Hymettus

Pseudepipona herrichii
The Purbeck Mason-wasp

Stuart Roberts

2008

Hymettus Ltd. Lea-Side, Carron Lane, MIDHURST, West Sussex GU29 9LB
Registered in England No. 5761114
Registered Charity No. 1124636

Report Author Contact Details:

Stuart Roberts

1 Waterloo Road
SALISBURY
Wilts. SP1 2JR
01722 320072
spmr@msn.com

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Pseudepipona herrichii by Jeremy Early (reproduced with permission)

Summary

- *Pseudepipona herrichii* is listed on the UK BAP and is apparently restricted to the heathlands of the southern Poole Basin.
- Visits to nine different heathland sites in Dorset were undertaken from late June to mid-July 2008 in ideal flying conditions. Previous records exist for only 3 of the sites investigated.
- Sites were assessed for the presence of *Pseudepipona* and also the existence of conditions suitable for supporting the wasp as outlined in previous reports
- No specimens of *Pseudepipona herrichii* were found at any of the sites visited. However, clear signs of active nesting activity were found on a site from which the species had not previously been recorded
- Further work recommended would involve continued monitoring at the known sites for the species, and further investigation of Upton Heath to ascertain the true status of the insect at that locality. Monitoring of all known sites need not be undertaken on a yearly basis, but further investigation at Upton Heath is important in the immediate future

Contents

1 Background

1.1 Survey aims

The main aim was to investigate a number of previously unstudied sites within the Poole basin known to have at least some of the environmental conditions known to be suitable for supporting *Pseudepipona herrichii*. These include:

1. The presence of exposed clay as a nesting medium
2. Mid-succession regenerating heathland with Bell Heather (*Erica cinerea*) as a major component of the vegetation
3. The Tortricoid moth *Acleris hyemana*, the sole known larval prey item
4. Water to aid in nest construction.

Sites were to be selected both within the known historic UK range of the species, and also in the northern parts of the Poole Basin from which no records exist.

1.2 Previous work

The Aculeate Conservation Group / Hymettus Ltd has commissioned work to study the autecology and distribution of this species since 1995. The current studies continued those forming part of an English Nature Species Recovery Programme, initiated originally as a result of the Bare Ground Invertebrates Report of 1994 (Edwards, 1994 English Nature, National Lowland Heathland programme). A full report of the findings of the 1995 pre-recovery work was submitted to English Nature in October 1995 (Edwards and Roberts, 1995). The subsequent annual reports were submitted to English Nature in the Autumn of the years in which the work was undertaken (Roberts, 1996-2004). Work has continued in 2005-2006 led by RSPB and the National Trust (Neal, 2005-7)

2 Methods

2.1 Site selection

The initial selection of sites for fieldwork was based on existing knowledge of the Poole Basin area, and in particular, sites that had been previously visited as part of other projects a number of years ago. Stephen's Castle, Horton Heath and Holt were known to have clay exposures, a key component in suitable *Pseudepipona* habitat.

Sites in the Bloxworth area were visited as requested by Mike Edwards, and nearby sites were included because they were known to have clay exposures. Upton Heath was selected because it is previously well recorded for aculeates, and has known and well documented clay exposures formed as a result of former industrial clay extraction. Access to Upton Heath, and information about the site was arranged by Ms. Jane Adams, a Dorset Wildlife Trust volunteer warden at the site.

The precise locations of exposed ground were checked against "Google Earth" and the relevant Ordnance Survey maps. (Landranger Sheet 195, and Outdoor Leisure Map 15)

2.2 Survey methods

Each of the sites selected was to be visited at least once during the flight period of *Pseudepipona herrichii* in late June and the first half of July 2008. The poor weather conditions in much of late June and early July resulted in the final survey visits being undertaken rather later than is ideal. Poor weather prior to the site visits also made nest searching difficult, as rain water usually washes away the diagnostic spoil excavated by the wasp.

Survey methods included:

1. Searching bare ground for nests and for active adults
2. Searching for signs of nectar raiding by inspecting the base of the corollas of the nectar source *Erica cinerea* for typical necrotised incisions.
3. Searching *Erica cinerea* for signs of the larval webs of the tortricoid moth *Acleris hyemana*

Other BAP species present were also recorded as and when they were seen.

All sites were visited within the known flight period and on days when there were good weather conditions

Searches were conducted to record the presence of absence of the target species (either adults or active nests), and also to assess the suitability of sites for supporting the insect, should future conditions allow for dispersal and spread away from the core areas on Purbeck.

3 Results

3.1 Stephen's Castle LNR: Grid Reference SU090095

Visited on 26 June 2008. Stephen's Castle is a small (19.4 Ha) LNR situated to the north of Verwood in the northern part of the Poole Basin. The area is predominantly lowland heathland which is managed by cattle grazing. Much of the western parts of the site were previously used for clay extraction to supply the needs of the former Verwood Pottery, and this has created large exposures of clay, not dissimilar to those found on Purbeck. **Despite extensive searching, there was no sign of *Pseudepipona herrichii* at the site and signs of nectar raiding of the corollas of *Erica cinerea* were rare. The cattle grazing has resulted in closely cropped grass, similar to a New Forest lawn, developing in the areas immediately adjacent to suitable nesting sites.** I would not think it likely that *Pseudepipona* could colonise the area given the shortage of *Erica cinerea* in the areas close to possible nest sites.

3.2 Dewlands Common: Grid Reference SU075081

Visited on 26 June 2008. Dewlands Common is a small (12 Ha) LNR situated to the south of Verwood in the northern part of the Poole Basin. The heathland is generally too sandy to support *Pseudepipona* and the only sizeable exposures on the heath are of sand at the southernmost end of the site. There is no sign of *Acleris hyemana* and the incidence of nectar raiding is very low. **Further monitoring of this site in the future is unlikely to show the presence of *Pseudepipona***.

3.3 Horton Heath : Grid Reference SU075070

Visited on 26 June 2008. Before notification as a SSSI in 1981, this site was one of the largest tracts of lowland heathland in Dorset, and supported a wide range of heathland types. The last scraps of what was once Horton Heath are now much overgrown with tall Gorse (*Ulex*), and senescent heather. The majority of this magnificent heath was deliberately ploughed up just before it was designated a Site of Special Scientific Interest (SSSI). In 2008, the sandy soils of the former heathland are under a crop of Maize. The underlying soil is dominated by light sands and plateau gravels, and exposures are restricted to gravelly pathways. Despite there being only a tiny area of heathland left, the BAP bumblebee *Bombus humilis* was found to be present. **There was no *Pseudepipona* at the site and further monitoring of this site in the future is unlikely to show its presence**

3.4 Holt Heath NNR: Grid Reference SU0604

Visited on 26 June 2008. Holt Heath NNR is a large heathland nature reserve (400 Ha) north east of Wimborne, in the northern parts of the Poole Basin. the Heath has attracted considerable attention from hymenopterists since the early 1940's. *Pseudepipona herrichii* has never been found at the site, despite parts being apparently suitable. The survey work in 2008 concentrated on the area around Summerlug Hill which include areas of damp heathland, fire ponds and their associated exposed clay banks and managed firebreaks. There is no sign of *Acleris hyemana* and the incidence of nectar raiding is very low. **Further monitoring of this site in the future is unlikely to show the presence of *Pseudepipona***

3.5 Slepe Heath boundary: Grid Reference SY95538568.

Visited on 17 July 2008. A small, but extended, aggregation was discovered on the mown firebreak just to the north of the stock proof fence by Howard Avery on 14 July 1997. Despite the very low numbers of both individuals and nests initially, since 2003, this site has been consistently supporting the species. **In 2008 no specimens were seen and no nests discovered. However, the site remains in good condition with reasonable numbers of *Acleris hyemana*.**

3.6 Cold Harbour Heath: Grid Reference SY895899

Visited on 13 July 2008. A small fragment of heathland to the west of Wareham. The majority of the site is given over to a colossal clay and sand extraction site, with the southerly half now used for landfill. The only extant heathland is at the north of the site where there is a small amount of exposed clay on path and trackways, but the surrounding heathland is predominantly grassy. Closer to the extraction quarry, the heathland becomes more suitable for *Pseudepipona*, although none was seen. There is considerable *Erica cinerea* in mid-succession, and this supports *Acleris hyemana*. The pathways and exposures contain much clay. **The site is worth re-visiting on future monitoring rounds, despite drawing a blank in 2008. The grassy tracksides also support reasonable numbers of the spider *Cheiracanthium erraticum* (prey of the BAP wasp *Homonotus sanguinolentus*) and also the BAP fly *Bombylius minor* (Diptera; Bombyliidae)**

3.7 Bloxworth Heath Pylons: Grid Reference SY88809206.

Visited on 13 July 2008. The small aggregation was found by Mike Edwards and the author on a clay exposure some 50m to the east of a pylon, and directly under the power lines. The number of occupied nest burrows was probably less than 20 in 1997 and 1998. Since 1998, The wasps have been seen at the site only in 2001.**There was no sign of wasps or nests at this site in 2008. It is proposed that the site be kept on future monitoring schedules as the site remains in good condition to support the species**

3.8 Bloxworth Reintroduction Site: Grid Reference SY87829235

Visited on 13 July 2008. As in previous years, the observations again confirm that there appear to be no nests or adult activity of *Pseudepipona herrichii* at the site. Despite the failure of the original reintroduction programme at this site, conditions for the wasp remain good, and **I would recommend continued regular monitoring the site, in the hope of finding the wasp in the future**.

3.9 Upton Heath LNR: Grid Reference SY987941 & SY982937

Visited on 15 July 2008 (and again on 22 August 2008 on a private visit). A large heathland fragment to the north of Poole Harbour. There is a full range of heathland habitats present at the site, and these include large areas from which clay was historically extracted for its importance in local pottery & brick making industries. An entire day was spent at the site, with the emphasis placed on clay exposures in the southern half of the reserve.

No specimens of *Pseudepipona herrichii* were seen, although an active nest was found, with the characteristic granular spoil. Further searching did not reveal other nests in the area. The area immediately surrounding the nest was predominantly grassy, but there was plenty of mid- *Erica cinerea* and low numbers of *Acleris hyemana* present.

Other BAP species noted at the site include *Bombus humilis*, which was plentiful over much of the southern part of the heath, and an active nest was found on18 August. Also present were the flies *Bombylius minor* and *Thyridanthrax fenestratus* **(Diptera; Bombyliidae)**

I would recommend further work at Upton Heath in the future to try to establish the true status of *Pseudepipona herrichii* there.

4 Discussion

4.1 General comments

Pseudepipona herrichii is among the more straightforward of insect species to survey and monitor, given that the adults are identifiable in the field and the nests are highly characteristic in appearance. The environmental conditions that support the wasp are also easily recognised and well understood (Roberts, 1996).

2008 provided a second successive season with sub-optimal conditions for adult activity, and, as a result of regular heavy rainfall during the flight period, nests were more difficult to recognise than when dry conditions prevail.

This year work has been undertaken to search for populations of the wasp in areas from which it had not previously been recorded. Foremost among these are heathlands to the north of Poole Harbour. **Although no activity was seen at the sites between Wimborne and Verwood, a nest was found on the edge of Upton Heath. This represents the first record from north of Poole harbour.**

Information on the presence of the species at Upton Heath has been communicated to the DWT and their warden staff

- The area in which the nest was found is subject to a great deal of disturbance from a nearby housing estate in Lytchett Minster, who gain access to the site via a pedestrian Bridge. Disturbance includes widespread use by dog owners, horse riders, bikers and mountain bikers. The area, in common with many heaths on the urban fringes of the Poole Basin is at risk from fire.

5 Conclusions

Although fieldwork in 2008 has been disrupted by poor weather conditions throughout much of the flight period, three visits were carried out as originally proposed. The chances of discovering *Pseudepipona* at new sites is slim, given the amount of observations carried out in the Dorset Heathland over the past 20 years, and so the discovery of a nest at Upton Heath was as welcome as it was unexpected.

Overall though, at traditional sites which are known to support the wasp, the numbers continue to be low, a situation which has existed for a number of years., and which remains a concern. It is hoped that conditions during the flight activity period may be better in 2009, and so help in the recovery of the wasp.

5.1 Recommendations for future studies

Repeating the survey's undertaken on the core Purbeck sites will be essential in future years, and the marginal sites, which have held small populations when conditions have been ideal, should also bee on a future monitoring programme.

It is certainly important to continue investigations at Upton Heath to establish the true status of the wasp at the site.

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