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# TARGETED SURVEY AND HABITAT ASSESSMENT FOR THE NEW FOREST MUD BEETLE (*Helophorus laticollis*) AT SELECTED SITES IN THE NEW FOREST.

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England**



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## EXECUTIVE SUMMARY

A targeted search and habitat assessment for the Endangered and Section 41 Species of Principle Importance (SPI) New Forest Mud Beetle *Helophorus laticollis* was undertaken in June 2023 at seven sites in the New Forest, South Hampshire (Vice County 11) selected by Natural England, see sampling compartments section for more detail. The sites were visited and sampling of any pools holding water was undertaken for *Helophorus* species.

The project brief was as follows:

- Description of methods.
- Description of habitat suitability, vegetation cover and structure for each survey site.
- Record of where each species was present and absent during the field survey.
- The location and extent of each identified site and/or meta-population mapped and presented in ARC GIS shapefile and pdf maps at the 1:10000 scale.
- Identify other suitable habitat nearby.
- Notes on competing species if present.
- Estimation of size of each meta-population.
- Assessment of the current status of the target population within the New Forest.
- A discussion of the threats and risks to the populations of each species around the New Forest is to be provided in the write-up.

The selected sites were visited on the 12<sup>th</sup>, 13<sup>th</sup> & 14<sup>th</sup> June 2023 by two experienced invertebrate ecologists, Scotty Dodd MSc MCIEEM MRES and Dr. Jonty Denton Bsc (Hons) FRES FLS CEcol MCIEEM. Dr Denton is also the County Recorder for Coleoptera (beetles) for Hampshire (VC11 & VC12).

New Forest Mud Beetle *Helophorus laticollis* is a very rare and restricted beetle and their biology is poorly understood. What is known is that their activity period is generally between March to May (peaking in April) and again in September to December for adult beetle (Forest et al. 2014). They use suitable habitat such as shallow grassy wet pools in which they place their cocoons among vegetation in the shallow water.

Whilst the surveys were undertaken just outside of the optimal activity period an informed decision was made by the experienced surveyors to undertake sampling given that optimal habitat of wet pools were observed to still be present with the other *Helophorus* beetle species active within them. In addition, these sample sites were thought to be potentially suitable for the Beaulieu Dung Beetle *Liothorax niger* and this proved to be the case in several instances (as evidenced in the Beaulieu Dung Beetle Report (Dodd S & Denton J, 2023).

Samples of potential mud beetle candidates were dissected and the target species was not found to be present. New Forest Mud Beetle *Helophorus laticollis* was not recorded at any of the sites visited in June 2023. Given these latest survey results, it is thought that it is highly unlikely that the adults of this species is present in the summer months even if suitable habitat is still present.

**This report should be cited as:** Dodd, S.G. & Denton, J.S. (2023). *Targeted Survey and Habitat Assessment for the New Forest Mud Beetle (*Helophorus laticollis*) at Selected Sites in the New Forest*. Forestry England New Forest Mud Beetle Project (New Forest) Report. Project No. 4060-A.

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## Contents

EXECUTIVE SUMMARY .....	2
INTRODUCTION .....	4
BACKGROUND .....	4
PROJECT AIMS .....	4
SAMPLING COMPARTMENTS .....	5
METHODOLOGY .....	12
SITE VISITS .....	12
SAMPLING WITHIN THE COMPARTMENTS .....	12
CONSTRAINTS .....	12
RESULTS .....	12
Sway marl pits .....	12
Burley Rocks .....	14
Swan Green & Silver Street Lawn .....	15
Millyford Bridge & White Moor .....	16
Hope Cottage temporary ponds .....	16
ECOLOGICAL ASSESSMENT .....	16
THREATS .....	17
FURTHER WORK .....	17
APPENDIX 1. Status categories for rare and Notable species .....	19
Summary of the IUCN categories and criteria .....	20
Other species status terminology .....	21

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# INTRODUCTION

## BACKGROUND

A targeted search and habitat assessment for the Endangered and Section 41 Species of Principle Importance (SPI) New Forest Mud Beetle *Helophorus laticollis* was undertaken in June 2023 at seven sites in the New Forest, South Hampshire (Vice County 11) selected by Natural England. Despite being late in the year the sites were briefly visited and sampling of any pools holding water was undertaken for *Helophorus* species. This survey was commissioned by Forestry England via Surrey Wildlife Trust Ecology Services.

The New Forest Mud Beetle *Helophorus laticollis* Thomson, C.G., 1853 (Coleoptera: Helophoridae) distribution is centred on northern Europe from Scandinavia south-west to the Netherlands and east to Moscow with outlier records from the montane region of central France, southern Germany and Iceland (Foster, 2010). The English records are isolated, and the species is probably now confined to the New Forest area, with historic records from Dorset, South Hampshire and Surrey (Foster, 2010; Denton, 2007). Within the New Forest *Helophorus laticollis* is known from only five locations (Foster, 2010). However, the VC11 Coleoptera Recording Scheme dataset suggests up to six historic sites, having been most frequently recorded at Sway marl pits, but also at Burley Rocks, Brockenhurst area, Iron Hills Walk at Lyndhurst, Studley Heath and near Millyford Bridge. The most recent records are from 1999, probably in association with the New Forest Life Project, including all of the above sites with the exception of ‘Brockenhurst’ (Frank Balfour-Browne in 1914) and Iron Hills Walk at Lyndhurst (Garth Foster in 1966). The species was also recorded ‘near Millyford Bridge’ in 2000 by Roger Booth. All records were recorded in early spring, autumn or the winter months, early May being the latest record with no records during the summer until September.

In Britain the species was regarded as Vulnerable (Red Data Book 2) by Shirt (1987) who gave the locality of the New Forest as the ‘last known stronghold’. The subsequent review by Foster (2010) elevates the Vulnerable status applied by Shirt (1987) to Endangered (equivalent to RDB1) but uses the IUCN Red List system. The species was also considered to be a priority species in the UK Biodiversity Action Plan, which is largely superseded by the Section 41 of the NERC act (2006) list of Species of Principle Importance (SPI). Foster *et al.* (2014) regard *Helophorus laticollis* as the rarest *Helophorus* species in England.

In terms of species ecology, *Helophorus laticollis* is an aquatic species with predatory larvae and is associated with shallow grassy pools in heathland districts (Foster *et al.*, 2018). Foster (2010) based on Angus (1973) notes that unlike other British species of aquatic *Helophorus*, which place their egg cocoons in mud beside water, *Helophorus laticollis* places its cocoons among vegetation in the shallow water. Breeding takes place in the winter or early in spring (Foster *et al.*, 2018) with adult activity between March to May and peaking in April (Foster *et al.*, 2014).

## PROJECT AIMS

The project brief was as follows:

- Description of methods.

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- Description of habitat suitability, vegetation cover and structure within each survey site.
  - Record of where each species was present and absent during the field survey.
  - The location and extent of each identified site and/or meta-population mapped and presented in ARC GIS shapefile and pdf maps at the 1:10000 scale.
  - Identify other suitable habitat nearby.
  - Notes on competing species if present.
  - Estimation of size of each meta-population.
  - Assessment of the current status of the population of each species within the New Forest.
  - A discussion of the threats and risks to the populations of each species around the New Forest is to be provided in the write-up.

## **SAMPLING COMPARTMENTS**

### **12<sup>th</sup> June 2023**

- Burley Rocks – SU 2274 0342

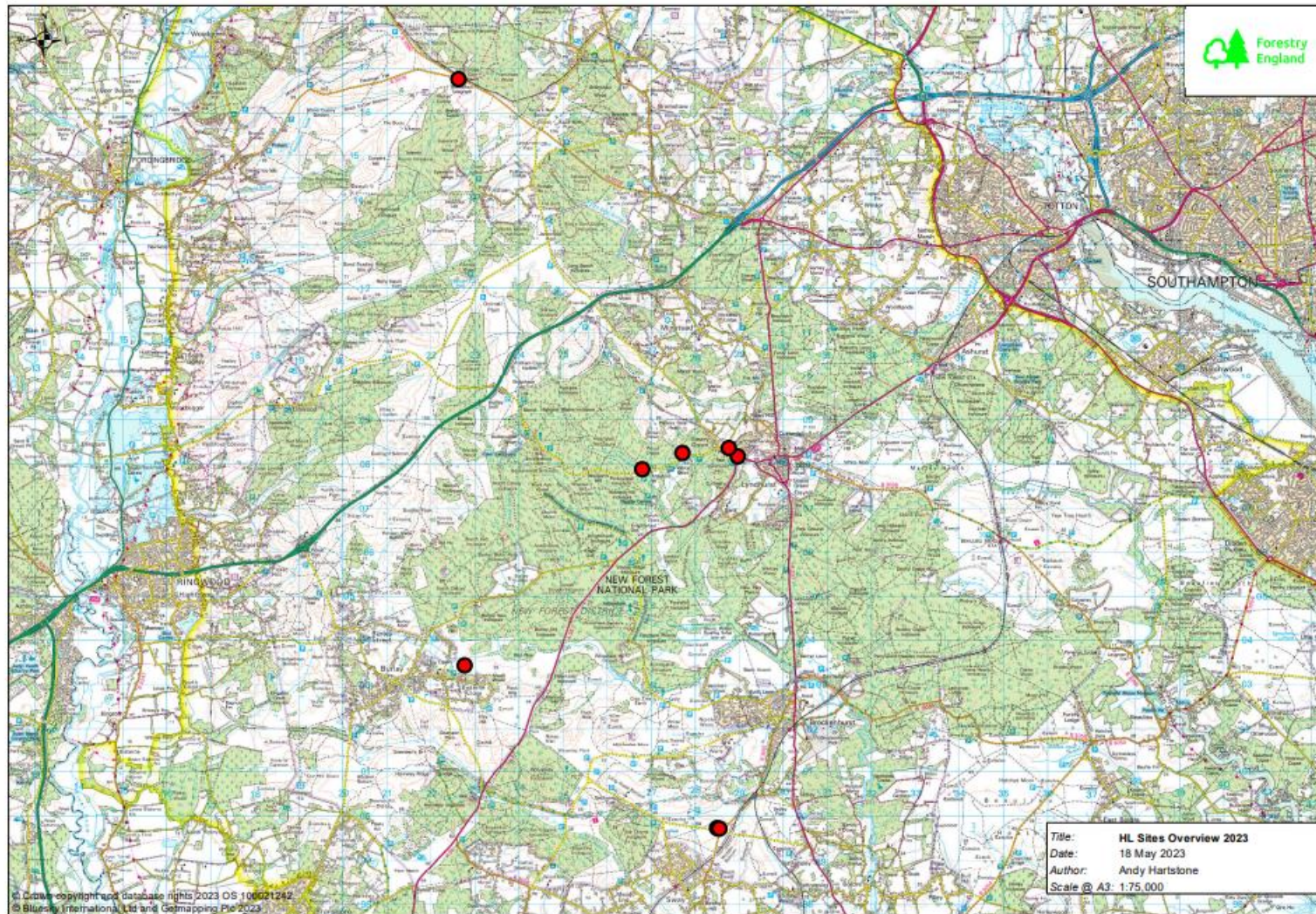
### **13<sup>th</sup> June 2023**

- White Moor – SU 2771 0825
- Millyford Bridge – SU 2680 0788
- Swan Green & Silver Street Lawn – SU 2896 0817 & SU 2877 0835

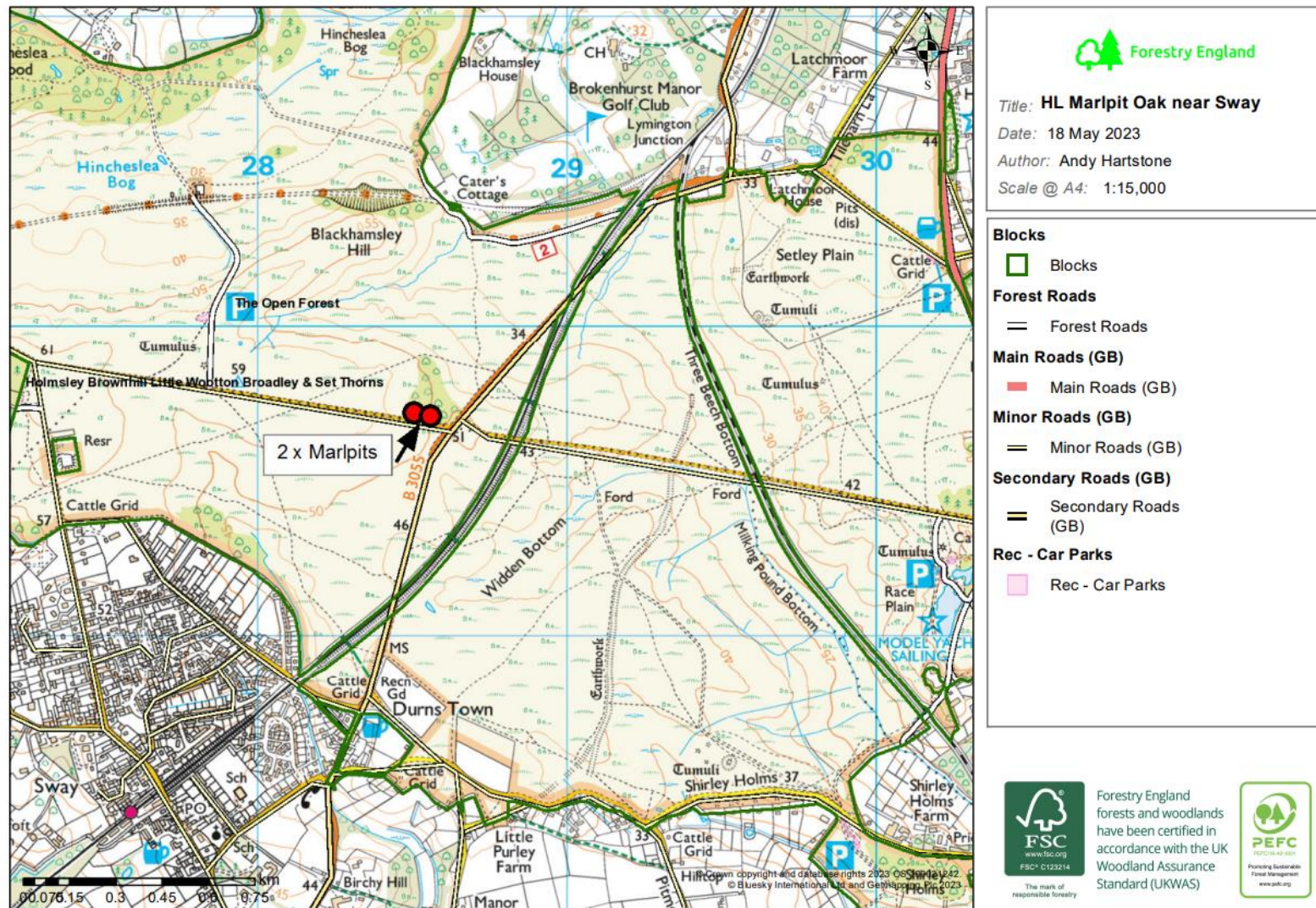
### **14<sup>th</sup> June 2023**

- Sway marl pits – SZ 2850 9971 & SZ 2855 9970

An outlier site with temporary ponds along the edge of Roger Penny Way in the vicinity of Hope Cottage SU 2262 1674 was not visited.

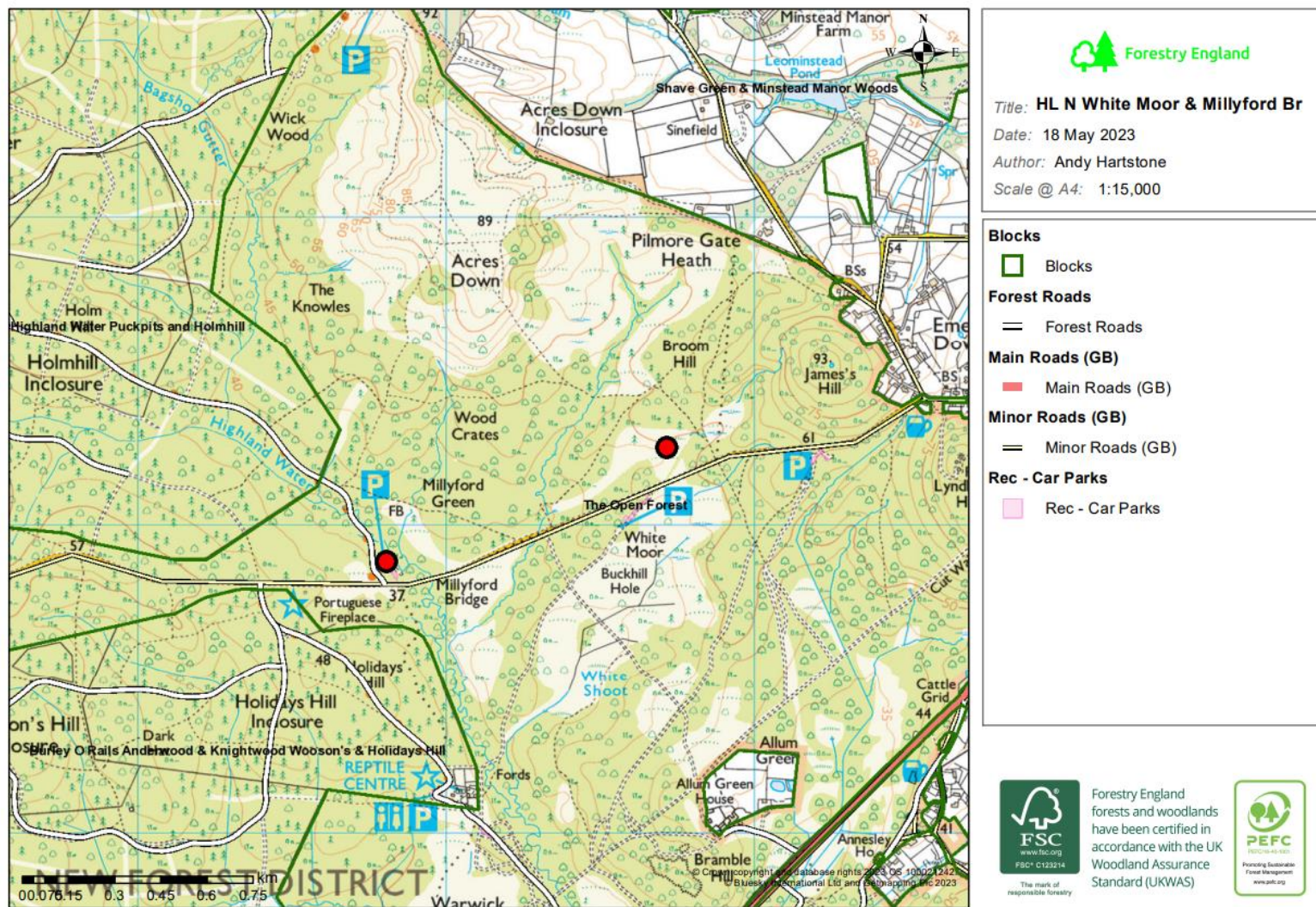


**Figure 1.** New Forest sampling compartments New Forest Mud Beetle in 2023 – Sites Overview.

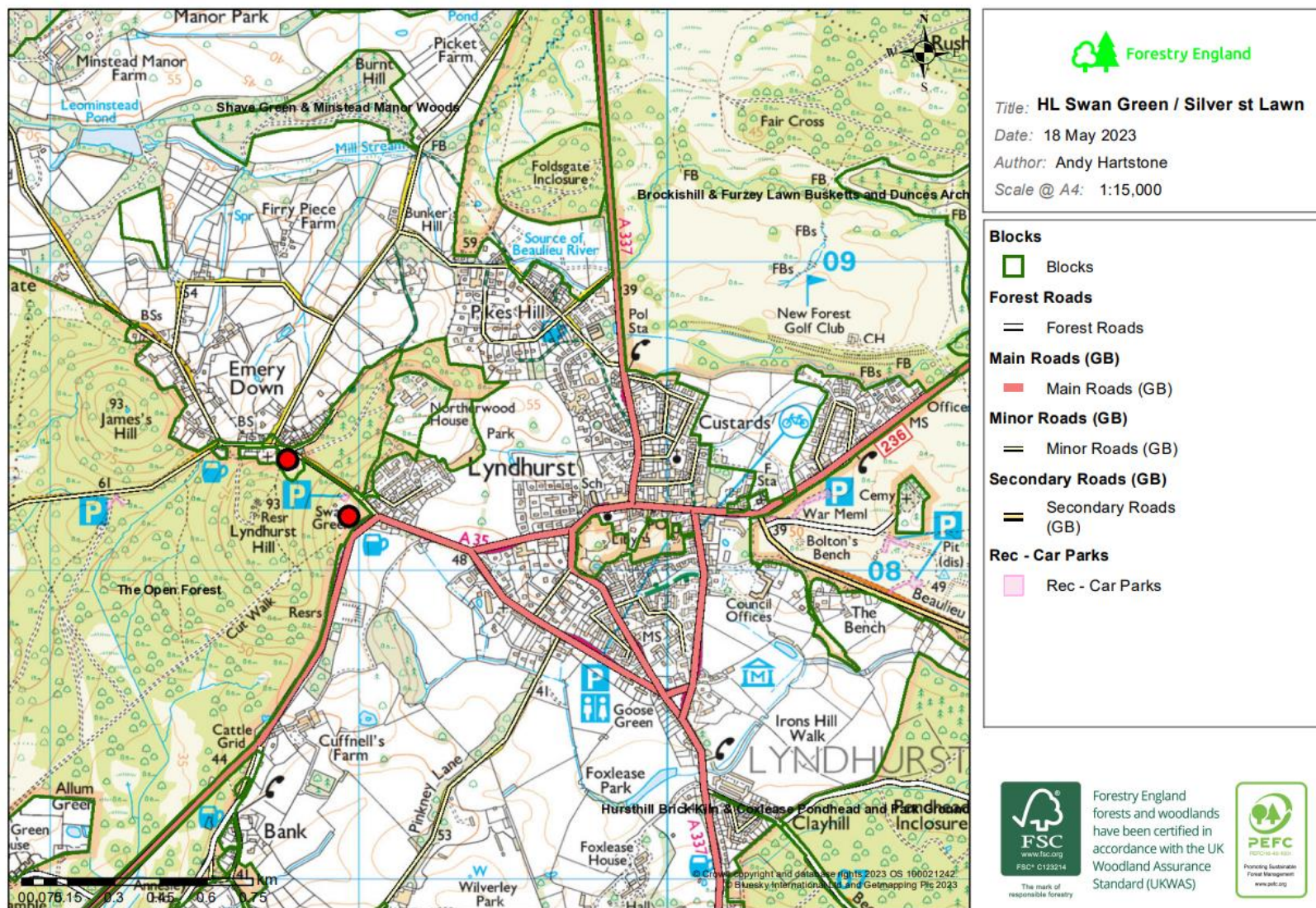


**Figure 2.** New Forest sampling compartments for New Forest Mud Beetle in 2023 – Sway marl pits.

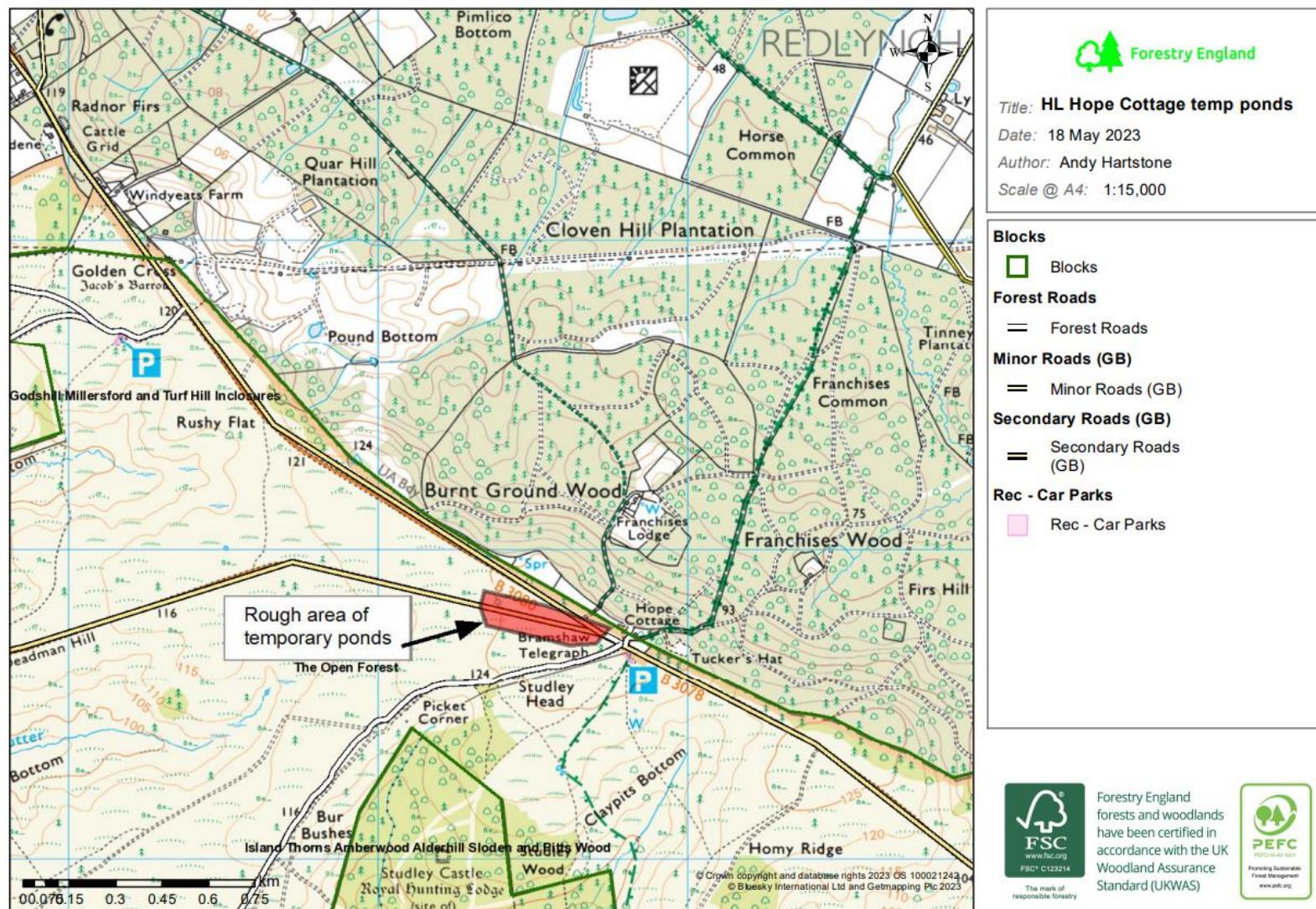




**Figure 4.** New Forest sampling compartments for New Forest Mud Beetle in 2023 – White Moor & Millyford Bridge



**Figure 5.** New Forest sampling compartments for New Forest Mud Beetle in 2023 – Swan Green & Silver St. Lawn



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## METHODOLOGY

### SITE VISITS

The selected sites were visited on the 12<sup>th</sup>, 13<sup>th</sup> & 14<sup>th</sup> June 2023 by two experienced invertebrate ecologists, Scotty Dodd MSc MCIEEM MRES and Dr. Jonty Denton Bsc (Hons) FRES FLS CEcol MCIEEM.

### SAMPLING WITHIN THE COMPARTMENTS

The following search methods were implemented:

Sites holding water were sampled using a 0.5mm mesh bagged frame net (G.B.Nets Todmorden). Net was carefully dipped into the water where *Helophorus* species were seen. A sample of any *Helophorus* beetles was taken for dissection / identification.

### CONSTRAINTS

The surveys were undertaken in June, this being outside the known activity period of between March to May. This was undertaken because optimal habitat of shallow grassy wet pools were still present, other *Helophorus* beetle species were still present as were Beaulieu Dung Beetle that are also found in the same habitat. Therefore an informed decision was taken by the surveyors that the survey would still be valid.

## RESULTS

### Sway marl pits

Two adjacent pools, one shaded the other largely unshaded. The unshaded pool supported a richer flora with Water Milfoil *Myriophyllum spicatum*, a floating sweet-grass *Glyceria* sp. in the open water and Marsh St. John's-wort *Hypericum elodes*, Lesser Spearwort *Ranunculus flammula* and Toad Rush *Juncus bufonius* around the poached drawn-down edges. The Water Milfoil supported an abundant population of the nationally scarce weevil *Pelenomus canaliculatus*. *Helophorus* beetles were abundant in the open water with four species recorded, including one nationally scarce species. However, the target species was not recorded confirming that it is not present at what can be considered a core site in the summer months.

Other invertebrates noted:

Table 1. Invertebrate records from Sway marl pits.

Order	Family	Taxon	Vernacular	Status	Site Name
Araneae	Lycosidae	<i>Pirata tenuitarsis</i>	a wolf spider	NS	Sway Pits, New Forest
Coleoptera	Carabidae	<i>Paranchus albipes</i>	a ground beetle		Sway Pits, New Forest
Coleoptera	Carabidae	<i>Pterostichus minor</i>	a ground beetle		Sway Pits, New Forest

Order	Family	Taxon	Vernacular	Status	Site Name
Coleoptera	Curculionidae	<i>Pelenomus canaliculatus</i>	a weevil	[Nb]	Sway Pits, New Forest
Coleoptera	Dryopidae	<i>Dryops luridus</i>	a water beetle		Sway Pits, New Forest
Coleoptera	Dryopidae	<i>Dryops striatellus</i>	a water beetle	NS	Sway Pits, New Forest
Coleoptera	Dytiscidae	<i>Agabus bipustulatus</i>	a water beetle		Sway Pits, New Forest
Coleoptera	Dytiscidae	<i>Dytiscus marginalis</i>	Great Diving Beetle		Sway Pits, New Forest
Coleoptera	Dytiscidae	<i>Hydroporus erythrocephalus</i>	a water beetle		Sway Pits, New Forest
Coleoptera	Dytiscidae	<i>Hydroporus gyllenhalii</i>	a water beetle		Sway Pits, New Forest
Coleoptera	Dytiscidae	<i>Hydroporus memnonius</i>	a water beetle		Sway Pits, New Forest
Coleoptera	Dytiscidae	<i>Hydroporus nigrata</i>	a water beetle		Sway Pits, New Forest
Coleoptera	Dytiscidae	<i>Hydroporus planus</i>	a water beetle		Sway Pits, New Forest
Coleoptera	Dytiscidae	<i>Ilybius montanus</i>	a water beetle		Sway Pits, New Forest
Coleoptera	Gyrinidae	<i>Gyrinus substriatus</i>	Common Whirlygig Beetle		Sway Pits, New Forest
Coleoptera	Helophoridae	<i>Helophorus flavipes</i>	a water beetle		Sway Pits, New Forest
Coleoptera	Helophoridae	<i>Helophorus granularis</i>	a water beetle		Sway Pits, New Forest
Coleoptera	Helophoridae	<i>Helophorus minutus</i>	a water beetle		Sway Pits, New Forest
Coleoptera	Helophoridae	<i>Helophorus strigifrons</i>	a water beetle	NS	Sway Pits, New Forest
Coleoptera	Hydrochidae	<i>Hydrochus angustatus</i>	a water beetle	NS	Sway Pits, New Forest
Coleoptera	Hydrophilidae	<i>Anacaena lutescens</i>	a water beetle		Sway Pits, New Forest
Coleoptera	Hydrophilidae	<i>Helochaeres punctatus</i>	a water beetle	NS	Sway Pits, New Forest
Coleoptera	Hydrophilidae	<i>Paracymus scutellaris</i>	a water beetle	NS	Sway Pits, New Forest
Coleoptera	Staphylinidae	<i>Paederus caligatus</i>	a rove beetle	[RDB3]	Sway Pits, New Forest
Heteroptera	Saldidae	<i>Chartoscirta cocksi</i>	a shore bug		Sway Pits, New Forest



**Photograph 1.** One of the old marl pit ponds at Sway, the other pool is in dense shade and probably less suitable.

## Burley Rocks

The stream edges were sampled along with flush fed pools in grassland hollows, the latter being the priority for *Helophorus laticollis*. The pools are essentially flooded grassland hollows and would appear to be optimal for the target species in spring. The poached and dunged edges of the pools and stream yielded two individual Beaulieu Dung Beetle *Liothorax niger*, the details of which can be found in the report for that target species.

Other invertebrates noted:

**Table 2.** Invertebrate records from Burley Rocks.

Order	Family	Taxon	Vernacular	Status	Site Name
Coleoptera	Coccinellidae	<i>Tytthaspis sedecimpunctata</i>	16-spot Ladybird		Burley Rocks, New Forest
Coleoptera	Dryopidae	<i>Dryops similaris</i>	a water beetle	NS	Burley Rocks, New Forest
Coleoptera	Dytiscidae	<i>Agabus bipustulatus</i>	a water beetle		Burley Rocks, New Forest
Coleoptera	Helophoridae	<i>Helophorus brevipalpis</i>	a water beetle		Burley Rocks, New Forest
Coleoptera	Helophoridae	<i>Helophorus flavipes</i>	a water beetle		Burley Rocks, New Forest
Coleoptera	Helophoridae	<i>Helophorus minutus</i>	a water beetle		Burley Rocks, New Forest
Coleoptera	Hydrophilidae	<i>Cercyon melanocephalus</i>	a water beetle		Burley Rocks, New Forest
Coleoptera	Hydrophilidae	<i>Helochares punctatus</i>	a water beetle	NS	Burley Rocks, New Forest
Coleoptera	Scarabaeidae	<i>Aphodius haemorrhoidalis</i>	a dung beetle		Burley Rocks, New Forest
<b>Coleoptera</b>	<b>Scarabaeidae</b>	<b><i>Liothorax niger</i></b>	<b>Beaulieu Dung Beetle</b>	<b>NR / S41</b>	<b>Burley Rocks, New Forest</b>
Coleoptera	Staphylinidae	<i>Ontholestes murinus</i>	a rove		Burley Rocks, New Forest

Order	Family	Taxon	Vernacular	Status	Site Name
			beetle		
Coleoptera	Staphylinidae	<i>Paederus caligatus</i>	a rove beetle	[RDB3]	Burley Rocks, New Forest
Coleoptera	Staphylinidae	<i>Philonthus intermedius</i>	a rove beetle		Burley Rocks, New Forest
Diptera	Scathophagidae	<i>Scathophaga stercoraria</i>	Yellow Dung Fly		Burley Rocks, New Forest
Heteroptera	Gerridae	<i>Aquarius najas</i>	River Skater		Burley Rocks, New Forest
Heteroptera	Nepidae	<i>Nepa cinerea</i>	Water Scorpion		Burley Rocks, New Forest
Heteroptera	Veliidae	<i>Velia caprai</i>	Water Cricket		Burley Rocks, New Forest



**Photograph 2.** Large, shallow pool with submerged vegetation at Burley Rocks looked optimal.

### Swan Green & Silver Street Lawn

No suitable areas of seasonally wet habitat were detected with the exception of a small section of wet ditch in the woodland. This was by and large unvegetated and less likely to be suitable for the target species.

Other invertebrates noted:

**Table 3.** Invertebrate records from Swan Green & Silver Street Lawn.

Order	Family	Taxon	Vernacular	Status	Site Name
Coleoptera	Dryopidae	<i>Dryops striatellus</i>	a water beetle	NS	Swan Green & Silver Street Lawn, New Forest
Coleoptera	Dytiscidae	<i>Agabus bipustulatus</i>	a water beetle		Swan Green & Silver Street Lawn, New Forest
Coleoptera	Dytiscidae	<i>Hydroporus pubescens</i>	a water beetle		Swan Green & Silver Street Lawn, New Forest
Coleoptera	Erotylidae	<i>Triplax aenea</i>	a beetle		Swan Green & Silver Street Lawn, New Forest

Order	Family	Taxon	Vernacular	Status	Site Name
Coleoptera	Helophoridae	<i>Helophorus flavipes</i>	a water beetle		Swan Green & Silver Street Lawn, New Forest
Coleoptera	Hydrophilidae	<i>Anacaena lutescens</i>	a water beetle		Swan Green & Silver Street Lawn, New Forest
Coleoptera	Hydrophilidae	<i>Laccobius atratus</i>	a water beetle	NS	Swan Green & Silver Street Lawn, New Forest

## Millyford Bridge & White Moor

No suitable habitat for the target species was noted at Millyford Bridge at the time of survey. The shaded stream was walked to sample for the Beaulieu Dung Beetle *Liothorax niger* and may also have some suitability for the Brown Diving Beetle *Agabus brunneus*. White Moor bog was visited but no suitable seasonal pools were noted at the time of survey.

**Table 4.** Invertebrate records from Millyford Bridge.

Order	Family	Taxon	Vernacular	Status	Site Name
Coleoptera	Carabidae	<i>Bembidion dentellum</i>	a ground beetle		Millyford Bridge, New Forest
Coleoptera	Carabidae	<i>Paranchus albipes</i>	a ground beetle		Millyford Bridge, New Forest
Coleoptera	Scirtidae	<i>Cyphon palustris</i>	a marsh beetle		Millyford Bridge, New Forest
Coleoptera	Staphylinidae	<i>Myllaena elongata</i>	a rove beetle	[N]	Millyford Bridge, New Forest
Heteroptera	Gerridae	<i>Aquarius najas</i>	River Skater		Millyford Bridge, New Forest
Heteroptera	Hydrometridae	<i>Hydrometra stagnorum</i>	Water Measurer		Millyford Bridge, New Forest

## Hope Cottage temporary ponds

Due to the time of year and having established that the target species was not currently active this outlier site was not visited.

## ECOLOGICAL ASSESSMENT

The current status of New Forest Mud Beetle *Helophorus laticollis* is thought to be now confined to the New Forest area and is known from only five New Forest locations, with the most recent records from 1999.

The New Forest Mud Beetle *Helophorus laticollis* is a very rare and restricted beetle and their biology is poorly understood. What is known is that their activity period is generally between March to May (peaking in April) and again in September to December for the adult beetle (Forest et al. 2014). The adults use breeding habitat such as shallow grassy wet pools.

A targeted search in June 2023 for this species was undertaken in shallow grassy pools, however adults of this species were not recorded in any of the seven sites visited. Whilst the surveys were undertaken just outside of the optimal activity period this was based on an

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informed decision made by the experienced surveyors to undertake sampling given that optimal habitat of wet pools were observed to still be present with the other *Helophorus* beetle species active within them. In addition, these sample sites were thought to be potentially suitable for the Beaulieu Dung Beetle *Liothorax niger* and this proved to be the case in several instances (as evidenced in the Beaulieu Dung Beetle Report (Dodd S & Denton J, 2023). Given these latest survey results, it is thought that it is highly unlikely that the adults of this species is present in the summer months even if suitable habitat is still present.

## **THREATS**

Foster in Shirt (1987) states that the threats to the species survival at the known sites is the loss of temporary wet heathland habitats in the New Forest area.

Foster (2010) blames the loss of heathland sites in Surrey and South Hampshire for the decline of the species and goes on to state that desiccation of wet heathland areas in the New Forest could lead to the extinction of the species in Britain. In terms of conservation Foster (2010) advises that the maintenance of exposed temporary pools and wet heathland is essential.

Extreme hot weather and drought events in successive years driven by a changing climate may also prove to be problematic in the future, particularly heatwaves in the spring months, with seasonal pools drying out in early spring.

Hydrosere succession of temporary pools to scrub should be checked to prevent natural drying and over-shading of pools known to support the species, for example one of the old marl pits at Sway is now completely overgrown. When Dr Jonty Denton recorded the target species at Sway in 1995 the beetle was found in shaded and unshaded pools, hence some partial shading is less of an issue than the pools ultimately being dry as scrub develops into larger trees.

## **FURTHER WORK**

The sites could be sampled in April (or early May at the latest) as this is cited as being the peak time for adult activity. The beetles are also winter active which gives another option. Other heathland pool sites, such as Standing Hat, might also have potential to support the target species.

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## APPENDIX 1. Status categories for rare and Notable species

### Red Data Book Category 1 (RDB 1) – Endangered

#### Definition.

Taxa in danger of extinction *in Great Britain* and whose survival is unlikely if the causal factors continue operating.

Included are those taxa whose numbers have been reduced to a critical level or whose habitats have been so dramatically reduced that they are deemed to be in immediate danger of extinction. Also included are *some* taxa that are *possibly* extinct.

#### Criteria.

Species which are known *or believed to occur* as only a single population within one 10 km square of the National Grid.

Species which only occur in habitats known to be especially vulnerable.

Species which have shown a rapid or continuous decline over the last twenty years and are now *estimated* to exist in five or fewer 10 km squares.

Species which are *possibly* extinct *but have been recorded this century* and if rediscovered would need protection.

### Red Data Book Category 2 (RDB 2) - Vulnerable

#### Definition.

Taxa *believed* likely to move into the endangered category in the near future if the causal factors continue operating.

Included are taxa of which most or all of the populations are decreasing because of *over-exploitation*, extensive destruction of habitat or other environmental disturbance; taxa with populations that have been seriously depleted and whose ultimate security is not yet assured; and taxa with populations that are still abundant but are under threat from serious adverse factors throughout their range.

#### Criteria.

Species declining throughout their range.

Species in vulnerable habitats.

### Red Data Book Category 3 (RDB 3) – Rare

#### Definition.

Taxa with small populations *in Great Britain* that are not at present endangered or vulnerable, but are at risk.

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These taxa are usually localised within restricted geographical areas or habitats or are thinly scattered over a more extensive range.

**Criterion.**

Species which are estimated to exist in only fifteen or fewer 10 km squares. *This criterion may be relaxed where populations are likely to exist in over fifteen 10 km squares but occupy small areas of especially vulnerable habitat*

**Nationally Scarce Category A - Notable A (Na)**

**Definition.**

Taxa which do not fall within **RDB** categories but which are none-the-less uncommon in Great Britain and are thought to occur in 30 or fewer 10 km squares of the National Grid or, for less well recorded groups, within seven or fewer vice-counties.

**Nationally Scarce Category B - Notable B (Nb)**

**Definition.**

Taxa which do not fall within **RDB** categories but which are none-the-less uncommon in Great Britain and are thought to occur in between 31 and 100 10 km squares of the National Grid or, for less well recorded groups, within eight and twenty vice-counties.

**Nationally Scarce - Notable (N)**

**Definition.**

Taxa which do not fall within **RDB** categories but which are none-the-less uncommon in Great Britain and are thought to occur in between 16 to 100 10 km squares of the National Grid. Species within this category are often too poorly known for their status to be more precisely estimated.

**Summary of the IUCN categories and criteria.**

- **REGIONALLY EXTINCT (RE)**  
A taxon is Extinct when there is no reasonable doubt that the last individual has died. In this review the last date for a record is set at fifty years before publication.
- **CRITICALLY ENDANGERED (CR)**  
A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered.
- **ENDANGERED (EN)**  
A taxon is Endangered when the best available evidence indicates that it meets any of the criteria A to E for Endangered.
- **VULNERABLE (VU)**  
A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable.
- **NEAR THREATENED (NT)**

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A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.

- **LEAST CONCERN (LC)**

A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category.

- **DATA DEFICIENT (DD)**

A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. Data Deficient is therefore not a category of threat. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate.

- **NOT EVALUATED (NE)**

A taxon is Not Evaluated when it has not yet been evaluated against the criteria.

## **GB Rarity Status categories and criteria**

- **Nationally Rare (NR)**

Native species which have not been recorded from more than 15 British hectads since 31st December 1979 and where there is reasonable confidence that exhaustive recording would not find them in more than 15 hectads. This category includes species which are probably extinct.

- **Nationally Scarce (NS)**

Native species which are not regarded as Nationally Rare AND which have not been recorded from more than 100 British hectads since 31st December 1979 and where there is reasonable confidence that exhaustive recording would not find them in more than 100 hectads.

## **Other species status terminology.**

- **Local.** Species that are restricted in distribution either geographically or by habitat. Also used for species that are widespread but infrequently encountered, e.g. encountered in no more than 300 10km squares of the national Ordnance Survey grid since 1970. Or those species listed as such, based upon modern geographical data, by ISIS (2010) and/or relevant recording schemes.
- **Widely Scattered.** Generally distributed but at low densities.
- **Southern.** Mainly or completely confined to southern England and/or its westerly or easterly regions – as indicated.
- **Common.** Generally widespread throughout the UK.
- **Unknown.** Usually indicates a lack of available data for difficult taxa but may also imply recent taxonomic confusion.