



Management of bare ground



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Presence, importance and management of bare ground

Bare ground on dry grasslands and heathlands – an important feature of these habitats.

The presence of bare ground is an important feature of heathlands and dry grassland habitats. It provides:

Localised warm areas

Areas of open, bare ground, either hard rock or soil, warm up very readily in the sun. Warmth is very important for both invertebrates and reptiles. A warm animal is a faster

one, which can then manage to eat, or avoid being eaten, more effectively.

The soil under bare ground is significantly warmer than that under vegetation. This means that eggs laid, or young living, underground are able to develop more rapidly. This is why sand lizards need patches of bare, sun-drenched sand in order to breed successfully.



Sand lizard nest. Paul Edgar / HCT

Readily-burrowed substrates suitable for nest construction or a burrowing life-style

Areas of bare ground are often formed of relatively loose soil. This soil is more readily tunnelled than heavily compacted soil, resulting in less wear on the legs or mandibles which are used for digging. Tunnels dug in very loose soils may collapse, however.



Acrosanthe anulata – a fly with a larva which digs in loose sand. Mike Edwards

Germination sites for plants

Seedling plants are very susceptible to competition from larger plants growing nearby. Areas of bare soil can reduce this competition. Bare ground areas are often drought-stressed and many of the early colonising plants are annuals. Many plant species do not establish until some time after the provision of the initial bare ground, but neither do they establish readily in well-established swards. The role of, initially, bare areas of ground in starting plant successions is often overlooked. Insects associated with such plants are clearly reliant upon a year-on-year supply of suitable host plant and, hence, on continuity of bare ground resource within an overall area.



Top: Typical chalk grassland plants re-colonising scraped chalk. Mike Edwards

Above: Newly-germinating heather. Mike Edwards

Bare ground may be present when:

Vegetation and soil slips down steep inclines

Slippage of soil under the influence of gravity is probably the major natural provider of areas of bare ground. There is a range of gradients created during this process, from the vertical at the face of a cliff, to the almost horizontal at the base where fallen material collects. All these different gradients have associated plant and animal associates and all stages should be present if possible. Water, either flowing by or percolating through the soil, can be an important influence on the rate of material loss from the cliff face and the resultant profile.



Slowly-eroding 'head' cliff, Overton. Mike Edwards



Cove Brook, Eelmoor. Mike Edwards

There is shallow soil over hard rock, which may be exposed in places

The shallow soils dry out readily, limiting the sort of plants which can grow there. The hard rock surface itself may not change rapidly over a time-span of many years, making it an important substrate for slower-growing organisms such as lichens and their associated fauna. The small cracks and fissures provide niches for plants and animals which gain considerable benefit from the temperature regimes provided by the surrounding rock, as does the lichen-associated fauna.



Lancelot Clark Storch LNR. Mike Edwards

There is disturbance by animals, including wear along tracks

The use made by the fauna and flora of this form of bare ground ultimately depends upon the level and frequency of disturbance. Regularly- and heavily-disturbed substrates have a restricted, but specialised, assemblage of insects closely associated with them, as well as providing sunning spots for a wider range of animals. These areas may remain open and bare for long periods, but are generally less valuable as overall resources than areas which pass through the very loose soil stage to a more settled and re-vegetating condition. However, paths which are sufficiently trampled to halt the colonisation by plants, yet where the substrate remains firm, may be disproportionately significant for many ground-nesting bees and wasps as well as tiger-beetle larvae.



Coswell Bay. Mike Edwards

There has been a fire

Fire is extremely good at removing accumulated vegetable litter, as well as plant cover. Heather-dominated heathland regenerates extremely well after occasional, well-spaced, fires. It is, however, also catastrophic, so can be very damaging overall if it occurs on a large scale all at once and at short intervals.



Localised clearance of accumulated litter through fire. Mike Edwards



Chapel Common track. Mike Edwards



There is occasional flooding

Periodic flooding may also result in the death of established plant cover, leaving bare ground. As with fire, this is fairly catastrophic and is best when it happens over relatively small areas. Dune-slacks often have this sort of bare ground around their margins and the sand-banks which form along rivers which flash-flood are a similarly-created feature.



Sand bank alongside the River Wey. Mike Edwards

The soil holds insufficient water during the summer to allow plant growth

Periodic drought-stress is very effective at reducing the overall cover of plants; warm, open, drought-stressed grasslands have a distinctive fauna very much of their own, with small areas of bare ground in an intimate matrix with the vegetation. The density of this matrix will vary with yearly rainfall conditions, but the habitat may be overall remarkably stable.



Root plate, Roydon Woods SSSI. Mike Edwards

There has been a strong wind

Bare ground may be created by two wind-mediated processes, either the felling of trees through wind-blow, or the direct erosion of loose sands as happens in dunes. The exposed root-plates of fallen trees are an often unconsidered bare ground feature.



Areton Down in spring, showing open patches in grazed turf. Mike Edwards

There are grazing animals present at times

Grazing animals may create areas of bare ground along the trails they make around an area, but the more widespread one is through the removal of plant foliage as they graze. This is an important way in which new spaces for plant germination are created.

There is established, mature deciduous tree cover

Areas of bare ground often form under large, deciduous trees. Before leaf-spread this bare ground is open to the sun and may form important nesting areas for many spring mining bees.



Bare ground may be maintained by:

The local environmental conditions

These are situations where the processes outlined above are continuing. It is essential to recognise that many areas of bare ground are not destined to remain that way for ever, as plants colonise and spread. This continuing development of a once-bare area to a fully vegetated one is an important process in the maintenance of the various habitats around us. It is equally important that new areas of bare ground are being created at the same time in order to balance the progressive loss of older ones.



Above: Cliff at Overton. Mike Edwards
Top: Bare ground in woodland. Mike Edwards

Deliberate mechanical management

In these crowded islands areas which are managed for the conservation of natural history are often relatively small. This means that many of the natural processes which used to keep a wide variety of habitat niches present do not now occur and it is necessary to interfere to some extent.

New areas may be created by the deliberate encouragement of natural processes as appropriate, such as the temporary establishment of new pathways, leaving older ones to re-vegetate before being used again. The deliberate creation of bare ground may also be appropriate. These areas need to be large enough so that they take several years to re-vegetate, about 20m² is required for each area. Both vertical and horizontal areas are valuable and a low cliff which faces south and has both components is often ideal. A number of smaller areas created over a period of years is much more valuable than a single large area created all in one year.



Top: Newly-created area of bare ground on chalk, Noar Hill. Mike Edwards
Middle: Reptile scrape in heathland, Lavington Common. Mike Edwards
Bottom: Small gravel bank in field margin, Lower Test. Mike Edwards



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Bottom left: *Oxybelus argentata*.
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Mike Edwards.