in 2018. Locations and extent of coverage GPS recorded at 0.1m, 1m, 10m and 100m scales, with assignment to OS grid cells. Habitat characteristics recorded also. - N/a. - Yes. Abundance = N/A for this species. Surrogate to be used – area of moss in cm² per site and overall. Distribution = Number of 10m and 100m OS grid cells (extant and new) with 		

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
		- Timetable for monitoring in place.	confirmed presence (per site and overall). - Winter every 2-3 years		
3	Clear targets set for species recovery.	- Quantitative target for abundance. - Quantitative target for distribution.	- At least 0.1m ² at both Phoenix United Mine and at Crow's Nest. - Phoenix United Mine: present in ≥ 10 10m grid cells and ≥ 5 100m grid cells. Crow's Nest: present in ≥ 15 10m grid cells and ≥ 7 100m grid cells.		
4	Monitoring methodology being implemented to plan.	- Species was monitored in 2018 or 2019. - All sites monitored. - No significant changes to methodology. - Monitoring results consistent between years and with baseline (where one exists).	- Species was successfully monitored in 2018 at the two sites. This constitutes the baseline survey.		
5	Monitoring data are safely stored and have been shared or made accessible.	- The data are duplicated / backed up. - Data have been shared outside of the immediate project team.	- Although the question was not answered the data appear to have been duplicated and shared outside of the project team.		Assumed to be held by Plantlife
6	Data have been analysed with change assessment in mind.	- Abundance and distribution metrics have been calculated for all years.	- Metrics have been calculated based on the 2018 survey.		
7	Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term.	- Monitoring indicates population change likely to be detected.	- Methods/coverage considered reliable to detect change.		

Any other points to note:

2019 update - There have been problems with the project due to soil toxicity which meant the habitat restoration and follow up monitoring work originally proposed (for 2019) has not been undertaken. The management work proposed is no longer going to happen due to toxicity issues and has been removed from the project. Monitoring will continue as planned but it is expected that this will reveal a decline in CPM distribution and abundance (due to the fact that the management work has not been possible).

Recovery considered likely assuming management can take place [in the future](#). [Seasonal fluctuations may be a confounding factor](#)

Project Code	SP06	Project Name	Field Cricket
Project Lead(s)	Dr Jane Sears, RSPB	Auditor	Dr JS Kirby, JECC
Report version	2.0	Date(s)	October 2017 – November 2019
Primary Aim	Increase the robustness of the populations in Surrey and West Sussex by expansion and establishing a new population.	Key SR Outputs	1. 18-24 field crickets released at Farnham Heath (FH). 2. 18-24 released at Pulborough Brooks (PB). 3. Field crickets maintained at donor sites.
Key SR Objectives	1. Expand isolated population at Farnham Heath through re-introductions. 2. Establish a new population at Pulborough Brooks to form a meta-population with an adjacent one at Parham Park.	Key Notes	Project covers only part of field cricket range, i.e. Farnham Heath and Pulborough Brooks. 2015 – peak count of 75 at FH and none at PB. 2015 – 60% of suitable habitat occupied at FH; no field crickets at PB in 2015.

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
1	Reliable baseline information available from a known point in time.	<ul style="list-style-type: none"> - Documented baseline year. - Documented methods. - Reliable estimate of abundance. - Reliable estimate of distribution. 	<ul style="list-style-type: none"> - 2015. - Two transect surveys per site to count and map singing males. - Yes. Peak count of singing males per site and overall. - Distribution has been mapped allowing the % of suitable habitat occupied to be back calculated. 	Good baseline methodology and reliable measure of abundance in place. Good distribution measure now being back calculated.	
2	Fit for purpose methodology in place for ongoing monitoring.	<ul style="list-style-type: none"> - Documented field methods. - Methods allow comparison with baseline. 	<ul style="list-style-type: none"> - Will use same method as baseline survey, plus areas within 100m from the location of the peripheral known callers from the previous year will also be checked. - Yes. 	NB. Transect will need to expand as range expands at the two sites. Distribution measure for RSPB land only	

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
		<ul style="list-style-type: none"> - Methods will provide reliable estimates of abundance and distribution. - Timetable for monitoring in place. 	<ul style="list-style-type: none"> - Yes, peak count of singing males per site and overall, plus % of suitable habitat colonised per site. - Annual; early May to mid-June. 		
3	Clear targets set for species recovery.	<ul style="list-style-type: none"> - Quantitative target for abundance. - Quantitative target for distribution. 	<ul style="list-style-type: none"> - Minimum 105 calling males at FH and minimum 20 at PB by 2020. - 70% of suitable habitat occupied at FH and 10% PB. 		-
4	Monitoring methodology being implemented to plan.	<ul style="list-style-type: none"> - Species was monitored in 2018 or 2019. - All sites monitored. - No significant changes to methodology. - Monitoring results consistent between years and with baseline (where one exists). 	<ul style="list-style-type: none"> - The species was monitored in both years at all sites. - Methods did not change and are consistent between years and with the baseline. 		-
5	Monitoring data are safely stored and have been shared or made accessible.	<ul style="list-style-type: none"> - The data are duplicated / backed up. - Data have been shared outside of the immediate project team. 	<ul style="list-style-type: none"> - Data are backed up following RSPB protocols and have been widely shared. 		-
6	Data have been analysed with change assessment in mind.	<ul style="list-style-type: none"> - Abundance and distribution metrics have been calculated for all years. 	<ul style="list-style-type: none"> - Metrics have been calculated for two sites and are underway for the third. 		-
7	Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term.	<ul style="list-style-type: none"> - Monitoring indicates population change likely to be detected. 	<ul style="list-style-type: none"> - Methods/coverage considered reliable to detect change. 		-

Any other points to note:

A buffer area will need to be covered to pick up range expansion.

Monitoring to date indicates that populations are recovering.

Project Code	SP07	Project Name	Ladybird Spider
Project Lead(s)	Caroline Kelly, Buglife	Auditor	Dr JS Kirby, JEEC
Report version	2.0	Date(s)	October 2017 – November 2019
Primary Aim	To reach a target of 20 sustainable populations in Dorset.	Key SR Outputs	1. Annual monitoring of 14 existing populations. 2. Six new populations established and monitored.
Key SR Objectives	1. To establish 6 new populations. 2. Monitor existing and new populations.	Key Notes	In 2017, there were 14 populations recorded across 9 sites in Dorset.

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
1	Reliable baseline information available from a known point in time.	<ul style="list-style-type: none"> - Documented baseline year. - Documented methods. - Reliable estimate of abundance. - Reliable estimate of distribution. 	<ul style="list-style-type: none"> - 2017 - Extant and introduction areas, and peripheries, searched. Webs counted and mapped and fixed-point photograph taken (see RES5). - Estimated number of spiders (2x webs). - Number of established populations and sites. 	<p>Good monitoring in place with good measures for distribution and abundance for the baseline.</p> <p>NB. Individual colony range can also be measured as extent of recorded webs.</p>	-
2	Fit for purpose methodology in place for ongoing monitoring.	<ul style="list-style-type: none"> - Documented field methods. - Methods allow comparison with baseline. - Methods will provide reliable estimates of abundance and distribution. - Timetable for monitoring in place. 	<ul style="list-style-type: none"> - Baseline methodology repeated and implemented at extant and new sites. - Yes. - Yes. - Web monitoring conducted annually in August/September. 	Plans seem appropriate.	- Standardised monitoring approach designed and agreed by NE but not agreed between partners however within site monitoring is possible
3	Clear targets set for species recovery.	<ul style="list-style-type: none"> - Quantitative target for abundance. - Quantitative target for distribution. 	<ul style="list-style-type: none"> - No target for abundance. - 20 populations at 15 sites (RES5). 	Consider whether an abundance target would be desirable.	-

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
4	Monitoring methodology being implemented to plan.	<ul style="list-style-type: none"> - Species was monitored in 2018 or 2019. - All sites monitored. - No significant changes to methodology. - Monitoring results consistent between years and with baseline (where one exists). 	<ul style="list-style-type: none"> - Species was monitored in both years, with all sites covered in 2019. - Whilst it is stated that there has been no change in methods some new approaches are mentioned as well as inconsistency between surveyors. - It is not certain whether the monitoring being implemented is consistent with the baseline despite the intention to replicate the baseline methods. 		<ul style="list-style-type: none"> - Methods are consistent between years within sites, but not across sites
5	Monitoring data are safely stored and have been shared or made accessible.	<ul style="list-style-type: none"> - The data are duplicated / backed up. - Data have been shared outside of the immediate project team. 	<ul style="list-style-type: none"> - Data are backed up and have been shared outside of the project team. 		
6	Data have been analysed with change assessment in mind.	<ul style="list-style-type: none"> - Abundance and distribution metrics have been calculated for all years. 	<ul style="list-style-type: none"> - Metrics have been calculated and shared. 		
7	Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term.	<ul style="list-style-type: none"> - Monitoring indicates population change likely to be detected. 	<ul style="list-style-type: none"> - Gross changes in distribution are likely to be detected but estimates of abundance may be inaccurate. 	Uncertainty over whether methods / coverage is suitable for tracking abundance.	<ul style="list-style-type: none"> - Consistent monitoring needed between sites to include abundance.

Any other points to note:

In terms of legacy we are working towards an agreed method of monitoring which should assist with determining population status as a standardised method used by all of those who are monitoring is comparable.

Recovery not likely to be accurately assessed given current monitoring approach [Recovery can be assessed at distribution level – longer-term monitoring needed](#)

Project Code	SP08	Project Name	Little Whirlpool Ramshorn Snail
Project Lead(s)	Jane Sears, RSPB	Auditor	Dr JS Kirby, JEEC
Report version	2.0	Date(s)	November 2017 – November 2019
Primary Aim	Increase number of Little Whirlpool Ramshorn Snails at Pulborough Brooks, West Sussex	Key SR Outputs	Coordinated surveys at Pulborough Brooks
Key SR Objectives	Stable/increasing abundance at Pulborough Brooks	Key Notes	A single site. Translocation may be used to expand range across the site. Baseline (2013/14): Occupied ditch lengths 17/94 = 18%; ditches where deemed abundant 8/17 (47%).

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
1	Reliable baseline information available from a known point in time.	<ul style="list-style-type: none"> - Documented baseline year. - Documented methods. - Reliable estimate of abundance. - Reliable estimate of distribution. 	<ul style="list-style-type: none"> - 2013/14 (winter). - Yes, ditches surveyed by sweeping, sieving and microscopic analysis to determine presence. - Yes. % ditch lengths occupied and % ditch lengths where abundant (surrogates). - Yes. Number and total length of occupied ditch (extant and newly managed). 	Appropriate baseline methodology.	
2	Fit for purpose methodology in place for ongoing monitoring.	<ul style="list-style-type: none"> - Documented field methods. - Methods allow comparison with baseline. - Methods will provide reliable estimates 	<ul style="list-style-type: none"> - Yes - Same methods as baseline year but not necessarily the same ditches; resurveying the ditches that are subject to trial management and new habitat created plus any translocation sites. - Yes, at site level, reliable for 	Continued use of existing bespoke survey methods which involves sampling ditches to provide abundance trend	-

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
		<ul style="list-style-type: none"> of abundance and distribution. - Timetable for monitoring in place. 	<ul style="list-style-type: none"> distribution. Abundance more tenuous. - Annual autumn surveys (Sep/Oct). 		
3	Clear targets set for species recovery.	<ul style="list-style-type: none"> - Quantitative target for abundance. - Quantitative target for distribution. 	<ul style="list-style-type: none"> - Maintain presence on 1800m of managed ditches - Establish presence at translocation ditches 	Unrealistic to impose quantitative targets for abundance. Presence / absence more applicable. Distribution measure appropriate.	-
4	Monitoring methodology being implemented to plan.	<ul style="list-style-type: none"> - Species was monitored in 2018 or 2019. - All sites monitored. - No significant changes to methodology. - Monitoring results consistent between years and with baseline (where one exists). 	<ul style="list-style-type: none"> - Species monitored in both years at the target site. - Methods did not change and are consistent between years and with the baseline. 		-
5	Monitoring data are safely stored and have been shared or made accessible.	<ul style="list-style-type: none"> - The data are duplicated / backed up. - Data have been shared outside of the immediate project team. 	<ul style="list-style-type: none"> - Data have been backed up and shared outside of the project team. 		-
6	Data have been analysed with change assessment in mind.	<ul style="list-style-type: none"> - Abundance and distribution metrics have been calculated for all years. 	<ul style="list-style-type: none"> - Metrics not yet calculated. 	There is a stated intention to do so.	-
7	Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term.	<ul style="list-style-type: none"> - Monitoring indicates population change likely to be detected. 	<ul style="list-style-type: none"> - Respondent is confident that change can be reliably detected. 		-

Any other points to note:

Resource constraints limiting full re-survey of original areas. Translocation is unlikely to occur within BftB timetable due to poor ditch quality but there are plans to try to improve this through making hydrological changes. They will require external funding to deliver.

New habitat is being colonised so recovery seems likely.

Project Code	SP09	Project Name	Narrow-headed Ant
Project Lead(s)	Stephen Carroll, Buglife	Auditor	Dr J Kirby, JEEC
Report version	2.0	Date(s)	November 2017 – November 2019
Primary Aim	Maintain stable/increasing population at single remaining site at Chudleigh Knighton Heath. Detect establishment of new populations at two other study sites.	Key SR Outputs	Coordinated surveys at core site (Chudleigh Knighton Heath) and potential new sites (Bovey Heathfield and Teigngrace Meadow) where translocations are planned.
Key SR Objectives	1. Stable abundance at main site 2. Establish presence of new sites.	Key Notes	Use of established volunteer based 'forensics line' survey method. 2017: 110 nest structures at Chudleigh; none at the other sites.

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review notes
1	Reliable baseline information available from a known point in time.	<ul style="list-style-type: none"> - Documented baseline year. - Documented methods. - Reliable estimate of abundance. - Reliable estimate of distribution. 	<ul style="list-style-type: none"> - 2017. - Systematic 'forensics line' sweep using volunteers. Site divided into compartments and lines of volunteers search for nest structures, which are GPS mapped and counted. - Surrogate used, i.e. number of nest structures per site and overall. - Yes. Number of sites and % of compartments with active nests. 	<p>Appropriate baseline methodology. Ant abundance not possible to record; wide margin of error in nest counts also.</p> <p>- As reliable measure of distribution as is feasible</p> <p>Any within-site change possibly inferred from spatial data re nests.</p>	<p>- Not quite clear from final report what baseline is used due to developing survey technique and increase proficiency</p>
2	Fit for purpose methodology in place for ongoing monitoring.	<ul style="list-style-type: none"> - Documented field methods. - Methods allow comparison with baseline. - Methods will provide reliable estimates of abundance and distribution. 	<ul style="list-style-type: none"> - Yes. - Will repeat baseline survey methods but extended to new sites. - Yes, but with wide margin of error. Any within-site spread discerned by mapped nest information. Any sites where new nests are found 	<p>- Surveys are fit for purpose and bespoke. But the ecology of the species means there is an accepted margin of error in what within-site nest abundance and distribution means. New resources/nest censuses</p>	<p>- 3 types of methods detailed in final report for different circumstances</p>

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review notes
		<ul style="list-style-type: none"> - Timetable for monitoring in place. 	<ul style="list-style-type: none"> - will be monitored by surveying a discrete area each. - Annual; spring and autumn 2018 to 2020. Autumn surveys will be the priority. 	<ul style="list-style-type: none"> - will need to be initiated to account for any new sites found in 2018 	
3	Clear targets set for species recovery.	<ul style="list-style-type: none"> - Quantitative target for abundance. - Quantitative target for distribution. 	<ul style="list-style-type: none"> - Not quantitative. Categorical target of stability or increasing at the main site. - Distribution to be established at two new sites; any change possibly inferred from spatial data. 	<ul style="list-style-type: none"> - Not realistic to set quantified abundance targets due to ecology of species. Evaluation of gross change in numbers may be possible (categorical abundance). N/A for distribution currently. 	
4	Monitoring methodology being implemented to plan.	<ul style="list-style-type: none"> - Species was monitored in 2018 or 2019. - All sites monitored. - No significant changes to methodology. - Monitoring results consistent between years and with baseline (where one exists). 	<ul style="list-style-type: none"> - Species was monitored in both years at the intended sites. - Methods were consistent between years but are not completely compatible with baseline surveys. 	<ul style="list-style-type: none"> - Near compliance noted. 	<ul style="list-style-type: none"> - Due to development of methods over the project
5	Monitoring data are safely stored and have been shared or made accessible.	<ul style="list-style-type: none"> - The data are duplicated / backed up. - Data have been shared outside of the immediate project team. 	<ul style="list-style-type: none"> - Data have been backed up and shared outside of the project team. 		<ul style="list-style-type: none"> -
6	Data have been analysed with change assessment in mind.	<ul style="list-style-type: none"> - Abundance and distribution metrics have been calculated for all years. 	<ul style="list-style-type: none"> - Metrics have not yet been calculated. 	<ul style="list-style-type: none"> - There seems to be an intention to do so. 	<ul style="list-style-type: none"> -
7	Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term.	<ul style="list-style-type: none"> - Monitoring indicates population change, especially if significant, likely to be detected. 	<ul style="list-style-type: none"> - The methods should allow changes in distribution to be detected but will not necessarily be accurate for changes in abundance. 		<ul style="list-style-type: none"> - Range expansion can be detected but not changes in abundance with any confidence due to the ecology of the species)

Any other points to note:

Two points to note: i) relative abundance is difficult to assess because nest numbers and status (i.e. whether a transient satellite nest or an autonomous colony) are dynamic, varying by week; detection of nests has improved, which may partly explain any increase. Range assessment can be more reliable, in that we have recorded nests in areas that have been target managed and where there were no nests known previously; ii) it may take 2-3 years or more for results of nest translocations to become apparent.

Project Code	SP10	Project Name	Pine Marten
Project Lead(s)	Lizzie Croose, Vincent Wildlife Trust	Auditor	Dr JS Kirby, JEEC
Report version	2.0	Date(s)	October 2017 – November 2019
Primary Aim	Assist and monitor the spread of pine marten from Scotland into parts of northern England.	Key SR Outputs	1. Field surveys and monitoring at 7 sites in Northumberland and Cumbria.
Key SR Objectives	<ol style="list-style-type: none"> 1. Establish if, where and how pine martens are spreading into northern England. 2. Targeted sites in Northumberland and Cumbria will be surveyed to establish presence and distribution. 	Key Notes	Sites were selected based on previous records and where there is best chance of detection. Data from 2010 suggests two pine martens in two separate 10-km squares in the region (from DNA-verified scat).

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
1	Reliable baseline information available from a known point in time.	<ul style="list-style-type: none"> - Documented baseline year. - Documented methods. - Reliable estimate of abundance. - Reliable estimate of distribution. 	<ul style="list-style-type: none"> - No baseline survey. - N/a - N/a - N/a 	The lack of a baseline is a recognised shortcoming but not one that can be rectified.	- 2018 can be used as a baseline
2	Fit for purpose methodology in place for ongoing monitoring.	<ul style="list-style-type: none"> - Documented field methods. - Methods allow comparison with baseline. - Methods will provide reliable estimates of abundance and distribution. 	<ul style="list-style-type: none"> - Baseline survey in 2018. Up to 5 methods used at the 7 sites. At a minimum of 6 stations within each site, camera traps are used; some have hair tubes also. These are checked every 4-6 weeks. There is an annual scat transect survey also, and annual (May) checks of Den boxes. Other records come from sightings. - N/a - Yes. Abundance = Number of confirmed records (scat or hair samples verified by DNA analysis, carcass, 	The team has attempted to standardise survey effort as much as practicable over the 3 years. Note that the number of sightings of live or dead animals will fluctuate from year to year according to the level of public interest and engagement.	<p>28 den boxes monitored annually + 6 camera traps per sample area and scat transects</p> <p>Measure of abundance can be used as an index but not as a measure of population size</p>

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
			sighting verified by photograph) per site and overall (N England region. Distribution = Number of 10-km grid squares with presence confirmed.		
		- Timetable for monitoring in place.	- 2018 onwards.		
3	Clear targets set for species recovery.	- Quantitative target for abundance. - Quantitative target for distribution.	- 15 pine martens in the project area with evidence of breeding. - 15 10-km grid squares.	Targets clear.	-
4	Monitoring methodology being implemented to plan.	- Species was monitored in 2018 or 2019. - All sites monitored. - No significant changes to methodology. - Monitoring results consistent between years and with baseline (where one exists).	- The species was monitored in both years with all sites monitored. - The methods were as planned and consistent between years. There is no baseline information.		- 7 areas sampled
5	Monitoring data are safely stored and have been shared or made accessible.	- The data are duplicated / backed up. - Data have been shared outside of the immediate project team.	- The data are secure, are backed up and have been shared outside of the project team.		- VWT and local record centres
6	Data have been analysed with change assessment in mind.	- Abundance and distribution metrics have been calculated for all years.	- Abundance and distribution metrics have been calculated but the former may not truly estimate population size.		-
7	Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term.	- Monitoring indicates population change likely to be detected.	- Changes in distribution should be reliably detected but not necessarily changes in abundance (see above).	Near compliance noted. Seek clarification whether population size can ever be estimated.	- In this situation changes in distribution are a good measure of recovery

Any other points to note:

We've not currently got enough information to calculate an accurate abundance estimate - this would require a relatively large sample size of genetic samples (scat or hair) for genotyping and/or high quality camera trap photos or videos which are clear enough to distinguish individuals (this is usually done from the individual markings on the chest 'bib'). We will provide as best an estimate as possible at the end of the project.

Recovery is being detected.

Project Code	SP11	Project Name	Shrill Carder Bee
Project Lead(s)	Sam Page, Bumblebee Conservation Trust	Auditor	Dr JS Kirby, JEEC
Report version	2.0	Date(s)	November 2017 – November 2019
Primary Aim	Increase the robustness of the populations in Somerset and the Thames Gateway by expansion and increasing abundance.	Key SR Outputs	1. Maintain populations at two principal sites (in Somerset and the Thames Gateway) 2. Improve knowledge on species distribution 3. New Species Recovery Plan
Key SR Objectives	1. Maintain numbers in the two population areas. 2. Establish distribution knowledge elsewhere. 3. Produce a new Species Recovery Plan to inform future conservation	Key Notes	Use of established citizen science scheme (BeeWalk). 2015: Average bees per km - Lytes Cary Manor 0.89, Thames Gateway 0.15. Restricted to two main areas: Lytes Cary Manor and Thames Gateway. Possibly Dungeness and Salisbury Plain too.

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
1	Reliable baseline information available from a known point in time.	<ul style="list-style-type: none"> - Documented baseline year. - Documented methods. - Reliable estimate of abundance. - Reliable estimate of distribution. 	<ul style="list-style-type: none"> - 2015. - Standardised transects via BBCT volunteer-based BeeWalk to count individual bees per site. - Yes. Average bees per km. - Yes. % of suitable habitat colonised per site and overall. 	Good baseline methodology. Appropriate measure of abundance in place. Reliable measure of distribution, with plans to survey historic locations.	
2	Fit for purpose methodology in place for ongoing monitoring.	<ul style="list-style-type: none"> - Documented field methods. - Methods allow comparison with baseline. - Methods will provide reliable estimates of abundance and distribution. 	<ul style="list-style-type: none"> - Will use same method as baseline survey. All 3 Somerset transects still active, 1/3 Kent transects active and other 2 plan to be restarted. - Yes. - Yes; Average bees per km per site and overall, and distribution measure based on suitable habitat occupancy. Plans to survey 	Continued use of BeeWalk; including inception of new transects at any new sites where the species is (re)found. BeeWalk transects will cover currently occupied and historically occupied areas.	-

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
		<ul style="list-style-type: none"> - Timetable for monitoring in place. 	<ul style="list-style-type: none"> other potential sites to inform distribution. - Annual; early March to October. New information on distribution: May to September flight period. 		
3	Clear targets set for species recovery.	<ul style="list-style-type: none"> - Quantitative target for abundance. - Quantitative target for distribution. 	<ul style="list-style-type: none"> - 1 bee/km on Somerset transects; 0.5 bee/km on Thames Gateway transects - Not quantitative. But distribution to be firmly established, in particular, the status of Salisbury Plain population. 	Abundance targets on established transects. N/A for distribution currently.	-
4	Monitoring methodology being implemented to plan.	<ul style="list-style-type: none"> - Species was monitored in 2018 or 2019. - All sites monitored. - No significant changes to methodology. - Monitoring results consistent between years and with baseline (where one exists). 	<ul style="list-style-type: none"> - The species was monitored in both years with all sites covered as planned. - The planned methods were followed and were consistent between years and with baseline surveys. 		-
5	Monitoring data are safely stored and have been shared or made accessible.	<ul style="list-style-type: none"> - The data are duplicated / backed up. - Data have been shared outside of the immediate project team. 	<ul style="list-style-type: none"> - Data are backed up and secure. - Data have been shared via NBN. 		-
6	Data have been analysed with change assessment in mind.	<ul style="list-style-type: none"> - Abundance and distribution metrics have been calculated for all years. 	<ul style="list-style-type: none"> - It is not clear whether the abundance measure has been calculated for 2018 or the baseline year, but hasn't, as yet for 2019. - Further work is proposed to define a suitable distribution metric, so this 		- Abundance metric calculated to end of project from BeeWalks

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
			hasn't been calculated as yet.		
7	Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term.	- Monitoring indicates population change likely to be detected.	- The respondent is not certain whether the coverage achieved will reliably track population change.	More years of data needed but uncertain whether coverage is sufficient for this purpose (see below).	- Rarity of species/colonial habitat an issue. Measure of success needs to be colonies – no. of workers can be used as a proxy but as so rare, records can be missed while the populations are so limited

Any other points to note:

Note that the project's primary aim, key objectives and rows 1-3 of this table have been updated to incorporate comments received from Sam Page (05/04/19) after the interim evaluation report had been finalised.

Coverage and number of years of data have not been sufficient to track population change but will be in the long term (need more years of data to detect trends, and ideally more coverage) (S. Page, in litt.). [Population change difficult to track while population is so small](#)

Project Code	SP12	Project Name	Willow Tit
Project Lead(s)	Sophie Pinder, Yorkshire Wildlife Trust	Auditor	Dr JS Kirby, JEEC
Report version	2.0	Date(s)	November 2017 – November 2019
Primary Aim	Expansion of local population.	Key SR Outputs	1. Maintain population in core Dearne Valley area (increase from 70 to 80 territories over ~200 km ²) 2. Facilitated colonisation of newly created habitat.
Key SR Objectives	1. Maintain population of nationally declining species 2. Demonstrate colonisation of created habitat 3. Enhance sites 4. Develop knowledge of species' ecology (via radio-tracking)	Key Notes	Dearne Valley Nature Improvement Area extends to 200 km ² . All habitats mapped but focus is on wet woodland. Radiotracking being used to investigate habitat use. Collaborating with the RSPB's National Willow Tit survey in 2019 with additional sites (randomly selected tetrads) being covered using the same methods.

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
1	Reliable baseline information available from a known point in time.	<ul style="list-style-type: none"> - Documented baseline year. - Documented methods. - Reliable estimate of abundance. - Reliable estimate of distribution. 	<ul style="list-style-type: none"> - 2015. - Playback method to be used as per Carr & Lunn (2017). - Yes. Number of breeding territories over ~200 km². - Yes. % of suitable habitat occupied within the study area. 	Good baseline methodology. Appropriate measure of abundance and distribution in place.	
2	Fit for purpose methodology in place for ongoing monitoring.	<ul style="list-style-type: none"> - Documented field methods. - Methods allow comparison with baseline. - Methods will provide reliable estimates of abundance and distribution. - Timetable for monitoring in place. 	<ul style="list-style-type: none"> - As per Carr & Lunn (2017). - Yes. Same methods. - Yes; reliable response to playback. All suitable habitat will be surveyed to inform targeted surveys and mapped distribution. - Annual; early spring. 	Repeatable, bespoke methods. Full protocols provided.	-

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
3	Clear targets set for species recovery.	<ul style="list-style-type: none"> - Quantitative target for abundance. - Quantitative target for distribution. 	<ul style="list-style-type: none"> - Increase to 80 territories in the study area (from current 70). - Maintain presence in areas of the study area that are currently occupied. New habitat to be colonised. 	Abundance and distribution to be maintained in currently occupied areas. New habitat created in the study area to be colonised. Opportunity to improve connectivity (reduce nearest neighbour distance)	-
4	Monitoring methodology being implemented to plan.	<ul style="list-style-type: none"> - Species was monitored in 2018 or 2019. - All sites monitored. - No significant changes to methodology. - Monitoring results consistent between years and with baseline (where one exists). 	<ul style="list-style-type: none"> - Species was monitored in both years at all sites. - The methods were not changed and are consistent between years and with the baseline. 		-
5	Monitoring data are safely stored and have been shared or made accessible.	<ul style="list-style-type: none"> - The data are duplicated / backed up. - Data have been shared outside of the immediate project team. 	<ul style="list-style-type: none"> - It is not clear that the data have been backed up but they have been shared outside of the project team. 		Data assumed backed up if held by RSPB and shared outside of project
6	Data have been analysed with change assessment in mind.	<ul style="list-style-type: none"> - Abundance and distribution metrics have been calculated for all years. 	<ul style="list-style-type: none"> - These metrics have been calculated and are available to be reported. 		
7	Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term.	<ul style="list-style-type: none"> - Monitoring indicates population change likely to be detected. 	<ul style="list-style-type: none"> - A change in behaviour by the birds means that population changes may not be reliably detected. 		<ul style="list-style-type: none"> - Population change may not be accurately detected due to birds becoming habituated to playback. National monitoring scheme methods more appropriate going forwards.

Any other points to note:

Initial difficulties with tracking methods (Jan 2018) – revised approach to attachment of tags needed. Surveyors noticed that birds have become used to the playback recording and are no longer responding. This means that whilst new areas or young birds are being picked up, there are some gaps in established areas where we are certain willow tits are, but they don't always respond to the playback to verify a positive territory. Populations in the Dearne Valley are not necessarily representative of populations across the country.

Project Code	IP01	Project Name	Adding Diversity to Dorset's Heaths
Project Lead(s)	Sophie Lake / Caroline Kelly, Plantlife	Auditor	Dr JS Kirby, JEEC
Report version	2.0	Date(s)	October 2017 – November 2019
Primary Aim	Recreate and connect microhabitats where assemblages of priority and declining species occur.	Key SR Outputs	1. Specific habitat creation targets – see project plan.
Key SR Objectives	1. Restore, expand and create eight microhabitats. 2. Deliver integrated action and advice on species assemblages.	Key Notes	Focus is on up to 16 sites within which there will be habitat intervention plots established. Species monitoring focus will be on 18 primary species, although some recording of secondary species will take place also.

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
1	Reliable baseline information available from a known point in time.	<ul style="list-style-type: none"> - Documented baseline year. - Documented methods. - Reliable estimate of abundance. - Reliable estimate of distribution. 	<ul style="list-style-type: none"> - Either 2017 or 2018, depending on species. - A combination of pre-BftB surveys & pre-existing data records will provide useful information for baseline but this information is not complete. - Unlikely for most species as information will be patchy. - As above. 	A collation of previous records, though useful, is unlikely to provide a comprehensive baseline assessment for most species. Full compliance is not likely to be achieved.	- BFTB provided baselines for several species for future population changes, but not for project interventions in all cases
2	Fit for purpose methodology in place for ongoing monitoring.	<ul style="list-style-type: none"> - Documented field methods. 	<ul style="list-style-type: none"> - For up to 16 sites (map provided), surveys will take place in management intervention plots (maps available) and also in other areas, depending on the species. In general, searches will take place throughout the plots. Methods are detailed in v4 of the SMT where these have been decided. Some are national 		- Methodologies and standard recording forms established for all species

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
		<ul style="list-style-type: none"> - Methods allow comparison with baseline. - Methods will provide reliable estimates of abundance and distribution. - Timetable for monitoring in place. 	<ul style="list-style-type: none"> standard methods; others bespoke. - No earlier baseline; results are not likely to be consistent with pre-existing data. - Achievable measures are being developed but have not yet been finalised. - Optimal survey seasons have been defined for each species. The years of survey have not always been provided. 		
3	Clear targets set for species recovery.	<ul style="list-style-type: none"> - Quantitative target for abundance. - Quantitative target for distribution. 	<ul style="list-style-type: none"> - No set targets. - No set targets. 		-
4	Monitoring methodology being implemented to plan.	<ul style="list-style-type: none"> - Species was monitored in 2018 or 2019. - All sites monitored. - No significant changes to methodology. - Monitoring results consistent between years and with baseline (where one exists). 	<ul style="list-style-type: none"> - All of the target species were monitored in at least one of these years. - The coverage achieved was generally good but was relatively incomplete for one target species (sand lizard). - The methods used were as planned with a slight change for one species only (Chamomile). - Monitoring methods were consistent across the years (except for the species noted above) but only for two species was there 	Generally, monitoring was implemented to plan but with coverage limitations for sand lizard. In most cases these surveys have established a good baseline for the included sites / management areas.	- All species were monitored over project period, some annually. Limited coverage for Sand Lizard but a sample of management plots were assessed

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
			certainty of consistency with pre-BftB surveys.		
5	Monitoring data are safely stored and have been shared or made accessible.	<ul style="list-style-type: none"> - The data are duplicated / backed up. - Data have been shared outside of the immediate project team. 	<ul style="list-style-type: none"> - Data are backed up and have been shared for all but two species (tormentil mining bee & silver-studded blue). 	A good approach to data security and sharing.	<ul style="list-style-type: none"> - All data submitted to local Environmental Records Centre and landowners
6	Data have been analysed with change assessment in mind.	<ul style="list-style-type: none"> - Abundance and distribution metrics have been calculated for all years. 	<ul style="list-style-type: none"> - Abundance metric calculated for all but the above two species. - Only for 4 species has the distribution metric been calculated, although this work is planned for most of the remaining species. 		<ul style="list-style-type: none"> - Distribution and abundance data calculated for most species (limited for Silver Studded Blue and Sand Lizard)
7	Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term.	<ul style="list-style-type: none"> - Monitoring indicates population change likely to be detected. 	<ul style="list-style-type: none"> - Population change for the included sites likely to be detected for all but three species (sand lizard, tormentil mining bee & silver-studded blue). 	Monitoring considered fit for purpose for most species.	<ul style="list-style-type: none"> - Monitoring was focused on changes in response to specific interventions for most species but included wider abundance and distribution assessments for Woodlark, Heath Beefly, Tormentil Mining Bee and some secondary species. Monitoring was no carried out for responses to generic interventions (e.g. Silver-studded Blue, Woodlark)

Any other points to note:

Future monitoring will be carried out by the Purbeck Natural History Volunteers but objectives will change (i.e. towards overall abundance and distribution rather than response to BftB interventions)

Project Code	IPO2	Project Name	Ancients of the Future
Project Lead(s)	Sarah Henshall / Jamie Robins / Ian Leatherbarrow, Buglife	Auditor	Dr JS Kirby, JEEC
Report version	1.0	Date(s)	October 2017 – November 2019
Primary Aim	To secure recovery and long-term viability of 28 Sc41 species reliant on ancient tree landscapes and progress a further 39 species along the recovery curve.	Key SR Outputs	<ol style="list-style-type: none"> 1. Looking for and recording key species. 2. Species translocations. 3. Sites surveyed to increase understanding of population size and distribution. 4. Developing/testing of new survey methods.
Key SR Objectives	<ol style="list-style-type: none"> 1. Future-proofing ancient tree habitats & species at a site level. 2. Increasing understanding of how to conserve key target species and secure recovery. 	Key Notes	Focus is on 11 sites for monitoring. Species monitoring focus will be on 19 primary species, although some recording of secondary species will take place also.

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
1	Reliable baseline information available from a known point in time.	<ul style="list-style-type: none"> - Documented baseline year. - Documented methods. - Reliable estimate of abundance. - Reliable estimate of distribution. 	<ul style="list-style-type: none"> - No complete baseline survey. - A combination of pre-BftB surveys and pre-existing data records will provide useful information but this information is not complete. - Unlikely for most species as information will be patchy. - As above. 	A collation of previous records, though useful, is unlikely to provide a comprehensive baseline assessment for most species. Full compliance is not likely to be achieved.	<ul style="list-style-type: none"> - Baselines not available. BftB surveys provide baselines for future surveys (including response to interventions) for many species
2	Fit for purpose methodology in place for ongoing monitoring.	<ul style="list-style-type: none"> - Documented field methods. 	<ul style="list-style-type: none"> - For approximately 11 sites (no maps provided), surveys will take place on individual trees (known to support the species or with potential; trees are GPS recorded) and, in some cases, areas of scrub, depending on species. Methods are 		<ul style="list-style-type: none"> - Methodologies in place (although not all deemed suitable for monitoring as part of species monitoring plans)

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
		<ul style="list-style-type: none"> - Methods allow comparison with baseline. - Methods will provide reliable estimates of abundance and distribution. - Timetable for monitoring in place. 	<p>detailed in v3 of the SMT where these have been decided. All are bespoke methods.</p> <ul style="list-style-type: none"> - No earlier baseline; results are not likely to be consistent with pre-existing data. - Achievable measures are being developed but have not yet been finalised. Optimal survey seasons have been defined for each species. The years of survey have not been consistently provided. 		
3	Clear targets set for species recovery.	<ul style="list-style-type: none"> - Quantitative target for abundance. - Quantitative target for distribution. 	<ul style="list-style-type: none"> - No set targets. - No set targets. 		-
4	Monitoring methodology being implemented to plan.	<ul style="list-style-type: none"> - Species was monitored in 2018 or 2019. - All sites monitored. - No significant changes to methodology. 	<ul style="list-style-type: none"> - Monitoring was undertaken for 7 or 8 of the 19 included species, with two species (<i>Bacidia incompta</i> & <i>Hypebaeus flavipes</i>) monitored in both years. An additional species (<i>Pyrenula nitida</i>) was added to those being monitored. - Coverage of the intended sites was patchy, with some sites omitted, changed or not surveyed completely. 	Species monitoring plans were not implemented due to constraints around techniques/disturbance etc but approaches were developed and some specific, replicable surveys carried out.	<ul style="list-style-type: none"> - 31 surveys were commissioned. Monitoring was undertaken for general saproxylic invertebrate assemblages from 7 sites + specific surveys for Noble Chafer, Moccas Beetle, Western wood-vase hoverfly and 4 lower plants plus general lichen surveys at 5 sites, species-specific lichen surveys at 1 site and

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
		<ul style="list-style-type: none"> - Monitoring results consistent between years and with baseline (where one exists). 	<ul style="list-style-type: none"> - It was confirmed that the intended methods were adhered to for 5 species. - Methods were consistent between years for the two species monitored in both years. There is said to be some consistency with pre-BftB baseline surveys for 4 or 5 species. 		<p>additional incidental/general recording, plus audiomoth recording for bats</p>
5	Monitoring data are safely stored and have been shared or made accessible.	<ul style="list-style-type: none"> - The data are duplicated / backed up. - Data have been shared outside of the immediate project team. 	<ul style="list-style-type: none"> - For four species it has been confirmed that the data have been backed up and are secure. - In most cases the data have not yet been shared outside of the project team. 		<p>Much place- based survey data backed up on Buglife server and shared with relevant partners/national scheme/NBN. Clarification needed for some lower plant surveys. some PhD data awaited</p>
6	Data have been analysed with change assessment in mind.	<ul style="list-style-type: none"> - Abundance and distribution metrics have been calculated for all years. 	<ul style="list-style-type: none"> - There has been no calculation of BftB metrics. 		<ul style="list-style-type: none"> - .Species summary sheets with relevant data not available at time of review
7	Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term.	<ul style="list-style-type: none"> - Monitoring indicates population change likely to be detected. 	<ul style="list-style-type: none"> - Only for one species at one site (Moccas beetle) is there confidence that the methods/coverage will reliably detect population change. 		<ul style="list-style-type: none"> - Methods are suitable for some species only going forwards.

Any other points to note:

A place-based approach to general surveys, which would include the primary species if found, was adopted, rather than species specific surveys, in a majority of cases.
Responses to most species will be outside of project period.
Methods used could identify distribution changes over time for some species where future monitoring is carried out.

Project Code	IPO3	Project Name	Colour in the Margins
Project Lead(s)	Elizabeth Cooke/Cath Shellswell, Plantlife	Auditor	Dr JS Kirby, JEEC
Report version	2.0	Date(s)	October 2017 – November 2019
Primary Aim	To target the conservation of 13 species that occur in arable habitat by enthusing and empowering the agricultural community to make a difference and their advisors to support them.	Key SR Outputs	<ol style="list-style-type: none"> 1. Reintroductions of some species and increasing their population sizes in hotspots. 2. Design and implement on-going monitoring programmes for each site. 3. Training of volunteers to help with surveys.
Key SR Objectives	<ol style="list-style-type: none"> 1. Deliver a step change in the scale and impact of conservation of rare arable plants and associated fauna by targeted action in the most important places. 2. Connect people with their local arable landscape and encourage them to volunteer to conduct surveys and make them feel part of a wider volunteer community acting for nature. 	Key Notes	Focus is on six geographical areas spread across southern and eastern England. Key sites will be selected within these areas. All 13 primary species will be monitored with some recording of secondary species also.

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
1	Reliable baseline information available from a known point in time.	<ul style="list-style-type: none"> - Documented baseline year. - Documented methods. - Reliable estimate of abundance. - Reliable estimate of distribution. 	<ul style="list-style-type: none"> - No complete baseline survey. - A combination of pre-BftB surveys & pre-existing data records will provide useful information for baseline but this information is not complete. - Unlikely for most species as information will be patchy. - As above. 	A collation of previous records, though useful, is unlikely to provide a comprehensive baseline assessment for most species. Full compliance is not likely to be achieved.	- BftB surveys will provide a baseline going forwards
2	Fit for purpose methodology in place for ongoing monitoring.	<ul style="list-style-type: none"> - Documented field methods. 	<ul style="list-style-type: none"> - Sites have been listed but not mapped. For the plants, surveys will take place in individual fields or parts of fields where populations are 		- Methodologies in place for ongoing monitoring. Some are limited in area (e.g. inverts on 5 farms)

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
		<ul style="list-style-type: none"> - Methods allow comparison with baseline. - Methods will provide reliable estimates of abundance and distribution. - Timetable for monitoring in place. 	<p>found (maps provided for positive records only and not the areas of search). A bespoke method has been developed that will be used for all species (the 'Species Population Survey'). Comprehensive survey instructions and recording forms are in place (on file). Invertebrate survey methods have yet to be provided.</p> <ul style="list-style-type: none"> - No earlier baseline; results are not likely to be consistent with pre-existing data. - Achievable measures have been developed for the plants but not, as yet, for the invertebrates. - Optimal survey seasons have been defined for each species. The years of survey have not been provided. 		<p>rather than wider across landscape)</p>
3	Clear targets set for species recovery.	<ul style="list-style-type: none"> - Quantitative target for abundance. - Quantitative target for distribution. 	<ul style="list-style-type: none"> - No set targets. - No set targets. 		-
4	Monitoring methodology being implemented to plan.	<ul style="list-style-type: none"> - Species was monitored in 2018 or 2019. - All sites monitored. 	<ul style="list-style-type: none"> - All of the plant species were monitored in both years, but the invertebrate species have not yet been monitored. 		<ul style="list-style-type: none"> - Some constraints around monitoring for annual plants over a short timespan and limited survey area for invert

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
		<ul style="list-style-type: none"> - No significant changes to methodology. - Monitoring results consistent between years and with baseline (where one exists). 	<ul style="list-style-type: none"> - The response is generally not clear on which sites were monitored and which were omitted. - Methods appear to have changed for two of the plant species; details not provided. No methods yet for the invertebrate species. - For the plants, methods are said to be consistent between years. For two plant species, methods are stated to be consistent with a baseline but no details provided. 		(but implemented to plan)
5	Monitoring data are safely stored and have been shared or made accessible.	<ul style="list-style-type: none"> - The data are duplicated / backed up. - Data have been shared outside of the immediate project team. 	<ul style="list-style-type: none"> - Data have been backed up for the species monitored and are thus secure. - Data sharing outside of the project team is “in progress”. 		- Data backed up and held by Plantlife, submitted to BSBI, NBN, Ground Beetle Recording scheme
6	Data have been analysed with change assessment in mind.	- Abundance and distribution metrics have been calculated for all years.	- Metrics have been calculated for 2018, and are being calculated for 2019, and so should be available in due course.	This work will be needed for the invertebrates.	Metrics for plants available in species summary sheets but do not all include abundance metric or are limited in extent (ground beetles)
7	Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term.	- Monitoring indicates population change likely to be detected.	- The monitoring is considered useful in detecting change for the monitored species but the reasons for the change, and	Monitoring considered fit for purpose	

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
			any overall trends, are likely to be hard to decipher.		

Any other points to note:

Arable plants – numbers/extent change dramatically due to weather and, especially, year-on-year decisions made by farmers, so difficult to pin down what the baseline means in practice and how to measure consistent progress against it. Presence/absence seems as valid as any other measure as in practice the aim is to build the soil seed bank. Site boundaries are variable year-on-year, as the advisory work moves from farm to farm.

The methods being used in this project will collect information which may mean that we can identify the factors that lead towards these changes but caution should be applied to interpreting a single years' worth of data as this could lead to inaccuracy due to the natural variation in population levels and extent. Long term trends need to be analysed for accuracy and three years is not enough time to establish changes in extent or abundance.

Late 2019 Audit – Species Monitoring for BftB

Project Code	IPO4	Project Name	Cotswolds Limestone Grassland
Project Lead(s)	Julian Bendle / Jennifer Gilbert, Butterfly Conservation	Auditor	Dr JS Kirby, JEEC
Report version	2.0	Date(s)	October 2017 – November 2019
Primary Aim	Restore and manage a select network of species rich grassland sites to aid recovery and long-term viability of the chosen target species.	Key SR Outputs	1. Large blue reintroduced to one new site. 2. Habitat management undertaken at 7 sites and advice provided at 30 others.
Key SR Objectives	1. Increase the abundance and distribution of the target species. 2. Reintroduce the large blue to at least one new site. 3. Support plans for a marsh fritillary translocation.	Key Notes	Project will focus on key sites and habitat networks in the Cotswolds. Species monitoring focus will be on 14 primary species, although some recording of secondary species will take place also.

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
1	Reliable baseline information available from a known point in time.	<ul style="list-style-type: none"> - Documented baseline year. - Documented methods. - Reliable estimate of abundance. - Reliable estimate of distribution. 	<ul style="list-style-type: none"> - No complete baseline survey. - A combination of pre-BftB surveys & pre-existing data records will provide useful information for baseline (especially for butterflies) but this information is not complete. - Unlikely for most species as information will be patchy. - As above. 	A collation of previous records, though useful, is unlikely to provide a comprehensive baseline assessment for most species. Full compliance is not likely to be achieved.	- BftB surveys provide a baseline for future monitoring.
2	Fit for purpose methodology in place for ongoing monitoring.	<ul style="list-style-type: none"> - Documented field methods. 	<ul style="list-style-type: none"> - For up to 21 sites (some maps provided), surveys will take place in defined areas of suitable habitat or on transects (maps generally not yet available), depending on the species. 		- Some survey area maps not provided

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
		<ul style="list-style-type: none"> - Methods allow comparison with baseline. - Methods will provide reliable estimates of abundance and distribution. - Timetable for monitoring in place. 	<p>Methods are detailed in v6 of the SMT and survey guidelines / recording forms have been provided for most of the bespoke methods (on file). Butterfly and bat surveys will mostly use national standard methods.</p> <ul style="list-style-type: none"> - No earlier baseline; results are not likely to be consistent with pre-existing data. - Achievable measures have been developed. - Optimal survey seasons have been defined for each species. The years of survey for each species are vague and resource dependent. 		
3	Clear targets set for species recovery.	<ul style="list-style-type: none"> - Quantitative target for abundance. - Quantitative target for distribution. 	<ul style="list-style-type: none"> - No set targets. - No set targets. 		
4	Monitoring methodology being implemented to plan.	<ul style="list-style-type: none"> - Species was monitored in 2018 or 2019. - All sites monitored. - No significant changes to methodology. 	<ul style="list-style-type: none"> - All species have been monitored in at least one of these years; nine in both years. - Not all sites have been monitored in all years but extra sites are being covered and 2020 will provide further coverage. 	Overall a good amount of conformity with the monitoring plan.	

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
		<ul style="list-style-type: none"> - Monitoring results consistent between years and with baseline (where one exists). 	<ul style="list-style-type: none"> - The methods implemented were as planned. - Methods are consistent between years where more than one year has been covered. There is consistency with pre-BftB baselines for 6 species where baseline data exist. 		
5	Monitoring data are safely stored and have been shared or made accessible.	<ul style="list-style-type: none"> - The data are duplicated / backed up. - Data have been shared outside of the immediate project team. 	<ul style="list-style-type: none"> - It appears that the majority of data have not been backed up and may not be secure (TBC). - For all but four species the data have been shared outside of the project team. 		<ul style="list-style-type: none"> - Data held by relevant project partner (therefore backed up) and shared between other partners. No indication that it has been submitted to local record centres or recording schemes but it is assumed partners submit records to schemes (e.g. Plantlife to BSBI etc.) where relevant
6	Data have been analysed with change assessment in mind.	<ul style="list-style-type: none"> - Abundance and distribution metrics have been calculated for all years. 	<ul style="list-style-type: none"> - BftB metrics have been calculated and, in many cases, shared. 		-
7	Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term.	<ul style="list-style-type: none"> - Monitoring indicates population change likely to be detected. 	<ul style="list-style-type: none"> - Methods generally considered suitable for detecting change but more frequent coverage of sites, over a longer time period, likely to be needed. 		-

Any other points to note:

Project Code	IP05	Project Name	Gems in the Dunes
Project Lead(s)	Andrew Hampson, ARC	Auditor	Dr JS Kirby, JEEC
Report version	2.0	Date(s)	October 2017 – November 2019
Primary Aim	To achieve a substantial improvement in the status of six Section 41 dune specialist species on the Sefton Coast.	Key SR Outputs	1. Series of habitat creation targets – see PP. 2. Training in survey and monitoring techniques.
Key SR Objectives	1. Deliver expert advice and management action to help species progress along their recovery curve. 2. Engage and support action by stakeholders, including for monitoring.	Key Notes	Project covers the Sefton Coast and up to 24 specific SSSI units within, depending on species. All six of the primary species will be monitored.

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Action Required, if Any
1	Reliable baseline information available from a known point in time.	<ul style="list-style-type: none"> - Documented baseline year. - Documented methods. - Reliable estimate of abundance. - Reliable estimate of distribution. 	<ul style="list-style-type: none"> - 2012 to 2017, depending on species. - There has been significant survey effort for several of the target species but these surveys are not necessarily complete for all and may not provide complete abundance estimates. - Unlikely for at least half of the species as information will be patchy. - As above. 	A collation of previous records, though useful, is unlikely to provide a comprehensive baseline assessment for most species. Full compliance is not likely to be achieved.	<ul style="list-style-type: none"> - Baseline available for Natterjack pools. BftB surveys will provide baseline going forwards.

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Action Required, If Any
2	Fit for purpose methodology in place for ongoing monitoring.	<ul style="list-style-type: none"> - Documented field methods. - Methods allow comparison with baseline. - Methods will provide reliable estimates of abundance and distribution. - Timetable for monitoring in place. 	<ul style="list-style-type: none"> - The surveys are taking place in specific SSSI units (maps provided), depending on species. Recording units are individual waterbodies, areas of suitable/potential habitat or transects, depending on species (most maps provided). Methods are detailed in v5 of the SMT. Some are national standard methods; others bespoke. Guidelines and recording forms have been provided for 3 of the 6 species. - For at least some of the species the methods are the same or similar to early surveys and so valid comparisons will be possible. - Achievable measures have been developed. Back-calculation for the baseline year will be possible for at least some of the species. - Optimal survey seasons have been defined for each species. The years of survey have been defined also. 	<p>The site boundaries are clear. Recording units have been mapped for all but one species (petalwort). Methods have been detailed and supported by protocols and recording forms for three species. Appropriate abundance and distributions measures have been decided.</p>	<ul style="list-style-type: none"> - Recording areas for Petalwort may change depending on location of suitable habitat

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Action Required, if Any
3	Clear targets set for species recovery.	<ul style="list-style-type: none"> - Quantitative target for abundance. - Quantitative target for distribution. 	<ul style="list-style-type: none"> - No set targets. - No set targets. 		- No further action.
4	Monitoring methodology being implemented to plan.	<ul style="list-style-type: none"> - Species was monitored in 2018 or 2019. - All sites monitored. - No significant changes to methodology. - Monitoring results consistent between years and with baseline (where one exists). 	<ul style="list-style-type: none"> - Each species was surveyed for; matted bryum was not located. - Coverage of sites was less than anticipated mainly due to lack of time, volunteers and access permissions. - The monitoring methods were followed and are consistent between years and with baseline surveys. 	Whilst it is excellent that the methods are set and standardised, coverage issues may affect the abundance and distribution estimates to an unknown degree (TBC).	- See Row 7 below regarding Sand Lizard
5	Monitoring data are safely stored and have been shared or made accessible.	<ul style="list-style-type: none"> - The data are duplicated / backed up. - Data have been shared outside of the immediate project team. 	<ul style="list-style-type: none"> - Data have been backed up and are secure. - Data shared for 2 of the 6 species although there is the intention to share the remainder. 		- Data held by ARC, shared with project partners and Merseyside Biobank.
6	Data have been analysed with change assessment in mind.	<ul style="list-style-type: none"> - Abundance and distribution metrics have been calculated for all years. 	<ul style="list-style-type: none"> - Abundance and distribution metrics have been calculated but not all have been shared. 		- Available in species summary sheets
7	Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term.	<ul style="list-style-type: none"> - Monitoring indicates population change likely to be detected. 	<ul style="list-style-type: none"> - It is stated that changes in overall abundance and distribution can be reliably detected, except for sand lizard abundance. 		- Monitoring reliable to detect change going forwards for most species but increased coverage would be beneficial for Sand Lizard (not necessarily specific to recovery trials)

Any other points to note:

Increased coverage would benefit Sand Lizard monitoring
Habitat dynamic therefore survey areas will change

Project Code	IP06	Project Name	Rockingham Forest
Project Lead(s)	Susannah O’Riordan, Butterfly Conservation	Auditor	Dr JS Kirby, JEEC
Report version	2.0	Date(s)	October 2017 – November 2019
Primary Aim	Restore and manage five networks of woodland sites which will ensure the recovery and long-term viability of the vulnerable community of woodland species found there.	Key SR Outputs	1. Mobilisation of volunteers to assist with targeted monitoring which will ensure that the full distribution of all target species is known. 2. Chequered skipper reintroduced to 3 woodland networks.
Key SR Objectives	1. Increase the abundance and distribution of the target species across the five woodland networks. 2. Reintroduce the chequered skipper to three of the woodland networks.	Key Notes	The project is focused on Rockingham Forest and 31 woodlands within that are divided into 5 networks. All 15 of the primary species will be monitored.

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
1	Reliable baseline information available from a known point in time.	<ul style="list-style-type: none"> - Documented baseline year. - Documented methods. - Reliable estimate of abundance. - Reliable estimate of distribution. 	<ul style="list-style-type: none"> - No complete baseline survey. - A combination of pre-BftB surveys & pre-existing data records will provide useful information for baseline but this information is not complete. - Unlikely for most species as information will be patchy. - As above. 	A collation of previous records, though useful, is unlikely to provide a comprehensive baseline assessment for most species. Full compliance is not likely to be achieved.	- BftB surveys will provide the baseline.
2	Fit for purpose methodology in place for ongoing monitoring.	<ul style="list-style-type: none"> - Documented field methods. 	<ul style="list-style-type: none"> - For up to 31 woodland sites (maps provided; sites will be prioritised), surveys will take place along transects, in areas of known occupancy and in potentially suitable habitats, depending on species (not mapped at present). Methods are 		- Methods fit for purpose to show population changes (although for some species this is not linked to project activity, particularly birds)

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
		<ul style="list-style-type: none"> - Methods allow comparison with baseline. - Methods will provide reliable estimates of abundance and distribution. - Timetable for monitoring in place. 	<p>detailed in v3 of the SMT. Some are national standard methods; others bespoke. Guidance documents and recording forms have been provided for some of the survey types.</p> <ul style="list-style-type: none"> - No earlier baseline; results are not likely to be consistent with pre-existing data. - Achievable measures have been developed. - Optimal survey seasons have been defined for each species. The years of survey have been provided but with some uncertainties. 		
3	Clear targets set for species recovery.	<ul style="list-style-type: none"> - Quantitative target for abundance. - Quantitative target for distribution. 	<ul style="list-style-type: none"> - No set targets. - No set targets. 		- No further action.
4	Monitoring methodology being implemented to plan.	<ul style="list-style-type: none"> - Species was monitored in 2018 or 2019. - All sites monitored. - No significant changes to methodology. 	<ul style="list-style-type: none"> - All but one species (fly orchid) were monitored in both years. - It appears that good coverage was achieved for the bats and invertebrates, and for the adder and fly orchid in 2019. Coverage was less complete for basil thyme and the bird species. - Some additional methods have been used, some methods have not been 	Whilst some good monitoring activity has taken place there are shortcomings related to species and site coverage and changed methodologies, the implications of which will need to be understood.	- Final report indicates limited coverage for birds in particular (use of 3 methods may have been drawback)

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
		<ul style="list-style-type: none"> - Monitoring results consistent between years and with baseline (where one exists). 	<p>used and others have only been partly adhered to. For four species the methods were adhered to.</p> <ul style="list-style-type: none"> - For most, but not all, of the species the methods have been consistent between years. Only for one species (concolorous moth) is there some consistency with pre-BftB baseline surveys. 		
5	Monitoring data are safely stored and have been shared or made accessible.	<ul style="list-style-type: none"> - The data are duplicated / backed up. - Data have been shared outside of the immediate project team. 	<ul style="list-style-type: none"> - Data are backed up and appear to be secure. - Data have been shared outside of the project team for all but the bird species. 		<ul style="list-style-type: none"> - Held and backed up by BC, shared with landowners, partners, and local record centres for most species. - Unclear that plant data has been received and circulated.
6	Data have been analysed with change assessment in mind.	<ul style="list-style-type: none"> - Abundance and distribution metrics have been calculated for all years. 	<ul style="list-style-type: none"> - Metrics have been calculated for most species and where there are sufficient data. Work in progress for adder and dingy and grizzled skipper. 		<ul style="list-style-type: none"> - Metrics calculated for species with adequate data
7	Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term.	<ul style="list-style-type: none"> - Monitoring indicates population change likely to be detected. 	<ul style="list-style-type: none"> - For all but the bird species population change could be detected but will need further years of survey. Coverage achieved for the birds is not sufficient for this purpose. 		<ul style="list-style-type: none"> - Issues with coverage of bird monitoring.

Any other points to note:

For most species, a longer time series of data is needed to determine patterns and changes in abundance and distribution. For the birds, it has been difficult to get enough volunteers engaged to get the coverage and survey detail needed.

Project Code	IP07	Project Name	Shifting Sands – Securing a Future for the Brecks
Project Lead(s)	Phoebe Miles / Tim Sievers, Natural England	Auditor	Dr JS Kirby, JEEC
Report version	2.0	Date(s)	October 2017 – November 2019
Primary Aim	Create and enhance a dynamic habitat mosaic through innovative management that supports unique UK species, while engaging people in the process at all levels.	Key SR Outputs	<ol style="list-style-type: none"> 1. Effective enhancement/reintroduction of rabbits to Breckland grass heaths. 2. Enhancement and reintroduction of prostrate perennial knawel and field wormwood. 3. Measurably improve the conservation status of 16 species and 4 key habitats. 4. All sites with target species monitored and recorded using standardized protocols supported by training.
Key SR Objectives	1. Secure a step change in the status of target species and improve the resilience of multiple S41 species populations.	Key Notes	Focus is on 18 sites with others as contingency sites. Species monitoring focus will be on 15 primary species, although some recording of secondary species will take place also.

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
1	Reliable baseline information available from a known point in time.	<ul style="list-style-type: none"> - Documented baseline year. - Documented methods. - Reliable estimate of abundance. - Reliable estimate of distribution. 	<ul style="list-style-type: none"> - Either 2017 or 2018, depending on species. - A combination of pre-BftB surveys & pre-existing data records will provide useful information for baseline but this information is not complete. - Unlikely for most species as information will be patchy. - As above. 	A collation of previous records, though useful, is unlikely to provide a comprehensive baseline assessment for most species. Full compliance is not likely to be achieved.	- BFTB surveys will provide baseline for future
2	Fit for purpose methodology in place for ongoing monitoring.	<ul style="list-style-type: none"> - Documented field methods. 	<ul style="list-style-type: none"> - For up to 8 sites per species (some maps provided), surveys will take place in management compartments, along transects or in areas of suitable/known habitat 	It is understood that some sites selected for monitoring may change. Not all site maps have been provided and maps of the recording areas within sites are needed. The	- Methods generally fit for purpose. For some species, planned extent was very limited therefore data are of limited relevance going forwards

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
		<ul style="list-style-type: none"> - Methods allow comparison with baseline. - Methods will provide reliable estimates of abundance and distribution. - Timetable for monitoring in place. 	<p>(some maps provided), depending on the species. Methods are detailed in v3 of the SMT where these have been decided. All are described as bespoke methods, though some are based on national standards such as UKBMS.</p> <ul style="list-style-type: none"> - No earlier baseline; results are not likely to be consistent with pre-existing data. - Achievable measures are being developed but have not yet been finalised, especially for distribution. Optimal survey seasons have been defined for each species but there are some discrepancies. The years of survey have not been provided for all species. 	<p>information provided is not complete for all species. Not all species have supplied methodological protocols. Appropriate abundance and distributions measures are being developed. Years of survey not clear for all species.</p>	-
3	Clear targets set for species recovery.	<ul style="list-style-type: none"> - Quantitative target for abundance. - Quantitative target for distribution. 	<ul style="list-style-type: none"> - No set targets. - No set targets. 		-
4	Monitoring methodology being implemented to plan.	<ul style="list-style-type: none"> - Species was monitored in 2018 or 2019. - All sites monitored. 	<ul style="list-style-type: none"> - Most of the species were monitored in at least one of these years. There was no monitoring of woodlark or the rare spring sedge. - For most species the monitoring covered all intended sites. There was no 		-

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
		<ul style="list-style-type: none"> - No significant changes to methodology. - Monitoring results consistent between years and with baseline (where one exists). 	<ul style="list-style-type: none"> coverage for the two omitted species. - It appears that methods were followed for nine of the species (from 15). For others additional methods were employed and for some it was not clear what methods were used. - Methods were generally consistent between years but this is not clear for basil thyme and purple milk vetch. Monitoring was said to be consistent with pre-BftB baseline data for 10 species. 		
5	Monitoring data are safely stored and have been shared or made accessible.	<ul style="list-style-type: none"> - The data are duplicated / backed up. - Data have been shared outside of the immediate project team. 	<ul style="list-style-type: none"> - Data have generally been backed up and appear to be secure. - Data have been shared for most species. 		<ul style="list-style-type: none"> - With project partners, local record centres and relevant national schemes
6	Data have been analysed with change assessment in mind.	<ul style="list-style-type: none"> - Abundance and distribution metrics have been calculated for all years. 	<ul style="list-style-type: none"> - Abundance metrics have been calculated for six species only, and not for the remainder. Distribution metrics seem not to have been calculated but this is not clear. 		<ul style="list-style-type: none"> - Assumed calculated based on info in species summary sheets; Stone curlew data presumably held by RSPB; full King's Forest distribution not understood for some lepidoptera (and updates needed)

No.	Performance Indicator	Evidence Required	Audit	Current Status (Grey/Green/Amber/Yellow/Red), With Explanation where needed	Review comments
7	Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term.	- Monitoring indicates population change likely to be detected.	- The respondent was not confident that population changes would be detected except for only a few species.	It is questionable that the monitoring is fit for this purpose.	- Methods good for most species (particularly plants) although planned coverage was limited for some e.g. Woodlark, Five-banded Weevil Wasp

Any other points to note:

Appendix 2 – BftB primary species monitored in 2018 and 2019 or intended for 2020

It was not possible to update this with any confidence therefore survey coverage in 2020/2021 has not been added. Annual monitoring was not in any case relevant for all species

Yes	There was an intention to monitor this species		Species monitored in 2018 and/or 2019		For species not monitored to date, monitoring is planned for 2020
-----	--	--	---------------------------------------	--	---

SINGLE-SPECIES PROJECTS

- SP01:** Barberry carpet moth
- SP02:** Black-tailed godwit
- SP03:** Grey long-eared bat
- SP04:** Lesser butterfly orchid
- SP05:** Cornish path moss
- SP06:** Field cricket

- SP07:** Ladybird spider
- SP08:** Little whirlpool ramshorn snail
- SP09:** Narrow-headed ant
- SP10:** Pine marten
- SP11:** Shril carder bee
- SP12:** Willow tit

Groups	Taxon name (= synonym)	Common name	SP01	SP02	SP03	SP04	SP05	SP06
Inverts - Butterfly & Moths	<i>Pareulype berberata</i>	Barberry carpet moth	Yes					
Birds	<i>Limosa limosa</i>	Black-tailed godwit		Yes				
Mammals	<i>Plecotus austriacus</i>	Grey long-eared bat			Yes			
Vascular plant	<i>Platanthera bifolia</i>	Lesser butterfly orchid				Yes		
Fungi, lichen, liverworts, mosses	<i>Ditrichum cornubicum</i>	Cornish path moss					Yes	
Inverts - Other	<i>Gryllus campestris</i>	Field cricket						Yes

Groups	Taxon name (= synonym)	Common name	SP07	SP08	SP09	SP10	SP11	SP12
Inverts - Other	<i>Eresus sandaliatus</i>	Ladybird spider	Yes					
Inverts - Other	<i>Anisus vorticulus</i>	Little whirlpool ramshorn snail		Yes				
Inverts - Other	<i>Formica exsecta</i>	Narrow-headed ant			Yes			
Mammals	<i>Martes martes</i>	Pine marten				Yes		
Inverts - Other	<i>Bombus sylvarum</i>	Shril carder bee					Yes	

Groups	Taxon name (= synonym)	Common name	SP07	SP08	SP09	SP10	SP11	SP12
Birds	<i>Poecile montanus</i>	Willow tit						Yes

Yes	There was an intention to monitor this species	Species monitored in 2018 and/or 2019	For species not monitored to date, monitoring is planned for 2020
-----	--	---------------------------------------	---

INTEGRATED PROJECTS

IP01: Adding Diversity to Dorset’s Heaths

IP02: Ancients of the Future

IP03: Colour in the Margins

IP04: Cotswolds Limestone Grassland

IP05: Gems in the Dunes – Saving Sefton’s Threatened Wildlife

IP06: Restoring Rockingham Forest’s Species

IP07: Shifting Sands – Securing a Future for the Brecks

Groups	Taxon name (= synonym)	Common name	IP01	IP02	IP03	IP04	IP05	IP06	IP07
Amphibian & Reptiles	<i>Vipera berus</i>	Adder						Yes	
Amphibian & Reptiles	<i>Epidalea calamita</i>	Natterjack toad					Yes		
Amphibian & Reptiles	<i>Lacerta agilis</i>	Sand lizard	Yes				Yes		
Birds	<i>Carduelis cabaret</i>	Lesser Redpoll						Yes	
Birds	<i>Dendrocopos minor</i>	Lesser Spotted Woodpecker						Yes	
Birds	<i>Poecile palustris</i>	Marsh Tit						Yes	
Birds	<i>Muscicapa striata</i>	Spotted Flycatcher						Yes	
Birds	<i>Poecile montanus</i>	Willow Tit						Yes	
Birds	<i>Lullula arborea</i>	Wood Lark	Yes						Yes
Fungi, lichen, liverworts, mosses	<i>Hericium coralloides</i>	Coral Tooth		Yes					
Fungi, lichen, liverworts, mosses	<i>Anaptychia ciliaris</i>	Eagle's claws		Yes					
Fungi, lichen, liverworts, mosses	<i>Collema fragrans</i>	Dwarf jelly		Yes					
Fungi, lichen, liverworts, mosses	<i>Zygodon forsteri</i>	Knothole Moss		Yes					
Fungi, lichen, liverworts, mosses	<i>Lophozia capitata</i>	Large-celled Flapwort	Yes						
Fungi, lichen, liverworts, mosses	<i>Bryum calophyllum</i>	Matted Bryum					Yes		
Fungi, lichen, liverworts, mosses	<i>Piptoporus quercinus</i>	Oak Polypore		Yes					
Fungi, lichen, liverworts, mosses	<i>Petalophyllum ralfsii</i>	Petalwort					Yes		

Late 2019 Audit – Species Monitoring for BftB

Groups	Taxon name (= synonym)	Common name	IP01	IP02	IP03	IP04	IP05	IP06	IP07
Fungi, lichen, liverworts, mosses	<i>Bacidia incompta</i>	Sap-groove lichen		Yes					
Fungi, lichen, liverworts, mosses	<i>Bryum warneum</i>	Sea Bryum					Yes		
Fungi, lichen, liverworts, mosses	<i>Physcia tribacioides</i>	Southern Grey Physcia		Yes					
Fungi, lichen, liverworts, mosses	<i>Calicium adpersum</i>			Yes					
Fungi, lichen, liverworts, mosses	<i>Chaenotheca gracilenta</i>			Yes					
Fungi, lichen, liverworts, mosses	<i>Lecanora quercicola</i>			Yes					
Fungi, lichen, liverworts, mosses	<i>Lecanora sublivescens</i>			Yes					
Fungi, lichen, liverworts, mosses	<i>Caloplaca coralliza</i>			Yes					
Inverts - Beetles	<i>Ampedus nigerrimus</i>	A click beetle		Yes					
Inverts - Beetles	<i>Carabus monilis</i>	a ground beetle			Yes				
Inverts - Beetles	<i>Harpalus froelichii</i>	Brush-thighed Seed-eater			Yes				
Inverts - Beetles	<i>Platycis cosnardi</i> now <i>Erotides cosnardi</i>	Cosnard's Net-winged Beetle		Yes					
Inverts - Beetles	<i>Cicindela sylvatica</i>	Heath Tiger Beetle	Yes						
Inverts - Beetles	<i>Hypebaeus flavipes</i>	Moccas Beetle		Yes					
Inverts - Beetles	<i>Cicindela hybrida</i>	Northern Dune Tiger Beetle					Yes		
Inverts - Beetles	<i>Lacon querceus</i>	Oak Click Beetle		Yes					
Inverts - Beetles	<i>Cryptocephalus primarius</i>	Rock-rose Pot Beetle				Yes			
Inverts - Beetles	<i>Meloe rugosus</i>	Rugged Oil Beetle				Yes			
Inverts - Beetles	<i>Ophonus laticollis</i>	Set-aside Downy-back			Yes				
Inverts - Beetles	<i>Limoniscus violaceus</i>	Violet Click Beetle		Yes					
Inverts - Beetles	<i>Amara fusca</i>	Wormwood Moonshiner							Yes
Inverts - Butterfly & Moths	<i>Coleophora tricolor</i>	Basil-thyme Case-bearer							Yes
Inverts - Butterfly & Moths	<i>Carterocephalus palaemon</i>	Chequered Skipper						Yes	
Inverts - Butterfly & Moths	<i>Erynnis tages</i>	Dingy Skipper					Yes		
Inverts - Butterfly & Moths	<i>Hamearis lucina</i>	Duke of Burgundy				Yes			
Inverts - Butterfly & Moths	<i>Lithostege griseata</i>	Grey Carpet							Yes
Inverts - Butterfly & Moths	<i>Pyrgus malvae</i>	Grizzled Skipper						Yes	
Inverts - Butterfly & Moths	<i>Maculinea arion</i>	Large Blue				Yes			
Inverts - Butterfly & Moths	<i>Noctua orbona</i>	Lunar Yellow Underwing							Yes
Inverts - Butterfly & Moths	<i>Euphydryas aurinia</i>	Marsh Fritillary				Yes			

Groups	Taxon name (= synonym)	Common name	IP01	IP02	IP03	IP04	IP05	IP06	IP07
Inverts - Butterfly & Moths	<i>Plebejus argus</i>	Silver-studded Blue	Yes						
Inverts - Butterfly & Moths	<i>Chortodes extrema</i>	The Concolorous						Yes	
Inverts - Butterfly & Moths	<i>Leptidea sinapis</i>	Wood White						Yes	
Inverts - Other	<i>Cerceris quinquefasciata</i>	Five-Banded Tailed Digger Wasp							Yes
Inverts - Other	<i>Bombylius minor</i>	Heath Bee-fly	Yes						
Inverts - Other	<i>Bombus ruderatus</i>	Large Garden Bumblebee				Yes			
Inverts - Other	<i>Pseudepipona herrichii</i>	Purbeck Mason Wasp	Yes						
Inverts - Other	<i>Bombus ruderarius</i>	Red-shanked Carder-bee				Yes			
Inverts - Other	<i>Gnophomyia elsneri</i>	Royal Splinter Cranefly		Yes					
Inverts - Other	<i>Coenagrion mercuriale</i>	Southern Damselfly	Yes						
Inverts - Other	<i>Andrena tarsata</i>	Tormentil Mining Bee	Yes						
Inverts - Other	<i>Myolepta potens</i>	Western Wood-vase Hoverfly		Yes					
Mammals	<i>Barbastella barbastellus</i>	Barbastelle bat						Yes	
Mammals	<i>Plecotus auritus</i>	Brown long-eared bat						Yes	
Mammals	<i>Rhinolophus ferrumequinum</i>	Greater horseshoe bat				Yes			
Vascular plant	<i>Scleranthus annuus</i>	Annual Knawel	Yes						
Vascular plant	<i>Clinopodium acinos</i>	Basil Thyme				Yes		Yes	Yes
Vascular plant	<i>Valerianella rimosa</i>	Broad-Fruited Corn Salad			Yes				
Vascular plant	<i>Filago pyramidata</i>	Broad-leaved Cudweed			Yes				
Vascular plant	<i>Chamaemelum nobile</i>	Chamomile	Yes						
Vascular plant	<i>Illecebrum verticillatum</i>	Coral-necklace	Yes						
Vascular plant	<i>Ranunculus arvensis</i>	Corn Buttercup			Yes				
Vascular plant	<i>Microthlaspi perfoliatum (=Thlaspi perfoliatum)</i>	Cotswold Pennycress				Yes			
Vascular plant	<i>Artemisia campestris</i>	Field Wormwood							Yes
Vascular plant	<i>Veronica triphyllos</i>	Fingered Speedwell			Yes				
Vascular plant	<i>Ophrys insectifera</i>	Fly Orchid				Yes		Yes	
Vascular plant	<i>Bromus interruptus</i>	Interrupted Brome			Yes				
Vascular plant	<i>Juniperus communis</i>	Juniper				Yes			

Groups	Taxon name (= synonym)	Common name	IP01	IP02	IP03	IP04	IP05	IP06	IP07
Vascular plant	<i>Platanthera bifolia</i>	Lesser Butterfly-orchid	Yes						
Vascular plant	<i>Lycopodiella inundata</i>	Marsh Clubmoss	Yes						
Vascular plant	<i>Viola lactea</i>	Pale Dog-violet	Yes						
Vascular plant	<i>Pulsatilla vulgaris</i>	Pasqueflower				Yes			
Vascular plant	<i>Mentha pulegium</i>	Pennyroyal	Yes						
Vascular plant	<i>Adonis annua</i>	Pheasants-eye			Yes				
Vascular plant	<i>Pilularia globulifera</i>	Pillwort	Yes						
Vascular plant	<i>Scleranthus perennis</i>	Prostrate Perennial Knawel							Yes
Vascular plant	<i>Astragalus danicus</i>	Purple Milk-vetch				Yes			Yes
Vascular plant	<i>Galeopsis angustifolia</i>	Red Hemp-nettle			Yes				
Vascular plant	<i>Filago lutescens</i>	Red-tipped Cudweed							
Vascular plant	<i>Silene gallica</i>	Small-flowered Catchfly			Yes				
Vascular plant	<i>Torilis arvensis</i>	Spreading Hedge Parsley			Yes				
Vascular plant	<i>Veronica verna</i>	Spring Speedwell			Yes				Yes
Vascular plant	<i>Turritis glabra (= Arabis glabra)</i>	Tower Mustard							Yes
Vascular plant	<i>Cicendia filiformis</i>	Yellow Centaury	Yes						

Appendix 3 – Collation of audit comments/recommendations for each BftB project

A summary table of RAG status is provided

Project	1. Reliable baseline information available from a known point in time	2. Fit for purpose methodology in place for ongoing monitoring	3. Clear targets set for species recovery	4. Monitoring methodology being implemented to plan	5. Monitoring data are safely stored and have been shared or made accessible	6. Data have been analysed with change assessment in mind	7. Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term
IP01 - Adding Diversity to Dorset's Heaths							
IP02 - Ancients of the Future							
IP03 - Colour in the Margins							
IP04 - Cotswolds Limestone Grassland							
IP05 - Gems in the Dunes							
IP06 - Rockingham Forest							
IP07 - Shifting Sands – Securing a Future for the Brecks							
SP01 - Barberry carpet moth							
SP02 - Black-tailed godwit							
SP03 - Grey long-eared bat							
SP04 - Lesser Butterfly-orchid							
SP05 - Cornish path moss							
SP06 - Field cricket							
SP07 - Ladybird spider							
SP08 - Little whirlpool ramshorn snail							
SP09 - Narrow headed ant							
SP10 - Pine marten							

Project	1. Reliable baseline information available from a known point in time	2. Fit for purpose methodology in place for ongoing monitoring	3. Clear targets set for species recovery	4. Monitoring methodology being implemented to plan	5. Monitoring data are safely stored and have been shared or made accessible	6. Data have been analysed with change assessment in mind	7. Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term
SP11 - Shril carder bee	✓	✓	✓	✓	✓	✓	✗
SP12 - Willow tit	✓	✓	✓	✓	✓	✓	✗

Collation of audit comments/recommendations for each BftB project late 2019

Project	1. Reliable baseline information available from a known point in time	2. Fit for purpose methodology in place for ongoing monitoring	3. Clear targets set for species recovery	4. Monitoring methodology being implemented to plan	5. Monitoring data are safely stored and have been shared or made accessible	6. Data have been analysed with change assessment in mind	7. Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term
SP01 - Barberry carpet moth	Back calculate abundance and distribution measures for the baseline year.	None	None	None	None	Calculate and report agreed abundance and distribution metrics.	None
SP02 - Black-tailed godwit	Back calculate abundance and distribution measures for the baseline year.	None	None	Confirmation or otherwise on the consistency with baseline surveys.	Clarification is needed on safety of data and on data sharing.	It is not clear when the metrics will be shared.	None
SP03 - Grey long-eared bat	None	None	None	Methodologies need to be adhered to.	None	Clarify and document the details of the new metrics if these have been changed.	None
SP04 - Lesser butterfly orchid	None	Site details, transects and field methods still need to be provided.	None	None	Clarification is needed on safety of data and on data sharing.	Calculate and report the metrics when possible.	None
SP05 - Cornish path moss	None	None	None	None	Clarify that the raw data are safe and backed up.	None	None

Project	1. Reliable baseline information available from a known point in time	2. Fit for purpose methodology in place for ongoing monitoring	3. Clear targets set for species recovery	4. Monitoring methodology being implemented to plan	5. Monitoring data are safely stored and have been shared or made accessible	6. Data have been analysed with change assessment in mind	7. Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term
SP06 - Field cricket	Back calculate baseline distribution measure.	None	None	None	None	Consider how metrics are to be shared.	None
SP07 - Ladybird spider	Back calculate abundance and distribution measures for the baseline year.	None	Consider whether an abundance target would be desirable.	Clarification is needed on whether the methods have changed and the extent to which they are consistent between years, between surveyors and with the 2017 baseline survey.	None	None	Consider and formulate recommendations for if/how monitoring can be improved for this species.
	Clarify method for estimating total number of spiders.						
SP08 - Little whirlpool ramshorn snail	Back calculate baseline distribution measure(s).	None	None	None	None	Calculate and report BftB metrics.	None

Project	1. Reliable baseline information available from a known point in time	2. Fit for purpose methodology in place for ongoing monitoring	3. Clear targets set for species recovery	4. Monitoring methodology being implemented to plan	5. Monitoring data are safely stored and have been shared or made accessible	6. Data have been analysed with change assessment in mind	7. Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term
SP09 - Narrow headed ant	Back calculate abundance and distribution measures for the baseline year.	None	None	Clarify that 2018 can now be regarded as the baseline rather than 2017.	None	Calculate and report BftB metrics.	None
SP10 - Pine marten	None	None	None	None	None	None	Seek clarification whether population size can ever be estimated.
SP11 - Shril carder bee	Need to back calculate distribution measure, i.e. % of suitable habitat colonised per site.	New transects to be initiated, where possible, to account for any new sites found in 2018 or thereafter.	None	None		Seek clarification on whether abundance metrics have been calculated for all years and when they will be available.	Request commentary on the implications of the coverage achieved for status assessments and recovery monitoring.
						Conclude work on revised distribution metric and calculate these.	
						Report and share BftB metrics.	

Project	1. Reliable baseline information available from a known point in time	2. Fit for purpose methodology in place for ongoing monitoring	3. Clear targets set for species recovery	4. Monitoring methodology being implemented to plan	5. Monitoring data are safely stored and have been shared or made accessible	6. Data have been analysed with change assessment in mind	7. Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term
SP12 - Willow tit	Back calculate abundance and distribution measures for the baseline year.		None	None	Clarify back up procedures with a view to providing security for the data.	None	Consider whether changes to methodology should be scoped and recommended. National willow tit survey(s) may be more appropriate.
IP01 - Adding Diversity to Dorset's Heaths	BftB surveys, if complete and standardised, will provide the baseline. Previous survey and data records could be used to inform status assessments.	Address gaps in monitoring information and improve some of the abundance and distribution metrics.	None	Responses were ambiguous / incomplete in a few instances.	Secure and share the remaining datasets.	Calculate remaining metrics.	Clarify response for yellow century, which was left blank.
				Changes in methods and coverage need to be documented in an updated species monitoring plan.	Clarify the timeline for a complete share.	Clarify how metrics will be shared / reported.	

Project	1. Reliable baseline information available from a known point in time	2. Fit for purpose methodology in place for ongoing monitoring	3. Clear targets set for species recovery	4. Monitoring methodology being implemented to plan	5. Monitoring data are safely stored and have been shared or made accessible	6. Data have been analysed with change assessment in mind	7. Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term
IP02 - Ancients of the Future	BftB surveys, if complete and standardised, will provide the baseline. Previous survey and data records could be used to inform status assessments.	Address gaps in monitoring information; decide on remaining sites; supply maps of sites and recording units; clarify field methods; conclude abundance and distribution metrics.	None	Responses were ambiguous / incomplete in numerous instances.	Secure the remaining datasets.	Finalise approach to metrics and calculate metrics.	Request commentary on the implications of the coverage achieved per species for status assessments and recovery monitoring.
				Changes in methods and coverage need to be documented in an updated species monitoring plan.	Clarify the timeline for a complete share of data.	Clarify how metrics will be shared / reported.	
IP03 - Colour in the Margins	BftB surveys, if complete and standardised, will provide the baseline. Previous survey and data records could be used to inform status assessments.	Address gaps in monitoring information and supply maps of sites and recording units.	None	It is stated that the invertebrates will be surveyed in 2020 but this needs to be confirmed.	Clarify the extent to which data have already been shared and the timeline for a complete share.	Clarify how metrics will be shared / reported.	Request commentary on the implications of the coverage achieved per species for status assessments and recovery monitoring.

Project	1. Reliable baseline information available from a known point in time	2. Fit for purpose methodology in place for ongoing monitoring	3. Clear targets set for species recovery	4. Monitoring methodology being implemented to plan	5. Monitoring data are safely stored and have been shared or made accessible	6. Data have been analysed with change assessment in mind	7. Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term
				Clarity is needed on site coverage, any changes in methods and baseline survey information for two of the plant species.			
				Changes in methods and coverage need to be documented in an updated species monitoring plan.			

Project	1. Reliable baseline information available from a known point in time	2. Fit for purpose methodology in place for ongoing monitoring	3. Clear targets set for species recovery	4. Monitoring methodology being implemented to plan	5. Monitoring data are safely stored and have been shared or made accessible	6. Data have been analysed with change assessment in mind	7. Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term
IP04 - Cotswolds Limestone Grassland	BftB surveys, if complete and standardised, will provide the baseline. Previous survey and data records could be used to inform status assessments.	Confirm sites for bee monitoring.	None	No further action.	Secure and share the remaining datasets.	Clarify how metrics will be shared / reported.	No further action.
		Supply outstanding maps, inclusive of site boundaries and recording units.			Clarify the timeline for a complete share.		
IP05 - Gems in the Dunes	BftB surveys, if complete and standardised, will provide the baseline. Previous survey and data records could be used to inform status assessments.	Supply maps of petalwort recording units.	None	No further action.	Seek confirmation of data share with Merseyside Biobank.	It is stated that metrics have been calculated for matted bryum despite it being not found? TBC.	Request commentary on the implications of the coverage achieved per species for status assessments and recovery monitoring.
		Supply survey protocols and recording forms for petalwort and bryums.			Clarify the timeline for a complete share.	Clarify how metrics will be shared / reported.	

Project	1. Reliable baseline information available from a known point in time	2. Fit for purpose methodology in place for ongoing monitoring	3. Clear targets set for species recovery	4. Monitoring methodology being implemented to plan	5. Monitoring data are safely stored and have been shared or made accessible	6. Data have been analysed with change assessment in mind	7. Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term
IP06 - Rockingham Forest	BftB surveys, if complete and standardised, will provide the baseline. Previous survey and data records could be used to inform status assessments.	Supply maps of recording units.	None	Clarity is needed on which sites were covered in which years.	Clarify the timeline for a complete share.	Clarify how metrics will be shared / reported.	Request commentary on the implications of the coverage achieved per species for status assessments and recovery monitoring.
		Greater clarity of the years of survey would be beneficial.		Methods will need to be re-documented in an updated species monitoring plan.			
IP07 - Shifting Sands – Securing a Future for the Brecks	BftB surveys, if complete and standardised, will provide the baseline. Previous survey and data records could be used to inform status assessments.	Confirm any changes in sites used for monitoring.	None	Responses were ambiguous / incomplete in a few instances.	Clarify the timeline for a complete share.	Finalise approach to BftB metrics and calculate for all species.	Request commentary on the implications of the coverage achieved per species for status assessments and recovery monitoring.

Project	1. Reliable baseline information available from a known point in time	2. Fit for purpose methodology in place for ongoing monitoring	3. Clear targets set for species recovery	4. Monitoring methodology being implemented to plan	5. Monitoring data are safely stored and have been shared or made accessible	6. Data have been analysed with change assessment in mind	7. Methods/coverage considered reliable to detect changes in abundance and distribution over the longer term
		Supply outstanding maps, inclusive of site boundaries and recording units.		Methods will need to be re-documented in an updated species monitoring plan.		Clarify how metrics will be shared / reported.	
		Address gaps and discrepancies in monitoring information and supply missing protocols.					
		Improve the abundance and distribution metrics.					
		Greater clarity of the years of survey would be beneficial.					

