

## What are Important Invertebrate Areas (IIAs)?

- Buglife's ongoing long-term initiative for coordinated invertebrate conservation.
- Nationally and internationally significant places across the UK for the most threatened and rare invertebrates and the habitats they rely on.
- A vital tool that can direct and prioritise conservation efforts to ensure better protection of invertebrates and to restore their populations to sustainable levels.



### How are IIAs selected, mapped and shared?

#### 1. Initial consultations

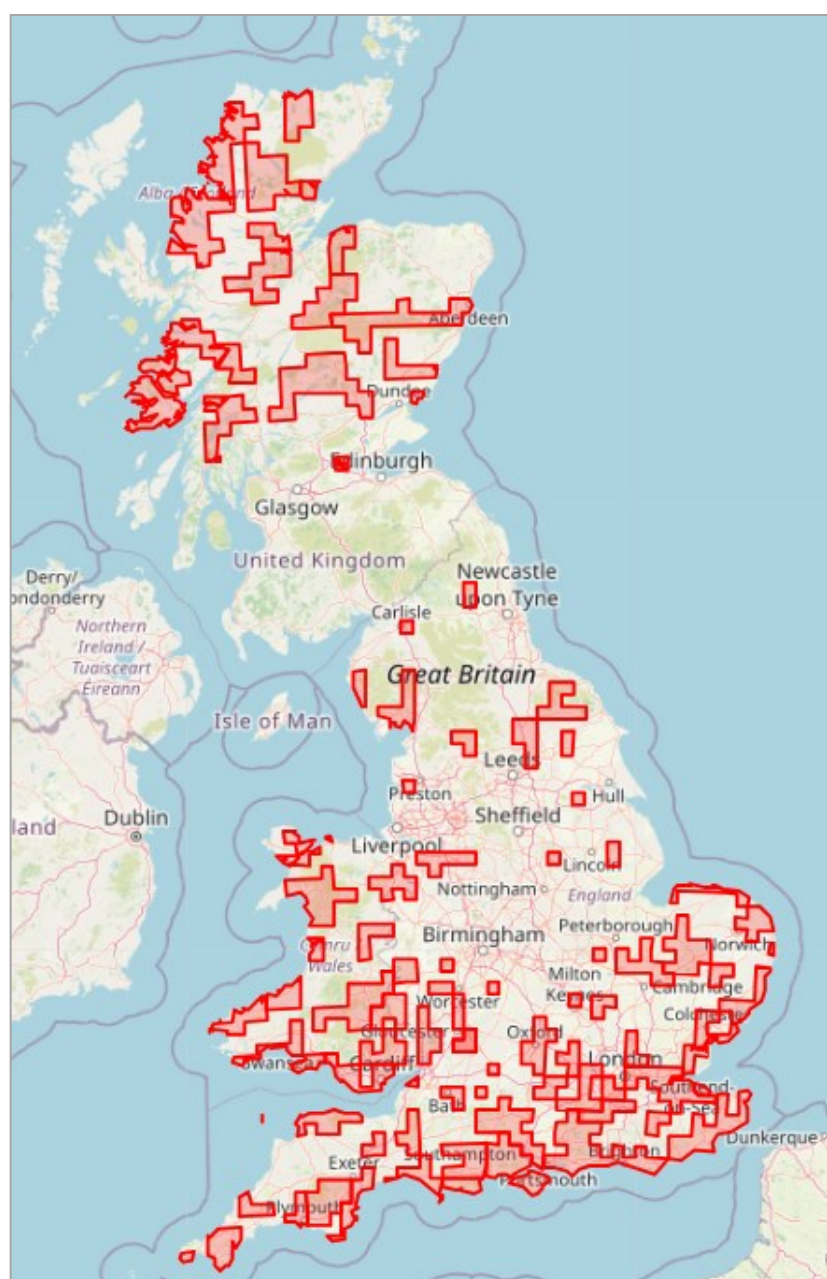
- These involved data and taxonomy experts, statutory bodies and other stakeholders.
- Overall IIA approaches agreed, resulting in final agreements on selection criteria for species and areas based on IUCN threat and GB rarity statuses:

IIA Qualifying Criteria	Description
<b>Category A:</b> <b>Hectads support a single species in one of these criteria</b>	
(i) Area supports globally endangered species	Species listed as Critically Endangered (CR), Endangered (EN) or Vulnerable (VU) on IUCN global red lists.
(ii) Area supports European endangered species	Species listed as Critically Endangered (CR) or Endangered (EN) on IUCN European red lists.
(iii) Area supports nationally Critically Endangered species	Species listed as Critically Endangered (CR) on national red lists.
(iv) Area supports endemic species	Species recognised as endemics, only found in the UK and not widely distributed.
<b>Category B:</b> <b>Hectads support a nationally important assemblage of rare or threatened invertebrates</b>	A hectad exceeds a threshold for number of species meeting any of the criteria below. For England and Wales the threshold is 8 species, for Scotland it is 4 species. Qualifying species are: <ul style="list-style-type: none"> <li>Species listed as Vulnerable (VU) on IUCN European red lists, or listed on Habitats Directive Annexes IIa and IVa, or Bern Convention Appendix II or III.</li> <li>Species listed as Endangered (EN) on national red lists.</li> <li>Species listed as nationally rare (GB NR or equivalent).</li> </ul>

#### 2. Species data collation and data-driven analyses

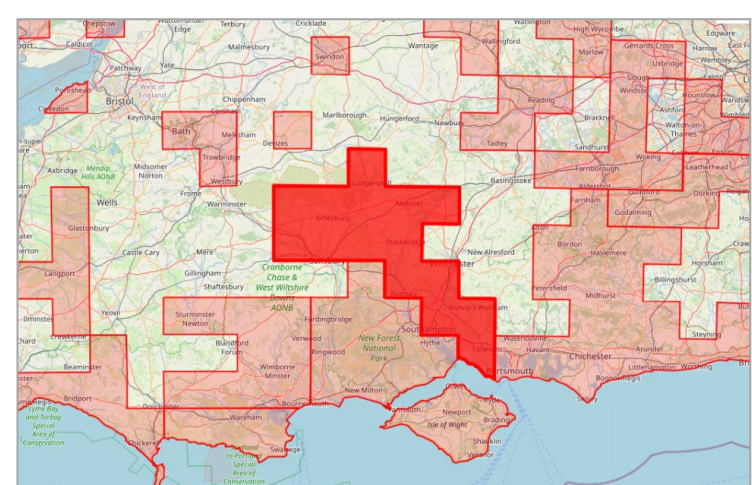
- 45 million species records from 85+ recording schemes obtained and analysed against the qualifying criteria.
- Full list of data contributors can be found on Buglife's website > Our work > IIAs.
- IIAs cover all non-marine invertebrates with existing modern IUCN threat or GB rarity statuses prior to 2018, when the broad-scale mapping was undertaken.

#### 3. Country-wide network of broad-scale IIAs identified



Map of qualifying IIA network in GB.

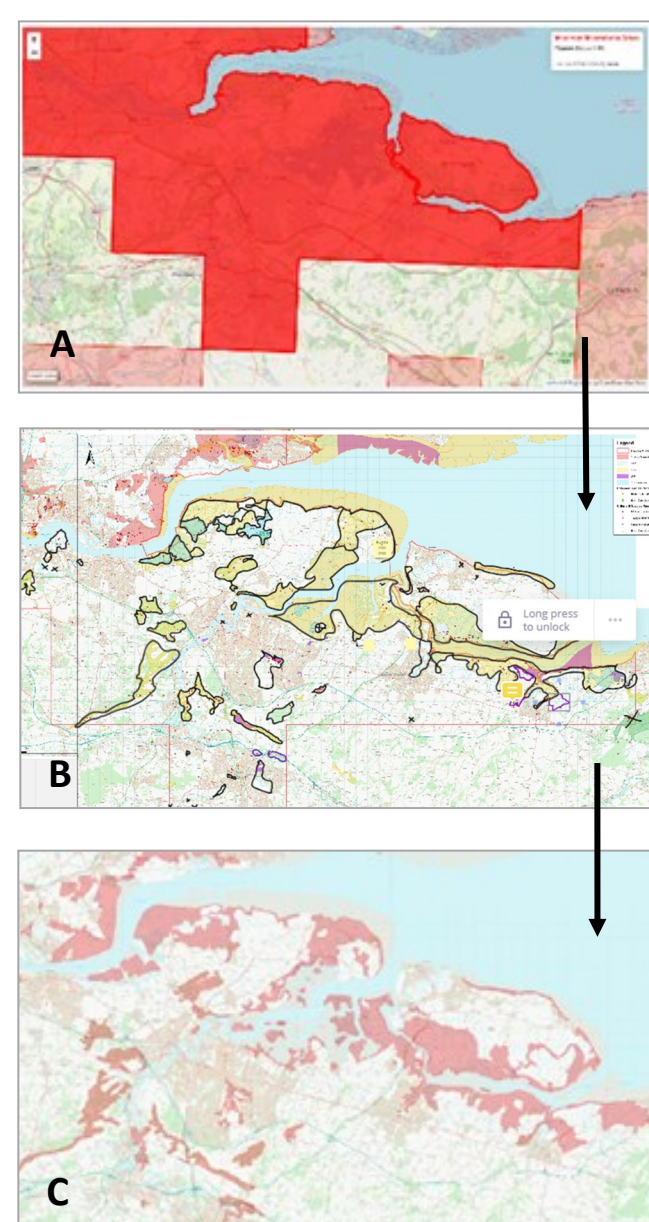
- Hundreds of hectads (10km x 10km areas of land) across GB qualified as IIAs.
- Based on geographical and historical information, hectads were grouped together to form the final 105 IIAs of varying sizes:
  - 68 in England (e.g. Norfolk Coast IIA)
  - 20 in Scotland (e.g. Dee IIA)
  - 17 in Wales (e.g. North West Wales IIA).



A map showing the various sizes and shapes of IIA areas. Highlighted area is of the proposed Salisbury Plain and Test Valley IIA, composed of 14 hectads. To the north are a couple of single-hectad IIA areas including Pewsey Downs and Midvale Ridge IIAs.

#### 4. Mapping fine-scale IIAs (ongoing)

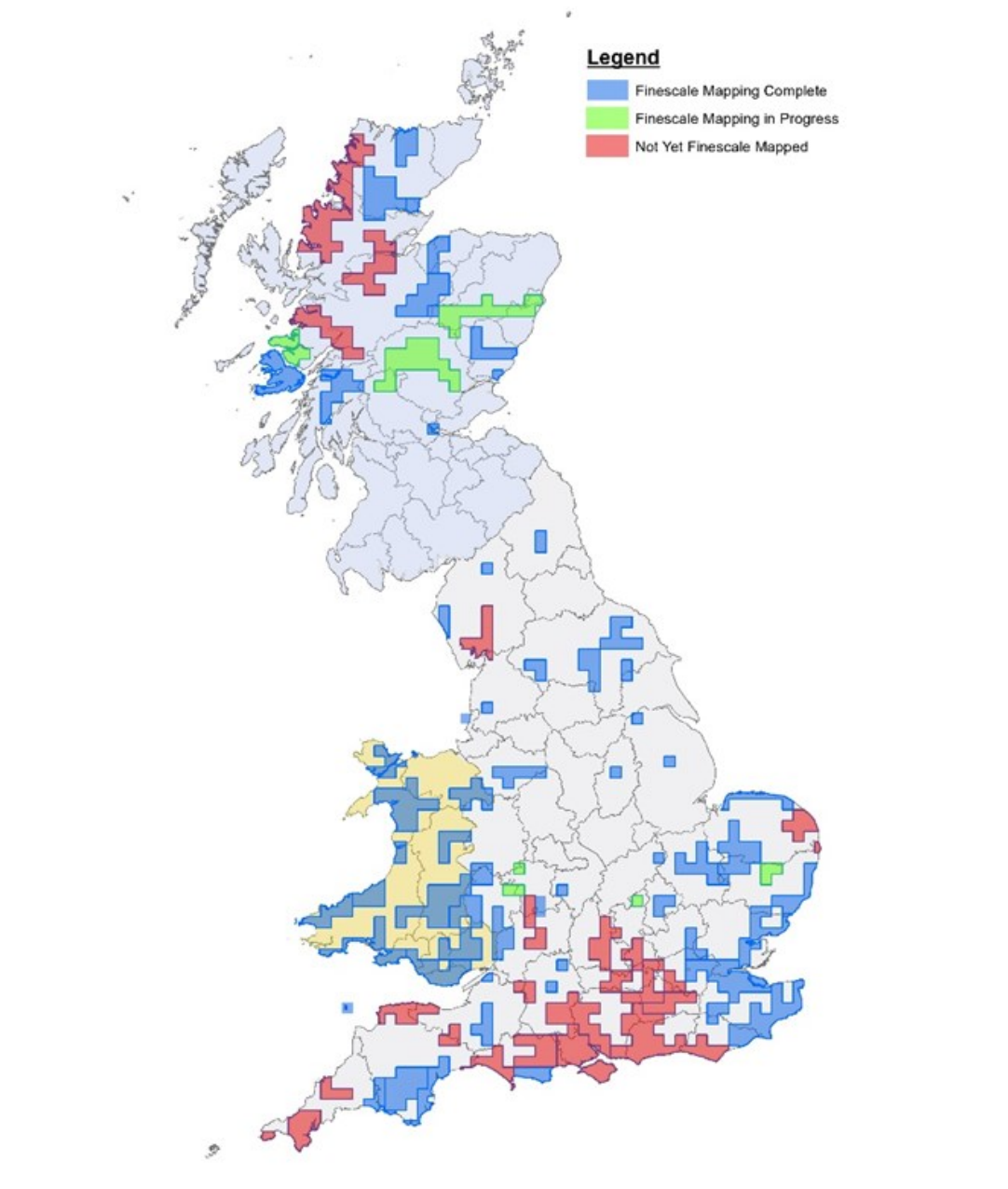
- Each broad-scale hectad area is turned into a fine-scale IIA in interactive mapping workshops with local taxonomists and naturalists.
- A complex multi-stage process that involves:
  - Obtaining the latest species record data from environmental record centres and merging with existing national data.
  - Creating an initial qualifying species list for an IIA.
  - Preparing maps for the workshop with species records & relevant GIS layers e.g. Local Wildlife Sites.
  - In the workshop, annotating maps to identify only the key areas and habitats of importance for invertebrates.
  - Scrutinising the species list with local entomologists to exclude unsuitable species e.g. non-established migrant species or misidentifications.
- Final species list and fine-scale maps are generated.
- Ca. 61 hectad areas now fine-scale mapped.



The process of turning hectads into fine-scale IIA maps. A: Hectad-based area of the Thames Estuary South IIA. B: Annotated map during an online mapping workshop using Miro software with participants drawing around the most important invertebrate habitats. C: Final digitised version of fine-scale IIA.

#### Important points:

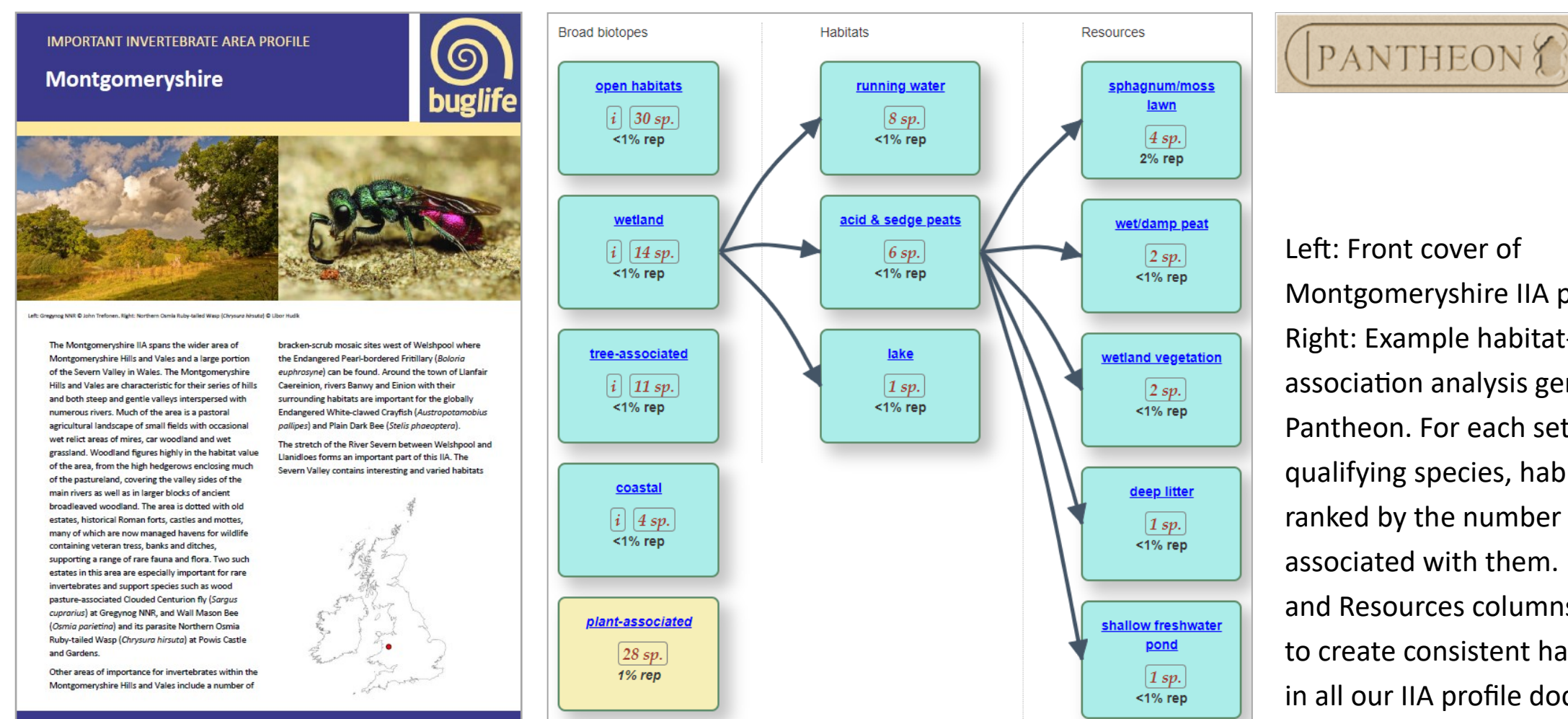
- Habitats outside of IIAs can still be home to rare and threatened invertebrates in need of conservation.
- We can only work with the available data i.e. only those species with modern status reviews by a 2018 cut off were included. For some taxa, expert opinion was used in place of modern reviews.
- IIA methodology is designed to be repeatable in future years – as new data and status reviews become available, these will be included to respond to the changing state of our invertebrate populations.



Current progress of fine-scale mapping of IIAs across GB. Wales – all 17/17 IIAs mapped, Scotland – 10/20 mapped, England – 36/68 mapped. All areas to be completed by 2025.

#### 5. IIA profiles created (ongoing). Please see a printed example attached below.

- Each mapped IIA will have an associated profile document, which includes a summary of the local area's character, reasons for selection, key habitats for qualifying invertebrates, and habitat threats and opportunities.
- The online habitat analysis tool Pantheon, created by Natural England and the Centre for Ecology and Hydrology, was used to generate habitat categories and associations.

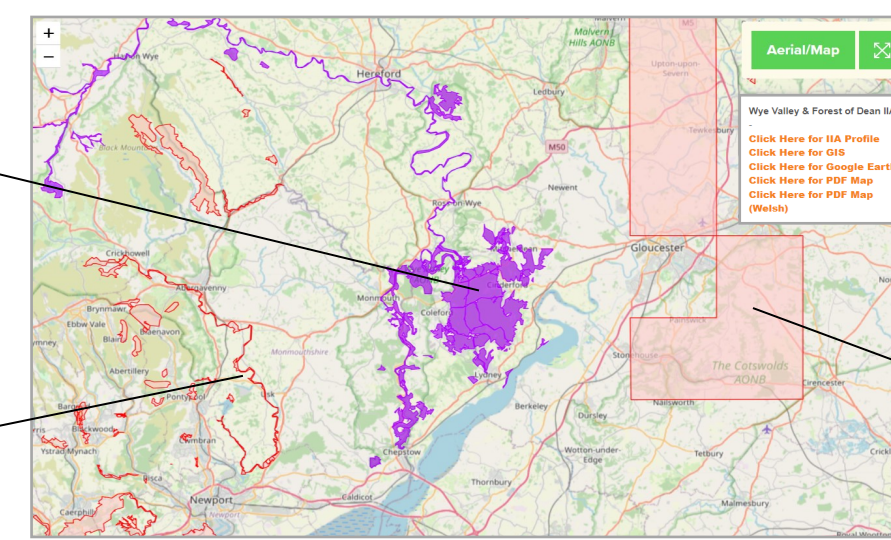


Left: Front cover of Montgomeryshire IIA profile. Right: Example habitat-species association analysis generated by Pantheon. For each set of IIA qualifying species, habitats are ranked by the number of species associated with them. Habitats and Resources columns are used to create consistent habitat lists in all our IIA profile documents.

#### 6. IIA information accessible and freely available from interactive map and web pages

- Each finalised IIA will be added to our online interactive IIA map, and will have a suite of freely downloadable associated resources including PDF profile document and fine-scale map files in various formats (PDF, Google Earth and GIS).
- <https://www.buglife.org.uk/our-work/important-invertebrate-areas/>

Click on an IIA to reveal its full extent and associated files. Full extent of Wye Valley and Forest of Dean IIA is highlighted in purple.

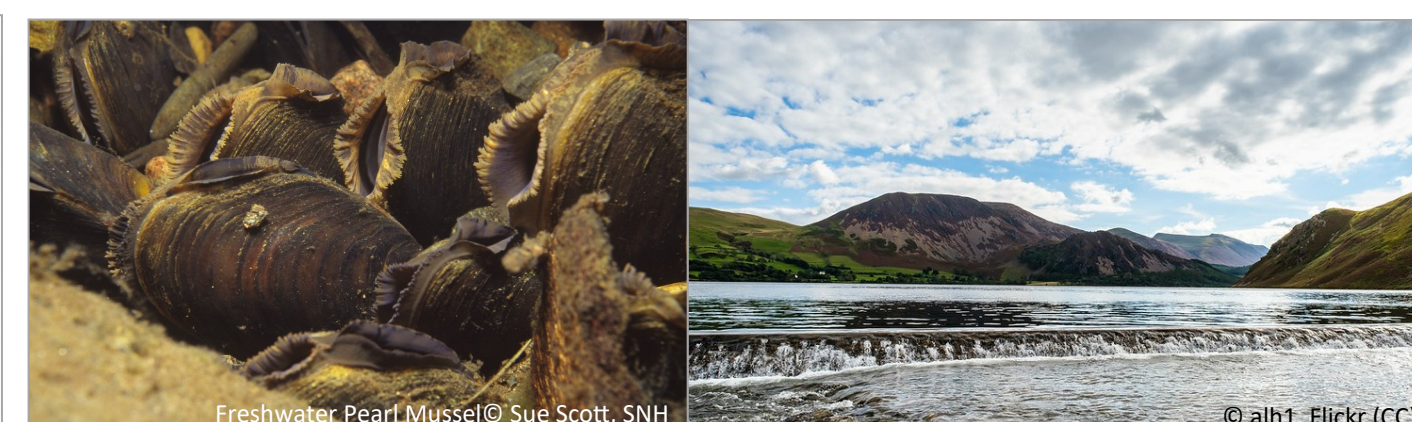
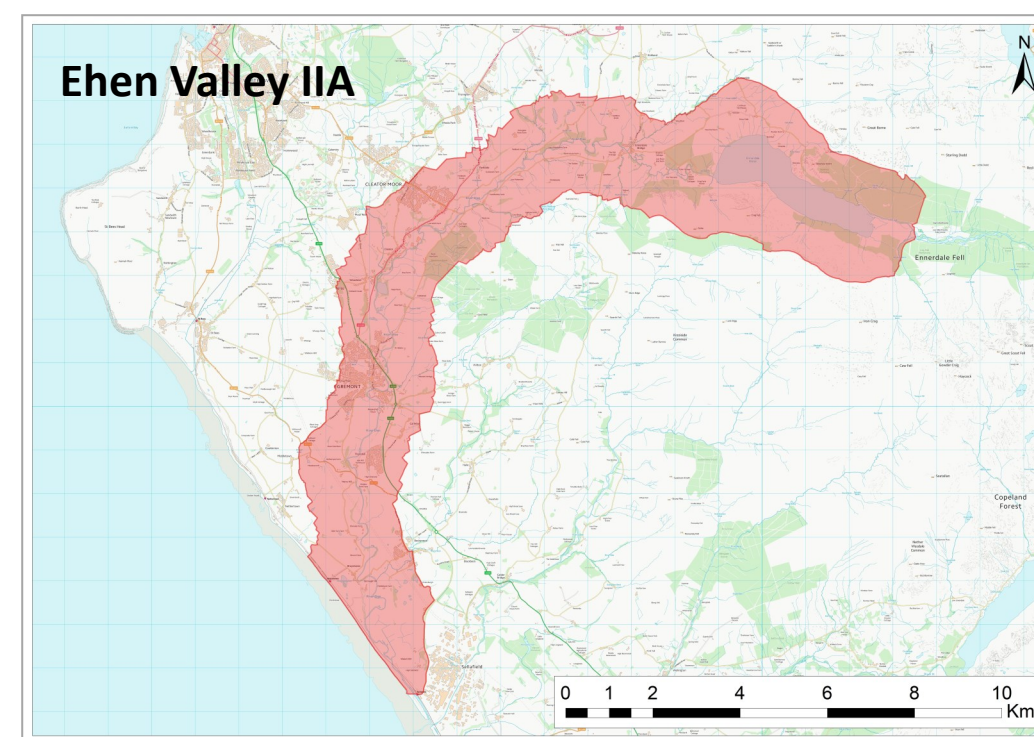


Once a finalised IIA is selected and highlighted, a table with downloadable links to its associated files is revealed.

A neighbouring IIA (in this case South Wales Valley IIA) is in red and not highlighted. The detailed shape of the IIA indicates that this area has now been fine-scale mapped.

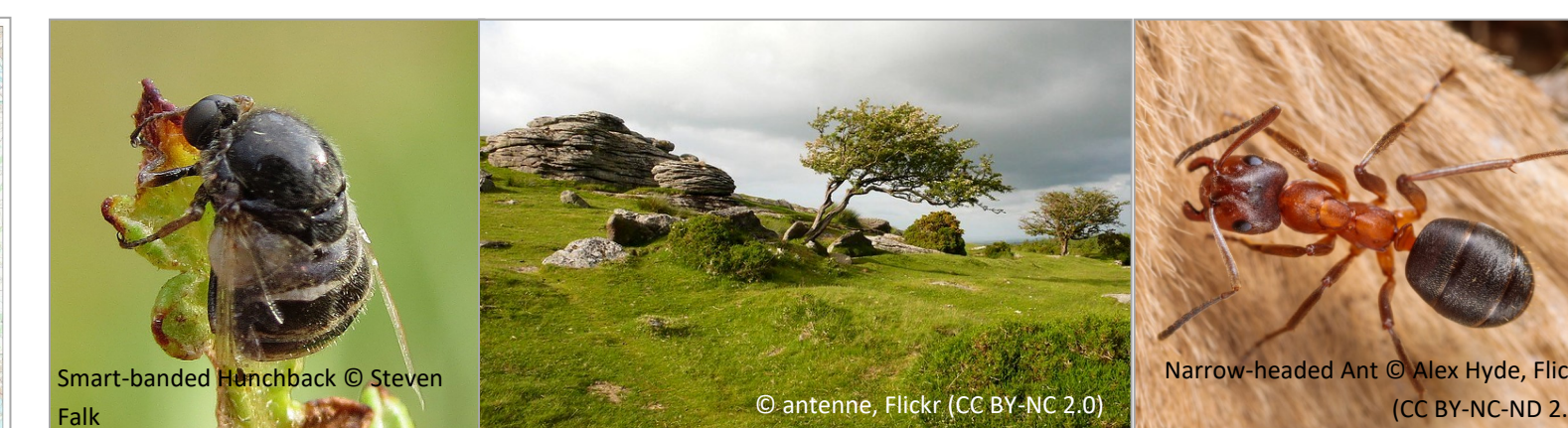
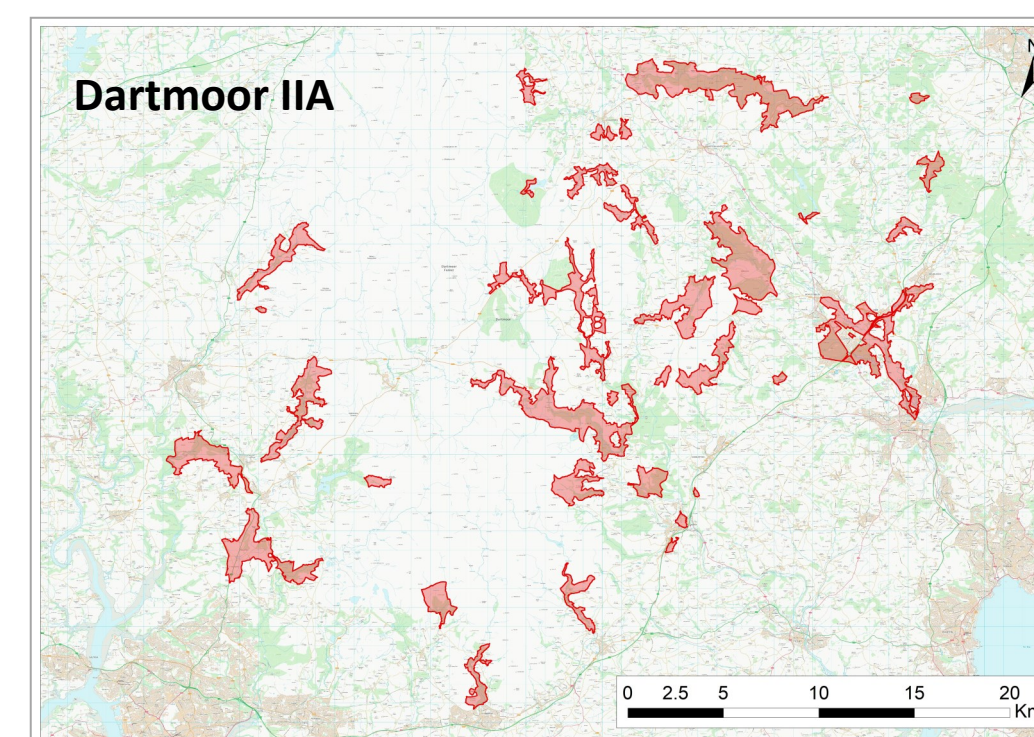
A neighbouring IIA area (in this case Cotswolds IIA) shown in hectads—this means this area qualifies as an IIA but has not been fine-scale mapped yet.

### IIA examples: Single species and Landscape IIAs



Number of qualifying species: 1  
Species status: Global EN; EU CR; GB CR; GB NR.  
Key habitats for invertebrates: Running water.

The Ehen Valley IIA in Cumbria has qualified as an IIA for a single threatened species. It is home to England's largest population of Freshwater Pearl Mussel (*Margaritifera margaritifera*), making it a national conservation priority.



Number of qualifying species: 37  
Species statuses: EU Annex 2 (2 species); Endemic (1); GB CR(2), EN (3); GB NR (16), provisional NR (10).  
Key habitats for invertebrates: Tall sward & scrub, Running water, Arboreal, Short sward & bare ground, Decaying wood, Woodland floor, Acid & sedge peats.

Dartmoor IIA in contrast is for a large species complex. Nationally, species like Bog Hoverfly (*Eristalis cryptarum*) and Heckford Pygmy Moth (*Ectoedemia heckfordi*) are only known from a handful of locations in Devon, most of which are covered by the Dartmoor IIA. It is also a national stronghold for the charismatic Blue Ground Beetle (*Carabus intricatus*), the dor beetle *Geotrupes mutator* and supports England's only population of the Narrow-headed Ant (*Formica exsecta*).

### How are IIAs going to help our invertebrates?

- The effective focusing of invertebrate conservation to where it is needed most e.g. coordinated management of high-value invertebrate habitats within IIAs.
- Review of the effectiveness of Protected Area Networks in representing the most important sites for invertebrates (e.g. only 19.6% of South Wales Coast IIA is within Site of Special Scientific Interest designation).
- Better planning outcomes for invertebrates, by helping to recognise important areas and habitats for invertebrates at the earliest opportunity e.g. in Environmental Impact Assessments.
- Identify gaps between high-quality invertebrate habitat to encourage connectivity.
- Raised profiles for invertebrate communities including less well-known species and groups.
- Promotion of small-scale habitat features that are important for invertebrates but are often neglected e.g. freshwater seepages or bare ground habitats.

### Acknowledgements

The IIA initiative wouldn't be possible without the recording schemes and record centres providing their data, our external funders and the expert input of national recorders, advisors, mapping workshop participants and Buglife's staff.