

**Invertebrates and their  
habitats in Natural Areas  
Volume 2 - Southern Areas**

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**Invertebrates and their habitats in Natural Areas**

**Volume 2 – Southern Areas**

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This volume covers terrestrial Natural Areas numbered  
62 - 97 and coastal areas numbered 106 - 116.

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## Introduction

With about 30,000 species in Britain, invertebrates are an important element of our wildlife. Rather than ignore them as too large a problem to tackle, some way is needed of breaking the subject down to issues of manageable proportions and that can then be given the appropriate level of priority. The Biodiversity Action Plan (BAP) and Habitats and Species Directive (HSD) take one approach of simplifying the vastness by selecting a few of the threatened species for action (Biodiversity Steering Group, 1995; The Council of European Communities, 1992). Another approach has been attempted here which highlights the features of most importance to invertebrates at a local scale, thus helping to concentrate effort where it will have the greatest benefit. A bald list of priority features needs some explanation. This has been achieved by listing the key requirements and by providing examples of uncommon species that the feature supports.

As the BAP is now central to delivery of species conservation in Britain, listed species have also been included so their association with key features is apparent. It is not the intention of this report to produce another set of species lists - the names given here are examples only. It is hoped that action will be directed towards the maintenance of habitat features, and not to the individual species (apart from BAP species).

The framework for action at a local level within English Nature is the Natural Areas. These are parts of England with similar types of wildlife and natural features and often share similar landscapes. While it would be rash to describe the present work as profiles of invertebrates for each natural area, the tabulations are a simplification of a complex field and may make the task of conserving invertebrates more accessible to non-specialists.

## The Tables

For each of the 120 natural areas tabulations were produced with the following structure.

**Column 1.** These are the habitat features identified by Local Teams (1996 listing). Other features of importance to invertebrates were added if the presence of assemblages of uncommon invertebrates suggested that important habitats were missing from Local Team's list.

**Column 2.** Important groups of invertebrates for the habitat feature. These almost invariably include the five big orders of insects (beetles, flies, moths, bugs and bees & wasps) for most habitats. Some division of these into smaller taxonomic or functional groups has sometimes been possible, for example water beetles or insects of dead wood.

**Column 3.** Examples of rare or scarce species, or those appearing in conservation lists, known from the natural area. BAP species are in bold type.

Species likely to be found in these habitat features were selected from the Invertebrate Site Register (see below) using species accounts and personal knowledge as a guide. It was obvious that not all species could be listed for well worked areas because most species names are meaningless to most readers. A subjective selection was made of species that met one or more of the following criteria:

- nationally notable or rare (although a few charismatic local species were included if they were particularly characteristic of an area)
- included on Schedule 5 of the Wildlife & Countryside Act, HSD or BAP short list and first revision (1997) of the middle list;
- representative of the habitat features;
- conspicuous, so they help to convey a message to non-specialists; small, dull and taxonomically obscure species and groups were usually left out unless they were particularly rare);
- recorded since 1970, so only moderately recent records are included (with a few exceptions among BAP species).

Nearly all the records were obtained from the Invertebrate Site Register (ISR). Some species were included on the recommendation of Local Teams or local entomologists. The source and validity of these records has not been checked, nor have they been entered into the ISR. No account was taken of the list presented by ENTEC (1997) as this contains a number of unchecked errors. Records of BAP species held in the ISR is almost certainly incomplete, especially for the more widespread species..

The scientific names used are those in the 1997 version of Recorder (a few have since been changed).

The national status of each species is given after the name. These follow (Key, 1994).

RDB - Red Data Book (with categories 1: endangered, 2: vulnerable, 3: rare; p = provisional for statuses that have been changed from those in Shirt (1987) or Bratton (1991), or not evaluated in these works.

N - Notable (divided for some orders into Na - thought to occur in 16-30 10km squares of the National Grid, and Nb - thought to occur in 31-100 10km squares.

**Column 4.** Specific needs of the majority of invertebrates living in the habitat. The key requirements are briefly summarised to help indicate features that need managing well. However, actual management has not been mentioned. This can be obtained from Kirby (1992) for most habitats.

**Column 5.** Significance of the feature for invertebrates, based on the quality of the assemblage of species known. Each author has subjectively assessed this from a national perspective as local, regional or national. It has not been possible to develop strict criteria to define each of the levels of significance because the data cannot support a pseudo-scientific rating. While an assessment of the importance of each feature *within* a Natural Area would also be desirable, the data are too sparse to make this evaluation.

Brief notes are sometimes given when there were obvious limitations to the data.

The Invertebrate Site Register was set up to hold records of nationally rare and scarce species (Ball, 1989, 1994a). It uses the Recorder database package (Ball, 1994b). Data from national recording schemes run under the auspices of the Biological Records Centre were not used because these are computerised for only a few groups, so while the picture for a few groups would be more detailed than provided by the ISR, it would lack breadth.

A full list of species within each area can be obtained from the ISR at Lowland Team, Northminster House, Peterborough. As the ISR contains about half a million records, it is inappropriate to print them here. Short species accounts can be obtained from any copy of Recorder.

### **Limitations of this analysis**

There are limitations on the use of ISR to characterise areas.

- In most natural areas, many records come from a few well worked sites so those species may not be characteristic of the whole area.
- Since only rare and scarce species are included, it is not possible to comment on popular groups such as butterflies and dragonflies for which other data sets (e.g. BRC national recording schemes) would give a better indication of an area's importance.
- The database has not been systematically updated so much recent data were not available for this analysis.
- The sparseness of the data and the subjective selection of species is likely to have led to the omission of some species that may be well represented and therefore characteristic of a Natura Area. Conversely, some that have been recorded only rarely in an area may have crept in.
- Because of the vague grid references for some sites in the ISR (notably rivers), some records escaped being allocated to a Natural Area. Also, for unknown reasons, some coastal sites were not included in the coastal natural areas (although all sites on the coast should be included in the adjacent 'terrestrial' area).
- Five authors contributed to the analysis, each writing approximately the same number of areas (Table 1). This has led to some inconsistency, notably in the number of representative species selected and in rating the significance of each features.

### **National Context**

While the tables give some measure of significance of individual features, it is helpful to have the overall interest in a Natural Area placed in a national context. The backdrop is given for BAP species and for nationally rare and scarce species. Because of the limitations of the ISR, the resulting maps should be taken to indicate broad trends and not as definitive statements about the interest in any particular area.

### **Biodiversity Action Plan Species**

The distribution of records made since 1970 of BAP species shows, as expected, a marked concentration of records in the south of England (Figs. 1 & 2). Some areas have particularly dense representation, notably the Dorset Heaths, South Wessex Downs, New Forest and Cumbrian Fells & Dales. Other somewhat isolated areas have apparently high representation but this is usually the result of one species being well recorded within a limited range, for example the Durham Argus butterfly in the Durham Magnesian Limestone natural area. As with all summaries generated from the ISR, a lack of records may be due to inadequate data gathering or to a real trough of interest, so some care is needed in interpreting the maps. However, the overall implication of this distribution of records is that the southern counties, by and large, have the greatest responsibility for BAP species.

## Nationally rare species

To gain an idea of the distribution of rare species within England, the Invertebrate Index was calculated for each Natural Area for records made since 1970. The index was developed to evaluate the interest of sites but there is no reason why it cannot be used for much larger areas, such as Natural Areas. It is the sum of points awarded to species as follows: 100 points for red data book species, and either 50 or 40 points for nationally scarce (notable) species which are subdivided into Notable A and Notable B (Key, 1994).

Cumulative indices such as the Invertebrate Index suffer the problem that more effort results in a higher value. An additional problem encountered here is that Natural Areas vary hugely in extent. To attempt to correct for this, the scores were divided by the size of each area and plotted as the quartiles (Fig. 3). Other attempts to correct for area included dividing by the number of records and by the number of sites, but neither produced a distribution of rarity that matched expectation (that is, some areas whose value is well understood by entomologists fell at the wrong end of the spectrum). The treatment is crude but is probably the simplest way of assessing rarity over England using the data available. The distribution for the index of the 'top 200' sites in England shows as much the concentration of effort as the true distribution of biodiversity hot-spots (Fig. 4).

The results, on the whole, show the expected concentration of 'rarity' in the south-east of England, and general paucity in the arable eastern lowland belt and in the Pennines where low recording as well as genuine scarcity contribute to the depression. Poor recording or failure to collate existing data account for some notable holes in the map, especially in south-west England. Some areas, for example those around Peterborough where NCC entomologists worked, appear better than expected because of assiduous collecting and data-inputting.

## Acknowledgements

We would like to thank Keith Porter for providing the framework for this approach, and the many conservation officers who have commented and corrected draft tables. Useful comments were also received from Michael Darby, Mike Edwards, Martin Harvey, Peter Hodge, Steven Jones, Peter Smithers, Adrian Spalding and John Wickham.

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Natural Area: Bristol Avon Valley and Ridges 62			
Key Habitats	Invertebrate groups	Associated or significant species	Specific Needs
Ancient woodland	slugs and snails beetles flies bugs bees and wasps butterflies and moths	<i>Macrogastra rolphii</i> , Nb, a door snail <i>Phenacolimax major</i> , Na, a glass snail <i>Anobium inexpectatum</i> , Nb, a wood-boring beetle <i>Chalcoides nitidula</i> , Nb, a flea beetle <i>Helophorus dorsalis</i> , Nb, a scavenger water beetle <b>Lucanus cervus</b> , Nb, Stag beetle <i>Quedius xanthopus</i> , Nb, a rove beetle <i>Trachodes hispidus</i> , Nb, a weevil <i>Criorhina ranunculi</i> , N, <i>Volucella inflata</i> , N: hoverflies <i>Limonia inusta</i> , N, a crane fly <i>Paracusia tigrina</i> , RDB2, a dead wood fly - - <i>Strymonidia w-album</i> , Nb, White-letter Hairstreak <b><i>Boloria euphrosyne</i></b> Nb Pearl Bordered Fritillary <b><i>Agynnis adippe</i></b> RDB2 High Brown Fritillary <i>Atolmis rubricollis</i> , Nb, Red-necked Footman <i>Coleophora ochrea</i> , pRDB3, a micro-moth <b><i>Cosmia diffinis</i></b> Na White-spotted Pinion <i>Cepphis advenaria</i> , Nb, Little Thorn <i>Cyclophora annulata</i> , Nb, the mocha <i>Discoloxia blomeri</i> , Nb, Blomer's Rivulet <i>Eupithecia irriguata</i> , Nb, Marbled Pug <b><i>Hemaris tityus</i></b> Na Narrow-bordered Bee Hawk <b><i>Jodia croceago</i></b> , RDB2, Orange Upperwing <b><i>Paracolax tristalis</i></b> Na Clay Fanfoot <b><i>Pechipogon strigilata</i></b> , Nb, Common Fan-foot <i>Perizoma taeniata</i> , Na, Barred Carpet <b><i>Schrankia taenialis</i></b> Nb White-lined Snout <b><i>Trichopteryx polycommata</i></b> , Na, Barred Tooth-striped -	wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; old trees; standing and fallen dead wood; wet areas; fungal fruiting bodies on or associated with trees; well-structured margins with transitions to other habitats
Carboniferous limestone gorge	-	-	-
Limestone grassland	snails beetles flies bugs	<i>Abida secale</i> , Nb, a chrysalis snail - <b><i>Asilus crabroniformis</i></b> Nb Hornet Robberfly <i>Cheilosia cynocephala</i> , N, a hoverfly <i>Symphoromyia immaculata</i> , N, a snipe fly -	varied vegetation structure providing patches of short turf in a tussocky flower-rich sward; patches of bare ground; shelter provided by hedges or patches of scrub; well-structured transitions to other semi-natural habitats; grazing animals
			Significance in NA Regional

	butterflies and moths	? <i>Plebejus argus</i> Nb Silver-studded Blue <i>Lysandra bellargus</i> Nb Adonis Blue <i>Eurodryas aurinia</i> , Nb, Marsh Fritillary <i>Adscita geryon</i> , Nb, Cistus Forester <i>Idaea dilutaria</i> , pRDB3, Silky Wave ? <i>Orbona noctua</i> Na Lunar Yellow Underwing <i>Perizoma minorata</i> , Nb, Heath Rivulet <i>Gomphocerippus rufus</i> , Nb, Rufous grasshopper spiders		
Lowland farmland	beetles butterflies and moths	<i>Emus hirtus</i> , RDB1, a rove beetle <i>Thecla betulae</i> , Nb, Brown Hairstreak	conservation headlands; hedgerows; buffer zones by watercourses; disturbed soil on waysides; ruderal and annual plants	Regional?
Mesotrophic grassland	beetles moths	<i>Ctenicera pectinicornis</i> , Na, a click beetle -	mosaic structure including tussocks; shelter provided by hedges or scrub; well-structured transitions to other habitat; low-lying damp hollows or temporary pools; abundant nectar and pollen sources	Local
Open water and riparian habitats	snails and mussels beetles flies bugs dragonflies caddisflies	- <i>Hydraena nigrita</i> , Nb, <i>Hydroglyphus pusillus</i> , Nb; water beetles <i>Pherbellia dorsata</i> , N, <i>P. griseocens</i> , N; snail-killing flies - <i>Brachytron pratense</i> , Nb, hairy dragonfly <i>Sympetrum sanguineum</i> , Nb, ruddy darter -	natural flow regime; clean water; well-structured and varied bankside vegetation; shaded and unshaded stretches; margins with some emergent vegetation; undisturbed exposed sediments; accumulations of flood litter; semi-natural bordering land; seasonally flooded marsh and grassland	Local
Parklands	beetles flies moths	<i>Cteias serra</i> , Nb, cobweb beetle <i>Diplocoelus fagi</i> , Nb, a biphyllid beetle <i>Ischnomera cyanea</i> , Nb, a thick-legged flower beetle <i>Malthodes fibulatus</i> , Nb, a soldier beetle <i>Plegaderus dissectus</i> , Nb, a carrion beetle -	retention of old trees pollards, ancient hulks; nectar sources; dead wood; new generations of trees; fungal fruiting bodies on or associated with trees; non-intensively managed grassland between trees; other associated semi-natural habitats	Local

Notes:

I have assumed that the inclusion of Gordano Valley records in the ISR printout is an error, and that these really belong in Area 85: I hope my interpretation of the map is correct - it appears to me that Area 85 has a special extension just to include Gordano, and the absence of obviously applicable habitat categories in the Area profile seems to confirm this.

I have made no entries specifically in the "Carboniferous limestone gorge" category, all species recorded exclusively from the gorge being admissible in other categories principally woodland and limestone grassland.

Natural Area: Thames and Avon Vales 63

Key Habitats	Invertebrate groups	Associated or significant species	Specific Needs	Significance in NA
Neutral/slightly calcareous grasslands	snails beetles  flies bugs bees and wasps butterflies and moths  bees	<p><i>Abida secale</i>, Nb, a chrysalis snail  <i>Aphodius coenosus</i>, Nb, a dung beetle  <i>Chrysolina oricalcia</i>, Nb, a leaf beetle  <i>Drilus flavescens</i>, Na, a beetle  <i>Flexitaetellus quadripustulatus</i>, Na, a click beetle  <i>Pterostichus longicollis</i>, Nb, a ground beetle  <i>Oxyna nebulosa</i>, pRDB3, a gall fly</p> <p>- -  <i>Adscita stictica</i>, Nb, Forester  <i>Cnephasia genitalana</i>, pRDB2, a tortricid moth  <i>Crambus pratella</i>, Na, a pyralid moth  <b><i>Eurodryas aurinia</i></b>, Nb, Marsh Fritillary  <b><i>Bombus humilis</i></b> local <b>Brown-banded Carder bee</b>  <b><i>Bombus sylvarum</i></b> Nb <b>Shrill Carder bee</b>  <i>Syedra gracilis</i>, Nb, a money spider</p>	<p>varied vegetation structure providing patches of short turf in a tussocky flower-rich sward; patches of bare ground; shelter provided by hedges or patches of scrub; well-structured transitions to other semi-natural habitats; grazing animals</p>	Regional
Woodlands	spiders beetles	<p><i>Ampedus elongantulus</i>, Na, a click beetle  <i>Anaglyptus mysticus</i>, Nb, a longhorn beetle  <i>Ctestas serra</i>, Nb, cobweb beetle  <b><i>Lucanus cervus</i></b>, Nb, <b>Stag beetle</b>  <i>Melasis buprestoides</i>, Nb, a false click beetle  <i>Osphya bipunctata</i>, RDB3, a false darkling beetle  <i>Pediacus depressus</i>, Na, a flat bark beetle  <i>Platystomos albinus</i>, Na, a fungus weevil  <i>Ptinomorpha imperialis</i>, Nb, a wood-boring beetle  <i>Pyrochroa coccinea</i>, Nb, black-headed cardinal beetle  <i>Rhynchites cavifrons</i>, Nb, a leafroller weevil  <i>Synchita humeralis</i>, Nb, a narrow timber beetle  <i>Tillus elongatus</i>, Nb, a chequered beetle  <i>Trachys minuta</i>, pRDB2, a jewel beetle  <i>Xyleborus dispar</i>, Nb, an ambrosia beetle</p>	<p>wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; old trees; standing and fallen dead wood; wet areas; fungal fruiting bodies on or associated with trees; well-developed herb layer; well-structured margins with transitions to other habitats</p>	National

Woodlands cont.	flies bugs bees and wasps butterflies and moths	<p><i>Cheilosia chrysocoma</i>, RDB3, <i>Cheilosia nebulosa</i>, RDB3, <i>Criorhina asitica</i>, N, <i>Criorhina ranunculi</i>, N: hoverflies</p> <p>-</p> <p>- <i>Apatura iris</i>, Nb, Purple Emperor</p> <p><b><i>Boloria euphrosyne</i> Nb Pearl Bordered Fritillary</b></p> <p><b><i>Agynnis adippe</i> RDB2 High Brown Fritillary</b> extinct</p> <p><i>Hamearis lucina</i>, Nb, Duke of Burgundy</p> <p><i>Leptidea sinapis</i>, Nb, Wood White</p> <p><i>Strymonidia pruni</i>, RDB4, Black Hairstreak</p> <p><i>Strymonidia w-album</i>, Nb, White-letter Hairstreak</p> <p><b><i>Rheumatopera hastata</i> Nb Argent and Sable</b></p> <p><b><i>Trichopteryx polycommata</i> Na Barred Tooth-striped</b></p> <p><i>Eupithecia irriguata</i>, Nb, Marbled Pug</p> <p><b><i>Pechipogon strigilata</i>, Na, Common Fanfoot</b></p> <p><i>Photodes fluxa</i>, Nb, Mere Wainscot</p> <p><i>Hyptiotes paradoxus</i>, RDB3, triangle spider</p> <p><i>Zygiella stroemi</i>, Nb, a ray spider</p> <p>-</p>		
Farmed landscape	snails and slugs beetles butterflies and moths bryozoan	<p><i>Stenocarus umbrinus</i>, Nb, a weevil</p> <p><i>Eriogaster lanestris</i>, Nb, Small Eggar</p> <p><i>Thecla betulae</i>, Nb, Brown Hairstreak</p> <p><b><i>Lophophorus crystallinus</i> RDB3 moss animal</b></p> <p>-</p>	conservation headlands; sympathetically managed hedgerows; buffer zones by watercourses; disturbed soil on waysides; ruderal and annual plants	Regional?
Flooded gravel pits	snails beetles flies bugs dragonflies	<p><i>Cercyon ustulatus</i>, Nb, a scavenger water beetle</p> <p><i>Hydroglyphus pusillus</i>, Nb, a water beetle</p> <p><i>Stenus fornicatus</i>, Nb, a rove beetle</p> <p><i>Oxycera morrisii</i>, N, <i>Vanoyia tenuicornis</i>, N: soldierflies</p> <p>-</p> <p><i>Libellula fulva</i>, RDB3, Scarce Chaser</p> <p><i>Sympetrum sanguineum</i>, Nb, Ruddy Darter</p>	clean water; early successional stages; mixture of bare and vegetated water margins; shallow margins; emergent vegetation; small pools; seasonally flooded hollows and damp depressions; varied vegetation structure on dry land, including bare ground, sparse herbaceous vegetation, tussocks and scrub; abundant nectar plants	Regional?

River systems	moss animals snails and mussels beetles flies mayflies bugs dragonflies caddisflies crustacean	<p><i>Lophopus crystallinus</i>, RDB3, a moss animal</p> <p><i>Gyraulus acronicus</i>, RDB2, a ramshorn snail</p> <p><b><i>Vertigo moulinsiana</i> RDB3</b> Desmoulin's Whorl snail</p> <p><i>Bembidion gilvipes</i>, Nb, a ground beetle</p> <p><i>Riolus subviolaceus</i>, Nb, a riffle beetle</p> <p>-</p> <p>-</p> <p>-</p> <p><i>Gomphus vulgatissimus</i>, Nb, club-tailed dragonfly</p> <p><i>Platycnemis pennipes</i>, Nb, variable damselfly</p> <p><i>Ceraclea senilis</i>, Nb, a caddisfly</p> <p><i>Leptocerus lusitanicus</i>, pRDB2, a caddisfly</p> <p><b><i>Austropotamobius pallipes local</i> Crayfish</b></p> <p><i>Valvata macrostoma</i>, RDB2, a valve snail</p> <p><i>Enochrus isotae</i>, RDB3, a scavenger water beetle</p> <p><i>Pelodytes caesus</i>, Nb, a crawling water beetle</p> <p><i>Gymnetron beccabungae</i>, Na, a weevil</p> <p><i>Beckerias pannonicus</i>, pRDB1, a big-headed fly</p> <p><i>Pilaria fuscipennis</i>, N, a crane fly</p> <p>-</p> <p><i>Hartigia xanthostoma</i>, pRDB3, a sawfly</p> <p><i>Coenagrion pulchellum</i>, Nb, Variable Damselfly</p> <p>-</p> <p>-</p>	<p>natural flow regime; clean water; well-structured and varied bankside vegetation; shaded and unshaded stretches; margins with some emergent vegetation; undisturbed exposed sediments; accumulations of flood litter; semi-natural bordering land; seasonally flooded marsh and grassland</p>	National
Fens, ditches and small wetlands	molluscs beetles  flies bugs sawflies dragonflies caddisflies spiders		<p>continuity of springs and seepages; herb-rich fen vegetation; structurally diverse vegetation; open structure, with or without partial shading at seepages; woody vegetation, especially willows and birch; open shallow pools and hollows; reed-beds; ponds and ditches with a mosaic of open water and dense vegetation; shallow margins; emergent vegetation; infrequent management; surrounding marshy zone</p>	Regional?

**Notes:**

I have added fens and ditches to the habitat list, but am a little worried that this, or a similar category, was absent from the Natural Area profile list. I had no detailed list of vegetation types and subhabitats for the various headings, so possibly the species here should be subsumed under one of the existing headings; or, perhaps some at least of the wetland sites belong in another area - Area 64, I note, includes calcareous fens and flushes amongst its habitats.

Natural Area: Midvale Ridge 64				
Key Habitats	Invertebrate groups	Associated or significant species	Specific Needs	Significance in NA
Neutral grassland	beetles moths	- <i>Adscita staitices</i> , Nb, Forester	mosaic structure including tussocks; shelter provided by hedges or scrub; well-structured transitions to other semi-natural habitats; low-lying damp hollows or temporary pools	Local
Calcareous grass- heath	snails beetles flies bugs bees and wasps  butterflies and moths spiders	- - - - <i>Nomada xanthosticta</i> RDB1 nomad bee <i>Bombus humilis</i> local Brown-banded Carder bee <i>Bombus sylvarum</i> Nb Shril Carder bee <i>Polia bombycina</i> local Pale Shining Brown	varied vegetation structure providing patches of short turf in a tussocky flower-rich sward; patches of bare ground; shelter provided by hedges or patches of scrub; well-structured transitions to other semi-natural habitats; grazing animals	?
Calcareous fens and flushes	molluscs dragonflies beetles flies	<i>Vertigo moulinsiana</i> , RDB3, Desmoulin's whorl snail <i>Coenagrion mercuriale</i> RDB3 Southern Damselfly <i>Gyrinus suffriani</i> , pRDB3, a whirligig beetle <i>Gnophomyia viridipennis</i> N, <i>Molophilus corniger</i> N, <i>Thaumastoptera calceata</i> N, : craneflies <i>Odontomyia angulata</i> RDB1, <i>Oxycera analis</i> RDB2, <i>Oxycera pygmaea</i> N, <i>Stratiomys chamaeleon</i> RDB, 1 <i>S. potamida</i> N: soldierflies <i>Orhonevra brevicornis</i> , N, a hoverfly <i>Lipara rufitarsis</i> N, <i>Oscinella angularis</i> N: grass flies <i>Psacadina vittigera</i> , RDB2, a snail-killing fly <i>Spania nigra</i> , N, a snipe fly <i>Ptychoptera longicauda</i> , N, a fly	continuity of springs and seepages; herb-rich fen vegetation; structurally diverse vegetation; open structure at seepages and springs, with or without partial shading; associated woody vegetation, especially of willows and birch; open shallow pools and hollows; reed-beds	National
Arable fields	bugs bees and wasps moths spiders beetles moths	- - <i>Diachrysia chryson</i> , Na, scarce burnished brass	conservation headlands; sympathetically managed hedgerows; buffer zones by watercourses; disturbed soil on waysides; ruderal and annual plants	?

Woodlands	<p>slugs and snails</p> <p>beetles flies</p> <p>bugs</p> <p>bees and wasps butterflies and moths</p>	<p><i>Acicula fusca</i>, Nb, a point snail</p> <p><i>Ena montana</i>, RDB3, mountain bulin</p> <p><i>Rhizophagus nitidulus</i>, Nb, a narrow bark beetle</p> <p><i>Brachyopa insensilis</i> N, <i>Cheilostia chrysocoma</i> RDB3, <i>Criorhina</i> <i>ranunculi</i> N, <i>Myolepta luteola</i> N, <i>Sphagina verecunda</i> N, <i>Xylota</i> <i>xanthocnema</i> N: hoverflies</p> <p><i>Diogma glabrata</i> N, <i>Limonia masoni</i>, RDB3, <i>Tipula selene</i> pRDB3: craneflies</p> <p>-</p> <p>-</p> <p><i>Apatura iris</i>, Nb, purple emperor</p> <p><b><i>Boloria euphrosyne</i> Nb Pearl Bordered Fritillary</b></p> <p><i>Leptidea sinapis</i>, Nb, wood white</p> <p><i>Meganola strigula</i>, Na, small black arches</p> <p><i>Photodes fluxa</i>, Nb, mere wainscot</p> <p><i>Strymonidia pruni</i>, RDB4, black hairstreak</p> <p><i>Strymonidia w-album</i>, Nb, white-letter hairstreak</p> <p><i>Thecla betulae</i>, Nb, brown hairstreak</p> <p><b><i>Rheumatopera hastata</i> Nb Argent and Sable</b></p> <p><b><i>Pechipogon strigilata</i>, Na, Common Fanfoot</b></p> <p><i>Zygiella stroemi</i>, Nb, an orb-weaver spider</p>	wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; old trees; standing and fallen dead wood; wet areas; fungal fruiting bodies on or associated with trees; well-developed herb layer; well-structured margins with transitions to other habitats	Regional
Wood pasture and old trees	<p>spiders</p> <p>beetles</p> <p>flies</p> <p>moths</p>	<p><i>Ctesias serra</i>, Nb, cobweb beetle</p> <p><i>Pyrochroa coccinea</i>, Nb, black-headed cardinal beetle</p> <p>-</p> <p>-</p> <p><i>Harpalus smaragdinus</i>, Nb, a ground beetle</p> <p><i>Ocypus ophthalmicus</i>, Na, a rove beetle</p> <p><i>Platynaspis luteorubra</i>, Na, a ladybird</p> <p><i>Orthocerus clavicornis</i>, Nb, a narrow timber beetle</p> <p><i>Ictericus westermanni</i> N, <i>Oxya nebulosa</i> pRDB3: gall flies</p> <p>-</p> <p><i>Andrena hattorfiana</i>, RDB3, <i>A. marginata</i>, Na, <i>Dasygaster altercator</i> Nb, <i>Sphcodes crassus</i> Nb: solitary bees</p> <p><i>Hylaeus signatus</i>, Nb, large yellow-faced bee</p> <p><i>Arachnospila minutula</i>, Nb, a spider-hunting wasp</p> <p><i>Psen bicolor</i>, RDB2, a solitary wasp</p> <p><i>Mutilla europaea</i>, Nb, large velvet ant</p> <p><i>Smicromyrme rufipes</i>, Nb, small velvet ant</p> <p>-</p>	retention of old trees pollards, ancient hulks; nectar sources; dead wood; new generations of trees; fungal fruiting bodies on or associated with trees; non-intensively managed grassland between trees; other associated semi-natural habitats	Local
Sand pits and quarries	<p>beetles</p> <p>flies</p> <p>bugs</p> <p>bees and wasps</p> <p>spiders</p>	<p><i>Harpalus smaragdinus</i>, Nb, a ground beetle</p> <p><i>Ocypus ophthalmicus</i>, Na, a rove beetle</p> <p><i>Platynaspis luteorubra</i>, Na, a ladybird</p> <p><i>Orthocerus clavicornis</i>, Nb, a narrow timber beetle</p> <p><i>Ictericus westermanni</i> N, <i>Oxya nebulosa</i> pRDB3: gall flies</p> <p>-</p> <p><i>Andrena hattorfiana</i>, RDB3, <i>A. marginata</i>, Na, <i>Dasygaster altercator</i> Nb, <i>Sphcodes crassus</i> Nb: solitary bees</p> <p><i>Hylaeus signatus</i>, Nb, large yellow-faced bee</p> <p><i>Arachnospila minutula</i>, Nb, a spider-hunting wasp</p> <p><i>Psen bicolor</i>, RDB2, a solitary wasp</p> <p><i>Mutilla europaea</i>, Nb, large velvet ant</p> <p><i>Smicromyrme rufipes</i>, Nb, small velvet ant</p> <p>-</p>	mosaic of vegetation structure including bare ground, sparse herbaceous vegetation, and tussocks; south-facing slopes; regular disturbance, especially by rabbits; abundant nectar plants; rocks and stones; damp and seasonally flooded hollows	Regional

Notes:

I have added "sandpits and quarries" to the list of habitats to cover the significant number of species associated with bare or sparsely vegetated ground and early successional stages and whose localities seem to suggest such habitats. However, I am conscious that the "calcareous grass-heath" category and the "neutral grassland" category are almost empty, so possibly some of the pit sites at least partly qualify for entry into these categories. BAP bees and moth have been later placed in the calcareous grass-heath category.

*Chirocephalus diaphanus*, RDB2, Fairy shrimp occurs at the boundary of this natural area.



Natural Area: Chilterns 65			
Key Habitats	Invertebrate groups	Associated or significant species	Specific Needs
Chilterns beech woodlands	snails beetles flies moths harvestmen spiders	- - - <b>Trisateles emortualis</b> , RDB3, olive crescent - -	flowery open spaces; pollen and nectar sources; old trees; standing and fallen dead wood; wet areas; fungal fruiting bodies on or associated with trees; well-structured margins with transitions to other habitats; well-developed litter layer
Chalk grassland	snails beetles  flies bugs bees and wasps butterflies and moths  spiders	<i>Abida secale</i> , Nb, a chrysalis snail <i>Ceutorhynchus unguicularis</i> , pRDB3, a weevil <i>Chrysolina sanguinolenta</i> Na, <i>Cryptocephalus aureolus</i> Nb: leaf beetles <i>Epitrix atropae</i> , Nb, a flea beetle <i>Odontaeus armiger</i> , Na, a dumbleodor <b><i>Asilus crabroniformis</i></b> , N, a robber fly <i>Microdon devius</i> , RDB2, a hoverfly <i>Hephathus nanus</i> , Nb, a leafhopper <i>Osmia bicolor</i> , Nb, two-coloured mason bee <i>Adscita geryon</i> , Nb, cistus forester; <i>Adscita staitices</i> Nb Forester <b><i>Agrotis cinerea</i></b> , Nb, light feathered rustic <i>Atispa angustella</i> , Nb, a pyralid moth <i>Bembecia scopigera</i> , Nb, six-belted clear wing <b><i>Cucullia lychnitis</i></b> , Na, striped lychnis <b><i>Noctua orbona</i></b> Na Lunar Yellow Underwing - see notes <i>Hamearis lucina</i> , Nb. Duke of Burgundy <b><i>Eurodryas aurinia</i></b> , Nb, Marsh Fritillary - ?extinct <b><i>Hesperia comma</i></b> RDB3 Silver-spotted Skipper <b><i>Lysandra bellargus</i></b> , Nb, Adonis blue <b><i>Plebejus argus</i></b> Nb Silver-studded Blue - ?extinct <i>Microstega hyalinalis</i> , Nb, a pyralid moth <b><i>Scotopteryx bipunctaria</i></b> Nb Chalk Carpet <b><i>Polia bombycina</i></b> local Pale Shining Brown <i>Phrurolithus minimus</i> , Na, a running foliage spider <i>Tapinocyboides pygmaeus</i> , RDB3, a money spider <i>Zelotes petrensis</i> , Na, ground spider	varied vegetation structure providing patches of short turf in a tussocky flower-rich sward; patches of bare ground; shelter provided by hedges or patches of scrub; well-structured transitions to other semi-natural habitats; grazing animals
			Significance in NA ?Regional  National

Chilterns commons	beetles  flies  bees, wasps and ants butterflies and moths grasshoppers spiders	<p><i>Agrilus pannonicus</i>, Na, oak jewel beetle  <i>Anaglyptus mysticus</i>, Nb, a longhorn beetle  <i>Aphodius zenkeri</i>, Nb, a dung beetle  <i>Cicones variegatus</i>, Na, a narrow timber beetle  <i>Ctesias serra</i>, Nb, cobweb beetle  <i>Diplocoelus fagi</i>, Nb, a biphylid beetle  <i>Eledona agricola</i>, Nb, a darkling beetle  <i>Ernoporus fagi</i>, Na, a bark beetle  <i>Mycetophagus piceus</i>, Nb, a hairy fungus beetle  <i>Plegaderus dissectus</i>, Nb, a carrion beetle  <i>Pyrochroa coccinea</i>, Nb, black-headed cardinal beetle  <i>Tillus elongatus</i>, Nb, a chequered beetle  <i>Brachypalpus laphriformis</i> N, <i>Brachyopa pilosa</i> N, <i>Xylota xanthocnema</i>, N: hoverflies  <i>Ctenophora pectinicornis</i>, N, a crane fly  <i>Laphria marginata</i> Nb robberfly</p> <p>-</p> <p><i>Strymonidia w-album</i>, Nb, white-letter hairstreak  <i>Thecla betulae</i>, Nb, brown hairstreak  <i>Adscita statites</i> Nb Forester  <i>Omocestus rufipes</i>, Nb, woodland grasshopper</p> <p>-</p>	habitat mosaic; varied structure of grassland and herbaceous vegetation; well-structured transitions between vegetation types; retention of old trees pollards, ancient hulks; nectar sources; dead wood; new generations of trees; fungal fruiting bodies on or associated with trees; non-intensively managed grassland between trees; other associated semi-natural habitats	Regional
Chalk streams	snails and mussels crustaceans beetles flies dragonflies caddisflies	<p><i>Perforatella rubiginosa</i>, RDB2, a snail  <i>Pisidium pulchellum</i>, Nb, a pea mussel  <i>Austropotamobius pallipes</i> Crayfish</p> <p>-</p> <p>-</p> <p><i>Platycnemis pennipes</i>, Nb, white-legged damselfly</p> <p>-</p>	natural flow regime; clean water; well-structured and varied bankside vegetation; shaded and unshaded stretches; margins with some emergent vegetation; undisturbed exposed sediments; accumulations of flood litter; semi-natural bordering land; seasonally flooded marsh and grassland	Regional?
Rivers Thames	mayflies dragonflies	<p><i>Ephemera lineata</i>, pRDB2, a mayfly  <i>Gomphus vulgatissimus</i> Nb Club-tailed dragonfly</p> <p>-</p>		
Arable farmland and bare chalk	beetles moths	<p><b><i>Oria musculosa</i> Na Brighton Wainscot</b>  <b><i>Cucullia lychnitis</i>, Na, striped lychnis</b></p> <p>solitary bees and wasps ground beetles</p>	conservation headlands; sympathetically managed hedgerows; buffer zones by watercourses; disturbed soil on waysides; ruderal and annual plants	?
Ancient Thames River Gravels exposures	Hymenoptera Coleoptera		-	-

Chalk quarries	snails beetles  flies  bugs bees and wasps butterflies and moths dragonflies spiders	<ul style="list-style-type: none"> <li>- <i>Laccobius sinuatus</i>, Nb, a scavenger water beetle</li> <li><i>Limnebius nitidus</i>, Nb, a small water beetle</li> <li><i>Gymnetron linariae</i>, Na, a weevil</li> <li><i>Pseudoprotapion astragali</i>, Na, a seed weevil</li> <li><i>Oxyccera morrisii</i> N, <i>Stratiomys potamida</i> N, <i>S. singularior</i> N: soldierflies</li> <li><i>Macrosteles cristatus</i>, Nb, a leafhopper</li> <li>-</li> <li>-</li> <li><i>Ischnura pumilio</i>, Nb, scarce blue-tailed damselfly</li> <li>-</li> </ul>	mosaic of vegetation structure including bare ground, sparse herbaceous vegetation, tussocks and scrub; south-facing slopes; abundant nectar plants; rocks and stones; damp and seasonally flooded hollows; permanent pools; seepages and springs	Regional?
Canals, lakes and reservoirs	snails and mussels beetles flies bugs moths dragonflies	<ul style="list-style-type: none"> <li>- <i>Demetrias imperialis</i>, Nb, a ground beetle</li> <li><i>Melanostolus melancholicus</i>, pRDB3, a dolichopodid fly</li> <li>-</li> <li>-</li> <li><i>Cordulia aenea</i>, Nb, downy emerald</li> <li><i>Somatochlora metallica</i>, Nb, brilliant emerald</li> <li><i>Sympetrum sanguineum</i>, Nb, ruddy darter</li> </ul>	mosaic of open water and dense vegetation; shallow margins; emergent vegetation; semi-natural surrounding land; seasonally flooded marsh or wet grassland; reliable hydrological regime	Local

Mixed broadleaved woodlands	snails and slugs beetles  flies  bugs bees and wasps butterflies and moths  grasshoppers spiders	<p><i>Acicula fusca</i>, Nb, a point snail  <b>Lucanus cervus</b> Nb Stag Beetle  <i>Anaglyptus mysticus</i>, Nb, a longhorn beetle  <i>Phytodecta decemnotata</i>, Nb, a leaf beetle  <i>Rhynchites cavifrons</i>, Nb, a leafroller weevil  <i>Ctenophora flaveolata</i> pRDB2; <i>Tipula hortorum</i>, RDB3: craneflies  <i>Megamerina dolium</i>, N, a fly  <i>Myolepta luteola</i> N, <i>Rhingia rostrata</i> RDB3: hoverflies  <i>Pherbellia annulipes</i>, N, a snail-killing fly  <i>Rhagio annulatus</i>, RDB3, a snipe fly</p> <p>- -  <b>Agynnis adippe</b> RDB2 High Brown Fritillary extinct  <i>Apatura iris</i>, Nb, purple emperor  <i>Apoda limacodes</i> Nb Festoon  <i>Cyclophora annulata</i>, Nb, mocha  <b>Dicycla oo</b> RDB3 Heart  <i>Discoloxia blomeri</i>, Nb, Blomer's rivulet  <i>Ptilophora plumigera</i>, Na, plumed prominent  <i>Xestia rhomboidea</i>, Nb, square-spotted clay  <i>Schrankia taenialis</i> Nb White-lined Snout  <i>Trisateles emortualis</i> RDB3 Olive Crescent  <i>Omocestus rufipes</i>, Nb, woodland grasshopper  <i>Haplodrassus silvestris</i>, Nb, a ground spider  <i>Hyptiotes paradoxus</i>, RDB3, triangle spider  <i>Xysticus luctator</i> RDB2 crab spider</p>	wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; old trees; standing and fallen dead wood, wet areas; fungal fruiting bodies on or associated with trees; well-developed herb layer; well-structured margins with transitions to other habitats	Regional
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**Notes**

I have added three categories to the list of key habitats: "Chalk quarries"; possibly the species covered could to some extent be included in the "arable and bare chalk" category, but this does not seem adequate for those species associated with, for example, seepages and pools. "Canals and reservoirs" added, as a rather catch-all category, to include species of still or almost-still water. "Mixed woodland" is added in part because of my own ignorance: most of the woodland species on the ISR list are not specifically associated with beech woods, and many certainly require something other than beech; some of the woods are clearly mixed; however, since I do not know the constitution of some woods, and since some sites I believe contain both beech and non-beech woodland, assigning species definitely to beech woodland is, for the most part, difficult. My "mixed woodland" could, therefore, contain some species recorded from beech. Some species in Chilterns Commons may have just as well been assigned to Chilterns Beech Woodland or Mixed Broadleaved Woodlands.

ISR records include some for Burley Wood, Leicestershire, which implies a mistake of some sort in gridding or assignment to county: I have ignored these records; also records from Cirencester Park, Gloucestershire. *Decticus verrucivorus* Wart Biter and *Gryllus campestris* Field Cricket, both RDB1 & BAP2 species, are ignored as likely species in this natural area. Records of *Noctua orbona* have not been verified.

Natural Area: London Basin 66		Significance in NA
Key Habitats	Invertebrate groups	Associated or significant species
ancient parkland and wood pasture	Coleoptera	<p><i>Agrilus viridis</i> Na jewel beetle  <i>Ampedus cardinalis</i> RDB2, <i>A. elongantulus</i> Na, <i>A. nigerrimus</i> RDB1, <i>A. rufipennis</i> RDB2, <i>A. sanguinolentus</i> Na, <i>Brachygonus ruficeps</i> RDB1, <i>Elater ferrugineus</i> RDB1, <i>Ischnodes sanguinicollis</i> Na, <i>Lacon querceus</i> RDB1, <i>Limoniscus violaceus</i> RDB1 Violet click beetle, <i>Megapenthes lugens</i> RDB1, <i>Procaerus tibialis</i> pRDB3: click beetles  <i>Ischnomera caerulea</i> pRDB3, <i>I. sanguinicollis</i> Na: thick-legged flower beetles  <b><i>Gastrallus immarginatus</i> RDB1 wood boring beetle</b>  <i>Pyrochroa coccinea</i> Nb Cardinal beetle  <i>Anaglyptus mysticus</i> Nb longhorn  <b><i>Dryophthorus corticalis</i> RDB1 weevil</b>  <b><i>Gnorimus variabilis</i> RDB1 scarab beetle</b>  <b><i>Lucanus cervus</i> Nb Stag Beetle</b>  <i>Brachyopa bicolor</i> RDB3, <i>B. insensilis</i> Nb: sap-run hoverflies  <i>Mallota cimbiciformis</i> Nb hoverfly  <i>Chrysopilus laetus</i> RDB1 snipefly  <i>Pandivirilia 'Psilocephala' melaleuca</i> RDB1 stiletto fly  <i>Sapyga clavicornis</i> Nb primitive wasp  <b><i>Dicycla oo</i> RDB3 Heart Moth</b>  <i>Allochernes wideri</i> RDBK, <i>Dendrocheres cyrneus</i> RDB3: false scorpions</p>
	Diptera	
	Hymenoptera Lepidoptera Pseudoscorpion	
		retention of old trees pollards, ancient hunlks, nectar sources; dead wood, new generations of trees; fungal fruiting bodies on or associated with trees
		national

<p>ancient semi-natural woodland</p> <p>species of dead wood, rot-holes, sap runs and fungi</p>	<p>Coleoptera</p>	<p><i>Agrilus angustulus</i> Nb, <i>A. laiticornis</i> Nb, <i>A. panonicus</i> Na: jewel beetles  <i>Brachygonus ruficeps</i> RDB1, <i>Elater ferrugineus</i> RDB1, <i>Ischnodes sanguinicollis</i> Na, <i>Lacon querceus</i> RDB1: click beetles  <i>Eucnemis capucina</i> RDB1 false click beetle  <i>Ernoporus fagi</i> Nb, <i>Gastrallus immarginatus</i> RDB1: bark beetles  <i>Platycis minuta</i> Nb net-winged beetle  <i>Globiceps nigripes</i> RDB1 'museum' beetle  <i>Ischnomera caerulea</i> pRDB3, <i>I. sanguinicollis</i> Na: thick-legged flower beetles  <i>Pyrochroa coccinea</i> Nb Cardinal beetle  ? <i>Malachius aeneus</i> RDB3 malachite beetle  <i>Leptura scutellata</i> Na longhorn  <i>Triptax lacordairii</i> RDB3, <i>Tritoma bipulstulata</i> Na: shiny fungus beetles  <i>Rhynchites cavifrons</i> Nb weevil  <i>Ctenophora flaveolata</i> pRDB2 crane fly  <i>Laphria marginata</i> Nb robberfly  <i>Brachyopa bicolor</i> RDB3, <i>B. insensilis</i> Nb, <i>Ferdinandea ruficornis</i> Nb, <i>Volucella inflata</i> Nb: sap-run hoverflies  <i>Brachypalpus laphriformis</i> Nb, <i>Callibrota spectiosa</i> RDB1;  <i>Callicera aurata</i> RDB3 <i>Criorhina asilica</i> Nb. <i>C. ranunculi</i> Nb, <i>Mallota cimbiciformis</i> Nb, <i>Myocepta luteola</i> Nb, <i>Pocota personata</i> RDB2: hoverflies  <i>Dicycla oo</i> RDB3 Heart Moth  <i>Dendrochernes cyrneus</i> RDB3 false scorpion</p>	<p>wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; standing and fallen dead wood; carr; fungal fruiting bodies on or associated with trees; undisturbed hydrology</p>	<p>national</p>
<p>Diptera</p>	<p>Lepidoptera Pseudoscorpion</p>			

<p>ancient semi-natural woodland - non-dead wood species</p>	<p>Lepidoptera</p>	<p><i>Apatura iris</i> Na Purple Emperor  <i>Leptidea sinapis</i> Nb Wood White  <b><i>Boloria euphrosyne</i></b> Nb Pearl Bordered Fritillary  <b><i>Mellicta athalia</i></b> RDB2 Heath Fritillary  <i>Satyrium w-album</i> Nb White-letter Hairstreak  <i>Thecla betulae</i> Nb Brown Hairstreak  <b><i>Cuculia asteris</i></b> Nb Star-wort  <i>Furcula bicuspis</i> Nb Alder Kitten  <i>Hemaris fuciformis</i> Nb Broad-bordered Bee Hawk  <i>Hypomecis roberaria</i> Nb Great Oak Beauty  <b><i>Minois murinata</i></b> Nb Drab Looper  <b><i>Mythimna turca</i></b> Nb Double Line  <b><i>Pechipogon strigilata</i></b>, Na, Common Fanfoot  <b><i>Rheumatopera hastata</i></b> Nb Argent and Sable  <b><i>Trisateles emortualis</i></b> RDB3 Olive Crescent  <i>Iassus scutellaris</i> Nb leafhopper  <b><i>Bombylius discolor</i></b> Nb bee-fly  <i>Cheilosia carbonaria</i> Nb, <i>C. semifasciata</i> RDB3: hoverflies  <i>Dioctria oenlandica</i> Nb robberfly  <i>Cryptocephalus querceti</i> RDB2, <i>C. sexpunctatus</i> RDB2 : leaf beetles  <b><i>Dromius quadrisignatus</i></b> pRDB1 ground beetle  <b><i>Byctiscus populi</i></b> pRDB3, <i>Platylabus resinosus</i> Nb: weevils  <i>Ena montana</i> RDB3 spire snail  <i>Macrogasta rolphii</i> Nb door snail  <i>Limax tenellus</i> Nb Lemon Slug</p>	<p>wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; carr; undisturbed hydrology;</p>	<p>national</p>
	<p>Hemiptera Diptera</p>			
	<p>Coleoptera</p>			
	<p>Mollusca</p>			

lowland heath - dry heath	Lepidoptera	<p><b>Plebejus argus</b> Nb Silver-studded Blue  <i>Polia trimaculosa</i> Nb Silvery Arches  <b>Noctua orbona</b> Na Lunar Yellow Underwing  <i>Selidosema brunnearia</i> Nb Bordered grey  <i>Nephrotoma crocata</i> RDB3 Tiger cranefly  <i>Eutolmus rufibarbis</i> pRDB3 robberfly  <b>Thyridanthrax fenestratis</b> RDB3 bee-fly  <i>Andrena argentata</i> Na, <i>A. carbonaria</i> Nb, <i>A. fulvago</i> Na, <i>A. tibialis</i> Na, <i>Eucera longicornis</i> Na: solitary bees  <b>Bombus subterraneus</b> Na Short-haired bumblebee  <i>Arachnospila wesmaeli</i> Na, <i>Dipogon bifasciatus</i> RDB3, <i>Evagetes dubius</i> Nb: spider-hunting wasps  <b>Cerceris quinquefasciata</b> RDB3, <i>Diodontus insidiosus</i> RDB3,  <i>Eumenes coactatus</i> Na, <i>Gorytes bicinctus</i> Nb, <i>Oxybelus mandibularis</i> Na, <i>Philanthus triangulum</i> RDB2 Bee Wolf: solitary wasps  <i>Hedychridium coriaceum</i> RDB3, <b>Chrysis fulgida</b> RDB1 rubytail wasps  <i>Mutilla europaea</i> Nb Large Velvet ant  ? <b>Formica rufibarbis</b> RDB1 wood-ant  <i>Bembidion nigricorne</i> Nb, <i>Amara equestris</i> Nb, <i>Pterostichus lepidus</i> Nb: ground beetles  <i>Coccinella magnifica</i> Na Scarce Seven-spot ladybird  <i>Hippodamia variegata</i> Adonis's ladybird  <b>Byctiscus populi</b> pRDB3 weevil  <i>Enoplognatha oelandica</i> RDB3 theriid spider  <i>Euophrys petrensis</i> Nb jumping spider  <b>Uloborus walckenaerius</b> RDB3 spider  -  -</p>
	Hymenoptera, aculeates	
	Coleoptera	
	Araneae	
	Hemiptera Orthoptera	
structural variety including open grass heath, very short turf and bare ground; rabbit disturbance; nectar & pollen sources; arable weeds food plants of some rare species; ; flowering heather; dung; patches of gorse +/- broom; invading scrub of birch <i>Myrica</i> on damp areas		national



lowland heath - wet heath and heathland pools	Odonata	<p><i>Ceriagrion tenellum</i> Nb Small Red damselfly  <i>Coridulea aenea</i> Nb Downy Emerald  <i>Leucorrhinia dubia</i> Na White-faced darter  <i>Somatochlora metallica</i> Nb Brilliant Emerald  <i>Metrioptera brachyptera</i> Nb Bog Bush Cricket  <b>Stethophyma grossum</b> RDB2 Large Marsh Grasshopper  <b>Cyclophora penulularia</b> RDB3 Dingy Mocha  <i>Hypenodes humidialis</i> Nb Marsh Oblique-barred  <i>Idaeia muricata</i> Nb Purple-bordered Gold  <i>Berosus signaticollis</i> Nb, <i>Helochares punctatus</i> Nb: water beetles  <i>Tipula yerburyi</i> Nb crane fly  <i>Microdon mutabilis</i> Nb hoverfly  <i>Evarcha arcuata</i> Nb, <i>Sitticus caricis</i> Nb: jumping spiders</p>	national
lowland wet grassland	Orthoptera	<p><i>Conocephalus discolor</i> Na Long-winged Conehead  <i>Metrioptera roeselii</i> Nb Roesel's bush cricket  <b><i>Eurodryas aurinia</i></b>, Nb, <b>Marsh Fritillary</b>  <i>Archanara sparganii</i> Nb Webb's Wainscot  <i>Macrolepidoptera cribrumalis</i> Nb Dotted Fan-foot  <i>Spilosoma urticae</i> Nb Water Ermine  <i>Chilodes maritimus</i> Nb Silky Wainscot  <i>Ictericia westermanni</i> Nb picture-winged fly  <i>Aroma mochata</i> Nb Musk longhorn beetle  <i>Bembidion fumigatum</i> Nb, <i>Chlaenius nigricornis</i> Nb, <i>Oodes helopioides</i> Nb, <i>Stenolophus skrimshiranus</i> Na: ground beetles  <i>Oliarus panzeri</i> Nb planthopper</p>	regional
note this contains many species of water-margin habitats, ditches and fens;	Lepidoptera	<p><i>Brachytron pratense</i> Nb Hairy dragonfly  <i>Coenagrion pulchellum</i> Nb Variable damselfly  <i>Lestes dryas</i> RDB2 Scarce Emerald damselfly  <i>Berosus affinis</i> Nb, <i>Coelambus parallelogrammus</i> Nb, <i>Dytiscus circumflexus</i> Nb, <i>Enochrus bicolor</i> Nb, <i>E. halophilus</i> Na, <i>Peltodytes caesus</i> Nb, <i>Rhantus frontalis</i> Nb.: water beetles  <i>Odontomyia tigrina</i> Nb, <i>Stratiomys singularior</i> Nb: water soldierflies  <i>Anasimyia interpuncta</i> RDB3, <i>Parhelophilus constimilis</i> RDB; hoverflies  <i>Pisidium pseudosphaerium</i> RDB3 pea mussel</p>	regional
also wet grassland within other complexes	Diptera		
lowland wet grassland - aquatic species	Hemiptera		
lowland wet grassland - aquatic species	Odonata		
lowland wet grassland - aquatic species	Coleoptera		
lowland wet grassland - aquatic species	Diptera		
lowland wet grassland - aquatic species	Mollusca		

rivers including its banks and islands	<p>Ephemeroptera Odonata</p> <p>Plecoptera Trichoptera Coleoptera</p> <p>Diptera Mollusca</p>	<p><i>Ephemera lineata</i> pRDB2 mayfly <i>Gomphus vulgatissimus</i> Nb Club-tailed dragonfly <i>Platycnemis pennipes</i> Nb White-legged damselfly</p> <p>- <i>Ceraclea senilis</i> Nb, <i>Leptocerus lusitanicus</i> pRDB2: caddis <i>Bembidion gilvipes</i> Nb ground beetle <i>Stenelmis canaliculata</i> RDB2 riffle beetle <i>Limonia ornata</i> Nb crane fly <i>Laciniaria biplicata</i> RDB3 spire snail <i>Perforatella rubiginosa</i> RDB2 hairy snail <b><i>Pisidium tenuilineatum</i> RDB3 pea mussel</b> <b><i>Vertigo moulinsiana</i> RDB3 Desmoulins' Whorl snail</b> <b><i>Austroptamobius pallipes</i> local Crayfish</b></p>	natural flow regime; clean water; some shaded and some open banks; margins with some emergent vegetation butterbur for <i>L. ornata</i> ; undisturbed shingle and mud shores and bars; accumulations of flood litter; exposed sandy banks; sponges food of <i>Ceraclea</i>	regional
dry grassland, including scrub and hedgerows	<p>Orthoptera Coleoptera</p> <p>Lepidoptera</p>	<p><i>Metrioptera roeselii</i> Nb Roesel's bush cricket <i>Ctenicera pectinicornis</i> Na click beetle <i>Panagaeus bipustulatus</i> Nb ground beetle <b><i>Cosmia diffinis</i> Na White-spotted Pinion</b> <b><i>Cucullia lychnitis</i> Na striped lychnis</b> <b><i>Heliophobus reticulatus</i> Nb Bordered Gothic</b> <b><i>Hypera rostralis</i> Nb Buttoned Snout</b> <b><i>Polia bombycina</i> local Pale Shining Brown</b> <b><i>Scotopteryx bipunctaria cretica</i> Nb Chalk Carpet</b> <b><i>Tyta luctuosa</i> RDB3 Four-spotted</b> <b><i>Trichopteryx polyommata</i> Na Barred Tooth-stripe</b> <i>Ogcodes pallipes</i> Nb hunch-backed fly <i>Oliarus panzeri</i> Nb planthopper <b><i>Bombus subterraneus</i> Na Short-haired bumblebee</b></p>	tussocky flower-rich sward; patches of bare ground; shelter provided by hedges, patches of scrub	regional ?national
reservoirs and gravel pits	<p>Coleoptera</p> <p>Lepidoptera Diptera Odonata Mollusca</p>	<p><i>Agabus labiatus</i> Nb diving beetle <i>Amara consularis</i> Nb ground beetle <i>Synanthedon formicaeformis</i> Nb Red-tipped clearwing</p> <p>- - -</p>	mosaic of open water and dense vegetation; shallow margins; semi-natural surrounding land; reliable hydrological regime; fringes of emergent vegetation; fringing willows	local
ponds and other small standing water bodies	<p>Odonata Coleoptera</p> <p>Diptera Araneae Mollusca Hemiptera</p>	<p><i>Brachytron pratense</i> Nb Hairy dragonfly <i>Acupalpus consputus</i> Nb, <i>Stenotaphus skrimshiramus</i> Na: ground beetles <i>Donacia crassipes</i> Nb, <i>D. obscura</i> Na: reed beetles <i>Graphoderus cinereus</i> RDB3, <i>Rhantus suturalis</i> Nb: diving beetles many snail-killing flies, including <i>Pscadina verbekei</i> Nb <i>Tetragnatha striata</i> Nb long-jawed spider <i>Pisidium pseudosphaerium</i> REB3 pea mussel</p> <p>-</p>	mosaic of open water and dense vegetation; shallow margins; summer draw-down zone; semi-natural surrounding land; reliable hydrological regime; fringes of emergent vegetation	local

wet woodland and carr	Coleoptera Diptera	<i>Hydaticus seminiger</i> Nb diving beetle <i>Saperda carcharias</i> Na longhorn a large number of craneflies including: <i>Limnophila pulchella</i> Nb, <i>Limonia inusta</i> Nb, <i>L. lucida</i> Nb, <i>Lipsothrix nervosa</i> local <i>Xylota abiens</i> Nb hoverfly	closed canopy providing shade and high humidity; alders, shallows; high water table leading to saturated ground; organic-rich litter layer including dead wood; seepages; shallow pools	local
canals	Odonata Mollusca Coleoptera	<i>Platycnemis pennipes</i> Nb White-legged damselfly <b><i>Pisidium tenuilineatum</i> RDB3 pea mussel</b> -	mosaic of open water and dense vegetation	local
small streams	Caddis	<i>Ironquia dubia</i> RDB2 caddis	temporary woodland streams that dry up in summer	local
urban	Diptera Hymenoptera Molluscs	- - -	ruderal plants; rubble; bare ground	local

#### Notes

This vast natural area had about 10,000 records for about 1000 nationally scarce or rare species. It has proved difficult to shoe-horn species into the broad and limited range of features, so additional features have been added to accommodate some conspicuous species groupings.

Natural Area: Greater Thames Estuary 67				
Key Habitats	Invertebrate groups	Associated or significant species	Specific needs	
Grazing marsh	Orthoptera Coleoptera Lepidoptera  Hemiptera Diptera  Hymenoptera Araneae	<i>Teitrix ceperoi</i> Na Cepero's Ground-hopper <i>Phytoecia cylindrica</i> Nb longhorn beetle <i>Omalium allardi</i> Nb rove beetle <i>Scopula emutaria</i> Nb Rosy Wave <i>Spilosoma urticae</i> Nb Water Ermine moth <i>Apamea oblonga</i> Nb Crescent Striped moth <i>Macrochilo cribrumalis</i> Nb Dotted Fan-foot moth <i>Rhopalus maculatus</i> Nb bug <i>Limonia danica</i> RDB3, <i>Erioptera bivittata</i> RDB2: craneflies <i>Hybomitra ciureai</i> RDB3 horsefly <i>Myopites inulaedysentericae</i> RDB3 picture-winged fly <b>Bombus subterraneus</b> Na <b>Short-haired Bumble Bee</b> good assemblage of scarce spiders	light grazing and trampling; some winter flooding, no summer flooding; associated pools; structurally diverse sward	Significance in NA nationally important
Sea walls and other dry grassland associated with grazing marsh; including hedges	Orthoptera Lepidoptera  Hemiptera Coleoptera Diptera  Hymenoptera Araneae	<i>Metrioptera roeselii</i> Nb Roesel's Bush Cricket <i>Bembecia scopigera</i> Nb Six-belted Clearwing moth <i>Eriogaster lanestris</i> Nb Small Eggar moth <i>Eupithecia millefoliata</i> Nb Yarrow Pug moth <i>Cucullia absinthii</i> Nb Wormwood moth <b>Hypera rostralis</b> Nb <b>Buttoned Snout</b> <i>Drymus latus</i> Nb ground bug <i>Brachinus crepitans</i> Nb Bombardier Beetle <i>Bombilius canescens</i> Nb bee fly <i>Asilus crabroniformis</i> Nb robber fly <i>Triglyphus primus</i> Nb hoverfly <i>Mutilla europaea</i> Nb Large Velvet Ant <b>Bombus humilis</b> local <b>Brown-banded Carder bee</b> <i>Haplodrassus umbratilis</i> RDB3 ground spider	herb-rich with structural diversity; patches of bare ground on sunny side	local
Reedbeds	Araneae Lepidoptera  Coleoptera Hymenoptera	<i>Hypomma fulvum</i> Na money spider <i>Clubiona juvenis</i> RDB2 foliage spider <i>Schoenobius gigantella</i> Nb pyralid moth <i>Chilodes maritimus</i> Nb Silky Wainscot moth <i>Simyra albovenosa</i> Nb Reed Dagger moth <i>Chlaenius nigricornis</i> Nb ground beetle <i>Passaloecus clypealis</i> RDB3 solitary wasp	all stages of succession including almost dry areas with dense litter; long rotation cutting; some scrub invasion; stable summer water levels	local
Reservoirs				

Grazing marsh ditches and pools	Odonata  Lepidoptera Hemiptera Coleoptera  Diptera	<p><i>Lestes dryas</i> RDB2 Scarce Emerald Damselfly  <i>Coenagrion pulchellum</i> Nb Variable Damselfly  <i>Brachytron pratense</i> Nb Hairy Dragonfly  <i>Sympetrum sanguineum</i> Nb Ruddy Darter dragonfly  <i>Archanaera sparganii</i> Nb Webb's Wainscot moth  <i>Sigara striata</i> Nb waterboatman  <i>Badister dilatatus</i> Nb, <b>Badister peltatus</b> Na: ground beetles  <i>Rhantus frontalis</i> Nb, <i>Dytiscus circumflexus</i> Nb: diving beetles  <i>Hydrophilus piceus</i> RDB3 Great Silver Water Beetle  very good assemblage of other scarce water beetles  <i>Philonthus punctus</i> pRDB3 rove beetle  good assemblage of scarce craneflies  very important for rare soldier flies and horseflies  good assemblage of scarce snail-killing flies  <i>Sphaerophoria loewi</i> RDB2, <i>Lefops vittata</i> RDB2, <i>Anasimyia interpuncta</i> RDB3: hoverflies</p>	light grazing and trampling; some winter flooding, no summer flooding; associated pools; structurally diverse sward; mainly old reed with dense litter layer; reed growing on gradient from dry ground to standing in shallow water	nationally important
Intertidal sand and mudflats saltmarsh	Crustacea Psychaetes Araneae Lepidoptera  Hemiptera  Coleoptera	<p>- - good assemblage of scarce spiders  <b>Cucullia asteris</b> Nb <b>Star-wort moth</b>  <i>Luperina nickerlii nickerlii</i> Na Sandhill Rustic moth  <i>Malacosoma castrensis</i> RDB3 Ground Lakey moth  <i>Mythimna flavicollis</i> Na Mathew's Wainscot  <i>Neophilaenus longiceps</i> Na froghopper  <i>Chlorita viridula</i> Na leafhopper  <b>Anisodactylus poeciloides</b> pRDB3, <i>Dyschirius impunctipennis</i> Nb: ground beetles  <b>Paracymus aeneus</b> RDB1 water beetle  <i>Malachus vulneratus</i> RDB3 malachite beetle  <i>Carpelimus halophilus</i> Nb rove beetle  <i>Stratiomys longicornis</i> RDB2 soldier fly  <i>Haematopota bigoti</i> RDB3, <i>Aylotus latistriatus</i> RDB3: horseflies  <i>Myopites eximia</i> RDB3 picture-winged fly</p>	historically undisturbed vegetation; herb-rich vegetation, especially with <i>Aster</i> and <i>Limonium vulgare</i> transitions to dry land and to freshwater seepages	nationally important
Unprotected soft cliffs	Hymenoptera	<p><i>Lasioglossum malachurus</i> Nb, <i>Sphécodes reticulatus</i> Na, <i>Melitta tricinca</i> Nb, <i>Andrena carbonaria</i> Nb: solitary bees  <i>Nomada fulvicornis</i> RDB3 Six-banded Nomad Bee  <b>Cerceris quadricincta</b> RDB1 solitary wasp</p>	natural erosion though not too fast; high proportion of exposed soil; sparse and herb-rich vegetation; seepages with constant water supply	local
Arable	Araneae	<p>-</p>		
Strandlines	Coleoptera	<p><i>Enoplognatha mordax</i> Na comb-footed spider  <i>Haptodrassus minor</i> RDB3 ground spider  <b>Euophrys browningi</b> RDB3 jumping spider  <i>Dicheirotrichus obsoletus</i> Nb ground beetle</p>	wet, rotting seaweed and other organic material cast up in considerable and reliable quantities; larger items of jetsam such as wood and animal corpses; absence of disturbance; proximity of natural habitats	local

Pits	Coleoptera	<i>Notaris bimaculatus</i> Nb weevil <i>Chaetarthria seminulum</i> Nb scavenger water beetle good assemblage of scarce water and diving beetles <i>Scatella crassicoستا</i> RDB2 shore fly	mosaic of structures from bare ground to scrub; herb-rich swards; ruderals; shallow water	local
Lagoons	Diptera		midly to strongly brackish water; natural inundation by sea; gradient form unstable to stable and vegetated shingle or mud	local
Shingle structures including offshore islands	Lepidoptera	<i>Ethmia terminella</i> RDB1 micro-moth <i>Platytes alpinella</i> pRDB3 pyralid moth <b><i>Idaea ochrata cantata</i></b> RDB2 <b>Bright Wave moth</b> <i>Phibalapteryx virgata</i> Nb Oblique Striped moth <i>Eilema pygmaeola</i> RDB3 Pygmy Footman moth <i>Euxoa cursoria</i> Nb Coast Dart moth <i>Agrotis ripae</i> Nb Sand Dart moth <i>Earias clorana</i> Nb Cream-boarded Green Pea moth <i>Masoreus wetherhalli</i> Na ground beetle <b><i>Lionchus quadrillum</i></b> RDB3 <b>ground beetle</b> <i>Trichoncus hackmani</i> RDB2 money spider <i>Heliophanus auratus</i> RDB2 jumping spider good assemblage of scarce spiders	natural physiographic processes leading to fore-dune; dune ridge and grey lichen dune behind; bare sand in all zones of the dunes system	nationally important
	Coleoptera			
	Araneae			
[ancient woodland added by DG for Roman River and other small woods]	Lepidoptera	<i>Apoda limacodes</i> Nb Festoon moth <i>Sesia apiformis</i> Nb Hornet Clearwing moth <i>Strymondia w-album</i> Nb White-letter Hairstreak butterfly <i>Archiearis notha</i> Nb Light Orange Underwing moth <i>Hemaris fusciformis</i> Nb Broad-boarded Bee Hawkmoth <i>Clostera pigra</i> Nb Small Chocolate-tip moth <i>Atolmis rubricollis</i> Nb Red-necked Footman moth <b><i>Cosmia diffinis</i></b> Na <b>White-spotted Pinion</b> <b><i>Pechipogon strigilata</i></b> , Na, <b>Common Fanfoot</b> <b><i>Paracolax tristalis</i></b> Na <b>Clay Fanfoot</b> <b><i>Trisateles emortualis</i></b> RDB3 <b>Olive Crescent</b> <i>Prionychus ater</i> Nb darkling beetle <i>Volucella inanis</i> Nb hoverfly good assemblage of scarce spiders	wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; standing and fallen dead wood; carr; fungal fruiting bodies on or associated with trees; well-developed ground flora	local
Open sea and subtidal sand and mud	Coleoptera Diptera Araneae			

Notes:

*Polia bombycina* Pale Shining Brown moth, a local BAP species of downland may not be resident.

Natural Area: North Kent Plain 68				
Key Habitats	Invertebrate groups	Associated or significant species	Specific needs	Significance in NA
Neutral grassland	Orthoptera Hemiptera Coleoptera Lepidoptera	<i>Metrioptera roeselii</i> Nb Roesel's Bush cricket <i>Asiraca clavicornis</i> Nb planthopper <i>Podagrira fuscicornis</i> Nb Mallow fle beetle <i>Liparis germanus</i> RDB2 leaf beetle	varied vegetation structure providing patches of short turf in a tussocky flower-rich sward; shelter provided by hedges or of scrub; damp hollows; well-structured transitions to other semi-natural habitats	Local
Acid grassland	Hemiptera Coleoptera Lepidoptera Aculeata	- - - -	structural variety including tussocks, open grassland and bare ground; nectar and pollen sources	?
Chalk grassland including chalk pits	Coleoptera	<i>Ceutorhynchus triangulum</i> Nb weevil <i>Drilus flavescens</i> Na beetle <i>Panagaeus bipustulatus</i> Nb ground beetle <i>Trachys scrobiculatus</i> Na Ground-ivy jewel beetle <i>Gracilia minuta</i> RDB2 longhorn beetle <i>Cryptocephalus aureolus</i> Nb leaf beetle <i>Rhagonycha lutea</i> Nb soldier beetle <b><i>Scotorynx bipunctaria</i> Nb Chalk Carpet</b> <b><i>Polia bombycina</i> local Pale Shining Brown</b> <b>?<i>Heliophobus reticulatus</i> Nb Bordered Gothic</b> <i>Lasioglossum paupuratum</i> RDB3, <i>Sphex niger</i> RDB3 solitary bees	varied vegetation structure providing patches of short turf in a tussocky flower-rich sward; bare ground; shelter provided by hedges or of scrub; well-structured transitions to other semi-natural habitats	Local
	Lepidoptera			
	Aculeata			
	Mollusca			
	Orthoptera			
	Diptera			
	Hemiptera			
	Araneae			

Woodlands & parklands	Mollusca Dictyoptera Hemiptera Coleoptera	<p><i>Limax tenellus</i> Nb Lemon slug  <i>Ectobius pallidus</i> Nb Tawny cockroach  <i>Capsodes flavomarginatus</i> Na plantbug  <i>Agrilus pannonicus</i> Na jewel beetle  <i>Ampedus cardinalis</i> RDB2 click beetle  <i>Platycis minuta</i> Nb net-winged beetle  <i>Cryptartha strigata</i> Nb sap beetle  <i>Triplax lacordairei</i> RDB3 shiny fungus beetle  <i>Coccinella magnifica</i> Na Scarce Seven-spot ladybird  <i>Osphya bipunctata</i> RDB3 dead wood beetle  <i>Mesosa nebulosa</i> RDB3 longhorn beetle  <i>Trachodes hispidus</i> Nb weevil  <i>Plinthus caliginosus</i> Na Hop Root weevil  <i>Rhynchites olivaceus</i> Na leafroller weevil  <i>Synanthedon vespiformis</i> Nb Yellow-legged clearwing  <i>Apoda limacodes</i> Nb Festoon  <i>Anania funebris</i> Na pyralid micro-moth  <i>Agotera nemoralis</i> pRDB1 pyralid micro-moth  <b>Mellicta athalia</b> RDB2 Heath Fritillary  ? <i>Boloria euphrosyne</i> Nb Pearl Bordered Fritillary  <i>Hydrelia sylvata</i> Nb Waved Carpet  <i>Euphyia biangulata</i> Nb Cloaked Carpet  <b>Schrankia taenialis</b> Nb White-lined Snout  <i>Ptilophora plumigera</i> Na Plumed Prominent  <b>Paracolax tristalis</b> Na Clay Fan-foot  <i>Ctenophora nigricornis</i> RDB3 crane-fly  <i>Pherbellia annulipes</i> N snail-killing fly  <i>Paraclusia tigrina</i> RDB2 dead wood fly  <i>Auplopus carbonarius</i> Nb, <i>Priocnemis gracilis</i> Nb: spider-hunting wasps  <i>Pemphredon clypealis</i> RDB3 solitary wasp  <i>Pistiurus truncatus</i> RDB1 crab spider  <i>Walckenaeria mitrata</i> RDB1 money spider</p>	wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; old trees; wide age range of woody species; standing and fallen dead wood; fungal fruiting bodies on or associated with trees; varied structure, including sunny open spaces rides; well-structured margins with transitions to other semi-natural habitats	National
Rivers & streams	Coleoptera  Diptera Mollusca Crustacea Ephemeroptera Trichoptera	<p><i>Gyrinus aeratus</i> Nb whirligig beetle  <i>Hydroporus marginatus</i> Nb diving beetle  <i>Riolus subviolaceus</i> Nb riffle beetle  <i>Limnebius nitidus</i> Nb water beetle  <i>Erioptera nigripalpis</i> RDB3 crane-fly  -  -  -  -</p>	natural flow regime; clean water; well-structured and varied bankside vegetation; shaded and unshaded stretches; semi-natural bordering land; margins with emergent vegetation; undisturbed exposed sediments; accumulations of flood litter	Local



Gravel pits	Odonata Coleoptera	<ul style="list-style-type: none"> <li>- <b>Harpalus parallelus</b> pRDB3 ground beetle</li> <li><i>Haliphys laminatus</i> Nb water beetle</li> <li><i>Ilybius fenestratus</i> Nb diving beetle</li> <li><i>Gyrinus distinctus</i> pRDB3 whirligig beetle</li> <li><i>Athous campyloides</i> Nb click beetle</li> <li><i>Pseudostyphlus pillumus</i> Na, <i>Eubrychius velutus</i> Nb: weevils</li> <li><i>Calamotropha paludella</i> Nb pyralid micro-moth</li> <li>-</li> <li>- <b>Cerceris quinquefasciata</b> RDB3 solitary wasp</li> <li><b>Bombus humilis</b> local Brown-banded Carder bee</li> <li>-</li> </ul>	clean water; early successional stages; mixture of bare and vegetated water margins; shallow margins; well-structured margins, including swamp, scrub and trees; small pools; seasonally flooded hollows and damp depressions; varied vegetation structure on dry land, including bare ground, sparse herbaceous vegetation, tussocks and scrub; abundant nectar plants	?Local
Eutrophic ponds	Odonata Hemiptera Coleoptera	<ul style="list-style-type: none"> <li>- <i>Hebrus pusillus</i> Nb sphagnum bug</li> <li><i>Agabus chalconatus</i> Nb, <i>Rhantus grapii</i> Nb: diving beetles</li> <li><i>Cercyon sternalis</i> Nb, <i>Cercyon ustulatus</i> Nb: scavenger water beetles</li> <li><i>Helochaeres lividus</i> Nb, <i>Anacaena bipustulata</i> Nb: water beetles</li> <li>-</li> </ul>	mosaic of open water and dense vegetation; shallow margins; semi-natural habitats in surrounding land; reliable hydrological regime; surrounding marshy zone	?Local
Grazing marsh & ditches	Mollusca Odonata Coleoptera	<ul style="list-style-type: none"> <li>- <b>Segmentina nitida</b> RDB1 Shiny Ramshorn</li> <li><i>Coenagrion pulchellum</i> Nb Variable damselfly</li> <li><i>Brachytron pratense</i> Nb Hairy dragonfly</li> <li><i>Agonum nigrum</i> Na, <i>Polistichus connexus</i> RDB2: ground beetles</li> <li><i>Pelodytes caesus</i> Nb, <i>Noterus crassicornis</i> Nb, <i>Coelambus parallelogrammus</i> Nb, <i>Enochrus melanocephalus</i> Nb, <i>Ochthebius exaratus</i> pRDB3: water beetles</li> <li><i>Hydrophilus piceus</i> RDB3 Great Silver water beetle</li> <li><i>Cercyon granarius</i> RDB3 scavenger water beetle</li> <li><i>Litodactylus leucogaster</i> Nb, <i>Gymnetron villosulum</i> Nb: weevils</li> <li><i>Deltote bankiana</i> RDB2 Silver Barred</li> <li><i>Beris clavipes</i> N, <i>Stratiomys longicornis</i> RDB2: soldierflies</li> <li><i>Myopites inulaedysseutericae</i> N picture-winged fly</li> <li><i>Dichetophora finlandica</i> pRDB3 snail-killing fly</li> <li><i>Passaloecus chypealis</i> RDB3 solitary wasp</li> <li>-</li> </ul>	mixture of open water and dense vegetation; some emergent vegetation at margins; shallow margins, some well-vegetated; management by small scale clearance, or on long-term rotation, or only as essential; well-structured bankside vegetation; grazed margins; unimproved grassland	National
Maritime grassland	Orthoptera Lepidoptera Coleoptera Diptera Hemiptera	<ul style="list-style-type: none"> <li>- <i>Metrioptera roeselii</i> Nb Roesel's Bush Cricket</li> <li><i>Conocephalus discolor</i> Na Long-winged Conehead cricket</li> <li><i>Spilosoma urticae</i> Nb Water Ermine moth-</li> <li>-</li> <li>-</li> <li>-</li> </ul>	fresh and saltwater seepages and intrusions; saltpans; grazing animals; damp depressions; bare ground; transitions to saltmarsh and to other grassland types; herb-rich sward with structural diversity; patches of bare ground	local

Chalk cliffs	Orthoptera Coleoptera Hemiptera Diptera Aculeata Lepidoptera	natural physiographic processes; undisturbed cliff-face vegetation; grazing of cliff-top grassland	?
Unprotected soft cliffs	Crustacea Aculeata  Orthoptera Hemiptera Coleoptera Diptera Lepidoptera Araneae	natural physiographic processes; mosaic of bare ground and vegetation of different ages and structures; seepages; nectar and pollen sources	?
Reedbed	Coleoptera  Lepidoptera  Diptera Hemiptera Araneae	consistently high winter water levels; partial summer drying; plant litter; infrequent management	?Local
Sand dunes	Dictyoptera Coleoptera  Lepidoptera  Aculeata  Mollusca Orthoptera Diptera Hemiptera Araneae	natural physiographic processes leading to fore-dune; dune ridge and grey lichen dune behind; bare sand in all zones of the dune system; herb-rich with structural diversity; undisturbed strandline litter and vegetation; grazing animals	National

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*Eluma purpurascens* Nb woodlouse  
*?Alysson lunicornis* Na, *?Odynerus melanocephalus* Na, *?Cerceris quadricincta* RDB1: solitary wasps  
*?Colletes halophilus* Na, *?Andrena proxima* RDB3: solitary bees  
*?Nomada fucata* Na nomad bee  
-  
-  
-  
-  
-

*Demetrias imperialis* Nb, *Odacantha melanura* Nb: ground beetles  
*Gyrinus suffriani* pRDB3 whirligig  
*Schoenobius gigantea* Nb pyralid micro-moth  
*Sinyra albovenosa* Nb Reed Dagger  
*Chilodes maritimus* Nb Silky Wainscot  
*Phaonia atriceps* N house fly  
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-

*Ectobius panzeri* Nb Lesser cockroach  
*Harpalus seripes* Nb ground beetle  
*Crypticus quisquilius* Nb darkling beetle  
**Melanotus punctolineatus** pRDB1 click beetle  
*Melissopteryx zelleri* pRDB3, *Gymnacyla canella* Na: micro-moths  
*Eilema pygmaeola* RDB3 Pygmy Footman  
*Aplasia ononaria* RDB3 Rest Harrow  
*Idaea ochrata* RDB2 Bright Wave  
**Evagetes pectinipes** RDB1, **Evagetes pectinipes** RDB1: Spider-hunting wasps  
*Miscophus ater* RDB2 solitary wasp  
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Shingle	Crustacea Myriapoda Orthoptera Coleoptera Aculeata Araneae	- - - <i>Amara lucida</i> Nb ground beetle - -	undisturbed vegetation; natural physiographic processes	?
Saltmarsh	Mollusca Hemiptera Coleoptera Diptera Aculeata Lepidoptera Araneae	- <i>Henestaris halophilus</i> RDB2 ground bug <i>Longitarsus plantagomaritimus</i> Nb flea beetle <i>Haematopota bigoti</i> RDB3 cleg - - -	historically undisturbed vegetation; herb-rich vegetation, especially with <i>Aster</i> and <i>Limonium</i> ; transitions to dry land and to freshwater; seepages	National
Brackish lagoon	Coleoptera Diptera Crustacea	- <i>Demetrias imperialis</i> Nb ground beetle -		
Intertidal mud & sand	Annelida Mollusca Coleoptera	- - <b><i>Bembidion nigropiceum</i> Na ground beetle</b>	natural processes of deposition and erosion	?
Disturbed ground	Myriapoda Hemiptera Coleoptera	<i>Hehnia brevis</i> Nb centipede <i>Raglius alboacuminatus</i> Nb ground bug <i>Asiraca clavicornis</i> Nb leafhopper <i>Hippodamia variegata</i> Nb Adonis' s ladybird <i>Kalcipion semivittatum</i> Na, <i>Stenocarus umbrinus</i> Nb, <i>Gymnetron rostellum</i> Na: weevils -	consistent pattern of disturbance; ruderal and annual plants as host plants and as nectar and pollen sources; friable soils	Local
	Lepidoptera	-		

#### Notes

The very few records from coastal habitats chalk cliffs, sand dunes suggests that other records have gone into a different, coastal, natural area. If so, there is clearly some tidying up to be done in the distribution of features and records between areas. The list of significant/characteristic species which accompanied the table provided for this feature included four species, none of which is amongst the ISR records; I have used both those species already selected and additional ones from the partial ISR list for this table. All things considered, it's worked fairly well, even though the result is presumably surplus to requirements.

I have assumed all records of *Nebrioporus depressus* Nb to refer in fact to *N. depressus elegans* common.

I have erred on the side of caution in not using a number of records over which there might be doubt. In particular, of *Malachius barnevillei*; of *Halictus saltator*; of *Ischnomera cyanea*; and of *Grammotaulius nitidus*. The latter species is listed in the table provided for the natural area, but the national review of Trichoptera makes no mention of the record.

Several species listed as characteristic or significant in the table for this natural area have not been used, either because of uncertainty, because the species involved are not considered sufficiently rare or sufficiently characteristic of the feature in question, and selectively because there are no corresponding ISR records. The most significant in the later group is *Libellula fulva*, listed as characteristic for grazing marsh.

One group of characteristic species is duplicated in the lists accompanying the spreadsheet data for the natural area. Four species are listed both appropriately for sand dunes and inappropriately for grazing marsh.

Particular difficulty was experienced in assigning aculeate Hymenoptera of which there are many records to habitat. Many have multiple habitats, as do a significant number of sites, and since many of the sites are unfamiliar to me and difficult to place on a map, it is difficult to assign them with great confidence.

The rather general "disturbed ground" feature is an addition: a number of species recorded from the area are not particularly characteristic of the broad habitat in which they were recorded, but merely reflect that part of that habitat had been disturbed. The small assemblage of such species that I have listed in this column do not reflect overwhelming importance, but do include species *Kalcapion semivittatum*, for example with a restricted distribution.

Natural Area: North Downs 69		Key Habitats	Invertebrate groups	Associated or significant species	Specific needs	Significance in NA
Ancient woodland	Mollusca Orthoptera Coleoptera		<p><i>Macrogaster rolphii</i> Nb door snail  <i>Phenacolimax major</i> Nb slug  <i>Omocestus rufipes</i> Nb Woodland grasshopper  <i>Prionocyphon serricornis</i> Nb marsh beetle  <i>Agrilus angustulus</i> Nb jewel beetle  <i>Cryptartha strigata</i> Nb sap beetle  <i>Diplocoelus fagi</i> Nb bark beetle  <i>Priorychus ater</i> Nb darkling beetle  <i>Lissodema cursor</i> Na false weevil  <i>Notolaemus unifasciatus</i> Na flat bark beetle  <i>Pyrrhocroa coccinea</i> Nb cardinal beetle  <i>Variimorda villosa</i> Nb tumbling flower beetle  <i>Plinthus caliginosus</i> Na Hop Root weevil  <i>Taphrorhynchus bicolor</i> Na, <i>Ernoporus fagi</i> Na: bark beetles  <b>Boloria euphrosyne</b> Nb Pearl Bordered Fritillary  <i>Apoda limacodes</i> Nb Festoon  <i>Spargania luctuata</i> Na White-banded Carpet  <i>Eupithecia denotata</i> Na Campanula Pug  <i>Ptilophora plumigera</i> Na Plumed Prominent  <b>Pechipogon strigilata</b> Na Common Fan-foot  <b>Rheumatopera hastata</b> Nb Argent and Sable  <b>Hydrelia sylvata</b> Nb Waved Carpet  <b>Minoa murinata</b> Nb Drab Looper  <b>Xestia rhomboidea</b> Nb Square-spotted Clay  ? <i>Cuculia asteris</i> Nb Star-wort  <i>Tipula livida</i> Nb, <i>Lipsothrix nervosa</i> local: craneflies  <b>Bombylius discolor</b> Nb bee-fly  <i>Paraclausia tigrina</i> RDB2 dead wood fly  <b>Centromerus albidus</b> RDB2 money spider  -  -</p>	<p>wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; old trees; wide age range of woody species; standing and fallen dead wood; fungal fruiting bodies on or associated with trees; varied structure, including sunny open spaces rides; well-structured margins with transitions to other semi-natural habitats</p>	National	
	Lepidoptera					
	Diptera					
	Araneae Hemiptera Hymenoptera					

Chalk scrub	Diptera Dermaptera Orthoptera Hemiptera  Coleoptera  Lepidoptera Mollusca	<p><i>Ectobius pallidus</i> Nb Tawny cockroach  <i>Forficula lesnei</i> Nb earwig  <i>Gomphocerippus rufus</i> Nb Rufous grasshopper  <i>Gonocerus acutegulatus</i> RDB1 squash bug  <i>Drymus pilipes</i> Na ground bug  <b>Cryptocephalus nitidulus</b> RDB1 leaf beetle  ? <b>Malachius aeneus</b> RDB3 malachite beetle  <i>Epitrix atropae</i> Nb Belladonna flea beetle  <i>Brachysomus hirtus</i> RDB3 weevil  <i>Synanthedon andreanaeformis</i> Nb Orange-tailed Clearwing  -</p>	<p>blocks and patches of bushes; associated grassland; leaf litter; moss; flower-bearing species; sheltered hot-spots</p>	National
Chalk grassland	<p>Mollusca  Orthoptera  Coleoptera   Lepidoptera</p>	<p><i>Monacha cartusiana</i> RDB3 snail  <i>Helix pomatia</i> Nb Roman snail  <i>Stenobothrus lineatus</i> Nb Stripe-winged grasshopper  <b>Decticus verrucivorus</b> RDB1 Wart Biter  <b>Harpalus parallelus</b> pRDB3, <i>Trachys scrobiculatus</i> Na ground beetles  <i>Drilus flavescens</i> Na beetle  <i>Cryptocephalus aureolus</i> Nb, <i>C. bilineatus</i> Nb, <i>Pilemostoma fastuosa</i> Na: leaf beetles  <i>Squamapion flavimanum</i> Na seed weevil  <i>Trachyphloeus alternans</i> Nb, <i>T. asperatus</i> Nb, <i>T. spinimanus</i> Nb, <i>Leiosoma pyrenaicum</i> pRDB2: weevils  <b>Plebejus argus</b> Nb Silver-studded Blue  <i>Lysandra coridon</i> Chalk-hill Blue  <i>Lysandra bellargus</i> Nb Adonis Blue  <b>Hesperia comma</b> RDB3 Silver-spotted skipper  <b>Siona lineata</b> RDB1 Black-veined  <i>Pempelia obductella</i> pRDB2 pyralid micr-moth  <i>Scopula ornata</i> Na Lace Border  <b>Scotopteryx bipunctata</b> Nb Chalk Carpet  <b>Agrotis cinerea</b> Nb Light Feathered Rustic  <i>Aspitates gilvaria</i> Na Straw Belle  <i>Setina irrorella</i> Na Dew Moth  <i>Symphoromyia immaculata</i> N snipefly  <b>Doros profuges</b> RDB2, <i>Microdon devius</i> RDB2: hoverflies  <i>Urophora solstitialis</i> pRDB3 picture-winged fly  -  -  -</p>	<p>varied vegetation structure providing patches of short turf in a tussocky flower-rich sward; bare ground; shelter provided by hedges or of scrub; well-structured transitions to other semi-natural habitats</p>	
Chalk grassland cont.	<p>Diptera  Hemiptera  Aculeata  Araneae</p>			

Calcareous flushes	Diptera Mollusca Coleoptera	<i>Stratiomys potamida</i> N water soldierfly <i>Thaumastopectera calceata</i> N crane fly <i>Spania nigra</i> N snipefly - -	constant water supply; open-structured vegetation; pollen and nectar sources nearby	Local
Chalk cliffs	Coleoptera Diptera Hemiptera Aculeata Lepidoptera	- - - - - <b>Hadena albimacula</b> RDB2 White Spot <i>Setina irrorella</i> Na Dew Moth	natural physiographic processes; undisturbed cliff-face vegetation; grazing of cliff-top grassland	?
Chalk pits	Coleoptera Lepidoptera	<i>Licinus depressus</i> Nb ground beetle <i>Orthochaetes setiger</i> Nb, <i>Stenocarus umbrinus</i> Nb: weevils <i>Bembecia scopigera</i> Nb Six-belted Clearwing <i>Cydia pallifrontana</i> Na tortrix micro-moth <i>Pempelia obductella</i> pRDB2, <i>Oncocera semirubella</i> Nb: pyralid micro-moths <i>Aspitates gilvaria</i> Na Straw Belle <i>Letoptilius carphodactyla</i> Nb plume moth	mosaic of vegetation structure including bare ground, sparse herbaceous vegetation, tussocks and scrub; south-facing slopes; abundant nectar plants; rocks and stones; damp and seasonally flooded hollows	Local
Arable land	Diptera Hemiptera Aculeata Araneae Coleoptera Hemiptera	- - - - <i>Omphalopion dispar</i> pRDB3, <i>Kalcapion semivittatum</i> Na seed weevils	consistent pattern of disturbance; ruderal and annual plants as host plants and as nectar and pollen sources; friable soils	Local
Heathland & ponds	Orthoptera Hemiptera Dictyoptera Aculeata Coleoptera Diptera Lepidoptera Araneae	- <i>Zygina rubrovittata</i> Nb leafhopper <i>Ectobius pallidus</i> Nb tawny cockroach <i>Oxybelus mandibularis</i> Na spiny digger wasp <i>Nomada hirtipes</i> RDB3 nomad bee <i>Cercyon ustulatus</i> Nb scavenger water beetle - - -	structural variety including open grass heath, very short turf and bare ground, and mature heather; rabbit or other disturbance; nectar & pollen sources; flowering heather; dung; patches of gorse and/or broom; birch and/or sallow both as young scrub and older trees with dead wood; shallow pools	Local

River valleys	Mollusca Crustacea Odonata Coleoptera  Lepidoptera Ephemeroptera Hemiptera Diptera Aculeata Trichoptera Araneae	<p>- <i>Austropotamobius pallipes</i> Crayfish</p> <p><i>Sympetrum sanguineum</i> Nb Ruddy Darter</p> <p><i>Halipplus laminatus</i> Nb water beetle</p> <p><i>Agabus biguttatus</i> Nb diving beetle</p> <p><i>Eubrychius velutus</i> Nb weevil</p> <p><b><i>Hydraecia osseola</i> RDB1 Marsh Mallow Moth</b></p> <p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p>	natural flow regime; clean water; well-structured and varied bankside vegetation; shaded and unshaded stretches; semi-natural bordering land; margins with emergent vegetation; undisturbed exposed sediments; accumulations of flood litter	Local
Soft cliffs	Isopoda Lepidoptera  Hymenoptera  Orthoptera Hemiptera Coleoptera Diptera Araneae	<p><i>Eluma purpurascens</i> Nb pill woodlouse</p> <p><i>Selenia leplastriana</i> pRDB1 tortrix moth</p> <p><b><i>Bembecia chrysidiformis</i> RDB1 Fiery Clearwing</b></p> <p><b><i>Scotopteryx bipunctaria cretica</i> Nb Chalk Carpet</b></p> <p><b><i>Idaea ochrata cantitata</i> RDB2 Bright Wave</b></p> <p><b><i>Agrotis cinerea</i> Nb Light Feathered Rustic</b></p> <p><b><i>Hadena albimacula</i> RDB2 White Spot</b></p> <p><i>Cerceris quadricincta</i> RDB1 solitary wasp</p> <p><i>Andrena bucephala</i> Na, <i>A. simillima</i> RDB2: solitary bees</p> <p><i>Andrena timmerana</i> Nb Trimmer's Mining Bee</p> <p><i>Nomada fucata</i> Na nomad bee</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p>	natural physiographic processes; mosaic of bare ground and vegetation of different ages and structures; high proportion of exposed soil; sparse and herb-rich vegetation; nectar and pollen sources; seepages	national
Coastal shingle	Orthoptera Lepidoptera Coleoptera	<p><i>Platycleis albopunctata</i> Nb Grey Bush Cricket</p> <p><b><i>Idaea ochrata cantitata</i> RDB2 Bright Wave moth</b></p> <p><b><i>Calophasia lunula</i> RDB3 Toadflax Brocade moth</b></p> <p><i>Ceuthorhynchus geographicus</i> Nb weevil</p>	natural physiographic process leading to fore-dune, shingle ridge and grey lichen dune behind; bare sand in all zones	

#### Notes

Records of *Nebrioporus depressus* Nb have been assumed to refer to *N. depressus elegans* common. Though chalk cliffs and soft cliffs are included in the list of key features in the spreadsheet table provided for this natural area, in practice no strictly coastal records are included in the ISR data though one *Bembecia chrysidiformis* is included in lists of significant species in the spreadsheet data. Presumably these features are included, in the ISR, in a coastal natural area. It is not clear from the maps I have where the boundaries of the coastal natural areas fall in this region. It seems, though, that there are inconsistencies between already tabulated data and localisation of ISR data.



"River valleys" is potentially a rather broad category which might be more informatively divided for invertebrates. Indeed, the species included in that category at present are not a very cohesive whole. However, the number of records for this feature was so small that attempting subdivision would not, in practice, have achieved a great deal.

Apart from *Austropotamobius pallipes*, the spreadsheet data included a list of significant invertebrates only for chalk grassland. A large proportion of the listed species have been included in the present table, but some have been omitted, either because they are considered relatively common, with nothing to add over alternative, scarcer species, or because they are better placed in other habitat categories.

Natural Area: Wealden Greensand 70			
Key Habitats	Invertebrate groups	Associated or significant species	Specific needs
Dry heath	Orthoptera Hemiptera Lepidoptera  Coleoptera	<p><i>Gryllus campestris</i> RDB1 Field cricket  <i>Omocestus rufipes</i> Nb Woodland grasshopper  <i>Rhopalus rufus</i> pRDB3 bug  <i>Nysius helveticus</i> RDB3 ground bug  <b><i>Plebejus argus</i> Nb Silver-studded Blue</b>  <i>Pachynemia hippocastanaria</i> Nb Horse Chestnut  <b><i>Dyscia fagaria</i> local Grey Scalloped Bar</b>  <b>?<i>Cucullia lychnitis</i> Na striped lychnis</b>  <b><i>Cicindela sylvatica</i> RDB3 Wood Tiger beetle</b>  <i>Pterostichus lepidus</i> Nb ground beetle  <i>Geotrupes pyrenaeus</i> Na dor beetle  <i>Trox sabulosus</i> Na carrion beetle  <i>Porcinolus murinus</i> Nb pill beetle  <i>Ampectus sanguinolentus</i> Na click beetle  <i>Cryptocephalus parvulus</i> Nb. <i>C. punctiger</i> Na: <b>leaf beetles</b>  <i>Apion rubiginosum</i> pRDB3 weevil  <i>Ctenophora atrata</i> Nb cranefly  <i>Nephrotoma sullingtonensis</i> RDB1 tiger cranefly  <b><i>Asilus crabroniformis</i> Nb Hornet Robberfly</b>  <i>Eutolmus rufibarbis</i> pRDB3 robberfly  <b><i>Thyridanthrax fenestratus</i> RDB3 bee-fly</b>  <b><i>Chrysotoxum octomaculatum</i> RDB2 hoverfly</b>  <i>Microdon eggeri</i> N hoverfly  <i>Mutilla europaea</i> Nb Large Velvet ant  <i>Formica sanguinea</i> Nb Blood-red ant  <i>Arachnospila wesmaeli</i> Na spider-hunting wasp  <i>Eumenes coarctatus</i> Na potter wasp  <i>Ectemnius borealis</i> RDB3, <i>Psen spooneri</i> RDB3, <i>Diodontus insidiosus</i> RDB3: solitary wasps  <i>Hylaeus gibbus</i> RDB3, <i>Halictus confusus</i> RDB3, <i>Lasioglossum brevicorne</i> RDB3, <i>Stelis breviscula</i> RDBK solitary bees  <i>Nomada fulvicornis</i> RDB3 nomad bee  <i>Alopecosa fabrilis</i> RDB1 wolf spider  <i>Enoplognatha oelandica</i> RDB3 comb-footed spider  <i>Oxyopes heterophthalmus</i> RDB2 Lynx spider  <b><i>Uloborus walckenaerianus</i> RDB3 money spider</b></p>	structural variety including open grass heath, very short turf and bare ground, and mature heather; rabbit or other disturbance; nectar & pollen sources; flowering heather; dung; patches of gorse and/or broom; birch and/or pine both as young scrub and older trees with dead wood
			Significance in NA National

Wet heath	<p>Odonata</p> <p>Orthoptera</p> <p>Hemiptera</p> <p>Coleoptera</p>	<p><i>Leucorhinia dubia</i> Na White-face darter</p> <p><i>Ceriatgrion tenellum</i> Nb Small Red damselfly</p> <p><i>Metrioptera brachyptera</i> Nb Bog Bush cricket</p> <p><i>Micracanthia marginalis</i> Na shore bug</p> <p><i>Agonum sexpunctatum</i> Na ground beetle</p> <p><i>Hydroporus neglectus</i> Nb, <i>Ilybius aenescens</i> Nb: diving beetles</p> <p><i>Stenus kiesewetteri</i> pRDB2 rove beetle</p> <p><i>Phytobius olssoni</i> pRDB3, <i>Bagous lutulentus</i> Na, <i>Dieckmanniellus gracilis</i> pRDB3 weevils</p> <p><i>Cryptocephalus biguttatus</i> RDB2 leaf beetle</p> <p><i>Buckleria paludum</i> pRDB3 plume moth</p> <p><b>Hemaris tityus</b> Na <b>Narrow-bordered Bee Hawk</b></p> <p><i>Hypenodes humidalis</i> Nb Marsh Oblique-barred</p> <p><i>Tipula marginata</i> RDB3, <i>T. yerburyi</i> Nb: craneflies</p> <p><i>Alylotus fulvus</i> Nb horsefly</p> <p><i>Chrysogaster macquarti</i>, <i>Microdon mutabilis</i> Nb: hoverflies</p> <p><i>Notioscopus sarcinatus</i> Nb money spider</p>	<p>varied vegetation structure including bare wet peat, tussocks and dwarf scrub; shallow pools; high water table; birch and sallow scrub; well-structured transitions to other habitats</p>	National
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Broad-leaved semi-natural woodland	Mollusca  Orthoptera Coleoptera  Lepidoptera     Diptera    Aculeata  Hemiptera Araneae	<p><i>Ena montana</i> RDB3 bulin snail  <i>Tandonia rustica</i> RDBK keelback slug  <i>Macrogastra rolphii</i> Nb door snail  <i>Helicodonta obvoluta</i> RDB3 snail  <i>Omocestus rufipes</i> Nb Woodland grasshopper  <i>Agrilus laticornis</i> Nb, <i>A. angustulus</i> Nb: jewel beetles  <i>Coccinella magnifica</i> Na Scarce 7-spot ladybird  <b><i>Lucanus cervus</i> Nb Stag Beetle</b>  <i>Pyrrhocroa coccinea</i> Nb Cardinal beetle  <i>Strangalia aurulenta</i> Na longhorn  <i>Dasytes niger</i> Na malachite beetle  <i>Polydrusus marginatus</i> pRDB2, <i>P. sericeus</i> Na, <i>P. mollis</i> Nb: weevils  <i>Hamearis lucina</i> Nb Duke of Burgundy Fritillary  <b><i>Boloria euphrosyne</i> Nb Pearl Bordered Fritillary</b>  <b><i>Agynnis adippe</i> RDB2 High Brown Fritillary</b> extinct  <i>Apatura iris</i> Nb Purple Emperor  <i>Eilema sororcula</i> Nb Orange Footmad  <i>Meganola strigula</i> Na Small Black Arches  <b><i>Hydrelia sylvata</i> Nb Waved Carpet</b>  <b><i>Minoa murinata</i> Nb Drab Looper</b>  <b><i>Catocala sponsa</i> RDB2 Dark Crimson Underwing</b>  <b><i>Paracolax tristalis</i> Na Clay Fanfoot</b>  <b><i>Lipsothrix nervosa</i> local, <i>Limonia inusta</i> Nb, <i>Molophilus lackschewitzianus</i> RDB3 craneflies</b>  <i>Dioctria oelandica</i> Nb robberfly  <i>Brachyopa bicolor</i> RDB3, <i>Brachyopa insensilis</i> N, <i>Brachyopa pilosa</i> N, <i>Volucella inflata</i> N, <i>Brachypalpus lapthiformis</i> N, <i>Criorhina asilica</i> N, <i>Criorhina ranunculi</i> N, <i>Xylota xanthocnema</i> N: hoverflies  <i>Paractusia tigrina</i> RDB2 dead wood fly  <i>Gymnosoma rotundatum</i>, pRDB3 parasitic tachimid fly  <b><i>Andrena ferox</i> RDB1</b> solitary bee  <i>Ectemnius borealis</i> RDB3, <i>E. ruficornis</i> Nb: solitary wasps  <i>Iassus scutellaris</i> Na leaf hopper  -</p>	wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; old trees; wide age range of woody species; standing and fallen dead wood; fungal fruiting bodies on or associated with trees; varied structure, including sunny open spaces rides; well-structured margins with transitions to other semi-natural habitats	
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Parkland, wood-pasture and deerparks	Coleoptera	<p><i>Ampedus cardinalis</i> RDB2, <i>Ampedus cinnabarinus</i> RDB3, <i>Procraterus tibialis</i> RDB3 : click beetles  <i>Plegaderus dissectus</i> Nb carrion beetle  <i>Aphodius zenkeri</i> Nb dung beetle  <i>Prionocyphon serricornis</i> Nb marsh beetle  <i>Dirhagus pygmaeus</i> RDB3, <i>Hylis olexai</i> RDB3: false click beetles  <i>Selatosomus bipustulatus</i> Nb click beetle  <i>Ctesias serra</i> Nb cobweb beetle  <i>Hadrobregeinus denitcollis</i> Nb, <i>Gastrallus immarginatus</i> RDB1: wood boring beetles  <i>Cryptarcha strigata</i> Nb sap beetle  <i>Pediatus depressus</i> Na, <i>Notolaemus unifasciatus</i> Na: flat bark beetles  <i>Helops caeruleus</i> Nb darkling beetle  <i>Prionus cortarius</i> Na sawyer beetle  <i>Lymexylon navale</i> RDB2 timber beetle  <i>Leptura scutellata</i> Na longhorn  <i>Magdalis barbicornis</i> Na pear weevil  <i>Calteera aurata</i> RDB3, <i>Xylota abiens</i> N: hoverflies</p>	retention of old trees pollards, ancient hulks; nectar sources; dead wood, new generations of trees; fungal fruiting bodies on or associated with trees; non-intensively managed grassland between trees	National
Hammer ponds, other ponds and lakes	Diptera Odonata Coleoptera	<p><i>Coradula aenea</i> Nb Downy Emerald  <i>Somatochlora metallica</i> Nb Brilliant Emerald  <i>Brachytron pratense</i> Nb Hairy dragonfly  <b><i>Graphoderus zonatus</i> RDB1 Spangled water beetle</b>  <i>Ilybius fenestratus</i> Nb, <i>Hydaticus seminiger</i> Nb diving beetles  <i>Anacaena bipustulata</i> Nb, <i>Helochaeres lividus</i> Nb, <i>Berosus affinis</i> Nb,  <i>Berosus signaticollis</i> Nb: water beetles  <i>Silis rugicollis</i> Nb soldier beetle  <i>Cyanostilus aeneus</i> Na narrow bark beetle  large assemblage of reed beetles including <b><i>Donacia aquatica</i> PRDB3</b>  <i>Odontomyia tigrina</i> Nb soldierfly  <i>Antichaeta analis</i> PRDB3, <i>Pscadina verbekei</i> Nb: snail-killing flies  -  -  -</p>	mosaic of open water and dense vegetation; shallow margins; semi-natural surrounding land with varied vegetation structure; reliable hydrological regime; surrounding marshy zone	Local
Arable fields/bare sandy ground and tracks	Coleoptera Diptera Hemiptera	<p>Many species that are included in dry heathland are more typical of open sandy ground than of heather-dominated heathland.  <i>Liparus germanus</i> RDB2 weevil  <i>Platydacus fulvipes</i> Nb rove beetle  <i>Sibinia potentillae</i> Nb weevil  <i>Cistogaster globosa</i> RDB1 parasitic tachinid fly  <i>Oxyna flavipennis</i> Nb picture-winged fly  <i>Stictopleurus abutilon</i> listed as extinct bug</p>	consistent pattern of disturbance; ruderal and annual plants as host plants and as nectar and pollen sources; friable soils	?

<p>Alluvial grazing meadows with ditches in river valley:</p> <p>aquatic species of flowing freshwater</p>	<p>Mollusca</p> <p>Odonata</p> <p>Coleoptera</p> <p>Trichoptera</p> <p>Diptera</p> <p>Crustacea</p> <p>Ephemeroptera</p>	<p><i>Perforatella rubiginosa</i> RDB2 German hairy snail</p> <p><b><i>Pisidium tenuilineatum</i> RDB3</b>, <i>P. moitessierianum</i> RDB3: pea mussels</p> <p><i>Libellula fulva</i> RDB2 Scarce Chaser</p> <p><i>Gomphus vulgatissimus</i> Nb Club-tailed dragonfly</p> <p><i>Platycnemis pennipes</i> Nb White-legged damselfly</p> <p><i>Trechus discus</i> Nb ground beetle</p> <p><i>Haliphus laminatus</i> Nb water beetle</p> <p><i>Hydroporus marginatus</i> Nb diving beetle</p> <p><i>Hydropsyche fulvipennis</i> Nb caddis</p> <p><i>Oxycera pygmaea</i> Nb water soldierfly</p> <p><i>Erioptera limbata</i> RDB2, <b><i>Rhabdomastix hilaris</i> RDB3</b>: craneflies</p> <p>-</p> <p>-</p>	<p>natural flow regime; clean water; well-structured and varied bankside vegetation; shaded and unshaded stretches; semi-natural bordering land; margins with emergent vegetation; undisturbed exposed sediments; accumulations of flood litter</p>	<p>?National</p>
<p>Alluvial grazing meadows with ditches in river valley:</p> <p>species of tidal rivers</p>	<p>Mollusca</p> <p>Coleoptera</p> <p>Diptera</p> <p>Lepidoptera</p>	<p><i>Pseudamnicola confusa</i> RDB3 spire snail</p> <p><i>Assiminea grayana</i> Nb sentinel snail</p> <p><i>Stenus calcaratus</i> Nb rove beetle</p> <p><i>Agonum nigrum</i> Nb, <i>Bembidion lunatum</i> Nb: ground beetles</p> <p><i>Hercostomus plagiatus</i> Nb dolichopodid fly</p> <p>-</p>	<p>Natural deposition processes; undisturbed vegetation at river edges; creeks and tidal pools</p>	<p>?Local</p>
<p>Alluvial grazing meadows with ditches in river valley:</p> <p>ditches, pools and margins</p>	<p>Mollusca</p> <p>Odonata</p> <p>Diptera</p> <p>Hemiptera</p> <p>Coleoptera</p> <p>Hymenoptera</p>	<p>-</p> <p><i>Somatochlora metallica</i> Nb Brilliant Emerald</p> <p><i>Cordulia aenea</i> Nb Downy Emerald</p> <p><i>Coenagrion pulchellum</i> Nb Variable damselfly</p> <p><i>Brachytron pratense</i> Nb Hairy dragonfly</p> <p><i>Oxycera analis</i> RDB2, <i>Odontomyia tigrina</i> Nb water soldierflies</p> <p>-</p> <p>many water beetles, including <i>Hydaticus seminigra</i> Nb, <i>Peltodytes caesus</i> Nb, <i>Coelambus nigrolineatus</i> Na, <i>Enochrus melanocephalus</i> Nb, <i>Hydrophilus piceus</i> RDB3 Great Silver water beetle</p> <p><i>Donacia dentata</i> Na reed beetle</p> <p><i>Macropis europea</i> Na solitary bee</p>	<p>mixture of open water and dense vegetation; some emergent vegetation at margins; shallow margins, some well-vegetated; management by small scale clearance, or on long-term rotation, or only as essential; well-structured bankside vegetation</p>	<p>?National</p>
<p>Alluvial grazing meadows with ditches in river valley: grassland</p>	<p>Coleoptera</p> <p>Diptera</p> <p>Lepidoptera</p>	<p><i>Fleutiauxellus quadripustulatus</i> Na, <i>Selatossomus nigricornis</i> pRDB3, <i>Sepidophilus pedicularis</i> Nb: click beetles</p> <p><i>Chaetocnema subcoerulea</i> Nb leaf beetle</p> <p><i>Zophomyia temula</i> Nb parasitic tachinid fly</p> <p><b><i>Hydraceae osseola</i> RDB1 Marsh Mallow</b></p>	<p>high water table; some winter flooding, no summer flooding; associated pools; structurally diverse sward; well-structured margins, preferably including transition to scrub or trees</p>	<p>Local</p>

Alluvial grazing meadows with ditches in river valley: reedbeds and tall wetland vegetation	Mollusca Coleoptera  Lepidoptera Diptera Hemiptera Araneae	<b><i>Vetrtigo moulinsiana</i> RDB3 Desmoulin's whorl snail</b> <i>Demetrias imperialis</i> Nb, <i>D. monostigma</i> Nb, <b>Dromius sigma</b> Na: ground beetles <i>Silis ruficollis</i> Nb soldier beetle <i>Oxystoma cerdo</i> , Nb, <i>Thymapion vicinum</i> Nb: seed weevils <i>Cryptorhynchus lapathi</i> Nb Withy Weevil <i>Senta flammea</i> Na Flame Wainscot <i>Chilodes maritimus</i> Nb Silky Wainscot <i>Thaumastoptera calceata</i> Nb crane fly <i>Sciomyza dryomyzina</i> RDB2 snail-killing fly <i>Capsus wagneri</i> Nb grass bug -	consistently high winter water levels; partial summer drying; plant litter; infrequent management	Local
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**Notes**

"Dry and wet heath" was a single category in the spreadsheet data provided. Since the invertebrates of the two are rather distinct, and since there are abundant records of important species from both, they have been separated in this table.

The category "Alluvial grazing meadows with ditches in river valley, including wet and dry habitats", as specified in the spreadsheet data provided, is a broad one capable, without a great deal of explanation, of causing confusion in attempting to associate invertebrate species; in a single category a very long list would be needed to show adequately the variety and significance of the fauna and the relative value of different components of the habitat assemblage. I have therefore subdivided this feature, while retaining the overall heading for each sub-category. Species have been placed with certainty where possible, but on the basis of likelihood in other cases. The final sub-category "reedbeds and other tall wetland vegetation" is essentially a catch-all to hold other significant species not obviously or characteristically associated with the other features listed.

The habitat category "Arable fields/bare sandy ground and tracks" is a difficult one. Though there are a number of species of invertebrates on the ISR list which could occur in such circumstances, and though the habitat feature in question could be important, there is little basis for concluding that any of the records were in fact made from such features, and the species involved could equally occur in similar features within major habitats such as heathland.

A record of *Anisus vorticulus* in the list of significant species for river valleys in the spreadsheet data for the natural area has not been used, because of absence of confirmation of from other sources. The source should be checked, since if it is accurate it is the most important species from this habitat category. [It does appear to be an error]

***Bombylus discolor* Nb bee-fly** and ***Cryptocephalus coryli* RDB1 leaf beetle** are recorded from the natural area but is not typical for the habitats listed area. *B. discolor* is more typical of scrubby grasslands.

Natural Area: Romney Marsh 71			
Key Habitats	Invertebrate groups	Associated or significant species	Specific needs
Grazing marshes	Lepidoptera Diptera Coleoptera	<i>Spilosoma urticae</i> Nb Water Ermine moth <b>Hydracca osseola RDB1 Marsh Mallow</b> <i>Lejogaster splendida</i> Nb hoverfly <i>Cantharis fusca</i> pRDB3 soldier beetle <i>Chilodes maritimus</i> Silky Wainscot moth <i>Simyra albovenosa</i> Nb Reed Dagger moth - -	light grazing and trampling; some winter flooding, no summer flooding; associated pools; structurally diverse sward
Reedbed	Lepidoptera Diptera Araneae	<i>Hirudo medicinalis</i> RDB3 Medicinal Leech <i>Sympetrum sanguineum</i> Nb Ruddy Darter dragonfly <i>Brachytron pratense</i> Nb Hairy Dragonfly <i>Archana sparganii</i> Nb Webb's Wainscot moth <i>Photodes fluxa</i> Nb Mere Wainscot moth <i>Sigara striata</i> Nb waterboatman <i>Hydrophilus piceus</i> RDB3 Great Silver Water Beetle important assemblage of aquatic beetles <b>Badister anomalus</b> pRDB1, <b>B. peltatus</b> Na, <i>Omophron limbatum</i> RDB1: ground beetles <i>Silis ruficollis</i> Nb soldier beetle <i>Macrolea mutica</i> Na leaf beetle good assemblage of scarce soldier flies and craneflies <i>Anasimyia interpuncta</i> RDB3, <i>Lejops vittata</i> RDB2: hoverflies	all stages of succession including almost dry areas with dense litter; long rotation cutting; some scrub invasion; stable summer water levels
Ditch, canal and pond	Gnathobdellae Odonata Lepidoptera Hemiptera Coleoptera Diptera	<i>Cucullia asteris</i> Nb Star-wort moth <i>Apamea oblonga</i> Nb Crescent Striped moth <i>Bledius diota</i> pRDBK rove beetle <b>Amara strenua</b> pRDB3, <b>Dyschirius angustatus</b> RDB3: ground beetles <i>Parydroptera discozyma</i> RDB2 shore fly <i>Platyichirus immarginatus</i> Nb hoverfly <i>Platycleis albopunctata</i> Nb Grey Bush Cricket <i>Tetrix ceperoi</i> Na Cepero's Ground-hopper <i>Cynaeda dentalis</i> pRDB3 pyralid moth very important assemblage of scarce micro-moths <i>Lasiocampa trifolii</i> Na Grass Eggar moth <i>Thalera fimbrialis</i> RDB1 Sussex Emerald moth <i>Clostera anachoreta</i> RDB1 Scarce Chocolate-tip moth <i>Setina irrorella</i> Na Dew Moth <i>Eilema pygmaeola</i> RDB3 Pygmy Footman moth	mosaic of open water and dense vegetation; shallow margins; semi-natural surrounding land; some brackish influence; light grazing and trampling on ditch margin; structurally diverse aquatic flora
Saltmarsh and intertidal mud/sand	Lepidoptera Coleoptera Diptera	historically undisturbed vegetation; herb-rich vegetation, especially with <i>Aster</i> and <i>Limonium vulgare</i> transitions to dry land and to freshwater seepages.	local
Shingle structures	Orthoptera Lepidoptera	natural physiographic processes leading to fore-dune or shingle ridge; dune or shingle ridge behind with good growth of lichen; bare sand or shingle in all zones of the system; low shrub growth on flats: high water table	internationally important



		<p><i>Hadena albimaculata</i> RDB2 White Spot moth  <i>Calophasia lunula</i> RDB3 Toadflax Brocade moth  <i>Agrotis cinerea</i> Nb Light Feathered Rustic  <i>Heliothobus reticulatus</i> Nb Bordered Gothic  good assemblage of scarce bugs  <i>Aphrodes duffieldi</i> pRDBk leaf hopper  <i>Dromius vectensis</i> pRDB3 ground beetle  good assemblage of ground and rove beetles  good assemblage of leaf beetles and weevils  <i>Hylaeus euryscapus</i> RDB3 solitary bee  very important for scarce bumble bees  <i>Bombus humilis</i> local Brown-banded Carder bee  <i>Bombus ruderatus</i> Nb Large Garden bumblebee  <i>Bombus subterraneus</i> Na Short-haired bumblebee  <i>Bombus sylvorum</i> Nb Shrilk Carder bee  <i>Nomada xanthosticta</i> RDB1 nomad bee  good assemblage of scarce flies  <i>Paroxyyna hommei</i> RDB1 gall fly  good assemblage of scarce spiders  <i>Europhrys browni</i> RDB3 jumping spider</p>	
Sand dunes	Lepidoptera	<p><i>Agrostis ripae</i> Nb Sand Dart moth  <i>Sideridis albicolon</i> Nb White Colon moth  <i>Mythimna litoralis</i> Nb Shore Wainscot moth  <i>Dyschirius obscurus</i> pRDB2 ground beetle  <i>Hylaeus pictipes</i> Na, <i>Dasypoda altercator</i> Nb: solitary bees  <i>Heterogenea asella</i> RDB3 Triangle moth  <i>Paracolax tristalis</i> Na Clay Fanfoot</p>	natural physiographic processes leading to fore-dune; herb-rich with structural diversity; dune slacks with reliable winter water supply
Mature woodland	Coleoptera Hymenoptera Lepidoptera		wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; standing and fallen dead wood; carr; fungal fruiting bodies on or associated with trees; undisturbed hydrology
Arable		-	
Open water		-	

Natural Area: High Weald 72				
Key Habitats	Invertebrate group	Associated or significant species	Specific needs	
woodlands / shaws	Orthoptera Lepidoptera	<i>Omocestus rufipes</i> Nb Woodland Grasshopper assemblage of woodland moths, e.g. <i>Spargania luctuata</i> Na White-banded Carpet, <i>Paracolax tristalis</i> Na Clay fan-foot, <i>Tetheella fluctuosa</i> Nb Satin Lutestring, <i>Elaphria venustula</i> Nb Rosy Marbled <i>Hamemaris lucina</i> Nb Duke of Burgundy Fritillary <i>Apatura iris</i> Nb Purple Emperor <b><i>Boloria euphrosyne</i> Nb Pearl Bordered Fritillary</b> <b><i>Agynnis adippe</i> RDB2 High Brown Fritillary</b> <b><i>Rheumatopera hastata</i> Nb Argent and Sable</b> <b><i>Hydrelia sylvata</i> Nb Waved Carpet</b> <b><i>Cuculia asteris</i> Nb Star-wort</b> <b><i>Moma alpium</i> RDB3 Scarce Merveille du Jour</b> <b><i>Schrankia taenialis</i> Nb White-lined Snout</b> <b><i>Pechipogon strigilata</i>, Na, Common Fanfoot</b> large assemblage of rove beetles, e.g. <i>Quedius plancus</i> , <i>Xantholinus angularis</i> both Na <b><i>Lipsothrix nervosa</i> local crane fly</b> <i>Laphria marginata</i> Nb robber fly <i>Myolepta luteola</i> Nb hoverfly <i>Phenoclimax major</i> Na glass snail  <i>Agrilus pannonicus</i> Na jewel beetle <i>Ampedus sanguinolentus</i> Na, <i>Selatosomus bipustulatus</i> Nb: click beetles <i>Taphrorychus bicolor</i> Na bark beetle <i>Eledona agricola</i> and <i>Eledona agricola</i> Nb darkling beetles	wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; standing and fallen dead wood; carr; fungal fruiting bodies on or associated with trees; leaf litter	regional
Ghyll woodlands	Coleoptera Diptera Lepidoptera Mollusca	- - - - dead wood species, including <i>Agrilus pannonicus</i> Na jewel beetle, <i>Ampedus sanguinolentus</i> Na click beetle, <i>Taphrorychus bicolor</i> Na bark beetle, <i>PYROCHROA COCCINEA</i> Nb Black-headed Cardinal beetle, <i>Stenostola dubia</i> Nb longhorn beetle	wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; standing and fallen dead wood; carr; fungal fruiting bodies on or associated with trees	local?
parklands	Coleoptera	-	retention of old trees pollards, ancient hulks, nectar sources; dead wood, new generations of trees; fungal fruiting bodies on or associated with trees	local
hay meadows	Diptera flying insects	-	flowers as nectar and pollen sources; flower-heads and seed-heads as larval food	local

heathland	Orthoptera Coleoptera  Hymenoptera, aculeates Diptera Lepidoptera Arachnida Hemiptera	<p><i>Metrioptera brachyptera</i> Nb Bog Bush Cricket</p> <p><b><i>Amara felica</i> pRDB3, <i>Tachys micros</i> Na: ground beetles</b></p> <p><i>Geotrupes pyrenaeus</i> Na dung beetle</p> <p><i>Ampedus sanguinolentus</i> Na click beetle</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p>	structural variety including open grass heath, very short turf and bare ground; rabbit disturbance; nectar & pollen sources; flowering heather; dung; pioneer and decaying birch; wet areas and pools	local
ponds	Odonata  Coleoptera  Diptera Hemiptera Mollusca	<p><i>Brachytron pratense</i> Nb Hairy dragonfly</p> <p><i>Cordulia aenea</i> Nb Downy Emerald dragonfly</p> <p><i>Somatochlora metallica</i> Nb Brilliant Emerald dragonfly</p> <p><i>Acilius canaliculatus</i> pRDB3, <i>Agabus chaiconatus</i> Nb, <i>A. melanarius</i>: diving beetles</p> <p><i>Notaris scirpi</i> Nb weevil</p> <p>?<b><i>Badister anomalus</i> pRDB1, <i>Pterostichus gracilis</i> and <i>P. longicollis</i></b></p> <p>Nb: ground beetles</p> <p>-</p> <p>-</p> <p>-</p>	mosaic of open water and dense vegetation; shallow margins; marshy margins; semi-natural surrounding land; reliable hydrological regime; undisturbed seasonal pools in woodlands	local
rivers and streams	Odonata  Coleoptera	<p><i>Platynemis pennipes</i> Nb White-legged damselfly</p> <p><i>Cordulegaster boltoni</i> Nr Golden-ringed dragonfly</p> <p><i>Gyrinus urinator</i> Nb whirligig</p>		local

Natural Area: Low Weald & Pevensey 73

Key Habitats	Invertebrate groups	Associated or significant species	Specific needs	Significance in NA
Damp oak woodlands	Mollusca Coleoptera  Lepidoptera	<p><i>Phenacolimax major</i> Na slug  <i>Mordella holomelelaena</i> pRDBK tumbling flower beetle  <i>Rhynchites cavifrons</i> Nb leaf-roller weevil  <b>Bystiscus populi</b> RDB3 Poplar leaf-roller weevil  <i>Rutidosoma globulus</i> Na, <i>Ceutorhynchus pectoralis</i> Na, weevils  <i>Apatura iris</i> Nb Purple Emperor  <i>Leptidea sinapis</i> Nb Wood White  <b>Agynnis adippe</b> RDB2 High Brown Fritillary extinct  <i>Hamemaris lucina</i> Nb Duke of Burgundy Fritillary  <i>Cydia corollana</i> pRDB1 tortrix micro-moth  <i>Anania funebris</i> Na pyralid micro-moth  <i>Phlyctaenia stachydalis</i> pRDBK, <i>Agrotera nemoralis</i> pRDB1, <i>Sciota hostilis</i> pRDB, 1 pyralid micro-moths  <i>Platyptilia calodactyla</i> pRDB3 plume moth  <i>Archaearis notha</i> Nb Light Orange Underwing  <i>Scopula nigropunctata</i> RDB2 Sub-angled Wave  <i>Hemaris fuciformis</i> Nb Broad-bordered Bee Hawk  <i>Meganola strigula</i> Na Small Black Arches  <b>Moma alpium</b> RDB3 Scarce merville du Jour  <b>Jodia croceago</b> RDB2 Orange Upperwing  <i>Paracolax tristalis</i> Na Clay Fan-foot  <i>Rheumatopera hastata</i> Nb Argent and Sable  <i>Hydrelia sylvata</i> Nb Waved Carpet  <i>Minoa murinata</i> Nb Drab Looper  <i>Xestia rhomboidea</i> Nb Square-spotted Clay  <i>Cuculia asteris</i> Nb Star-wort  <i>Catocala promissa</i> RDB3 Light Crimson Underwing  <i>Schrankia taenialis</i> Nb White-lined Snout  <b>Pechipogon strigilata</b>, Na, Common Fanfoot  <i>Molophilus tackschewitzianus</i> RDB3 crane fly  -  -</p>	<p>wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; old trees; wide age range of woody species; standing and fallen dead wood; fungal fruiting bodies on or associated with trees; varied structure, including sunny open spaces rides; well-structured margins with transitions to other semi-natural habitats</p>	National

Damp oak woodlands: dead wood	Coleoptera: large assemblage of dead wood beetles	<i>Agrilus pannonicus</i> , <i>A. viridis</i> , <i>Ampedus elongantulus</i> all Na click beetles <i>Hylis olexai</i> RDB3 false click beetle <i>Cis coluber</i> RDB3 fungus beetle <i>Abdera quadrfasciata</i> Na false darkling beetle <i>Strangalia nigra</i> Na, <i>Molorchus umbellatarum</i> Na longhorns <b><i>Lipsothrix nervosa</i> local cranefly</b>		
Ancient pasture woodlands & parklands	Molluscs Coleoptera  Lepidoptera	<i>Limax tenellus</i> Nb Lemon slug <i>Ampedus cinnabarinus</i> RDB3 click beetle <i>Pyrrhocroa coccinea</i> Nb Cardinal beetle <i>Lathridius consimilis</i> Nb mould beetle <i>Apatura iris</i> Nb Emperor <i>Parascotia fuligaria</i> Nb Waved Black <i>Eilema sororcula</i> Nb Orang Footman <i>Cerastis leucographa</i> Nb White-marked <i>Leptidea sinapis</i> Nb Wood White <b><i>Siona lineata</i> RDB1 Black-veined</b> <i>Chaetostoma curvinerve</i> pRDB2 picture-winged fly	wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; old trees; wide age range of woody species; standing and fallen dead wood; fungal fruiting bodies on or associated with trees; varied structure, including sunny open spaces rides; well-structured margins with transitions to other semi-natural habitats	?
Damp neutral grassland	Lepidoptera Diptera Coleoptera	<b><i>Boloria euphrosyne</i> Nb Pearl Bordered Fritillary</b> <i>Boloria selene</i> Small Pearl Bordered Fritillary <i>Syncopacma vinella</i> RDB2 micro-moth on <i>Genista</i> <i>Terellia vectensis</i> RDB3 picture-winged fly	varied vegetation structure providing patches of short turf in a tussocky flower-rich sward; shelter provided by hedges or of scrub; damp hollows; well-structured transitions to other semi-natural habitats	Local?
Rivers & streams	Odonata  Coleoptera  Ephemeroptera Diptera Trichoptera Mollusca	<i>Brachytron pratense</i> Nb Hairy dragonfly <i>Platycnemis pennipes</i> Nb White-legged damselfly <i>Gomphus vulgatissimus</i> Nb Club-tailed dragonfly <i>Agabus biguttatus</i> Nb diving beetle <i>Haliphus laminatus</i> Nb, <i>Hydraena testacea</i> Nb water beetles <i>Gyrinus urinator</i> Nb whirligig - - - -	natural flow regime; clean water; well-structured and varied bankside vegetation; shaded and unshaded stretches; semi-natural bordering land; margins with emergent vegetation; undisturbed exposed sediments; accumulations of flood litter	Local

Ponds & lakes	<p>Odonata</p> <p>Coleoptera</p> <p>Lepidoptera</p> <p>Diptera Hemiptera Trichoptera</p> <p>Mollusca</p> <p>Odonata</p> <p>Hemiptera Coleoptera</p>	<p><i>Somatochlora metallica</i> Nb Brilliant Emerald  <i>Coenagrion pulchellum</i> Nb Variable damselfly  <i>Brachytron pratense</i> Nb Hairy dragonfly  <i>Sympetrum sanguineum</i> Nb Ruddy Darter  <i>Haliphus heydeni</i> Nb, <i>Limnebius crinifer</i> RDB3, <i>Ochthebius exaratus</i> pRDB3, <i>Helophorus longitarsis</i> RDB3, <i>Helochaeres lividus</i> Nb, water beetles  <i>Acilius canaliculatus</i> pRDB3, <i>Hydroporus neglectus</i> Nb, <i>Agabus chalconatus</i> Nb, diving beetles  <i>Donacia crassipes</i> Nb, <i>Donacia impressa</i> Na, reed beetles  <i>Archanara algae</i> RDB3 Rush Wainscot  <i>Archanara sparganii</i> Nb Webb's Wainscot  <i>Antichaeta brevipennis</i> RDB2 snail-killing fly  -  -  <i>Segmentina nitida</i> RDB1 Shiny Ramshorn  <i>Valvata macrostoma</i> RDB2 water snail  <i>Anisus vorticulus</i> RDB2 Little Whirl-pool Ramshorn  <i>Pisidium pseudosphaerium</i> RDB3 pea mussel  <i>Coenagrion pulchellum</i> Nb Variable damselfly  <i>Brachytron pratense</i> Nb Hairy dragonfly  <i>Hydrometra gracilentata</i> RDB1 water measurer  <i>Odacantha melanura</i> Nb ground beetle  <i>Gyrinus suffriani</i> pRDB3 whirligig  <i>Graphoderus cinereus</i> RDB3, <i>Dytiscus circumcinctus</i> Na, diving beetles  <i>Hydrochus elongatus</i> RDB3, <i>H. ignicollis</i> RDB3: water beetles  <i>Hydrophilus piceus</i> RDB3 Great Silver water beetle  <i>Bagous puncticollis</i> RDB1 weevil  <i>Scirtes orbicularis</i> Na marsh beetle  <i>Donacia dentata</i> Na reed beetle  <i>Schoenobius gigantea</i> Nb micro-moth  <i>Archanara sparganii</i> Nb Webb's Wainscot  <i>Chilodes maritimus</i> Nb Silky Wainscot  <i>Tipula marginata</i> RDB3 crane fly  <i>Odontomyia ornata</i> RDB2, <i>Stratiomys singularior</i> N water soldierflies  <i>Atylotus rusticus</i> RDB1, <i>Hybomitra ciureai</i> RDB3, horseflies  <i>Pherbellia argyra</i> RDB2, <i>Pisacada zernyi</i> RDB2, snail-killing flies  <i>Dolomedes plantarius</i> RDB1 Fen Raft Spider  -</p>	<p>mosaic of open water and dense vegetation; shallow margins; semi-natural surrounding land; reliable hydrological regime; surrounding marshy zone</p> <p>mixture of open water and dense vegetation; some emergent vegetation at margins; shallow margins, some well-vegetated; management by small scale clearance, or on long-term rotation, or only as essential; well-structured bankside vegetation</p>	National
Grazing marsh	<p>Lepidoptera</p> <p>Diptera</p> <p>Araneae Hirudinea</p>	<p>Grazing marsh</p>	<p>Grazing marsh cont.</p>	National

Shingle structures	Orthoptera Coleoptera Lepidoptera Araneae	<i>Platypleis albopunctata</i> Nb Grey Bush cricket <b><i>Bembidion nigropiceum</i> Na, <i>Trechus fulvus</i> Nb: ground beetles</b> <i>Ceutorhynchus verrucatus</i> RDB3 weevil <b><i>Scotopteryx bipunctaria cretica</i> Nb Chalk Carpet</b> <b><i>Calophasia lunula</i> RDB3 Toadflax Brocade</b> <i>Lathys stigmatisata</i> RDB mesh-webbed spider <i>Sitticus ruficola</i> Na jumping spider	
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#### Notes

Lists of characteristic and significant species in the spreadsheet data overlap considerably with those in this table, but some of the previously listed species have not been included. In general, this has been because they are relatively frequent species whose place could be taken by others scarcer or more specific to the feature in question. *Laccophilus obsoletus*, listed in spreadsheet data as significant in grazing marsh, was not supported by ISR data and has not been included. This record may well be correct, but since the species is so rare that accurate localisation of records is important, and since there are many other rarities recorded from this habitat, its inclusion seemed unwise. It could profitably be added, however, if the record is confirmed.

ISR records of *Nebrioporus depressus* Nb have been assumed to refer to *N. depressus elegans* common.

A small number of records for "Romney Marsh" have been ignored in selecting associated species, since there is a natural area with this name, to which the species and places involved presumably more properly belong. Only a small number of species are involved, so little practical difference would result from their inclusion.

The list of associated species for "damp neutral grassland" is little more than guesswork. The two fritillary butterflies have been taken from the spreadsheet lists of characteristic and associated species.

The list of associated species for ponds and lakes follows the precedent set in the lists of associated and significant species in the spreadsheet data on the natural area, by including records from a wide range of pond types in a wide range of habitats. Some could equally well be considered as associated with other habitats - some are largely specific to woodland ponds, for example. There is inconsistency between different natural areas in this respect: in some other cases, especially where ponds are not in themselves selected as significant features, species of woodland ponds have been listed as associated with woodland.

*Idaea dilutaria* pRDB3 Silky Wave moth from Ham Street Woods and *Bombus humilis* local Brown-banded Carder bee from Orlestone Forest, both BAP middle list species, have an ecology that does not fit the features listed here.

Natural Area: South Downs 74			
Key Habitats	Invertebrate groups	Associated or significant species	Specific needs
Chalk grassland	Mollusca Crustacea Orthoptera Coleoptera  Lepidoptera  Diptera  Aculeata  Hemiptera Araneae	<p><i>Monacha cartusiana</i> RDB3 snail  <i>Chircephalus diaphanus</i> RDB2 Fairy Shrimp  <b><i>Decticus verrucivorus</i> RDB2 Wart Biter</b>  <b><i>Gryllus campestris</i> RDB1 Field cricket</b>  <i>Amara nitida</i> Na, <i>Harpalus azureus</i> Nb, <i>H. cordatus</i> pRDB3, ground beetles  <i>Aphodius quadrimaculatus</i> pRDB1 dung beetle  <i>Trachys scrobiculatus</i> Na Ground-ivy jewel beetle  <i>Mordellistena pumila</i> pRDBK tumbling flower beetle  <i>Cryptocephalus bilineatus</i> Nb leaf beetle  <i>Squamapion cineraceum</i> Na, <i>Smicronyx reichi</i> pRDB3, weevils  <b><i>Scotoperyx bipunctaria cretica</i> Nb Chalk Carpet</b>  <b><i>Agrotis cinerea</i> Nb Light Feathered Rustic</b>  <b><i>Cucullia lychnitis</i> Na striped lychnis</b>  <i>Adscita sticticus</i> Nb Forester  <i>Adscita geryon</i> Nb Ciscus Forester  <i>Adscita globulariae</i> Na Scarce Forester  <i>Metzneria neuropterella</i> pRDB2 micro-moth  <i>Mecyna flavalis</i> RDB2, <i>Pempelia genistella</i> Na, <i>P. obductella</i> pRDB2, pyralid micro-moths  <i>Tabanus glaucopsis</i> pRDB3 horsefly  <b><i>Asilus crabroniformis</i> Nb Hornet Robberfly</b>, <i>Machimus rusticus</i> RDB2 robberfly  <b><i>Doros profuges</i> RDB2 hoverfly</b>  <i>Zodion notatum</i> pRDB3 cone-headed fly  <i>Terellia vectensis</i> RDB3 picture-winged fly  <i>Myrmica hirsuta</i> RDBK ant  <i>Ectemnius borealis</i> RDB3 solitary wasp  <i>Osmia bicolor</i> Nb, <i>Andrena fulvago</i> Na solitary bees  <b><i>Bombus humilis</i> local Brown-banded Carder bee</b>  <i>Ceratina cyanea</i> RDB3 Blue Carpenter bee  -  -</p>	<p>varied vegetation structure providing patches of short turf in a tussocky flower-rich sward; bare ground; shelter provided by hedges or of scrub; well-structured transitions to other semi-natural habitats</p>
			Significance in NA National



River valleys & marshes	<p>Mollusca</p> <p><i>Valvata macrostoma</i> RDB2 water snail  <i>Anisus vorticulus</i> RDB2 Little Whirlpool Ramshorn snail  <i>Segmentina nitida</i> RDB1 Shiny Ramshorn snail  <i>Pisidium pseudosphaerium</i> RDB3 pea mussel  <i>Coenagrion pulchellum</i> Nb Variable damselfly  <i>Brachytron pratense</i> Nb Hairy dragonfly  <b>Baetis peltatus</b> Na, <i>Stenolophus skrimshiramus</i> Na, <i>Chlaenius nigricornis</i> Nb, ground beetles  <b>Laccophilus obsoletus</b> RDB2, <i>Haliphys mucronatus</i> Na, <i>Coelambus parallelogrammus</i> Nb, <i>Ochthebius exaratus</i> pRDB3, <i>Berosus spinosus</i> RDB3; water beetles  <i>Graptodytes flavipes</i> RDB2 diving beetle  <i>Hydrophilus piceus</i> RDB3 Great Silver water beetle  <i>Scirtes orbicularis</i> Na marsh beetle  <i>Bagous cylindrus</i> RDB2 weevil  <i>Odontomyia ornata</i> RDB2, <i>O. argentata</i> RDB2, <i>Stratiomys singularior</i> N; water soldierflies  <i>Lejops vittata</i> RDB2 hoverfly  <i>Lipara rufitarsis</i> N gall fly  <i>Schoenobius gigantella</i> Nb micro-moth</p> <p>- - - -</p>	<p>Ditch systems: mixture of open water and dense vegetation; some emergent vegetation at margins; shallow margins, some well-vegetated; management by small scale clearance, or on long-term rotation, or only as essential; well-structured bankside vegetation; grazed margins; unimproved grassland with a high water table; some winter flooding, no summer flooding; associated pools</p>	National
Woodland on plateau & scarp	<p>Mollusca</p> <p><i>Macrogaster rolfhii</i> Nb door snail  <i>Helicodonta obvoluta</i> RDB3 snail  <i>Gomphocerippus rufus</i> Nb Rufous grasshopper  <i>Tomoxia bucephala</i> Na, <i>Mordella holomelaena</i> pRDBK: tumbling flower beetles  <i>Strangalia aurulenta</i> Na, <i>Molorchus umbellatarum</i> Na: longhorns</p> <p>Orthoptera Coleoptera</p>	<p>wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; old trees; wide age range of woody species; standing and fallen dead wood; fungal fruiting bodies on or associated with trees; varied structure, including sunny open spaces rides; well-structured margins with transitions to other semi-natural habitats</p>	National

Woodland on plateau & scarp cont.	Lepidoptera	<p><i>Boloria euphrosyne</i> Nb Pearl Bordered Fritillary  <i>Agynnis adippe</i> RDB2 High Brown Fritillary extint  <i>Moma alpium</i> RDB3 Scarce Merville du Jour  <i>Minoa murinata</i> Nb Drab Looper  <i>Trichopteryx polyommata</i> Na Barred Tooth-stripe  <i>Hydrelia sylvata</i> Nb Waved Carpet  <i>Hemaris itiyus</i> Na Narrow-bordered Bee Hawk  <i>Cuculia asteris</i> Nb Star-wort  <i>Schrankia taenialis</i> Nb White-lined Snout  <i>Atolmis rubricollis</i> Nb Red-necked Footman  <i>Ptilophora plumigera</i> Na Plumed Prominent  <i>Volucella inflata</i> N, <i>Brachypalpus laphriformis</i> N: hoverflies  <i>Gymnosoma rotundatum</i> pRDB3 parasitic fly  <i>Crossocerus exiguus</i> RDB3 solitary wasp  <i>Andrena congruens</i> Na, <i>Osmia pilicornis</i> Na: solitary bees  <i>Araniella alpica</i> RDB3 orb-web spider  <i>Hybocoptes decollata</i> Nb money spider</p> <p>-</p>		
Parkland	<p>Coleoptera:  mainly dead wood beetles</p> <p>Diptera</p> <p>Mollusca</p> <p>Lepidoptera</p> <p>Orthoptera</p> <p>Hemiptera</p> <p>Coleoptera</p> <p>Lepidoptera</p>	<p><i>Lucanus cervus</i> Nb Stag beetle  <i>Prionocyphon serricornis</i> Nb marsh beetle  <i>Ampedus cinnabarinus</i> RDB3 click beetle  <i>Dirhagus pygmaeus</i> RDB3 false click beetle  <i>Laemophloeus monilis</i> RDB1 flat bark beetle  <i>Diplocoelus fagi</i> Nb biphyllid bark beetle  <i>Taphrorhynchus bicolor</i> Na bark beetle  <i>Cicones variegata</i> Na narrow timber beetle  <i>Prionychus melanarius</i> RDB2 darkling beetle  <i>Pyrrhocroa coccinea</i> Nb Cardinal beetle  <i>Tomoxia bucephala</i> Na tumbling flower beetle  <i>Platystomos albinus</i> Nb fungus weevil  <i>Phloeophagus trunctorum</i> Na weevil  <i>Scenopinus niger</i> N window fly</p> <p>-</p> <p><i>Hamearis lucinus</i> Nb Duke of Burgundy  <i>Gomphocerripus rufus</i> Nb Rufous grasshopper  <i>Dichroscytus gustavi</i> Nb plant bug  <i>Epirix atropae</i> Nb Belladonna flea beetle  <i>?Pilemostoma fastuosa</i> Na leaf beetle  <i>Thera juniperata</i> Nb Juniper Carpet</p>	<p>retention of old trees pollards, ancient hulks, nectar sources; dead wood, new generations of trees; fungal fruiting bodies on or associated with trees; non-intensively managed grassland between trees</p>	National
Chalk scrub	<p>Lepidoptera</p> <p>Orthoptera</p> <p>Hemiptera</p> <p>Coleoptera</p> <p>Lepidoptera</p>	<p><i>Hamearis lucinus</i> Nb Duke of Burgundy  <i>Gomphocerripus rufus</i> Nb Rufous grasshopper  <i>Dichroscytus gustavi</i> Nb plant bug  <i>Epirix atropae</i> Nb Belladonna flea beetle  <i>?Pilemostoma fastuosa</i> Na leaf beetle  <i>Thera juniperata</i> Nb Juniper Carpet</p>	<p>blocks and patches of bushes; associated grassland; leaf litter; moss; flower-bearing species; sheltered hot-spots</p>	Local

Maritime cliffs: coastal exposures of rocks showing aplina folding	Coleoptera          Lepidoptera  Diptera Hemiptera Aculeata	<i>Trechus fulvus</i> Nb, <i>Harpalus azureus</i> Nb, <i>H. ruficola</i> Nb, <i>H. serripes</i> Nb, <i>Polistichus connexus</i> RDB2: ground beetles <i>Ocytus pedator</i> Na rove beetle <i>Amphimallon ochraceus</i> Na chafer <i>Chrysolina haemoptera</i> Nb leaf beetle <i>Strophosomus faber</i> Nb, <i>Pseudostyphlus pillumus</i> Na, <i>Trichostrocalus dawsoni</i> Nb, <i>T. rufulus</i> Na, <i>Ceutorhynchus terminatus</i> Nb, <i>Baris laticollis</i> Na: weevils <i>Mythimna l-album</i> Nb L-album Wainscot <i>Meganola albula</i> Nb Black Kent Arches <i>Gonomyia conoviensis</i> N cranefly - -	natural physiographic processes; undisturbed cliff-face vegetation; grazing of cliff-top grassland	?Nat
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**Notes**

The ISR records and spreadsheet data for the natural area both include maritime cliffs. This is probably good news, but is in contrast to the situation in areas 68 and 69, a worrying inconsistency. It would be encouraging to have confirmation that all the maritime cliff records are included in the ISR data so far used. I would have expected more.

Parkland is a new category. Since the sites involved appear fairly distinct, it has seemed worthwhile to separate it from the pre-existing "woodland on plateau and scarp", even though there is overlap in habitats and species.

The lists of associated species in this table overlap in considerable measure with those in the spreadsheet data on the natural area provided. A number of species on the latter lists have been removed or replaced because they were considered too generally common or too poorly associated with the feature in question. *Adscita globulariae*, listed for woodland, has been removed to chalk grassland.

Natural Area: South Coast Plain & Hampshire Lowlands 75

Key Habitats	Invertebrate groups	Associated or significant species	Specific needs	Significance in NA
Harbours & estuaries	Mollusca Hemiptera Coleoptera  Lepidoptera  Diptera  Aculeata  Araneae	<p>- <i>Orthotylus rubidus</i> pRDB3 plant bug <i>Bembidion nigropiceum</i> Na, <i>Dicheitrotrichus obsoletus</i> Nb: ground beetles <i>Bledius tricornis</i> Na rove beetle <i>Enochrus halophilus</i> Nb, <i>E. bicolor</i> Na: water beetles <i>Agriotus sordidus</i> pRDB3 click beetle <i>Mecinus collaris</i> Nb weevil <i>Psammathoerita argentella</i> pRDB2 micro-moth <i>Mythimna favicolor</i> Na Mathew's Wainscot <b>Cucullia asteris</b> Nb Star-wort <i>Apamea oblonga</i> Nb Crescent Striped <i>Limonia complicata</i> Nb crane fly <i>Haematopota bigoti</i> RDB3, <i>H. grandis</i> RDB3, <i>Atylotus latistriatus</i> RDB3, <i>Hybomitra expollicata</i> pRDB2: clegs and horseflies <i>Stratiomys longicornis</i> RDB2, <i>S. singularior</i> N: water soldierflies <i>Lejogaster splendida</i> N hoverfly <i>Psen unicolor</i> Na solitary wasp <i>Colletes halophilis</i> Na solitary bee <i>Argenna patula</i> Nb mesh-webbed spider</p>	historically undisturbed saltmarsh vegetation; herb-rich vegetation, especially with <i>Aster</i> and <i>Limonium</i> ; transitions to dry land and to freshwater; herb-rich sea banks with structural diversity and patches of bare ground on the sunny side; grazed maritime grassland with damp hollows, transitions to other vegetation types and with saline seepages forming salt pans; varied salinity in drainage ditches and creeks	National
Chalk downlands & scarps; Cretaceous starigraphy & environments	Mollusca Coleoptera  Lepidoptera  Diptera  Hemiptera Aculeata Araneae	<p><i>Monacha cartusiana</i> RDB3 snail <i>Zabrus tenebroides</i> Na, <i>Amara nitida</i> Na, <i>A. equestris</i> Nb, <i>Panagaeus bipustulatus</i> Nb: ground beetles <i>Omalopecta ruricola</i> Nb, chafers <i>Odonataeus armiger</i> Na, <i>Euheptalaucus villosus</i> Na: dung beetles <i>Trichostirocalus barnevillei</i> Nb weevil <b>Plebejus argus</b> Nb Silver-studded Blue <i>Bembecia scopigera</i> Nb Six-belted clearwing <b>Asilus crabroniformis</b> Nb Hornet Robberfly <i>Icterica westermanni</i> N picture-winged fly</p> <p>- - <i>Argiope bruennichi</i> Na orb-web spider</p>	varied vegetation structure providing patches of short turf in a tussocky flower-rich sward; bare ground; shelter provided by hedges or of scrub; well-structured transitions to other semi-natural habitats	Local

Woodlands	Mollusca Coleoptera  Lepidoptera	<p>- <b>Lucanus cervus</b> Nb Stag beetle  <i>Prionocyphon serricornis</i> Nb marsh beetle  <i>Sphinginus lobatus</i> pRDBK malachite beetle  <i>Oxytaemus variolosus</i> RDB3 narrow timber beetle  <i>Leptura fulva</i> pRDB3 longhorn  <i>Byctiscus betulae</i> Nb Hazel Leaf-roller weevil  <i>Rutidosoma globulus</i> Na weevil  <i>Xyleborus dispar</i> Nb ambrosia beetle  <i>Apatura iris</i> Nb Emperor  <b>Boloria euphrosyne</b> Nb Pearl Bordered Fritillary  <i>Strymonidia w-album</i> Nb White-letter Hairstreak  <i>Teletodes wagae</i> pRDB1 micro-moth  <i>Acyliis upupana</i> pRDB3  <i>Atolmis rubricollis</i> Nb Red-necked Footman  <i>Eupithecia expallidata</i> Nb Bleached Pug  <b>Moma alpium</b> RDB3 Scarce Merveille du Jour  <b>Schrankia taenialis</b> Nb White-lined Snout  <i>Laphria marginata</i> N, <i>Dioctria oelandica</i> N: robberflies  <i>Cheilosia carbonaria</i> N, <i>Eumerus ornatus</i> N, <i>Volucella inflata</i> N,  <i>Brachypalpus laphriformis</i> N, <i>Criorhina asilica</i> N, <i>Criorhina</i>  <i>ranunculi</i> N, <i>Microdon eggeri</i> N: hoverflies  <i>Leopoldius brevistris</i> RDB2 fly  <i>Omalus puncticollis</i> Na rubytail wasp  <i>Lasioglossum semilucens</i> RDB3 solitary bee  <i>Ectemnius ruficornis</i> Nb solitary wasp  -  -</p>	<p>wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; old trees; wide age range of woody species; standing and fallen dead wood; fungal fruiting bodies on or associated with trees; varied structure, including sunny open spaces rides; well-structured margins with transitions to other semi-natural habitats</p>	National
Unimproved neutral to acid grasslands	Coleoptera Diptera Lepidoptera	<p><i>Exapion difficile</i> Na, <i>Oxystoma cerdo</i> Nb: weevils  <b>Dorycera graminum</b> RDB3 picture-winged fly  <i>Opomyza punctata</i> N grass fly  -</p>	<p>varied vegetation structure providing patches of short turf in a tussocky flower-rich sward; shelter provided by hedges or of scrub; damp hollows; well-structured transitions to other semi-natural habitats</p>	Local

<p>Relict coastal dunes, heaths, &amp; shingle spits</p>	<p>Dictyoptera Hemiptera Coleoptera  Lepidoptera   Aculeata  Araneae Diptera Annelida Anthozoa  Bryozoa Crustacea Mollusca</p>	<p><i>Ectobius panzeri</i> Nb Lesser cockroach <i>Spathocera dahlmanni</i> Na squashbg <i>Rhopalus rufus</i> pRDB3 bug <i>Opatrum sabulosum</i> Nb darkling beetle <i>Cleonus piger</i> Nb Large Thistle weevil <b><i>Pachytychius haematocephalus</i> RDB1 weevil</b> <i>Platytes alpinella</i> pRDB3, <i>Pempelia genistella</i> Na, <i>Dolicharthria punctalis</i> Nb, <i>Synaphe punctalis</i> Nb: pyralid micro-moths <i>Lasiocampa trifolii</i> Na Grass Eggar <i>Agrotis ripae</i> Nb Sand Dart <b><i>Hadena albimacula</i> RDB2 White Spot</b> <i>Meganola albula</i> Nb Kent Black Arches <i>Mythimna litoralis</i> Nb Shore Wainscot <i>Leptothorax interruptus</i> RDB3 ant <i>Podalonia affinis</i> RDB3 mud wasp <i>Andrena nitidiusculus</i> RDB3 solitary bee <i>Xerolycosa nemoralis</i> Nb wolf spider -</p>	<p>structural variety including open grass heath, very short turf and bare ground, and mature heather; rabbit or other disturbance; nectar &amp; pollen sources; flowering heather; dung; patches of gorse and/or broom; birch and/or sallow both as young scrub and older trees with dead wood; shallow pools</p>	<p>National</p>
<p>Brackish lagoons</p>		<p>- <b><i>Nematostella vectensis</i> RDB3 Starlet sea anemone</b> <b><i>Edwardsia ivelli</i> RDB1 Ivell's sea anemone</b> <b><i>Clavopsella navis</i> status unknown, hydroid</b> <i>Conopeum seurati</i> Nb brozoan <b><i>Gammarus insensibilis</i> RDB3 Lagoon sand shrimp</b> -</p>	<p>unpolluted water; reliable salinity regime</p>	<p>National</p>

Rivers and floodplain wetlands	<p><b>Mollusca</b></p> <p><b>Odonata</b></p> <p><b>Coleoptera</b></p> <p><b>Lepidoptera</b></p>	<p><i>Vertigo moulinsiana</i> RDB3 Desmoulin's Whorl snail  <b>Coenagrion mercuriale</b> RDB3 Southern damselfly  <i>Cordulia aenea</i> Nb Downy Emerald  <i>Demetrias imperialis</i> Nb ground beetle  <i>Aromia moschata</i> Nb Musk beetle  <i>Silis ruficollis</i> Nb soldier beetle  <b>Eurodryas aurinia</b>, Nb, <b>Marsh Fritillary</b>  <i>Acleris lorquiniana</i> pRDB3 tortrix micro-moth  <i>Nascia ciliatilis</i> Na pyralid micro-moth  <i>Eupithecia valerianata</i> Nb Valerian Pug  <i>Archanara sparganii</i> Nb Webb's Wainscot  <i>Chilodes maritimus</i> Nb Silky Wainscot  <i>Cheilotrichia imbuta</i> N, <i>Pilaria fuscipennis</i> N: craneflies  <i>Beris clavipes</i> N, <i>B. fuscipes</i> N, <i>Vanoyia tenuicornis</i> : soldierflies  <i>Macropis europaea</i> Na Large velvet ant  -  -  -  -</p>	<p>Rivers: natural flow regime; clean water; well-structured and varied bankside vegetation; shaded and unshaded stretches; semi-natural bordering land; margins with emergent vegetation; undisturbed exposed sediments; accumulations of flood litter</p> <p>Ditches and pools: mixture of open water and dense vegetation; some emergent vegetation at margins; shallow margins, some well-vegetated; management by small scale clearance, or on long-term rotation, or only as essential; well-structured bankside vegetation</p> <p>Marshes and grasslands: high water table; winter flooding, consistently lower water tables in summer; structurally diverse vegetation; grazing</p>	?Local
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**Notes**

The neutral grassland category is not a well-balanced one; the list of species is based on inference and poor evidence.

The "Harbours and estuaries" category has been assumed to include brackish pools and ditches; these are not specifically mentioned in the spreadsheet data for this category, but of necessity are associated and are neither sufficiently frequent nor sufficiently distinct or independently important on available data to warrant creation of a separate category.

I have separated a new habitat category, "Rivers and floodplain wetlands". The implication in the description provided of the natural area is that these should be included along with harbours and estuaries, but in practice, though in other respects the "lumping" approach generally adopted for habitat features in this natural area accords quite well with the invertebrate data, the difference in this feature reflecting, for the most part, the difference between fresh and brackish water seems sufficient to justify separate listings. However, further recording, especially along transitions, could make amalgamation or more refined subdivision advisable.

I have not included *Hirudo medicinalis* in the table since, despite the single recent record being arguably worthy of inclusion if at all appropriate, I have not succeeded in finding Cams Hall Pond on the map, and so do not know whether it would fit into an existing habitat category or would need a new one creating.

Natural Area: Isle of Wight 76				
Key Habitats	Invertebrate groups	Associated or significant species	Specific needs	Significance in NA
Chalk grassland	Lepidoptera  Hymenoptera  Coleoptera  Diptera Hemiptera Orthoptera	<i>Melitaea cinxia</i> RDB3 Granville Fritillary <b>Lysandra bellargus</b> Nb Adonis Blue <i>Hamearis lucina</i> Nb Duke of Burgundy <i>Andrena proxima</i> RDB3, <i>Andrena nitidiusculus</i> RDB3: solitary bees <i>Sphecodes niger</i> RDB3, <i>Sphecodes reticulatus</i> Na: cuckoo bees <i>Gorytes bicinctus</i> Nb a solitary wasp <i>Drypta dentata</i> RDB1 a ground beetle <i>Cryocephalus bilineatus</i> Nb a weevil <b><i>Asilius crabroniformis</i></b> Notable a robber fly - -	flower-rich sward; a mosaic from bare patches to tussocks; some scrub or hedges	national
Estuaries and rias	Coleoptera	<i>Enochrus bicolor</i> Nb, <b><i>Paracymus aeneus</i></b> RDB1: scavenger water beetles <i>Ochthebius marinus</i> Nb a small water beetle <b><i>Bembidion nigropiceum</i></b> Na ground beetle <i>Pseudaplemonus limonii</i> Nb a seed weevil <i>Paralimnus phragmitis</i> Notable a leafhopper <i>Colletes halophilus</i> Na a solitary bee - -	open mud and pools; herb-rich vegetation at limit of tide; brackish lagoons	regional
Coastal landslips and sea cliffs	Lepidoptera  Coleoptera	<b><i>Nematostella vectensis</i></b> RDB3 Starlet sea anemone <i>Melitaea cinxia</i> RDB3 Glanville Fritillary <i>Agrostis trux lunigera</i> Nb Crescent Dart <i>Otiorynchus ligustici</i> RDB2, <i>Cathormiocerus socius</i> RDB2 a weevils <b><i>Cicindela germanica</i></b> RDB3 a tiger beetle <i>Harpalus ardosiacus</i> Nb a ground beetle <i>Myrmarachne formicaria</i> Nb ant-spider	sparse and herb-rich vegetation; natural erosion giving plenty of exposed soil; seepages with constant water supply	national



Coastal landslips and sea cliffs cont.	Hymenoptera	<p><b><i>Osmia xanthomelana</i> RDB1 a mason bee</b>  <i>Anthophora retusa</i> RDB1 Potter Flower Bee  <i>Nysson interruptus</i> RDB2 a cuckoo wasp  <i>Philanthus triangulum</i> RDB2 Bee Wolf  <i>Psen atratinus</i> RDB2 a solitary wasp  <b><i>Lasiglossum angusticeps</i> RDB3</b>, <i>Andrena nitidiusculus</i> RDB3,  <i>Andrena pilipes</i> Nb: solitary bees  <i>Sphecodes niger</i> RDB3 a cuckoo bee  <i>Psen unicolor</i> Na, <i>Alysson lunicornis</i> Na: solitary wasps  -  -  -</p>		
Ancient semi-natural broad-leaved woodland	Hemiptera Diptera Arachnida Lepidoptera Coleoptera Diptera Hymenoptera Orthoptera Mollusca	<p><i>Thelea betulae</i> Nb Brown Hairstreak  <i>Strymonidia w-album</i> Nb White Letter Hairstreak  <b><i>Boloria euphrosyne</i> Nb Pearl Bordered Fritillary</b>  <b><i>Schrankia taenialis</i> Nb White-lined Snout</b>  <i>Cyclophora annulata</i> Nb Mocha  <i>Ampedus elongatulus</i> Na a click beetle  <i>Volucella inflata</i> Notable a hoverfly  <b><i>Lipsothrix nervosa</i> local cranefly</b>  <i>Sphecodes rubicundus</i> Na a cuckoo bee  <i>Osmia pilicornis</i> Na Fringe-horned Mason Bee  <i>Nemobius sylvestris</i> Na Wood Cricket  -  -  -  -  -  -</p>	wide variety of native trees and shrubs; pollen and nectar sources; standing and fallen dead wood; fungal fruiting bodies on or associated with trees; seepages	regional
Neutral meadows	flying insects Lepidoptera Diptera Hymenoptera Coleoptera Orthoptera Arachnida	<p><i>Nysson interruptus</i> RDB2 a cuckoo wasp  <i>Argogorytes fargei</i> Na a solitary wasp  <i>Sphecodes reticulatus</i> Na a cuckoo bee  <i>Exapion difficile</i> Na a seed weevil  -  -  -</p>	mosaic structure with bare patches through to tussocks; flowers as nectar and pollen sources and food plants	local
Relict heathland/acid grasslands	Hymenoptera Coleoptera Hemiptera Diptera Lepidoptera	<p><i>Nysson interruptus</i> RDB2 a cuckoo wasp  <i>Argogorytes fargei</i> Na a solitary wasp  <i>Sphecodes reticulatus</i> Na a cuckoo bee  <i>Exapion difficile</i> Na a seed weevil  -  -  -</p>	structural variety including open grassland and bare ground; flowers as nectar and pollen sources	local

Marshes	<p>Odonata</p> <p>Lepidoptera</p> <p>Diptera</p> <p>Coleoptera</p>	<p><i>Platycnemis pennipes</i> Nb White-legged Damselfly</p> <p><i>Sympetrum sanguineum</i> Nb Ruddy Darter</p> <p><i>Pterophorus spilotactylus</i> RDB2 a plume moth</p> <p><i>Cynaeda dentalis</i> RDB3 a pyralid moth</p> <p><i>Platytes alpinella</i> RDB3 a pyralid moth</p> <p><i>Limonia lucida</i> Nb a crane fly</p> <p>-</p>	structurally diverse sward with a mixture of submerged and emergent vegetation; pools; fluctuating water levels with no summer flooding	local
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Natural Area: New Forest 77			
Key Habitats	Invertebrate groups	Associated or significant species	Specific needs
Pasture woodland	Coleoptera	<p><b>Gnorimus nobilis</b> RDB2 a chafer</p> <p><i>Leptura sexguttata</i> RDB3, <i>Mesosa nebulosa</i> RDB3: longhorn beetles</p> <p><b>Eucnemis capucina</b> RDB1, <i>Dirhagus pygmaeus</i> RDB3: false click beetles</p> <p><i>Pyrochroa coccinea</i> Nb Black-headed Cardinal Beetle</p> <p><i>Xyleborus dispar</i> Nb a bark beetle</p> <p><i>Ampedus quercicola</i> Nb, <b>Megapenthes lugens</b> RDB1 click beetles</p> <p><b>Lucanus cervus</b> Nb Stag Beetle</p> <p><i>Opilo mollis</i> Nb a chequered beetle</p> <p><i>Notolaemus unifasciatus</i> Na a flat bark beetle</p> <p><i>Ctenophora flaveolata</i> RDB2 a crane-fly</p> <p><i>Brachyopa bicolor</i> RDB3, <i>Brachypora pilosa</i> N, <i>Psilota anthracina</i> RDB2 hoverflies</p> <p><b>Moma alpinum</b> RDB3 Scarce Merveille du Jour</p> <p><b>Catocala promissa</b> RDB3 Light Crimson Underwing</p> <p><b>Catocala sponsa</b> RDB2 Dark Crimson Underwing</p> <p><i>Meganola strigula</i> Na Small Black Arches</p> <p><b>Agynnis adippe</b> RDB2 High Brown Fritillary</p> <p><b>Boloria euphrosyne</b> Nb Pearl Bordered Fritillary</p> <p><i>Cossus cossus</i> Nb Goat Moth</p> <p><i>Crossocerus binotatus</i> Na a solitary wasp</p> <p><i>Nemobius sylvestris</i> Na Wood Cricket</p>	retention of old trees including pollards and ancient humlks, nectar sources; dead wood; fungal fruiting bodies on or associated with trees; new generations of trees
Heathland/acid grassland	Orthoptera Coleoptera Diptera Lepidoptera	<p><i>Chorthippus vagans</i> RDB3 Heath Grasshopper</p> <p><b>Gryllotalpa gryllotalpa</b> RDB1 Mole cricket</p> <p><i>Chaetocnema subcoerulea</i> Nb a leaf beetle</p> <p><b>Cicindella sylvatica</b> Na Dune Tiger beetle</p> <p><b>Amara famelica</b> pRDB3, <b>Anisodactylus nemorivagus</b> Na, <b>Bembidion nigricorne</b> Nb, <b>Pterostichus kugelanni</b> pRDB1: ground beetles</p> <p><b>Asilus crabroniformis</b> Nb Hornet Robberfly</p> <p><b>Thyreanthrax fenestralis</b> RDB3 bee-fly</p> <p><i>Conops vesicularis</i> Notable a fly</p> <p><b>Plebejus argus</b> Nb Silver-studded Blue</p>	structural variety including open grassland and bare ground; nectar and pollen sources
			national

Heathland/acid grassland cont.	Hymenoptera	<p><i>Tiphia minuta</i> Nb Small Tiphia  <i>Hedychrum niemelai</i> RDB3 a ruby-tailed wasp  <i>Halictus confusus</i> RDB3, <i>Lasioglossum pauperatum</i> RDB3,  <i>Andrena alfenella</i> RDB3, <i>Halictus confusus</i> RDB3: solitary bees  <b>Homonotus sanguinolentus RDB1</b> spider-hunting wasp  <i>Diodontus insidiosus</i> RDB3 a solitary wasp  <i>Sphex reticulatus</i> Na a cuckoo bee  <i>Leptothorax interruptus</i> RDB3 an ant  -  -</p>	constant water supply; high water table; open structure to vegetation, with or without shade; herb-rich and structurally diverse vegetation; litter layer developed; unshaded seepages	national
Valley mire	Hemiptera Arachnida Odonata Coleoptera	<p><b>Coenagrion mercuriale RDB3</b> Southern Damselfly  <i>Ceriagrion tenellum</i> Nb Small Red Damselfly  <i>Acylophorus glaberrimus</i> RDB1 a rove beetle  <i>Oodes helopioides</i> Nb, <b>Pterostichus aterrimus RDB1</b>: ground beetles  <i>Chlaenius nigricornis</i> Nb a ground beetle  <i>Stenus fornicatus</i> Nb, <i>Philonthus atratus</i> Na, <i>Paederus caligatus</i> RDB3: rove beetles  <i>Dryops auriculatus</i> Nb a long-toed water beetle  <i>Agabus labiatus</i> Nb diving beetle  <b>Stethophyma grossum RDB2</b> Large Marsh Grasshopper  <i>Limotettix atricapillus</i> RDBK a leafhopper  <b>Formica transcaucasica RDB1</b> Bog ant  -  -</p>		
River valley	Orthoptera Odonata Lepidoptera Coleoptera Diptera Mollusca	<p><b>Stethophyma grossum RDB2</b> Large Marsh Grasshopper  <i>Metrioptera brachyptera</i> Nb Bog Bush Cricket  <i>Conocephalus discolor</i> Na Long-winged Conehead  <i>Ischnura pumilo</i> Nb Scarce Blue-tailed Damselfly  <i>Sympetrum sanguineum</i> Nb Ruddy Darter    <i>Agonum livens</i> Nb a ground beetle  <i>Deronectes latus</i> Nb, <b>Agabus brunneus RDB1</b>: diving beetles  -  <b>Vertigo moulinsiana RDB3</b> Desmoulin's Whorl snail  <b>Pisidium tenuilineatum RDB3</b> pea mussel</p>	structural diversity, from bare ground to tussocks, with some scrub; variety of water bodies including fast-flowing rivers, slow-flowing ditches, fen and temporary pools; herb and flower-rich flora providing nectar and pollen sources	regional

Coastal habitats	<p>Lepidoptera</p> <p>Hymenoptera</p> <p>Coleoptera</p> <p>Hemiptera</p> <p>Crustacea</p> <p>Diptera</p>	<p><b>Cuculia asteris</b> Nb Star-wort</p> <p><i>Sideridis albicolon</i> Nb White Colon</p> <p><i>Oxybelus mandibularis</i> Na a solitary wasp</p> <p><i>Nomada furcata</i> Na a nomad bee</p> <p><i>Megachile leachella</i> Nb the Silvery Leaf-cutter Bee</p> <p><i>Helophorus fulgidicollis</i> Nb a scavenger water beetle</p> <p><i>Cixius remotus</i> Notable a lacehopper</p> <p><i>Oliarus leporinus</i> Notable a lacehopper</p> <p><b>Gammarus insensibilis</b> RDB3 Lagoon Sand Shrimp</p> <p>-</p>	open mud and pools; herb-rich vegetation at limit of tide; lagoons with some aquatic vegetation	local
Standing water	<p>Hirudinea</p> <p>Coleoptera</p> <p>Odonata</p> <p>Hemiptera</p> <p>Mollusca</p> <p>Diptera</p>	<p><b>Hirudo medicinalis</b> RDB3 Medicinal leech</p> <p><i>Rhantus grapii</i> Nb a water beetle</p> <p><i>Berosus luridus</i> Nb a scavenger water beetle</p> <p><i>Bagous limosus</i> Nb a weevil</p> <p><i>Cordulia aenea</i> Nb Downy Emerald</p> <p><i>Microvelia pygmaea</i> Nb a water cricket</p> <p><i>Lymnaea glabra</i> RDB2 a pond snail</p> <p>-</p>	mosaic of open water to dense vegetation; diversity of emergent and submerged vegetation; shallow margins; semi-natural surrounding land	regional

Natural Area Hampshire Downs Area 78			
Key habitats	Invertebrate groups	Associated or significant species	Specific needs
Chalk grassland	snails grasshoppers cockroaches bugs beetles  butterflies and moths          flies  bees, wasps, ants spiders	<ul style="list-style-type: none"> <li>-</li> <li>-</li> <li><i>Ectobius pallidus</i>, Nb, tawny cockroach</li> <li>-</li> <li><i>Trachys scrobiculatus</i>, Na, a jewel beetle</li> <li><i>Epirix atropae</i>, Nb, a flea beetle</li> <li><i>Squamapion flavimanum</i>, Na, a seed weevil</li> <li><i>Ascita geryon</i>, Nb, cistus forester</li> <li><i>Synanthedon andrenaeformis</i>, Nb, orange-tailed clearwing</li> <li><i>Bembecia scopigera</i>, Nb, six-belted clearwing</li> <li><i>Depressaria pimpinellae</i> Nb, <i>Panacalia leuwenhoekella</i> Nb, micro-moths</li> <li><i>Letoptilus carphodactyla</i>, Nb, a pyralid moth</li> <li><b><i>Hesperia comma</i>, RDB3, silver-spotted skipper</b></li> <li><i>Hamearis lucina</i>, Nb, Duke of Burgundy</li> <li><b><i>Eurodryas aurinia</i>, Nb, marsh fritillary</b></li> <li><i>Philabapteryx virgata</i>, Nb., oblique striped</li> <li><b><i>Scotopteryx bipunctaria cretica</i>, Nb, chalk carpet</b></li> <li><i>Eupithecia pimpinellata</i>, Nb, pimpernel pug</li> <li><b><i>Cucullia lychnitis</i>, Na, striped lychnis</b></li> <li><b><i>Trichopteryx polyommata</i> Na Barred Tooth-striped</b></li> <li><b><i>Noctua orbona</i> Na Lunar Yellow Underwing</b></li> <li><b><i>Polia bombycina</i> local Pale Shining Brown</b></li> <li><b><i>Heliohobus reticulatus</i> Nb Bordered Gothic</b></li> <li><i>Cheilosia soror</i>, N, a hoverfly</li> <li><i>Urophora cuspidata</i> N, <i>U. solstitialis</i> pRDB3, <i>U. spoliata</i> RDB3</li> <li><i>Terellia vectensis</i>, RDB3: gall flies</li> <li><i>Andrena simillima</i>, RDB2, <i>A. hattorfiana</i>, RDB3, a solitary bees</li> <li><i>Phaeocephalus braccatus</i>, Nb, <i>Drasylltus praeficus</i>, Nb: ground spiders</li> <li><i>Ozyptila nigrita</i>, Nb, a crab spider</li> <li><i>Centromerus incilium</i>, Nb, a money spider</li> </ul>	varied vegetation structure providing patches of short turf in a tussocky flower-rich sward; patches of bare ground; shelter provided by hedges or patches of scrub; well-structured transition to other habitats; management by grazing
			national

Broadleaved semi-natural woodland	snails and slugs bugs beetles  butterflies and moths  flies  bees and wasps  bees and wasps  spiders	<p><i>Ena montana</i>, RDB3, a bulin snail  <i>Phenacolimax major</i>, Na, a glass snail  <i>Helicodonta obvolvata</i>, RDB3, cheese snail</p> <p>-  <i>Aeletes atomarius</i>, RDB3, a carrion beetle  <i>Agrilus pannonicus</i>, Na, a jewel beetle  <i>Ampedus elongantulus</i>, Na, <i>Selatosomus bipustulatus</i>, Nb: click beetles  <i>Melasis buprestoides</i>, Nb, a false click beetle  <i>Colydium elongatum</i>, RDB3, a narrow timber beetle  <i>Prionychus ater</i>, Nb, a darkling beetle  <i>Pyrochroa coccinea</i>, Nb, black-headed cardinal beetle  <i>Tomoxia bucephala</i>, Na, a tumbling flower beetle  <i>Ischnomera sanguinicollis</i>, Nb, a thick-legged flower beetle  <i>Leptura fulva</i>, pRDB3, <i>Strangalia aurulenta</i>, Na, <i>Strangalia revestita</i>, pRDB1: longhorn beetles  <i>Tropideres sepicola</i>, pRDB2, a fungus weevil  <i>Oecophora bractella</i>, pRDB3, a micro-moth  <i>Microthrix similella</i>, Nb, a pyralid moth  <i>Strymonidia w-album</i>, Nb, white-letter hairstreak  <i>Apatura iris</i>, Nb, purple emperor  <b><i>Boloria ephrosyne</i>, Nb, pearl-bordered fritillary</b>  <i>Archiearis notha</i>, Nb, light orange underwing  <b><i>Minoa murinata</i>, Nb, drab looper</b>  <i>Cepphis advenaria</i>, Nb, little thorn  <i>Boarmia roboraria</i>, Nb, great oak beauty  <i>Eielesa sororcula</i>, Nb, orange footman  <i>Meganola strigula</i>, Na, small black arches  <b><i>Rheumatpera hastata</i> Nb Argent and Sable</b>  <i>Lipsothrix nervosa</i> local, <i>Ctenophora flaveolata</i>, pRDB2, <i>C. nigricornis</i>, RDB3: craneflies  <i>Ferdinandia ruficornis</i> N, <i>Volucella inflata</i> N, <i>Brachypalpus laphriformis</i>, N, <i>Criorhina ranunculi</i> N, <i>Criorhina asilica</i> N,  <i>Pocota personata</i> RDB2: hoverflies  <i>Auplopus carbonarius</i>, Nb, a spider-hunting wasp  <i>Osmia pilicornis</i>, Na, a mason bee</p>	wide variety of native trees and shrubs; wide age range of woody species; flowery open spaces; pollen and nectar sources; old trees; standing and fallen dead wood; carr; fungal fruiting bodies on or associated with trees; well-developed ground flora; well-structured margins with transitions to other habitats	national
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River valleys	<p>molluscs</p> <p>dragonflies</p> <p>stoneflies</p> <p>mayflies</p> <p>bugs</p> <p>beetles</p> <p>caddisflies</p> <p>moths</p> <p>flies</p> <p>bees and wasps</p> <p>Crustacea</p> <p>spiders</p>	<p><i>Vertigo moulinsiana</i>, RDB3, Desmoulin's whorl snail</p> <p><i>Pisidium tenuilincatum</i>, Nb, a pea mussel</p> <p><i>Coenagrion mercuriale</i>, RDB3, Southern damselfly</p> <p>-</p> <p>-</p> <p>-</p> <p><i>Agabus unguicularis</i>, Nb, a water beetle</p> <p><i>Sitona ruficollis</i>, Nb, a soldier beetle</p> <p><i>Scymnus limbatus</i>, Nb, a ladybird</p> <p><i>Plateumaris affinis</i>, Nb, a reed beetle</p> <p><i>Cryptorhynchus lapathi</i>, Nb, a weevil</p> <p>-</p> <p><i>Cosmopterix orichalcea</i> pRDB3, <i>Sclerocona acutellus</i> RDBK: micro-moths</p> <p><i>Xanthorhoe biriviata</i>, Na, balsam carpet</p> <p><b><i>Pareulype barberata</i>, RDB1, barberry carpet</b></p> <p><i>Anicollis sparsata</i>, Na, dentated pug</p> <p><i>Simyra albovenosa</i>, Nb, reed dagger</p> <p><i>Diachrysia chryson</i>, Na, scarce burnished brass</p> <p><i>Tipula marginata</i> RDB3, <i>Limonia inusta</i> Nb, <i>Limonia lucida</i> Nb, <i>Thaumastoptera calceata</i> Nb, <i>Gonomyia bifida</i> Nb, <i>Gonomyia abbreviata</i> pRDB3, <i>Arctocoonopa melampodia</i>, pRDB2: craneflies</p> <p><i>Odontomyia argentata</i>, RDB2, a soldier fly</p> <p><i>Syneches muscarius</i>, pRDB2, a dance fly</p> <p><i>Beckerias pannonicus</i>, pRDB1, a big-headed fly</p> <p><i>Orithonevra brevicornis</i>, N, a hoverfly</p> <p><i>Vidalia cornuta</i>, RDB3, a gall fly</p> <p><i>Stenomicroa cogani</i>, pRDB3, a fly</p> <p><i>Cosmetopus dentimanus</i>, RDB1, a dung fly</p> <p><i>Crossocerus walkeri</i>, Nb, a solitary wasp</p> <p><b><i>Austropotamobius pallipes</i> local Crayfish</b></p> <p><i>Chirocephalus diaphanus</i>, RDB2, fairy shrimp</p> <p><i>Drassylus lutetianus</i>, Na, a ground spider</p> <p>-</p> <p><b><i>Oria musculosa</i>, Na, Brighton wainscot</b></p>	<p>ivers: natural flow regime; clean water; well-structured and varied bankside vegetation; shaded and unshaded stretches; margins with some emergent vegetation; undisturbed exposed sediments; accumulations of flood litter; semi-natural bordering land</p> <p>wet grassland: light grazing and trampling; some winter flooding, no summer flooding; associated pools; structurally diverse sward</p> <p>fen: high water table; varied vegetation structure, including bare mud, tussocks, tall fen vegetation, scrub and carr; management by rotational cutting and by grazing; natural age structure and dead wood in wooded areas; reedbeds; small pools</p> <p>swamp: consistently high winter water levels; partial summer drying; plant litter; infrequent management</p> <p>wet woodland along rivers: wide variety of native trees and shrubs; wide age range of woody species; flowery open spaces; pollen and nectar sources; standing and fallen dead wood; carr; fungal fruiting bodies on or associated with trees; well-developed ground flora; depressions with pools seasonal or permanent and undisturbed hydrology; seepages</p> <p>ponds, ditches: mixture of open water and dense vegetation; some emergent vegetation at margins; shallow margins, some well-vegetated; management by small-scale clearance, or on long rotation, or only as essential; well-structured bankside vegetation; semi-natural surrounding land; reliable hydrological regime; surrounding/bordering marshy zone</p> <p>conservation headlands; hedgerows; buffer zones by water courses; disturbed soil on waysides; ruderal and annual plants, used as host plants and nectar and pollen sources</p>	national
Arable fields	<p>beetles</p> <p>moths</p>	<p>-</p> <p><b><i>Oria musculosa</i>, Na, Brighton wainscot</b></p>	<p>conservation headlands; hedgerows; buffer zones by water courses; disturbed soil on waysides; ruderal and annual plants, used as host plants and nectar and pollen sources</p>	local



## Notes

Profile information provided includes lists of butterflies as characteristic species for calcareous grassland and woodland which, though good, are mostly of merely local species which have not been incorporated into this list.

The river valleys section could arguably be subdivided into more component habitats for invertebrates but, since in NAs where wetlands have been subdivided, assignment of species with confidence to one or other category has been a considerable difficulty, I have maintained a single large category.

There are many records of Microlepidoptera from this area, to which I may not have done justice. I have attempted to avoid species where the records come from gardens or from sites not obviously closely correlated with the stated biology of the species, species well outside the recorded range in the species accounts, species whose larval biology is unknown, species which could occur in multiple habitats, species associated with plants not native to the area, and species whose current status seems in need of revision "pRDB1 - naturalised", e.g.. Unfortunately, this removes rather a large proportion of the whole. I'm sure a microlepidopterist could make much better use of the data, but if I have erred, I hope it has been on the side of caution.

I have attempted to compensate for the small number of habitat categories, and the subdivisions possible within them, by selecting more than usual species for each.

Natural Area: Berkshire and Marlborough Downs 79			
Key Habitats	Invertebrate group	Associated or significant species	Specific needs
ancient parkland, wood pasture and other woods	Saproxylic groups: Coleoptera  Diptera notably hoverflies  Hymenoptera - aculeates	<i>Leptura sexguttata</i> RDB3, <i>Anaglyptus mysticus</i> Nb: longhorn beetles <i>Tomoxia bucephala</i> Na tumbling flower beetle <i>Mycetochara humeralis</i> Na darkling beetle <i>Pyrochroa coccinea</i> Nb cardinal beetle <i>Ctenophora flaviolata</i> pRDB2, <i>Ctenophora pectinicornis</i> Nb, <i>Tipula selene</i> : pRDB3 craneflies <i>Laphria marginata</i> Nb robberfly <i>Brachypalpus laphriphornis</i> Nb, <i>Myolepta luteola</i> Nb: hoverflies <i>Osmia pilicornis</i> Na Fringe horned mason bee	retention of old trees pollards, ancient hulks; dead wood, new generations of trees; fungal fruiting bodies on or associated with trees; sap runs; flowery open spaces; pollen and nectar sources
	other groups Orthoptera Lepidoptera  Arachnida Coleoptera Diptera Mollusca	<i>Omocestus rufipes</i> Nb Woodland grasshopper <i>Strymonidia w-album</i> Nb White-letter hairstreak <i>Apatura iris</i> Nb Purple emperor <i>Agynnis adippe</i> RDB2 High Brown Fritillary extinct <i>Boloria euphrosyne</i> Pearl-bordered fritillary <i>Hemaris tityus</i> Na Narrow-bordered Bee Hawk <i>Discoloxia blomeri</i> Nb Blomer's rivulet moth <i>Tuberta maerens</i> RDB3 cobweb spider - - -	wide variety of native trees and shrubs; carr;
lowland calcareous grassland	Dictyoptera Hemiptera  Lepidoptera notably butterflies	<i>Ectobius lapponicus</i> Nb Dusky coackroach <i>Sehirus dubius</i> Nb shield bug <i>Ulopa trivita</i> Nb leafhopper <i>Cucullia lychnitis</i> Na Striped lychnis moth <i>Scotopteryx bipunctaria</i> Nb Chalk carpet moth <i>Agrotis cinerea</i> Nb Light feathered rustic <i>Eurodryas aurinia</i> , Nb, marsh fritillary <i>Hesperia comma</i> RDB3 Silver-spotted skipper <i>Lysandra bellargus</i> Nb Adonis blue <i>Polia bombycina</i> local Pale Shining Brown <i>Oria musculosus</i> Na Brighton Wainscot on arablemargins	tussocky sward; patches of bare ground; shelter provided by hedges and scrub; flowers-rich sward; dung
			local

lowland calcareous grassland cont.	Coleoptera Diptera  Mollusca Hymenoptera, aculeates Orthoptera  Dictyoptera Lepidoptera  Coleoptera  Diptera many flying insects	<i>Geotrupes pyrenaicus</i> Na dung beetle <i>Asilus crabroniformis</i> Nb <b>Hornet robberfly</b> <i>Ogcodes pallipes</i> Nb hunch-backed fly <i>Urophora cuspidata</i> Nb picture-wing fly <i>Helix pomatia</i> Nb Roman snail <b>Nomada armata</b> RDB1 nomad bee <b>Bombus sylvorum</b> Nb Shrill Carder bee <b>Decticus verrucivorus</b> RDB1 Wart Biter extinct <i>Ectobius lapponicus</i> Nb Dusky coackroach <i>Thecla betulae</i> Nb Brown Hairstreak <i>Hamearis lucina</i> Nb Duke of Burgundy fritillary <i>Eupithicia insignata</i> Nb pinion-spotted pug moth <i>Anaglyptus mysticus</i> Nb, <i>Phytoecia cylindrica</i> Nb: longhorn beetles <b>Cryptocephalus coryli</b> RDB1 leaf beetle <i>Tipula peliostigma</i> Nb crane fly	block and patches of bushes; associated grassland or heath; flower-bearing species; broom bushes host of some rare species; hawthorn and blackthorn specific food plants	local
river valleys	Trichoptera Mollusca  Coleoptera Diptera Crustacea	<i>Metatylpe fragilis</i> Nb, <i>Ylodes conspersus</i> Nb caddis <b>Pistidium tenuilineatum</b> RDB3 pea mussel <b>Vertigo moulinsiana</b> Desmoulin's Whorl snail - - <b>Austroptamobius pullipes</b> local Crayfish	natural flow regime; clean water; some shaded and some open banks; some emergent vegetation; undisturbed shingle and mud shores and bars; accumulations of flood litter; exposed banks; fenly margins; calcareous water for some species eg <i>Metatylpe</i>	local
standing water	Crustacea Coleoptera Diptera Odonata Hemiptera Mollusca Diptera Coleoptera	<b>Chirocephalus diaphanus</b> RDB3 Fairy shrimp <i>Hydroporus longulus</i> Nb, <i>Rhantus saturalis</i> Nb: diving beetles <i>Pherbellia griseola</i> Nb, <i>Psacadina verbekei</i> Nb: snail-killing flies - - - <i>Oxycera morrisii</i> Nb soldierfly -	mosaic of open water and dense vegetation; shallow margins; semi-natural surrounding land; seasonal pools; spring-fed well-vegetated pools	local
marsh and seepage	Diptera Coleoptera	<i>Oxycera morrisii</i> Nb soldierfly -		

*Agrotis cinerea* Nb Light Feathered Rustic is reported from this natural area.

Natural Area: South Wessex Downs 80			
Key habitats	Invertebrate groups	Associated or significant species	Specific needs
Calcareous grassland	snails grasshoppers cockroaches bugs  beetles  butterflies and moths  flies  bees, wasps and ants  crustaceans	<p><i>Abida secale</i>, Nb, large chrysalis snail</p> <p>-</p> <p>-</p> <p><i>Sehirus dubius</i>, Nb, a burrower bug</p> <p><i>Dichroscytus gustavi</i>, Nb, a plant bug</p> <p><i>Tetrigometra impressopunctata</i>, Nb, a planthopper</p> <p><i>Licinus depressus</i>, Nb, a ground beetle</p> <p><i>Odonotaeus armiger</i>, Na, a dor beetle</p> <p><i>Omaloplia ruricola</i>, Nb, a chafer</p> <p><i>Aphanisticus pusillus</i>, Nb, a jewel beetle</p> <p><i>Leptura fulva</i>, pRDB3, a longhorn beetle</p> <p><i>Strophosomus faber</i> Nb, <i>Larimus planus</i> Nb, <i>Tychius lineatulus</i> Na: weevils</p> <p><i>Adscita geryon</i>, Nb, cistus forester</p> <p><i>Thisanotia chrysonuchella</i>, Nb, a grass moth</p> <p><i>Mecyna flavialis flavicollis</i>, pRDB2, a pyralid moth</p> <p><b><i>Hesperia comma</i>, RDB3, Silver-spotted Skipper</b></p> <p><b><i>Lysandra bellargus</i>, Nb, Adonis blue</b></p> <p><i>Hamearis lucina</i>, Nb, Duke of Burgundy</p> <p><b><i>Eurodryas aurinia</i>, Nb, Marsh Fritillary</b></p> <p><i>Philabapteryx virgata</i>, Nb, Oblique striped</p> <p><b><i>Scotopteryx bipunctaria</i>, Nb, Chalk Carpet</b></p> <p><b><i>Hemaris tityus</i>, Na, Narrow-bordered bee hawk</b></p> <p><b><i>Agrotis cinerea</i>, Nb, Light feathered rustic</b></p> <p><i>Heliothis viriplaca</i>, RDB3, Marbled clover</p> <p><b><i>Asilus crabroniformis</i>, N, a robber fly</b></p> <p><i>Doros profuges</i>, RDB2, a hoverfly</p> <p><i>Andrena hattorfiana</i>, RDB3, <i>A. marginata</i> Na, <i>Melitta dimidiata</i>, RDB1, <i>M. trincta</i> Nb: solitary bees</p> <p><i>Osmia bicolor</i>, Na, a mason bee</p> <p><i>Nomada rgentata</i>, RDB3, <i>N. armata</i> RDB1: nomad bees</p> <p><b><i>Bombus sylvorum</i>, Nb, shrill carder bee</b></p> <p><b><i>Bombus humilis</i> local Brown-banded Carder bee</b></p> <p><i>Chirocephalus diaphanus</i>, RDB2, fairy shrimp</p>	<p>varied vegetation structure providing patches of short turf in a tussocky flower-rich sward; patches of bare ground; shelter provided by hedges or patches of scrub; well-structured transition to other habitats; management by grazing</p>
			Significance in NA national

Calcareous grassland cont.	spiders	<i>Drassyllus praeficus</i> , Nb, a ground spider <i>Scotina palliardi</i> , Na, a spider <i>Xerolycosa nemoralis</i> , Nb, a wolf spider <i>Trichoncus saxicola</i> Nb, <i>Typhocrestus simoni</i> RDB2, <i>Meioneta simplicitarsis</i> Na: money spiders	blocks and patches of bushes; warm sheltered areas; flowering shrubs; varied age structure of woody species; leaf litter; moss	?local
Calcareous scrub	snails beetles butterflies and moths	- <i>Agrilus sinuatus</i> , Na, a jewel beetle <i>Hamearis lucina</i> , Nb, Duke of Burgundy <b><i>Trichopteryx polycommata</i>, Na, barred tooth-striped</b>	varied vegetation structure providing patches of short turf, tussocky flower-rich sward and patches of bare ground; scrub; well-structured transitions to other semi-natural habitats	?local
Acidic grassland/chalk heath	snails bugs beetles moths flies bees, wasps and ants spiders	- - <i>Ampedus sanguinolentus</i> , Na, a click beetle - - - - -		
farmland/arable	beetles moths	- <b><i>Oria musculosa</i>, Na, Brighton wainscot</b>	conservation headlands; hedgerows; buffer zones by water courses; disturbed soil on waysides; ruderal and annual plants used as host plants and nectar and pollen sources; old hedgerow trees; replacement generations of trees	local

Woodland	snails grasshoppers beetles	<p><i>Ena montana</i>, RDB3, a bulin snail  <i>Omocestus rufipes</i>, Nb, woodland grasshopper  <b>Lucanus cervus Nb Stag Beetle</b>  <i>Plegaderus dissectus</i>, Nb, a carrion beetle  <i>Scaphisoma boleti</i>, Nb, a beetle  <i>Prionocyphon serricornis</i>, Nb, a marsh beetle  <b>Gnorinus nobiliis RDB2 chafer</b>  <i>Ctesias serra</i>, Nb, cobweb beetle  <i>Tritoma bipustulata</i>, Na, a shiny fungus beetle  <i>Colydium elongatum</i>, RDB3, a narrow timber beetle  <i>Lissodema quadripustulata</i>, Nb, a false weevil  <i>Abdera biflexuosa</i> Nb, <i>Conopalpus testaceus</i> Nb: false darkling beetles  <i>Mordella leucaspis</i>, pRDBK, a tumbling flower beetle  <i>Ischnomera cyanea</i>, Nb, a thick-legged flower beetle  <i>Tropideres niveirostris</i>, pRDB2, a fungus weevil  <i>Apoda limacodes</i>, Nb, the festoon  <i>Eudonia delunella</i> Nb, <i>Microstega pandalis</i>, Na: pyralid moths  <i>Leptidea sinapis</i>, Nb, wood white  <i>Strymonidia w-album</i>, Nb, white-letter hairstreak  <i>Hamearis lucina</i>, Nb, Duke of Burgundy  <i>Apatura iris</i>, Nb, purple emperor  <b>Boloria euphrosyne</b>, Nb, pearl-bordered fritillary  <b>Argynnis adippe</b>, RDB2, high brown fritillary  <b>Rheumatopera hastata</b> Nb <b>Argent and Sable</b>  <b>Cuculia asteris</b> Nb <b>Star-wort</b>  <i>Archiearis notha</i>, Nb, light orange underwing  <i>Cyclophora annulata</i>, Nb, the mocha  <b>Minoa murinata</b>, Nb, <b>drab looper</b>  <i>Hemaris fuciformis</i>, Nb, broad-bordered bee hawk  <i>Eilema sororcula</i>, Nb, orange footman  <b>Pechipogo strigilata</b>, Na, <b>common fan-foot</b>  <i>Lipsothrix nervosa</i> local, <i>Ctenophora flaveolata</i> pRDB2, C.  <i>pectinicornis</i>, N, C. <i>migricornis</i>, RDB3: craneflies  <i>Beris fuscipes</i>, N, a soldier fly  <i>Ferdinandea ruficornis</i>, N, <i>Sphagina verecunda</i>, N: hoverflies</p>	wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; old trees; standing and fallen dead wood; carr; fungal fruiting bodies on or associated with trees; undisturbed hydrology; well-structured margins with transitions to other habitats	national
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Rivers	molluscs dragonflies stoneflies mayflies alderflies beetles  caddisflies flies  larger crustaceans	<i>Pisidium tenuilineatum</i> RDB3, <i>P. pulchellum</i> , Nb: pea mussels - - - <i>Sialis nigripes</i> , Nb, an alderfly <i>Chlaenius nigricornis</i> , Nb, a ground beetle <i>Oulimnius troglodytes</i> , Nb, <i>Riolus subviolaceus</i> , Nb: riffle beetles <i>Longitarsus aeruginosus</i> , pRDB1, a flea beetle <i>Longitarsus rutilus</i> , Na, a flea beetle <i>Metatypa fragilis</i> , Nb, <i>Ylodes conspersus</i> , Nb <i>Nephrotoma corsalis</i> , N, <i>Limonia lucida</i> , N, <i>Pilaria fuscipennis</i> , N: crane fly <i>Thaumalea truncata</i> , N, a thaumaleid fly <i>Oxycera pardalina</i> , N, a soldier fly <i>Atrichops crassipes</i> , RDB3, a snipe fly <i>Austropotamobius pallipes</i> , Atlantic stream crayfish	natural flow regime; clean water; well-structured and varied bankside vegetation; shaded and unshaded stretches; margins with some emergent vegetation; undisturbed exposed sediments; accumulations of flood litter; semi-natural bordering land	regional
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#### Notes

ISR records include species of wet heath *Metrioptera brachyptera*, *Atylotus fulvus*, a habitat which is not mentioned in the area profile: since it seems unlikely that wet heath would have been inadvertently omitted by the region, I have assumed that an error of some sort is responsible for the inclusion of these species. I have also had trouble placing some species of wet woodland and shaded seepages: the woodland category includes no very wet woodland types, but could include seepages etc as minor features; the river/stream habitat profile makes no mention of significant wooded margins. I have made a rather smaller selection of such wetland species than would have been the case had I been clearer of where to put them, and have placed some in each of the two categories, I hope with some degree of logic but not necessarily in a way absolutely reflecting their occurrence at the sites. It does seem that, from an invertebrate point of view especially amongst the Diptera, the importance of non-flowing wetlands is rather understated in the area profile as it currently stands, but I am too ignorant of the nature of such wetlands in the area to propose a new category. Records from Toller Porcorum SSSI are more consistently unplaceable than most, and seem to hint at carr, seepages, pools and fen vegetation of which I can find no hint in the area profile.





Calcareous grassland	many groups, especially Lepidoptera  Diptera Coleoptera Hymenoptera Hemiptera Orthoptera Mollusca	<p><b><i>Lysandra bellargus</i></b> Nb Adonis blue butterfly  <i>Thymelicus acteon</i> Na Lulworth skipper butterfly  <b><i>Agrotis cinerea</i></b> Nb Light feathered rustic moth  <b><i>Idaea dilutaria</i></b> pRDB3 Silky Wave  <b><i>Heliohobus reitculatus</i></b> Nb Bordered Gothic</p> <p>- - - - - -</p>	tussocky flower-rich sward; varied sward length; patches of bare ground; patches of scrub	Local
Swamp, fen & carr	Odonata  Diptera  Hymenoptera Arachnida Coleoptera Lepidoptera aquatic insects Crustacea Mollusca	<p><b><i>Libellula fulva</i></b> RDB3 Scarce chaser dragonfly  <b><i>Cordulia aenea</i></b> Nb Downy emerald dragonfly  <i>Brachytron pratense</i> Nb Hairy dragonfly  <b><i>Tipula marginata</i></b> RDB3, <i>Ptilaria fuscipennis</i> Nb: craneflies  <i>Vanoyia tenuicornis</i> Nb soldier-fly  <i>Macropis europaea</i> Na solitary bee  <b><i>Zora armillata</i></b> RDB3 ghost spider</p> <p>- - - - -</p>	mosaic of open water and dense vegetation; shallow margins; semi-natural surrounding land; reliable hydrological regime; fringes of emergent vegetation; with or without partial shade; active management; constant unpolluted water supply	Regional
Ancient semi-natural woodland	many groups, especially Lepidoptera  Coleoptera  Diptera  Orthoptera Mollusca	<p><b><i>Strymonidia w-album</i></b> Nb White-letter hairstreak butterfly  <i>Hemaris fusciformis</i> Nb Broad-bordered bee-hawkmoth  <b><i>Catocala promissa</i></b> RDB3 Light crimson underwing moth  <i>Apoda limacodes</i> Nb Festoon moth  <i>Meganola strigula</i> Na Small black-arches moth  <b><i>Alcis jubata</i></b> Nb Dotted carpet moth</p> <p><b><i>Cosmia diffinis</i></b> Na White-spotted Pinion  <b><i>Catocala promissa</i></b> RDB3 Light Crimson Underwing  <b><i>Lucanus cervus</i></b> Nb Stag beetle  ? <b><i>Gnorimus nobilis</i></b> RDB2 chafer  <b><i>Rhagio annulatus</i></b> RDB3 snipe fly  <b><i>Tipula selene</i></b> pRDB3 crane fly  <i>Nemobius sylvestris</i> Na Wood cricket</p> <p>- - -</p>	wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; standing and fallen dead wood; carr; fungal fruiting bodies on or associated with trees; undisturbed hydrology; wide sunny rides and glades	National to Regional

Sand dune and sandy beach	many groups, especially Lepidoptera Diptera Hymenoptera	<i>Actebia praecox</i> Na Portland moth <i>Sideris albicolon</i> Nb White colon moth <i>Mythimna litoralis</i> Nb Shore wainscot moth <i>Limonia bezzii</i> RDB2 crane fly <i>Podalonia hirsuta</i> Nb Hairy sand-wasp <i>Dasyopoda altercator</i> Nb Hairy-legged mining-bee <b>Bombus humilis local Brown-banded Carder bee</b> <i>Ectobius panzeri</i> Nb Lesser cockroach	natural physiographic processes leading to fore-dune; dune ridge and grey lichen dune behind; bare sand in all zones of the dunes system; dune grasslands; herb-rich with structural diversity; dune slacks with reliable winter water supply; scattered scrub and woodland on hinterland	National
Sandy sea cliff	Orthoptera Coleoptera	<b>Cathormiocerus britannicus RDB1 weevil</b> <i>Pyrrhocoris apterus RDB1</i> Fire bug	natural erosion though not too fast; high proportion of exposed soil; sparse and herb-rich vegetation; seepages with constant water supply	Regional
Saltmarsh & grazing marsh	Odonata Lepidoptera Diptera Coleoptera	<i>Sympetrum sanguinea</i> Nb Ruddy darter dragonfly <i>Malacosoma castrensis</i> RDB3 Ground lackey moth <i>Meganola albulata</i> Nb Kent black arches moth <i>Scopula emularia</i> Nb Rosy wave moth <i>Myopites inulaedysentericae</i> RDB3 fruit fly <i>Crepidodera impressa</i> Na leaf-beetle	herb-rich vegetation; transitions to dry ground; brackish and freshwater seepages; light grazing by stock	Regional
Estuaries & harbours	Orthoptera Actiniaria Amphipoda Diptera Coleoptera Lepidoptera	<i>Conocephalus discolor</i> Na long-winged conehead cricket <i>Tetrix ceperoi</i> Na Cepero's groundhopper <b>Nematostela vectensis RDB3 Starlet sea-anemone</b> <b>Gammarus insensibilis RDB3 Lagoon sand-shrimp</b>	estuaries with unpolluted transition from fresh to salt water; saltmarsh communities and rhine systems; exposed mud; shingles and rocks; foredunes with strandline vegetation and debris; seepages with constant water supply; lack of coastal pollution; open sand; lagoons	Regional
Reedbed	Lepidoptera Diptera Coleoptera	<i>Chilodes maritimus</i> Nb Silky wainscot moth-	mosaic of open water and dense vegetation; semi-natural surrounding land; reliable hydrological regime; with or without partial shade; active management; constant unpolluted water supply	Local
Open freshwater	Odonata Gnathobdellid a Diptera Coleoptera Lepidoptera aquatic insects Crustacea Mollusca	<b>Hirudo medicinalis RDB3 Medicinal leech</b> <i>Dicya umbrarum</i> Nb snail-killing fly <b>Hydroporus cantabricus pRDB3 diving beetle</b> <b>Donacia bicolora pRDB2 reed beetle</b>	mosaic of open water and dense vegetation; shallow margins; semi-natural surrounding land; reliable hydrological regime; fringes of emergent vegetation; with or without partial shade; active management; constant unpolluted water supply	Local

Rivers & streams	Coleoptera Odonata Diptera Lepidoptera aquatic insects Crustacea Mollusca	<i>Donacia bicolora</i> pRDB2 leaf-beetle <i>Deronectes latus</i> Nb water beetle - - - - - <b><i>Vertigo moulinsiana</i> RDB3 Desmoulins' Whorl snail</b> <i>Ischnura pumilio</i> Nb Scarce blue-tailed damselfly <b><i>Coenagrion mercuriale</i> RDB3 Southern damselfly</b> <b><i>Lipsothrix nervosa</i> local cranefly</b>	natural flow regime; clean water; some shaded and some open banks; margins with some emergent vegetation; undisturbed shingle and mud shores and bars; accumulations of flood litter; exposed sandy banks	Local
Seepages [added]	Odonata	<i>Cepphis advenaria</i> Nb Little thorn moth <i>Cleora cinctaria</i> Na Ringed carpet moth <i>Atolmis rubricollis</i> Nb Red-necked footman -		
Coniferous woodland on heathland soils	Diptera Lepidoptera		sunny rides and glades with flowering herbs and scrambling plants; standing dead-wood; impeded drainage and pools	Local
Lowland farmland	Coleoptera flying insects		hedgerows and trees; small streams and drains; patches of species-rich grassland; small ponds and marshy areas; conservation headlands in arable land	Local
Quarries			Open rock surfaces and screes; varied shade and aspect; scattered scrub	Local

[Added in Calcareous grasslands as a feature, as well as carr woodlands]

Natural Area: Isles of Portland & Purbeck 82				
Key Habitats	Invertebrate Groups	Associated or Significant Species	Specific Needs	Significance in NA
Calcareous grasslands & scrub	many groups, especially Lepidoptera  Coleoptera Diptera  Hymenoptera Mollusca Hemiptera Orthoptera	<i>Thymelicus acteon</i> Na Lulworth skipper butterfly <i>Plebejus argus creticus</i> Nb Silver-studded blue butterfly <i>Lysandra bellargus</i> Nb Adonis blue butterfly <i>Idaea dilutaria</i> pRDB Silky wave moth <i>Scotapteryx bipunctaria cretata</i> Nb Chalk carpet <i>Ascita geryon</i> Nb Cistus forester moth <i>Brachinus crepitans</i> Nb Bombardier beetle <i>Terellia vectensis</i> RDB3 large fruit-fly <i>Symphoromyia immaculata</i> Nb snipe-fly <i>Lasioglossum xanthopum</i> Nb Yellow-footed mining-bee <i>Abida secale</i> Nb chrysalis snail - -	tussocky flower-rich sward; varied sward length; patches of bare ground; patches of scrub; light grazing	National
Mires, marsh & fen	Odonata Lepidoptera Orthoptera Diptera Coleoptera	<i>Ceragrion tenellum</i> Nb Small red damselfly <i>Chilodes maritimus</i> Nb Silky wainscot moth <i>Conocephalus discolor</i> Na Long-winged conehead bush-cricket - -	mire: high water table; natural vegetation structure; small patches of bare peat; pools; seepages; birch and willow scrub  marsh: poached wet ground; tall marshy grassland cut on hay meadow rotation  fen: mosaic of open water and dense vegetation; shallow margins; semi-natural surrounding land; reliable hydrological regime; fringes of emergent vegetation; with or without partial shade; active management; constant unpolluted water supply	Regional
Stone quarries	Lepidoptera Hymenoptera Coleoptera	<i>Agrotis cinerea</i> Nb Light feathered-rustic moth - -	Open rock surfaces and screes; varied shade and aspect; scattered scrub	Local
Streams	Coleoptera Diptera Lepidoptera Odonata aquatic insects Crustacea Mollusca	<i>Bagous tempestivus</i> Nb weevil - - - - - -	natural flow regime; clean water; some shaded and some open banks; margins with some emergent vegetation; undisturbed shingle and mud shores and bars; accumulations of flood litter; exposed sandy banks	Local

Acid grassland & chalk heath	Odonata Lepidoptera  Diptera  Coleoptera Orthoptera Arachnida Hymenoptera Hemiptera	<i>Coenagrion mercuriale</i> RDB3 Southern damselfly <i>Selidosema brunnearia</i> Nb Bordered grey moth <i>Pediasia contaminella</i> Nb micro-moth <i>Asilus crabroniformis</i> Nb Hornet robber-fly <i>Thyridanthrax fenestratus</i> RDB3 bee-fly <i>Cardiophorus asellus</i> Nb click-beetle <i>Chorthippus vagans</i> RDB3 Heath grasshopper <i>Xysticus robustus</i> Na crab-spider - -	structural variety including open grass heath, very short turf and bare ground; rabbit disturbance; nectar & pollen sources; flowering heather; dung; patches of scrub	Regional
Hard and soft coastal cliffs	Lepidoptera  Diptera Hymenoptera  Hemiptera Orthoptera Arachnida Coleoptera	<i>Leucochlaena oditis</i> RDB3 Beautiful gothic moth <i>Eupithecia distinctaria constricta</i> Nb Thyme pug moth <i>Epischmia banksiella</i> Na micro-moth <i>Limonia gortiensis</i> RDB3 crane-fly <i>Euodynerus quadrifasciatus</i> RDB2 solitary wasp <i>Andrena carbonaria</i> Nb solitary bee <i>Leptothorax tuberosum</i> Na ant <i>Pyrrhocoris apterus</i> RDB1 Firebug <i>Platycleis albopunctata</i> Nb Grey bush-cricket <i>Argiope bruennichi</i> Na orb-weaver spider -	natural erosion though not too fast; high proportion of exposed soil; sparse and herb-rich vegetation; seepages with constant water supply	National
Sandy coastal grasslands, shingle & saltmarsh	Lepidoptera  Diptera Coleoptera  Hymenoptera Orthoptera	<i>Idaea degeneraria</i> RDB3 Portland ribbon wave moth <i>Lasiocampa trifolii</i> Na Grass eggar moth <i>Mythimina l-album</i> Nb L-album wainscot moth <i>Cynaeda dentalis</i> pRDB, <i>Pediasia aridella</i> Nb micro-moths <i>Myopites eximia</i> RDB3 large fruit-fly <i>Dromius vectensis</i> pRDB, <i>Harpalus tenebrosus</i> Na: ground beetles - -	herb-rich with structural diversity; high proportion of exposed soil and bare ground; sparse vegetation; seepages with constant water supply	Regional
Ancient woodlands & parklands	many groups, especially Lepidoptera Coleoptera Diptera Mollusca	<i>Strymonidia w-album</i> Nb White-letter hairstreak butterfly - - -	wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; standing and fallen dead wood; carr; fungal fruiting bodies on or associated with trees; undisturbed hydrology	Local
Lowland farmland, hedges & walls	Lepidoptera Arachnida flying insects	<i>Cryphia muralis</i> Nb Marbled green moth <i>Marpissa muscos</i> Nb jumping spider	hedgerows and trees; small streams and drains; patches of species-rich grassland; small ponds and marshy areas; conservation headlands in arable land; active management of hedges and walls	Local

Categories altered quite a bit to reduce duplication, increase inclusivity etc, or where difficult to segregate species with sufficient sensitivity:

- calcareous scrub combined with calcareous grassland
- 'marsh' added to 'Mires & fen'
- 'hard' and 'soft' cliffs combined
- new category of 'sandy grasslands etc' added, to cover the general coastal ie non-cliff dwelling species: there is some overlap, but many of the species cannot strictly be called 'sea cliff' species, even if this is where they are mainly recorded from in this NA
- 'hedges & walls' combined with 'lowland farmland'

nb I assume *Pseudomogaplistes squamiger* on Chesil lies outside this NA.

There are no records of BAP species from this Natural Area in the ISR.

Natural Area: Wessex Vales 83

Key Habitats	Invertebrate groups	Associated or significant species	Specific needs	Significance in NA
Ancient Woodland and Parkland	Orthoptera Lepidoptera	<p><i>Omoctus rufipes</i> Nb Woodland grasshopper  <i>Leptidea sinapis</i> Nb Wood White butterfly  <i>Apatura iris</i> Nb Purple Emperor on Salix  <b>Argynnis adippe RDB2 High Brown Fritillary</b>  <b>Boloria euphrosyne Nb Pearl Bordered Fritillary</b>  <i>Boloria selene</i> Nb Small Pearl Bordered Fritillary  <i>Strymonidia w-album</i> Nb White Letter hairstreak  <i>Thecla betulae</i> Nb Brown Hairstreak butterfly  <b>?Xylena exsoleta Nb Sword-grass</b>  <i>Eledona agricola</i> Nb darkling beetle  <i>Ischnomera sanguinicollis</i> Nb thick-legged flower beetle  <i>Altica brevicollis</i> Na leaf beetle  <b>Bombylus discolor Nb beefly</b>  <i>Cheilosia carbonaria</i> Nb, <i>Volucella inflata</i> Nb, <i>Criorhina ranunculi</i> Nb, <i>Xylota xanthocnema</i> Nb: hoverflies</p>	<p>wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; standing and fallen dead wood; carr; fungal fruiting bodies on or associated with trees; undisturbed hydrology</p>	regional
Dead wood in woods and parkland	Coleoptera	-	-	local
Wet woodlands	Diptera Coleoptera	<p><i>Volucella inflata</i> Nb, <i>Criorhina ranunculi</i> Nb, <i>Xylota xanthocnema</i> Nb: hoverflies</p>	<p>decaying heart-rot; ancient hulks; standing dead timber preferably on living trees; rot holes at all levels from ground level upwards; nectar and pollen sources nearby</p>	local
Wet woodlands	Diptera	<p>an assemblage of craneflies including <b><i>Lipsothrix nervosa</i></b> local,  <i>Diogma glabrata</i> Nb, <i>Limonia trivittata</i> Nb, <i>L. lucida</i> Nb,  <i>Thaumastopectera calceata</i>, <i>Pilaria fuscipennis</i> Nb  <i>Beris fuscipes</i> Nb soldierfly  <i>Dioctria cothurnata</i> pRDB3 robberfly  <i>Chalcosyrphus eunotus</i> RDB2 hoverfly on wood in streams  <i>Xylota abiens</i> Nb hoverfly</p>	<p>closed canopy providing shade and high humidity; alders, sallows; high water table leading to saturated ground; organic-rich litter layer; seepages; shallow pools</p>	local
Quarries, Caves and Cuttings	Coleoptera Lepidoptera Mollusca Hymenoptera Diptera Coleoptera Odonata	<p><i>Strymonidia w-album</i> White Letter Hairstreak  <i>Boloria selene</i> Small Pearl-bordered Fritillary  <i>Leptidea sinapis</i> Wood White</p>	<p>bare ground; ruderal plants; mosaic of structures from bare ground to scrub; herb-rich swards; shallow water</p>	local

Hedgerows	Lepidoptera	<i>Thecla betulae</i> Nb Brown Hairstreak butterfly <i>Strymonidia w-album</i> Nb White Letter hairstreak <i>Eriogaster lanestris</i> Nb Small Eggar moth	old unkempt hedges; tall or lightly grazed grassland beside hedge; hawthorn and blackthorn forming a large proportion of shrubs	local
Fen Meadows and Mire	Coleoptera Orthoptera Lepidoptera Coleoptera Diptera Trichoptera Arachnida Mollusca	<i>Conocephalus discolor</i> Na Long-winged Conehead cricket <b><i>Eurodryas aurinia</i></b> Nb Marsh Fritillary <i>Hamearis lucina</i> Nb Duke of Burgundy Fritillary <i>Eubria palustris</i> RDB3 Water Penny beetle - - - -	constant water supply; high water table; seepages calcareous influence; open structure to vegetation; with or without partial shading; herb-rich and structurally diverse vegetation; litter layer developed;	local
Dry Heath and Acid Grassland	Coleoptera Diptera Hymenoptera, aculeates  Arachnida Lepidoptera Orthoptera Hemiptera	<i>Aphodius coenosus</i> Nb dung beetle <i>Bomblylius canescens</i> Nb beefly <i>Tapinoma erraticum</i> Nb ant <i>Auplopus carbonarius</i> Nb spider-hunting wasp <i>Andrena humilis</i> Nb solitary bee <i>Eucera longicornis</i> Na mason bee <b>?<i>Bombus humilis</i> local Brown-banded Carder bee</b> <i>Argiope bruennichi</i> Na orb-web spider - - -	structural variety including open grass heath, very short turf and bare ground; rabbit disturbance; nectar & pollen sources; flowering heather; dung; patches of gorse +/- broom	local
Wet heath	Orthoptera Coleoptera Diptera	<i>Metrioptera brachyptera</i> Nb Bog Bush cricket - -	high water table; natural vegetation structure; small patches of bare peat; pools; seepages	local
Dry and Marshy Neutral Grassland	Lepidoptera Arachnida Homoptera Coleoptera Hymenoptera, aculeates	<i>Scopula ornata</i> Na Lace Border moth <b><i>Nocua orbona</i> Na Lunar Yellow Underwing moth</b> <i>Argiope bruennichi</i> Na orb-web spider - - -	structural variety including open grassland and bare ground; nectar & pollen sources	local
Coastal Marsh and Reedbed	Orthoptera Coleoptera Diptera Lepidoptera	<i>Tetrix ceperoi</i> Na Cepero's Ground-hopper <i>Elaphrus uliginosus</i> Nb, <i>Agonum scintulum</i> Na: ground beetles <i>Coelambus parallelogrammus</i> Nb water beetle <i>Agabus conspersus</i> Nb diving beetle - -	light grazing and trampling; some winter flooding, no summer flooding; associated pools and ditches; gradient of salinity in ditches; structurally diverse sward; mainly old reed with dense litter layer; reed growing on gradient from dry ground to standing in shallow water	local



Coastal Marsh and Reedbed - fresh to brackish ditches and ponds	Coleoptera Diptera Lepidoptera	a rich assemblage of water beetles including <i>Coelambus paralogrammus</i> Nb, <i>Agabus conspersus</i> Nb reed-feeding herbivores including <i>Lipara rufitarsis</i> Nb and <i>Platycephala umbraculata</i> RDB2 grass-flies	local
Calcareous Grassland	Lepidoptera Coleoptera Diptera Hemiptera Hymenoptera, aculeates Orthoptera Mollusca	<i>Thymelicus acteon</i> Nb Lulworth Skipper <b><i>Lysandra bellargus</i> Nb Adonis Blue butterfly</b> <i>Hamearis lucina</i> Nb Duke of Burgundy Fritillary <b><i>Eurodryas aurinia</i> Nb Marsh Fritillary</b> <b><i>Agrotis cinerea</i> Nb Light Feathered Rustic</b> <i>Omaloptia ruficola</i> Nb chafer beetle <i>Bombylius canescens</i> Nb bee-fly <i>Cheilosia cyanocephala</i> Nb hoverfly on <i>Carduus nutans</i>	regional
Lagoon and Shingle Bar	Orthoptera Lepidoptera Coleoptera Polychaeta Crustacea Actiniaria Odonata Crustacea Coleoptera Diptera Ephemeroptera Plecoptera Trichoptera Odonata Coleoptera Diptera Hymenoptera	<i>Pseudomogoplistes squamiger</i> RDB1 Scaly cricket <i>Tetrix ceperoi</i> Na Cepero's Ground-hopper <b><i>Hadena albimacula</i> RBD2 White Spot moth</b> <b><i>Cosmia diffinis</i> Na White-spotted Pinion</b> <i>Anihicus tristis</i> pRDB1 ant-like beetle <i>Harpalus serripes</i> Nb ground beetle <i>Crypticus quisquilius</i> Nb, <i>Omophilus rufitarsis</i> RDB1: darkling beetles <i>Armandia cirrhosa</i> RDBK Lagoon Sandworm <b><i>Gammarus insensibilis</i> RDB3 Lagoon Sand Shrimp</b> <b><i>Nematostella vectensis</i> RDB3 Starlet sea anemone</b> <i>Platynemis pennipes</i> Nb White-legged damselfly <i>Libellula fulva</i> RDB3 Scarce Chaser <b><i>Austrotomobius pallipes</i> Crayfish</b>	national
Rivers and Streams	Odonata Crustacea Coleoptera Diptera Ephemeroptera Plecoptera Trichoptera Odonata Coleoptera Diptera Hymenoptera	<i>Platynemis pennipes</i> Nb White-legged damselfly <i>Libellula fulva</i> RDB3 Scarce Chaser <b><i>Austrotomobius pallipes</i> Crayfish</b>	regional
Rivers and Streams - margins	Odonata Coleoptera Diptera Hymenoptera	an assemblage of ground and rove beetles, e.g. <i>Bembidion litorale</i> Nb, <i>B. stomoides</i> Nb, <i>B. saxatile</i> Nb, <i>Agonum scitulum</i> Na. <i>Oxycera analis</i> Nb soldierfly	local

Freshwater ponds and ditches	Mollusca Odonata Coleoptera Diptera Hemiptera	<i>Lymnaea glabra</i> RDB2 pond snail <i>Coenagrion pulchellum</i> Nb Variable damselfly <i>Sympetrum sanguineum</i> Nb Ruddy darter dragonfly <i>Rhantus grapii</i> Nb, <i>Hydaticus transversalis</i> Na: diving beetles <i>Helius pallirostris</i> Nb cranefly an assemblage of snail-killing flies including <i>Sciomyza simplex</i> Nb, <i>Antichaeta brevipennis</i> RDB2, <i>Psacadina verbekai</i> Nb	mosaic of open water and dense vegetation; shallow margins; semi-natural surrounding land; reliable hydrological regime; surrounding marshy zone; summer drawdown to expose bare shore-line	local
Seepages	Odonata Coleoptera Diptera Trichoptera Mollusca Lepidoptera	<i>Ischnura pumilio</i> Nb Scarce Blue-tailed damselfly <i>Georissus crenulatus</i> Na scavenger water beetle an assemblage of aquatic soldierflies including <i>Oxycera pardalina</i> Nb, <i>O. pygmaea</i> , <i>O. terminata</i> RDB2, <i>Stratiomys potaminda</i> Nb	constant water supply; calcareous influence; open structure to vegetation; with or without partial shading; pollen and nectar sources nearby	local
Lowland Farmland	Lepidoptera	common butterflies		local
Sea Cliffs and Coastal Landslips	Orthoptera Coleoptera Hymenoptera Lepidoptera Hemiptera	<i>Platypleis albopunctata</i> Nb Grey Bush cricket <i>Tetrix ceperoi</i> Na Cepero's Ground-hopper <i>Sitona gemellatus</i> RDB1 weevil on Ononis and Mediago <i>Baris analis</i> pRDB2 weevil on flea bane <i>Cicendella germanica</i> RDB3 tiger beetle <i>Drypta dentata</i> RDB1, <i>Tachys micros</i> Na: ground beetles <i>Leptothorax tuberosum</i> Na ant large assemblage of bees and wasps <i>Thymelicus acteon</i> Na Lulworth Skipper <b><i>Boloria euphrosyne</i> Nb Pearl bordered Fritillary</b>	herb-rich flora; bare rocks with crevices; natural erosion no sea defences	regional
Soft rock sea cliffs	Coleoptera Diptera Hymenoptera	<i>Drypta dentata</i> DB1 ground beetle <i>Baris analis</i> RDB2 weevil on Pulicaria <i>Limonia goritensis</i> DB3 cranefly	natural erosion though not too fast; high proportion of exposed soil; sparse and herb-rich vegetation; seepages with constant water supply;	regional
Saltmarsh, sandy and muddy shores	Coleoptera Diptera Lepidoptera	<i>Bembidion laterale</i> Nb ground beetle <i>Dicheirotrichus obsoletus</i> Nb ground beetle <i>Helophorus fulgidicollis</i> Nb water beetle	historically undisturbed vegetation; herb-rich vegetation, especially with <i>Aster</i> and <i>Limonium vulgare</i> transitions to dry land and to freshwater seepages; shore-line litter seaweed etc	local

Natural Area: Mendip Hills 84				
Key habitats	Invertebrate groups	Associated or significant species	Specific needs	Significance in NA
Acid heath	bugs beetles moths flies bees, wasps and ants spiders	- - - - - -	structural variety including open grass heath, very short vegetation and bare ground; rabbit or other disturbance; nectar and pollen sources; arable weeds; flowering heather; dung; patches of gorse and/or broom; birch both as young scrub and as older trees with dead wood	?
Ash-lime woods	snails and slugs grasshoppers bugs beetles butterflies and moths flies bees and wasps spiders	<i>Acicula fusca</i> , Nb, a point snail <i>Ena montana</i> , RDB3, a bulin snail <i>Omocestus rufipes</i> , Nb, Woodland grasshopper - <i>Tropiphorus elevatus</i> , Nb, a weevil <i>Strymonidia w-album</i> , Nb, White-letter Hairstreak <i>Leptidea sinapis</i> , Nb, Wood White <b><i>Boloria euphrosyne</i></b> , Nb, <b>Pearl-bordered Fritillary</b> <i>Cyclophora annulata</i> , Nb, The Mocha <i>Atolmis rubricollis</i> , Nb, Red-necked Footman <i>Tipula selene</i> pRDB3, <i>Limonia trivittata</i> N, <i>Limonia inusta</i> N, <i>L. inusta</i> N: craneflies <b><i>Bombylus discolor</i></b> Nb <b>bee-fly</b> <i>Sphagina verecunda</i> N, <i>Eumerus ornatus</i> N, <i>Volucella inflata</i> N, hoverflies <i>Tetanocera phyllophora</i> , N, a snail-killing fly - -	wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; old trees; standing and fallen dead wood; carr; fungal fruiting bodies on or associated with trees; undisturbed hydrology; well-structured margins with transitions to other habitats; wet areas with high water table; complete canopy cover over some wet areas	regional

Deep limestone gorges	snails and slugs bugs beetles moths flies bees, wasps and ants woodlice	<p><i>Limax cinereoniger</i>, Nb, ash-black slug  <i>Abida secale</i>, Nb, large chrysalis snail</p> <p>-  <i>Amara curta</i>, Nb, a ground beetle  <i>Oncocera semirubella</i>, Nb, a pyralid moth  <i>Cryphia muralis</i>, Nb, Wall Beauty  <i>Pherbellia annulipes</i>, N, a snail-killing fly  <b><i>Lipsothrix nervosa</i></b> local crane fly  <i>Andrena bucephala</i>, Na, a solitary bee</p> <p>-  -</p>	varied aspects; mosaic structure of vegetation; exposed rocks and screes; absence of frequent or excessive disturbance of screes; well-structured transitions between habitats; areas of complete canopy cover providing permanently moist and shaded conditions	?local
Limestone grassland and heath	snails grasshoppers and crickets bugs beetles butterflies and moths flies bees, wasps and ants spiders woodlice	<p>-  <i>Platycleis albopunctata</i>, Nb, Grey Bush cricket  <i>Sciocoris cursitans</i>, Nb, a shieldbug  <i>Macroplox preyssleri</i>, pRDB3, a groundbug  <i>Harpalus azureus</i> Nb, <b><i>Harpalus dimidiatus</i></b> Na, <i>Licinus punctulatus</i>  Na: ground beetles  <i>Euheptaulacus villosus</i>, Na, a dung beetle  <i>Cryptocephalus bipunctatus</i>, Nb, <i>Chrysolina violacea</i>, Nb: leaf beetles  <i>Adscita geryon</i>, Nb, Cistus Forester  <b><i>Lysandra bellargus</i></b>, Nb, Adonis blue  <b><i>Argynnis adippe</i></b>, RDB2, High Brown Fritillary  <i>Symphoromyia immaculata</i>, N, a snipe fly  <i>Bombylus canescens</i>, N, a bee fly  <i>Andrena fulvago</i>, Na, a solitary bee</p> <p>-  -  -  -</p>	varied vegetation structure providing patches of short turf in a tussocky flower-rich sward; patches of bare ground; shelter provided by hedges or patches of scrub; well-structured transition to other habitats; management by grazing; natural erosion processes on cliffs; undisturbed cliff ledges; scree not subject to frequent or excessive disturbance; scrub of varied ages, harboring warm sheltered areas	regional
Mines and mineral sites	bugs beetles flies	<p>-  -  -</p>	flooded quarry floor; ruderal plants; sparse turf; rocks and stones; sunny aspect; seepages	?
Neutral grassland	beetles butterflies and moths	<p><i>Ctenicera pectinicornis</i>, Na, a click beetle  <b><i>Eurodryas aurinia</i></b>, Nb, Marsh Fritillary  <i>Adscita staites</i>, Nb, Forester</p>	mosaic structure including tussocks; shelter provided by hedges or scrub; well-structured transitions to other semi-natural habitats; low-lying damp hollows or temporary pools	?regional

Pleistocene sand cliff	<ul style="list-style-type: none"> <li>- grasshoppers and crickets</li> <li>- bugs</li> <li>- beetles</li> <li>- moths</li> <li>- flies</li> <li>- bees, wasps and ants</li> <li>- woodlice</li> <li>- spiders</li> </ul>	<ul style="list-style-type: none"> <li>-</li> <li>-</li> <li>-</li> <li>-</li> <li>-</li> <li>-</li> <li>-</li> <li>-</li> </ul>	natural physiographic processes; undisturbed cliff-face vegetation; grazing of cliff-top grassland	?
Ponds and pools	<ul style="list-style-type: none"> <li>- snails and mussels</li> <li>- dragonflies</li>   <li>- bugs</li> <li>- beetles</li>   <li>- moths</li> <li>- flies</li> <li>- spiders</li> </ul>	<ul style="list-style-type: none"> <li>- <i>Coenagrion pulchellum</i>, Nb, Variable damselfly</li> <li>- <i>Brachytron pratense</i>, Nb, Hairy dragonfly</li> <li>- <i>Cordulia aenea</i>, Nb, Downy Emerald</li> <li>- <i>Sympetrum sanguineum</i>, Nb, Ruddy Darter</li> <li>- <i>Rhantus grapii</i> Nb, <i>R. suturalis</i> Nb, <i>Hydaticus transversalis</i> pRDB3,; water beetles</li> <li>- <i>Enochrus ochropterus</i>, Nb, a scavenger water beetle</li> <li>- <i>Selatosomus angustulus</i>, RDB3, a click beetle</li> <li>- <i>Plateumaris affinis</i>, Nb, a reed beetle</li> <li>- <i>Bagous lutulentus</i>, Nb, a weevil</li> <li>-</li> <li>-</li> <li>-</li> </ul>	mixture of open water and dense vegetation; some emergent vegetation at margins; shallow margins, some well-vegetated; management by small-scale clearance, or on long rotation, or only as essential; well-structured bankside vegetation; semi-natural surrounding land; reliable hydrological regime; surrounding/bordering marshy zone	? regional
Quarries	<ul style="list-style-type: none"> <li>- bugs</li> <li>- beetles</li> <li>- moths</li> <li>- flies</li> <li>- bees, wasps and ants</li> </ul>	<ul style="list-style-type: none"> <li>-</li> <li>-</li> <li>-</li> <li>-</li> <li>-</li> </ul>	mosaic of structures from bare ground to scrub; herb-rich swards; ruderals; shallow water	?
Caves	<ul style="list-style-type: none"> <li>- beetles</li> <li>- flies</li> <li>- crustaceans</li> </ul>	<ul style="list-style-type: none"> <li>-</li> <li>-</li> <li>-</li> </ul>	undisturbed conditions; unpolluted water	?

## Notes

Area profile information contained some suggestions for associated invertebrates, all of Mollusca, Lepidoptera or Orthoptera. I have used nationally scarce representatives from these suggestions even where they are not included in ISR lists *Omocestus rufipes*, *Playcleis sinapis*, *Strymonidia w-album*.

I have assigned species to the "gorge" category, except for those listed in the area profile supplied, on the basis of the site name alone, since otherwise I have no way of distinguishing calcareous grassland and woodland in a gorge from that not in a gorge.

The area profile lists "cave invertebrates " as of significance , but neither the profile nor the ISR lists contain any.

This is not a well-recorded area, on the basis of ISR lists, and the lists of associated species hardly do justice to the habitats.

*Hemaris tityus* Na Narrow-bordered Bee Hawk BAP middle list may not breed in the habitats given here.

Natural Area: Somerset Levels and Moors 85			
Key Habitats	Invertebrate groups	Associated or significant species	Specific needs
Freshwater and brackish rhynes and ditches	Odonata  Lepidoptera Coleoptera	<i>Coenagrion pulchellum</i> Nb Variable Damsel fly <i>Brachytron pratense</i> Nb Hairy Dragonfly <i>Sympetrum sanguineum</i> Nb Ruddy Darter dragonfly <i>Chilodes maritimus</i> Nb Silkey Wainscot very important assemblage of water beetles, e.g. <i>Hydaticus transversalis</i> pRDB3, <i>Dytiscus dimidiatus</i> pRDB3: diving beetles <b>Hydrochara caraboides</b> RDB1 Lesser Silver Water Beetle <i>Agonum nigrum</i> Nb, <i>Amaro strenua</i> Nb: ground beetles <i>Silvis ruficollis</i> Nb soldier beetle <i>Donacia dentata</i> Na leaf beetle <i>Odontomyia tigrina</i> Nb, <i>Odontomyia ornata</i> RDB2, <i>Stratiomys singularior</i> Nb: aquatic soldierflies <i>Lejops vittata</i> RDB2, <i>Parhelophilus consimilis</i> RDB2: hoverflies <b>Segmentina nitida</b> RDB1 Shining Ramshorn snail	light grazing and trampling; some winter flooding, stable summer water levels; associated pools and dykes; structurally diverse aquatic flora including emergents
Freshwater and tidal rivers	Diptera	<i>Synaptus filiformis</i> pRDB1 click beetle <i>Bembidion lunatum</i> Nb ground beetle <i>Ochthebius bicolor</i> Nb water beetle	natural flow regime; clean water; some shaded and some open banks; margins with some emergent vegetation; undisturbed muddy shores and bars; accumulations of flood litter; exposed sandy banks
Lowland wet grassland	Lepidoptera  Coleoptera  Diptera	<b>Eurodryas aurinia</b> Nb Marsh Fritillary butterfly <i>Adscita stactes</i> Nb Forester moth <i>Cantharis fusca</i> pRDB3 soldier beetle <b>Malachius aeneus</b> Nb false soldier beetle	light grazing and trampling; some winter flooding, no summer flooding; associated pools; structurally diverse sward
Orchards	Hymenoptera Lepidoptera	<i>Sapyga clavicornis</i> Nb solitary wasp	mature fruit trees; Goat Moth damage; structurally diverse ground flora; hedgerows; proximity to semi-natural habitats
Peat workings	Coleoptera	<i>Oulema erichsoni</i> pRDB1 leaf beetle	moist to wet surface with very little vegetation
Rehabilitated peat workings	Coleoptera Diptera	good assemblage of aquatic beetles <i>Limnophila abdominalis</i> Nb crane fly	high water table; natural vegetation structure; small patches of bare peat; pools and dammed ditches; young scrub at margins especially birch
Remnant raised mires	Orthoptera Lepidoptera Diptera  Coleoptera	<b>Stethophyma grossum</b> RDB2 Large Marsh Grasshopper <i>Hypenodes humidialis</i> Nb Marsh Oblique-barred moth <i>Phalacrocerca replicata</i> Nb crane fly <i>Oxycera morrisii</i> Nb soldier fly <i>Microdon mutabilis</i> Nb hoverfly <i>Hylobius transversovittatus</i> pRDB1 weevil	constant water supply; high water table; seepages; calcareous influence; open structure to vegetation; with or without partial shading; herb-rich and structurally diverse vegetation; litter layer developed
			local
			local
			local
			local
			nationally important

Withy beds	Lepidoptera Coleoptera	<i>Synanthedon fomicaeformis</i> Nb Red-tipped Clearwing <i>Cryptorhynchus lapathi</i> Nb Willow Beetle	closed canopy providing shade and high humidity; sallows; high water table leading to saturated ground; organic-rich litter layer; seepages; shallow pools	local
Woodland	Lepidoptera	<b><i>Boloria euphrosyne</i></b> Nb Pearl Bordered Fritillary butterfly <i>Strymonia w-album</i> Nb White-letter Hairstread butterfly <b><i>Rheumaptera hastata</i></b> Nb Argent and Sable moth <b><i>Hemaris tityus</i></b> Nb Narrow-bordered Bee Hawkmoth <i>Volucella inflata</i> Nb hoverfly	wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; standing and fallen dead wood; carr; fungal fruiting bodies on or associated with trees; undisturbed hydrology	local
Sand dunes [added by DG]	Lepidoptera  Coleoptera Diptera Hymenoptera	<i>Lasiocampa trifolii</i> Na Grass Eggar moth <i>Phibalapteryx virgata</i> Nb Oblique Striped moth <i>Agrotis ripae</i> Nb Sand Dart moth <i>Actebia praecox</i> Nb Portland Moth <b><i>Cicindella maritima</i></b> Na Tiger beetle <i>Phthiria pulicaria</i> Nb Bee-fly	herb-rich with structural diversity; dune slacks with reliable winter water supply]	local



Natural Area: Mid Somerset Hills 86

Key Habitats	Invertebrate groups	Associated or significant species	Specific needs	Significance in NA
Calcareous grassland	Orthoptera Lepidoptera Coleoptera Diptera	<i>Gomphocerippus rufus</i> Nb Rufous Grasshopper <i>Stigmella filipendulae</i> Nb micro-moth <i>Phibalapteryx virgata</i> Nb Oblique Striped moth <i>Cryptocephalus aureolus</i> Nb leaf beetle <i>Cheilisia soror</i> Nb hoverfly	tussocky flower-rich sward; patches of bare ground; shelter provided by hedges, patches of scrub	local
Hedgerows and verges	Lepidoptera	<b><i>Boloria euphrosyne</i> Nb Pearl Bordered Fritillary butterfly</b> <i>Thecla betulae</i> Nb Brown Hairstreak butterfly <i>Eriogaster lanestris</i> Nb Small Eggar moth	old unkempt hedges; tall or lightly grazed grassland beside hedge; hawthorn and blackthorn forming a large proportion of shrubs; structurally diverse flora on verges	local
Woodland and scrub	Orthoptera Lepidoptera  Coleoptera Diptera	<i>Omocestus rufipes</i> Nb Woodland Grasshopper <i>Hamearis lucina</i> Nb Duke of Burgundy Fritillary butterfly <b><i>Argynnis adippe</i> RDB2 High Brown Fritillary butterfly</b> <i>Discoloxia blomeri</i> Nb Blomer's Rivulet moth <i>Minoa murinata</i> Nb Drab Looper moth <i>Ennomos autumnaria</i> Nb Large Thorn moth <i>Eilema sororcula</i> Nb Orange Footman moth <i>Selatosomus bipustulatus</i> Nb click beetle <i>Laphria marginata</i> Nb robber fly good assemblage of scarce hoverflies, e.g. <i>Volucella inflata</i> Nb, <i>Brachypalpus laphriformis</i> Nb	wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; standing and fallen dead wood; carr; fungal fruiting bodies on or associated with trees; undisturbed hydrology	local

Natural Area: Exmoor and the Quantocks 87				
Key Habitats	Invertebrate Groups	Associated or Significant Species	Specific Needs	
			Significance in NA	
Coastal heath & sea cliffs	Hymenoptera Diptera Orthoptera Isopoda Mollusca Lepidoptera Coleoptera Hemiptera Arachnida	<i>Andrena carbonaria</i> Nb solitary bee <i>Nomada fulvicornis</i> RDB3, <i>N. fucata</i> Na: nomad wasps <i>Myopa vicaria</i> pRDB2 conopid fly <i>Platycleis albopunctata</i> Nb Grey bush-cricket <i>Halophiloscia couchi</i> Nb woodlouse <i>Ponentina subvirescens</i> Na Green hairy-snail <b><i>Lygephila cracca</i> RDB3 Scarce Blackneck</b> - - -	heaths: structural variety including open grass heath, very short turf and bare ground; rabbit disturbance; nectar & pollen sources; flowering heather; dung; patches of scrub  cliffs: natural erosion though not too fast; high proportion of exposed soil; sparse and herb-rich vegetation; seepages with constant water supply	Regional
Sand dunes and slacks	many groups, especially Lepidoptera Diptera Coleoptera	<i>Agrotis ripae</i> Nb Sand dart moth <i>Monochroa elongella</i> pRDB2 micro-moth  <i>Phthiria pulicaria</i> Nb bee-fly <b><i>Cicindela maritima</i> Nb tiger-beetle</b> <i>Onthophagus nuchicornis</i> Na dung beetle <i>Curimopsis setigera</i> Na pill beetle <i>Cryptocephalus aureolus</i> Nb leaf beetle <i>Oxybelus argentatus</i> Na Silver spiny digger-wasp <i>Ectobius panzeri</i> Nb Lesser cockroach <b><i>Catinella arenaria</i> RDB1 Sandbowl snail</b>	natural physiographic processes leading to fore-dune; dune ridge and grey lichen dune behind; bare sand in all zones of the dunes system; dune grasslands; herb-rich with structural diversity; dune slacks with reliable winter water supply; scattered scrub and woodland on hinterland	National
Strandline, shingle, saltmarsh & seepage	Coleoptera Diptera  Pseudoscorpion Isopoda  Mollusca Lepidoptera	<i>Nebria complanata</i> Na ground beetle <i>Stratiomys singularior</i> Nb soldier-fly <i>Limonia goritiensis</i> RDB3 crane fly <i>Neobisium maritimum</i> Nb false scorpion <i>Armadillidium album</i> Nb pill woodlouse <i>Miktoniscus patiencei</i> Nb woodlouse <i>Paludinella littorina</i> RDB3 Lagoon snail	unpolluted and undisturbed beach debris; transitions to dry ground; herb-rich vegetation; brackish and freshwater seepages	Regional
Upland heath	Lepidoptera Diptera Coleoptera Hymenoptera Hemiptera Arachnida	<i>Pachycnemia hippocastanaria</i> Nb Horse chestnut moth <b><i>Asilus crabroniformis</i> Nb Hornet robber-fly</b> - - - -	structural variety including open grass heath, very short turf and bare ground; rabbit disturbance; nectar & pollen sources; flowering heather; dung; patches of scrub	National

Degraded blanket bog & wet heath	Diptera Lepidoptera	<i>Microdon mutabilis</i> Nb hoverfly <b>Xylena exsoleta Nb Sword-grass moth</b> <i>Chlorissa viridata</i> Na Small grass emerald moth <i>Mutilla europaea</i> Nb Large velvet-ant - -	high water table; natural vegetation structure; small patches of bare peat; pools; seepages; birch and willow scrub	Regional
Valley mire, flushes & runnels	Hymenoptera Coleoptera Orthoptera	- -		
Western oak wood	many groups, especially Lepidoptera Coleoptera Diptera	<i>Alicis jubata</i> Nb Dotted carpet moth <i>Schiffermuellera grandis</i> pRDB1 micro-moth <b>Mythimna turca Nb Double Line</b> <b>Lucanus cervus Nb Stag beetle</b> <i>Leptura sexguttata</i> RDB3, <i>Srangalia aurulenta</i> Na: longhorn beetles <i>Cheilosia nebulosus</i> RDB3, <i>Xanthandrus comtus</i> Nb: hoverflies <i>Ctenophora flaveolata</i> RDB2 feathered-crane-fly	standing and fallen dead wood; fungal fruiting bodies on or associated with trees; undisturbed hydrology; flowery rides and margins; small pools and flushes; heathy ground flora	Regional
Parkland	many groups, especially Coleoptera Diptera Lepidoptera Mollusca	<i>Ciesias serra</i> Nb Cobweb beetle <i>Cerylon fagi</i> Nb bark beetle <i>Thymalus limbatus</i> Nb domed fungus-beetle <i>Platypus cylindrus</i> Nb oak pin-hole borer-beetle - - -	retention of old trees pollards, ancient hulks, nectar sources; dead wood, new generations of trees; fungal fruiting bodies on or associated with trees; unimproved pasture or meadow grassland	Regional
Herb-rich marsh and grassland	Lepidoptera Coleoptera Hemiptera	<b>Mellicta athalia RDB2 Heath fritillary butterfly</b> <b>Eurodryas aurinia Nb Marsh fritillary butterfly</b> <i>Tetrix ceperoi</i> Na Cepero's groundhopper	varied structure including grass tussocks; poached wet ground; tall marshy grassland cut on hay meadow rotation	Regional
Bracken & scrub	Lepidoptera Diptera Coleoptera	<b>Argynnis adippe RDB2 High brown fritillary butterfly</b> <b>Boloria euphrosyne Nb Pearl-bordered fritillary butterfly</b> - -	bracken: spring grazing or cutting to maintain light canopy and prevent build-up of litter	Regional
Hedgerows & hedge banks	Lepidoptera flying insects	<i>Thecla betulae</i> Nb Brown hairstreak butterfly	scrub: block and patches of bushes; associated grassland or heath; flower-bearing species	Local
Scree & rock exposure	Arachnida Hymenoptera	<i>Aulonia albimana</i> RDB1 wolf-spider	varied structure and woody species diversity; flowery hedgebanks; active management	Local
Fast-flowing upland rivers & streams	Coleoptera Diptera Lepidoptera aquatic insects Crustacea	<i>Stictonectes lepidus</i> Nb water-beetle - - -	open rock surfaces and screes; varied shade and aspect; scattered scrub	Local
			natural flow regime; clean water; some shaded and some open banks; margins with some emergent vegetation; undisturbed shingle and mud shores and bars; accumulations of flood litter; exposed sandy banks	Local

Changes to categories originally provided:

- added 'sand dunes & slacks' category to cover the very important Braunton Burrows fauna
- added 'strandline etc' to cover 'beach' fauna
- had to deal with 'degraded bog' and 'valley mire etc' as one category, as difficult to segregate fauna for these
- extended the 'herb-rich marsh' category to include grassland: otherwise unsure where

Natural Area: Vale of Taunton and Quantock Fringes 88

Key Habitats	Invertebrate groups	Associated or significant species	Specific needs	Significance in NA
Calcareous grassland	Lepidoptera	<i>Hamearis lucina</i> Nb Duke of Burgundy Fritillary butterfly	tussocky flower-rich sward; patches of bare ground; shelter provided by hedges, patches of scrub	local
Hedges and hedgebanks	Lepidoptera	<i>Thecla betulae</i> Nb Brown Hairstreak butterfly	old unkempt hedges; tall or lightly grazed grassland beside hedge; hawthorn and blackthorn forming a large proportion of shrubs	local
Mires, fens and swamps	Lepidoptera Coleoptera	<b><i>Eurodryas aurinia</i> Nb Marsh Fritillary butterfly</b> <i>Haliphys mucronatus</i> Na, <i>Berosus affinis</i> Nb: water beetles <i>Rhantus suturalis</i> Nb diving beetle <i>Stratiomys potamida</i> Nb soldier fly	structural diversity; mixture of derelict and cut or lightly grazed vegetation; rich in herbs; high water table; reliable water supply in summer; occasional bushes	local
Rivers and streams	Diptera Coleoptera Diptera	aquatic beetles and soldier flies	natural flow regime; clean water; some shaded and some open banks; margins with some emergent vegetation; undisturbed mud shores and bars; accumulations of flood litter; exposed sandy banks	local
Soft sea cliffs and coastal grassland	Hymenoptera Diptera	solitary wasps and bees semi-aquatic soldier flies	natural erosion though not too fast; high proportion of exposed soil; sparse and herb-rich vegetation; seepages with constant water supply	local
Woodland and scrub	Lepidoptera	<i>Leptidea sinapis</i> Nb Wood White butterfly <b><i>Boloria euphrosyne</i> Nb Pearl Bordered Fritillary butterfly</b> <b><i>Argynnis adippe</i> RDB2 High Brown Fritillary butterfly</b> <i>Mythimna turca</i> Nb Double Line moth <i>Ischnomera cyanea</i> Nb thick-legged flower beetle	wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; standing and fallen dead wood; carr; fungal fruiting bodies on or associated with trees; undisturbed hydrology	regional
Neutral grassland	Coleoptera			

Natural Area: Blackdowns 89			
Key Habitats	Invertebrate Groups	Associated or Significant Species	Specific Needs
Calcareous grassland	many groups, especially Lepidoptera Hymenoptera Orthoptera Mollusca  Diptera Coleoptera Hemiptera	<i>Lysandra bellargus</i> Nb Adonis blue butterfly <i>Scotopteryx bipunctaria cretata</i> Nb Chalk carpet moth  <i>Andrena hattorfiana</i> RDB3 solitary bee <i>Gomphocerippus rufus</i> Nb Rufous grasshopper <i>Truncatellina callicratis</i> RDB3 whorl snail <i>Abida secale</i> Nb chrysalis snail - - -	tussocky flower-rich sward; varied sward length; patches of bare ground; patches of scrub
Estuaries	Orthoptera Diptera Coleoptera Lepidoptera	<i>Tetrix ceperoi</i> Na Cepero's ground-hopper - - -	estuaries with unpolluted transition from fresh to salt water; saltmarsh communities and rhine systems; exposed mud; shingles and rocks
Heathland	Lepidoptera Diptera Hymenoptera  Coleoptera Hemiptera Arachnida	<i>Plebejus argus</i> Nb Silver-studded blue butterfly <i>Asilus crabroniformis</i> Nb Hornet robber-fly <i>Pseudopiona herrichii</i> RDB1 solitary wasp <i>Aporus unicolor</i> Na spider-hunting wasp <i>Calomicrus circumfuscus</i> Na leaf-beetle - -	structural variety including open grass heath, very short turf and bare ground; rabbit disturbance; nectar & pollen sources; flowering heather; dung; patches of scrub
Mires & acid grassland	Lepidoptera Orthoptera Diptera Coleoptera	<i>Eurodryas aurinia</i> Nb Marsh fritillary butterfly <i>Metrioptera brachyptera</i> Nb Bog bush-cricket - -	high water table; natural vegetation structure; small patches of bare peat; pools; seepages; birch and willow scrub
Unimproved neutral grassland and marshland	Coleoptera  Lepidoptera Diptera Hemiptera	<i>Pilemostema fastuosa</i> Na tortoise-beetle <i>Pterostichus gracilis</i> Nb ground-beetle <i>Onthophagus vacca</i> Nb dung beetle <i>Endothenia ustulana</i> pRDB3 tortrix moth <i>Bombylius canescens</i> Nb bee-fly -	varied structure including grass tussocks; poached wet ground; tall marshy grassland cut on hay meadow rotation
Hedgerows & scrub	Lepidoptera  flying insects	<i>Thecla betulae</i> Nb Brown hairstreak butterfly <i>Strymonidia w-album</i> White-letter hairstreak butterfly <i>Eriogaster lanestris</i> Nb Small eggar moth	varied structure and woody species diversity; flowery hedgebanks; active management
			Regional
			Regional
			Regional
			Local
			Local

Semi-natural broad-leaved woodland, including carr woods & old parkland	many groups, especially Lepidoptera  Coleoptera  Diptera  Orthoptera  Mollusca	<p><i>Argynnis adippe</i> RDB2 High brown fritillary butterfly  <i>Boloria euphrosyne</i> Nb Pearl-bordered fritillary butterfly  <i>Leptidea sinapis</i> Nb Wood white butterfly  <i>Strymonidia w-album</i> Nb White-letter hairstreak butterfly  <i>Lampropteryx otregiata</i> Nb Devon carpet moth  <b><i>Schrankia taenialis</i> Nb White-lined snout</b>  <i>Ctesias serra</i> Nb Cobweb beetle  <i>Ischnomera sanguinicollis</i> Nb thick-legged flower-beetle  <i>Limonia goritiensis</i> RDB3 crane-fly  <b><i>Bombylius discolor</i> Nb bee-fly</b>  <i>Nemobius sylvestris</i> Nb Wood cricket  <i>Omocestus rufipes</i> Nb Woodland grasshopper</p>	generally: wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; standing and fallen dead wood; carr; fungal fruiting bodies on or associated with trees; undisturbed hydrology  parkland: retention of old trees pollards, ancient hulks, nectar sources; dead wood, new generations of trees; fungal fruiting bodies on or associated with trees; unimproved pasture or meadow grassland	Regional to Local
Rivers, lakes & ponds	Coleoptera Diptera Hirudinea Odonata Trichoptera Crustacea aquatic insects Mollusca	<p><i>Bembidion saxatile</i> Nb ground-beetle  <i>Arctononopa metampodia</i> pRDB2 crane-fly  <b><i>Hirudo medicinalis</i> RDB3 Medicinal leech</b>  <i>Platycnemis pennipes</i> Nb White-legged damselfly  <i>Leptocerus interruptus</i> RDB3 caddisfly  <i>Chirocephalus diaphanus</i> RDB2 Fairy shrimp</p>	rivers and streams: natural flow regime; clean water; some shaded and some open banks; margins with some emergent vegetation; undisturbed shingle and mud shores and bars; accumulations of flood litter; exposed sandy banks  standing water: mosaic of open water and dense vegetation; emergent vegetation; shallow margins; semi-natural surrounding land; temporary pools for <i>Chirocephalus</i>	Local
Quarries & caves			Open rock surfaces and screes; varied shade and aspect; scattered scrub; caves undisturbed	Local
Sea cliffs and cliff grasslands, including soft cliffs	Lepidoptera  Hymenoptera  Coleoptera  Orthoptera Diptera	<p><i>Photedes morrisii morrisii</i> RDB1 Morris's wainscot moth  <i>Agrotis trux lunigera</i> Nb Crescent dart moth  <i>Catarhoe rubidata</i> Nb Ruddy carpet moth  <i>Andrena proxima</i> RDB3 solitary bee  <i>Nomada fucata</i> Na solitary bee  <b><i>Cicindela germanica</i> RDB3 tiger ground-beetle</b>  <b><i>Tachys micros</i> Na ground beetle</b>  <i>Platcleis albopunctata</i> Nb Grey bush-cricket</p>	natural erosion though not too fast; high proportion of exposed soil; sparse and herb-rich vegetation; seepages with constant water supply; areas of dry bare soil or sand.	Regional

[Several categories extended to include valuable other habitats. Also a problem with the 'Estuaries' category, which probably overlaps with both 'Rivers' and 'Sea cliffs etc']

Natural Area: Devon Redlands 90

Key Habitats	Invertebrate Groups	Associated or Significant Species	Specific Needs	Significance in NA
Ancient semi-natural woodland & parkland	many groups, especially Lepidoptera	<p><i>Argynnis adippe</i> RDB2 High brown fritillary butterfly  <i>Boloria euphrosyne</i> Nb Pearl Bordered Fritillary  <i>Leptidea sinapis</i> Nb Wood white butterfly  <i>Thecla betulae</i> Nb Brown hairstreak butterfly  <i>Hydrelia sylvata</i> Nb Waved Carpet  <i>Nemobius sylvestris</i> Na Wood cricket  <i>Agriolus angustatus</i> Nb jewel beetle  <i>Ctesias serra</i> Nb Cobweb beetle                      -                      -</p>	<p>generally: wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; standing and fallen dead wood; carr; fungal fruiting bodies on or associated with trees; undisturbed hydrology</p> <p>parkland: retention of old trees pollards, ancient hulks, nectar sources; dead wood, new generations of trees; fungal fruiting bodies on or associated with trees; unimproved pasture or meadow grassland</p>	National
Freshwater wetlands	Lepidoptera Odonata Coleoptera Hemiptera Diptera aquatic invertebrates Mollusca	<p><i>Eurodryas aurinia</i> Nb Marsh fritillary butterfly  <i>Hemaris tityus</i> Na Narrow-bordered bee-hawkmoth  <i>Sympetrum sanguineum</i> Nb Ruddy darter dragonfly  <i>Aclypea opaca</i> Na carrion beetle                      -                      -                      -                      -</p>	<p>light grazing &amp; trampling; some winter flooding, but not in summer; associated pools; structurally diverse and species-rich swards; steady hydrological regime</p>	Local
Grazing marsh & reedbeds	Lepidoptera Coleoptera Diptera aquatic invertebrates Mollusca	<p><i>Synaphe punctalis</i> Nb micro-moth                      -                      -                      -                      -</p>	<p>mosaic of open water and dense vegetation; shallow margins; semi-natural surrounding land; reliable hydrological regime; fringes of emergent vegetation; with or without partial shade; active management; constant unpolluted water supply</p>	Local
Limestone cliffs, caves & associated grasslands	Lepidoptera Hymenoptera Coleoptera Diptera Mollusca	<p><i>Idaea dilutaria</i> pRDB3 Silky wave moth  <i>Agrotis trux lunigera</i> Nb Crescent dart moth                      -                      -                      -                      -</p>	<p>Open rock surfaces and screes; varied shade and aspect; scattered scrub; undisturbed caves</p>	Local

Lowland heathland & mire	Lepidoptera  Odonata  Orthoptera Coleoptera Hymenoptera Diptera Hemiptera Arachnida	<b>Plebejus argus</b> Nb Silver-studded blue butterfly <i>Buckleria paludum</i> pRDB3 plume moth <i>Chlorissa viridata</i> Na Small grass emerald moth <i>Selidosoma brunnearia</i> Na Bordered grey moth <b>Dyscia fagaria</b> local Grey Scalloped Bar <i>Noctua orbona</i> Na Lunar Yellow Underwing ?? <b>Coenagrion mercuriale</b> RDB3 Southern damselfly <i>Ceriatrion tenellum</i> Nb Small red damselfly <i>Coradulia aenea</i> Nb Downy emerald dragonfly <i>Metrioptera brachyptera</i> Nb Bog bush-cricket <i>Polydrusus confluens</i> Nb weevil  <b>Asilus crabroniformis</b> Nb Hornet Robberfly - -	heathland: structural variety including open grass heath, very short turf and bare ground; rabbit disturbance; nectar & pollen sources; flowering heather; dung; patches of scrub  mire: high water table; natural vegetation structure; small patches of bare peat; pools; seepages; birch and willow scrub	Regional
Mixed farmland	Lepidoptera  Hymenoptera Arachnida flying insects	<i>Strymonidia w-album</i> Nb White-letter hairstreak butterfly <i>Eriogaster lanestris</i> Nb Small eggar moth <i>Euplagia quadripunctaria</i> Nb Jersey tiger moth <b>Bombus ruderatus</b> Nb Large garden bumblebee <i>Marpissa muscosa</i> Nb jumping spider -	hedgerows and trees; small streams and drains; patches of species-rich grassland; small ponds and marshy areas; conservation headlands in arable land	Local
Neutral grassland Rich fen	Lepidoptera  Odonata Diptera Coleoptera Lepidoptera aquatic invertebrates	<i>Adscita statices</i> Nb Forester moth <i>Brachytron pratense</i> Nb Hairy dragonfly <i>Orthonevra brevicornis</i> Nb hoverfly - - -	mosaic structure including tussocks; grazing by stock mosaic of open water and dense vegetation; shallow margins; semi-natural surrounding land; reliable hydrological regime; fringes of emergent vegetation; with or without partial shade; active management; constant unpolluted water supply	Local Local
Rivers & floodplains	Odonata Ephemeroptera Trichoptera aquatic insects Crustacea Mollusca	<i>Platynemesis pennipes</i> Nb white-legged damselfly <i>Potamanthus luteus</i> pRDB2 mayfly <i>Leptocerus interruptus</i> RDB3 caddisfly - <b>Austropotamobius pallipes</b> local Crayfish -	natural flow regime; clean water; some shaded and some open banks; margins with some emergent vegetation; undisturbed shingle, mud shores and bars; accumulations of flood litter; exposed sandy banks	Local
Sea cliffs	Lepidoptera  Hymenoptera Coleoptera Diptera	<i>Catarhoe rubidata</i> Nb Ruddy carpet moth <i>Mecyna asinialis</i> Nb, <i>Dilicarthia punctalis</i> Nb: micro-moths - - -	natural erosion though not too fast; high proportion of exposed soil; sparse and herb-rich vegetation; seepages with constant water supply	Regional

**Note**  
Extended 'Limestone cliffs & caves to include 'grasslands'.



Natural Area: South Devon 91				
Key habitats	Invertebrate groups	Associated or significant species	Specific needs	
Ancient woodlands	snails and slugs centipedes bugs beetles  butterflies and moths	<ul style="list-style-type: none"> <li>- <i>Lithobius tricuspis</i>, Nb, a centipede</li> <li>- <b>Lucanus cervus Nb Stag Beetle</b></li> <li><i>Ctesias serra</i>, Nb, cobweb beetle</li> <li><i>Pyrochroa coccinea</i>, Nb, black-headed cardinal beetle</li> <li><i>Sirangalia aurulenta</i>, Na, a longhorn beetle</li> <li><i>Leptidea sinapis</i>, Nb, Wood White</li> <li><b>Boloria euphrosyne, Nb, Pearl-bordered Fritillary</b></li> <li><b>Agynnis adippe RDB2 High Brown Fritillary</b></li> <li><b>Mellicta athalia RDB2 Heath Fritillary</b></li> <li><i>Cyclophora annulata</i>, Nb, The Mocha</li> <li><i>Discoloxia blomeri</i>, Nb, Blomer's Rivulet</li> <li><b>Mythimna turca, Nb, Double Lines</b></li> <li><b>Schrankia taenialis Nb White-lined Snout</b></li> <li><i>Ctenophora pectinicornis</i>, N, <i>Thaumastoptera calceata</i>, N: craneflies</li> <li><i>Syntormon macula</i>, pRDB3, a dolichopodid fly</li> <li><i>Cheilosia carbonaria</i>, N, <i>Xylota florum</i>, N: hoverflies</li> <li><i>Ectinocera borealis</i>, RDB3, a snail-killing fly</li> <li>-</li> <li>-</li> </ul>	wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; old trees; standing and fallen dead wood; carr; fungal fruiting bodies on or associated with trees; well-structured margins with transitions to other habitats; depressions with pools seasonal or permanent and undisturbed hydrology	regional
Estuaries	snails centipedes bugs beetles moths flies bees and wasps spiders	<ul style="list-style-type: none"> <li>- <i>Schendyla peyerimhoffi</i>, Nb, a centipede</li> <li>-</li> <li>-</li> <li>- <i>Platycheirus immarginatus</i>, N, a hoverfly</li> <li>-</li> <li>-</li> </ul>	<p>saltmarsh with historically undisturbed vegetation; herb-rich vegetation, especially with <i>Aster</i> and <i>Limonium vulgare</i> transitions to dry land and to freshwater seepages; shallow pools, especially in upper levels</p> <p>grassland with fresh and saltwater seepages and intrusions; salt pans; grazing animals; damp depressions; bare ground; transitions to saltmarsh and to other grassland types</p> <p>swamps and margins with regular inundation pattern, partly dry in summer; plant litter and bare mud</p>	local

Fast-flowing rivers	snails and mussels dragonflies stoneflies mayflies bugs beetles caddisflies flies larger crustaceans	<ul style="list-style-type: none"> <li>-</li> <li>-</li> <li>-</li> <li>-</li> <li>-</li> <li>-</li> <li>-</li> <li>-</li> <li>-</li> </ul>	<p>natural flow regime; clean water; well-structured and varied bankside vegetation; shaded and unshaded stretches; margins with some emergent vegetation; undisturbed exposed sediments; accumulations of flood litter; semi-natural bordering land</p>	?
Freshwater marsh and lagoon	snails and mussels dragonflies  bugs beetles  caddisflies moths flies bees and wasps spiders	<ul style="list-style-type: none"> <li>-</li> <li>-</li> <li>-</li> <li>-</li> <li>-</li> <li>-</li> <li>-</li> <li>-</li> <li>-</li> <li>-</li> <li>-</li> <li>-</li> <li>-</li> <li>-</li> <li>-</li> <li>-</li> <li>-</li> </ul>	<p>mixture of open water and dense vegetation; some emergent vegetation at margins; shallow margins, some well-vegetated; management by small-scale clearance, or on long rotation, or only as essential; well-structured bankside vegetation; semi-natural surrounding land; reliable hydrological regime; surrounding/bordering marshy zone; regular inundation regime for swamps and marginal communities, with partial summer drying; varied vegetation structure in marshy areas, including bare mud</p>	regional
Hedgerows	beetles butterflies and moths	<ul style="list-style-type: none"> <li>-</li> <li>-</li> </ul>	<p>management on long rotation; hedgerow trees; old trees; replacement generations of trees; tall and wide hedges; well-structured transitions to grassland; bordering land not intensively managed; conservation headlands</p>	local
Lowland farmland	beetles moths	<ul style="list-style-type: none"> <li>-</li> <li>-</li> </ul>	<p>conservation headlands; buffer zones by water courses; disturbed soil on waysides; ruderal and annual plants e.g. flaxweed, used as host plants and nectar and pollen sources</p>	?local
Mines and caves	beetles flies crustaceans	<ul style="list-style-type: none"> <li>-</li> <li>-</li> </ul>	<p>undisturbed caves; unpolluted water</p>	national

Sandy beaches	snails grasshoppers and crickets cockroaches earwigs bugs beetles  moths flies bees and wasps woodlice spiders	- - <i>Ectobius panzeri</i> , Nb, lesser cockroach - <i>Dicranocephalus agilis</i> , Nb, a spurge bug <i>Amara equestris</i> , Nb, a ground beetle <i>Opatrum sabulosum</i> , Nb, a darkling beetle - - - - -	natural physiographic processes leading to fore-dune; dune ridge and grey lichen dune behind; bare sand in all zones of the dunes system; undisturbed strandline litter and vegetation; grazing animals; dune grassland with herb-rich with structural diversity; dune slacks with reliable winter water supply; grazing animals	?local
Sea Cliffs, raised beaches and offshore islands	snails  grasshoppers and crickets cockroaches bugs  beetles	<i>Potentilla subvirescens</i> , Na, a snail <i>Truncatellina callicratus</i> , RDB3, a snail  <i>Platyleis albopunctata</i> , Nb, grey bush cricket <i>Ectobius panzeri</i> , Nb, lesser cockroach <i>Dicranocephalus agilis</i> , Nb, a spurge bug <i>Trapezototus ullrichi</i> , RDB3, a groundbug <i>Strongylocoris luridus</i> , Nb, a plant bug <i>Harpalus tenebrosus</i> , Na, a ground beetle <i>Cardiophorus erichsoni</i> , pRDB2, a click beetle <i>Meloe violaceus</i> , Nb, an oil beetle <i>Calomicrus circumfusus</i> , Na, a leaf beetle <i>Otiorynchus ligustici</i> RDB2, <i>Cathormiocerus attaphilus</i> RDB1, <i>Sitona waterhousei</i> Nb, <i>Anchonidium unguiculare</i> RDB2, <i>Smicronyx jungermanniae</i> Nb, <i>Ceutorhynchus parvulus</i> RDB3; weevils	soft cliffs: natural erosion processes; bare and partly vegetated ground; seepages and trickles; nectar sources; recent slippages; bare dry faces	national

Sea Cliffs, raised beaches and offshore islands cont.	butterflies and moths	<p><i>Bembecia muscaeformis</i>, Nb, Thrift Clearwing  <i>Dicrorhampa senectana</i>, Nb, a tortrix moth  <i>Mecyna asinalis</i>, Nb, a pyralid moth  <b>Plebejus argus</b>, Nb, <b>Silver-studded Blue</b>  <i>Euplagia quadripunctaria</i>, Nb, Jersey Tiger  <i>Mythimna putrescens</i>, Na, Devonshire Wainscot  <i>Limonia aquosa</i> Nb, <i>L. goritiensis</i> RDB3, craneflies  <i>Oxycera pardalina</i>, N, a soldier fly  <b>Bombilius discolor</b>, N, a bee fly  <i>Chrysotoxum elegans</i>, RDB3, a hoverfly  <i>Myopa extricata</i>, RDB3, a cone-headed fly  <i>Vidalia cornuta</i>, RDB3, a gall fly  <i>Leptothorax tuberum</i>, Na, an ant  <i>Anergates atratulus</i>, RDBK, dark guest ant  <i>Solenopsus fugax</i>, RDB3, small raider ant  <i>Strongylognathus testaceus</i>, RDB3, testaceous guest ant  <i>Cryptocheilus notatus</i>, RDB2, a spider-hunting wasp  <i>Eudynesus quadrfasciatus</i>, RDB2, a potter wasp  <i>Podalonia hirsuta</i>, Nb, a solitary wasp  <i>Andrena bucephala</i> Na, <i>A. rosae</i> RDB2, <i>A. labiata</i> Na, <i>Sphecodes rubicundus</i> Na, solitary bees  <i>Nomada hirtipes</i> RDB3, <i>N. sexfasciata</i> RDB1: nomad bees</p>		
Shingle bar and beach	woodlice spiders grasshoppers and crickets cockroaches bugs beetles bees and wasps woodlice spiders	<p><i>Callilepis nocturna</i>, RDB1, a ground spider; <i>Episinus maculipes</i>  RDB3 comb-footed spider</p>	low levels of disturbance; bare and partly vegetated shingle; jetsam at upper levels	?
Unimproved grassland	bugs beetles butterflies and moths flies spiders	<p><i>Eurodryas aurinia</i>, Nb, Marsh Fritillary  <i>Asilus crabroniformis</i> Nb Hornet Robberfly  <i>Argiope bruennichi</i> Na orb-web spider</p>	dry neutral grassland: mosaic structure including tussocks; shelter provided by hedges or scrub; well-structured transitions to other semi-natural habitats; low-lying damp hollows or temporary pools wet grassland: light grazing and trampling; associated pools; structurally diverse sward	?

Urban sites	dragonflies bugs beetles moths flies bees and wasps	Sympetrum sanguineum, Nb, ruddy darter - - Euplagia quadripunctaria, Nb, Jersey tiger - -	habitat mosaics; varied vegetation structure; bare ground	local
Heathland [added]	ants	<b>Formica exsecta RDB1 Narrow-headed ant</b>		?local

**Notes**

I have experienced certain difficulties here in determining what habitats belong in which bits of coast, and am particularly concerned that I am unable, in the ISR printout, certainly to identify any record which comes from, or might pertain to a stretch of coast that includes Slapton Ley; possibly I am merely being obtuse, but if not, this would seem a significant omission from the ISR information [these records are included only in Lyme Bay (natural area 111) in the ISR].

Also confusing is the presence of ISR information on heathland sites/species, when this is not a habitat category contained in the area profile. My suspicion is that these records Chudleigh Knighton Heath, e.g. belong in the Dartmoor NA, but the maps of NAs I have are not of a scale to determine where exactly the boundaries go, beyond confirming that they hover dangerously near the sites in question. I have, for the moment, ignored suspicious records, though this has meant leaving out some interesting species, and revision would be pleasing after location of the boundary has been confirmed brief and slightly relevant note: *Nemopogon inconditella*, which the species account says is known from only one British specimen, is recorded from two sites on the ISR database same date

Not for the first time, I have had difficulties with Microlepidoptera. There are many records of the group, but a large proportion have no species account, have an account at odds with the record, are apparently of such uncertain ecology that their inclusion in any particular category is difficult, or have statuses which seem so strange that I have thought it unwise to mention them. *Parocystota acroxanitha*, pRDB3, ". probably introduced with Australian plants. Has been found on heathland, in gardens and in a flour-mill" springs to mind as a species which might benefit from a status re-think.

Natural Area: Dartmoor 92

Key Habitats	Invertebrate groups	Associated or significant species	Specific needs	Significance in NA
Alder and Willow Woods	Diptera Coleoptera Lepidoptera Mollusca	<p>many craneflies including - <i>Lipsothrix nervosa</i> local, <i>Tipula yerburyi</i> Nb, <i>Limonia lucida</i> Nb  <i>Melandrya caraboides</i> Nb false darkling beetle  <i>Cryptocephalus bipunctatus</i> Nb leaf beetle</p> <p>- -</p>	<p>closed canopy providing shade and high humidity; alders, sallows; high water table leading to saturated ground; organic-rich litter layer; seepages; shallow pools</p>	regional?
Lowland Oak	Orthoptera Lepidoptera  Diptera  Hymenoptera Coleoptera Mollusca	<p><i>Nemobius sylvestris</i> Na Wood Cricket  <i>Boloria euphrosyne</i> Nb Pearl Bordered Fritillary  <i>Argynnis adippe</i> RDB2 High Brown Fritillary  <i>Leptidea sinapis</i> Nb Wood White  <i>Thecla betulae</i> Nb Brown Hairstreak  <i>Satyrus w-album</i> Nb White Letter Hairstreak</p> <p>a rich moth fauna:  <i>Hydrelia sylvata</i> Nb Waved Carpet  <i>Xestia rhomboidea</i> Nb Square-spotted Clay  <i>Mythimna turca</i> Nb Double Line  <i>Jodia croceago</i> RDB2 Orange Underwing  <i>Schranksia taenialis</i> Nb White-lined Snout  <i>Chloroclystis debilitata</i> Nb Bilberry Pug  <i>Cyclophora annulata</i> Nb Mocha  <i>Eupithecia plumbeolata</i> Nb Lead-coloured Pug  <i>Lampropteryx otregiata</i> Nb Devon Carpet  <i>Hypomecis roboraria</i> Nb Great Oak Beauty  <i>Atolmis rubricollis</i> Nb Red-necked Footman  many fungus gnats including - <i>Rhymosia affinis</i> RDB2,  <i>Mycetophila immaculata</i> RDB3, <i>Sciophila varia</i> RDB1  <i>Dioctria oelandica</i> Nb robber fly  <i>Volucella inflata</i> Nb hoverfly  <i>Pelidnoptera nigripennis</i> Nb snail-killing fly  <i>Leptothorax tuberosum</i> Na ant  <i>Coccinella magnifica</i> Na Scarce Seven-spot Ladybird</p> <p>-</p>	<p>wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; standing and fallen dead wood; carr; fungal fruiting bodies on or associated with trees; undisturbed hydrology</p>	national

Lowland Oak - dead wood fauna	Diptera	<i>Tipula selene</i> pRDB3 crane fly <i>Pocota personata</i> RDB2, <i>Xylota florum</i> Nb, <i>X. xanthochnema</i> Nb: hoverflies <i>Rhizophagus nitidulus</i> Nb narrow bark beetle <i>Microrhagus pygmaeus</i> RDB3 false click beetle <i>Eledona agricola</i> Nb darkling beetle <i>Melandrya caraboides</i> Nb false darkling beetle <i>Srangalia aurulenta</i> Na longhorn beetle <i>Velleius dilatatus</i> RDB1 Hornet rove beetle <i>Rhizophagus nitidulus</i> Nb narrow bark beetle <i>Microrhagus pygmaeus</i> RDB3 false click beetle <i>?Satyrium w-album</i> Nb White Letter Hairstreak	retention of old trees pollards, ancient humlks, nectar sources; dead wood, new generations of trees; fungal fruiting bodies on or associated with trees; sap runs; wet rot holes	regional
Parks and Isolated Trees	Coleoptera  Coleoptera Lepidoptera Diptera	<i>Carabus intricatus</i> RDB1 Blue ground beetle - - - <i>Ceriatrigon tenellum</i> Nb Small Red Damselfly - - - - <i>Eristalis cryptarum</i> RDB2 dronefly - - <i>Metrioptera brachyptera</i> Nb Bog Bush Cricket - - - <i>Eurodryas aurinia</i> , Nb, Marsh Fritillary <i>Hemaris tityus</i> Na Narrow-bordered Bee Hawk <i>?Dyscia fagaria</i> local Grey Scalloped Bar - - <i>Lymnaea glabra</i> RDB2 mud snail	retention of old trees pollards, ancient humlks, nectar sources; dead wood, new generations of trees; fungal fruiting bodies on or associated with trees	local?
Upland Oak Woodland	Coleoptera Diptera Lepidoptera Mollusca	<i>Carabus intricatus</i> RDB1 Blue ground beetle - - -	pollen and nectar sources; standing and fallen dead wood; carr; fungal fruiting bodies on or associated with trees; streams and seepages	local
Blanket Bog	Orthoptera Diptera Coleoptera Lepidoptera Archmida	<i>Ceriatrigon tenellum</i> Nb Small Red Damselfly - - - -	high water table; natural vegetation structure; small patches of bare peat; pools; seepages; scrub birch, <i>Myrica</i> , sallow	local
Heather Moorland	Diptera Coleoptera Orthoptera	<i>Eristalis cryptarum</i> RDB2 dronefly - -	high water table; natural vegetation structure; small patches of bare peat; pools; seepages era Coleoptera Orthoptera	local
Raised Bog	Orthoptera Diptera Cocoptera Lepidoptera	<i>Metrioptera brachyptera</i> Nb Bog Bush Cricket - - -	high water table; natural vegetation structure; small patches of bare peat; pools and dammed ditches; young scrub at margins especially birch	local
Rhos Pasture	Lepidoptera  Hemiptera Coleoptera Mollusca	<i>Eurodryas aurinia</i> , Nb, Marsh Fritillary <i>Hemaris tityus</i> Na Narrow-bordered Bee Hawk <i>?Dyscia fagaria</i> local Grey Scalloped Bar - - <i>Lymnaea glabra</i> RDB2 mud snail	structural variety including open grassland and bare ground; nectar & pollen sources	regional

Valley Mire	Odonata Orthoptera Diptera  Coleoptera Lepidoptera Trichoptera Mollusca	<i>Isonura pumilio</i> Nb Scarce Blue-tailed Damselfly <i>Ceragrion tenellum</i> Nb Small Red Damselfly <i>Metrioptera brachyptera</i> NbBog Bush Cricket <b><i>Lipsothrix nervosa</i> local crane fly</b> <b><i>Eristalis cryptarum</i> RDB2 hoverfly</b> <i>Atylotus fulvus</i> Nb horse fly <i>?Hippobosca equina</i> pRDBK Ked fly - - - -	constant water supply; calcareous influence; open structure to vegetation; with or without partial shading; pollen and nectar sources nearby; structurally mixed vegetation; seepages	regional
Lowland Heath [and acid grassland within other major habitats]	Diptera Hymenoptera, aculeates  Coleoptera Lepidoptera Arachnida Orthoptera Hemiptera	<i>?Asilus crabroniformis</i> Nb Hornet Robberfly <b><i>Formica exsecta</i> RDB1 Narrow-headed ant</b> <i>Andrena apicata</i> Nb, <i>A. falsifica</i> Na: solitary bees <i>Nomada robertjeotiana</i> RDB3 nomad <i>Calomicrus circumfusus</i> Na leaf beetle <b><i>Maculinea arion</i> RDB1 Large Blue</b> - - -	structural variety including open grass heath, very short turf and bare ground; rabbit disturbance; nectar & pollen sources; arable weeds food plants of some rare species; calcareous influence; flowering heather; dung; patches of gorse +/- broom	regional
Grass Moor				?
Hay Meadows	flying insects	-	flowers as nectar and pollen sources; flower-heads and seed-heads as larval food	local
Hedgebanks and Verges	Lepidoptera  Coleoptera	<i>Thecla betulae</i> Nb Brown Hairstreak <i>Satyrium w-album</i> Nb White Letter Hairstreak -	old unkempt hedges; tall or lightly grazed grassland beside hedge; hawthorn and blackthorn forming a large proportion of shrubs	local
Ponds and Reservoirs	Coleoptera Diptera Odonata Hemiptera Mollusca	- - - - -	mosaic of open water and dense vegetation; shallow margins; semi-natural surrounding land; reliable hydrological regime; fringes of emergent vegetation	local
Fast-flowing Acidic Rivers	Coleoptera  Diptera Hymenoptera Ephemeroptera Plecoptera Trichoptera	<i>Bembidion lunatum</i> Nb ground beetle <b><i>Hydrochus nitidicollis</i> RDB3 water beetle</b> <i>Gyrinus urinator</i> Nb whirligig <i>Pomatinus substriatus</i> Na long-toed water beetle <i>Oulimnius troglodytes</i> Nb riffle beetle - - - - -	natural flow regime; clean water; some shaded and some open banks; margins with some emergent vegetation; undisturbed shingle and mud shores and bars; accumulations of flood litter; exposed sandy banks	regional



Farmland and Forestry Mines, Quarries and Caves	Crustacea	<i>Niphargellus glenniei</i> RDBK eyeless freshwater shrimp	cold springs and subterranean streams with base-rich water.	local
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Natural Area: The Culm 93			
Key habitats	Invertebrate groups	Associated or significant species	Specific needs
Ancient oak woods	snails and slugs bugs beetles butterflies and moths	<p><i>Limax cinereoniger</i>, Nb, ash-black slug</p> <p>-</p> <p><i>Malthodes guttifer</i>, Nb, a soldier beetle</p> <p><i>Pyrochroa coccinea</i>, Nb, black-headed cardinal beetle</p> <p><i>Phlyctaenia stachydalis</i>, RDB3, a pyralid moth</p> <p><i>Leptidea sinapis</i>, Nb, wood white</p> <p><b><i>Boloria euphrosyne</i>, Nb, pearl-bordered fritillary</b></p> <p><b><i>Agynnis adippe</i> RDB2 High Brown Fritillary</b></p> <p><i>Lampropteryx otregiata</i>, Nb, Devon carpet</p> <p><i>Alcis jubata</i>, Nb, dotted carpet</p> <p><b><i>Hydrelia sylvata</i> Nb Waved Carpet</b></p> <p><b><i>Mythimna turca</i> Nb Double Line</b></p> <p><i>Dioctria oelandica</i>, N, a robber fly</p> <p><i>Sphagina verecunda</i> N, <i>Volucella inflata</i> N: hoverflies</p> <p><i>Ectinocera borealis</i>, RDB3, a snail-killing fly</p> <p>-</p> <p>-</p>	wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; old trees; standing and fallen dead wood; fungal fruiting bodies on or associated with trees; undisturbed hydrology; well-structured margins with transitions to other habitats
Hedgebanks	flies bees and wasps spiders beetles butterflies and moths	<p><i>Thecla betulae</i>, Nb, brown hairstreak</p> <p><i>Paraclysia tigrina</i>, RDB2, a fly</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p>	infrequent management; unimproved adjoining land; flower-rich herb and grassland community; old and dead wood; varied aspects
Mineral localities and mines	flies beetles moths flies bees and wasps crustaceans	<p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p>	spoil heaps with sparse/incomplete vegetation cover; undisturbed conditions and clean water in mines
Parklands	beetles flies spiders	<p>-</p> <p><i>Tipula selene</i>, RDB3, a crane fly</p> <p><i>Rymosia britteni</i>, pRDB2, a fungus gnat</p> <p>-</p>	retention of old trees pollards, ancient hulks, nectar sources; dead wood, new generations of trees; fungal fruiting bodies on or associated with trees; non-intensively managed grassland between trees; other associated semi-natural habitats
			regional
			?local
			?
			?regional

Quarries of sedimentary and metamorphic rocks	bugs beetles flies bees and wasps spiders	- - - - -	mosaic of structures from bare ground to scrub, herb-rich swards; ruderals; shallow water	?
Rhos pasture	bugs beetles butterflies and moths flies bees and wasps larger crustaceans spiders	<i>Paradelphacodes paludosus</i> , Nb, a planthopper - <i>Eurodryas aurinia</i> , Nb, marsh fritillary <i>Hemaris itiyus</i> , Na, narrow-bordered bee hawk <i>?Rheumatpera hastata</i> Nb Argent and Sable <i>Microdon mutabilis</i> , N, a hoverfly <i>Urophora spoliata</i> , RDB3, a gall fly - <i>Chirocephalus diaphanus</i> , RDB2, fairy shrimp -	varied vegetation structure providing patches of short turf in a tussocky flower-rich sward; patches of bare ground; shelter provided by patches of scrub; well-structured transition to other habitats; management by grazing; hedgerows and scrub patches.	regional
Rivers and streams	snails and mussels dragonflies stoneflies mayflies beetles caddisflies flies crustaceans	<i>Margaritifera margaritifera</i> , Nb, pearl mussel <i>Platycnemis pennipes</i> , Nb, white-legged damselfly - - - - - <i>Limnophila apicata</i> , Nb, a crane fly <i>Austropotamobius pallipes</i> , Atlantic stream crayfish	natural flow regime; clean water; well-structured and varied bankside vegetation; shaded and unshaded stretches; margins with some emergent vegetation; undisturbed exposed sediments; accumulations of flood litter; semi-natural bordering land	?regional
Sea cliffs	snails bugs beetles moths flies bees and wasps woodlice spiders	- - <i>Sibinia sodalis</i> , Na, a weevil <i>Lygephila cracca</i> RDB3 Scarce Blackneck <i>Limonia aquosa</i> , Nb, a crane fly - <i>Halophiloscia couchi</i> , Nb, a woodlouse -	natural physiographic processes; undisturbed cliff-face vegetation	?local

Vegetated sea cliffs and slopes	snails grasshoppers and crickets  cockroaches beetles  butterflies and moths	<p><i>Ponentina subvirescens</i>, Na, a snail</p> <p><i>Platycleis albopunctata</i>, Nb, grey bush cricket</p> <p><i>Metrioptera brachyptera</i>, Nb, bog bush cricket</p> <p>-</p> <p><i>Hyperaspis pseudopustulata</i>, Nb, a ladybird</p> <p><i>Anthicus bimaculatus</i>, Na, an antlike beetle</p> <p><i>Chrysolina haemoptera</i> Nb, <i>Calomicrus circumfusus</i> Na: leaf beetles</p> <p><i>Ceutorhynchus atomus</i> Na, <i>Sibinia sodalis</i> Na, weevils</p> <p><i>Bembecia muscaeformis</i>, Nb, thrift clearwing</p> <p><b><i>Plebejus argus</i>, Nb, silver-studded blue</b></p> <p><i>Agrotis trox lunigera</i>, Nb, crescent dart</p> <p><i>Hadena luteago barrettii</i>, Barrett's marbled coronet</p> <p><i>Mythimna putrescens</i>, Na, Devonshire wainscot</p> <p><i>Lygephila cracca</i>, RDB3, scarce blackneck</p> <p><i>Stratiomys potamida</i>, N, a soldier fly</p> <p><i>Chrysotoxum elegans</i> RDB3, <i>Eumerus sabulorum</i> N, hoverflies</p> <p><i>Hedychrum niemelai</i>, RDB3, a rubytail wasp</p> <p><i>Andrena rosae</i>, RDB2, a solitary bee</p> <p><i>Nomada lathburiana</i>, RDB3, a nomad bee</p> <p>-</p> <p>-</p>	natural physiographic processes; undisturbed cliff-face vegetation; seepages and trickles over bare rock and with associated wetland vegetation	?national
Wet willow and alder woodlands	beetles flies  moths	<p>-</p> <p><i>Tipula yerburyi</i> N, <i>Linnophila pulchella</i> N, <i>Linnophila abdominalis</i> N, <i>Pilaria fuscipennis</i> N: craneflies</p> <p><i>Beris fuscipes</i>, N, a soldier fly</p> <p><b><i>Hydrelia sylvata</i> Nb Waved Carpet</b></p>	grassland with varied vegetation structure providing patches of short turf in a tussocky flower-rich sward; patches of bare ground; management by grazing	?local
			heath with structural variety including open grass heath, very short turf and bare ground; rabbit or other disturbance; nectar & pollen sources	
			closed canopy providing shade and high humidity; alders, sallows; old trees and dead wood; high water table leading to saturated ground; organic-rich litter layer; seepages; shallow pools	

### Notes

Area profile provided included a number of suggestions for characteristic and significant invertebrates. Some of these are included in the ISR records, but others are not. I have included several of these suggested species not in the ISR *Limax cinereoniger*, *Paradelphacodes paludosus*, *Phlyctenia stachydalis*, *Dioctria oelandica*, *Margaritifera margaritifera* where they seemed likely to be accurate and were appropriate to the habitat. The list provided for Rhos pasture would have been a useful addition, since otherwise I have been able to associate rather few species convincingly with it, but a large proportion of the listed species in the area profile provided seem rather weakly associated with the habitat.

The separation, in the area profile, of sea cliffs with some vegetation from vegetated cliffs provides a difficulty in placing species into categories. I have generally opted for placing species in the vegetated cliff category, and have placed a few token individuals in the other category just by way of emphasis that cliffs with little vegetation can also be important.

Multiple habitats in single sites make species placement difficult on occasion.

Records of scarce invertebrates are quite surprisingly few: there must be significant gaps in ISR coverage - in rivers and streams, rather noticeably.

Natural Area: Bodmin Moor 94			
Key habitats	Invertebrate groups	Associated or significant species	Specific needs
Broad-leaved, coniferous woodland and parkland	snails & slugs bugs beetles moths  flies bees and wasps spiders	- - <i>Lebia cruxminor</i> RDB1 ground beetle <b><i>Boloria euphrosyne</i> local, Pearl-bordered Fritillary</b> <i>Conistra rubiginea</i> Nb Dotted Chestnut <i>Atolmis rubricollis</i> Nb Red-necked Footman <i>Lampropteryx otregiata</i> , Nb, Devon Carpet <i>Chloroclystis debilitata</i> , Nb, Bilberry Pug <b><i>Hydrelia sylvata</i>, Nb, Waved Carpet</b> - - -	wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; old trees; standing and fallen dead wood; carr; fungal fruiting bodies on or associated with trees; undisturbed hydrology; well-structured margins with transitions to other habitats; retention of old trees pollards, ancient hulks, new generations of trees; unimproved grassland and other habitats in parkland; in conifer plantations, sunny rides and glades fire-breaks with flowering herbs and scramblers; sunny banks; standing dead wood; impeded drainage and pools
Derelict land	bugs beetles flies bees and wasps spiders	- - - - -	varied vegetation structure; ruderal plants; rubble; bare ground; shelter provided by scrub, excavations or structures; abundant flowering plants; varied times since last disturbance; varied topography; shallow temporary or permanent pools
Heather moorland, unimproved grassland and scrub	beetles butterflies and moths  flies bees & wasps spiders	- <b><i>Euphrodyas aurinia</i> local, Marsh Fritillary</b> <b><i>Hesperia comma</i> RDB3 Silver-spotted Skipper</b> <i>Euphyia angulata</i> Nb Cloaked Carpet <i>Eupithecia plumbeolata</i> Nb Lead-coloured Pug - <i>Andrena alfenella</i> RDB3 solitary bee -	range of heather ages; sparse turf and bare ground among heather plants; heather litter; scrub of mixed ages, especially of birch; in wet areas, high water table; natural vegetation structure; small patches of bare peat; pools; seepages; mossy stream margins
Paleo-environmental sites	-	-	-

Significance in NA

?local

?

?local

-

Rivers and streams	snails and mussels dragonflies stoneflies mayflies beetles caddisflies flies larger crustaceans	<ul style="list-style-type: none"> <li>- <i>Ceriatrion tenellum</i> Nb Small Red damselfly</li> <li>- <i>Platycnemis pennipes</i> Nb White-legged damselfly</li> <li>-</li> <li>-</li> <li>- <i>Ylodes simulans</i> pRDB3 caddis</li> <li>-</li> <li>-</li> </ul>	natural flow regime; clean water; well-structured and varied bankside vegetation; shaded and unshaded stretches; margins with some emergent vegetation; undisturbed exposed sediments; accumulations of flood litter; semi-natural bordering land	local
Rocky outcrops	-	-	-	-
Standing water	snails and mussels dragonflies bugs beetles caddisflies moths flies spiders	<ul style="list-style-type: none"> <li>-</li> <li>- <i>Ischnura pumilio</i>, Nb, scarce blue-tailed damselfly</li> <li>- <i>Ceriatrion tenellum</i>, Nb, small red damselfly</li> <li>-</li> <li>-</li> <li>-</li> <li>-</li> <li>-</li> <li>-</li> </ul>	mixture of open water and dense vegetation; some emergent vegetation at margins; shallow margins, some well-vegetated; management by small-scale clearance, or on long rotation, or only as essential; well-structured bankside vegetation; semi-natural surrounding land; reliable hydrological regime; surrounding/bordering marshy zone	?
Unimproved acid grassland	moths bugs beetles bees & wasps spiders	<ul style="list-style-type: none"> <li>- <i>Mythimna turca</i>, Nb, double line</li> <li>-</li> <li>-</li> <li>- <i>Nomada robertjeotiana</i> RDB3 Nomad bee</li> <li>-</li> </ul>	varied vegetation structure providing both bare ground and tussocky vegetation; availability of nectar sources; scrub; well-structured transitions of other semi-natural habitats	local
Wetlands	snails and mussels dragonflies bugs beetles caddisflies butterflies and moths flies spiders	<ul style="list-style-type: none"> <li>-</li> <li>- <i>Ischnura pumilio</i>, Nb, scarce blue-tailed damselfly</li> <li>- <i>Ceriatrion tenellum</i>, Nb, small red damselfly</li> <li>-</li> <li>- <i>Staphylinus caesareus</i> RDB1 rove beetle</li> <li>-</li> <li>- <i>Euphrodyas aurinia</i> local, Marsh Fritillary</li> <li>- <i>Lampropteryx oiregiata</i>, Nb, Devon Carpet</li> <li>- <i>Hydrelia sylvata</i>, Nb, Waved Carpet</li> <li>- <i>Hemaris tityus</i>, Na, narrow-bordered bee hawk</li> <li>- <i>Atylotus fulvus</i>, Nb, a horse fly</li> <li>-</li> </ul>	reliable hydrological regime; varied vegetation structure, including scrub and bare mud; well-structured transitions to open water or dry habitats; shallow temporary or permanent pools	regional
Wet heath	Hymenoptera	<ul style="list-style-type: none"> <li>- <i>Nomada robertjeotiana</i> RDB3 nomad bee</li> </ul>	dry sunny areas for nesting, and its host bee <i>Andrena tarsata</i> which feeds on <i>Potentilla</i>	

**Notes**

A woeful dearth of data prevents good representation of appropriate species in the habitat categories.

Natural Area: Cornish Killas and Granites 95				
Key Habitats	Invertebrate groups	Associated or significant species	Specific needs	Significance in NA
Broadleaved woods and parkland	Lepidoptera	<p><i>Agynnis adippe</i> RDB2 High Brown Fritillary  <i>Boloria euphrosyne</i> Nb Pearl Bordered Fritillary  <i>Mellicta athalia</i> RDB2 Heath Fritillary  <i>Alcis jubata</i> Nb Dotted Carpet  <i>Eupithecia irriguata</i> Nb Marbled Pug  <i>Eilema sorocula</i> Nb Ornage Footman  <i>Hydrelia sylvata</i> Nb Waved Carpet  <i>Cosmia diffinis</i> Na White-spotted Pinion  <i>Schrankia taenialis</i> Nb White-lined Snout  <i>Moma alpinum</i> RDB3 Scarce Merveille du Jour  <i>Jodia croceago</i> RDB2 Orange Underwing  <i>Discoloxia blomeri</i> Nb Blomer's Rivulet  <i>Carabus intricatus</i> RDB1 Blue Ground beetle  <i>Deleaster dichrous</i> Nb rove beetle  <i>Strangalia aurulenta</i> Na a longhorn beetle  <i>Conopaipus testaceus</i> Nb a false darkling beetle  <i>Rhizophagus nitidulus</i> Nb a narrow bark beetle  <i>Acalles roboris</i> Nb a weevil  <i>Selatossomus bipustulatus</i> Nb a click beetle  <i>Lipsothrix nervosa</i> local cranefly  <i>Bombylius discolor</i> Nb bee-fly  <i>Xylota xanthocnema</i> Notable a hoverfly  <i>Episnius maculipes</i> RDB3 comb-footed spider</p>	wide variety of native trees and shrubs; retention of old trees; standing and fallen dead wood; fungal fruiting bodies on or associated with trees; pollen and nectar sources; new generations of trees; streams and seepages	regional
Fast-flowing rivers and floodplains	<p>Coleoptera</p> <p>Diptera</p> <p>Aranaea</p> <p>Mollusca</p> <p>Odonata</p> <p>Lepidoptera</p> <p>Coleoptera</p> <p>Mollusca</p> <p>Diptera</p> <p>Hymenoptera</p> <p>Ephemeroptera</p> <p>Plecoptera</p> <p>Trichoptera</p>	<p><i>Platycnemis pennipes</i> Nb White-legged Damselfly  <i>Hydrelia sylvata</i> Nb Waved Carpet  <i>Lampropteryx otregiata</i> Nb Devon Carpet  <i>Agabus brunneus</i> RDB2 a water beetle  <i>Gyrinus urinator</i> Nb a whirligig beetle  <i>Hydrochus nitidicollis</i> RDB3 water beetle  <i>Oulimnius troglodytes</i> Nb a riffle beetle  <i>Lymnaea glabra</i> RDB2 a pond snail</p>	natural flow regime; clean water; a mixture of shaded and open banks; open shingle, sand and mud sediments; some emergent vegetation; accumulations of flood litter	regional

Hedges and hedgebanks	Lepidoptera Coleoptera flying insects	<i>Eupithecia valerinata</i> Nb Valerian Pub -	old unkempt hedges; tall or lightly grazed grassland beside hedge; shrubs including hawthorn and buckthorn; standard trees along hedge	local
Herb-rich unimproved grassland	Lepidoptera Diptera Hymenoptera Coleoptera flying insects	<b>Hemaris tityus</b> Na <b>Narrow-bordered Bee Hawk</b> <b>Mythimna turca</b> Nb <b>Double Line ?</b> - - -	a mosaic structure ranging from bare ground to tussocks; flower-rich sward providing pollen and nectar sources and food plants	local
Lowland heath, mire and scrub	Orthoptera Coleoptera Diptera Hymenoptera Lepidoptera Hemiptera Arachnida	<i>Metrioptera brachyptera</i> Nb Bog Bush Cricket <i>Polydrusus confluens</i> Nb, <i>Anthonomus rufus</i> RDB3; weevils <i>Beris fuscipes</i> Notable a soldier fly <b><i>Asilus crabroniformis</i></b> Nb <b>Hornet Robberfly</b> <i>Andrena falsifica</i> Na, <i>A. bucephala</i> Na mining bees <b><i>Plebejus argus</i></b> Nb <b>Silver-studded Blue</b> <b><i>Eurodryas aurinia</i></b> local, <b>Marsh Fritillary</b> - -	high water table; natural vegetation structure providing a mosaic from bare ground to scrub; pools and dammed ditches; short-grazed turf and presence of grazing animals to produce dung.	regional
Mines and derelict land	Odonata Hymenoptera Lepidoptera Diptera Coleoptera Hemiptera flying insects	<i>Ischnura pumilio</i> Nb Scarce Blue-tailed damselfly <i>Ceragrion tenellum</i> Nb Small Red damselfly <i>Andrena apicata</i> Nb a mining bee <i>Sphecodes crassus</i> Nb a cuckoo bee <i>Methoca ichneumonide</i> Nb flightless solitary wasp <b><i>Plebejus argus</i></b> Nb <b>Silver-studded Blue</b> <i>Bombylus canescens</i> Nb bee-fly - -	mostly bare ground with some flower-rich ruderal vegetation; mainly well drained areas with some damp patches; bare, dark-coloured compacted soil that heats up quickly in the sun; steep south-facing slopes on spoil heaps; heathers as autumn nectar sources.  wetland features including temporary winter water and permanent pools on valley floors, seepages and spring-lines	regional
Mixed farmland	flying insects Lepidoptera Diptera Coleoptera	- - - -	diversity of cover types; grassland with some bare ground and some tussocks; arable fields with conservation headlands; derelict patches left unmanaged; hedgerows; buffer zones by water courses	local
Quarries	Lepidoptera Hymenoptera Coleoptera Hemiptera	- - - -	areas of bare ground with some flower-rich ruderal vegetation; pools and damp areas on quarry floor	local



Standing freshwater including seasonal ponds and reedbed	Odonata Coleoptera  Mollusca Diptera Hemiptera	<i>Ceriatrigon tenellum</i> Nb Small Red Damsel fly <i>Dytiscus dimidiatus</i> RDB3, <i>Ilybius guttiger</i> Nb: diving beetles <i>Helochares lividus</i> Nb a scavenger water beetle <i>Elaphrus uliginosus</i> Nb a ground beetle <i>Lymnaea glabra</i> RDB2 a pond snail - -	mosaic of open water to dense vegetation; shallow margins; a diversity of emergent and submerged vegetation; semi-natural surrounding land	regional
Coastal heath and grass South coast	Orthoptera Lepidoptera  Coleoptera Hymenoptera Diptera Hemiptera	<i>Platyleris albopunctata</i> Nb Grey Bush Cricket <b>Plebejus argus Nb Silver-studded Blue</b> <i>Agrostis trux lunigera</i> Nb Crescent Dart <i>Trichostirocalus rufulus</i> Na a weevil - <b><i>Asilus crabroniformis</i> Nb Hornet Robberfly</b> -	herb-rich flora with structural diversity; patches of bare ground	regional
Estuaries North coast	Coleoptera  Diptera Lepidoptera	<i>Agabus conspersus</i> Nb a water beetle <i>Sibinia arenariae</i> Nb a weevil - -	open mud and pools; herb-rich vegetation at limit of tide	local
Estuaries Rias South coast	Coleoptera  Diptera Lepidoptera	<i>Agabus conspersus</i> Nb a water beetle <i>Sibinia arenariae</i> Nb a weevil - -	open mud and pools; herb-rich vegetation at limit of tide	local
Maritime grassland North coast	Coleoptera  Diptera Hymenoptera Hemiptera	<i>Harpalus tenebrosus</i> Na a ground beetle <i>Larinus planus</i> Nb a weevil <i>Chrysotoxum elegans</i> RDB3 a hoverfly <i>Nomada argentata</i> RDB3 a nomad bee - -	herb-rich flora with structural diversity; patches of bare ground	local
Maritime heath North coast	Coleoptera Diptera Lepidoptera Hymenoptera	- - - -	herb-rich flora with structural diversity; patches of bare ground	local

Sand dunes and beaches	Odonata Lepidoptera	<p><i>Sympetrum sanguineum</i> Nb Ruddy Darter  <b>Plebejus argus</b> Nb Silver-studded Blue  <i>Agrotis ripae</i> Nb Sand Dart  <i>Agrotis trux lunigera</i> Nb Crescent Dart  <i>Luperina nickeritii</i> Na Sandhill Rustic  <i>Mecyna asinalis</i> Nb a pyralid moth  <i>Eilema cantiola</i> Nb Hoary Footman  <i>Lasiocampa trifolii</i> Na Grass Eggar  <b>Bembidion nigropiceum</b> Na ground beetle  <i>Ceutorhynchus punctiger</i> Nb a weevil  <i>Dasygoda alterator</i> Nb, <i>Andrena hattorfiana</i> RDB3: mining bees  <i>Megachile leachella</i> Nb Silvery Leaf-cutter Bee  <b>Asilus crabroniformis</b> Nb Hornet Robberfly</p>	dune ridge and grey dune behind; bare sand in all zones of dune system; herb-rich flora on dune grassland	regional
Sea cliffs and offshore islands North coast [some species cannot be assigned accurately to the north or south coasts]	Diptera Hemiptera Diptera Hemiptera Isopoda Coleoptera	<p><i>Ectobius panzeri</i> Nb Lesser Cockroach  <i>Lasiacantha capucina</i> RDB3 a lacebug  <i>Dicranoccephalus agilis</i> Notable a spurge bug  <i>Bembecia muscaeformis</i> Nb Thrift Clearwing  <b>Polymixis xanthomista</b> Na Black-banded  <b>Lygephila cracca</b> RDB3 Scarce Blackneck  <i>Gonomyia conoviensis</i> Notable a cranefly  <i>Andrena similima</i> RDB2 a mining bee  <i>Andrena fulvago</i> Na, <i>Eucera longicornis</i> Na solitary bees  <i>Armadillidium pulchellum</i> Notable a pill woodlouse</p>	herb-rich flora; bare rocks and crevices; natural erosion; high proportion of exposed soil on soft cliffs; seepages with constant water supply	regional
Sea cliffs and offshore islands South coast	Diptera Hemiptera Lepidoptera Diptera Hymenoptera Isopoda Coleoptera	<p><i>Ectobius panzeri</i> Nb Lesser Cockroach  <i>Lasiacantha capucina</i> RDB3 a lacebug  <i>Dicranoccephalus agilis</i> Notable a spurge bug  <i>Bembecia muscaeformis</i> Nb Thrift Clearwing  <b>Polymixis xanthomista</b> Na Black-banded  <i>Gonomyia conoviensis</i> Notable a cranefly  <i>Andrena similima</i> RDB2, <i>A. fulvago</i> Na, <i>Eucera longicornis</i> Na solitary bees  <i>Armadillidium pulchellum</i> Notable a pill woodlouse  <b>Cathormiocerus britannicus</b> RDB1 weevil</p>	herb-rich flora; bare rocks and crevices; natural erosion; high proportion of exposed soil on soft cliffs; seepages with constant water supply	regional

Notes

*Rheumatpera hastata* Nb Argent and Sable has not been assigned to any feature. There are no definite records of *Idaea dilutaria* pRDB3 Silky Wave.

Natural Area: West Penwith 96				
Key Habitats	Invertebrate groups	Associated or significant species	Specific needs	Significance in NA
Broadleaved woods and parkland	Coleoptera Diptera Lepidoptera Mollusca	- - - -	wide variety of native trees and shrubs; retention of old trees; standing and fallen dead wood; fungal fruiting bodies on or associated with trees; pollen and nectar sources; new generations of trees; streams and seepages	local
Streams	Coleoptera Diptera Ephemeropter a Plecoptera Trichoptera	- - - - -	natural flow regime; clean water; a mixture of shaded and open banks; open shiongle, sand and mud sediments; some emergent vegetation; accumulation of flood litter	local
Hedges and hedgebanks	Lepidoptera Coleoptera flying insects	<i>Eupithecia denotata</i> Na Jastione Pug - -	old unkempt edges; tall or lightly grazed grassland beside hedge; shrubs including hawthorn and buckthorn; standard trees along hedge; earth and stone banks with <i>Jastione</i> for the Pug	local
Lowland heath, mire and scrub	Odonata Diptera Coleoptera Lepidoptera Orthoptera Hemiptera Hymenoptera Arachnida	<i>Ceragrion tenellum</i> Nb Small Red damselfly <i>Beris clavipes</i> Notable a soldier fly - - - - - -	high water table; natural vegetation structure providing a mosaic from bare ground to scrub; pools and dammed ditches, seepages and streams	local
Mines and derelict land	Lepidoptera Coleoptera Hymenoptera Hemiptera flying insects	- - - - -	mostly bare ground with some flower-rich ruderal vegetation; mainly well drained areas with some damp patches and temporary winter water	local
Mixed farmland	flying insects Lepidoptera Diptera Coleoptera	- - - -	diversity of cover type; grassland with some bare ground and some tussocks; arable fields with conservation headlands; derelict patches left unmanaged; hedgerows; buffer zones by water courses	local
Wet meadows [added]	Lepidoptera	<i>Eurodryas aurinia</i> , Nb, Marsh Fritillary	Devil's Bit Scabious fooplant; light grazing; undrained and unimproved grassland	

Maritime heath & grassland	Orthoptera Lepidoptera	<i>Platycleris albopunctata</i> Nb Grey Bush Cricket <b><i>Plebejus argus</i> Nb Silver-studded Blue</b> <b><i>Mythimna turca</i> Nb Double Line</b> <i>Lasiocampa trifolii</i> Na Grass Eggar <i>Larinus planus</i> Nb a weevil <i>Harpalus serripes</i> Nb a ground beetle	herb-rich flora with structural diversity; patches of bare ground	regional
Sand beaches	Diptera	-	bare sand with herb-rich flora on dune grassland edges	local
	Hemiptera	<i>Pterotmetus staphyliniformis</i> RDB3 ground bug <i>Heterogaster artemisiae</i> Nb ground bug		
Sea cliffs and offshore islands	Hymenoptera	-	herb-rich flora; bare rocks and crevices; natural erosion; high proportion of exposed soil on soft cliffs; seepages with constant water supply	
	Lepidoptera	-		
	Coleoptera	-		
	Diptera	-		
	Hymenoptera	-		
	Hemiptera	<i>Geotomus punctulatus</i> RDB1 shield bug		
	Orthoptera	<i>Ectobius panzeri</i> Nb Lesser Cockroach		
	Dictpyoptera	<i>Platycleris albopunctata</i> Nb Grey Bush Cricket		
	Lepidoptera	<i>Bembecia muscaeformis</i> Nb Thrift Clearwing <i>Mythimna putrescens</i> Na Devonshire Wainscot <i>Hadena luteago</i> Na Barret's Marbled Coronet		
	Coleoptera	<i>Miarus micros</i> RDB3, <i>Barypeithes sulcifrons</i> Nb: weevils <i>Harpalus serripes</i> Nb a ground beetle <i>Ponenitina subvirescens</i> Na a snail		
Mollusca	-			
Diptera	-			
Hymenoptera	-			
Hemiptera	-			
Isopoda	-			

#### Notes

*Boloria euphrosyne* Nb Pearl Bordered Fritillary now extinct here.

Natural Area: The Lizard 97			
Key Habitats	Invertebrate groups	Associated or significant species	Specific needs
Western oak wood	Coleoptera Diptera Lepidoptera	<i>Anchonidium unguiculare</i> RDB2 a weevil <i>Xyloterus signatus</i> Nb a bark beetle <i>Mathinus balteatus</i> Nb a soldier beetle <i>Ctenophora pectinicornis</i> Nb a crane fly -	wide variety of native trees and shrubs; standing and fallen dead wood; fungal fruiting bodies on or associated with trees; pollen and nectar sources; streams and seepages
Wet meadows [added]	Lepidoptera	<b>Eurodryas aurinia</b> , Nb, Marsh Fritillary	Devil's Bit Scabious fooplant; light grazing; undrained and unimproved grassland
Mire and fen	Coleoptera	<i>Badister dilatatus</i> Nb a ground beetle <i>Berosus signaticollis</i> Nb a scavenger water beetle <i>Altica ericeti</i> Nb a leaf beetle <i>Phytobius waltoni</i> Nb a weevil - - -	constant water supply; high water table; structurally diverse, herb-rich, vegetation, with some management; some scrub
Reedbed and freshwater marsh	Diptera Lepidoptera Arachnida	<i>Chlaenius nigricornis</i> Nb a ground beetle <i>Graptodytes flavipes</i> RDB2 a water beetle <i>Longitarsus rutilus</i> Na a leaf beetle <i>Orthonerva brevicornis</i> Notable a hoverfly - -	some winter flooding, no summer flooding; structurally diverse sward, with some management; some old reeds with dense litter layer; gradient from dry ground to shallow water in reedbed; some pools
Estuary Ria	Diptera Coleoptera Lepidoptera	<i>Lejogaster splendida</i> Notable a hoverfly - -	open mud and pools; herb-rich vegetation at limit of tide
Freshwater lagoon and shingle bar	Coleoptera Diptera Lepidoptera Hemiptera	<i>Sitona waterhousei</i> Na a weevil - - -	sallow water with a variety of emergent vegetation and some open water; shingle mainly open with some herb-rich ruderal vegetation
Heathland	Coleoptera Diptera Hymenoptera Lepidoptera	<i>Polydrusus confluentis</i> Nb a weevil <i>Lasipogon cinctus</i> Notable a robber fly <i>Nomada robertjeotiana</i> RDB3, <i>N. pleurosticta</i> Na nomad bees <i>Andrena humilis</i> Nb a solitary bee <b>Plebejus argus</b> Nb Silver-studded Blue <i>Heliothis maritima</i> RDB3 Shoulder-striped Clover <i>Perconia strigillaria</i> Nb Grass Wave <i>Chlorissa viridata</i> Na Small Grass Emerald - - -	structural variety including open grass heath, short turf and bare ground; rabbit grazing and disturbance; nectar and pollen sources including ruderal plants
	Hemiptera Orthoptera Arachnida		regional

Maritime heath, grassland and sea cliffs	Orthoptera Dictyoptera Lepidoptera	<p><i>Platycleris albopunctatus</i> Nb Grey Bush Cricket  <i>Omocestus rufipes</i> Nb Woodland grassopper  <i>Ectobius panzeri</i> Nb Lesser Cockroach  <b><i>Plebejus argus</i> Nb Silver-studded Blue</b>  <b><i>Polymixis xanthomista</i> Na Black-banded</b>  <i>Lasiocampa trifolii</i> Na Grass Eggar  <i>Bembecia muscaeformis</i> Nb Thift Clearwing  <i>Leucochlaena oditis</i> RDB3 Beautiful Gothic  <i>Hadena luteago</i> Na Barrett's Marbled Coronet  <i>Synopacma suecicella</i> pRDB1 micro-moth  <i>Cardiophorus erichsoni</i> RDB2 a click beetle  <i>Harpalus melleti</i> Na a ground beetle  <b><i>Cathormiocerus britannicus</i> RDB1 weevil</b>  <i>Andrena similima</i> RDB2, <i>A. pilipes</i> Nb: mining bees  <b><i>Bombus humilis</i> local Brown-banded Carder bee</b>  <i>Leptothorax tuborum</i> Na an ant  <i>Ponenitina subvirescens</i> Na a snail  -  <i>Lasiocantha capucina</i> pRDB3 lacebug  -</p>	herb-rich flora with structural diversity; food-plants including <i>Genista pilosa</i> , <i>Thymus drucei</i> ; patches of bare ground on heath and grassland; bare rocks or exposed soil on cliffs produced by natural erosion; seepages with constant water supply;	national
Mines and mineral sites	<p>flyng insects  Lepidoptera  Coleoptera  Hymenoptera  Hemiptera</p>	<p>-  -  -  -  -</p>	mostly bare ground with some flower-rich ruderal vegetation; mainly well drained areas with some damp patches and temporary winter water	local
Sand dunes and sandy beaches	<p>Lepidoptera  Coleoptera  Hymenoptera  Diptera  Hemiptera</p>	<p><i>Agrotis ripae</i> Nb Sand Dart  <i>Eilema caniola</i> Nb Hoary Footman  <i>Miarus micros</i> RDB3 a weevil  <i>Masoreus wetterhalli</i> Na a ground beetle  <i>Podalonia hirsuta</i> Nb a solitary wasp  -  -</p>	dune ridge and grey dune behind; bare sand in all zones of dune system; herb-rich flora on dune grassland	
Lowland farmland	<p>flyng insects  Lepidoptera  Diptera  Coleoptera</p>	<p>-  -  -  -</p>	diversity of cover types; grassland with some bare ground and some tussocks; arable fields with conservation headlands; derelict patches left unmanaged; hedgerows; buffer zones by water courses	local

**Notes**

The ISR record of *Lygephila cracca* RDB3 Scarce Blackneck appears to be an error. *Agynnis atippe* RDB2 High Brown Fritillary is extinct in the area.

Natural Area: North Kent Coast 106				
Key Habitats	Invertebrate groups	Associated or significant species	Specific needs	Significance in NA
Soft cliffs	Isopoda Himenoptera	<i>Eluma purpurascens</i> Nb pill woodlouse -	natural erosion though not too fast; high proportion of exposed soil; sparse and herb-rich vegetation; seepages with constant water supply	local
Shingle structures	Coleoptera Lepidoptera	<i>Amara lucida</i> Nb ground beetle -	undisturbed vegetation; natural physiographic processes	local
Intertidal sand and mudflats	Hemiptera Coleoptera Diptera	<i>Hemestaris halophilus</i> RDB2 ground bug <b><i>Bembidion nigropiceum</i></b> Na ground beetle -	historically undisturbed vegetation; herb-rich vegetation, especially with <i>Aster</i> and <i>Limonium vulgare</i> transitions to dry land and to freshwater seepages	local
Saltmarsh	Coleoptera Diptera Lepidoptera Heteroptera	<i>Longitarsus plantagomaritimus</i> Nb flea beetle <i>Haematopota bigoti</i> RDB3 cleg		
Maritime grassland	Orthoptera	<i>Metrioptera roeselii</i> Nb Roesel's Bush Cricket <i>Conocephalus discolor</i> Na Long-winged Conehead cricket <i>Spilosoma urticae</i> Nb Water Ermine moth	herb-rich with structural diversity; patches of bare ground on sunny side	local
Brackish lagoons	Lepidoptera Coleoptera Diptera	<i>Demetrias imperialis</i> Nb ground beetle -	mildly to strongly brackish water; natural inundation by sea; gradient form unstable to stable vegetated shingle	local

#### Notes

There are no records for BAP species from this Natural Area in the ISR

Natural Area: East Kent Coast 107			
Key Habitats	Invertebrate groups	Associated or significant species	Specific needs
Chalk cliffs and caves	Lepidoptera	<i>Setina irrorella</i> Na Dew Moth <b><i>Hadena albimaculata</i> RDB2 white spot moth</b>	natural physiographic processes, no sea defences; undisturbed cliff-face vegetation; bare rocks with crevices; grazing of cliff-top grassland, herb-rich flora
Soft cliffs	Isopoda Lepidoptera  Hymenoptera	<i>Eluma purpurascens</i> Nb pill woodlouse <i>Selenia leplastriana</i> pRDB1 tortrix moth <b><i>Bembecia chrysidiformis</i> RDB1 Fiery Clearwing</b> <b><i>Scotopteryx bipunctaria cretica</i> Nb Chalk Carpet</b> <b><i>Agrotis cinerea</i> Nb Light Feathered Rustic</b> <b><i>Hadena albimaculata</i> RDB2 White Spot</b> <i>Cerceris quadricincta</i> RDB1 solitary wasp <i>Andrena bucephala</i> Na, <i>A. similima</i> RDB2: solitary bees <i>Andrena timmerana</i> Nb Trimmer's Mining Bee <i>Nomada fucata</i> Na nomad bee	natural erosion though not too fast; high proportion of exposed soil; sparse and herb-rich vegetation; seepages with constant water supply
Shingle structures	Orthoptera Lepidoptera Coleoptera	<i>Platycleis albopunctata</i> Nb Grey Bush Cricket <b><i>Idaea ochrata cantitata</i> RDB2 Bright Wave moth</b> <b><i>Calophasia lunula</i> RDB3 Toadflax Brocade moth</b> <i>Ceuthorrhynchus geographicus</i> Nb weevil	natural physiographic process leading to fore-dune, shingle ridge and grey lichen dune behind; bare sand in all zones
Coastal dunes	Lepidoptera Coleoptera Hymenoptera Diptera	<i>Aplasia ononaria</i> RDB3 Rest Harrow moth <i>Phibalapteryx virgata</i> Nb Oblique Striped moth <i>Platyderus ruficollis</i> Nb ground beetle <i>Crypticus quisquilius</i> Nb darkling beetle <b><i>Cerceris quadricincta</i> RDB1 solitary wasp</b>	herb-rich with structural diversity; dune slacks with reliable winter water supply
Intertidal sand and mudflats	Crustacea Oligochaetes Coleoptera	- - -	
Saltmarsh	Lepidoptera Coleoptera Diptera Araneae	<i>Synaphe punctalis</i> Nb pyralid moth <b><i>Cucullia asteris</i> Nb Star-wort moth</b> - - -	historically undisturbed vegetation; herb-rich vegetation, especially with <i>Aster</i> and <i>Limonium vulgare</i> transitions to dry land and to freshwater seepages
			local
			local
			local



Lowland calcareous grassland	Orthoptera Dermaptera Lepidoptera  Coleoptera Diptera	<p><i>Gomphocerippus rufus</i> Nb Rufous Grasshopper  <i>Forficula lesnei</i> Nb earwig  <i>Bembecia scopigera</i> Nb Six-belted Clearwing moth  <b><i>Bembecia chrysidiformis</i> RDB1 Fiery Clearwing moth</b>  <i>Lysandra bellargus</i> Nb Adonis Blue butterfly  <i>Aspitates gilvaria</i> Na Straw Belle moth  <b><i>Harpalus parallelus</i> pRDB3 ground beetle</b>  <i>Brachinus crepitans</i> Nb Bombardier Beetle  <i>Hypera pastinacae</i> RDB1 weevil  <i>Symphoromyia immaculata</i> Nb snipe fly</p>	tussocky flower-rich sward; patches of bare ground; shelter provided by hedges, patches of scrub	nationally important
Lowland wet grassland	Lepidoptera Hemiptera Coleoptera Diptera	<p><i>Chilodes maritimus</i> Nb Silky Wainscot moth  <i>Sigara striata</i> Nb Waterboatman  <i>Rhantus suturalis</i> Nb diving beetle</p>	light grazing and trampling; some winter flooding, no summer flooding; associated pools; structurally diverse sward	local

Natural Area: Folkestone to Selsey Bill 108

Key Habitats	Invertebrate groups	Associated or significant species	Specific needs	Significance in NA
Shingle, especially Dungeness foreland and Pagham and Rye harbours	Orthoptera Hemiptera Coleoptera  Lepidoptera	<p><i>Platyteleis albopunctata</i> Nb Grey Bush Cricket  <i>Pilophorus confusus</i> RDB1 plantbug  <b><i>Aphrodes duffieldi</i> pRDB leafhopper</b>                      good assemblage of scarce ground beetles including <b><i>Bembidion nigropiceum</i> Na</b>  <i>Brachinus crepitans</i> Nb Bombardier Beetle                      good assemblage of scarce weevils                      very important for scarce macro-moths  <i>Cynaeda dentalis</i> pRDB3 pyralid moth                      very good assemblage of scarce micro-moths  <i>Lastocampa trifolii</i> Na Grass Eggar moth  <i>Thalera fimbriatilis</i> RDB1 Sussex Emerald  <i>Clostera anachoreta</i> RDB1 Scarce Chocolate-tip moth  <b><i>Calophasia lunula</i> RDB3 Toadflax Brocade</b>  <b><i>Cucullia lychnitis</i> Na striped lychnis</b>  <i>Scotopteryx bipunctaria cretica</i> Nb Chalk Carpet  <i>Agrotis cinerea</i> Nb Light Feathered Rustic  <i>Heliophobus reticulatus</i> Nb Bordered Gothic  <b><i>Haedena albimacula</i> RDB2 White Spot</b></p> <p>-                      important for scarce bumblebees including <b><i>Bombus subterraneus</i> Na Short-haired bumblebee</b> <b><i>Bombus humilis</i> local Brown-banded Carder bee</b>, <b><i>Bombus ruderatus</i> Nb Large Garden bumblebee</b>, <b><i>Bombus subterraneus</i> Na Short-haired bumblebee</b>, <b><i>Bombus sylvarum</i> Nb Shrilk Carder bee</b>  <b><i>Nomada xanthosticta</i> RDB1 nomad bee</b>  <b><i>Europhrys browningi</i> RDB3 jumping spider</b>  <i>Lathys stigmatisata</i> RDB3 mesh webb spider  <i>Apostenus fuscus</i> RDB1 running foliage spider  <i>Ectobius panzeri</i> Nb Lesser Cockroach  <i>Megalonotus dilatatus</i> Nb ground bug                      good assemblage of scarce ground beetles, including <b><i>Dyschirius angustatus</i> RDB3</b>, <b><i>Badister anomalus</i> pRDB1</b>  <i>Acleris permutana</i> pRDB3 tortrix moths  <i>Phibalapteryx virgata</i> Nb Oblique Striped moth  <i>Agrostis ripae</i> Nb Sand Dart moth  <b><i>Bembidion nigropiceum</i> Na, <i>B. pallidipenne</i> Nb: ground beetles</b></p>	<p>natural physiographic processes from most recent shingle ridges to old well vegetated ridge; shingle ridge with good lichen flora; bare shingle between ridges; dwarf scrub communities on fulls; high stable water table</p>	National
Sand dunes	Diptera Hymenoptera	important for scarce bumblebees including <b><i>Bombus subterraneus</i> Na Short-haired bumblebee</b> <b><i>Bombus humilis</i> local Brown-banded Carder bee</b> , <b><i>Bombus ruderatus</i> Nb Large Garden bumblebee</b> , <b><i>Bombus subterraneus</i> Na Short-haired bumblebee</b> , <b><i>Bombus sylvarum</i> Nb Shrilk Carder bee</b> <b><i>Nomada xanthosticta</i> RDB1 nomad bee</b> <b><i>Europhrys browningi</i> RDB3 jumping spider</b> <i>Lathys stigmatisata</i> RDB3 mesh webb spider <i>Apostenus fuscus</i> RDB1 running foliage spider <i>Ectobius panzeri</i> Nb Lesser Cockroach <i>Megalonotus dilatatus</i> Nb ground bug good assemblage of scarce ground beetles, including <b><i>Dyschirius angustatus</i> RDB3</b> , <b><i>Badister anomalus</i> pRDB1</b> <i>Acleris permutana</i> pRDB3 tortrix moths <i>Phibalapteryx virgata</i> Nb Oblique Striped moth <i>Agrostis ripae</i> Nb Sand Dart moth <b><i>Bembidion nigropiceum</i> Na, <i>B. pallidipenne</i> Nb: ground beetles</b>	<p>herb-rich with structural diversity; dune slacks with reliable winter water supply</p>	local
Intertidal mud and sand	Coleoptera	<b><i>Bembidion nigropiceum</i> Na, <i>B. pallidipenne</i> Nb: ground beetles</b>	<p>natural flora at upper limit of tide; good supply of strandline debris including larger items of jetsam</p>	local

Saltmarsh	Hemiptera Coleoptera Lepidoptera Diptera	<i>Cixius remotus</i> Nb lacehopper <b><i>Amara strenua</i></b> pRDB3, <b><i>Dyschirius angustatus</i></b> RDB3, <b><i>Bembidion ephippium</i></b> Na: ground beetles <i>Mythimna flavicolor</i> Na Matthew's Wainscot moth <b><i>Cucullia asteris</i></b> Nb Star-wort moth <i>Paroxya absinthii</i> Nb picture-winged fly	historically undisturbed vegetation; herb-rich vegetation, especially with <i>Aster</i> and <i>Limonium vulgare</i> transitions to dry land and to freshwater seepages	local
Lagoons	Actiniaria Coleoptera	<b><i>Edwardsia ivelli</i></b> RDB1 Ivell's Edwardsia sea anemone <b><i>Nematosella vectensis</i></b> RDB3 Scarlet sea anemone <b><i>Clavopsella navis</i></b> status unknown, hydroid <i>Berosus spinosus</i> RDB3 scavenger water beetle	mildly to strongly brackish water; natural inundation by sea; gradient form unstable to stable and vegetated shingle	regional
Freshwater Ponds Grazing marsh	Hirudinea Mollusca Odonata Orthoptera Hemiptera Coleoptera	<b><i>Hirudo medicinalis</i></b> RDB3 Medicinal leech <b><i>Segmentina nitida</i></b> RDB1 Shiny Ramshorn <i>Valvata macrostoma</i> RDB2 water snail <b><i>Anisus vorticulus</i></b> RDB2 Little Whirl-pool Ramshorn <i>Pisidium pseudosphaerium</i> RDB3 pea mussel <i>Brachytron pratense</i> Nb Hairy Dragonfly <i>Sympetrum sanguineum</i> Nb Ruddy Darter dragonfly <i>Coenagrion pulchellum</i> Nb Variable damselfly <i>Conocephalus discolor</i> Na Long-winged Conehead cricket <i>Siara striata</i> Nb waterboatman <b><i>Hydrometra gracilentia</i></b> RDB1 water measurer <i>Badister anomalus</i> pRDB1, <i>Odacantha melamura</i> Nb: ground beetles	light grazing and trampling; some winter flooding, no summer flooding; associated pools; structurally diverse sward; mainly old reed with dense litter layer; reed growing on gradient from dry ground to standing in shallow water	nationally important
Maritime cliffs [and adjacent grasslands]	Lepidoptera Diptera Araneae Orthoptera Hemiptera Coleoptera Lepidoptera Hymenoptera	Good assemblage of scarce aquatic beetles <i>Donacia clavipes</i> Nb leaf beetle <b><i>Hydraecia osseola hucherardi</i></b> RDB1 Marsh Mallow Moth <i>Archana sparganii</i> Nb Webb's Wainscot moth good assemblage of scarce craneflies and soldier flies <i>Atylotus latistriatus</i> RDB3 horse fly <i>Lejops vittata</i> RDB2 hoverfly <b><i>Dolomedes plantarius</i></b> RDB1 Fen Raft Spider <i>Tetrix ceperoi</i> Na Cepero's Ground-hopper <i>Saldula arenicola</i> Na shorebug <b><i>Tachys micros</i></b> Na ground beetle <i>Amphimallon ochraceus</i> Na dung beetle <i>Agrotis trux lunigera</i> Nb Crescent Dart moth <i>Hadena albimaculata</i> RDB2 White Spot moth <b><i>Lysandra bellargus</i></b> Nb Adonis Blue <b><i>Scotiopteryx bipunctaria cretica</i></b> Nb Chalk Carpet <i>Hylaeus euryscapus</i> RDB3 solitary bee	spare herb-rich flora; bare rocks with crevices; natural erosion no sea defences; high proportion of exposed soil; seepages with constant water supply	local

#### Notes

It has not been possible to check that the same representative species for features in 'terrestrial' natural areas have been selected for the same features in this coastal area.

Natural Area: Solent to Poole Bay 109				
Key Habitats	Invertebrate groups	Associated or significant species	Specific needs	Significance in NA
Estuaries, harbours, saltmarsh & grazing marsh	Orthoptera Hemiptera Coleoptera Lepidoptera Diptera Hymenoptera	<i>Conocephalus discolor</i> Na Long-winged Conehead cricket <i>Tetrix ceperoi</i> Na Cepero's Ground-hopper <i>Oliarus leporinus</i> Nb lacehopper <i>Drypta dentata</i> RDB1, <i>Bembidion nigropiceum</i> Na: ground beetles <i>Synanthedon fomicaeformis</i> Nb Red-tipped Clearwing moth <i>Oxyceira morrisii</i> Nb, <i>Stratiomys potamida</i> Nb: soldier flies <i>Hybomitra expollicata</i> pRDB2 horse fly <i>Colletes halophilus</i> Na solitary bee	light grazing and trampling; some winter flooding, no summer flooding; associated pools; structurally diverse sward; mainly old reed with dense litter layer; reed growing on gradient from dry ground to standing in shallow water	local
Lagoons	Actiniaria Mollusca Coleoptera Amphipoda	<i>Nematostella vectensis</i> RDB3 Scarlet Sea Anemone <i>Edwardsia ivelli</i> RDB1 Ivell's sea anemone <i>Clavopsella navis status</i> unknown, hydroid <i>Truncatella subcylindrica</i> RDB3 Looping Snail <i>Paracymus aeneus</i> RDB1 scavenger water beetle <i>Enochrus halophilus</i> Na scavenger water beetle <b>Gammarus insensibilis</b> RDB3 Lagoon Sand Shrimp	mildly to strongly brackish water; natural inundation by sea; gradient form unstable to stable and vegetated shingle	local
Sea cliffs	Hemiptera Coleoptera Lepidoptera Diptera Hymenoptera	<i>Salicula arenicola</i> Na shorebug <b><i>Cicindella germanica</i></b> RDB3 Tiger beetle <i>Cathormiocerus britannicus</i> RDB1, <i>C. maritimus</i> RDB3, <i>C. socius</i> RDB2: weevils <i>Cydia gemmiferana</i> pRDB1 tortrix moth <i>Catarhoe rubidata</i> Nb Ruddy Carpet moth <i>Setina irrorella</i> Na Dew Moth <i>Agrotis trux lunigera</i> Nb Crescent Dart moth <i>Limonia goritiensis</i> RDB3 crane fly <i>Oxyceira pardalina</i> Nb soldier fly <i>Leptothorax tuberum</i> Na ant good assemblage of solitary bees and wasps including <i>LasioGLOSSUM angusticeps</i> RDB3, <i>Osmia xanthomelana</i> RDB1 a mason bee, <i>LasioGLOSSUM angusticeps</i> RDB3, <i>Andrena nitidiusculus</i> RDB3, <i>Andrena pilipes</i> Nb, <i>Psen atratium</i> RDB2	natural erosion though not too fast; high proportion of exposed soil; sparse and herb-rich vegetation; seepages with constant water supply; exposed rock with crevices	nationally important
Vegetated shingle	Orthoptera Lepidoptera	<i>Platycleis albopunctata</i> Nb Grey Bush Cricket <i>Gymnancyla canella</i> Na pyralid moth <i>Lasiocampa trifolii</i> Na Grass Eggar moth <i>Eilema caniola</i> Nb Hoary Footman moth	natural physiographic processes from old to recent shingle ridge; good grey lichen flora; bare shingle in lows; dwarf scrub on fells; high stable water-table	local

Dunes	Coleoptera	<p><i>Crypticus quisquilius</i> Nb darkling beetle  <i>Strophosoma fulvicorne</i> pRDB2 weevil  <i>Platytes alpinella</i> pRDB3 pyralid moth  <i>Actebia praecox</i> Nb Portland Moth  <i>Mythimna litoralis</i> Nb Shore Wainscot  <b>Bombus humilis local Brown-banded Carder bee</b>  <i>Philanthus triangulum</i> RDB2 Bee Wolf solitary wasp  <i>Anthophora retusa</i> RDB1 Potter Flower Bee</p>	natural physiographic processes leading to fore-dune, dune ridge and grey lichen dune behind; bare sand in all zones of the dune system	local
Heath/bog & associated streams [added]	<p>Odonata</p> <p>Orthoptera</p> <p>Coleoptera</p> <p>Lepidoptera</p> <p>Diptera</p> <p>Hymenoptera</p>	<p><b>Coenagrion mercuriale RDB3 Southern Damselfly</b>  <i>Coenagrion tenellum</i> Nb Small Red Damselfly  <i>Metrioptera brachyptera</i> Nb Bog Bush Cricket  <i>Omocentus rufipes</i> Nb Woodland Grasshopper  <b>Cicindela sylvatica Na Wood Tiger Beetle</b>  <i>Geotrupes pyrenaicus</i> Na dumbleodor  good assemblage of scarce weevils  good assemblage of scarce moths  <b>Plebejus argus Nb Silver-studded Blue butterfly</b>  <i>Coscinia cribraria</i> RDB2 Speckled Footman moth  <b>Dyscia fagaria local Grey Scalloped Bar</b>  <i>Asilus crabroniformis</i> Nb robber fly  <b>Thyridanthrax fenestratus RDB3 bee fly</b>  <i>Microdon mutabilis</i> Nb hoverfly  <i>Mutilla europaea</i> Nb Large Velvet Ant  important for rare solitary wasps and bees including <b><i>Pseudopipona herrichii RDB1 potter wasp</i></b></p>	high water table; natural vegetation structure; small patches of bare peat; pools and dammed ditches; young scrub at margins especially birch; bare sandy areas	nationally important
Chalk grassland and other dry grasslands [added]	<p>Coleoptera</p> <p>Lepidoptera</p> <p>Araneae</p> <p>Hymenoptera</p> <p>Diptera</p>	<p><i>Cryptocephalus bilineatus</i> Nb leaf beetle  <i>Rhinocyllus conicus</i> Na weevil  <b>Platychius haematocephalus RDB1 weevil</b>  <i>Bembecia scopigera</i> Nb Six-belted Clearwing moth  <i>Mecyna flavalis flavicularis</i> pRDB2 pyralid moth  <b>Lysandra bellargus Nb Adonis Blue butterfly</b>  <i>Melitaea cinxia</i> RDB3 Glanville Fritillary butterfly  <i>Argiope bruennichi</i> Na orb-web spider  <b>Osmia xanthomela RDB1 Mason bee</b>  <b>Dorycera graminum RDB3 picture-winged fly</b></p>	tussocky flower-rich sward; patches of bare ground; shelter provided by hedges, patches of scrub	local
Woodland	<p>Coleoptera</p> <p>Lepidoptera</p> <p>Diptera</p>	<p><b>Anostirus castaneus RDB1 click beetle</b>  <b>Lucanus cervus Nb Stag Beetle</b>  <b>Boloria euphrosyne Nb Pearl Bordered Fritillary</b>  <b>Schrankia taenialis Nb White-lined Snout</b>  <b>Lipsothrix nervosa local cranefly</b></p>		

Natural Area: South Dorset Coast 110			
Key Habitats	Invertebrate groups	Associated or significant species	Specific needs
Littoral - hard	Coleoptera	scarce ground beetles	good supply of organic debris; larger items of jetsam
Hard coastal cliffs [and adjacent downland]	Orthoptera Hemiptera Lepidoptera	<i>Platycleis albopunctata</i> Nb Grey Bush Cricket <i>Pyrrhocoris apterus</i> RDB1 Firebug good assemblage of scarce micro-moths <i>Thymelicus acteon</i> Na Lulworth Skipper butterfly <b><i>Lysandra bellargus</i> Nb Adonis Blue butterfly</b> good assemblage of local butterflies <b><i>Idaea dilutaria</i> pRDB3 Silky Wave moth</b> <b><i>Heliothobus reticulata</i> Nb Bordered Gothic moth</b> <b><i>Scotoperyx bipunctaria cretica</i> Nb Chalk Carpet</b> <i>Leucochlaena oditis</i> RDB3 Beautiful Gothic moth <i>Leptothorax tuberosum</i> Na ant	herb-rich flora; bare rocks with crevices; natural erosion no sea defences; seepages; tussock sward
Soft coastal cliffs	Hymenoptera Coleoptera Hymenoptera Diptera	<i>Cardiophorus ascellus</i> Nb click beetle <i>Andrena carbonaria</i> Nb solitary bee important for scarce solitary bees and wasps scarce soldier flies	natural erosion though not too fast; high proportion of exposed soil; sparse and herb-rich vegetation; seepages with constant water supply
Harbours	Coleoptera Lepidoptera Diptera	<i>Anthicus tristis</i> pRDB1 ant-like beetle scarce ground beetles scarce moths scarce soldier flies, horse flies and shore flies	historically undisturbed vegetation; herb-rich vegetation, especially with <i>Aster</i> and <i>Limonium vulgare</i> transitions to dry land and to freshwater seepages

Significance in NA

local  
nationally important

local

local

Natural Area: Lyme Bay 111			
Key Habitats	Invertebrate groups	Associated or significant species	Specific needs
Hard sea cliffs and adjacent downland	Mollusca	<i>Truncatellina callitratis</i> RDB3 whorl snail	herb-rich flora; bare rocks with crevices; natural erosion no sea defences; dry tussocky grassland on cliff top; seepages and trickles down cliff face
	Orthoptera	<i>Gomphocerippus rufipes</i> Nb Rufous Grasshopper	
	Hemiptera	<i>Trapezonoctus ultrichi</i> RDB3 ground bug	nationally important
	Coleoptera	<b><i>Ochthebius poweri</i> RDB3 small water beetle</b>	
		<i>Sitona waterhousei</i> Nb weevil	
	Tri choptera	<i>Adicella flicornis</i> RDB3 caddisfly	
	Lepidoptera	good assemblage of scarce micro-moths	
		good assemblage of scarce butterflies	
		<i>Lysandra bellargus</i> Nb Adonis Blue	
		<i>Idaea dilutaria</i> pRDB3 Silky Wave	
		<i>Scotopteryx bipunctaria cretica</i> Nb Chalk Carpet	
		<i>Heliophobus reticulatus</i> Nb Bordered Gothic	
		<i>Euplagia quadripunctaria</i> Nb Jersey Tiger moth	
		<b><i>Hadena albimacula</i> RDB2 White Spot moth</b>	
		<i>Mythimna putrescens</i> Na Devonshire Wainscot moth	
	Diptera	<b><i>Asilus crabroniformis</i> Nb Hornet Robberfly</b>	
		<i>Thereva strigata</i> RDB3 stiletto fly	
	Hymenoptera	<i>Leptothorax tuberum</i> Na ant	
		<i>Aporus unicolor</i> Na spider-hunting wasp	
Soft sea cliffs	Orthoptera	<i>Tetrix ceperoi</i> Na Cepero's Ground-hopper	natural erosion though not too fast; high proportion of exposed soil; sparse and herb-rich vegetation; seepages with constant water supply
	Hemiptera	<i>Saldula arenicola</i> Na shorebug	
	Coleoptera	<b><i>Cicindella germanica</i> RDB3 Tiger beetle</b>	
		<b><i>Tachys micros</i> Na ground beetle</b>	
		scarce micro-moths	
		<b><i>Boloria euphrosyne</i> Nb Pearl Bordered Fritillary</b>	
		<b><i>Mythimna turca</i> Nb Double Line</b>	
		good assemblage of scarce craneflies and soldier flies	
		<b><i>Bombylus discolor</i> Nb bee-fly</b>	
		good assemblage of scarce solitary bees and wasps	
		<b><i>Lasioglossum angusticeps</i> RDB3 solitary bee</b>	
		<i>Schendyla peyerimhoffi</i> Nb centipede	
Estuaries	Chilopoda	scarce ground beetles	historically undisturbed vegetation; herb-rich vegetation, especially with <i>Aster</i> and <i>Limonium vulgare</i> transitions to dry land and to freshwater seepages; grazing marsh with brackish dykes
	Coleoptera	<i>Spilosoma urticae</i> Nb Water Ermine moth	
	Lepidoptera	<i>Stratiomys potamida</i> Nb soldier fly	
	Diptera		

Lagoons and lakes	Actiniaria Mesogastropod Odonata Lepidoptera Diptera Crustacea	<i>Nematostella vectensis</i> RDB3 <i>Caecum armoricum</i> RDBK <i>Brachytron pratense</i> Nb <i>Sympetrum sanguineum</i> Nb <i>Archana sparganii</i> Nb <i>Chilodes maritimus</i> Nb scarce snail-killing flies <b>Gammarus insensibilis</b> RDB3 <i>Ectobius panzeri</i> Nb <i>Amara equestris</i> Nb scarce micro-moths <i>Agrostis ripae</i> Nb	mildly to strongly brackish water; natural inundation by sea; gradient form unstable to stable and vegetated shingle; fringe of reeds <i>Phragmites</i>	local
Sand dunes	Dictyoptera Coleoptera Lepidoptera	<b>Lagoon Sand Shrimp</b> Nb Lesser Cockroach Nb ground beetle Nb Sand Dart moth	herb-rich with structural diversity; dune slacks with reliable winter water supply; scrub patches	local
Shingle features	Orthoptera Coleoptera Lepidoptera Hymenoptera	<i>Platycleis albopunctata</i> Nb <i>Harpalus tenebrosus</i> Na <i>Medon pociferus</i> RDB1 <i>Omophilus rufitarsis</i> RDB1 scarce micro-moths <i>Euodynerus quadrifasciatus</i> RDB2	natural physiographic processes from old to recent shingle ridges; good lichen cover bare shingle in all zones of system; dwarf scrub	local
Lowland farmland	Coleoptera Lepidoptera	scarce ground beetles <i>Epiblema Chnicolana</i> pRDB3 <i>Ertogaster lanestris</i> Nb	conservation headlands; hedgerows; buffer zones by water courses; disturbed soil on waysides; ruderal and annual plants, used as host plants and nectar and pollen sources	local
Urban	Lepidoptera	scarce micro-moths <i>Idaea vulpinaria atrosignaria</i> Nb	gardens with old deciduous trees	local



Natural Area: Start Point to Lands End 112			
Key Habitats	Invertebrate groups	Associated or significant species	Specific needs
Littoral rocky shores	Isopoda	<i>Halophiloscia couchi</i> Nb woodlouse	boulders of all sizes, especially limestone from tide-line to base of cliff, organic debris
Sandy beaches and dunes	<p>Dictyoptera</p> <p>Coleoptera</p> <p>Lepidoptera</p> <p>Diptera</p> <p>Hymenoptera</p>	<p><i>Ectobius panzeri</i> Nb Lesser Cockroach</p> <p><b><i>Bembidion nigropiceum</i></b> Na, <i>Harpalus tenebrosus</i> N:a ground beetles</p> <p><i>Cardiophorus erichsoni</i> pRDB2 click beetle</p> <p><i>Opatrum sabulosum</i> Nb darkling beetle</p> <p><i>Agrotis ripae</i> Nb Sand Dart moth</p> <p><i>Luperina nickerlii</i> Na Sandhill Rustic</p> <p><i>Bombylius canescens</i> Nb bee fly</p> <p><i>Eumerus sabulorum</i> Nb hoverfly</p> <p><b><i>Bombus humilis</i></b> local <b>Brown-banded Carder bee</b></p> <p><i>Hedychrum niemelai</i> RDB3 ruby-tailed wasp</p> <p><i>Podalonia hirsuta</i> Nb Hairy Sand Wasp</p>	<p>natural physiographic processes leading to fore-dune; dune ridge and grey lichen dune behind; bare sand in all zones of the dunes system</p>
Shingle bar	<p>Coleoptera</p> <p>Lepidoptera</p> <p>Hymenoptera</p> <p>Isopoda</p>	<p><i>Masoreus wetterhalli</i> Na ground beetle</p> <p><i>Scopaeus ryei</i> RDB1 rove beetle</p> <p><i>Eilema caniola</i> Nb Hoary Footman moth</p> <p><i>Luperina nickerlii leechi</i> RDB1 Sandhill Rustic moth</p> <p><b><i>Hadena luteago</i></b> Na <b>Barret's Marbled Coronet</b></p> <p><i>Euodynerus quadrifasciatus</i> RDB2 potter wasp</p> <p><i>Trichoniscoides saeroeensis</i> Nb woodlouse</p> <p><i>Graptodytes flavipes</i> RDB2 diving beetle</p> <p><i>Chirocephalus diaphanus</i> RDB2 Fairy Shrimp</p>	<p>natural physiographic processes from old to recent shingle ridges; good lichen cover; bare shingle in all zones of the system; dwarf scrub patches</p>
Freshwater, brackish and saline lagoons	<p>Coleoptera</p> <p>Diptera</p> <p>Anostraca</p>	<p><i>Chirocephalus diaphanus</i> RDB2 Fairy Shrimp</p>	<p>mildly to strongly brackish water; natural inundation by sea; gradient form unstable to stable and vegetated shingle; seasonal freshwater pools</p>
Estuaries rias	<p>Chilopoda</p> <p>Diptera</p>	<p><i>Schendyla peyerimhoffi</i> Nb centipede</p> <p><i>Lejogaster splendida</i> Nb hoverfly</p>	<p>historically undisturbed vegetation; herb-rich vegetation, especially with <i>Aster</i> and <i>Limonium vulgare</i> transitions to dry land and to freshwater seepages</p>
			local
			local
			local
			local

Sea cliffs and off-shore islands	Mollusca Orthoptera Diptera Hemiptera Coleoptera  Lepidoptera	<p><i>Ponenina subvirescens</i> Na snail  <i>Platycleis albopunctata</i> Nb Grey Bush Cricket  <i>Ectobius pallidus</i> Nb Tawny Cockroach  <i>Dicranocephalus agilis</i> Nb spurgebug  <i>Meloe violaceus</i> Nb Oil Beetle  <i>Calomicrus circumfusus</i> Na leaf beetle  <b><i>Cathormiocerus britannicus</i> RDB1 weevil</b>  very good assemblage of scarce weevils  <b><i>Plebejus argus</i> Nb Silver-studded Blue</b>  good assemblage of scarce micro- and macro-moths  <i>Bembecia muscaeformis</i> Nb Thrift Clearwing moth  <i>Lasiocampa trifolii</i> Na Grass Eggar moth  <i>Catarhoe rubidata</i> Nb Ruddy Carpet moth  <i>Euplagia quadripunctaria</i> Nb Jersey Tiger moth  <b><i>Hadena luteago</i> Na Barret's Marbled Coronet</b>  <b><i>Polymixis xanthomista staitices</i> Na Black-banded moth</b>  <i>Mythimna putrescens</i> Na Devonshire Wainscot  <i>Leucochlaena oditis</i> RDB3 Beautiful Gothic  <i>Mythimna w-album</i> Nb L-album Wainscot  <i>Limonia goritensis</i> RDB3 crane fly  <i>Chrysotoxum elegans</i> RDB3 hoverfly  <i>Leptothorax tuberum</i> Na ant  <b><i>Bombus humilis</i> local Brown-banded Carder bee</b>  <i>Aporus unicolor</i> Na spider-hunting wasp  good assemblage of scarce solitary bees  <i>Segestria bavarica</i> Na six-eyed spider; <i>Callilepis nocturna</i>  RDB1 ground spider; <i>Episinus maculipes</i> RDB3 comb-footed spider</p>	herb-rich flora; bare rocks with crevices; natural erosion no sea defences; seepages and trickles down cliff face; dry tussocky grassland on cliff top	nationally important
Freshwater Marsh	Coleoptera  Lepidoptera Diptera Aranaea	<p><i>Chlaenius nigricornis</i> Nb ground beetle  <i>Phytobius waltoni</i> Nb weevil  <i>Chilodes maritimus</i> Nb Silky Wainscot moth  <i>Pherbellia argyra</i> RDB2 snail-killing fly  <i>Gongylidiellum murcidum</i> Nb money spider</p>	reliable water table; herb-rich fen vegetation; structurally diverse fen vegetation; open turf at seepages and springs; associated scrub mainly sallow, young birch; open shallow pools and hollows; reed-beds	local

Woodland	Mollusca Orthoptera Diptyoptera Coleoptera Lepidoptera	<p><i>Limax cinerioniger</i> Nr Ash-grey Slug  <i>Omocestus rufipes</i> Nb Woodland Grasshopper  <i>Ectobius pallidus</i> Nb Tawny Cockroach  good assemblage of scarce weevils  <i>Strymonidia w-album</i> White-letter Hairstreak butterfly  <b><i>Boloria euphrosyne</i> Nb Pearl Bordered Fritillary butterfly</b>  <b><i>Argynnis adippe</i> RDB2 High Brown Fritillary butterfly</b>  good assemblage of scarce macro-moths  <i>Synanthedon vespiformis</i> Nb Yellow-legged Clearwing moth  <i>Lampropteryx otregiata</i> Nb Devon Carpet moth  <b><i>Schrankia taenialis</i> Nb White-lined Snout</b>  <b><i>Judeo croceago</i> RDB2 Orange Upperwing</b>  <i>Acleris umbrana</i> PRDB1 tortrix moth  <i>Ctenophora pectinicornis</i> Nb crane fly  <i>Tabanus miki</i> PRDBK horse fly  <b><i>Bombylius discolor</i> Nb bee fly</b>  <i>Ectemnius ruficornis</i> Nb solitary wasp  <i>Araneus angulatus</i> Nb orb-weaver spider; <i>Episimus maculipes</i>  RDB3 comb-footed spider</p>	wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; standing and fallen dead wood; carr; fungal fruiting bodies on or associated with trees; undisturbed hydrology	local
Arable and mixed farmland	Coleoptera Lepidoptera Diptera	<p>scarce ground beetles  scarce butterflies  <i>Eriogaster lanestris</i> Nb Small Eggar moth  <b><i>Asilus crabroniformis</i> Nb Hornet Robberfly</b></p>	conservation headlands, hedgerows; buffer zones by water courses; disturbed soil on waysides; ruderal and annual plants eg flixweed, used as host plants and nectar and pollen sources	local

Notes:  
*Eurodryas aurinia* Nb Marsh Fritillary butterfly is presumably extinct in this area recorded at Saltash, 1972.

Natural Area: Isles of Scilly 113

Key Habitats	Invertebrate Groups	Associated or Significant Species	Specific Needs	Significance in NA
Sand dunes & beaches	many groups, especially Lepidoptera Isopoda Coleoptera Diptera Hymenoptera	<i>Agrotis ripae</i> Nb Sand dart moth <i>Dolicarthria asinialis</i> Nb micromoth <i>Armadillidium album</i> Nb pill-woodlouse - - -	natural physiographic processes leading to fore-dune; dune ridge and grey lichen dune behind; bare sand in all zones of the dunes system; dune grasslands; herb-rich with structural diversity; dune slacks with reliable winter water supply; scattered scrub and woodland on hinterland	Regional
Maritime heath & grassland	Lepidoptera Hemiptera  Hymenoptera Coleoptera Diptera Arachnida	<b><i>Plebejus argus</i> Nb Silver-studded blue butterfly</b> <i>Emblethis verbasci</i> RDB3 ground bug <i>Strongylocoris luridus</i> Nb grass bug <b><i>Formica rufibarbis</i> RDB1 ant-</b> - - -	structural variety including open grass heath, very short turf and bare ground; rabbit disturbance; nectar & pollen sources; flowering heather; dung; patches of scrub	National
Freshwater marsh & swamp	Lepidoptera Orthoptera Arachnida Diptera Coleoptera aquatic insects Crustacea Mollusca	<i>Archana sparganii</i> Nb Webb's wainscot moth <i>Conocephalus discolor</i> Na Long-winged conehead cricket <i>Tetragnatha striata</i> Nb long-jawed spider - - - - -	mosaic of open water and dense vegetation; shallow margins; semi-natural surrounding land; reliable hydrological regime; fringes of emergent vegetation; with or without partial shade; active management; constant unpolluted water supply	Local
Elm woodland	many groups, especially Lepidoptera Diptera Coleoptera Mollusca	<i>Atolmis rubricollis</i> Nb Red-necked footman moth   <i>Xanthandrus comtus</i> Nb hoverfly - -	wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; standing and fallen dead wood; fungal fruiting bodies on or associated with trees; undisturbed hydrology	Local
Wet mesotrophic grassland	Coleoptera Lepidoptera Hemiptera	- - -	varied structure including grass tussocks; poached wet ground; tall marshy grassland cut on hay meadow rotation; scattered scrub and trees; small pools and wet hollows; herb-rich vegetation; transitions to dry ground; light grazing by stock	Local
hedgebanks	flying insects		varied structure and species diversity; flowery hedgebanks; active low-intensity management	Local

Sea cliffs & offshore islands	many groups, especially Lepidoptera Orthoptera  Hemiptera Coleoptera Diptera Hymenoptera	<i>Nothris congressariella</i> pRDB1 micromoth <i>Eilema caniola</i> Nb Hoary footman moth <i>Agrotis trux lumigera</i> Nb Crescent dart moth <i>Platycleis albopunctata</i> Nb Grey bush-cricket <i>Forficula lesnei</i> Nb Lesne's earwig <i>Piesma quadratum spergulariae</i> RDB3 beet bug - - -	natural erosion though not too fast; high proportion of exposed soil; sparse and herb-rich vegetation; seepages with constant water supply	National
Shingle features	Coleoptera Myriapoda Chilopoda	<i>Actocharis readingi</i> pRDBK rove beetle <i>Thalassiosabates litoralis</i> Nb millipede <i>Geophilus fucorum seurati</i> Nb centipede <i>Hydroschendyla submarina</i> Nb centipede <i>Miktoniscus patiencei</i> Nb woodlouse <i>Trichoniscoides saeroeensis</i> Nb woodlouse <i>Neobisium maritimum</i> Nb false-scorpion - -	natural physiographical processes, erosion etc; shingles and rocks; foredunes with strandline vegetation and debris; seepages with constant water supply; lack of coastal pollution; open sand and exposed mud	Regional
Rocky shore	Isopoda			
Boulder beaches				
Intertidal sandflats	Pseudoscorpion Mollusca soft-bodied invertebrates			
Brackish lagoons	Lepidoptera Coleoptera Diptera	- - -	mildly to strongly brackish water; natural inundation by sea; gradient from unstable to stable and vegetated shingle	Local
Sublittoral hard rock & sandbanks				
Open sea				

Natural Area: Land's End to Minehead 114			
Key Habitats	Invertebrate Groups	Associated or Significant Species	Specific Needs
Maritime grassland & scrub	Lepidoptera	<i>Eurodryas aurinia</i> Nb Marsh fritillary butterfly <i>Mellicta athalia</i> RDB2 Heath fritillary butterfly ? <i>Boloria euphrosyne</i> Nb Pearl Bordered Fritillary <i>Plebejus argus</i> Nb Silver-studded blue <i>Bembecia muscaeformis</i> Nb Thrift clearwing moth <i>Eupithecia denotata jasionaeata</i> Na Campanula pug moth <i>Eblethis verbasci</i> RDB3 ground bug <i>Trapezonus ultrichi</i> RDB3 ground bug	grassland: herb-rich with structural diversity; bare patches of ground and skeletal turf; south-facing slopes  Scrub: diversity of species and age-classes; small patches and clumps of scrub, with clearings
Maritime heath	Lepidoptera Diptera Orthoptera Coleoptera Hymenoptera Hemiptera Arachnida	- <i>Asilus crabroniformis</i> Nb Hornet robber-fly <i>Metrioptera brachyptera</i> Nb Bog bush-cricket <i>Calomicrus circumfuscus</i> Na leaf-beetle- <i>Andrena alfenella</i> , RDB3, a solitary bee	structural variety including open grass heath, very short turf and bare ground; rabbit disturbance; nectar & pollen sources; flowering heather; dung; patches of scrub
Grazing marsh	Lepidoptera Coleoptera Diptera Orthoptera Mollusca Hemiptera	- <i>Longitarsus plantagomaritimus</i> Nb leaf-beetle <i>Chlaenius nigricornis</i> Nb ground-beetle <i>Stratiomys potamida</i> Nb soldierfly <i>Tetrix ceperoi</i> Na Cepero's groundhopper <i>Lymnaea glabra</i> RDB2 Mud snail	poached wet ground; tall marshy grassland cut on hay meadow rotation; differential mowing; scattered scrub and trees; small pools and wet hollows
Rocky shore	Mollusca Coleoptera Isopods Diptera	<i>Ponentina subrufescens</i> Na Green hairy-snail <i>Aeopus robini</i> Nb ground-beetle <i>Halophiloscia couchi</i> Nb woodlouse	natural erosion though not too fast; high proportion of exposed soil; sparse and herb-rich vegetation; seepages with constant water supply
			Significance in NA National  Regional  Regional  Regional

Sand dunes & beaches	many groups, especially Lepidoptera Diptera Hemiptera Coleoptera Dictyoptera Hymenoptera Mollusca	<p><i>Agrotis ripae</i> Nb Sand dart moth <i>Plebejus argus</i> Nb Silver-studded Blue <i>Mythimna litoralis</i> Nb Shore wainscot moth <i>Phthiria pulicaria</i> Nb bee-fly <i>Asilus crabroniformis</i> Nb Hornet Robberfly <i>Dicranocephalus agilis</i> Nb Spurge bug <b><i>Cicindela maritima</i></b> Nb tiger-beetle <i>Halticus macrocephalus</i> pRDBk ground bug <i>Onthophagus nuchicornis</i> Na dung-beetle <i>Ectobius panzeri</i> Nb Lesser cockroach <i>Andrena hattorfiana</i> RDB3 solitary bee <b><i>Catinella arenaria</i></b> <b>RDB1 Sandbowl snail</b> <b><i>Lygephila cracca</i></b> <b>RDB3 Scarce blackneck moth</b> <i>Agrotis trux</i> Nb Crescent dart moth <i>Hadena luteago</i> Na Barrett's marbled coronet moth <i>Miarus micros</i> RDB3 weevil <i>Limonia goritiensis</i> RDB3 crane-fly <i>Andrena carbonaria</i> Nb solitary bee <i>Ponentina subrufescens</i> Na Green hairy-snail <i>Armadillidium pulchellum</i> Nb woodlouse <i>Segestria bavarica</i> Na six-eyed spider <i>Eilema caniola</i> Nb Hoary footman <i>Platycleis albopunctata</i> Nb Grey bush-cricket <i>Neobisium maritimum</i> Nb false scorpion <i>Halophiloscia couchi</i> Nb woodlouse <i>Trichoniscus saeroeensis</i> Nb woodlouse - -</p>	natural physiographic processes leading to fore-dune; dune ridge and grey lichen dune behind; bare sand in all zones of the dunes system; dune grasslands; herb-rich with structural diversity; dune slacks with reliable winter water supply; scattered scrub and woodland on hinterland	National
Sea cliffs & offshore islands	<p>Lepidoptera Coleoptera Diptera Hymenoptera Mollusca</p>	<p>natural erosion though not too fast; high proportion of exposed soil; sparse and herb-rich vegetation; seepages with constant water supply</p>	Regional	
Shingle & cobble	<p>Lepidoptera Orthoptera Pseudoscorpion Isopoda Diptera Coleoptera</p>	<p>unpolluted and undisturbed beach debris; transitions to dry ground; herb-rich vegetation; brackish and freshwater seepages</p>	Local	
Coastal cliff woodlands	<p>Lepidoptera Diptera Coleoptera Hymenoptera Araneae</p>	<p>semi-natural woodland; damp, shady environment; exclusion of grazing stock; wet rocks and small waterfalls with mosses; dead wood; standing and fallen timber</p>	Local	

Ancient woodland & parkland	many groups, especially Lepidoptera Diptera  Coleoptera  Mollusca	<p><i>Alcis jubata</i> Nb Dotted carpet moth  <b><i>Lipsothrix nervosa</i></b> local cranefly  <i>Mallota cimbiciformis</i> Nb hoverfly  <i>Paraclusia tigrina</i> Nb fly  <i>Pyrochroa coccinea</i> Nb Black-headed cardinal-beetle  <i>Cerylon fagi</i> Nb beetle  <i>Limax cinereoniger</i> Nb Ash-black slug</p>	<p>woods: wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; standing and fallen dead wood; carr; fungal fruiting bodies on or associated with trees; undisturbed hydrology</p> <p>parks: retention of old trees pollards, ancient hulks, nectar sources; dead wood, new generations of trees; fungal fruiting bodies on or associated with trees; unimproved pasture or meadow grassland</p>	Regional
Estuaries	many groups, especially Coleoptera flying insects	<i>Bembidion pallidipenne</i> Nb ground-beetle	estuaries with unpolluted transition from fresh to salt water; saltmarsh communities and rhine systems; exposed mud; shingles and rocks	Regional
Mixed farming	flying insects	<i>Strymonidia w-album</i> Nb White-letter hairstreak butterfly	hedgerows and trees; small streams and drains; patches of species-rich grassland; small ponds and marshy areas; conservation headlands in arable land	Local
Derelict land	flying insects	<i>Ceutorhynchus resedae</i> Nb weevil	herb-rich, flowery grasslands; scattered mixed scrub and trees; open ground and skeletal vegetation; marshy hollows and mud	Local

Added category 'Ancient woodland & parkland'. Other categories re-ordered to give more cohesive groups. *Xylena obsoleta* Nb Swordgrass moth and *Mythimna turca* Nb Double Line are recorded in this NA.





Natural Area: Severn Estuary 116

Key Habitats	Invertebrate Groups	Associated or Significant Species	Specific Needs	Significance in NA
Coastal sand, shingle & dune	many groups, especially Coleoptera Hymenoptera Lepidoptera Diptera	<i>Amara curta</i> Nb ground-beetle <i>Opatrum sabulosum</i> Nb darkling beetle <i>Agriotes sordidus</i> pRDB3 click beetle <i>Eutropha fulvifrons</i> Nb fly <i>Andrena fulvago</i> Na solitary bee - - - - - - -	natural physiographic and tidal processes; bare sand; herb-rich grasslands with structural diversity; scattered scrub and woodland on hinterland; seepages and wet hollows; undisturbed and unpolluted shingle and sediments	Local
Intertidal mud & sandflats	Crustacea Mollusca soft-bodied invertebrates	- - - - -	undisturbed and unpolluted sediments; natural tidal regime	National
Intertidal rock platforms	Crustacea Mollusca	- -	pools and hollows; small areas of sand and shingle; natural <u>physiographical</u> processes and tidal regime	Regional
Coastal rock exposures & fossils	Coleoptera Hymenoptera Lepidoptera Diptera	<i>Trachyphloeus digitalis</i> Na weevil <i>Alysson unicolornis</i> Nb solitary wasp <i>Nomada flavopicta</i> Nb nomad wasp - -	natural erosion though not too fast; high proportion of exposed soil; sparse and herb-rich vegetation; seepages with constant water supply	Regional
Coastal limestone grassland	many groups, especially Lepidoptera Coleoptera Diptera  Hymenoptera Hemiptera Orthoptera Aranaea Mollusca	<b><i>Argynnis adippe</i> RDB2 High brown fritillary butterfly</b> <b><i>Lysandra bellargus</i> Nb Adonis blue butterfly</b> <i>Adscita geryon</i> Nb Forester moth <i>Chrysolina violacea</i> Nb leaf-beetle <i>Urophora solstitialis</i> pRDB3 large fruit-fly <i>Symphoromyia immaculata</i> Nb snipe-fly <i>Andrena falsifica</i> Na solitary bee <i>Macroplox preysleri</i> pRDB3 ground bug <i>Gomphocerippus rufus</i> Nb Rufous grasshopper <i>Ozyptila blackwallii</i> Nb crab-spider -	tussocky flower-rich sward; varied sward length; patches of bare ground; patches of scrub	National
Grazing marsh & saltmarsh	Coleoptera  Diptera Lepidoptera	<i>Agonum nigrum</i> Nb ground-beetle <i>Aphodius plagiatus</i> Nb dung-beetle <i>Chaetocnema sahlbergi</i> Na leaf-beetle <i>Beris clavipes</i> Nb soldierfly <i>Haematopota bigoti</i> RDB3 horse fly -	herb-rich vegetation; transitions to dry ground; brackish and freshwater seepages	Regional

Farmland & small woodlands	many groups, especially Lepidoptera Diptera Coleoptera Mollusca	<p><i>Thecla betulae</i> Nb Brown hairstreak butterfly  <i>Strymonidia w-album</i> Nb White letter hairstreak butterfly  <i>Boloria euphrosyne</i> Nb Pearl-bordered fritillary butterfly  <i>Eriogaster lanestris</i> Nb Small eggar moth  <i>Eumerus ornatus</i> Nb, <i>Volucella inflata</i> Nb: hoverflies  -  -</p>	<p>farmland: hedgerows and trees; small streams and drains; patches of species-rich grassland; small ponds and marshy areas; conservation headlands in arable land</p> <p>woods: wide variety of native trees and shrubs; flowery open spaces; pollen and nectar sources; standing and fallen dead wood; carr; fungal fruiting bodies on or associated with trees; undisturbed hydrology</p>	Regional
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Assumed that high brown fritillary is on calcareous grassland/scrub at Walton Down, otherwise may need to add a category.

Added a category 'farmland and small woodlands' to cover non-coastal spp.

Added a category 'Coastal sand, shingle & dune'.