

Managing springs and seepages on coastal cliffs

Springs and seepages are important for coastal cliff invertebrates. Over half of the species restricted to soft cliffs in the UK are associated with freshwater micro-habitats¹. A range of freshwater habitats are provided by groundwater seepages on cliffs, from spring-fed streams to mossy trickles to damp ground, pools, swamp and carr. The mobile nature of eroding soft cliffs means that the full range of vegetation succession is present on many sites - ranging from wet bare ground to reedbed.



Cliff tiger beetle (*Cylindera germanica*) © Roger Key

Seepages provide habitat for aquatic invertebrates or those with an aquatic stage in their life cycle. They also provide food plants and refuge for insects that have specific associations with aquatic plants. Common reed (*Phragmites australis*) stands on soft rock cliffs can be an important habitat and should be retained. Invertebrates using this habitat include flies such as *Elachiptera pubescens*, *Lipara rufitarsis* and *Platycephala umbraculata*, beetles (such as *Drypta dentata*), and other insects (e.g. the rare solitary wasp *Mimumesa unicolor*).

Thin films of water running over muddy or silty ground, and through moss or algae are important breeding sites for many flies and beetles. *Bledius* rove beetles graze on algae and dig burrows into the soft sediment. Runnels of flowing water support the crane fly (*Helius hispanicus*) at Haven cliff (Axmouth-Lyme Regis NNR) - its only known site in Britain.



Black Ven, Dorset © Andrew Whitehouse

The rare Section 41 (S41)² species Rock face beetle (*Ochthebius poweri*) has a very specialised habitat of seepages on vertical or near vertical coastal cliff faces. It is only found in small seepages and trickles on and at the base of coastal cliffs, on relatively soft bedrock which is actively eroding, but not highly unstable. It is particularly threatened by the contamination of cliff seepage water by sewage effluent.

The flowers of cliff seepages such as Fleabane (*Pulicaria dysenterica*), Hemlock water-dropwort (*Oenanthe crocata*) and Hemp agrimony (*Eupatorium cannabinum*) are very important for bees, hoverflies and other insect pollinators – a number of which are rare or scarce. Wessex soft cliffs are a nationally important area for many rare bee species, including the S41 mining bees



Common reed (*Phragmites australis*) stand on soft rock cliffs. Barton Cliffs at Hampshire coast © Steven Falk



Ground beetle (*Drypta dentata*) at Eype's mouth
© Roger Key



Rove beetle (*Bledius germanicus*) at Eype's Mouth
© Roger Key



The mining bee (*Lasioglossum angusticeps*) at Eype's Mouth © Steven Falk

Lasioglossum angusticeps and *Lasioglossum laticeps*. Rare soldierflies like the Long-horned general (*Stratiomys longicornis*) also use this habitat.

Cliff seepages and pools provide wet muds used for nest construction by some species of bees and wasps, such as the Black-headed mason wasp (*Odynerus melanocephalus*).

Manage cliff tops sensitively

Drainage of cliff top pastures to provide drier grazing for livestock and caravan parks alters natural drainage patterns and can result in the loss of seepages and other freshwater habitats from the cliff slope, and should be avoided. Artificial drains often cause localised accelerated erosion.

To maintain good water quality of the seepages, runoff of fertiliser and pesticide from intensively managed cliff tops or adjacent land should be prevented. Nutrient enrichment from these sources can alter vegetation communities. Restoring cliff top grassland can provide a buffer to reduce diffuse pollution from adjacent land, and provide additional habitat for cliff-dwelling species.

Maintain groundwater supplies to cliff slopes

The natural drainage patterns on cliffs should be maintained. See Sheet 2 "Water supply" section for more details.

Allow natural processes of land slips and cliff erosion

In areas of soft rock cliff, occasional slippages are natural and necessary to maintain habitat continuity. Many soft cliff species, including the Cliff tiger beetle (*Cylindera germanica*), occur exclusively on eroding soft-rock cliffs.

Stabilisation of landslips including the construction of cliff protection and artificial drainage will damage or destroy soft cliff habitats, and should be avoided. On cliffs with a harder geology, bare rocks and wet rock faces with natural vegetation should be retained. More stable areas of the cliff slope often feature a high abundance of wildflowers.

Climate change

Climate change may pose a threat to the supply of freshwater to springs and seepages on soft cliff habitats – either through seepages drying up due to changing rainfall patterns or through increased pressure to abstract groundwater.

Increased frequency and ferocity of storm events may also accelerate rates of cliff erosion.

Milder winters may encourage the spread of invasive exotic plants that change the character of cliff habitats, for example, the Hottentot fig (*Carpobrotus edulis*) which invades cliffs and dunes¹.

Further information

¹ Whitehouse, A.T. (2007) Managing Coastal Soft Cliffs for Invertebrates. Buglife – The Invertebrate Conservation Trust, Peterborough.

² The Natural Environment and Rural Communities (NERC) Act came into force on 1st Oct 2006. Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. These were formerly UK Biodiversity Action Plan (UKBAP) priority species.

Buglife has developed a series of advice sheets on the conservation, management and restoration of springs and seepages. These are available at www.buglife.org.uk. Whilst these sheets have been developed as part of the Wessex springs and seepages project, much of the habitat management advice is applicable to other parts of the United Kingdom.

- Sheet 1 - **Springs and seepages - An important habitat for wildlife**
- Sheet 2 - **General guidance to managing springs and seepages for wildlife**
- Sheet 3 - **Managing springs and seepages in woodlands**
- Sheet 4 - **Managing springs and seepages in grasslands, heathlands and open habitats**



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