

Species Priorities List Methodology Document

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Introduction

Species are the types of animals, plants, fungi, and other living things that exist as part of nature. Local Nature Recovery Strategies (LNRSs) are designed to help to recover populations of species, especially those which are at risk of extinction from the local area. Many species are expected to benefit from the actions (measures) that are already listed on the LNRS's 'List of Priorities and Measures' document, but some species need measures which are more specific to them.

What is the Species Priorities List?

A key premise of an LNRS is to identify important species in the local area which are threatened and require additional support, and for the strategy to then define measures (actions) that would help recover these species. The choice of species identified in this Species Priority List would be dependent on local context but would ultimately be recognised by local wildlife experts as the priority species in the strategy area most in need of additional support. The Species Priorities List in the Berkshire LNRS contains a table of **88 target species**, collated into **43 categories/habitat assemblages.**

The Berkshire LNRS Species Priorities List is based on accessible locally or nationally held species and habitat data. There were four iterations of the list made during its creation, with each iteration representing a refinement of the previous, and eventually presenting a single collection of species deemed by local experts to be the priority species for the LNRS to focus on.

The Species Priorities List is one of four LNRS elements; three written documents and a map tool. Alongside the Species Priority List, there are two documents which describe the county of Berkshire and define the threats to its biodiversity but also the opportunities to recover nature, In these documents are listed specific habitat-based priorities and measures to help realise these opportunities. The interactive mapping tool displays locations in Berkshire deemed to have strategic significance in delivering nature recovery highlight the measures needed to achieve this. These documents are interlinked with each other and should be read together to understand Berkshire's unique context. All documents can be found on the main Berkshire LNRS website.

What is this document?

This document details the methodology undertaken to generate the Berkshire LNRS Species Priorities List. It includes information on the software used, a timeline of the process, an appendix and bibliography.

The Royal Borough of Windsor and Maidenhead (RBWM) commissioned Thames Valley Environmental Records Centre (TVERC) to assist them with the creation of the Species Longlist. At this point in the process, species experts, national organisations with species related expertise and other available guidance and information were used to refine this list into a shortlist of priority species for nature recovery in Berkshire, and create bespoke measures to support and enhance their populations. In this document, the methods undertaken are explained, and a timeline of the stages of the process from start to publication are given.

Methods

How was the Species Priorities List created

The online platform and digital whiteboard programme Miro was used to assign habitat assemblages to the draft shortlist of species, and to develop draft species-specific measures. See more on Miro in Figure 3 and Appendix 1.

Timeline of Species Shortlisting Process

Stage 1: Generating the Species Longlist

(September 2023-January 2024)

The initial draft Species Longlist was created by TVERC. They initially identified threatened and other locally significant species relevant to Berkshire using existing records accessible to them**.** This was done to specifications set by Defra Guidance (Defra, 2023). This guidance also details which National Red List Threatened or Near threatened species have or haven't been found within the county in the last 30 years which further helped to create the list.

The Berkshire LNRS initial draft Species Longlist included "*species at high risk of extinction in England that are present in the strategy area; species which are not currently present but could feasibly become established in the strategy area; and other species of local significance*" (Defra, 2023). This list included all species that TVERC have records for from the last 30 years that also appear on the National Red List with a Threatened or Near Threatened status based on IUCN criteria, as per the Defra guidance (Defra, 2023). There were 479 species present on this initial list.

The Defra guidance stated that the criteria for species to consider in LNRS were:

Critical to consider:

1. *Any native species which have been assessed as Red List Threatened against IUCN criteria*
2. *Any native species which have not been formally assessed against IUCN Red List criteria but where strong evidence is provided to show that they would meet the criteria for Threatened status (note: such species may fall into the category of 'other species of local significance' inputted by stakeholders – see Figure 1.*
3. *Any native species considered to be nationally extinct that re-establish themselves or are rediscovered*

Important to consider:

1. *Any native species which have been assessed as Red List Near Threatened against IUCN criteria*
2. *Any native species which NE suggest as suitable candidates for conservation translocation, or any native species already subject to translocation efforts (aligning with Reintroductions and other conservation translocations: code and guidance*" (Defra, 2023)

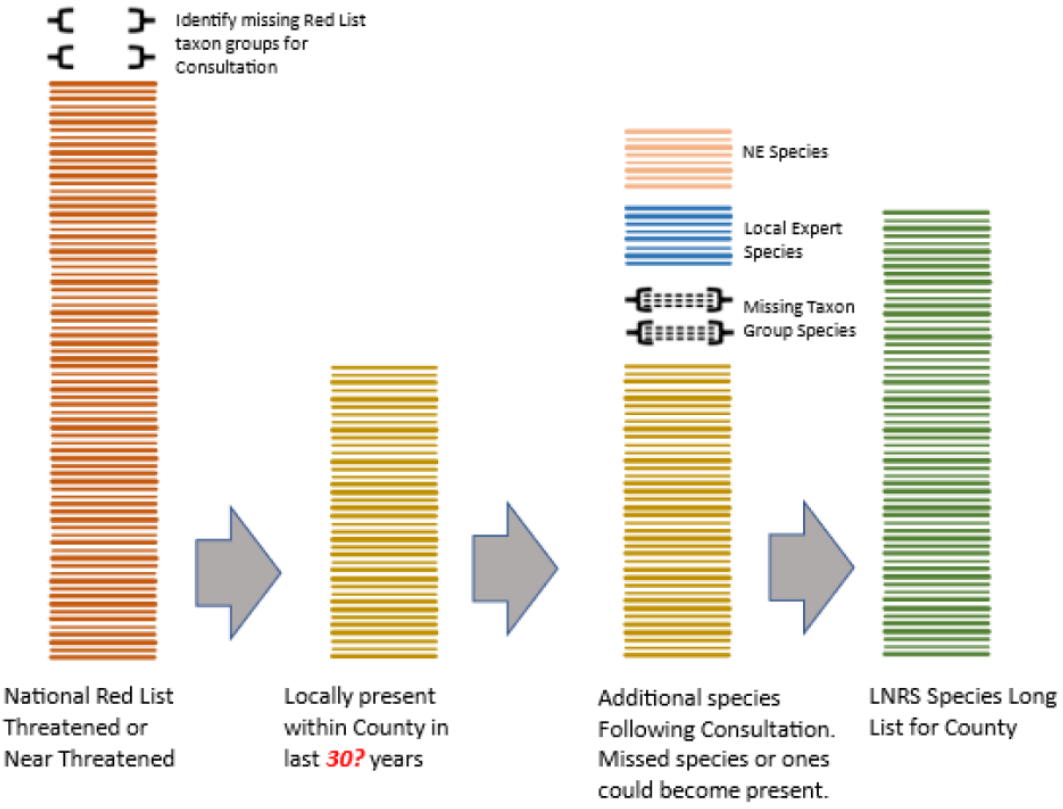


Figure 1: The process of generating the Berkshire Local Nature Recovery Strategy Draft Species Longlist (Stages 1 and 2).

Stage 2: Reviewing the Species Longlist

Jan – March 2024

The next step in the longlist generation was to consult species experts, both locally and nationally, on the draft list to establish whether there are:

Any species missing, from the included Taxon Groups, that should be added?

Any Taxon Groups missing and subsequent species of those taxa, that should be added?

Should any species on the draft longlist be removed?

An engagement exercise was emailed out to species specialists, asking for their feedback on the draft Species Longlist. The species specialists engaged were either already part of the Berkshire LNRS Species Recovery Working Group or were contacted at the suggestion of TVERC staff, although some were engaged independently of these.

Between November 2023 and January 2024, TVERC worked with different individuals and organisations with species expertise to review the draft Species Longlist. This phase of 'Stage 2: Reviewing the Species Longlist' appraised the draft longlist with the help of Local and National Species Experts, and established which species should remain on the list, be removed, or be added. This part of the process created the final iteration of the Berkshire LNRS Species Longlist.

The process commenced with TVERC asking the species experts which of the following Taxon Groups they could advise on: amphibians and reptiles; birds; bryophytes; fish; fungi; invertebrates; non-vascular plants; mammals and vascular plants. At this point, requests were made to this group asking for recommendations of other species specialists, that weren't already engaged in the LNRS, to cover any knowledge gaps in certain taxonomic groups that became apparent.

Following this action, TVERC collated the Draft Species Longlist for Berkshire into a spreadsheet for review and split it up so it can be reviewed by a newly formed Species Recovery Working Group. Those specialists that were able to assist gave feedback by inputting under the tab corresponding with their taxonomic expertise on the spreadsheet. Within these tabs was detailed a national species list of IUCN Red List species within that taxon grouping. Those species with 'YES' in column F 'In Berks? (TVERC Data)', were already on the Berkshire long list. Those with 'No' in column F 'In Berks? (TVERC Data)', were not found in TVERC Data and were not on the long list.

Species specialists were asked to consider:

1. *Should we keep each of these species on the list, or should any be removed?*
2. *Are there additional species on the National Red List, that although we do not have records, should be added as a priority species for Berkshire?*
3. *Are there additional species not Red Listed but of similar importance that should be included for Berkshire?*

Guidance was provided on how to give feedback within the spreadsheet:

> "If there are any changes (removals/additions) you would like to suggest please fill the columns highlighted cream in your taxon sheet (I,J,K,L) of the relevant species, or include additions at the bottom of the list:
> **Edit Date:** *Date of edit suggested*
> **Edit Type:** *Type of edit suggested - addition, removal, no change.*
> **Editor Details:** *Make a note of individuals that approved the change and when (ie. name(s), association(s) and specialism(s))*
> **Edit Notes:** *Further discussion points/explanation for justification of your suggested edit if adding or removing a species.*
>
> If there are no changes to be made to a species, please still complete an **Edit Date** (column I) and **Edit Type** with 'no change' (column J) in your taxon sheet.
> **Adding Taxon**
> If you believe additional taxon should be considered for the Berkshire LNRS, please add them to the end of the 'National Taxon List Sum' sheet, filling in columns H,I,J,K. You can also make a new sheet, to input suggested species for that taxon group, from the final template sheet or contact the TVERC team to format this for you. If you believe a taxon group would not benefit from the Berkshire LNRS you can suggest a removal through the same column fields (H,I,J,K) in the 'National Taxon List Sum' sheet."

Specialists were made aware that any comments they added to the spreadsheet may be viewed by other specialists across Berkshire who were also contributing to the document. After providing feedback on the spreadsheet, the species experts returned the spreadsheet to the Biological Recording Coordinator at TVERC for them to collate.

Results

Taxon group remaining on list:

BIRD
An initial 116 species were proposed for the LNRS Long List. Following specialist review 52 species were removed, and 20 species were added. Some of the additions are noted as pending for further review, and not fully accepted. Review of this taxon group was considered by TVERC that it could benefit from further attention.

BONY FISH
An initial 1 species were proposed for the LNRS Long List. Following specialist review 0 species were removed, and 2 species were added. TVERC considers that this taxon group has been sufficiently reviewed.

CLUBMOSS
An initial 1 species were proposed for the LNRS Long List. Following specialist review 0 species were removed, and 0 species were added. TVERC considers that this taxon group has been sufficiently reviewed.

CONIFER
An initial 1 species were proposed for the LNRS Long List. Following attempted engagement this taxon group was not reviewed by a specialist, so remains unchanged.

CRUSTACEAN
An initial 1 species were proposed for the LNRS Long List. Following specialist review 0 species were removed, and 1 species was added. TVERC considers that this taxon group has been sufficiently reviewed.

FERN

An initial 3 species were proposed for the LNRS Long List. Following attempted engagement this taxon group was not reviewed by a specialist, so remains unchanged.

FLOWERING PLANT
An initial 209 species were proposed for the LNRS Long List. Following specialist review 0 species were removed, and 929 species were added. Review of this taxon group was considered by TVERC that it could benefit from further attention.

FUNGUS
An initial 5 species were proposed for the LNRS Long List. Following specialist review 0 species were removed, and 1 species were added. TVERC considers that this taxon group has been sufficiently reviewed.

HORSETAIL
An initial 1 species were proposed for the LNRS Long List. Following attempted engagement this taxon group was not reviewed by a specialist, so remains unchanged.

INSECT – BEETLE
An initial 44 species were proposed for the LNRS Long List. Following specialist review 20 species were removed, and 5 species were added. TVERC considers that this taxon group has been sufficiently reviewed.

INSECT – BUTTERFLY
An initial 21 species were proposed for the LNRS Long List. Following specialist review 5 species were removed, and 7 species were added. TVERC considers that this taxon group has been sufficiently reviewed.

INSECT – CADDIS FLY
An initial 3 species were proposed for the LNRS Long List. Following specialist review 2 species were removed, and 2 species were added. TVERC considers that this taxon group has been sufficiently reviewed.

INSECT – DRAGONFLY
An initial 5 species were proposed for the LNRS Long List. Following specialist review 0 species were removed, and 12 species were added. TVERC considers that this taxon group has been sufficiently reviewed.

INSECT – HYMENOPTERAN
An initial 9 species were proposed for the LNRS Long List. Following specialist review 5 species were removed, and 0 species were added. TVERC considers that this taxon group has been sufficiently reviewed.

INSECT – MAYFLY
An initial 1 species were proposed for the LNRS Long List. Following specialist review 0 species were removed, and 0 species were added. TVERC considers that this taxon group has been sufficiently reviewed.

INSECT – MOTH
An initial 3 species were proposed for the LNRS Long List. Following specialist review 2 species were removed, and 40 species were added. TVERC considers that this taxon group has been sufficiently reviewed.

INSECT – TRUE BUG
An initial 2 species were proposed for the LNRS Long List. Following specialist review 2 species were removed, and 5 species were added. TVERC considers that this taxon group has been sufficiently reviewed.

INSECT – TRUE FLY
An initial 25 species were proposed for the LNRS Long List. Following specialist review 11 species were removed, and 0 species were added. TVERC considers that this taxon group has been sufficiently reviewed.

LICHEN
An initial 6 species were proposed for the LNRS Long List. Following attempted engagement this taxon group was not reviewed by a specialist, so remains unchanged.

MOLLUSC
An initial 8 species were proposed for the LNRS Long List. Following specialist review

2 species were removed, and 1 species was added. TVERC considers that this taxon group has been sufficiently reviewed.

SPIDER (ARANEAE)
An initial 2 species were proposed for the LNRS Long List. Following specialist review 0 species were removed, and 1 species were added. TVERC considers that this taxon group has been sufficiently reviewed.

TERRESTRIAL MAMMAL
An initial 11 species were proposed for the LNRS Long List. Following specialist review 3 species were removed, and 4 species were added. TVERC considers that this taxon group has been sufficiently reviewed.

Taxon groups added to list:

AMPHIBIAN
An initial 0 species were proposed for the LNRS Long List. Following specialist review 2 species were added. TVERC considers that this taxon group has been sufficiently reviewed.

LIVERWORT
An initial 0 species were proposed for the LNRS Long List. Following specialist review 1 species was added. TVERC considers that this taxon group has been sufficiently reviewed.

REPTILE
An initial 0 species were proposed for the LNRS Long List. Following specialist review 1 species was added. TVERC considers that this taxon group has been sufficiently reviewed.

Taxon group removed from list:

ANNELID
An initial 1 species were proposed for the LNRS Long List. Following specialist review 1 species was removed. TVERC considers that this taxon group has been sufficiently reviewed.

Table 1: The summary and evaluation of the engagement with species specialists for the Berkshire LNRS Longlist review.

Taxon Group	Initial Proposed Species	Removal	Addition	Total number of Species in each Taxon Group following review	Review Status
BIRD	116	52	20	84	Reviewed but requires further attention
BONY FISH	1	0	2	3	Sufficiently reviewed
CLUBMOSS	1	0	0	1	Sufficiently reviewed
CONIFER	1	-	-	1	Not reviewed by a specialist, so remains unchanged.
CRUSTACEAN	1	0	1	2	Sufficiently reviewed
FERN	3	-	-	3	Not reviewed by a specialist, so

					remains unchanged.
FLOWERING PLANT	209	0	929	1138	Reviewed but requires further attention
FUNGUS	5	0	1	6	Reviewed but requires further attention
HORSETAIL	1	-	-	1	Not reviewed by a specialist, so remains unchanged.
INSECT – BEETLE	44	20	5	29	Sufficiently reviewed
INSECT – BUTTERFLY	21	5	7	23	Sufficiently reviewed
INSECT – CADDIS FLY	3	2	2	3	Sufficiently reviewed
INSECT – DRAGONFLY	5	0	12	17	Sufficiently reviewed
INSECT – HYMENOPTERAN	9	5	0	4	Sufficiently reviewed
INSECT – MAYFLY	1	0	0	1	Sufficiently reviewed
INSECT – MOTH	3	2	40	41	Sufficiently reviewed
INSECT – TRUE BUG	2	2	5	5	Sufficiently reviewed
INSECT – TRUE FLY	25	11	0	14	Sufficiently reviewed
LICHEN	6	-	-	6	Not reviewed by a specialist, so remains unchanged.
MOLLUSC	8	2	1	7	Sufficiently reviewed
SPIDER (ARANEAE)	2	0	1	3	Sufficiently reviewed
TERRESTRIAL MAMMAL	11	3	4	12	Sufficiently reviewed
INSECT – DRAGONFLY	5	0	12	17	Sufficiently reviewed
INSECT – HYMENOPTERAN	9	5	0	4	Sufficiently reviewed
Taxon group added to list					
AMPHIBIAN	0	0	2	2	Sufficiently reviewed
LIVERWORT	0	0	1	1	Sufficiently reviewed
REPTILE	0	0	1	1	Sufficiently reviewed

Taxon group removed from list					
ANNELID	1	1	0	0	Sufficiently reviewed
	Total Number of all Species on the Berkshire Longlist following review - 1408				

Key to Review Status

Green – Considered sufficiently reviewed
Amber – Needs further review
Red – Unreviewed

Species Specialists contributions

Over 60 species specialists, representing individuals and groups, were contacted as part of the longlist review exercise. Some of these were already part of the Berkshire Species Recovery Group. Others had been suggested by members of the TVERC team, based on their species specialist knowledge. And species specialists themselves suggested other species specialists. This review process resulted in 24 replies with reviews and/or supporting species information being received by TVERC from specialists.

Supporting Species Information

As well as completing the review exercise, additional information links and supporting documentation were received by species specialists. These are listed below:

- Butterfly Conservation prepared a report for Natural England identifying and categorising all British macro moth species by reference to IUCN guidelines. “A review of the status of the macro-moths of Great Britain”. (Fox, Parsons, & Harrower, 2019)
- Berkshire Bird Species of Conservation Concern, Berkshire Ornithological Club. Prepared by Neil Bucknell & Renton Righelato, August 2022 (Bucknell & Righelato, Berkshire Bird Species of Conservation Concern, 2022)
- Notes for Berkshire LNRS “Long List”. Neil Bucknell, chair Berkshire Ornithological Club conservation sub-committee. (Bucknell, Notes for Berkshire LNRS "Long List", 2023)
- Species Recovery Trust Guidance - Priority Plant and Invertebrate Species Recovery within Local Nature Recovery Strategies (Species Recovery Trust, 2023)
- Defra LNRS Species Advice: Identifying threatened bird species whose drivers of decline operate outside England (Defra, 2024)
- Delivering-for-Invertebrates-in-LNRS Buglife (Robins, 2024)
- Red List for Britain’s Mammals – The Mammal Society (Mathews & Harrower, 2020)
- State of Nature 2023 – Mammal Society Response – The Mammal Society (The Mammal Society, 2023)

Finalisation of the Species Longlist

Following the feedback provided, a final Berkshire LNRS species longlist was created. The total number of species on the final Berkshire LNRS Longlist was extended to 1,408.

This was comprised of 25 Taxon Groups, increasing from 23 in the draft list. With Annelid being removed, and Amphibian, Liverwort and Reptile groups added. Of these 25 Taxon Groups:

- 19 Taxon groups have had sufficient review at this stage

- 4 taxon groups have had no review
- 3 have had some review but could benefit from further review

A considerable amount of species data was reviewed to enable to creation of the Berkshire Species Longlist.This was only made possible with the help of many species' specialists who offered their time and expertise. At this point, although there was still further review needed to refine the list further, the exercise created a more workable list and stimulated conversations about the species deemed important. It also engaged species specialists who weren't previously aware of the LNRS Longlist or involved in the LNRS's creation. It should also be acknowledged that at this stage it was known that there were still some species which may be suitable candidates for the longlist but unfortunately there was no expertise available to assess their suitability. There were continued attempts to engage specialists for underrepresented Taxon groups. The Berkshire LNRS Species Longlist can be found on the Berkshire Local Nature Recovery Strategy website.

Stage 3: Refining the Longlist into the Shortlist

March 2024-September 2024

Refining work on the Flowering Plant taxa – *(March 2024)*

Following the initial longlisting process, the flowering plant taxa had 1138 species. It was decided that this was too great a number, and additional refinement to this taxon group was needed before the main shortlisting process was undertaken.

A request was made locally and nationally to the already involved flowering plant experts and enthusiasts asking for assistance in undertaking a second, online review of the flowering plants taxon. As a result of this further review, from this period, some species were removed from the list. In addition, the 929 species which were added as 'Pending' were also removed. This resulted in 209 species of flowering plants being included on the longlist.

Evaluating species pressures – *(April 2024)*

The next step of Stage 3 was to evaluate species pressures. The LNRS statutory guidance states that RAs should consider species pressures within the '*description of the strategy area and its biodiversity'* (Defra, 2023). The current and possible future pressures to the survival of species on the longlist were considered at this point. This task was undertaken by the district and borough ecologists of Berkshire (Berkshire ecologists).

Species Shortlisting

Workshop 1 - *(April -2024)*

The first in-person LNRS Species Shortlisting session was held at Braywick Nature Centre with the Species Recovery Working Group. During this time, species from the longlist were categorised into A-G (see Table 2). These categories were created by Defra for LNRSs. (Defra, 2023)

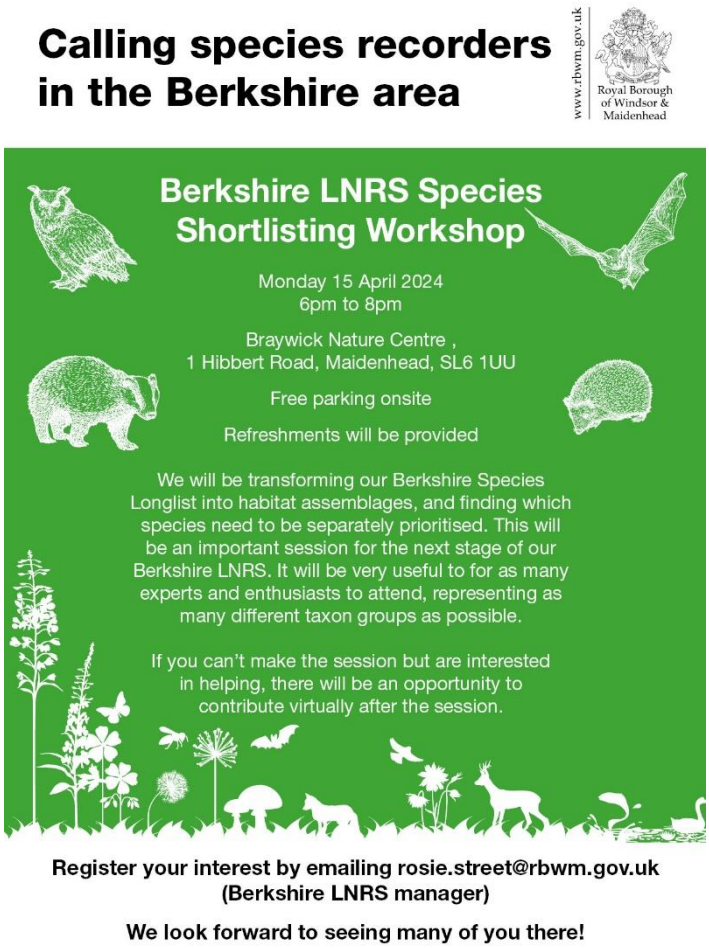


Figure 2: Poster advertising the first in person Berkshire LNRS Species Shortlisting session

Species that were assigned to Category A were designated as those species whose needs relate to general habitat measures. These species were used to inform the recovery/restoration measures of Berkshire's habitats, and used to understand habitat type extent requirement.

Species that were assigned to Categories B, C and D were designated as those species that relate to specific measures beyond the general habitat measures. Species assigned to these categories were added to the first draft of the Species Shortlist, and later specific actions for certain habitat types were given to them, as well as specific locations for their presence collected.

Species assigned to Categories E, F, G and H were designated as species not to be considered further for the LNRS Species Shortlist.

Table 2: Categorisation of species according to scope of LNRS process. Source: Defra guidance- Species Recovery within Local Nature Recovery Strategies.

Category	Description	Benefit from LNRS?	Suitable LNRS species priorities?
A: Needs more / bigger / better-connected habitat	Species likely to markedly benefit from general creation, expansion, and improved connectivity of good quality habitats in the strategy area. Species with high recovery potential that do not require specific or targeted recovery measures.	Yes	Probably not – species are likely to benefit from LNRS measures generally and do not need to be singled out for specific LNRS measures
B: Needs targeted habitat management	Species with specific requirements for habitat quality, structure, conditions, or processes above and beyond category A. Species may require specific configurations or complexes of connected or nearby habitat(s), either at site level or across large areas/multiple sites. This may include habitat connectivity measures for species needing support to track climate change. Causes of decline can be addressed with new or improved management practices.	Yes	Yes
C: Needs improvements in environmental quality	Species primarily limited by one or more pressures beyond site level that can be mitigated at LNRS scale or wider scales through collaboration with neighbouring RAs. For example, better catchment water quality, improved spatial planning of air pollution sources, mitigation of recreational disturbance.	Yes	Yes
D: Needs bespoke conservation actions/s	Species requiring additional, tailored measures *which can be spatially indicated* on the Local Habitat Map. Species may need multiple coordinated actions to bring about recovery, including combinations of local actions and national actions,	Yes	Yes

	where LNRS could address the former. Examples of bespoke, spatially targetable local actions include conservation translocations (such as assisted colonisation for climate change adaptation), control of invasive species, and localised surveys. NB. Species requiring bespoke measures *which cannot be mapped* should be assigned to category E).		
E: Needs better evidence base/ on the ground action is not a priority	Species for which there is insufficient evidence or understanding regarding drivers of decline, required recovery actions, and range/population levels. Species for which the current priority is other than on the ground action, for example research or ex-situ conservation.	Unknown	No
F: Needs action outside England	Species with low (or very low) recovery potential dur to factors constraining recovery beyond English borders. Evidence shows that action in England is highly unlikely to improve species' prospects. This category is likely to apply only to migratory species (e.g. Afro-Palearctic migratory birds affected by hunting).	No	No
G: Vagrants/ occasional visitors	Species currently outside their normal breeding or wintering range or normal migration route, without an extant population in the strategy area, and which are not suitable for conservation translocation.	No	No

At this stage in the species classification process, efforts were again made to locate experts in taxa not yet reviewed for inclusion in the Longlist. However, some taxa remained unreviewed and therefore did not form the Longlist and were not able to be added to the eventual Shortlist for this LNRS. This is recognised as a potential limitation of this iteration of the Berkshire Local Nature Recovery Strategy.

Grouping species into habitat-based assemblages

During the session, participants also assigned species into habitat assemblages. Habitats listed in a draft version of the List of Priorities and Measures were used for this and assigned codes. A copy of this can be seen below.

Table 3: Habitats and their codes, to help group species into habitat-based assemblages.

Habitat	Code
Acid Grassland	AG
Ancient Woodland/Plantations on Ancient Woodland Sites	AW
Arable Field Margins	AFM
Calcareous Grassland	CG
Chalk Rivers	CR
Eutrophic Standing Water	ESW
Fen	FE
Floodplain Grazing Marsh	FGM
Flush	FL
Grassland	G
Gravel pit	GP
Heathland	He
Hedgerow	H
Lowland Meadow	LM
Mesotrophic Standing Water	MSW
Native Broad-Leaved Woodland	NW
Parkland	Pa
Ponds	Po
Private Greenspace	PG
Reedbed/Swamp	R/S
Rivers	R
Scrub	S
Traditional Orchards	TO
Urban Biodiversity	UB
Urban Trees	UT
Veteran Trees	VT
Wet Woodland	WW
Wetland Habitats	WH
Winterbournes	W
Wood Pasture	WP

Assigning to habitat assemblages, and adding species specific measures (Workshop 2) *(July 2024)*

During a second online species shortlisting session, participants grouped species into habitat assemblages on a virtual whiteboard, using the programme Miro. This was a drop in 4-hour session, where participants could edit the whiteboard directly, and join a Teams call to discuss

their decisions with the group. A list of example habitat assemblages was provided, based on those which were created from designing the wider habitat groupings for the list of Priorities and Measures. If a required habitat assemblage wasn't already present, this could be created and included on the whiteboard by a participant. Those species which fit into multiple assemblages were duplicated. See Appendix 1 for more detailed images of the online whiteboard.

Participants also viewed the current list of Priorities and Measures. When deciding on habitat assemblages and thinking about the species needed, if they didn't believe that these were met by the current list of Priorities and Measures, new species-specific measures were added. These are listed in Table 4.

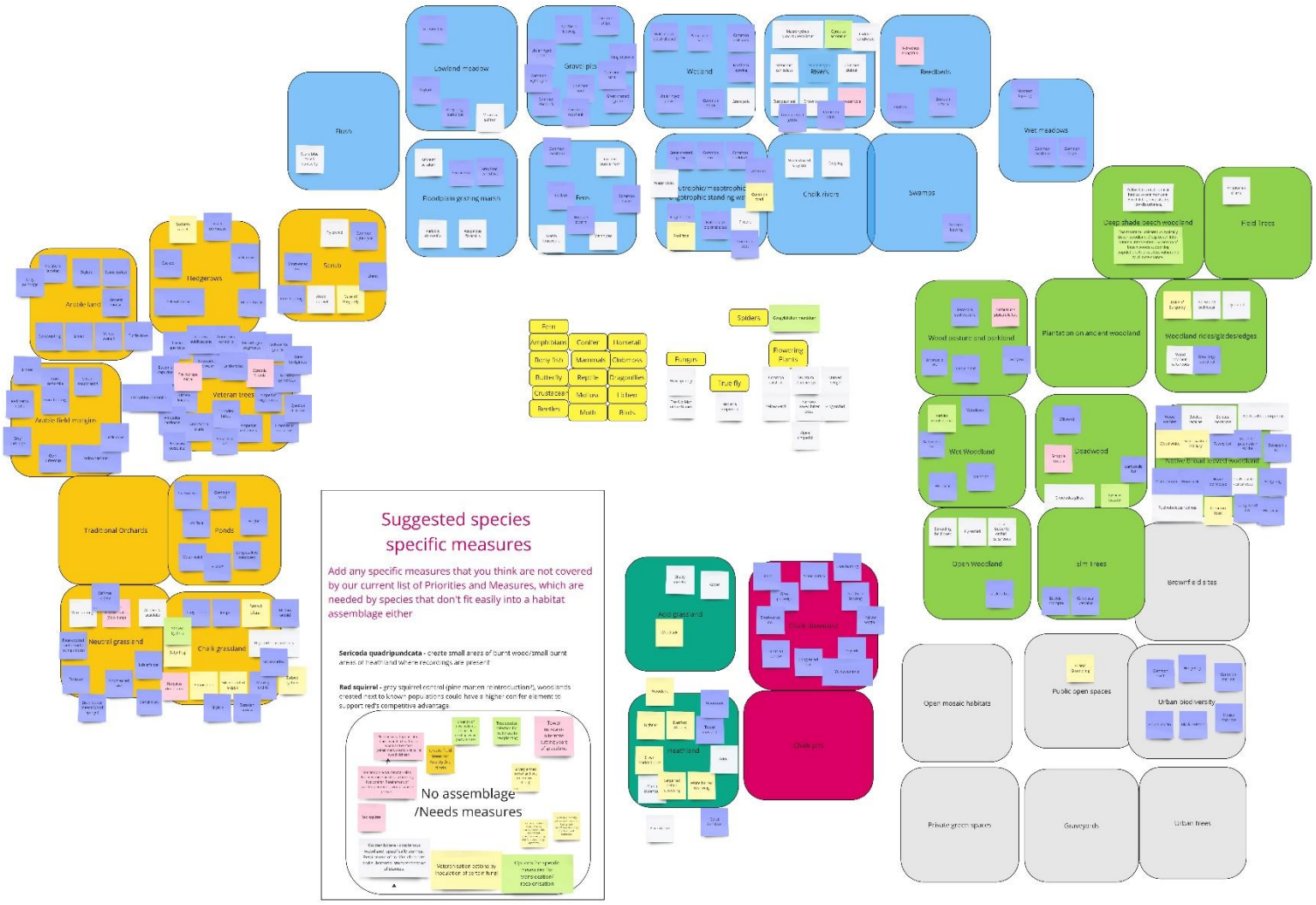


Figure 3: The completed collaborative online whiteboard from the species shortlisting online session. Coloured boxes are habitat assemblages. Post it notes are species. Suggested species specific measures are the output from the session.

Table 4: New measures suggested by Species Recovery Group during collaborative online whiteboard session.

Species	***Taxa***	***Specific extra measure suggested***
Anaptychia cilaris	*Lichen*	*Create field trees.*
Bacidia incompta	*Lichen*	Maintain/restore grazing to prevent excessive tree density and unfavourable shade levels. Short periods of lower grazing to allow some regen to escape. Minimal intervention pasture woodland (more intensive management in areas of no lichen interest) Heavy thinning/selective felling in over stocker woods (especially former pasture woods). Glade creation and very uneven thinning to introduce structural variation. Small group felling to 'rescue' veteran trees in dense regrowth Don't coppice/clearfell close to lichen rich stands Glades – should be 30% area, at least 30yrs lifespan. Should vary greatly in size. Maintain by grazing. Retain naturally generated deadwood Reconnect fragmented woods (convert to low intervention pasture woodlands) Control invasives (partic. Rhody). Sycamore rarely a problem; Beech potentially problematic (dense shade) but very rich in lichens when 250-300yrs old Retain veterans in ride systems (especially in woods that can't be grazed). Set in grass zone (not shrub zone as will be overshaded). PAWS – restore grazing early in process, open up more than is generally recommended.
Ena montana		Minimal intervention (other than removal of nonnatives) – generally require shaded conditions. Particularly appropriate in ancient native beech woodland. Light thinning/selective felling may be appropriate where regen of tree/shrub layer required Disturb springs, seepages, wet ground as little as possible. Clear small areas of non-natives around them. Maintain graded margins with site-native trees on external wood-edges Where appropriate, rotational coppice (small coupes, longer rotations (>12yrs)). Generally, longer coppice rotations seem to be more beneficial to litter invert. communities. Minimise ground disturbance. Control grazing – excessive disturbance to litter is detrimental; light grazing may be desirable to control coarse vegetation and encourage high diversity of cap fungi in litter layer
Silvery arches	*Moth*	*Ensure birch woodland is present. Ensure foodplants birches, sallows or bog-myrtle is present.*
Butterbur	*Moth*	*Ensure marshy places and river-side habitat is present. Ensure foodplant butterbur is present.*
Barberry carpet	*Moth*	*Ensure foodplant barberry is present.*
Four spotted moth	*Moth*	*Ensure foodplant bindweed is present.*
Striped lychnis	*Moth*	*Ensure foodplant dark mullein is present.*
Drab looper	*Moth*	*Ensure foodplant wood spurge is present in recently coppiced woodland*
Scarce burnished brass	*Moth*	*Ensure marshy places and river-side habitat is present. Ensure foodplant hemp-agrimony is present.*
Golden bolete	*Fungi*	*Retain conifer elements and substantial stumps in woodland. Create stumps.*

Boletus legaliae, Tawny bolete, Ruby bolete, Devil's bolete and Oldrose Bolete	*Fungi*	Ensure continuity of associated trees, including a range from saplings through to veterans
		Divert extraction routes away from known communities of Boletes
		Avoid heavy machinery compaction in known Bolete hotspots
		Avoid mowing regimes during peak fruiting period (normally late summer to mid-autumn)
		Control bracken outside of peak fungal fruiting
		Avoid use of fertilisers in wood pasture Bolete hotspots
		Avoid fire sites close to associated trees
Devil's bolete	*Fungi*	Adjacent woodland creation on calcareous soils.
Melanophila acuminata	*Beetle*	Burn felled live conifers. Retain scorched fragments and ash from fire sites.
Sericoda quadripundcata	*Beetle*	*Retain and create burnt wood niches*
Gnorimus variabilis	*Beetle*	Provide future continuity of dead wood through a programme of planting. Dead wood (particularly standing dead wood) should be left in situ. Plan for future generation of veteran trees
Scraptia fuscula	*Beetle*	Planning future generations of veteran trees, retainment of standing deadwood and stumps
Phyllodrepa nigra	*Beetle*	Planning future generations of veteran trees, retainment of standing deadwood and stumps
Common nightingale	*Bird*	*Ensure all stages of coppice are present at all times. Allow dense, 7 year scrub to develop along wood edge* (Coppice – ensure all stages present at all times (sequential coppice of adjacent coupes, Nightingale favour medium growth stage (4-10yrs)) Allow dense scrub to develop along wood edge and in coppice for feeding and nesting habitat (takes ~7yrs for scrub to be sufficiently dense for breeding) Where appropriate, thin canopy to encourage dense shrub layer (incl. bramble) Retain/restore soil moisture (modify drainage if nec.) Link suitable habitats with tall, thick hedgerows Enhance rides/glades – 3 zone (with scrubby element) Control browsing where affecting regen. and scrub structure)
Woodcock	*Bird*	Thinning to restructure immature closed canopy woodland and restore shade-stressed shrub and ground layers Ride and glade enhancement – wide with cover for foraging Manage browsing to maintain open conditions with shrub layer Woodland creation to reduce woodland isolation and increase patch size away from urban areas. Maintain/enhance soil moisture levels (retain water on site, buffer wood from effects of wind drying) Buffer woodland edge to intensive agriculture (damp, rough grassy margins could aid foraging) Landscape-scale deer management to control browsing pressure. Divert use pressure away from known habitats.

		Landscape-scale approach which preserves larger woodlands and protects them from fragmentation
Tawny owl	*Bird*	Retain dead trees with suitable nesting holes. Wide buffer strips with tussocky grass along woodland edges for foraging habitat. Scrubby edges to woodland Possibility of nest boxes where natural sites deficient
		Green bridges will be beneficial for this species as they vulnerable to fragmentation by transport networks
Common Starling, House Martin and Common Swift	*Bird*	Ensure LPA Local Plan has wording re inclusion of ratio of 1 universal/swift brick per new dwelling referring to British Standard Institute BS42021: 2022 Integral nest boxes - Selection and installation for new developments. Link LNRS to the Local Plan. Also wording to include extensions, public and industrial buildings. Measure will aid a variety of small cavity nesting birds, including 4 red-listed species (swift/house martin/house sparrow/starling).
Wood Warbler	*Bird*	Browsing pressure: enough to maintain scattered shrub understorey without removing field layer for nesting Selective thinning to encourage crown development but retain shade and sub-canopy open structure Restructure even-aged woods by small coupe felling or coppice (0.5-1 ha) Retain deadwood
Marsh clubmoss	*Clubmoss*	Needed
Juniper	*Conifer*	Establish a nursery for young plants – don't see Plantlife experience (planting unsuccessful) Management of grazing and succession. Creation of bare ground for germination. Landscape-scale biosecurity management needed to prevent spread of Phytophora and increase genetic resilience of extant and new populations.
Pilwort	*Fern*	Needed
Adder	*Reptile*	Edge habitat, scrub mosaic, topographical features
	Butterfly	Encourage kidney vetch
	Butterfly	Dry grassland – all current Berkshire sites are on scrubby grassland feeding on cowslips. Retain some scrub to provide shelter and encourage lush upright cowslip leaves
		Woodland sites- Enhance rides (widen, zones, scarify to create bare ground patches etc.). Breeding typically in edge vegetation 2-5 years after cutting Rotational coppice (50x50m, 3-10 years) Linkage between open areas (glades, rides, coupes) Maintain >10% scrub cover at range of ages in clearings/edges. Cut on rotation so doesn't overshade Cut/bruise dense bracken areas Light grazing (avoid sheep) in open areas to create open, grassy, sunny conditions
Silver-spotted skipper	*Butterfly*	Generally likes heavy grazing, and tussocks of fine grasses surrounded by bare ground.

Woodwhite	*Butterfly*	Woodland rides/glades. Currently no known colonies in Berkshire.
		Enhance rides and glades (2 zones, bare ground etc.) Rotational coppice (40x40m to 60x60m on short (<12year) rotations, <10-15% standard canopy cover, brash <50% ground cover; longer rotations if re-growth slow or large area; link coupes by cutting adjacently or creating rides) Cut scrub on rotation when cover >20% area Lightly graze open areas with cattle/ponies Connect open areas within and between woods (suitable habitat between woods every few km)
Silver studded blue	*Butterfly*	Heather management and specific ant (Lasius niger?) Manage Site to produce a succession of pioneer Heather and plentiful Bell Heather.
Adonis blue	*Butterfly*	Close graze to maintain horseshoe vetch and bare ground
Silver-washed fritillary	*Butterfly*	Encourage wide sunny rides and open glades edged with bramble
Ginger robberfly	*True fly*	Practice continuous cover forestry. Retain deadwood.
Water vole	*Mammal*	
Barbastelle bat	*Mammal*	Protect roosting sites – retain dead/dying trees; trees with cracks, loose bark, ivy, holes; nearby vegetation Maintain dark, humid conditions around roosts Partially block ditches; create ponds Control grazing and browsing to maintain dark, humid areas. Protect linear features; connect habitat within minimum 6km Create woodland to link/enlarge woods. Also create waterlogged areas.
Hazel dormouse	*Mammal*	Maintain margins of deciduous trees/shrubs beside rides, glades, edges of conifer plantations Create canopy gaps of 30x30-50x50m in winter if thinning necessary but do not clear understorey Retain deadwood/trees with crevices/cavities Retain woody spp. in sunny areas (e.g. Blackthorn Hazel) Coppice 50x50m on 20yr cycle. Cut non-adjacent coupes. Layer/plant hazels to prevent losses. Ensure arboreal connections across rides every 50-100m Limit grazing/browsing Connect suitable habitat within 2km Erect dormouse boxes and/or tubes
Nathusius' pipistrelle bat	*Mammal*	1) Bat boxes and bricks in developments; 2) Wind turbine management practice; 3) Bovine vaccination programme; 4) Water Quality
Red squirrel	*Mammal*	Landscape-scale grey squirrel control, green bridges/canopy corridors over roads, recover pine marten populations. Creation of quality coniferous woodlands adjacent to known populations.
Spreading bellflower	*Flowering plant*	Thinning to create more open conditions (25-35% canopy gap). Suppress Bramble growth. Small group felling or coppice (short-medium rotation - <12yrs) adjoining rides/glades if possible Disturb soils in small, sunny areas (don't remove topsoil) 142Create/maintain open areas aro143und existing plants Light grazing beneficial (removes comp. from tall plants) Maintain open, sunny woodland edges Connect open areas within woods
Starved sedge	*Flowering plant*	Traditional woodland management - rides/glades/clearings. maintaining openings in the canopy combined with cyclical

		coppicing work. Controlling competing vegetation e.g. bramble. Potential for translocation.
Meadow saffron	*Flowering plant*	Enhance glades/rides. Often found on edges of open areas so manage carefully Retain wet features Avoid soil compaction, waterlogging to retain important mycorrhizal fungi Controlled, time limited grazing by cattle/horses to create occasional soil disturbance. Avoid use of chemicals (herbicides/pesticides etc.) in vicinity
Yellow bird's nest	*Flowering plant*	On leaf litter in shaded woods and in damp dune slacks. Epiparasitic, using Tricholoma fungus to extract nutrients from nearby living trees. Most frequent under Beech and Hazel on calcareous soils and under Pine in more acidic soils. Likes deep shade.
Fly orchid	*Flowering plant*	cyclical coppicing regime. grazing management, ensuring low levels of grazing during the spring and early summer, or a cutting regime that removes biomass from the site
Military orchid	*Flowering plant*	Landscape-scale deer control. create open conditions via livestock grazing, mowing and raking, the control of encroaching scrub, or the felling of trees and lopping of branches.

Unverified taxa *(July 2024)*

Following initial species shortlisting sessions, it was decided that the following taxa were deemed not to be verified to a high enough quality by the current Species Recovery Work Group. There was expertise in certain taxa missing from the group. Further species expertise was sort on the missing taxa and information that came back is highlighted below.

Neil Sanderson, the British Lichen Society Conservation Officer, gave extra information on lichens. See below the information provided and the subsequent changes to the list made.

Lecanora quericola – no verified records from county – this was removed from list
Pertusaria pustulata – no verified records from county – this was removed from list
Bellicidia incompta – old records on veteran elm trees - no post 2000 records –this was removed from list
Caloplaca luteoalba - no verified records from county - no post 2000 records – this was removed from list
Anaptychia ciliaris – new species specific measure was added: 'Create field trees'

Considering urgency, feasibility, national species recovery, join-up opportunities, maximising benefits, climate change impacts, pre-existing species initiatives

(August 2024)

Defra requested that LNRS species lists consider the wider context around species chosen. To complete, a matrix was created and compared alongside the draft list of habitat-based priorities and measures. The Berkshire ecologists decided on some particular pressures affecting species that using their knowledge, were relevant to Berkshire.

Using information from Defra on pressures and threats for reporting (Defra, 2024), below species pressures were specifically identified as important in the county by the Berkshire ecologists:

- PA06 - Mowing or cutting of grasslands
- PB07/08 - Removal of dead and dying trees (including debris)/ Removal of old trees (excluding dead or dying trees)
- PF01/02 - Conversion from other land uses to built-up areas/ Construction or modification (e.g. of housing and settlements) in existing built-up areas
- PF07 - Residential and commercial activities and structures generating pollution to surface or ground waters
- PI01/02/04 – Invasive alien species/ Plant and animal diseases, pathogens and pests

Finalising species-specific measures – *(September 2024)*

All members of the Species Recovery Working Group were invited to attend an in-person session to review redundancy within the species list. A sub-group met and reviewed information from other national species groups and the List of Priorities and Measures. Those species with measures that were repeated in the current List of Priorities and Measures, or out of the scope of the LNRS, were removed. The Species Recovery Working Group were also given the opportunity to add information on locations that species were found in across Berkshire, and this was added to the list.

The final list of Priority Species and their associated measures were graphically designed and taken to the Public Consultation.

Stage 4: Changes made to the Species Priorities List following the public consultation

(March-July 2025)

A full Public Consultation was run on the Berkshire Local Nature Recovery Strategy on 17th February until 24th March 2025. Participants were invited to complete a survey, including questions related to the Species Priorities Shortlist. See these below.

- *Review the Species Priorities List. Are you happy that information is shown clearly?*
- *Review the Species Priorities List. To the best of your knowledge, are you happy that most species selected are those that are of highest importance for Berkshire's nature recovery?*

- *Do you think there is a species in Berkshire that isn't already on the Species Priorities List that should be? Please detail it below.*
- *If you have added a species that you believe should be on the Species Priorities List, please also add a species-specific measure below. Please review the style of the other species-specific measures for guidance.*
- *Do you have any further comments on the Species Priorities List? Please add them below.*

A wide variety of data was gathered from the consultation, and some of this was used to further refine the Species Priorities List. Three sessions were run with the expert Species Recovery Working Group across April and May to review suggestions from the public consultation exercise. Numerous stakeholders who contributed to the consultation were also invited to attend these sessions and discuss their comments and recommendations with the group, such as BBOWT, BASC, and a number of individuals affiliated with an organisation. During these sessions, suggestions of species to add to the list were individually discussed and reviewed. The species detailed below were added to the list at this point. Table 5 identifies the main changes that were made to the Species Priorities List post consultation. For a full review of this and other changes made to the LNRS from the consultation, see the Public Consultation Responses Report on the main Berkshire LNRS webpage.

Species added

Palmate newt *(Lissotriton helveticus*)
Chalkhill blue *(Polyommatus coridon)*
Glow-worm *(Lampyris noctiluca)*
Clubtailed dragonfly *(Gomphus vulgatissimus)*
Eurasian beaver *(Castor fiber)*
Eurasian Harvest mouse *(Micromys minutus)*
Pine marten *(Martes martes)*
*Sphagnum mosses (*Sphagnaceae)
Woodlark *(Lullula arborea)*
Waders of wetland habitat assemblage including:
Lapwing *(Vanellus vanellus),*
Ringed Plover *(Charadrius hiaticula),*
Little Ringed Plover (*Charadrius dubius),*
Snipe *(Gallinago gallinago),*
Redshank *(Tringa tetanus),*
Oystercatcher *(Haematopus ostralegus),*
Golden Plovers (*Pluvialis apricaria)*
White Helleborine *(Cephalanthera damasonium),*
Fly orchid *(Ophrys insectifera)*
Chalk Fragrant orchid *(Gymnadenia conopsea)*
Loddon lily/Summer snowflake *(Leucojum aestivum)*

Species removed

Lady orchid (orchis purpurea)
Military orchid (*Orchis militaris*)
Tawny owl (*Strix aluco*)

Table 5: Suggestions made during Berkshire LNRS Public Consultation relating to the Species Priorities List, who made the suggestions, and the subsequent changes made post consultation.

Suggestion from consultation	Identified by	Changes made post consultation
Objection to the species-specific measure for adders to 'limit the presence of game birds … within these mosaic habitats'.	BASC	Measure has been altered to refer to limit the presence of gamebirds only within specific habitats with known adder populations.

Order the list of species more clearly	Comment in survey	Species are organised by taxa, and in alphabetical order.
More suggestions for locations for species.	Comments from survey and Species Recovery Working Group meetings	Many location edits and additions made.
Many suggestions for species specific measures additions and changes.	Comments from survey and Species Recovery Working Group meetings	Many measure edits and additions made including: Tightened wording around swift bricks Strengthened wording of measures for water voles.
Remove Juniper as species	Anonymous	Discussion held incorrect sites records of juniper removed from list. Group decision that though not a species currently known in Berkshire, it should be kept on list.
Inclusion of glow worm	Community member	After discussion with Species Recovery Working Group and review of report (Edwards & Gibbon, 2024), glow worms were added.
Inclusion of brook lamprey and bullhead	West Berkshire council	Decision not to include. This is a species found across the Thames and not limited to watercourses. Species should be amply served by the measures to restore good diverse river habitat, improve water quality etc.
Loddon lilies	Community member	Discussion held. Decided to add these, on account on existence in Berkshire and recognition of these as county flower of Berkshire.
Create further habitat assemblages, including: Waders of wetlands, heathland birds and woodland birds	BBOWT and Berkshire Ornithological Club	Waders of wetlands assemblage created. Decisions not to create other assemblages but include heathland and woodland species separately.
Under 'Chalk grassland orchids' the examples given are two species which are calcareous scrubby glade species. We would recommend including White Helleborine (Cephalanthera damasonium), Lesser Butterfly (Platanthera bifolia), Fly (Ophrys insectifera) and Chalk Fragrant (Gymnadenia conopsea) orchid. Military orchid (Orchis militaris) is also a recent introduction and does not have a historic distribution in Berkshire.	BBOWT	Edited accordingly with suggested species added and others removed.

Appendices

Appendix 1 – Outputs of online workshop for Species Recovery Working Group using Miro online whiteboard.

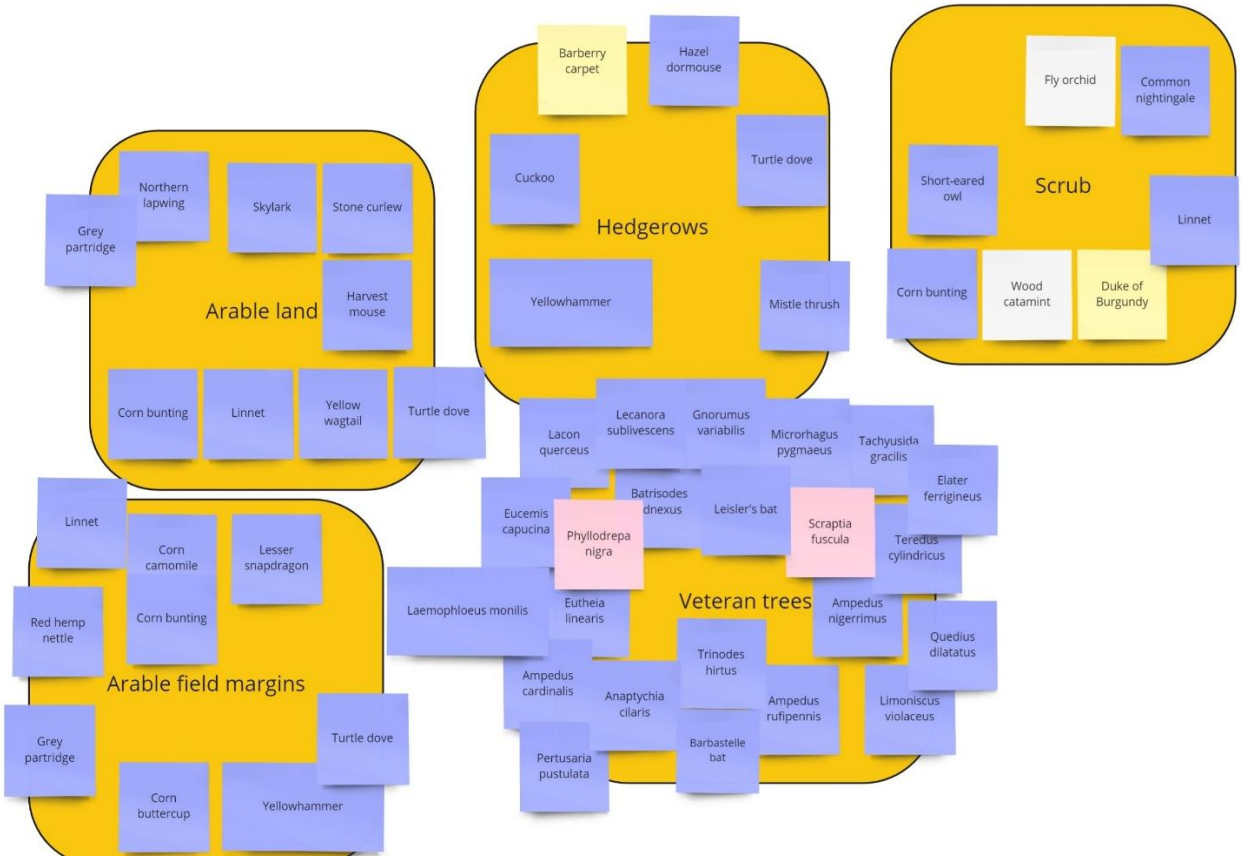


Figure 5: Agricultural habitat assemblages and associated species (1)



Figure 6: Agricultural habitat assemblages and associated species (2)

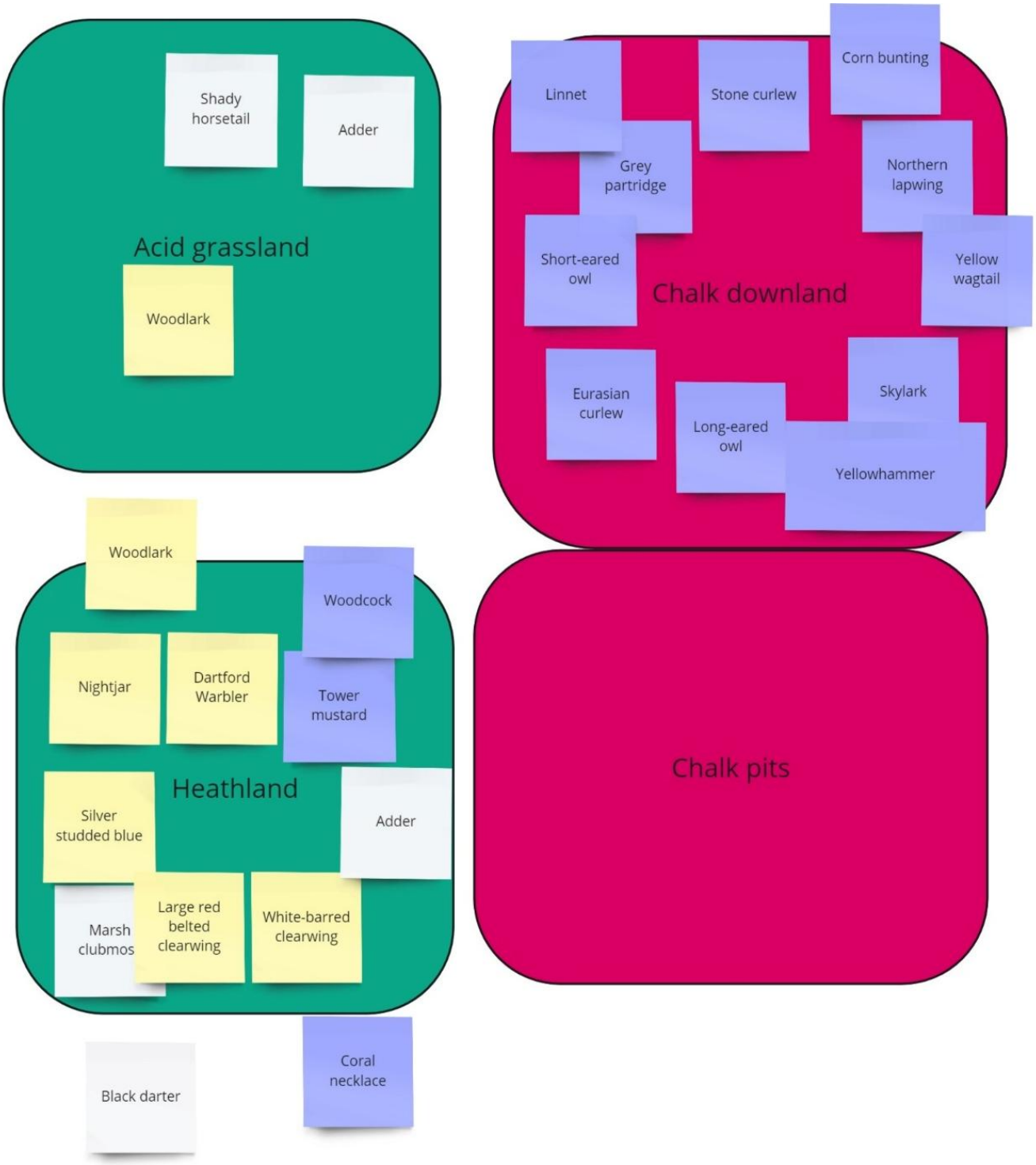


Figure 7: Heath and chalk based habitat assemblages and associated species

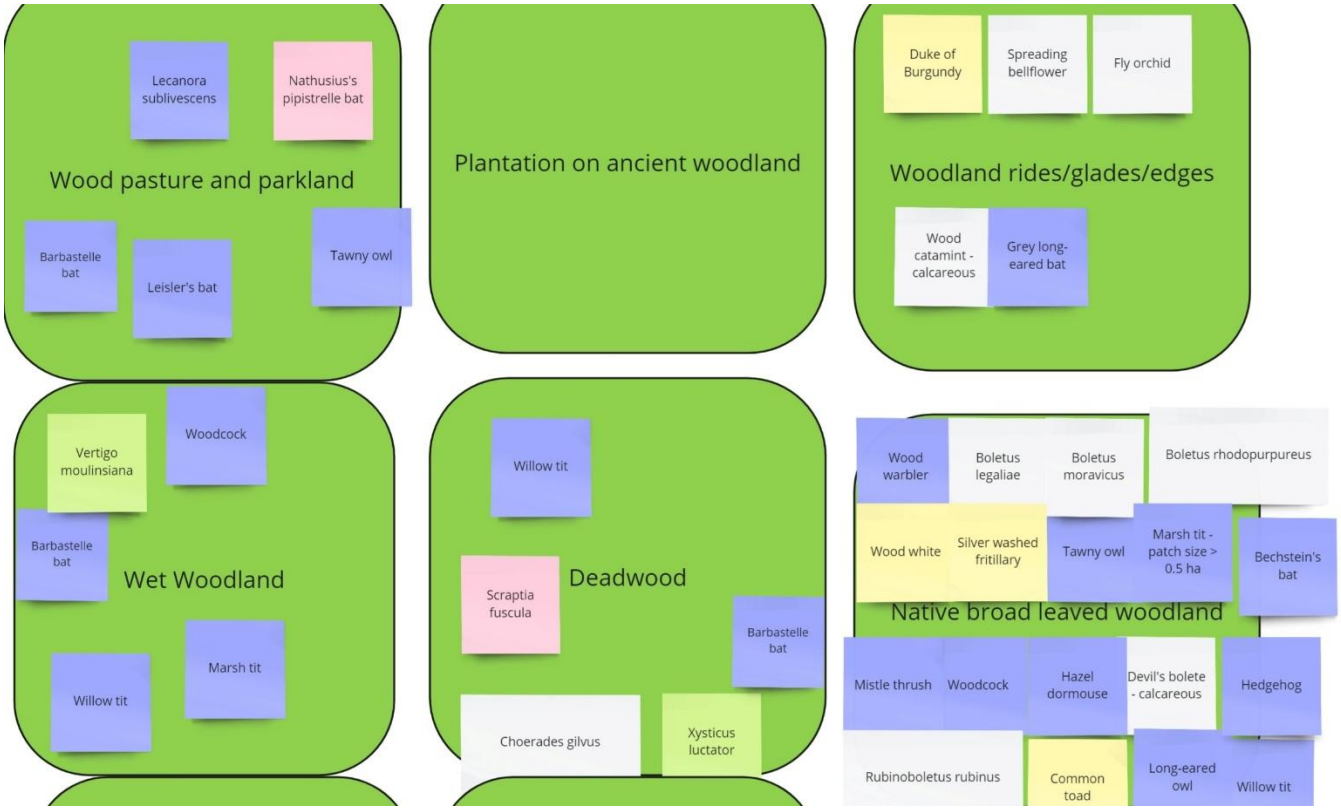


Figure 8: Woodland based habitat assemblages and associated species

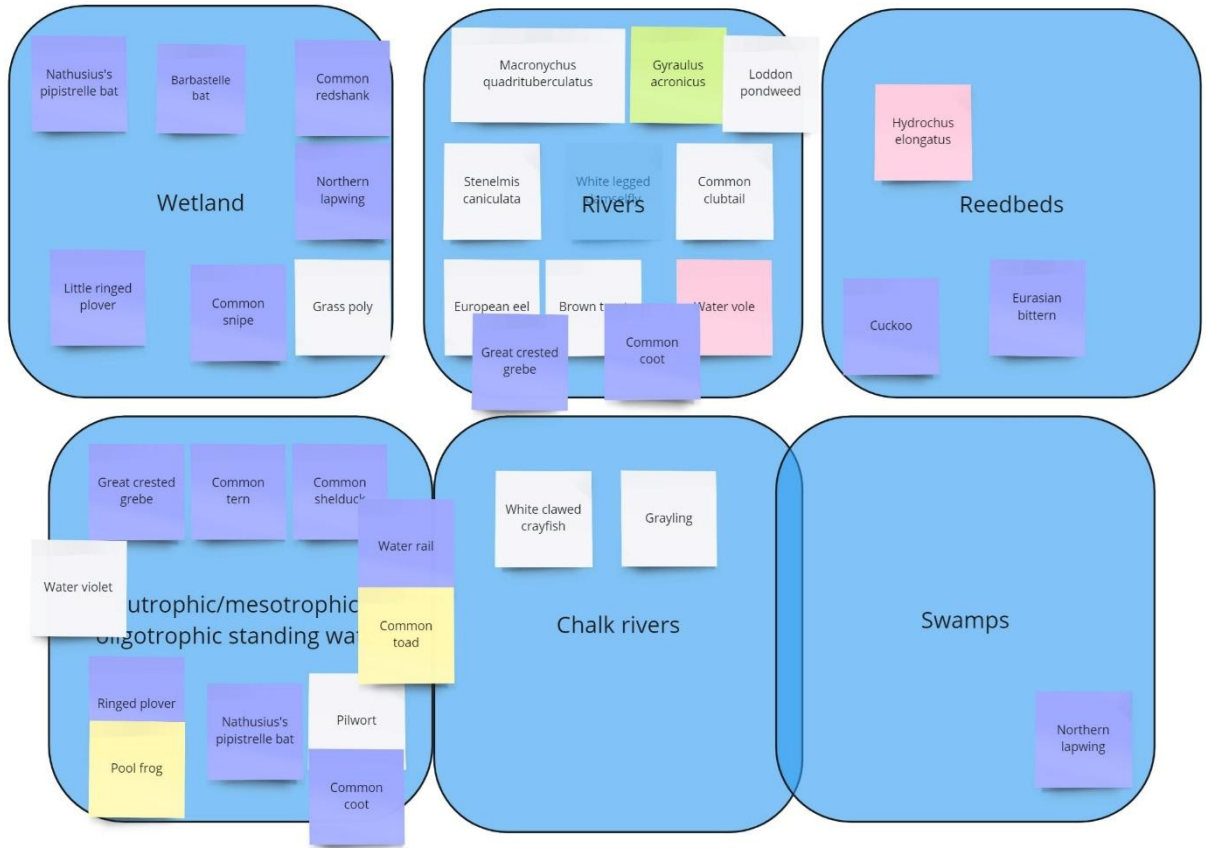


Figure 9: Water based habitat assemblages and associated species (1)



Figure 10: Water based habitat assemblages and associated species (2)

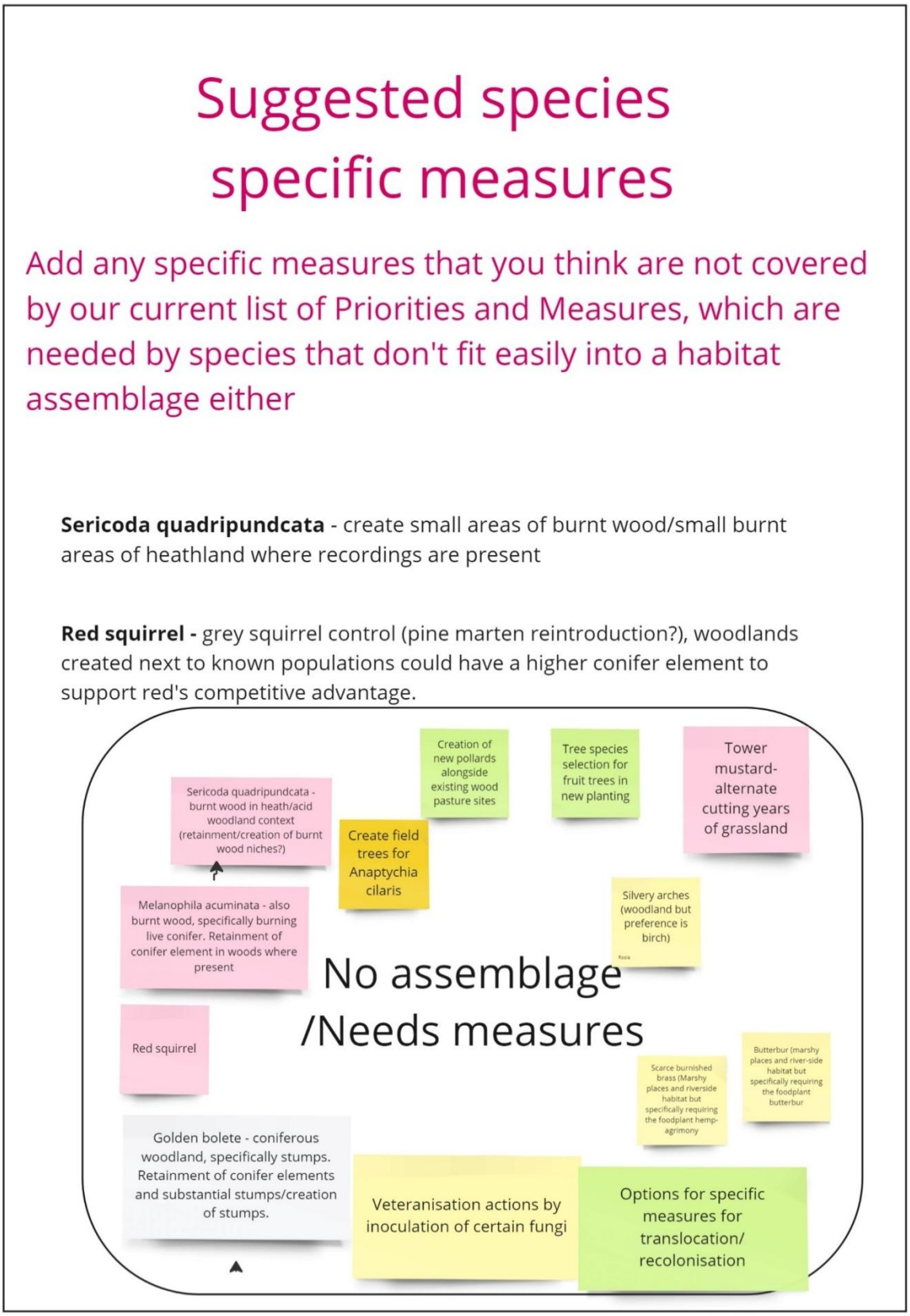


Figure 11: Suggested species-specific measures from Species Recovery Group during online workshop

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