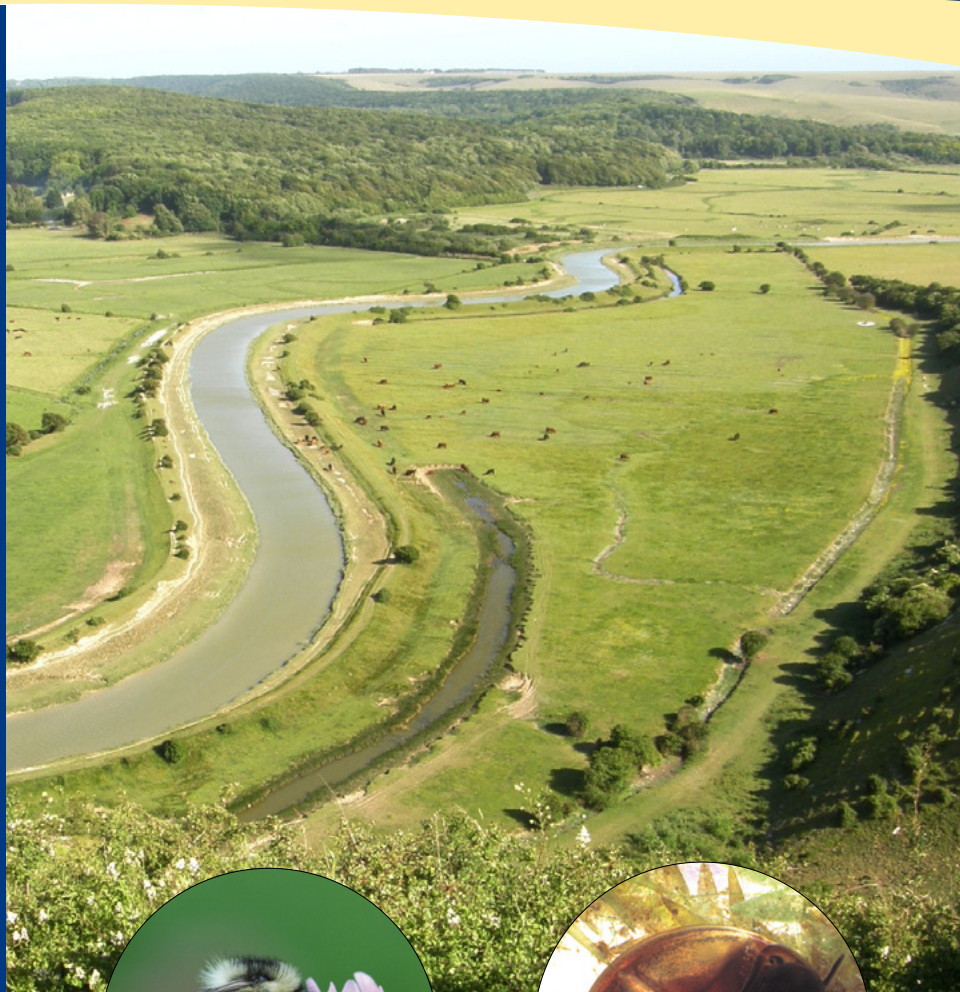


Coastal grazing marsh

Coastal grazing marshes are large expanses of low lying pasture that merge into floodplain farmland further inland. Ponds, lagoons, wildflower-rich grassland, hedges and sea banks occurring in the coastal marshes create mixtures of habitat (mosaics) that are incredibly important for invertebrates – each habitat supporting different lifecycle needs of individual species. To conserve both common and rare species, it is vitally important to manage all these habitat features to create a diverse landscape.



Coastal grazing marsh in the Cuckmere valley, Sussex - a habitat mosaic with pasture, a tidal river, sea banks, freshwater ditches, brackish borrow dykes, hedges and adjacent chalk downland, arable land and woodland.

Left. Shining ram's-horn snail (*Segmentina nitida*)

Right. Shrill carder bee (*Bombus sylvarum*)



Some important S41 species of Coastal Grazing Mosaics

S41 species are some of the rarest or most threatened species that have been identified by the UK Government as needing particular conservation action.

Bees:

Shrill carder bee (*Bombus sylvarum*)
Moss carder bee (*B. muscorum*)
Brown-banded carder bee (*B. humilis*)
Large garden bumblebee (*B. ruderatus*)
Long-horned bee (*Eucera longicornis*)
Potter flower-bee (*Anthophora retusa*)

Beetles:

Black oil beetle (*Meloe proscarabaeus*)

Flies:

Hornet robberfly (*Asilus crabroniformis*)

Snails:

Shining ram's-horn snail (*Segmentina nitida*)
Narrow-mouthed whorl snail (*Vertigo angustior*)

Spiders:

Fen raft spider (*Dolomedes plantarius*)

Find out where these species occur at the National Biodiversity Network (NBN) – see references.

Key habitat components of the mosaic and their management



1 Sea banks

These raised banks give valuable shelter and, where south-facing, provide warm and dry conditions, which suit ground-nesting bees and wasps, grasshoppers and various other species, including the Narrow-mouthed whorl snail and Black oil beetle. Flowering plants such as Hogweed, thistles, ragworts, knapweeds, clovers, bird's-foot trefoils and mallows provide valuable food for the rare Shrill carder bee and the Wall butterfly (*Lasiommata megera*).

- Leave the land ungrazed, or very lightly grazed for periods over the spring and summer to create taller grown areas.
- If grazing is impractical, cutting can be used to create a variety of vegetation height and structure, however aim to avoid cutting between May and August.
- Cattle grazing will create open disturbed patches for ground beetles and ground-nesting bees.



Sea banks with clovers and bird's-foot trefoils.



Thistles and ragworts may be considered as weeds, but are very important sources of pollen and nectar.

2 Ditches, pools and lagoons



High quality freshwater ditches can support a range of dragonflies - Hairy dragonfly, (*Brachytron pratense*) (far left), scarce soldierflies like the Ornate brigadier (*Odontomyia ornata*) (middle) and snail-killing flies like (*Pseudoceros zernyi*) (right).

Ditches provide one of the most important habitats of grazing marshes, supporting a wealth of plant and invertebrate life, including the rare Fen raft-spider and Shining ram's-horn snail. Clean freshwater ditches and pools, rich in plant life, are important for soldierflies, water beetles, dragonflies and water snails. Plants found in or beside ditches, such as water-dropworts, Lesser water-parsnip, crowfoots and spearworts are all important nectar sources.

Tidal rivers, lagoons and ditches with brackish water (a mix of seawater and freshwater) support some very geographically restricted species such as the Long-horned general (*Stratiomys longicornis* – a soldierfly) the hoverfly *Lejops vittata* and the Long-horned cleg (*Haematopota grandis* – a small horsefly). Brackish wet mud is also important for many scarce fly species. On the landward edge of grazing marshes, freshwater springs and seepages can support invertebrates breeding nowhere else, such as scarce crane flies and hoverflies.



A borrow dyke featuring Sea clubrush which is a good indicator of brackish conditions.

- Managing water levels to maintain both permanently wet and seasonally flooded land will benefit a wider range of species.
- Long frequency rotational ditch management will create a range of vegetation height. Stagger clearances or restrict work to one side of the ditch at a time.
- Cattle grazing will help create a varied vegetation structure and minimise shading in the ditches (but be careful before re-introducing grazing to previously ungrazed habitats).
- Don't worry about small, cattle-trampled, muddy areas as these can provide valuable conditions for a number of invertebrates.

3 Pasture

Many areas of grazing marsh support only a few wildflower species. However, common plants such as clovers, Common bird's-foot trefoil, Meadow vetchling, Red bartsia, buttercups and thistles, are all valuable for bees including the Brown-banded carder bee, Large garden bumblebee, Long-horned bee and the Potter flower-bee.

Animal dung is also important for many flies and beetles, including scarce species such as the Hornet robberfly and the Giant dungfly (*Scathophaga scybalaria*). In turn these insects provide food for amphibians, bats and nesting birds. A range of horseflies such as the Levels horsefly (*Atylotus rusticus*) are also associated with grazing livestock.



Grazing pasture rich in clover and trefoils.

- On less intensively managed areas, increase the range of wildflower species present by overseeding with locally collected wildflower seed.
- Cattle is generally preferred to sheep grazing - it can help to produce a range of small-scale habitats, including areas of short turf, bare ground, long grass and ideally small amounts of scrub.
- Relax grazing in the summer months to encourage important pollen and nectar plants to flower. The taller swards will also dramatically increase populations of grasshoppers, beetles and butterflies.
- Avoid the use of Avermectins as this will benefit dung feeding insects.

4 Hedges and scrub

Hedges and scrub may be uncommon on the open grazing marshes, but they can provide important shelter from the wind - creating hotspots for basking and stable, shaded conditions under their canopies. Many insects feed on their foliage. The spring blossoms of shrubs such as Blackthorn, Hawthorn, Crab apple and willows can attract large numbers

of bumblebees, mining bees, hoverflies and butterflies. Mining bees in turn support a range of parasites including bee-flies and oil beetles. Flower-rich hedge bottoms with umbellifers such as Cow Parsley, Wild parsnip and Hogweed are particularly good for attracting large numbers of insects.



Blossoming shrubs are an important early food source.

- Periods of reduced grazing can allow small areas of scrub to develop. This scrub can then be maintained through cattle grazing. Alternatively, allow scrub to develop by fencing off small, difficult to manage field corners.
- Managing hedges on a minimum three year rotational basis will help create a range of species and heights across the landscape. Broad, tall hedges are particularly valuable to invertebrates.
- Fence off, or reduce livestock access to hedges to create flower-rich hedge bottoms.

5 Lightly grazed and ungrazed areas

Wildflower-rich areas can often develop where grazing is reduced or removed (e.g. fenced off tracks, river banks, and farmyards). These areas can provide vital food and shelter for invertebrates breeding elsewhere within the grazing marsh or in adjacent habitats. Plants such as legumes (clovers and vetches), umbellifers and composites (knapweeds, sowthistles, thistles and ragwort) are very important for bees.

- Exclude or relax grazing on areas of land to increase flowering of plants that are important for bees and other pollen and nectar feeders.
- Lightly grazed or ungrazed areas with taller vegetation and deep litter layers will provide shelter as bumblebee nesting and invertebrate overwintering areas.



Flowering umbellifers on ditch margins – a very important insect food source

CASE STUDY 1

Moss Carder bee (*Bombus muscorum*)



This rare species has shown a massive decline in England and coastal grazing marsh is now its main habitat, where it uses a range of different habitat features. Ditch margins, hedge bottoms and ungrazed areas provide vital denser vegetation for nesting. Food supplies are found across a wider landscape. Pastures rich in clovers and bird's-foot trefoil, and sea banks and ungrazed areas with Teasel, brambles and thistles are all used at different times of the year.

CASE STUDY 2

The Levels horsefly (*Atylotus rusticus*)



This horsefly breeds in ditches, in particular on the Pevensy Levels. The larvae develop in muddy ditch and pond edges where they prey on small organisms. In their adult stage the horseflies then forage across the coastal grazing marshes obtaining nectar from thistles and umbellifers found in flower-rich pastures, on sea banks and in hedges. The females also depend on bloodmeals from livestock grazing both the marshes and in the wider landscape.

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Buglife (2010) Species management sheets for Shining ram's-horn snail, Shril carder bee & Brown-banded carder bee, Large garden bumblebee, Hornet robberfly, oil beetles (available at www.buglife.org.uk)

Buglife – Advice on managing BAP habitats (www.buglife.org.uk/conservation/adviceonmanagingbaphabitats)

Information on species distributions can be found on the National Biodiversity Network (NBN) website - <http://data.nbn.org.uk/directory/browse?TGL=11&dataFilter=1>

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