

Mason bees - *Osmia inermis*, *Osmia uncinata* and *Osmia parietina*

Osmia uncinata and *O. inermis* are boreo-alpine species. In the UK, they are restricted to the Highlands. They are similar in appearance, and both depend on the pollen of Bird's-foot trefoil ([Lotus corniculatus](#)) as source of food for their larvae (although recent work suggests a more catholic diet). While *O. inermis* is found in herb-rich mountain grassland, *O. uncinata* occurs on Scots Pine forests. They are only active on warm days from May to July. *Osmia parietina*, a smaller bee, is also associated with *Lotus* but not found in forests or mountains. There are old records from Skye and a 2005 record from Oronsay, which suggests its occurrence elsewhere on the west coast. *Osmia rufa*, a much commoner species, occurs in southern Scotland as far north as Perth.

Osmia inermis

Osmia inermis is found at low altitudes north of the Arctic Circle and in montane locations further south. In Scotland, this bee occurs on the northern central lowland belt in the altitude range of 300 to 600 m ([distribution map](#)). *Osmia inermis* may have a minimum two-year life cycle; the first winter is passed as a pre-pupa and the second as a diapausing adult within its cocoon. Some adults may even emerge after as many as 3 or 4 years. This mason bee is typically found on exposed, base-rich uplands with a diverse floristic composition. Nests are built under stones and in narrow rock crevices in sites with closely grazed, short, dry, heathery turf. These sites have a high incidence of lichens and bird's foot trefoil (*Lotus corniculatus*), on which the bees forage for pollen. Other possible forage plants are bugle (*Ajuga reptans*) and bilberry (*Vaccinium myrtillus*).

Threats and conservation

This bee is under threat from the loss of suitable habitat, especially on upland calcareous grassland, which is an increasingly rare habitat in Scotland. The loss of herb-rich, short sward grasslands occurs through agricultural intensification, commercial afforestation or insufficient grazing. As a boreo-alpine species, this bee is likely to be negatively affected by warming of the UK climate. For more on the conservation of *Osmia inermis*, see University of Maine's [leaflet](#).

Osmia uncinata

Osmia uncinata is a 'wasp-like' bee with a striped yellow and black thorax and variable degrees of colour and hairiness. Its size varies between 7 and 15 mm long. This is a boreo-alpine bee found in areas of high forest with open glades and dead wood. In the UK, *Osmia uncinata* is confined to Scotland ([distribution map](#)). This solitary bee burrows in abandoned beetle galleries in old pine

trees (burrows made by the larvae of the longhorn beetle *Rhagium inquisitor* may be especially important). Each bee makes its own burrow, but several bees tend to aggregate at the same tree. Eggs are laid in small cells, which are then sealed with some kind of food reserve. The larvae develop to pupal and adult stages sealed in the cocoon, where it passes the winter. Adults emerge in the spring to set up their own nests or mate. Like other solitary bees, *Osmia uncinata* has one brood per year. Very little else is known about this species because it only forages in sunny conditions and occurs in low numbers. *Osmia uncinata* was considered to be *Osmia inermis* until deemed a separate species after studies on specimens at the Natural History Museum.

This mason bee is found in clearings in native pine woods where its main forage plant, bird's foot trefoil (*Lotus corniculatus*), is well-established. Nesting sites seem to need full exposure to the sun. Where this flower is rare, bees forage on broom (*Cytisus scoparius*) and bilberry (*Vaccinium myrtillus*). Meadows on the borders of pine woods may be an important source of food (nectar to fuel their flight and pollen for their larvae). Although primarily associated with areas of Caledonian pine forest, old plantations may be suitable, as long as there is a varied ground flora. As *Rhagium inquisitor* is scarce in the UK, the rarity of *O. uncinata* may be partially due to limited availability of the combination of old trees in sunny positions, beetle burrows, and nearby patches of bird's foot trefoil.

Threats and conservation

The main threats to *O. uncinata* are reduction of available habitat, loss of the open areas and increasing shading of the forage plants. Dead pine wood should be retained, and the natural regeneration of the forest should be encouraged. As a species with a boreo-alpine distribution, it is likely to be negatively affected by warming of the UK climate. This bee may benefit from measures taken to conserve other species found in native pine woods. For more on this species, see [RSPB's report](#).

***Osmia parietina* (Western mason bee)**

Osmia parietina ([image](#)) is a solitary bee first observed in 1828 flying around walls (hence its name of "*parietina*" meaning 'wall'). The adult bee appears to be dependent on the flowers of bird's-foot trefoil for pollen and nectar. Details of the nest have not been described, but the cells are probably constructed from chewed-up plant material. The nest is situated in holes in various substrates, but all seem to need to be in full sun without shading. Like some other mason bees, this species appears to occur at very low densities. This characteristic, coupled with the fact that it only flies on warm, sunny days, limits opportunities to find and observe it and, consequently, *O. parietina* may be under-recorded.

This bee is present in small numbers in scattered localities in Scotland ([distribution map](#)). It shows a preference for upland herb-rich pasture and woodland glades and clearings with an abundance of bird's-foot trefoil. Dry-stone walls, rocky outcrops and standing dead trees in full exposure to the sun provide essential nesting sites.

Threats and conservation

Grazing of herb-rich upland meadows with bird's-foot trefoil and the loss of open, sunny, flower-rich glades and clearings have accelerated the decline of this species. Conversion of meadows to silage, rye-grass leys or arable production has also affected this bee. The loss of sunny, rocky outcrops through scrub encroachment, and the removal or destruction of dry-stone walls and standing dead wood, has limited the availability of nest sites. However, the principal conservation measure for this species is the management of bird's-foot trefoil.

More information

[Douglas, G. 2003. *Osmia inermis* Zetterstedt, a mason bee \(Hymenoptera: Megachilidae\). Invertebrate species dossier, Scottish Natural Heritage.](#)

[Douglas, G. 2003. *Osmia parietina* Curtis, a mason bee \(Hymenoptera: Megachilidae\). Invertebrate species dossier, Scottish Natural Heritage.](#)

[Douglas, G. 2003. *Osmia uncinata* Gerstaecker, a mason bee \(Hymenoptera: Megachilidae\). Invertebrate species dossier, Scottish Natural Heritage.](#)

Osmia inermis [UK Biodiversity Action Plan](#).

Osmia uncinata [UK Biodiversity Action Plan](#).

Osmia parietina [UK Biodiversity Action Plan](#).