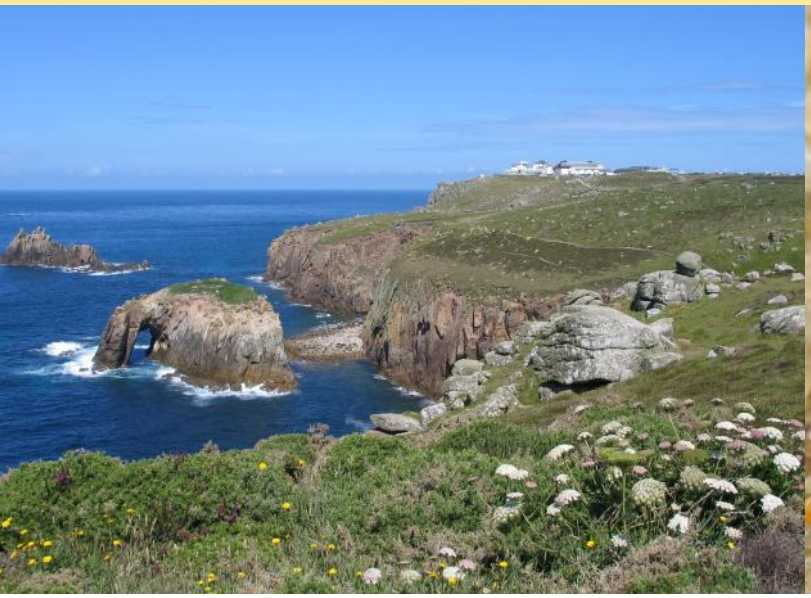
IMPORTANT INVERTEBRATE AREA PROFILE

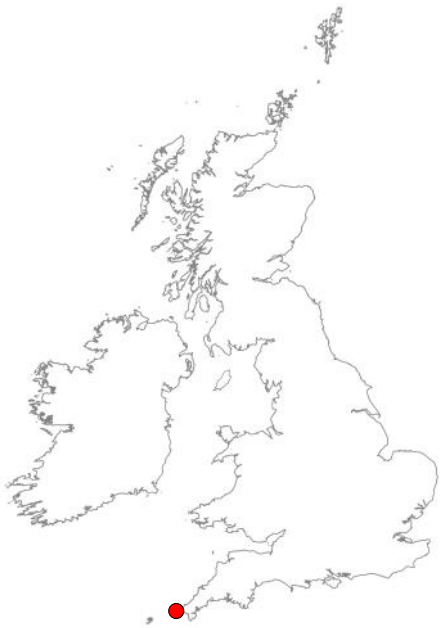
West Penwith



Left: Land's End © Simon Lewis. Right: Cornish Shieldbug (*Geotomus punctulatus*) © Tristan Bantock

West Penwith or Land's End Peninsula is located at the south-west extremity of England at the tip of Cornwall. It is a sparsely populated area with an open rocky plateau at the centre, interspersed by narrow ancient lanes with granite walls, and surrounded by the sea on three sides. The powerful waters of Atlantic Ocean give rise to a complex matrix of coastal habitats including the spectacular high hard-rock columnar cliffs, narrow inlets known locally as zawns, sandy coves, dunes, and rocky beaches. The Atlantic climate and granite geology of the whole area underpin its land use. Hard rock combined with high rainfall give rise to thin and peaty topsoils with fast-flowing shallow streams, grassy marshes and wet heathland, forming an inland mosaic with dry habitats of rough grassland, rocky outcrops, heather and gorse scrub, wooded valleys and agricultural land. The whole area is dotted by the tall chimneys and engine houses that are remnants of the area's mining history.

The West Penwith Important Invertebrate Area (IIA) is largely encompassed within the West Penwith section of the Cornwall National Landscape as well as several Sites of Special Scientific Interest (SSSI). The inland sites of the IIA are mostly covered by West Penwith Moors and Downs SSSI, with the main habitats here creating an extensive patchwork of lowland heath, grassy marshes, dry acid grassland and inland rock. The area also features unique ex-mining habitat elements such as arid peatland and coastal cliff scrapes that are especially important for ground-nesting bees and wasps. The dry areas of dwarf shrub heath at Carn Brea and Tredinney and Bartinney Commons by the Land's End Airport, and further north around Busvargus, Tregeseal, Carnyorth and Woon Gumpun Commons



support the species of the ant-nest specialist Limestone Ant Fly (*Microdon mutabilis*), the European Vulnerable Hairy-saddled Colletes bee (*Colletes fodiens*) and Tormentil Nomad Bee (*Nomada roberjeotiana*), a kleptoparasite of Tormentil Mining Bee (*Andrena tarsata*). The wet acid mire elements of the heath support the cranefly *Tipula melanoceros*.

In addition to the extensive West Penwith Moors and Downs SSSI, there are other inland sites with good quality mire, wet woodland and lichen-rich willow woodland areas including the wildlife-friendly Rospannel Farm where the tortoise beetle *Cassida sanguinosa* can be found. The endemic British Cave Shrimp (*Niphargus glenniei*), which lives in water in wells and pumps that are fed by deep ground aquifers, can be also found scattered throughout the IIA.

The coastal part of the IIA stretches almost continuously between Cape Cornwall in the north-west to Mousehole in the south-east. The presence of old mineshafts in the coastal habitats here, especially around St Just, causes any surface water to quickly drain down the shafts, creating an unusually arid scree environment, which is especially important for spiders as well as ground-nesting bees and wasps. The maritime grassland and soft-geology cliffs of the Aire Point to Carris Du SSSI support Buff-banded Mining Bee (*Andrena simillima*), Moss Carder Bee (*Bombus muscorum*), and two Sheep's-bit plant specialists - Sheep's-bit Weevil (*Cleopomiarus micros*) and Scarce Clouded Knot-horn (*Homoeosoma nimbella*). Dune system at Sennen Cove is home to two very rare shieldbugs – the Critically Endangered Cornish Shieldbug (*Geotomus punctulatus*), which is associated with Lady's Bedstraw, and the Endangered New Forest Shieldbug (*Eysarcoris aeneus*). The coastal areas west of Porthgwarra are especially important for rare spiders, including Goldern Lantern-spider (*Agroeca cuprea*), Western Ground Spider (*Gnaphosa occidentalis*), Southern Mesh-weaver (*Lathys stigmatisata*) and the Endangered Nose Gallows-spider (*Lasaeola prona*). This area is also important for butterflies, and although not our qualifying species, it supports the biggest Cornish coastal population of Grayling (*Hipparchia semele*).

Further east along the coast below St Loy Farm, lie the longest stretches of cliffs with soft geology in West Penwith area which supports specialists of this habitat including Fringeless Nomad Bee (*Nomada conjungens*), and locally important (but non-qualifying species for our IIAs) Long-horned Bee (*Eucera longicornis*). Coastal strip habitat and rocky quarries around Lamorna Valley support maritime weevil *Cathormiocerus maritimus* and the centipede *Arenophilus peregrinus.* Lastly, the coastal area around Mousehole supports the ground beetle *Bembidion nigropiceum* and Shore Crevice Bug (*Aepophilus bonnairei*), a wingless specialist of the low intertidal zone found in very narrow rocky crevices.

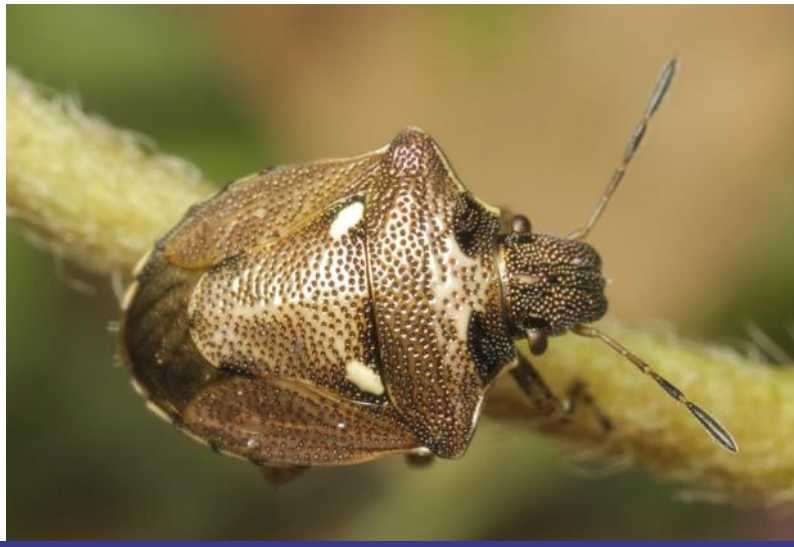
Reasons for selection

The West Penwith IIA supports at least 22 qualifying IIA species of conservation concern. The area supports the following species which are endemic, threatened on a European scale, Critically Endangered or Endangered on a national scale:

- Endemic British Cave Shrimp (*Niphargus glenniei*)
- European Vulnerable Moss Carder Bee (*Bombus muscorum*)
- European Vulnerable Hairy-saddled Colletes (*Colletes fodiens*)
- Critically Endangered Cornish Shieldbug (*Geotomus punctulatus*)
- Endangered New Forest Shieldbug (*Eysarcoris aeneus*)
- Endangered Nose Gallows-spider (*Lasaeola prona*)

The IIA also supports the nationally Vulnerable species of Southern Mesh-weaver. Nationally, species like the Critically Endangered Cornish Shieldbug is confined to a single location in Britain at Sennen Cove, which is

New Forest Shieldbug (*Eysarcoris aeneus*) © Tristan Bantock



covered by this IIA. A recent record from 2024 for the Endangered New Forest Shieldbug from this area suggests this species is now established in Cornwall - the only county outside of its historical distribution in Hampshire and the Isle of Wight. Western Ground Spider is only found in Cornwall in the UK and this IIA is one of its strongholds.

Additionally, this IIA is also regionally important in the South West for a number of other rare or declining bee and butterfly species (but not IIA qualifying species) including Perkin's Mining Bee (*Andrena rosae*), Large Scabious Bee (*Andrena hattorfiana*), Small Pearl-bordered Fritillary (*Boloria selene*) and Silver-studded Blue butterflies (*Plebejus argus*).

These important invertebrate populations rely on the West Penwith IIA's unique range of habitats from wet and dry heathland, clifftop grassland, to coastal slopes, cliffs and rocky shore. Whilst parts of the IIA are under some form of legal protection (e.g. SSSI, SAC), there are considerable portions that are outside of any designated areas.

Key habitats for rare invertebrates in the IIA

Using the Pantheon analytical tool, we identified some of the key habitats and microhabitats for the selected rare invertebrates, and listed a selection of invertebrates associated with them.

- **Short sward and bare ground** (including sward/ field layer; exposed sand; litter & ground layer; and stones, boulders, shingle & scree) e.g. Tormentil and Fringeless Nomad Bees, Cornish Shieldbug, Buff-banded Mining Bee, Golden Lantern Spider, Southern Mesh-weaver, Hairy-saddled Colletes, Nose Gallows-spider, Scarce Clouded Knot-horn, and Sheep's-bit Weevil.
- **Tall sward and scrub** (sward/field layer; and litter & ground layer) e.g. Moss Carder Bee, the tortoise beetle *C. sanguinosa,* and New Forest Shieldbug.
- **Rocky shore** e.g. the centipede *A. peregrinus* and Shore Crevice Bug.
- **Sea cliff** e.g. the weevil *C. maritimus* and Western Ground Spider.
- **Acid and sedge peats** (including sphagnum/moss lawn) e.g. the cranefly *T. melanoceros*.
- **Running water** e.g. British Cave Shrimp.
- **Saltmarsh** (including saline silt) e.g. the flea beetle *Neocrepidodera impressa*.
- **Sandy beach** (including saline silt) e.g. the ground beetle *B. nigropiceum*.
- **Upland** (including nests) e.g. Limestone Ant Fly.

Other habitats that don't have any qualifying species but are important in supporting the wider invertebrate assemblages in the IIA include:

- **Arboreal**
- **Shaded woodland floor**
- **Marshland**
- **Wet woodland**

Limestone Ant Fly © Francis Birlenbach (CC BY NC)

Habitat Threats and Opportunities

Cliff top grassland-scrub mosaic

<u>Threats</u>

- The direct loss of cliff top grasslands to intensive grazing and arable agriculture or development such as sea defences, caravan parks or golf courses, reduces the wildflower-rich habitats that cliff specialists utilise as a source of forage, for overwintering or to disperse between sites.
- Retreating cliff lines on many sections of coast have left only a thin remnant strip of cliff top wildflower-rich grasslands, leading to coastal squeeze.
- Overgrazing or grazing at the wrong time of year can lead to a loss of structural variation and a short sward that lacks the flowers and shelter needed by many invertebrates.
- Although limited scrub or patches of scrub provide important shelter, nectar and pollen, the loss of

grazing or other management can lead to areas becoming dominated by thick grass, Bracken and scrub at the expense of valuable flowery grassland and bare ground.
- Applications of pesticides and herbicides directly impact invertebrate survival, can alter soil biology, function and soil invertebrate communities as well as leach out to the nearby coastal slopes and cliffs.
- While well-structured footpaths receiving moderate use can be of very high value (e.g. by maintaining open bare ground), excessive recreational pressure can alter vegetation communities through trampling, soil compaction and erosion – this can affect habitat continuity.
- Invasive non-native plant species (e.g. Cotoneaster) can negatively affect the vegetation and structural composition of cliff top grasslands.

Opportunities

- Enhance existing species-poor grasslands through changes in grazing management and overseeding/ green haying where appropriate, to improve connectivity between small and isolated cliff top grasslands.
- Although valuable in limited amounts or patches, dominant scrub on cliff top grasslands should be removed by cutting or grazing to encourage areas of wildflower-rich grasslands and scrub mosaic.
- Aim to produce a mosaic of successional stages, from bare ground in short sward areas, through to tall swards with establishing and established scrub.
- Restore species-rich grassland via arable reversion where opportunities occur.
- Aim to establish a diversity of plant species to encourage a wide diversity of invertebrates as well as foodplant-specific species in this area such as Cornish Shieldbug (on Lady's Bedstraw), and Sheep's-bit Weevil and Scarce Clouded Knot-horn (on Sheep's-bit).
- Try for flexible coastal squeeze solutions, moving inland in line with retreating coastlines to maintain the extent of useful cliff top habitat.
- When reviewing grazing strategies, consider reducing intensity and avoiding spring and summer grazing to enable wildflower species to flower and set seed. Winter grazing can help to encourage a more wildflower-rich sward by controlling grasses and creating germination opportunities.
- On agricultural land, create buffers (by planting wildflower strips of leaving tussocky grasses which are cut every 2-3 years) to improve the water quality of freshwater cliff features.
- Manage recreational pressures using fencing and signage to divert people away from sensitive areas.
- Control or remove invasive plant species.

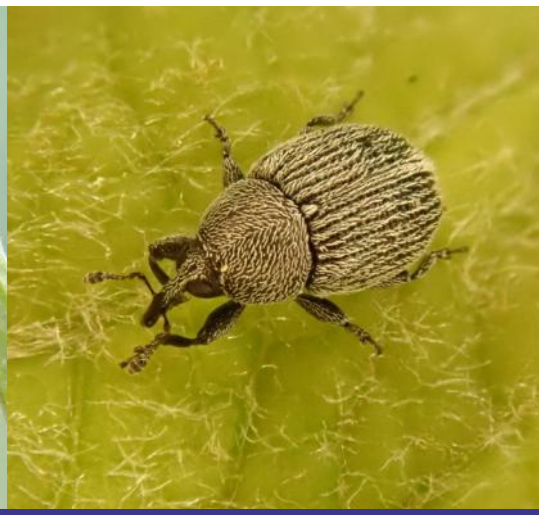
Heathland

Threats

- Poor management or implementation of the same management approach too widely can lead to uniform heathland habitats that lack structural and age variation, reducing their value for invertebrates.
- Overgrazing can lead to a loss of heather stands, creating open grass-dominated areas and making them more prone to be invaded by competitive plants such as Bracken. Conversely, lack of management or undergrazing can lead to a loss of bare ground, soil disturbance and succession to scrub and woodland.

Left to right: Tormentil Nomad Bee (*Nomada roberjeotiana*) © Steven Falk; Nose Gallows-spider (*Lasaeola prona*) © Tylan Berry; Sheep's-bit Weevil (*Cleopomiarus micros*) © AWI i Pr. (CC-BY-NC)



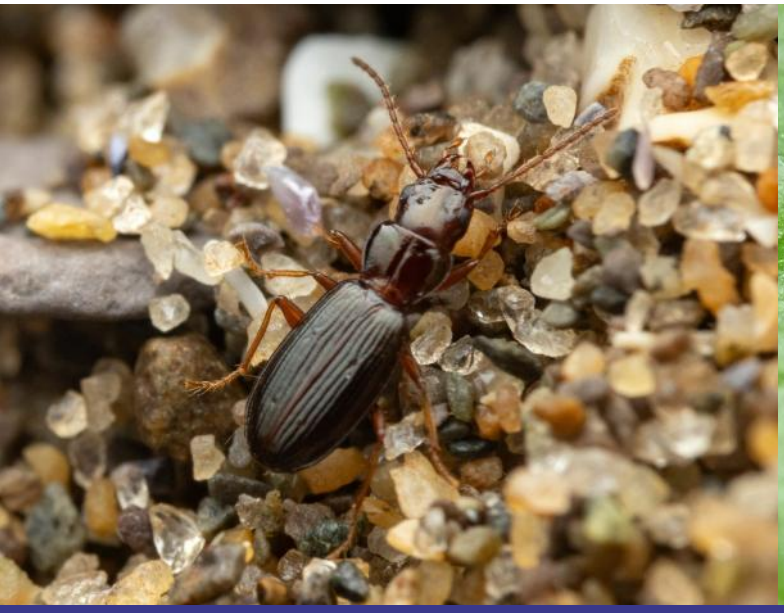


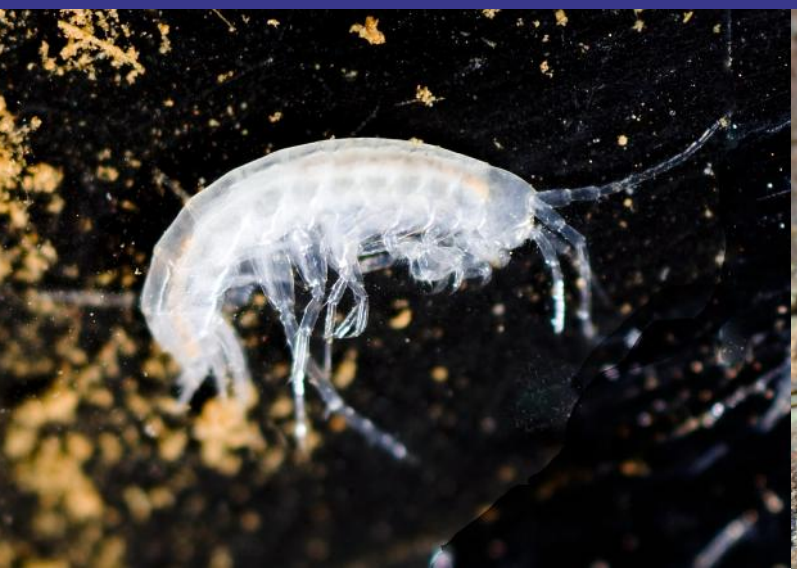
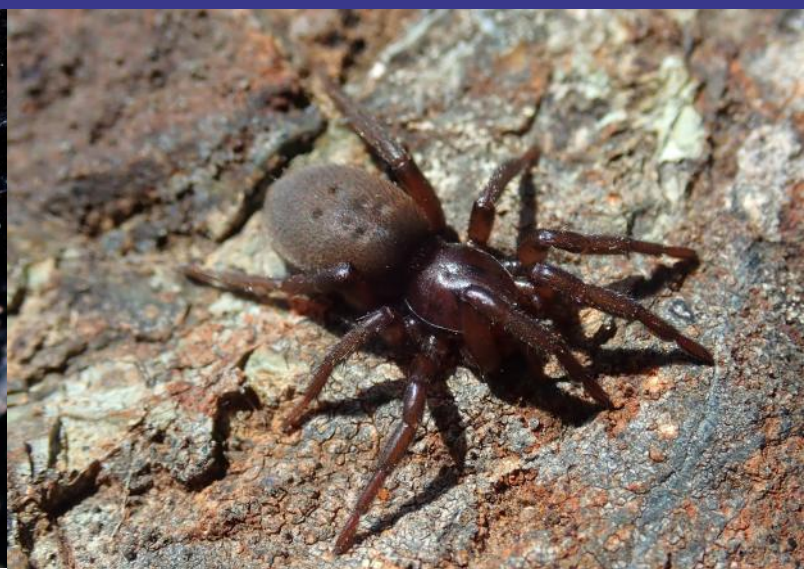
- The loss of wet habitat features on wet heathland sites, bog and heathland carr due to drainage or otherwise changing hydrology can significantly reduce their value for invertebrates.
- Habitat fragmentation due to development pressure or agricultural improvement can create isolated patches of habitat, making dispersal harder and lowering the genetic diversity of invertebrate populations.
- Fire is a growing threat to remnant heathland sites, with the potential for smaller sites to be irreparably damaged through a single incident.
- Footpaths receiving moderate use can be of very high value to invertebrates (e.g. by maintaining open bare ground). But excessive recreational pressure such as motorcycle activity or horse riding can alter vegetation communities through trampling, soil compaction and erosion, damaging habitat and affecting continuity.

<u>Opportunities</u>

- Aim to produce a mosaic of heathland successional stages to support the highest number of invertebrates. These should include bare and disturbed ground, moss and lichen-dominated areas, grasses, flower-rich areas and young heather plants, through to tall swards with establishing and established blocks of mature heather, scrub and scattered trees.
- Aim to establish grazing of appropriate stocking levels, avoiding under or overgrazing, to maintain a mosaic of heathland structure. Cattle tend to produce a more varied vegetation structure than sheep and their greater weight will suppress Bracken growth and provide areas of disturbed ground.
- Provide bare ground and early successional vegetation, which provide basking, nesting and hunting opportunities for ground-active invertebrate species as well as opportunities for key early successional flowering species. If grazing is not available, this can be achieved via rotational cutting and scraping of the soil surface to create exposures.
- Aim to establish a diversity of plant species to encourage a wide diversity of invertebrates as well as foodplant-specific species in this area such as Meadow-sweet Pigmy (on Dropwort) or Buff Groundling, Cornish White-barred and Cornish Midget (on brooms).
- Consider excluding grazing from some areas all year round to provide permanent cover and opportunities for species using standing stems and seed heads to complete their life cycle. While too much Bracken can be a problem, it does support rare sawflies and flies, so areas of Bracken, both shaded and in the open, should be retained.
- Restore degraded or damaged heathland sites, including the removal of trees from plantation sites and restore open heathland habitat mosaics across the landscape to improve connectivity and to provide opportunities for invertebrates to develop resilient populations.
- Protect existing valley mires, wet heath, streams and ponds.
- Retain dead and decaying wood.

Left: The ground beetle *Bembidion nigropiceum* © Zachary Dankowicz (CC-BY-NC). Right: Fringeless Nomad Bee (*Nomada conjungens*) © Steven Falk



Left: British Cave Shrimp (*Niphargus glenniei*) © Andrew Lewington. Right: Western Ground Spider (*Gnaphosa occidentalis*) © Tylan Berry

Coastal cliffs and slopes

Threats

- Cliff stabilisation measures can disrupt the dynamic natural processes of erosion and slippage that shape cliffs with soft geology, leading to stabilisation and the loss of habitats such as friable bare ground and early successional vegetation stages required by many cliff-dwelling invertebrates.
- Wider water abstraction in the landscape and local artificial drainage to improve pasture and cliff stability can impact on freshwater seepages, cliff face springs, pools, small streams and wet mud, that are crucial to the life cycle of many rare and threatened species.
- The use of fertilisers and pesticides and loss of low intensity grazing on adjacent land can negatively impact on soil-dwelling invertebrates reliant on high quality cliff top habitats for foraging or for dispersal.
- The loss of natural processes such as slumping and slippage impedes the creation of new nesting habitat and the introduction of wildflower seeds to cliff faces from cliff top grasslands.
- Non-native species such as Sea Buckthorn and Sour Fig outcompete and shade out native species and adversely transform natural vegetation communities on cliff tops and slopes, tending to smother the bare ground required by many specialist invertebrates.
- Climate change increases the frequency of extreme storm surge events causing coastal slopes and cliffs to retreat faster than they would normally.

Opportunities

- Ensure Shoreline Management Plans recognise the importance of cliffs and slopes for biodiversity and avoid damaging management. Any activity that changes the natural rate of cliff or slope erosion, such as re-profiling or the introduction of coastal defences, should be avoided wherever possible.
- Maintain cliffs and landslips in a natural state, avoiding any changes to the character of the vegetation especially with respect to the pollen sources, bare ground extent and seepages.
- Restore species-rich cliff top grassland habitat mosaics to provide forage for cliff-dwelling species and to improve habitat connectivity along the coast. Ideally, management should aim to create a mosaic of short and longer vegetation mixed with bare and stony areas and patches of scrub, which can be achieved by grazing or cutting.
- Drainage of cliffs by surface or sub-surface measures or by inland abstraction has a direct impact on the geomorphological functioning of sites and should be prevented.
- Scrub encroachment and the extent of invasive plant should be monitored and managed.

Wetlands

Threats

- Water pollution from agriculture (e.g. artificial or natural fertilisers, worm treatments, herbicides and pesticides including neonicotinoids), sewage discharges and road run-off can directly kill or alter populations of invertebrate and plant species.
- Changes in land cover can result in the release of

sediment and nutrients into the water bodies, causing increased eutrophication, siltation, and anoxic conditions. This is further exacerbated by the removal of waterside vegetation and reedswamp that act as barriers to particulate matter and absorb nutrients.

- The direct loss or damage of wetland features to urbanisation or infilling depletes wetland resources for invertebrates in the countryside. It also increases isolation of the remaining wetlands, making colonisation by less mobile species more difficult.
- Local water abstraction and drainage schemes can change hydrological regimes and lower water tables, causing shallow wetland features like ponds and lakes that are crucial to the lifecycle of many threatened species to dry out.
- Lack of management of vegetation around wetland features can lead to scrub encroachment and succession to woodland, removing valuable wet habitat features for invertebrates. Conversely, overgrazing can produce a close-cropped and uniform sward that lacks many key plants, offers little shelter, and provides few flowers for pollinators.
- Solar panels adjacent to wetland features can attract aquatic invertebrates with reflected polarised light appearing as suitable egg laying sites.

Opportunities

- Discharges of effluent from the sewer network and other point sources of pollution should be strictly controlled to ensure water stays clean. For wetland features in improved grassland or arable fields, establish a buffer strip (e.g. unfertilised tussocky grass or reed) to protect them from run-off, pesticide spray drift or fertiliser inputs.
- Aim for structural diversity in and around water bodies, including large beds of submerged vegetation and mixture of dense and shorter emergent vegetation, and a succession of marginal vegetation from bare substrate to tall herbage, scrub and trees. This will provide places for invertebrates to shelter, feed and breed in.
- Continue grazing on wetland sites where this is appropriate to avoid scrubbing over, but reduce the grazing pressure if excessive poaching, erosion and loss of diverse vegetation structure becomes evident. Allow livestock some access to pond margins to create areas of poached ground and bare mud that are important for invertebrates such as craneflies.
- Maintain stable water levels in permanent water bodies as extreme fluctuations can be deleterious to some species, however retain temporary pools if these are natural.
- Try and create a diverse bank profile including gently sloping as well as steeper margins. Provide some shaded areas around wetland features, these provide shade, food and cover for many species as well as help mitigate the impact of increasing summer temperatures and climate change.
- Control or remove invasive species.
- Restore active processes in degraded wetlands through the purchase of additional land, blocking of ditches and removal of scrub/tree cover. Target restoration work near to existing high quality wetland sites to improve connectivity and to provide opportunities for invertebrates to develop resilient populations able to colonise new sites.
- Patterned, roughened or painted glass, or a horizontal light-blocking grid can be used on solar panels to reduce their attraction to aquatic invertebrates.
- Cleaning and disinfecting waterproof clothing, fishing tackle and water-sports equipment, to prevent the spread of non-native aquatic species and diseases they may carry. Guidance can be found on the Check-Clean-Dry Website.

Author: Lucia Chmurova
Date: June 2025
Version number: 1
https://www.buglife.org.uk/our-work/important-invertebrate-areas/

NATURAL ENGLAND