

SPECIES MANAGEMENT SHEET

Black oil beetle (*Meloe proscarabaeus*)

Violet oil beetle (*Meloe violaceus*)

Rugged oil beetle (*Meloe rugosus*)

Short-necked oil beetle (*Meloe brevicollis*)



Violet oil beetle and triungulins



Oil beetles are distinctive insects with one of the most extraordinary life-cycles of any British insect. Oil beetles are associated with wildflower-rich habitats such as unimproved grasslands and woodland edges.

Four of the UK's native oil beetles are thought to be extinct, and the remaining four species have suffered drastic declines over the past 100 years due to changes in the way our countryside is managed. For this reason the Black, Violet and Rugged oil beetles are listed as priority species for conservation action in the UK Biodiversity Action Plan. The key to restoring the historic range of these species is to restore and create more areas of suitable habitat.

Life cycle

Oil beetles are nest parasites of solitary mining bees. Female oil beetles dig burrows in the ground, in to which they lay hundreds of eggs. Once hatched, the active, louse-like larvae, known as triungulins, climb up onto flowers and lie in wait for a suitable host bee. When a bee visits the flower to collect pollen or nectar, the triungulins

attach themselves to hairs on the bee's back using hooks on their feet. Once in a suitable bee's nest, the larva disembarks. The larva feeds on the bee's store of pollen and nectar and develops in the burrow until it is ready to emerge as an adult oil beetle.

The specific bee hosts of oil beetles are largely unknown; potential hosts include bee species in the genera *Andrena*, *Anthophora*, *Eucera*, *Halictus*, *Colletes*, *Osmia* and *Lasioglossum*.

Habitats

Oil beetles are found on wildflower-rich sites with a succession of nectar sources throughout the spring and early summer. There are often patches of bare ground present into which burrows are dug for egg laying. These features also favour strong populations of solitary mining bees which are critical for the oil beetle life-cycle. Grass tussocks within the sward are a useful feature as they can provide shelter for adult oil beetles during cold weather.

Reasons for decline

The loss of wildflower-rich habitats, habitat fragmentation, changes to land management and a decline in host bee species have all contributed to the decrease in oil beetle numbers.



Black oil beetle

(*Meloe proscarabaeus*)

Adults are active in the spring from February to May and the triungulins are active from May to June.

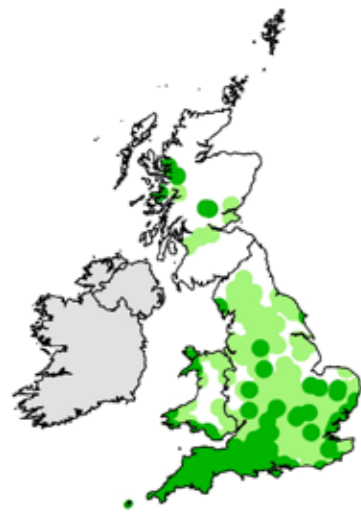
Distribution

The Black oil beetle is found in lowland areas throughout Britain, but becoming rarer in the North. The South West of England and South Wales are strongholds for this species.

Habitat preferences

The Black oil beetle is most commonly found on wildflower-rich coastal cliff tops and lowland, unimproved grasslands. Occasionally found on woodland sites.

Adults prefer Lesser celandine (*Ranunculus ficaria*) and soft grasses (*Poaceae*) as food plants, but Dandelion (*Taraxacum officinale*) and Buttercups (*Ranunculaceae*) may also be important. Triungulins are often found on Lesser celandine and Dandelion, but will use other flowers.



Violet oil beetle

(*Meloe violaceus*)

Adults and triungulins are active in the spring from March to June.

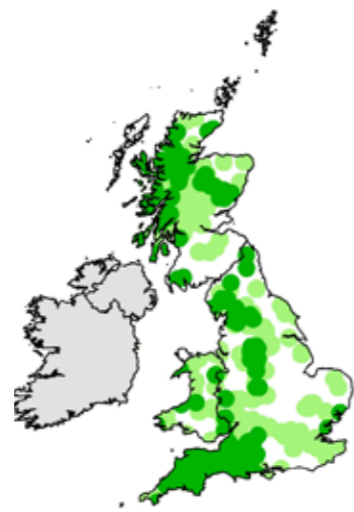
Distribution

The Violet oil beetle is found in western and northern Britain with known hotspots in the South West, the Peak District, the Lake District and Scotland.

Habitat preferences

The Violet oil beetle has the most varied habitat preferences and can be found on woodland edge habitats, glades and rides, upland unimproved grasslands and on coastal cliff-top grasslands.

Lesser celandine and Dandelion are thought to be the preferred adult food source and are also important for the triungulins. Adults also feed on, soft grasses and Cleavers (*Galium aparine*).



Rugged oil beetle

(*Meloe rugosus*)

Adult beetles emerge in autumn and are thought to be mainly nocturnal. They can be found throughout the autumn, winter and early spring. The triungulins are found from mid-April to July.

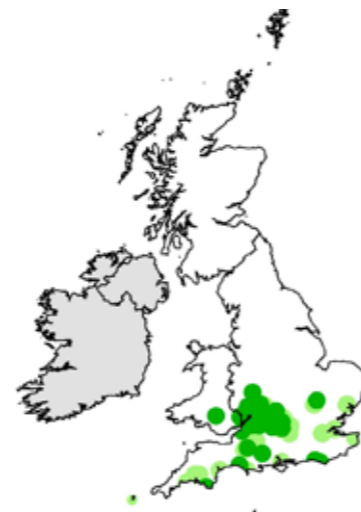
Distribution

The distribution of the Rugged oil beetle is very sparse, concentrated in southern and central England and South Wales.

Habitat preferences

The Rugged oil beetle is often found on sheltered, south-facing slopes or banks that warm up quickly in winter. These tend to be on free-draining soils however there are records from floodplain grasslands on the Continent.

Dandelion and Buttercups are thought to be the favoured adult food plants.



Short-necked oil beetle

(*Meloe brevicollis*)

Adults are active in the spring from late March to June and the triungulins are usually found in June.

Distribution

The Short-necked oil beetle has only been recorded recently on three sites, one in South Devon, one in the west of Scotland and one on the east coast of Ireland.

Habitat preferences

All known sites are on the coast, on wildflower-rich cliff-top grasslands and machair dunes.

Short-necked oil beetle adults are thought to favour Hawkbits (*Leontodon*) as food plants but are occasionally found on other plants such as soft grasses.



Habitat management

Oil beetle sites are commonly maintained through grazing, either by domestic stock or through the action of wild animals such as deer and rabbits. Some coastal and woodland sites are not specifically managed, but are kept open through weight of human traffic, wild grazing or through the physical process of cliff erosion.

Some disturbance is important on oil beetle sites to maintain areas of bare ground. Practices such as surfacing paths can be detrimental to oil beetles and their host bees by reducing the amount of bare ground for burrows.

Grassland management

All species: The long-term maintenance of wildflower-rich, semi-natural grasslands is important for oil beetles. In general, grazing is the preferred management option, but stocking density needs to be carefully controlled, as high stocking levels can be detrimental to oil beetle populations through overgrazing of wildflowers and physical damage to bee burrows. Summer and autumn grazing is important to keep the sward open through until the following spring.

Hay making is not normally recommended at oil beetle sites however, if there is a long history of hay making and aftermath grazing at a site, the maintenance of this regime would be beneficial.



Wildflower-rich coastal grassland habitat for the Black oil beetle

Dark green = recent records (after 2000). Light green = historic records (before 2000). Ireland shaded grey = insufficient data.

In areas with known populations of oil beetles, increasing the abundance of wildflowers on neighbouring areas of species-poor grassland will be beneficial to the solitary bee hosts of oil beetles, as well as other pollinators. Extending areas of wildflower-rich grassland may also allow oil beetle populations to expand and could help to reconnect fragmented populations.

Upland moorland management

Violet and Rugged oil beetles: Grazing open areas and banks within the moorland mosaic will help maintain patches of bare ground suitable for oil beetles and their bee hosts.

Woodland management

Violet and Black oil beetles: Woodland edge habitats and areas of wood pasture parkland can provide valuable habitat for the Violet oil beetle and in some cases the



Woodland habitat for the Violet oil beetle

Black oil beetle. Management practices such as maintaining wildflower-rich areas through grazing, and the careful control of scrub will benefit oil beetles and their hosts.

Within the woodland itself, woodland glades and rides can provide habitat for Violet oil beetles and the maintenance or restoration of these open areas would be beneficial.

Although some woodland management options include tree planting, this practice does not benefit oil beetles and planting trees at known oil beetle sites should be avoided.

Environmental Stewardship options

HLS options

HK6, HK7 and HK8 – Maintenance, restoration or creation of species-rich, semi-natural grassland.

HK15, HK16 and HK17 – Maintenance, restoration or creation of semi-improved or rough grassland for target species.

HC12, 13 and HC14 – Maintenance, restoration or creation of wood pasture and parkland.

HC7 and HC8 – Maintenance or restoration of woodland.

HL9 and HL10 – Maintenance or restoration of moorland (upland).

ELS options

EC4 – Management of woodland edges.

EG3 – Pollen and nectar seed mixtures in grassland areas.

EL5 – Enclosed rough grazing.

References

This sheet can be accessed on the web at www.buglife.org.uk.

Buglife (2011) Oil beetle identification guide (downloadable from www.buglife.org.uk).

Lückmann, J. and Niehuis, M. (2009) Die Ölkäfer in Rheinland-Pfalz und im Saarland. GNOR ISBN 978-3-9807669-4-4.

Ramsay, A. (2002) British oil beetles. British Wildlife. 14(1), 27-30.

Walters, J. (2011) The ecology of British Oil beetles. Unpublished report to Buglife – The Invertebrate Conservation Trust.



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