Hymettus

Visit to Blair Atholl area to assess known and potential *Osmia inermis* sites

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Cover photograph:
Osmia inermis female nesting in a rock Crevice, Southern Germany by Paul Westrich.
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1. Background.

The UK Biodiversity Action Plan priority species *Osmia inermis* is an arctic/montane bee known only from the Cairngorm area in the UK. The modern locations where it has been most consistently found in the past twenty-five years are in the Blair Atholl area. An account of its original re-discovery appears in Edwards and Else (1996).

The bee makes its nest in crevices in rocks and, under particular conditions, beneath loose rocks lying on well-drained surfaces, often provided by short, well-grazed heather. Analysis of pollen loads collected by this bee in the UK and Germany shows that the only pollens known to be collected by females are from plants of the family Fabaceae (Edwards and Else (ibid), Westrich 1989).

Meall Gruaim (NN890681) a hill which stands immediately to the east of Blair Atholl, has provided extremely suitable forage-habitat conditions for *Osmia inermis* on all visits made since the first visits in 1983, but the condition of the area since 2001 had not been checked by the original discoverers other than a very brief visit by ME in 2005. The number of suitable rocks lying on south-facing surfaces has been variable over the years. One objective of the current visit was to check the overall condition of this area.

During the period since 1983 searches for *O. inermis* have been made in potential habitats near the original Meall Gruaim site. These have found occupied or old nests in several locations in the general area. Three previous searches of the lower-middle sections of Glen Tilt, a valley running north-east from Blair Atholl and immediately adjacent to Meall Gruaim (NN7088-NN9273), have failed to locate the bee despite the presence of potential forage and nesting habitats. It was felt that this could have been, in part at least, due to the presence of large numbers of sheep which were removing the flowers of Birds-foot Trefoil *Lotus corniculatus*, the known pollen forage plant of the bee in the Blair Atholl area. Bird's-foot Trefoil was plentiful in several places along the Glen. The stocking density of the Glen has recently been reduced and the second aim of the visit was to search for the presence of the bee again.

A report had been received of numbers of what were presumed to be nests of *Osmia inermis* being found under stones north of Blair Atholl on an extensive stabilised shingle bank of the River Garry (NN847654) in the early 1980s. The site had been visited in 2007 by Murdo Macdonald and the original discoverer, Richard Lyszkowski, but most of it was now mature conifer plantation. However, a second visit to the area was planned, as a small area was thought to have retained its suitability for *O. inermis.*

The searches reported here were carried out on 16/6/2008 by Keith Bland, Mike Edwards and Brian Little.

2. Meall Gruaim.

The condition of the vegetation on the hill was found to be excellent, with good stands of flowering Bird's-foot Trefoil among areas of close-cropped, springy heather turf (photo 1). The regeneration of areas which were burnt in 1997/8 as part of grouse management was very favourable, showing the suitability of the management methods and frequency.

Photo 1: This area of rotational muir-burn at Meall Gruaim has the required habitat components of short heather and flowering Birds-foot Trefoil, although there were few stones on the surface of the ground.

The structure of the heathers on the most favourable south-facing slopes was also good, but the trend to fewer and fewer suitable stones lying on the surface had continued, with very few being present. Just one old nest with three emerged cells was found in an hour and a half of searching. Searches of the whole area were not made.

Whilst the presence of these stones is a great aid to finding nests, it is not clear to what extent the presence of such stones, and their occupation, is a guide to the basic viability of the population. The species is known to nest in crevices (Paul Westrich, cover photo) and these are likely to be a more reliable, long-term, location. A basic population based on such crevices in small crags and outcrops and using suitable stones as additional resources when available would seem to be the most likely situation. However, there is little doubt that the frequency of suitable nesting sites is limiting in the otherwise ideal habitat of Meall Gruaim.

3. Glen Tilt

Previous searches for both bees visiting Bird's-foot Trefoil and for nests under stones in the middle-lower reaches of the Glen, roughly between Auchgbhal (NN885706) and Forest Lodge (NN932739), had failed to locate the bee. During these earlier searches much of the area was being grazed by large numbers of sheep and there were few flowers present, especially towards Forest Lodge (photo 2).

For the first section of the Glen the road, up to the bridge at Marble Lodge, is on the southern side of the river with a steep, north-facing hill-side above. Although Bird's-foot Trefoil is frequent, the other habitat requirement of warm sunny nesting locations is not readily accessible, being on the far side of the river. Previous searches of flowers along the road in good conditions have failed to locate the *Osmia* and it was decided to start at the Forest Lodge end, where the road is on the south-facing side of the Glen, for the current searches. The vegetation here was much less heavily grazed than on previous occasions with scattered flowers of Bird's-foot Trefoil present along much of the section between the Marble Lodge Bridge and Forest Lodge (photo 3). Searches were made at three locations along this section: close by Forest Lodge; the wider flat area near the ruin of Clachghlas and the junction of the River Tilt and the Alt Craoinidh opposite Balaneasie.

Photo 2: The second searching area in 1998. Although there were plentiful leaves of Birds-foot Trefoil, no flowers could be found in June. Note the sheep in the photo.

3.1 Close to Forest Lodge.

This search covered the seepage system alongside the road west of the end of the fenced area at NN927737 to NN924734, ending with a section of very warm, sparsely vegetated rocky bluff. The terrain at this end was very suitable, being south-facing with flowering Bird's-foot Trefoil, small crags and stones on the surface of the ground. There were small areas of similar ground towards Marble Lodge, but a lot of the area was seepage and, as such, not very suitable as nesting habitat, although small flowering patches of Bird's-foot Trefoil occurred all along the sides of the road for a distance of about 15m up the hillside.

Photo 3: The second searching area in June, 2008. There were many flowers of Birds-foot Trefoil in the sward and short, tightly-grazed heather along the upper part of the slope.

Much excitement was caused by the discovery of a number of Chrysid wasps sunning themselves on rocks and leaves in this area. At the time it was felt that these might prove to be *Chrysura hirsuta*, the cuckoo-wasp associated with *O. inermis*, but closer inspection showed this to be *Chrysis rutiliventris.* The Eumenid wasp *Ansistrocerus oviventris* was also taken here, along with nest cells, also under loose stones, but made of mud and stones, not chewed plant material. This wasp is the likely host of the *Chrysis*. Unfortunately, no sign of nest or adult of *O. inermis* was found.

3.2 The wider area flat area near the ruin of Clachghlas NN920733 to NN917728.

The ridge at the northern edge of this area (photo 3) had short heather, flowering Birds-foot Trefoil and loose stones, including in a small quarry, but again, although more *Chrysis rutiliventris* were seen, no sign of *O. inermis* was found.

3.3 The confluence of the River Tilt and the Alt Craoinidh opposite Balaneasie (NN909720)

This area also looked very suitable, with the same combination of flowering Bird's-foot Trefoil, small crags and loose stones. Once again, despite the presence of *A. oviventris* and *C. rutiliventris*, no sign of *O. inermis* was found. It should be noted that this area was not searched in the best conditions, by the time we arrived here it was late in the afternoon and the sun was disappearing. Nests, if present in the area, would, however, have been findable, whatever the conditions.

4. By the River Garry north of Blair Atholl.

This area of old shingle bar alongside the river (NN845658 to NN854654) was, as reported, largely planted up to pines, but a strip of open habitat still existed at the western end. This strip had good stands of Bird's-foot Trefoil and many stones. These latter were, however, water-worn and sat on the substrate with little in the way of cavity under them. Although a number of aculeate Hymenoptera were seen here there were no signs of *O. inermis* and we felt that it was more probable that the cells under stones which Richard had seen in the 1970s were those of *A. oviventris.*

5. Conclusions from the searches in June 2008.

The lack of evidence as to the continued presence of *O. inermis* in the searched area was extremely disappointing. It must be said that the overall suitability of the area for *O. inermis* remains high, with Glen Tilt in particular being of a much better quality than on previous visits. The Blair Atholl Estate should be congratulated on their efforts to maintain the required conditions.

It is unlikely that *O. inermis* is no longer present in the general area, although the results of the current searches confirm a long-term downward trend for evidence of the population. This trend correlates with the string of poor weather conditions in June experienced over the past five years or more. This contrasts with the succession of very good Junes in the early 1980s when this bee was re-discovered.

Coupled with the likelihood that nesting under flat stones on short heather is an unusual feature of this bee's biology, nests being more associated with crevices in rocks, and that the numbers of these stones have declined greatly on Meal Gruaim and are scarce elsewhere in the area, it is no surprise that finding evidence of the bee is difficult; it has always been so away from Meal Gruaim.

Concentrating searches on the Meal Gruaim area would seem the best option in the short term. Increasing the number of suitable stones lying on top of short heather in warm places is the best way of surveying for them. It may, however, be necessary to wait for several years for the population to build up again, assuming that warm Junes will return.

Meanwhile, wider searches, should also continue to be made, including raising awareness generally, both of suitable habitat in the Forests of Atholl and Mar and the appearance of the nests, hoping for a chance discovery to bring new areas to our attention.

References

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