

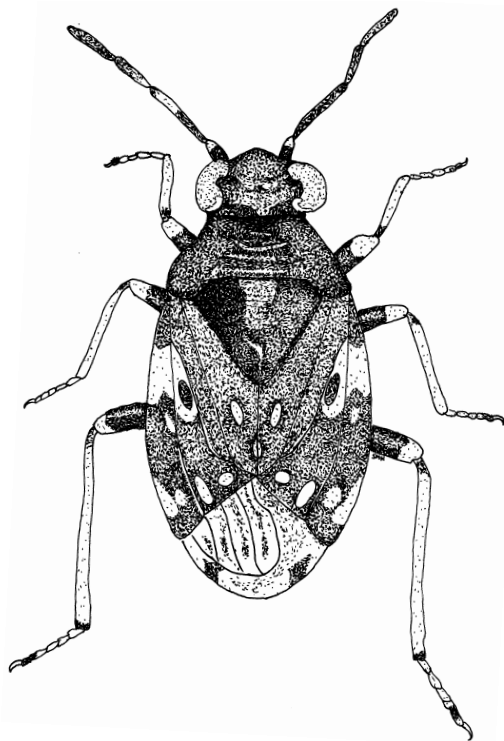
The CARLISLE NATURALIST

Volume 8 Number 2

Autumn 2000

Published twice-yearly (Spring/Autumn) by Carlisle Natural History Society

ISSN 1362-6728



Saldula melanoscela

(Stephen Hewitt)

Contents

Reports on Field Meetings

Whitecloserigg – Marie Saag	29
Eskmeals Nature Reserve – David Clarke	30
Wasdale – David Clarke	32
Thornhill – Jeremy Roberts	33
Knock Ore Gill and Knock Fell – Marie Saag	34
Fungus Foray, Mardale Head – Geoff Naylor	35
Fungus Foray, Armathwaite – Geoff Naylor	36

Notes and Records

The spider <i>Segestria florentina</i> (Rossi 1790) at Bowness-on-Solway – John R. Parker	37
The shorebug <i>Saldula melanoscela</i> (Fieber) on the Solway – Stephen Hewitt	37
A rare water strider, <i>Limnoporus rufoscutellatus</i> (Lat.) in West Cumbria – John Read	38
The plant bug <i>Liorrhyssus hyalinus</i> (Fabricius) new to Cumbria – Stephen Hewitt	39

Articles

A survey of bees at Heathwaite (National Trust), Arnside in 1998 – Neil A. Robinson	40
---	----

Society Announcements - see end covers

The Carlisle Naturalist

From the Editor

My apologies for the late appearance of this issue of the *Carlisle Naturalist*, once again brought on by the backlog of work caused by the development of a temporary exhibition. On this occasion the subject is the minerals of Cumbria. The show, “Mineral Magic”, is on display until 21st January in the Special Exhibitions Gallery at Tullie House. If you have not already visited the exhibition it is worth seeing for the fine collection of colourful and spectacular crystals mined in Cumbria. Since this ‘Autumn’ issue is now so late, I can take the opportunity to wish all members of the Society a very Happy New Year.

Winter Amusement

Are you wondering what you can do to contribute to the furtherance of natural history knowledge this winter? Well, here is a suggestion for those of you with at least a stereo microscope.

In the world of microfungi there are a number of species that parasitise other fungi. Some research is going on in the UK and in mainland Europe on a strange, undescribed, species in the genus *Unguiculariopsis*. This fungus grows on minute pyrenomycetes that develop on Rabbit and Hare dung.

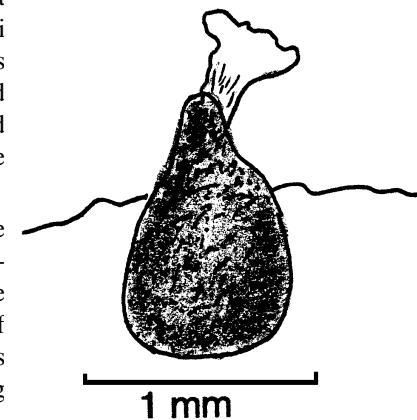
All you need is somewhere to incubate Rabbit ‘pills’ in a damp atmosphere. I have some Petri dishes available if anyone is interested in this project. Leave the ‘pills’ in a light location, and not too warm, damping them occasionally and just watch them, say, weekly. It can take several weeks for much to happen.

The pyrenomycete hosts will appear as minute black dots on the dung surface; they are pear-shaped with the base immersed. They are generally about 0.5 mm tall at most. If any of the parasitic fungi develop they will appear as white, very small cup-shaped objects growing from the top, or sometimes side, of the fungus.

If anything does appear let it develop for a few days, then dry off the infected ‘pills’ and let me have them. I’ll pass these on to Seppo Huhtinen in Estonia or Mike Richardson in Edinburgh, for evaluation. It is very important to dry the material. Damp material deteriorates very rapidly and the recipient just receives a nasty mess!

Please help if you feel able to. It is a really worthwhile project in a little-studied group of fungi.

Peter Wilberforce, ‘Morley Hill’, Cumwhitton; tel: 01228 562525
email: pete@blackcrofts.demon.co.uk



Unguiculariopsis sp. nov. developed on a mature perithecium of *Schizothecium tetraspora*

Field meetings

20th May: Whitecloserigg Farm Trail

Leader: Ann Robinson

The morning had been fine but it began to drizzle as we arrived at the start of our walk at Whitecloserigg Farm, near Shankhill, north east of Carlisle. Not deterred and donning waterproofs 10 members set off across the fields. The first part of the walk was through agricultural fields and the most interesting feature was a field corner where digging had revealed a sand-bank that had been utilised for a nesting area by Sand Martins. Curiously, there seemed to be no Sand Martins in sight!! Odd black dots were seen at the entrances of some of the holes. We sent Jeremy Roberts down a bank to inspect and he reported back that they were fleas and gallantly captured and brought us a few to view. A few differing ideas then emerged: perhaps the plague of fleas at this site had made the Sand Martins move to a new nesting sight, maybe the fleas had resulted in the deaths of the young in the nest and the adults then moved away . . .

More searching around this area revealed plants such as Heart's-ease (*Viola tricolor*), Thyme-leaved Speedwell (*Veronica serpyllifolia*); and in a damper flush: Bog Stichwort (*Stellaria uliginosa*), Marsh Foxtail (*Alopecurus geniculatus*) and Blinks (*Montia fontana*). Lapwing, a Buzzard and Oystercatcher were the birds seen in this vicinity.

The path then entered a wood of oak, birch and hazel. The Carrs who own Whitecloserigg have felled small areas of woodland and replanted with species such as alder, oak and ash all of which grow naturally here. Soon after entering the wood we heard Redstart and Pied Flycatcher and saw a Tree Pipit. The woodland flora was particularly attractive with Woodruff (*Galium odoratum*), Bugle (*Ajuga reptans*), Dog's Mercury (*Mercurialis perennis*), Wood Sedge (*Carex sylvatica*), Red Campion (*Silene dioica*), Wood Speedwell (*Veronica montana*), Figwort (*Scrophularia nodosa*), and numerous ferns - Scaly Male-fern (*Dryopteris affinis*), Broad Buckler (*Dryopteris dilatata*), as well as Common Male-fern (*Dryopteris filix-mas*) and Lady-fern (*Athyrium filix-femina*). A healthy clump of Hybrid Solomon's-seal (*Polygonatum × hybridum*) was in flower at the side of the track. Where the wood became damper there was Great Horsetail (*Equisetum telmateia*) in abundance, Common Valerian (*Valeriana officinalis*) and Opposite-leaved Golden-saxifrage (*Chrysosplenium oppositifolium*). At this point the path doubled back and followed the side of the River Lyne.

The next stretch of the walk was very attractive with rushing water to the right and the wood with crags of sandstone often coming down to near the water's edge on our left. The smell of garlic from the Ramsons (*Allium ursinum*) and the occasional smell of aniseed from the Sweet Cicely (*Myrrhis odorata*) filled the air as we followed the narrow path in single file. Not far from the water's edge we saw yellow Globeflowers (*Trollius europaeus*), Water Avens (*Geum rivale*) and a clump of possibly native Lily-of-the-valley (*Convallaria majalis*). Jeremy identified a bracket fungus as *Daedalea quercina*. We saw Dipper and Marsh Tit, Pink Purslane (*Claytonia sibirica*) - an introduced plant from North America, and Wood Goldilocks (*Ranunculus auricomus*). Where the sandstone formed a cliff above

us we saw some bat droppings - most likely Daubenton's. Nearby, a Blackcap was heard singing, a Garden Warbler was seen and in one of the few coniferous trees there was a pair of Goldcrests.

Here we passed the 'fairy castle' - an isolated rocky outcrop by the path that was formed by the action of the river long ago, as it cut through a fault in the sandstone. Barry spotted a Wren's nest and Ann pointed out a Badger's latrine. We stopped briefly at the point where the Rae Burn enters the River Lyne opposite the so-called Otter Stone. Unfortunately no Otters were in sight but we did see a Red Squirrel and some Meadow Saxifrage (*Saxifraga granulata*) here. This end of the wood is owned by the Woodland Trust.

The weather conditions of the day were not ideal for insects but we did see a solitary Green-veined White butterfly and Brown Silver-lined and Clouded Magpie moths.

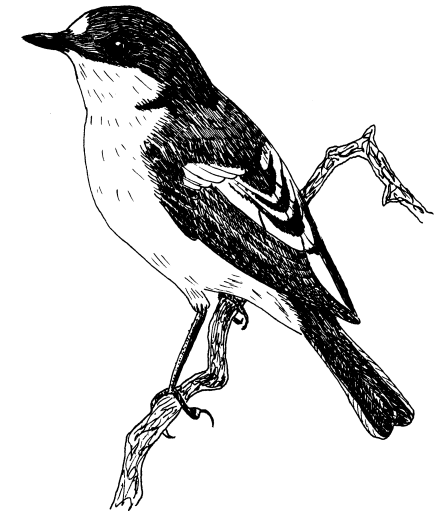
We then followed the course of the Rae Burn back to the farm where we had started.

It is certainly a beautiful quiet place for an interesting walk and we were all grateful to Ann and Craig for introducing us to the area.

Marie Saag

Pied Flycatcher

(Stephen Hewitt)



10th June: Eskmeals Nature Reserve

Leader: Tony Warburton

Tony Warburton the Hon. Manager for the Eskmeals CWT Reserve led us on a very full day which was well-attended and blessed with much sunshine in an otherwise poor spell of weather.

Tony had kindly arranged with the MOD Gunnery Range for access to the Army's part of the dune complex. The existence of the Range has doubtless been the main reason for the complete lack of the kind of 'development' which so often has overtaken important sand dune systems elsewhere. The tour was mainly on the road system, and as we realised from the visit to the site offices, under the watchful eye of an extensive camera network! Despite this we had a privileged view of an interesting variety of the complex of micro-habitats of the dunes, from stable areas of heathland to the actively mobile seaward fore-dunes and shingle with pioneer plants which included the beautiful Yellow Horned-

poppy (*Glaucium flavum*) and Sea Kale (*Crambe maritima*). The warm sunshine brought out several butterflies and day-flying moths: Mother Shipton and Burnet Companion Moths and Common Blue Butterfly, together with singles of Red Admiral and Painted Lady. Bird-life was less obvious – Tony attributed the noticeable lack of Skylarks to changes in farming practice which had reduced winter food supply; Barry Marrs located a comparative rarity – a Lesser Whitethroat, singing from the scrub. The tour revealed many plant species of interest: Northern Marsh, Common Spotted Orchids (*Dactylorhiza purpurella* and *D. fuchsii*) and their hybrid; Columbine (*Aquilegia vulgaris*); the ferns Adder’s-tongue (*Ophioglossum vulgatum*) and Moonwort (*Botrychium lunaria*) – the latter during an abortive search for the non-native Tassel Hyacinth (*Muscari comosum*). By contrast, another alien plant Tree Lupin (*Lupinus arboreus*) was clearly doing well. A visiting Roe Deer put in a brief appearance.

During the afternoon, Tony took us on an extensive walk around the CWT’s Reserve, which directly abuts onto the MOD site. He explained that fluctuations in the Rabbit population and scrub growth were both critical factors affecting changes in the more stable dune habitats - and in the survival (or otherwise) of various members of their flora and fauna. Sea-buckthorn (*Hippophae rhamnoides*), originally introduced to stabilise some areas, had now become dominant over large tracts. Despite its usefulness in providing cover and some winter food for birds, it posed a major management issue – being virtually impossible to control, and the natural equivalent of barbed wire!

The low ‘grey dunes’ were of particular interest, and very sensitive to human impact. Lichen-rich, their flora even included a beard-lichen (*Usnea* sp.), more normally found on trees. Other special flora included the uncommon diminutive Smooth Cat’s-ear (*Hypochoeris glabra*). Tony showed us evidence of the long period over which man had used the dunes: concentrations of heat-cracked stones marked areas of prehistoric hearths, amazingly dating from around 4,000 BC*.

At the front of the dune system, the uncommon Isle of Man Cabbage (*Coincya monensis*), Sea-holly (*Eryngium maritimum*), Sea and Portland Spurges (*Euphorbia paralias* and *E. portlandica*) were among the more notable plants. Sadly, there were no Natterjack Toads to be seen: Tony felt the encroachment of marginal vegetation and difficulties in maintaining adequate water levels at the specially created pools had been the main problems. (Natural ‘flash’ pools are increasingly unusual and unpredictable in occurrence).

A very rewarding day, much enlivened with Tony’s commentary and his evident enthusiasm for this very special area. With thanks also to Dave Hewitt of the MOD for access and help with the visit.

*Some flint microliths from this area can be seen in the displays at Tullie House Museum.

David Clarke

24th June: Wasdale/Eskdale

Leader: David Clarke

Under the distant, but doubtless watchful, gaze of the Peregrine Falcon on the towering crags of the famous ‘Screes’ across the lake, we tried our best to look for dragonflies. A decidedly chill north wind hinted that the Ice Age still claimed at least squatter’s rights over the great valley it had shaped and even with sixteen pairs of human eyes we could not find any dragonflies sheltering on the bracken at the edge of the mire. The recent rain had raised water levels and flooded emergence sites at the edges of the runnels; sheets of Intermediate Sundew (*Drosera intermedia*) and other bog plants were still under water. Fortunately the rare Marsh Clubmoss (*Lycopodiella inundata*) was not covered and provided an interesting diversion from the apparently hopeless task.

More in hope than expectation, we moved across the road to check the boggy flushes there. Happily, persistence paid off and exuviae of Keeled Skimmer (*Orthetrum coerulescens*) and Golden-ringed Dragonfly (*Cordulegaster boltonii*) were soon found. Encouraged by this, we continued and another five Keeled Skimmer exuviae resulted. After sieving some particularly soupy silt in one runnel some larvae of the latter species were also found – all quite small however. An unexpected treat was the discovery of several flowering plants of the diminutive Bog Orchid (*Hammarbya paludosa*). (Even better, it later transpired that this is a new 10 km-square record for Cumbria). Emerging examples of the huge horse-fly, *Tabanus sudeticus*, the largest British fly, were another intriguing find. The two we found were fortunately both males – the non-biting sex!

After ‘re-fuelling’ we decided to move immediately to Parkgate Tarn. This large, attractive acid site, ringed by woodland, was distinctly warmer and less windy than Greendale – though still not warm enough to encourage dragonflies onto the wing. An exuvia of Keeled Skimmer was an early find, soon followed by some of Four-spotted Chaser – making for useful comparison. Resting dragonflies were also revealed: a couple of male Four-spotted Chaser (*Libellula quadrimaculata*) and an early, and freshly emerged female Black Darter (*Sympetrum danae*), all of which were too cool to avoid being picked up and admired at close quarters! Damselflies were slightly more in evidence and we added Large Red (*Pyrrhosoma nymphula*), Common Blue (*Enallagma cyathigerum*), Blue-tailed (*Ischnura elegans*) and Azure (*Coenagrion puella*) to our list for the day. In better conditions the site would have been buzzing with Odonata activity. We noted with some concern that the large semi-floating rafts of Sphagnum - an important feature of this site - are now threatened by invading growths of *Rhododendron ponticum*. This could much reduce the site’s dragonfly interest and may soon seal the fate of the few plants of Royal Fern (*Osmunda regalis*) which still occur here. Our report is being sent to the site owners.

All-in-all eight dragonfly species - with useful breeding records of Keeled Skimmer at both sites - was not too bad considering the conditions. The planned search for Beautiful Demoiselles (*Calopteryx virgo*) on the River Irt was attempted as a final task, but the stretch of the river we covered seemed too fast and insufficiently vegetated at the margins to support this species.

David Clarke

8th July: Thornhill Meadows and Moss

Leader: Frank Mawby

Fifteen members accepted an invitation from the trustees of Thornhill Meadows Trust to visit this new 24-acre reserve. A third of the reserve - one large field - is designated as part of Thornhill Moss and Meadows SSSI for its botanical interest, and there are two further wet rush pastures in which the Trust is hoping to encourage botanical diversity through appropriate management.

Some pockets of very wet ground had patches of Narrow-leaved Cottongrass (*Eriophorum angustifolium*), and the very varied poor-fen vegetation was looking particularly lush. The main show of plants such as Ragged Robin (*Lychnis flos-cuculi*) was perhaps over, but there was still much to enjoy.

Large numbers of *Dactylorhiza* orchids were mainly Common Spotted Orchid (*D. fuchsii*), with some Northern Marsh Orchid (*D. purpurella*) and the inevitable hybrids. A few Lesser Butterfly Orchids (*Platanthera bifolia*) were much admired. In some places the Marsh Arrow-grass (*Triglochin palustris*) was amazingly abundant, being dominant over small areas.

A curious feature was the presence of a few plants of the alien American Willowherb (*Epilobium ciliatum*) growing out in the marsh with the more usual marshland willowherbs. It seemed to be invading patches of bare peat disturbed by animals, but its presence here is an indication of the adaptability of some alien plants.

Reed Buntings and Meadow Pipits were frequent, and some Common Snipe were flushed: this rapidly-declining species breeds here. Flocks of Linnets and Goldfinches were feeding along the weedy hedgerows, and Ringlet, Meadow Brown and Green-veined White butterflies were all frequent.

Next we moved on a short distance to Thornhill Moss NNR, a superb area of mire vegetation with patches of willow, spring zones, and sedge beds. The most interesting plant here was a small patch, now in fruit, of Marsh Stitchwort (*Stellaria palustris*), which had been found earlier in the summer by local botanist Ron Groom. This may be a rediscovery of a site recorded by C.W. Muirhead in 1949 as Southerfield Moss. Interestingly, it was in an area where encroaching willow scrub had been recently cleared.

There was a spectacular pink patch of Marsh Pimpernel (*Anagallis tenella*) on hummocks in a flushed zone with violet-flowered Common Butterwort (*Pinguicula vulgaris*). Amongst a great range of other plants, there were many more Lesser Butterfly Orchids, Common Twayblade (*Listera ovata*), and also some Early Marsh Orchids (*Dactylorhiza incarnata*).

A number of heavy showers left us damp, but did not seem to put off a Grasshopper Warbler, which sang persistently, if invisibly, from the centre of a patch of tall marsh vegetation.

With thanks to Frank for leading us through country he knows very thoroughly.

Jeremy Roberts

5th August 2000: Knock Ore Gill

Leader: Jeremy Roberts

Fifteen participants met near Knock to spend the day in the western part of the Moorhouse National Nature Reserve. We all piled into two cars and Jenny's van for the trip up the private road that eventually leads to the Radar Station. Jeremy had previously arranged permission from the warden for us to visit the area. We parked at the side of Knock Ore Gill, took in the fantastic view across the Eden Valley and made our way up to see an area of the fell that had been fenced off just over a year ago. We were lucky to have amongst our party Peter Kelly who has been doing some work for English Nature at the site. Viewing the plants from outside the fence it was amazing to see how the lack of sheep-grazing within the enclosure allowed plants that were previously minuscule to grow up and flower successfully within such a short time. Here we saw Marsh Saxifrage (*Saxifraga hirculus*), Hairy Stonecrop (*Sedum villosum*), Three-flowered Rush (*Juncus triglumis*), Lesser Clubmoss (*Selaginella selaginoides*) and stands of the Stiff Sedge (*Carex bigelowii*), Star Sedge (*Carex echinata*) and Yellow Sedge (*Carex viridula*). In nearby flushes Marsh Arrowgrass (*Triglochin palustre*), Mossy Saxifrage (*Saxifraga hypnoides*), Starry Saxifrage (*Saxifraga stellaris*) and Chickweed Willowherb (*Epilobium alsinifolium*) were found.

A craggy limestone area was the site of a few plants of an Enchanter's-nightshade (*Circaea*) bearing fruits. The plant is a continuing puzzle, being listed as either *C. alpina*, the Alpine Enchanter's-nightshade, or as the hybrid (*C. × intermedia*) between this species and the common *C. lutetiana*. A *Flora of Cumbria* maps it as the alpine species but gives it as the hybrid in the text! The flowering shoots were carrying strings of ripening fruits, a feature which Jeremy suggested is typical of the alpine species – the hybrid, in his experience, being highly sterile and dropping its fruits unripened, leaving a characteristically bare inflorescence axis.

An old enclosure fenced off 20 years ago or more contained some previously planted alpiners including Alpine Cinquefoil (*Potentilla crantzii*) and Alpine Lady's Mantle (*Alchemilla alpina*). Presumably these were planted as part of an experiment to see if they would survive in the climate on the Fell.

The acidic gritstone block screes by Knock Ore Gill held a few plants with the gross features of Mountain Buckler-fern (*Dryopteris expansa*), along with much more of the Broad Buckler-fern (*D. dilatata*), and some plants which did not convince as either species. (No-one had the fortitude to collect spores for the high-power microscope examination necessary to confirm these identifications, while chromosome counts – which would have clinched it – were thought to be beyond us!) Other plants here were Parsley Fern (*Cryptogramma crispa*) - for some reason quite a rare plant on the Carboniferous sedimentary rocks - and Fir Clubmoss (*Huperzia selago*).

After lunch sitting beside the Gill we followed the path across the Great Dun Fell passing Silverband Mine to a small stream where the limestone crags were covered in flowering Wild Thyme (*Thymus polytrichus*). Further upstream we saw Alpine

Willowherb (*Epilobium anagallidifolium*), Spring Sandwort (*Minuartia verna*), *Myosotis stolonifera*, a very small-flowered pale forget-me-not, and more Hairy Stonecrop in the flushes. Over the ridge Jeremy led us to see a flush with Alpine Foxtail (*Alopecurus borealis*).

Next we stopped briefly to see yet another enclosed area, on Little Dunn Fell, with its good stands of *Carex bigelowii*. There is no doubt that floristically this part of the National Nature Reserve would greatly benefit from a reduction of grazing and it is to be hoped that this will be brought about in some amicable way in the near future.

During the course of the day eleven species of bird were seen including a Peregrine Falcon chasing Starlings, Buzzard, Merlin, Kestrel, Golden Plover, Ring Ouzel and a Dipper.

Stephen Hewitt collected a selection of insects amongst which were two interesting types of shore-bug (*Salda littoralis* and *Salda morio*). The former are usually to be found in habitats of either salt marsh or lake margins and Knock Ore Gill is one of only two sites in the county where the species occurs at altitude – both sites are limestone flushes, the other being Tarn Sike at Sunbiggin.

Thanks go to Jeremy for arranging the trip and sharing his first-hand knowledge of the area as well as doing a reconnaissance the day before that enabled him to lead us directly to the interesting spots that would otherwise have been impossible to find.

Marie Saag

23rd September: fungus foray – Haweswater

Leader: Geoff Naylor

We had intended to explore the Mardale area and the lower parts of Riggindale at the head of Haweswater, but a preliminary visit was disappointing, so we began the day in an area about half way along the east side of the reservoir. It was a steep, boulder-strewn and bracken-covered slope with some notable stands of Juniper. Below this was a coniferous plantation near the water's edge. In this area we noted 38 species of



Alopecurus borealis (David Clarke)

fungus. Of particular interest (to me) amongst the bracken and juniper were *Pholiota graminis*, *Marasmius curreyi* and three species of *Hygrocybe* (Wax Cap) - namely *H. lepida*, *H. reai* and *H. strangulata*. The conifer plantation held larger and more spectacular fungi, but mainly commoner species. However *Ramaria ochraceovirens* growing amongst shed needles was more unusual.

We then moved north to a mainly deciduous part of Naddle Forest closer to the reservoir dam. Here we again logged 38 species. Most were the usual fungi associated with this type of habitat but the following were, perhaps more unusual - *Helvella* (*Macroscyphus*) *macropus*, *Hydnum rufescens*, *Amanita crocea*, *Boletus luridus* and some very striking, bright green fruiting bodies of *Chlorosplenium aeruginascens* (Green Wood Cup).

For the final part of the afternoon, those who stayed the pace explored the woods (mostly coniferous) between Burnbanks village and the north end of the dam. 21 species were found in this area, the most interesting of which were *Helvella sulcata*, *Clitocybe fritilliformis*, *Russula drimeia*, the local *Fomes fomentarius* (previously known in this area) and the almost legendary *Sparassis crispa* (Cauliflower Fungus).

The total number of species for the day was just over 90 - one of the best - if not the best - lists for a CNHS fungus foray.

Geoff Naylor

7th October: Armathwaite, fungus foray

Leader: Geoff Naylor

Very different weather conditions greeted us at Armathwaite Bridge for the second foray. It rained heavily and continuously but a surprising number of people arrived and all were keen to proceed.

A good number of fungi were found along the path sides on the righthand bank of the R. Eden, heading upstream towards Coombs Wood which we planned to visit later. *Fomes fomentarius* was found again but this was not a surprise in this area, although it should have been growing on Birch rather than Beech. Others of particular interest were *Amanita pantherina* (Panther Cap), *Lentinus torulosus* (previously known as *Panus conchatus*), *Tephrocybe rancida* and *Scleroderma bovista*. Highlights were the earth star (*Geastrum triplex*) and Dog Stinkhorn (*Mutinus caninus*) as well as its better-known relative *Phallus impudicus*.

After two hours or so we decided we were just a little bit too wet, so returned to the bridge along a different footpath without exploring Coombs Wood. We had found 48 species in that time.

Geoff Naylor

Notes and Records

The spider *Segestria florentina* (Rossi, 1790) at Bowness-on-Solway

In late July 2000 Dr Jennifer Newton spotted a web of what she believed to be *Segestria florentina* on the sea wall at Bowness-on-Solway (NY2261). Although she was able to entice the spider out for a fleeting view, it retreated back into the crevice before she could capture it. I revisited the site with Jennifer and her husband on 22nd August. Although the web had disappeared and only immature spiders were found, I was able to confirm Jennifer's initial identification from her photograph of the web and through my familiarity with this species in the south of England.

S. florentina is probably the largest British spider (Locket & Millidge 1951) with a body length of up to 22 mm. It is uniformly black in colour apart from the dusky pattern on the dorsal side of the abdomen. The chelicerae which accommodate the fangs just above the mouth are iridescent green. It is a haplogyne spider of the family Segestriidae. Haplogene spiders, with only six eyes, are considered more primitive than entelegyne spiders, which have eight eyes and often very complex genital structures.

Haplogyne spiders do not make complicated webs as snares to catch their prey and species such as those of *Segestria* live in old stone walls in crevices which the spider lines with silk to provide a tubular retreat. Single silk lines radiate out from the mouth of this tunnel across the face of the wall. Insects and other invertebrates walking across the wall, touch one of these 'trip lines' and so alert the spider, which rushes out to seize its prey. The spider will tackle anything up to the size of a cranefly or wasp and the whole encounter is alarmingly quick, both in the attack and return to its retreat.

S. florentina is known from no more than 12 sites in the south of England, most of which, but not all, are near to the sea coast and sea ports such as Plymouth, Fowey, Bristol and London (Westminster). Prior to this discovery in Cumbria the spider had not been recorded north of Bristol.

After leaving Bowness on the 22nd August I visited Port Carlisle. Here, at the western edge of the village (NY2362), I found another colony of *S. florentina* in old brick wall bounding the field. Again only immatures were seen.

Reference

Locket, G.H. & Millidge, A.F., (1951). *British Spiders* Vol. I. p 88, Ray Soc. London.

John R. Parker FZS, *Stone Raise: Greenhead, 42 Lakeland Park, Keswick CA12 4AT*

The shorebug *Saldula melanoscela* (Fieber) on the Solway

On 18th July 2000 I visited the River Wampool at Whitrigg Bridge (NY227576) near Kirkbride. The river is tidal at this point and the sandy-mud banks of the river here have

long been of interest to entomologists. F.H. Day and colleagues collected here in the late 19th and early 20th centuries, discovering several rare and interesting species of insect.

Among a number of different species of shorebugs (*Saldula* spp.) running about on the bare riverbank I noticed some small, brightly-marked specimens that I could not immediately identify. I collected three specimens to examine more closely. Whilst setting the bugs I became more convinced that they did not belong to any species with which I was familiar and did not appear to be included in the British identification keys. I eventually identified them as *Saldula melanoscela* using a French publication (Perricart 1990) and confirmed my identification by examining specimens in the collection of the Natural History Museum. *S. melanoscela* occurs in Europe from Italy north to Denmark and is found on sandy substrates at the edge of rivers and lakes and by the coast. The species has not previously been reported in Britain.

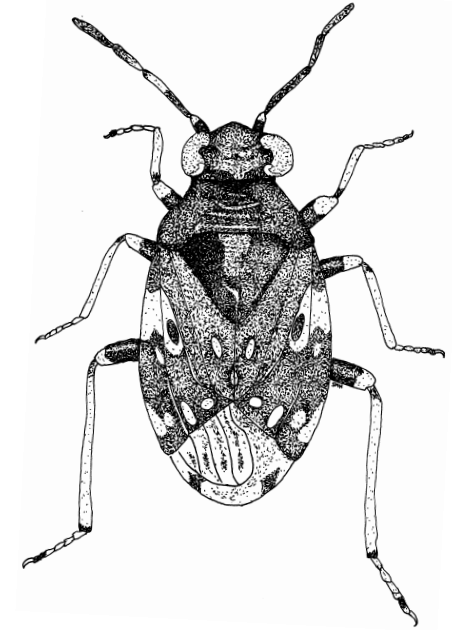
On checking the insect collections in Tullie House Museum I was both surprised and pleased to see three specimens, labelled *Saldula c-album*, a common species of river shingle banks, that I had previously set apart from the other specimens of this species. All three of these specimens are in fact *S. melanoscela*, collected by F.H. Day in 1928 and 1945 from 'Kirkbride', which is certainly the same as the Whitrigg Bridge locality. Thus the species has been present on the Solway for at least 70 years and very probably several thousands of years (Hewitt, in press).

I would like to thank Mr Mick Webb of the Natural History Museum, London for lending me specimens of *S. melanoscela* from the collections in his care.

References

Hewitt, S.M., (in press). *Saldula melanoscela* (Fieber)(Hemiptera, Saldidae) new to Britain, *Entomologists Monthly Magazine*.

Perricart, J., (1990). Hemiptères Saldidae et Leptopodidae d'Europe occidentale et du Maghreb, *Faune de France*, 77.



Saldula melanoscela
(Stephen Hewitt)

Stephen Hewitt, Tullie House Museum, Carlisle

A rare water strider (*Limnopus rufoscutellatus* (Lat.)) in West Cumbria

I found one adult male of this large and very conspicuous water strider while searching for water beetles near Walkmill Bridge, Moresby (NY0118) on 24th May 2000. The strider was found at the edge of a very overgrown drainage ditch on an area of reclaimed land that was formerly an open-cast mining site.

Limnopus rufoscutellatus is an extremely rare water bug in Britain and according to Southwood & Leston (1959) has been recorded very infrequently over the years. It is an occasional migrant species and has never been known to breed in this country, although there is a breeding record for Ireland.

L. rufoscutellatus has previously been listed for Cumberland (Day 1928) based on a 19th century record by Edward Saunders who apparently found it in the Carlisle area.

References

Day, F.H., (1928). The Hemiptera – Heteroptera of Cumberland, *Transactions of Carlisle Natural History Society*, **IV**, 108-130.

Southwood, T.R.E. & Leston, D., (1959). *The Land and Water Bugs of the British Isles*, Frederick Warne.

John Read, 43 Holly Terrace, Hensingham, Whitehaven

The plant bug *Liorrhysus hyalinus* (Fabricius) new to Cumbria

Whilst on a collecting trip to Ennerdale in the company of John Read and John Parker on 1st July 2000, I swept a single specimen of this handsome pink bug from the marsh at the head of Ennerdale water. This is the first record of this species in Cumbria.

According to Southwood and Leston (1959) *L. hyalinus* is widely distributed throughout the world but occurs in Britain only as an occasional migrant. However, there have been a number of more recent records in England and Wales, including breeding colonies (Judd, in prep.) suggesting that the species may have become established at least in southern England.

The marshy habitat of the capture at Ennerdale is out of character for this species, which is generally associated with stork's-bill (*Erodium* sp.) in dry situations in Britain, and suggests that this specimen at least was a migrant from further south in Britain or the continent. Such an occurrence would fit with the large number of different insect migrants noted in the county this summer.

References

Judd, S., (in prep.). The status of *Liorrhysus hyalinus* in Britain.

Southwood, T.R.E. & Leston, D., (1959). *The Land and Water Bugs of the British Isles*, Frederick Warne.

Stephen Hewitt

A survey of bees at Heathwaite (National Trust), Arnside, in 1998

Neil A. Robinson, 3 Abbey Drive, Natland, Kendal, LA9 7QN

1. The Site

Heathwaite is part of the Arnside Knott Site of Special Scientific Interest, which extends from the Knott down to the coast at Arnside Point. In addition to its botanical interest it is a very important site for butterflies, including such rarities as Northern Brown Argus, etc. on Heathwaite and Scotch Argus on the Knott. Along with the Knott itself, it is owned by the National Trust. The study was confined to the unit nearest to Hollins Farm, after a visit in March had concluded that this part would be representative of the site. This area consists of well-grazed species-rich limestone grassland on the lower slopes, with wild edges of Bramble, Hawthorn, Blackthorn and tall herbs adjacent to the walls, and on the upper slopes grading through scrub into taller woodland. On the summit is a small heathy area with patches of Bell Heather, Ling, Gorse and Juniper. A narrow strip along the east side was formerly used as a pig run. The limestone vegetation has recovered, albeit in an enriched and diversified form, with many tall herbs, including Oxeye Daisy, ragwort, thistles and knapweed.

2. Management

The site has escaped any significant agricultural improvement, although the absence of mounds of the Yellow Meadow Ant (*Lasius flavus*) from the central grassland, while they are still present around the edges, suggests that this area has been harrowed in the past to level and scatter the ant hills. The Trust's current management policy is light grazing in late summer and autumn by cattle or Shetland ponies, without stock feeding, and pushing back the edge of the scrub and creating clearings to maintain conditions for butterflies and prevent the scrub from overtaking good areas of limestone grassland. The management of the flower-rich grasslands on Heathwaite and Arnside Knott is supported by sponsorship from Gales Honey.

3. The Survey

The survey of bees was carried out under contract to the North West Region of the National Trust, to whom I am grateful for permission to publish this report. The object was to record the use of the site by social (i.e. honey and bumble) bees and solitary bees, paying particular attention to the flowers which they are using; whether they were nesting on the site; and noting on any conclusions relating to management. The intention was to make visits at about fortnightly intervals from March to September, but the weather was so bad in June, July and August that it became a matter of seizing any suitable days on which to visit. A total of 15 visits were made, usually in late

morning to early afternoon when the bees are most active. When the survey had been completed it was found that two common nomad bees *Nomada marshamella* and *N. ruficornis*, which are the parasites of *Andrena scotica* and *A. haemorrhoea* respectively, had not been recorded. It seemed improbable that they would be absent as their hosts were very common on the site and in fact their presence was confirmed in May 2000.

4. The flowers and their use by bees

In early April the important flowers for bees were the white flowers of the Blackthorn (*Prunus spinosa*) around the edges and the numerous small Dandelions (*Taraxacum* spp.) which were the only flowers showing on the grassland at that time - one out of two had a tiny mining bee nestling in the centre. By May the Blackthorn was going over but Dandelions, Daisies (*Bellis perennis*) and Spring Cinquefoil (*Potentilla neumanniana*) were developing in the grassland, and Tormentil (*Potentilla erecta*) along the woodland edges. In June the rock-rose *Helianthemum nummularium* was in full flower, carpeting the grassland and attracting numerous bees, large and small. Hawthorn (*Crateagus monogyna*), rather late, was in flower along the edges. By July the rock-rose was going over in the central area but patches of Thyme (*Thymus polytrichus*) and clover (*Trifolium* spp.) were attracting large numbers of bees, and along the edges Bramble and tall herbs were becoming important, e.g. Oxeye Daisy *Leucanthemum vulgare*) and Smooth Hawk's-beard (*Crepis capillaris*). By August the grassland was of little interest, but tall herbs around the edges and near the gate, especially ragwort and knapweed, continued to be important right into September.

In the former pig field the tall herbs conspicuous on this part of the site, generally regarded as 'weeds', became valuable sources of nectar and pollen during the summer and attracted many bees right into September. The heathy area did not reveal any of the bees that specifically visit Heather - evidently it was too small to contribute to the bee fauna.

Heathwaite was not greatly visited by honey bees, which were little in evidence until August when their favourite flower was knapweed. This suggests that the nearest hives were some distance away and that the bees did not reach Heathwaite until the colonies had built up their numbers, competition for nectar sources had increased, and the workers were foraging further afield.

5. The Bees (Nomenclature follows Kloet and Hinks, 1978)

5.1 Social bees (i.e. honey bees and bumble bees)

Bumble bees live in colonies consisting of one egg-laying queen, many workers (infertile females), and, later in the season, males which fertilise a new generation of queens which hibernate over the winter and establish new colonies in the spring.

Honey bees also live in colonies, with much larger numbers of workers, and the whole colony can survive over the winter.

Honey bees *Apis mellifera* L. were seen very little on the site until August, when they became numerous, particularly on knapweed.

Five of the six common species of bumble bee were frequently seen

Bombus lapidarius (L.) - the red-tailed bumble bee

Bombus lucorum (L.) - the white-tailed bumble bee

Bombus pascuorum (Scop.) - the sandy brown or 'carder' bumble bee, so-called because it weaves its nest of grass, was not common until August

Bombus pratorum (L.) - the buff-tailed bumble bee

Bombus terrestris (L.) - the brown-tailed bumble bee

These bumble bees use a very wide range of flowers, from the largest (e.g. Wild Rose) to the smallest (e.g. Thyme). Their ability to use such a variety of flowers probably explains why they have adapted so successfully to gardens, whereas other bumble bees which are evidently dependent on natural flower-rich sites have declined drastically during this century. The other common species *Bombus hortorum* was not seen on Heathwaite, though it was reported by a visitor on the Knott in July, but this is always the least numerous of the common species.

Also present were several cuckoo bumble bee of the genus *Psithyrus* which are social parasites (SP) of *Bombus*. They have no worker caste, but a female invades an established *Bombus* nest, kills the queen, eats any eggs which she has laid and replaces them with her own, so that the host workers bring up her offspring of males and females. The colony then dies out completely because it has not produced any new queens and males of its own.

Psithyrus bohemicus (Seidl) - SP of *Bombus lucorum*

Psithyrus campestris (Panz.) - SP of *Bombus pascuorum*

Psithyrus sylvestris (Lep.) - SP of *Bombus pratorum*

5.2 Solitary bees

There are about 200 species of solitary bees in Britain, far more than the social bumble-bees. Solitary bees have no workers and the cells are constructed and provisioned with a paste of honey and pollen by individual females. Exceptions are a few species which have a simple social structure, whereby two generations in the year cooperate (O'Toole and Raw, 1991) - and a larger number that are cleptoparasites, which do not build cells at all but lay their eggs in the cells of other bees. The cells are most commonly constructed in tunnels in the ground excavated by the bees themselves but some species use holes in wood or hollow stems. Bare paths and south facing banks are popular sites for ground nesters and the holes are sometimes grouped in

colonies (though this was not found at Heathwaite). The cells are closed after egg-laying so there is no tending of the young.

To avoid quoting lengths in millimetres, which are difficult to visualise, in this account these bees are described as

‘large’ - about the same size as honey bees, and frequently closely resembling them,

‘small’ - smaller than honey bees, but still recognisable as bees,

‘very small’ - so small that they are not easily seen or recognisable as bees.

COLLETIDAE - Short-tongued bees

Hylaeus confusus Nyl.

June, males at bramble. Very small shiny black bees, nesting in hollow stems.

ANDRENIDAE - Mining bees, ranging from large species, resembling honey bees, to small inconspicuous species. Most have only one brood but a few have two broods in the year.

Andrena bicolor Fab.

July, female at Smooth Hawks-beard. A small bee with two broods - evidently the spring brood escaped attention.

Andrena chrysoseles (Kirby)

April, male at dandelion, July, females common at Bramble, etc. A small bee closely resembling *Halictus rubicundus* (see below).

Andrena clarkella (Kirby)

March, female newly emerged. A large bee which visits Sallow catkins and has a very short flight period in March - April.

Andrena denticulata (Kirby)

July, females at Rough Hawkbit, common at ragwort in August. A large mid-summer bee, favouring ragwort.

Andrena fulva (Muller)

April, males & females frequent at Blackthorn. Known as the ‘Tawny Mining Bee’ - a large, very common, spring species.

Andrena fucata Smith

July, occasional females at Bramble. A large bee, not very common.

Andrena haemorrhoa (Fab.)

April, males & females frequent at Blackthorn. A very common small spring species.

Andrena helvola (L.)

June, a few females at Bramble. A large uncommon species, associated with woodland.

Andrena humilis Imhoff

July, one female at Rough Hawkbit, its favourite forage flower. A Nationally Scarce species.

Andrena minutula (Kirby)

April, males & females at Blackthorn, second brood also common during the summer at other flowers. One of the trio (with *A. saundersella* and *A. subopaca*) of common very small black bees.

Andrena nigroaenea (Kirby)

April, males at gorse, females at dandelion. A large spring/early-summer bee closely resembling a honey bee.

Andrena saundersella (Kirby)

May, males in flight, June females at rockrose. Very small.

Andrena scotica Perkins

April, males at gorse, females at dandelion. A very common large spring species resembling a honey bee.

Andrena subopaca Nyl.

April, males at daisy; July, females at Hawks-beard. Very small.

Andrena wilkella (Kirby)

June, male in flight. A small bee, widespread but not numerous.

HALICTIDAE - Small, or very small, mining bees, many of which have two generations which cooperate in a simple kind of social structure, but also some cleptoparasites (CP), i.e. *Sphcodes*, which lay their eggs in cells provisioned by other bees.

Halictus rubicundus (Christ)

April, females at dandelions, etc., second brood in summer. A very common bee, but not abundant on the site.

Halictus tumulorum (L.)

April, females at dandelions, then rock-rose, etc., abundant at a wide range of flowers right through the summer. Probably the most numerous (very small) bee on the site.

Lasioglossum albipes (Fab.)

May, females at rock-rose, then on other flowers throughout the summer, males later. Very common.

Lasioglossum calceatum (Scop.)

April, females at dandelion, then on other flowers throughout the summer, males later. Very common.

Lasioglossum fratellum (Perez)

April, females at dandelion, as above. Very common.

Lasioglossum fulvicorne (Kirby)

April, females at dandelion, as above. Associated with calcareous grassland.

Lasioglossum leucopum (Kirby)

April, females at dandelion. A common very small green metallic bee.

Lasioglossum villosulum (Kirby)

September, female at Rough Hawkbit, a late record of a very common species.

Sphecodes fasciatus von Hagens

April, female at Daisy. but commonly seen later. Cleptoparasite of *Halictus tumulorum*.

Sphecodes hyalinatus von Hagens

July, male in flight. Cleptoparasite of *Lasioglossum fratellum*.

Sphecodes monilicornis (Kirby)

April, female at Daisy, but commonly seen later. Cleptoparasite of *Halictus rubicundus*.

MEGACHILIDAE - Leaf-cutting and mason bees, females carry pollen on hairs under the abdomen, not on the legs.

Megachile versicolor Smith

July, females at Rough Hawkbit. Common.

Megachile willughbiella (Kirby)

July, males at Bramble. Common.

ANTHOPHORIDAE – Long-tongued ‘flower bees’, but includes the genus *Nomada* - ‘nomad bees’ which do not make nests but are cleptoparasites (CP) of *Andrena* bees.

Nomada flavoguttata (Kirby)

July, females in flight. CP of *Andrena minutula* etc.

Nomada goodeniana (Kirby)

April, male at Blackthorn. CP of *Andrena nigroaenea*.

Nomada lathburiana (Kirby)

May, female in flight. CP of *Andrena cineraria*.

Nomada marshamella (Kirby)

May 2000, female in flight. CP of *Andrena scotica*.

Nomada panzeri Lepeletier

April, males at blackthorn. CP of *Andrena fulva*.

Nomada ruficornis (L.)

May 2000, females in flight. CP of *Andrena haermorrhoea*.

6. Other Groups

6.1 Wasps

No attention was paid to social wasps. Solitary wasps (of which there are about as many species as solitary bees) were not much in evidence, but the large solitary wasp *Ectemnius continuus* (Fab.) was taken sunning on a leaf, and the tiny black *Crossocerus annulipes* (Lep. & Brul.) was nesting in a log seat.

6.2 Ants

Ants were noted, particularly during a visit on 11th June 1998 with ant-expert Cedric Collingwood.

MYRMICINAE

Myrmica ruginodis Nylander - the commonest ‘red ant’ in north west England, frequent under stones in woodland edges.

Myrmica sabuleti Meinert - one of the less common red ants, confined to short sunlit limestone turf, but which is proving to be quite frequent on the Morecambe Bay limestones. All the red ant nests under stones on the open grassland areas were found to be of this species, being replaced by *M. ruginodis* in shadier places.

Formicoxenus nitidulus (Nylander) - this tiny shining ‘guest ant’ has colonies in nests of *Formica rufa* and allied wood ants, apparently stealing food from its hosts but not harming them or being harmed by them. It is rarely seen, except when winged queens and males, which are wingless and resemble workers, emerge in late summer-autumn. Males and a worker were found on a *F. rufa* nest in scrub on Heathwaite on 29th August (Robinson, 1999).

Leptothorax acervorum (Fabricius) - this tiny ant with club-shaped antennae is widespread but not often recorded. A nest was found under the same stone as *M. sabuleti* - evidently these two species are not aggressive towards each other.

FORMICINAE

Formica fusca Linnaeus - the ‘large black ant’, common under stones in open areas.

Formica rufa Linnaeus - the ‘Red Wood Ant’, is close to its northern limit in GB on Arnside Knott. It is present on Heathwaite, and queens which had shed their wings were commonly seen in the spring, but their mound nests are not easy to see because

they are situated within the scrub. A very large nest, in deep shade under hazel/ash/yew, was found to have the 'guest ant' *Formicoxenus nitidulus*.

Lasius flavus (Fabricius) - the 'Yellow Meadow Ant', has numerous soil mounds around the edges of the grassland and is also present under stones in the open areas.

Lasius niger (Linnaeus) the 'Small Black Ant' is occasional under stones.

6.3 Other Invertebrates

Woodlice (Isopoda)

Armadillidium pulchellum - this small mottled pill woodlouse, which is rated as Nationally Scarce, was found under a stone on 11th June.

Platyarthrus hoffmannseggii - the blind white 'Ant Woodlouse', which inhabits the nests of many species of ants as a scavenger, but is not very common, was found to be present in almost every nest of *Myrmica sabuleti*, *Formica fusca* and *Lasius flavus* on Heathwaite on 14th September, and was seen on the *Formica rufa* nest referred to above on 21st September.

7. Assessment of the bee fauna in relation to habitat and management

35 species of solitary bees were recorded, of which 24 were mining bees, 9 were cleptoparasites and 2 were leaf-cutting bees. Of the social bees in addition to honey bees, 5 species of bumble bees and 3 of cuckoo bees were found, making a total of 44 species altogether. The majority of species are of common and widespread occurrence, but the presence of so many species on one site demonstrates the importance of this and other flower-rich grasslands for supporting bees. Such sites, mainly SSSI, are well represented on limestone in the Arnside-Silverdale AONB and South Cumbria but have become rare in the countryside as a whole, which is now largely agricultural monoculture, whether pasture or arable. It is clearly difficult to make quantitative comparison with other sites, but surveys of two calcareous localities in Yorkshire (Archer, 1997), based on a similar number of visits though over a period of years, recorded 31 and 34 species of solitary bees respectively. This suggests that the number of species found at Heathwaite is typical for this type of site.

The value of the calcareous grassland, with its carpets of rock-rose, which are so attractive to bees, is greatly supplemented on this site by the tall herbs of its wild margins and ruderal areas. The current low-key grazing regime which is adjusted to the amount of bite available for the stock, rather than adhering to a rigid schedule, and scrub control which aims to maintain a mosaic and refrains from tidying up the fields right to the walls, is ideal to conserve this rich range of habitats.

Although clearly of importance for its flowers, Heathwaite is not outstanding as nesting habitat. Solitary mining bees particularly like south-facing banks and sandy

soil and where these features occur they may form considerable nesting aggregations, often involving more than one species. These features were not found at Heathwaite. There are no patches of sandy loess which is particularly attractive to bees such as *Andrena humilis* (see below). The soil is thin and stony, and consists of clay where it is deeper. Nest holes of bees, as far as they were seen, were scattered in path edges and patches of bare soil.

Only three of the bees recorded are uncommon nationally:

Andrena helvola - considered uncommon in the south of England and rare in the north (Else, in prep.). However I have found this bee, which seems to be associated with patchy woodland, at Stagshaw Gardens (NT), Gait Barrows NNR - and in my garden at Natland.

Andrena humilis - rated as nationally scarce (Notable b) (Falk, 1991). There is a thriving colony of this species in the public footpath on the National Trust property Helsington Barrows (Robinson, 1996), and I have found it on other limestone sites, usually where patches of loess soil and its favourite flower Rough Hawkbit occur. Only one female was seen, so there is clearly not a significant colony on Heathwaite.

Nomada lathburiana - rated as nationally scarce (Notable b) (Falk, 1991). This nomad bee is the cleptoparasite of *Andrena cineraria* - a large and conspicuous black mining bee with white hair bands. The host is commoner in the north of England than in the south, and I have found it and the nomad bee at a number of sites, but sometimes one is found without the other and the host was not seen at Heathwaite.

8. References

- Archer, M. E., (1997). The aculeate wasps and bees (Hymenoptera Aculeata) of two calcareous localities in Watsonian Yorkshire Burton Leonard Lime Quarries and Cave Wold. *Naturalist* **122**, June 1997.
- Else, G. R., (in prep.), *British Bees*
- Falk, S. (1991). *A Review of Scarce and Threatened Bees, Wasps and Ants of Great Britain*. NCC Peterborough.
- Kloet, G. S. and Hinks, W. D., (1978). A check list of British Insects. Part 4 Hymenoptera, revised by M. G. Fitton *et al.*, *Handbks. Ident. Br. Insects* **11** (4).
- O'Toole, C. and Raw, A., (1991). *Bees of the World*. Blandford.
- Robinson, N. A., (1996). A colony of the mining bee *Andrena humilis* Imhoff at Helsington Barrows, near Kendal. *The Carlisle Naturalist* **4** (1) March 1996, + Correction in **4**, No. 2, p. 44 (October 1996).
- Robinson, N. A., (1999). Observations on the 'guest ant' *Formicoxenus nitidulus* Nylander in nests of the wood ants *Formica rufa* L. and *F. lugubris* Zetterstedt in 1998. *British Journal of Entomology and Natural History* **12**, Part 3, pp. 138-140.

The Carlisle Naturalist

Editor: Stephen Hewitt

Layout & DTP: Jeremy Roberts

Editorial Panel: Roy Atkins, David Clarke, Stephen Hewitt, Geoff Naylor, Jeremy Roberts

Word Processing: Stephen Hewitt

Artwork: David Clarke, Geoff Naylor and Stephen Hewitt

All material for publication should be sent to Stephen Hewitt, Tullie House Museum, Castle St., Carlisle CA3 8TP; e-mail: SteveH@carlisle-city.gov.uk

Copy deadline for the next issue is **14th February 2001.**

Information for Authors

The Carlisle Naturalist publishes material on all aspects of the natural history of Cumbria. General articles, results of personal research, news items, records and letters of relevance to Cumbrian naturalists are welcomed. Material accepted for publication must not be submitted in a similar form to any other journal.

Material should be clearly legible – ideally type-written double-spaced on one side of white A4 paper, or submitted on DOS-formatted 3.5 inch computer disc in ASCII or RTF format and accompanied by a paper copy. Only species and genera should be underlined. Authority names should be given in full. Illustrations should be in black ink; they must be originals and not photocopies. Whilst every care will be taken of original artwork, the editor can not be held responsible for any loss or damage. References should be given in full at the end of the article or note.

Authors of papers two or more pages in length will be provided with 10 reprints. Papers may be submitted to a referee.

Opinions expressed in the *Carlisle Naturalist* are not necessarily shared by the Council of Carlisle Natural History Society nor the Editorial Panel.

Discounted publications to Society members

The following publications of the Society are available to members at the discounted prices shown:

<i>Cumbrian Wildlife in the 20th Century</i> (1996)	£5.00	(retail price £6.50)
<i>Lakeland Ornithology</i> (1954)	£5.00	(2 nd hand price £15 - £20)
<i>Lakeland Molluscs</i> (1967)	£3.00	(2 nd hand price £10 - £20)
Also:		
<i>Lakeland Birdlife</i> 1920 – 1970, R.H. Brown (1974)	£5.00	(2 nd hand price c.£10.00)

Winter Programme 2000/01

4th October *The River Eden - its wildlife and conservation*

An illustrated talk by Allan Stewart of English Nature

18th October *A naturalist in Argentina*

An illustrated talk by Jeremy Roberts

1st November Members' Night

Contributions from the membership

15th November *The Cumbrian Biodiversity Action Plan*

An illustrated talk by Matthew Parsons

29th November *Cumbrian freshwater fish*

An illustrated talk by Jane Atkins of the Environment Agency

13th December *Bats in Cumbria*

An illustrated talk by Geoff Billington

10th January *Murder on the wild side*

An illustrated talk by Tim and Anne Cleeves

(A joint meeting with Cumbria Bird Club)

24th January *Progress on the Cumbria Bird Club Breeding Bird Survey*

An illustrated talk by John Callion

3rd February (Saturday): Field Meeting Loch Ken, Galloway (wild goose chase)

Leader: Geoff Horne Depart 9.00 am.

7th February Reports on studies by Society members:

Winter food supply of the Lakeland Golden Eagles - an illustrated talk by Dave Walker

Invertebrates of Cumbrian river shingle - an illustrated talk by Stephen Hewitt

21st February AGM & Members' Night

AGM followed by contributions from the membership

7th March *Limestone pavements in Cumbria - their origin and conservation*

An illustrated talk by Simon Webb of English Nature

(A joint meeting with Cumberland Geological Society)

Carlisle Natural History Society Officers

President: David J. Clarke; Vice-Presidents: Geoffrey Horne, Bob Buchanan

Council: Jeremy Roberts, Bob Wright, Mike Tulloch, Brian Spencer, Barry Marrs, John Hamer, Ann Robinson, Anne Abbs, Geoff Norman and Marie Saag.

Secretary: Stephen Hewitt c/o Tullie House Museum, Castle St., Carlisle CA3 8TP

Assistant Secretary: Roy Atkins

Treasurer: Dorothy Iveson, 60 Etterby St., Carlisle

Recorder: Geoff Naylor, c/o Tullie House Museum

Subscription Rates: Adult £6.00; Family £8.00; Junior £3.00; Affiliated £5.00

(Affiliated members receive the *Carlisle Naturalist* only)

Membership application forms are available from the Secretary.