

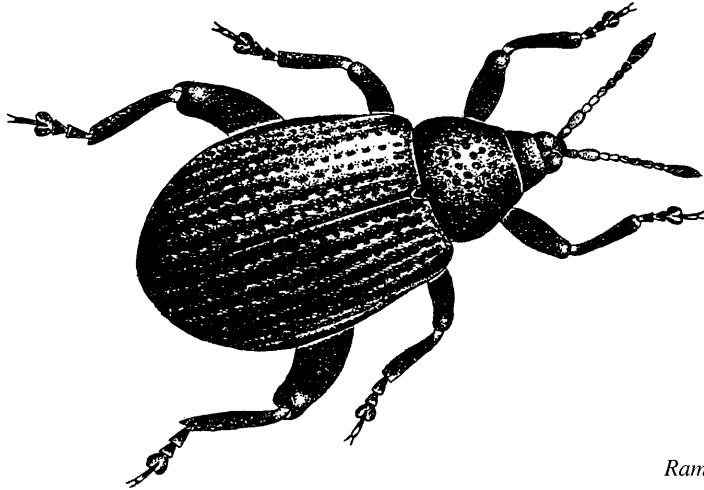
# The CARLISLE NATURALIST

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*Ramphus pulicarius*

(John Read)

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## **From the Editor**

Spring is now well underway although as I write this in mid April a spell of northerly winds is temporarily slowing things down after an extraordinarily mild winter. Small Tortoiseshell butterflies were seen on the wing in January and Hedgehogs too came out of hibernation because of the warm temperatures – so lacking was the snow on the fells that I only managed to see one Snow Flea this winter! Many warblers have now returned for the summer, Keith Temple saw an early Swallow over the River Caldew on 1st April and more are here now although the main influx has yet to arrive. Amphibians too spawned earlier than usual this year with Frogs spawning in garden ponds in Carlisle in mid February – a good ten days ahead of schedule. Common Toads have also spawned by now and there has been another mysterious case of mass killing of toads following on from the one at Canonbie which was reported nationally last year – see the note by Paul Duff and myself on page 9. Please remember to make a note of all your wildlife sightings through the summer to pass on at the indoor meetings commencing in October.

## **Second Nature Organic Compost**

This is the compost made by Carlisle City Council from recycled garden waste. 100% organic, second nature compost is peat-free, rich in nutrients and is the ideal soil improver and conditioner.

80 litre bags of compost are available through the Society at just £3.00 a bag. By buying your compost through the Society you will be improving your garden, supporting the City's recycling scheme and the Society, and most importantly of all do no harm to our peatlands and their wildlife.

Jeremy and Margaret Roberts have a stock of the compost at Wetheral Pasture - contact them on 01228 560164 to arrange your purchase.

## **Discounted publications to Society members**

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

*Cumbrian Wildlife in the 20<sup>th</sup> Century* (1996) £5.00 (retail price £6.50)

*Lakeland Ornithology* (1954) £5.00 (2<sup>nd</sup> hand price £15 - £20)

*Lakeland Molluscs* (1967) £3.00 (2<sup>nd</sup> hand price £10 - £20)

Also:

*Lakeland Birdlife 1920–1970*, R.H. Brown (1974) £5.00 (2<sup>nd</sup> hand price c. £10)

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## Field Meetings

**5th October 1997: Thurstonfield Lough (Fungus Foray)      Leader: Geoff Naylor**

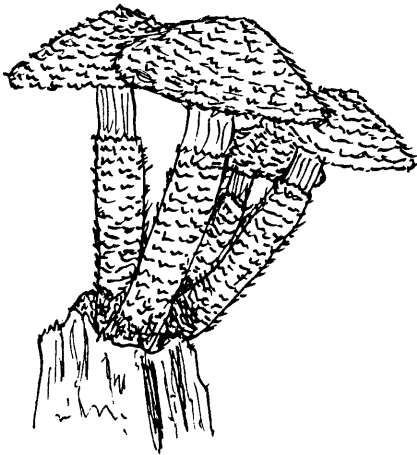
Eleven members met for the society's first foray at this Site of Special Scientific Interest. Fungi were found in large numbers and it was almost half an hour before we moved away from the car park area due to the variety available there.

The woodland (beech/oak) and wetter areas (willow/alder) surrounding the lough also had a good variety of fungi and much time was spent, often with olfactory assistance, in field identification. Indeed, the variety of smells eventually became too confused with aniseed, radish, meal, mushroom and even coconut mingling on our fingers.

Some of the more unusual varieties found were: White Helvella (*H. crispa*), Hedgehog Puffball (*Lycoperdon echinatum*), the cup fungus *Otidea alutacea*, *Agaricus haemorrhoidarius*, *Pleurotus dryinus*, the bright yellow *Tricholoma sulphureum* and the less brightly coloured but unusual *T. ustale*.

These were the more unusual finds but there were also the commoner but quite spectacular Fly Agaric (*Amanita muscaria*), Aniseed Cap (*Clitocybe odora*), Amethyst Deceiver (*Laccaria amethystea*), Wood Blewit (*Lepista nuda*), Stinkhorn (*Phallus impudicus*) and Shaggy Pholiota (*Pholiota squarrosa*) as well as half a dozen species of *Russula* and five of *Lactarius* (Milk Caps).

Less spectacular, but with more interesting shapes were the White Coral Fungus (*Clavulina cristata*), the aniseed-scented *Lentinellus cochleatus*, the ubiquitous Candle Snuff (*Xylaria hypoxylon*) and two bracket fungi of somewhat restricted distribution - *Phellinus igniarius* and *Daedaleopsis confragosa* (Blushing Bracket), both growing on willows. Additional odour-interest was added with the aniseed-scented *Clitocybe fragrans*; Poison Pie (*Hebeloma crustuliniforme*) and *Mycena pura* - both of which smell of radish; and *Mycena vitilis* - smelling of bleach.



*Pholiota squarrosa*  
(Geoff Naylor)

The total of 77+ species was close to our record of 83 at Gaitbarrows in 1987. Some specimens proved too difficult to identify with confidence, particularly in the genera *Cortinarius* and *Inocybe*, of which there were many examples.

Geoff Naylor

**7th February 1998: Loch Ken and the Solway coast**

**Leader: Geoff Horne**

Nine members of the Society made the annual Scottish foray along the Solway coast to Loch Ken, under the expert guidance of Geoff Horne. We left Carlisle College under grey skies and a chill wind but with the promise of a dry day, the strident call of a Great Tit signalling his territorial intentions in the trees of Chatsworth Square.

We stopped briefly just out of Annan to wait for two of the group to join us. On previous visits the line of tall beeches have attracted Brambling but few small birds of any species were seen. The fields opposite often have geese but a few Black-headed Gulls, Rooks and Carrion Crows were all we saw. However, several skeins of Pink-footed geese, over a thousand birds, appeared in the sky to the north flying south-west. There are usually around 20,000 Pinkfeet on the Solway in February and a count on the 19th January totalled over 18,000 on morning flight.

We soon moved to Newbie, where the tide was coming up to high water with slight swell driven by a sharp south-westerly breeze. The narrow line of shingle was full of waders for at least half a mile with small numbers of ducks just off-shore. Oystercatchers were the most abundant with good numbers of Curlew, Lapwing and 200 - 300 Bar-tailed Godwit including one bird that for some reason had not moulted out of last season's summer plumage. We rarely see our waders in full summer plumage unless they are late leaving in spring and are just beginning to turn chestnut or have suspended moult before returning. Amongst the large waders several Dunlin and Redshank scampered around still feeding with a few Ringed Plover, Knot and Turnstone, the latter being very difficult to pick out amongst the rocks and shingle. On the sea a few Shelduck, Mallard and Wigeon were seen. Scanning out to sea several gulls were seen, mostly Black-headed, Herring and a few Great Black-backed. Lesser Black-backed may have been present but they are normally still in North Africa at this time of year. Ring recoveries show they commonly turn up in Morocco.

Moving on we turned down to Priestside and saw our first Whooper Swans, a small flock of twelve that included four juveniles.

Turning the corner past Priestside farm we saw our first female Hen Harrier, showing the distinctive white rump that gives it the nickname ring tail, hunting across a rushy field and through a young plantation, diving at least once at some prey item. Its presence perhaps explained the lack of small birds, although a few Wood Pigeon remained unruffled in the taller trees fringing the field.

Near Stanhope we saw the first of several Buzzards, a bird seen more frequently in recent years. We watched this bird land only to discover two more on the ground at what appeared to be carrion, probably a goose, most probably a shooting casualty. A number of Carrion Crows kept a watch, waiting their turn at the carcass. I have

no doubt Buzzards dine frequently on crow especially in the breeding season. On the opposite side of the road under the shelter of the wood a mixed flock of Redwing, Fieldfare and Starlings were feeding in the cattle foot marks. A little further along, over a rushy field, two Kestrels appeared to be disputing a feeding area.

Another short drive and we found a large flock of Whooper Swans, at least ninety six and many with the large 'darvic' rings that carry three letters that can be read in the field with a telescope. The rings are put on by the Wildfowl and Wetlands Trust and show where these birds breed and how they often move between sites during winter, often turning up in Northern Ireland. Some birds carry neck collars and were ringed in East Iceland by Danish and Icelandic ringers. It has been assumed until recently that Danish wintering grounds only supported Whooper Swans from Scandinavia and Russia, but the ringing shows that birds from East Iceland also winter in Denmark as well as Scotland and England. Most of the birds we saw are probably Icelandic breeders. There are many Whoopers at WWT Slimbridge and Martin Mere, Lancashire but none of my ring sightings have ever been seen there so it is reasonable to assume that they are Russian and Scandinavian birds. It is interesting how the two populations rarely seem to mix; ringing is a sure way to resolve these issues.

Whilst watching the swans we were soon aware of the constant yapping of Barnacle Geese and sure enough a short distance down the road some two thousand were crammed into a grass field, and a white one was spotted amongst them. In the next field a small flock of thirty to forty Chaffinches were feeding, flitting frequently between the nearby trees and the ground, never quite happy about staying on the ground too long. In the same tree a pair of Stock Doves surveyed the scene.

A mile along the road 350 Pink-footed geese and a solitary Greylag were well settled on an under-sown stubble and three more Buzzards soared over the distant woods. Ignoring Caerlaverock we headed for Glencaple, stopping to look over a pool that held about forty Wigeon and at least four Teal.

A brief stop at the National Nature Reserve car park was unrewarding, a few Curlew on the marsh and a large flock of two hundred Wood Pigeon on a heavily manured field along with various corvids. Driving on we stopped briefly for a good view of about four hundred Barnacle Geese on a sandbank in the mouth of the Nith. Three more Buzzards soared lazily along the hillside.

Lunch and a more than welcome loo at Glencaple. The Nith was quiet with three Goldeneye, a few Black-headed Gulls and two Great Black-backs. Without the size comparison it is easy to take them for Lesser Black-backs, but look carefully at the head and especially the large bill of the Great. A distant helicopter stirred up a large flock of Barnacle Geese from Kirkconnel Merse, possibly over four

thousand. So we had now seen about a third of the Solway flock which is now estimated at over 20,000. It had long been thought that the flock would not exceed thirteen thousand because of breeding ground limitations but numbers continue to grow. The UK Pink-footed Goose flock is also now well over 230,000, although the Greylag has declined to about 80,000. The causes are being investigated.

Our next stop was Auchenreoch Loch alongside the A75. On arrival a suicidal hybrid Mallard on the hotel lawn had to be ushered off the main road as it sought food from us. The Loch was fairly quiet, the shallow north east end holding a few Tufted Duck, Coot, two Mute Swans and a pair of Goosander. From the lay-by further down we had good views of several Goldeneye with some handsome displaying males and two Cormorants.

Threave Castle was also rather quiet. A flock of House Sparrows chattered in the hedge by the farm, no Tree Sparrows with them on this occasion. From the hide at the castle two new birds for the day were two Little Grebe and a sad-looking Heron hunched up in a nearby field. Two Teal, two Wigeon, a Moorhen, Mute Swan, a few Mallard and a single Goldeneye made up the list. A Robin greeted us as we passed a small copse. Geoff searched the eaves of the National Trust building for evidence of a Pied Wagtail roost but was disappointed that the space had been under-wired, presumably to deter them. However, one or two were seen across the fields along a drystone dyke. Four more Buzzards were seen high in the sky over Threave Gardens.

Some late sunshine peered through the light cloud on the way to our final destination Loch Ken. There was now much more activity as waterfowl in particular prepared for evening dining. At our first stop a few Canada Geese were grazing the loch edge with some Greylags, and a skein of about forty Greylags flew down the loch. Pintail, several Teal, Goldeneye and a single Great Crested Grebe were seen. At the north end of the Loch it took some time to find the Greenland White-fronted Geese feeding on a grass field some distance away. Meanwhile, a host of duck included many Wigeon and Mallard, 3 Mute Swans and a few Shovelers. We moved a little further round for a closer view of the White-fronts and saw our second Hen Harrier hunting for a late meal; a few Snipe flushed up as it passed over the marshy grassland. Behind us a large flock of Fieldfare and Redwing flew into roost in a nearby wood. Through a gateway we had much better views of the White-fronts; although still long range they were close enough for us to make out the distinctive orange bill and the broad black chest-bands that make them appear much darker than their European cousins. Both species of course have the white flash above the bill that gives them their name. From here we went home our separate ways so only our car saw the four Red-legged Partridges scurrying along the verge. Our list for the day was a creditable 57 species.

*Frank Mawby*

**Workshop: Mammal tracks and signs: 14th March**

**Leader: Stephen Hewitt**

This proved to be a popular subject with 20 people attending on the day. The morning was spent examining specimens in the activities room at Tullie House. Steve began by explaining the importance of mammal tracks and signs in recording the distribution of different species in the county and copies of the provisional distribution maps and recording forms produced by Tullie House were available for those who did not already have one.

We started with a table covered in little plastic cups, each containing the poo of a different species of mammal! We learned about size, shape, texture, colour and smell; soon becoming poo connoisseurs picking out the musty scent of Fox from the piquant fishiness of Otter, the crumbliness of bat's from the hard pellets of mice and the subtlety of shape and texture that separates Roe Deer from Rabbit. There were many laughs as the cups were passed around and held under noses, though no-one felt tempted to sip or gargle the contents!

The remains of animals are important signs of their presence at a site and we examined a whole variety of skulls from the Museum collections. We learned to tell Red from Grey Squirrel; how to identify mice, vole and shrew skulls found in owl pellets and more.

We then looked at some excellent plaster cast animal tracks. It was good to be able to compare dog and fox, mink and otter etc. Next came various feeding signs such as twigs, nuts and cones that had been nibbled by mice, voles and squirrels; the feathers of a gull eaten by a Fox and even a turnip gnawed by a Roe Deer.

Armed with our new-found knowledge we spent the afternoon at Fishgarth Wood and had a great time finding dozens of different signs of various mammals. The first discovery was made right by the cars with molehills and rabbit diggings and droppings. Further along the track, under the cover of a log in the hedge bottom, a large cache of hawthorn stones had been assembled and nibbled by a Wood Mouse. In the rough grass, runs of Field Voles complete with little piles of green droppings were uncovered. At the top of the track down to the wood a group of small pits comprised a Badger's latrine complete with dollop of poo! Here too, in the muddy rut of the track we found a fine print of a Badger's paw, and another set of tracks was identified as those of a Mink or Polecat. At the edge of the wood were Larch cones stripped by Red Squirrels.

In the wood itself we were finding signs and tracks everywhere of Rabbits, Wood Mice, squirrels, Roe Deer, Fox and Badger (including a text book example of Badger hair caught on the bottom strand of a barbed wire fence) and of course the inevitable poo. There is something slightly surreal about watching twenty people excitedly passing around some little brown object saying 'phew, get a sniff of that' or yelling out from some distant spot 'I've got some good poo over here'.

Excitement built as we descended to the river's edge and - yes - there were signs of Otters. There was a dead fish, which had obviously been eaten, some superb tracks of both Otter and Mink in the soft sand and an awesomely-smelly Otter spraint (a Mink scat was found later for comparison).

On top of all this excitement came some actual, real live wildlife! Yellow Star-of-Bethlehem was found in small quantities by the river, as was Alternate-leaved Golden Saxifrage. We saw up to seven Buzzards in the air together, Larch Ladybird was a good find and we even saw a mammal - Field Voles in an area of clear felled conifer plantation. We finished the walk looking at some delightful Common Bird's-nest fungus (*Crucibulum laeve*), a cluster of tiny eggcup-shaped growths complete with spore-carrying bodies that look just like 'eggs in the nest'. More mammal signs were being noticed even as people drove off in their cars when a perfect impression of a Badger trail was spotted right beneath where they had been parked.

We had identified signs of at least ten different species of mammal at the site and I for one will look at the countryside with new eyes. Many thanks to Steve for a most enjoyable day.

Roy Atkins



(Roy Atkins)



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## Notes and Records

### Slender Groundhopper (*Tetrix subulata* (L.)) new to Cumbria

In May 1997 *Tetrix subulata* was discovered at Hale Moss Nature Reserve (v.c. 69; SD 504778), at the southern extremity of Cumbria. The site is an area of fen and carr owned by the Country Landowners Association. Since it was made a nature reserve much willow and birch scrub has been cleared and the open areas lightly grazed by sheep and cattle.

*Tetrix subulata* is a fairly widely distributed grasshopper in England south of the Severn to the Wash, and recently there have been a number of sightings north to the Humber. The only records further north are two from N. Lancashire, VC 60, a single specimen in 1987 from Silverdale Moss, and a number of specimens taken in a Malaise trap at Hawes Water Moss, Silverdale in 1995. It was refound at Hawes Water Moss in the autumn of 1996, when I looked for it without success at Hale Moss, though Peter Kelly informs me that he took one specimen in a pitfall trap from the latter site that autumn.

On May 14th 1997 at least eight adult specimens were found by members of the Lancashire Wildlife Trust in the fen at Hale Moss. Subsequently a few adults were found on June 6th, several tiny nymphs on August 13th and nymphs and one adult on August 21st. All the adult specimens were the short winged bifasciata form, which closely resembles the Common Groundhopper (*Tetrix undulata* (Sowerby)). However both species are present at this site, and it was possible to compare the two species side by side and see the conspicuously greater dorsal arching of the pronotum in side view of adult *T. undulata* as compared with *T. subulata*. Also the hindwings of *T. subulata* extend just beyond the elongated pronotum of *T. subulata*, whereas in *T. undulata* they are very short and entirely hidden beneath the pronotum.

*Tetrix subulata* appears to need base-rich wet meadows, where the nymphs and adults feed on mosses and algae in open conditions. All the northern colonies seem to have a preponderance of the short-winged form which is superficially very like *T. undulata*. It would be worth examining carefully any groundhopper found in fens to see if the species is more widespread.

My thanks to Bill Grayson for permission to visit and record on the site.

### Reference

Newton, J.M., 1997 *Tetrix subulata* (L.) Slender Groundhopper (Orth:Tetrigidae) in North Lancashire, vc 60 *Entomologists Record*: 109 pp. 151-2.

Jennifer Newton, 94 Main Street, Hornby, Lancaster LA2 8JY

## **Two day-flying moths to look out for**

The Red-necked Footman (*Atolmis rubricollis*) was recorded close to Dumfries in the 1860s, but there have not been many records until 1996 and 1997. Most have been seen in the Dalbeattie area (Rascarrel Moss, Screel, Dalbeattie Forest and Almorness, but there are also records from Mabie Forest and, furthest east, at the south end of Lochar Moss near the Brow Well. It is certainly worth looking out for this distinctive small black moth in the Carlisle area where it used to occur last century. In Dumfries and Galloway, Red-necked Footman have been seen from mid-June to mid-July, flying in the sunshine in the tree-tops of commercial conifer plantations; but they can also be seen there on low bushes, tracks and paths, and in spider's webs.

The past two years have also seen an increase in the number of records of the Thrift Clearwing (*Bembecia muscaeformis*) all along the rocky coast of Galloway. The species has been reported from Colvend, Almorness, Meikle Ross, Carrick, Mull of Galloway and Port Patrick. These moths are also on the wing throughout June and are best seen on calm, warm sunny days zooming around Thrift and other flowers. The only confirmed Cumbrian record of the Thrift Clearwing is from St Bees Head in May 1919.

*Richard Mearns, Connansknowe, Kirkton, Dumfries DG1 1SX*

## **An incident of mass killing of Common Toads**

A large number of mutilated Common Toads were reported from Winterhope Reservoir, Dumfriesshire (NY27-82-) on 31<sup>st</sup> March 1998. A similar case on the River Esk at Canonbie last spring was widely reported in the local and national press. An account of the incident was also published in the *Veterinary Record* (Cunningham *et al.*, 1998), and the deaths were attributed to human action.

We visited the Winterhope site on 3<sup>rd</sup> April and counted over 350 dead toads, one or two of which were still alive but dying of their injuries. Some unharmed toads were still present and spawning and there was a good deal of healthy toad spawn present. Most of the casualties were concentrated in the two or three centres of spawning activity; however there were odd corpses scattered around the whole reservoir. The dead and injured toads had all been attacked in a similar way to that described in the Canonbie incident the previous year (Cunningham *et al.*, 1998). The toads had been opened on the ventral surface around the pelvis and the hind legs removed by pulling or shaking them out of their skin, leaving the anterior part of the animal largely unmarked with the inverted skin of the hind legs still attached. In some cases only one hind leg had been removed and in just one instance the whole body behind the fore limbs had been removed – the skin of the body being inverted over the front legs and head of the corpse. There were a number of dismembered hind legs present. No frog casualties were found and no adults were seen, although frog spawn was present. There were signs of natural predators at the site: several Otter spraints and trails were

noted and a few Mink scats were found. The Otter spraints were not fresh but appeared to consist largely of anuran (frog or toad) bones, whilst the mink scats contained no identifiable remains. Several toad corpses and c. 12 Otter spraints were collected for analysis.

On examination, the dead toads were remarkably unmarked - other than by the removal of the hind legs. However, a number of the sample collected did have what appeared to be puncture holes in the skin around the wound and one had similar wounds to its flanks. These wounds would appear to have been made by teeth or by the mandibles of a bird. There is substantial circumstantial evidence to suggest that a natural predator is responsible for the mortality, rather than humans. Humans would surely be as likely (or more likely) to collect *frogs'* legs, but the only known incidents refer to toads, which, having a distasteful skin, would not be consumed whole by a predator (whilst frogs would be). If humans were responsible it would seem likely that the toads would be collected and taken elsewhere for dismembering – with better light and more privacy. Also, humans would be unlikely to find and kill isolated animals away from the spawning concentrations. The scattered hind legs would presumably not have been left by human operators. The identification of the bones in the Otter spraints will be of interest: they may be the remains of frogs which were consumed during their spawning period at the beginning of March, or they may be the bones of the missing toads' legs.

Further supporting evidence of natural predation is provided by an incident of spawning toads being taken by a Heron which has visited a private garden between Canonbie and Langholm over a number of years. PD visited this site after the event and found 100 mutilated toads which had been treated in a similar, although not identical, fashion to those at Winterhope Reservoir.

Both Mink and Otters are known to flay the skin off toads and eat the flesh and it may be that a range of natural predators is responsible for these mass mortalities. The incomplete consumption of the toads may be a reaction to their extreme local abundance during the spawning period.

The fact that such mass mortality among spawning toads appears not to have been reported anywhere in Britain until last year is curious, since if it is natural predation one would expect it to be more widely occurring. Clearly further observation and evidence is required to clarify the cause of these incidents.

We would like to thank Mr Robert Shaw and Mrs L. Leuscher for their help in producing this note.

## Reference

Cunningham, A.A. *et al.* 1998. Anthropogenic mortality of the Common Toad (*Bufo bufo*) in Scotland. *Veterinary Record* **142**: 249-250

*Paul Duff & Stephen Hewitt*

## Cumbria wood ant survey - progress report for 1997

All that I succeeded in achieving this year was increasing the number of *Formica rufa* L. nests known on the north side of Morecambe Bay from four to five. By establishing on 19th March that there were three, not two, nests on the Cumbria Wildlife Trust's Brown Robin Reserve (SD4178) on Blawith Fell near Grange-over-Sands.

I photographed these nests to record their condition and monitor their development during the year. However when I revisited and re-photographed the nests on 24th September during a warm spell in the autumn I was disappointed to find that they had built very little thatch during the summer, and did not appear to be in a vigorous condition. Furthermore, although there were plenty of twig fragments available, the thatch which they had collected was composed entirely of grass which was sodden, not just on the surface but deep into the mound. It had not dried out and warmed up after the rain of the previous week, which probably explained the generally lethargic condition of the ants. The same applied to the two colonies in Eggerslack Wood (SD4078). One had built a small mound of grass, which was sodden to the core, and the other had abandoned its mound and was attempting to establish a new nest in a small pile of wet grass 5 m away. Neither of these colonies looked to be in a healthy condition, which contrasted strongly with the nests on Arnside Knott (SD4577), only 2 km away on the south side of the Kent Estuary, in the same period. They were composed of twig, or a mixture of twig and grass, and had dried out in the sun and were very active. In 1998 I hope to investigate further the condition of these surviving 'Lake District' nests and to finalise the present distribution. I have been told that there is a nest on the top of Meathop Crag and that there are still some on Whitbarrow above Flodder Hall, so there are evidently still a few to find.

In the course of these observations I was delighted to find the tiny 'guest ant' *Formicoxenus nitidulus* (Nylander) in more nests of *Formica rufa* on Arnside Knott. When I reported first finding it there on 21th October 1996, in my Progress Report for 1996 (*Carlisle Naturalist* 5 (1): 6-7), I thought it might have been a new record for Cumbria. However I have since found that Donisthorpe (1927) quotes a record for Grange-over-Sands, Westmorland and N. Lancs. (i.e. VC 69) published by Bagnall in 1906 and one for Cumberland (i.e. VC 70) by F.H. Day for Keswick. This probably was in Borrowdale with *Formica lugubris* Zetterstedt (which then was thought to be *F. pratensis* Retzius), but might have been with *F. rufa* which still occurred near Bassenthwaite at that time. However, the Arnside record does appear to be the first record for Cumbria for at least 70 years.

This tiny (3 mm) ant lives exclusively in wood ant nests, apparently stealing food from its hosts but not harming them or being harmed by them. It makes small nests in hollow twigs inside the wood ant mound and is rarely seen except in late summer and autumn when males (which are wingless and resemble workers) and winged females

emerge onto the surface to mate. In consequence, little is known about the habits of this ant, or how many wood ant nests contain it. On 10th September, when going the rounds of a series of wood ant nests which I have been keeping under observation at Gait Barrows NNR, I found males of *Formicoxenus* on every nest which I looked at, ranging from very vigorous nests to ones which were almost defunct. This prompted me to look on Arnside Knott, to see whether it was still where I had first found it. During the course of this and later visits I found it on a total of 12 nests (and 16 at Gait Barrows). I did not see any workers, which apparently very rarely come to the surface, and only 4 queens: 2 de-alates on one nest at Arnside Knott and 2 on one nest at Gait Barrows. I hope that observations in future years will establish whether this scale of emergence of males is an annual event or whether 1997 was an exceptional year in this respect.

### Reference

Donisthorpe, H. St.J. K., 1927. (2nd. Edn.) *British Ants: their Life Histories and Classification*.

*Neil A. Robinson, Abbey Drive, Natland, Kendal*

### **The slug *Limax maculatus* (Kaleniczenko 1851) in Natland (SD522892) near Kendal: new record for vice-county 69.**

Late at night on 6th November 1997 I found on the roughcast on the front of our house a slug which was about 10 cm long, dark olive green with lighter yellowish spots and with a ridge along the top of its tail. Looking it up in *Collins Field Guide to Land Snails of Britain and North-west Europe* by M.P. Kerney and R.A.D. Cameron, suggested that it was *Limax pseudoflavus* Evans 1978: a species common in Ireland but rarely recorded in the rest of Britain.

Dr Barry Colville, who records molluscs in Cumbria, agreed with my conclusion, but sent it to Mr. A. Norris at Leeds Museum for confirmation, as the colouring of slugs is variable and dissection of the reproductive organs by an expert is necessary for definite identification. Its identity was confirmed, but under the name *Limax maculatus* (Kaleniczenko 1851), as what had been described as a new species by Evans in 1978 is now believed to have been described earlier.

The species has been found in Carlisle, but this specimen is a new record for Vice-county 69. Going south, it is common in south Lancashire, especially around Liverpool (where I subsequently saw a specimen crawling across the doorstep of Liverpool Museum when leaving after an evening meeting!).

The history of its distribution is interesting. It is believed originally to have been native to the Caucasus, but has spread widely in eastern Europe. It is common in Ireland where it is found in woodland as well as in gardens and waste places, but as

there are few records before this century it is thought to have been introduced. Elsewhere it is usually associated with man. It browses algae growing on walls and does not damage garden plants. In England and Wales it is known only at scattered (urban) locations where presumably it has been introduced; and it has recently been found in Scotland. It is thought to be on the increase, probably being spread by container plants from garden centres. It is closely related to another slug uncommon in Cumbria: *Limax flavus* Linnaeus 1758, which is yellow with blue tentacles (eye-stalks). This was named by Linnaeus on the basis of a drawing of its dissected reproductive organs published by the English naturalist Lister in 1694! - so it is known to have been native to Britain for a long time. This man-associated slug also does not damage plants. It is a general scavenger, living in compost heaps, cellars and old-fashioned larders from which it emerges in the middle of the night to feed on crumbs and any other food scraps it can find.

Both these slugs have been very little recorded in Cumbria, but may be more common than was realised, as they are very nocturnal. So if you think you find either, please inform Dr Barry Colville, Pool Foot, Clappersgate, Ambleside (tel. 015394 34067), who will be only too pleased to relieve you of the specimen, confirm its identity and add it to the records of molluscs in Cumbria. I am grateful to Barry for confirming the identification of my specimen and for providing much interesting information about it.

P.S. I cannot help being tempted to wonder whether the accidental introduction of a slug from the Caucasus to Ireland might have been by way of Irish troops returning from the Crimean War?

*Neil A. Robinson, 3 Abbey Drive, Natland, Kendal.*

### **The myrmecophile spider *Thyreosthenius biovatus* Cambridge on Arnside Knott: new record for vice-county 69.**

On 27th September 1997, while looking for the 'guest ant' *Formicoxenus nitidulus* Nylander in nests of the wood ant *Formica rufa* at Gait Barrows NNR (Lancs. VC 60, SD483775), I noticed on one nest tiny 'money spiders', which were being ignored by the *F. rufa* workers, whose red-brown and leaden-grey colouring they rather resembled. These spiders were later identified by Dr Jennifer Newton as the myrmecophile spider *Thyreosthenius biovatus*. On 29th September she took male and female at the same nest and the identification has been confirmed by Chris Felton at Liverpool Museum, where these specimens are now lodged. On 21st October I found male and female (det. J.M. Newton) on one nest on Arnside Knott (Cumbria, VC 69, SD 455775).

This spider was first found in Britain by Donisthorpe in a *F. rufa* nest near Hastings in 1900. He studied them in observation nests of *F. rufa*, where on one occasion he saw one eating a small fly, and the workers never molested them (Donisthorpe, 1927). It

seems that like *F. nitidulus* they are 'uninvited lodgers' which neither harm their hosts nor are harmed by them, but unlike the ant they are occasionally found free-living outside ant nests (Roberts, 1987). Although Donisthorpe states: '*I personally found both sexes of this spider in every rufa nest I examined, from the Highlands to the South Coast of England, and in every month of the year*', it has seldom been recorded in the north of England. There is apparently a very old Cumberland record, without details. In northern England the only detailed records (for Yorkshire) are for 1937 or earlier. So the specimens from Gait Barrows and Arnside Knott appear to be the first records for VC 60 and VC 69, and the first substantiated records for 60 years in the north of England.

### References

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Roberts, M.J. 1987. *The Spiders of Great Britain and Ireland*. Vol. II. Harley Books, Colchester.

Neil A. Robinson, Abbey Drive, Natland, Kendal

### The spider-hunting Pompilid wasp *Priocnemis perturbator* at Coombs Wood

The identity of the spider-hunting Pompilid wasp (*Priocnemis perturbator*) mentioned in the report of the field meeting to Coombs Wood on 7 June last year (*Carlisle Naturalist*: 5 (2), p. 27) has been confirmed by Dr M.C. Day, author of the most recent key to this difficult group of insects. In his comments, Dr Day said '*almost any detailed life history observations on Pompilids are worthwhile, and much easier to pursue in the limited northern fauna, because there is less doubt about what you are actually watching!*'

From a field naturalist's point of view, Pompilid wasps have the great advantage that they spend much time actively hunting on the ground rather than flying. The interactions between these 'highly tuned' insects and their equally formidable spider prey offer possibilities for a fascinating study: the Tullie House collections contain a good range of reference specimens of Spider Wasps - useful for getting to know which species to expect locally.

### Reference

- Day, M.C. 1988. *Spider Wasps: Handbooks for the Identification of British Insects*: 6(4). Royal Entomological Society, London.

David Clarke, Burnfoot, Cumwhitton, Cumbria

## New records of Cherry Plum in north Cumbria

A native of the Balkans and SW Asia, the Cherry Plum (*Prunus cerasifera* Ehrh.) is well-known in gardens in its most-often cultivated form, variety *pissardii* (= var. *atropurpurea*), the pinkish-flowered (and purplish-leaved) small tree which is the earliest of the genus to flower. The white-flowered form seems to be much less favoured in horticulture, but has been planted in many areas of Britain, especially as a hedging tree. It has perhaps been supplied at times by nurseries instead of, or in error for, the Blackthorn (*Prunus spinosa* L.), which is closely similar.

Flowering at a time when even pussy-willow catkins are hardly swelling the Cherry Plum is a pleasing token of the turning season.

The tree seems to have been widely overlooked, or ignored, by field-workers in past times. The *Atlas of the British Flora*, for instance, has no records whatsoever for the north of England. A *Flora of Cumbria* maps the plant in just 21 tetrads in the county, of which only five are in the north: (REG = Ron Groom; GRN = Geoff Naylor; MSP = Mike Porter; FJR = Jeremy Roberts)

NY 2256 (NY 226569 Angerton, REG 1988)

NY 2446 (NY 252469 High Longthwaite, REG 1993; many bushes in hedges on both sides of road)

NY 3448 (NY 357483 Cumdivock, REG 1992)

NY 4056 (NY 404573 Rickerby, REG 1989)

NY 4456 (NY 446573 near Aglionby, FJR 1985; trees in hedge by track)

Early in 1998, I gathered a number of extra records, which are listed below by tetrad.

NY 2444 (NY 259451 Cowslaw, MSP; forming 150m of field-hedge)

NY 2547 (NY 253475 Stubbs Bridge, MSP; several bushes and trees in hedges)

NY 2644 (NY 260456 Wiza Farm, MSP; line of large trees on old fence line)

NY 3642 (NY 361435, Lane Head near Sebergham, MSP; one large bush in hedge)

NY 4256 (NY 421579 between Linstock and Rickerby, FJR; several large and small trees in hedge W of minor road)

NY 4426 (NY 459262 Dacre Bridge, MSP. Also NY 440275 and eastwards along A66, Stainton/Penruddock, FJR; many bushes and trees in planting scheme of central reservation of A66)

NY 4458 (NY 459584 Newby Grange, GRN; several bushes forming hedge on N side of road)

NY 4656 (NY 469565 Warwick Bridge, FJR; several bushes on east side of B 6263, at least one on west side, in closely trimmed hedge.)

NY 4876 (NY 494779 Craiggy Ford, FJR; several large bushes on N side of road)

NY 5460 (NY 547606 Milton, GRN; one large tree in field boundary to south of A689)



### Identification

Flowering-period: in the north of the county, starts early/mid-February in a mild season; in full flower by end-February; few flowers remaining by early April. (Blackthorn about 3-4 weeks later; little in flower before mid-March, full flower from late March, and continuing well into April.)

Flowers: almost identical to larger variants of Blackthorn; sometimes larger, but much overlap, and size not reliable.

Leaves: opening with the flowers (thus in full leaf when Blackthorn has full blossom but no sign of green); usually larger than Blackthorn; mostly broader, to ovate (Blackthorn opening after flowers, smaller, narrower); glossy green, with tufts of white hairs below when young, on base of midrib and in axils of basal side-veins (Blackthorn dull green, and largely hairless).

Twigs: long, pliant, glossy, hairless, green in first year (becoming reddish or brownish on sun-exposed surfaces, when still green below) (Blackthorn dull, greyish/brown, downy when young).

Thorns: rarely thorny (Blackthorn usually thorny).

Fruit (rarely produced): 2-3 cm, dark red (rarely yellow) without bloom (Blackthorn ('sloes') 8-15 mm, bluish-black with dense bloom).

### Comments

Cherry Plum can be reliably identified by the combination of very early flowering; leaves bursting at the same time as the flowers and being fully open when Blackthorn is still 'black' and leafless; young twigs glossy, and green at least on the lower surface. The bushes are in full leaf, with fading blossom, at the time when Blackthorn is in full blossom on leafless twigs. It is non-suckering, and has a distinctive form when of tree size, with a short, stocky trunk with brownish bark, and ascending 'whispy' twigs. It is less obviously different from Blackthorn when in a closely-cropped hedge.

Being a hedging plant, the Cherry Plum is prone to very close trimming or flailing, which often removes the flowering twigs. The shrub can still perhaps be identified by having leaves reminiscent of Blackthorn, but opening much earlier, and with the characters above.

Many of the plants recorded here appear to be of considerable age, and many of the hedge bushes have thick trunks, lacking the ability to spread by suckers, it does not become surrounded by a thicket of young shoots as does Blackthorn. It is said to produce fruit very rarely in this country, perhaps because there are very few possible pollinating insects at the time of its flowering. As a result, the plant does not seem to occur spontaneously; the author would be very interested to hear of instances of the plant evidently naturalised.

Of other *Prunus* species in the area *P. domestica* (Plum, Bullace, Greengage) is later

flowering, with much larger flowers; larger, dull leaves; dull twigs, and larger egg-shaped fruit. Wild Cherry (*P. avium*), and Sour (Morello) Cherry (*P. cerasus*), both produce flowers in umbels (Blackthorn and Cherry Plum produce only 1(-2) flowers per bud); both have much larger leaves. The Sour Cherry is apparently rare, but like the Cherry Plum occurs as a hedging plant, and is then readily overlooked (RE Groom, pers. com.).

In general, obviously planted trees were ignored for the purposes of recording for *A Flora of Cumbria*; however, the new mapping project of the Botanical Society of the British Isles '*Atlas 2000*' (which has two more field-seasons still to run) attempts to record these also. Observers are therefore asked to keep a look-out for this plant which has probably been overlooked as 'just early-flowering Blackthorn'.

### **Acknowledgements**

I thank Ron Groom, Geoff Naylor and Mike Porter, who supplied essential information and advice in the preparation of this note.

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*Jeremy Roberts, Eden Croft, 2 Wetheral Pasture, Carlisle CA4 8HU*

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## **Obituary**

### **Billy Fawkes 1936 – 1997**

It is with great regret that I report the death of Billy on 12th July 1997.

Most of his working life was spent in the employ of the Forestry Commission, first on road construction and then in forest work at Kershope Forest. Latterly, most of his time was spent on various projects such as deer research, bird and bat box monitoring as well as moth, beetle and plant recording.

Owls were a special interest and he placed many Barn Owl boxes in farmers' barns in the Liddesdale area. Owls and other bird casualties were treated at his home in Newcastleton for release or permanent housing if unable to be returned to the wild.

Our sincere sympathies are extended to his wife Nancy for her sad loss.

*David Ellis*

[The Society has decided to purchase the forthcoming *Birds of South-east Scotland* in memory of Billy Fawkes – Ed.]

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## Some observations on the life cycle and biology of the flea weevil *Rhamphus pulicarius* (Herbst.) in Cumbria

John Read, 43 Holly Terrace, Hensingham, Whitehaven, CA28 8RF

In Britain the genus *Rhamphus* is represented by two species, *R. pulicarius* and *R. oxyacanthae*. These two beetles are amongst the smallest of all British weevils and measure just one millimetre in length. Both adults and larvae of the two species feed on the foliage of trees and shrubs. *R. pulicarius* is associated with Silver Birch, Willow and Bog Myrtle while *R. oxyacanthae* is restricted mainly to Hawthorn (Morris, 1995).

The two beetles are members of a small group of weevils commonly referred to as 'flea weevils'. This is because the adults have enlarged hind legs which enable them to jump quite considerable distances.

The larvae of all the British 'flea weevils' are unusual in that they mine the leaves of their foodplants and being quite flat in shape are morphologically adapted for their particular mode of life. Brief details of the biology of other leaf-mining weevils are given in Hoffman (1954) and Scherf (1964). While Oldham (1928) provides a detailed account of the life cycle and biology of *Rhynchaenus alni* which until the outbreak of dutch elm disease was quite common and widely distributed on Elms, mainly in the south of England.

During the past two years I have made a particular study of the biology of *R. pulicarius* and its association with Bog Myrtle (*Myrica gale*) at various sites in Cumbria, and an outline of the life history of the beetle based on my observations is presented here. The majority of the observations was mainly carried out at two sites on the edge of Irton Park (NY10), and to a lesser extent, on an extensive area of Bog Myrtle on Foxfield Moss near Low Birker Tarn (SD19). Also more detailed observations were carried out on a few adults which were collected and kept in captivity indoors.

The first adults of *R. pulicarius* were seen towards the end of May on the Bog Myrtle bushes where they were observed feeding on the young developing leaves. From my observations of adult feeding the weevils feed mainly on the upper leaf surface and remove only the top layer of epidermal cells. The actual feeding marks made by the adults on the leaves take the form of minute, round holes which are quite characteristic in shape. After a while the holes were easy to spot on the leaves and proved to be useful in locating weevils when no adults could be spotted straight away.

The first pairs of adults were observed on the Bog Myrtle during May and pairing activity continued until the beginning of July. It was also at this time that the females commenced egg laying.

The female beetles lay their eggs in small, shallow, round cavities which they make by

eating out a portion of leaf cells on the upper surface. On completion of the cavity the female then inserts just one single egg into the previously excavated cavity.

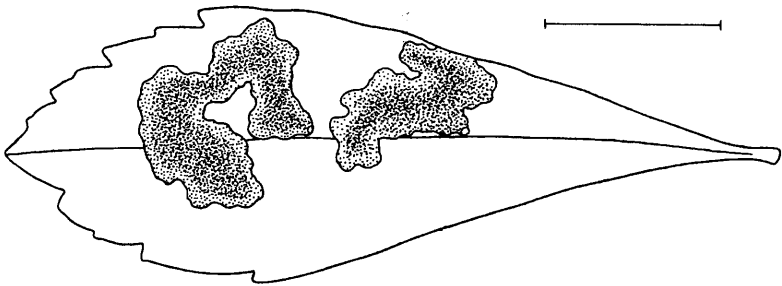
A small number of Bog Myrtle leaves were collected at regular intervals throughout the early spring and summer months and checked for eggs and larvae. Eggs were first found on the leaves during the first week of July and the females continued to oviposit until just before the end of September.

The minute, white eggs are always laid close to the main midrib and only one egg is usually laid per leaf, although a few individual leaves were found which contained a maximum of three eggs.

The eggs are usually laid near the middle of the leaf, but the actual position can vary, and eggs were found in some cases near the tip of the leaf and near to the basal area. Occasionally eggs were found to have been laid near to the leaf edge and well away from the mid-vein. Both the right and left sides of the leaf were utilised for oviposition, and from examination of 171 leaves 85 eggs had been laid on the left side and 121 on the right.

Young larvae and their mines were first found on the leaves towards the end of July and continued to be found throughout the summer months. The body of the first stage larva is whitish-yellow in colour and the head is dark brown. The young larvae on first emerging from the eggs begin to consume the middle layer of leaf cells and this eventually forms a round blotch shaped mine.

As the larvae develop and increase in size they eat out more of the leaf parenchyma and eventually the mines become larger and more elongate taking on a characteristic shape (figure 1). In some cases the larvae actually eat through the mid-vein and extend the mine into the opposite side of the leaf. The larvae nearly always mine outwards and away from the midrib and eventually reach up to the leaf edge. As the larvae continue to feed within the mine the remains of the previously consumed parenchyma cells gradually die off and this eventually causes the external surface of the mine to turn a distinct yellowish brown colour. The mature larvae are a similar colour to the



*Figure 1. Typical larval mines on Bog Myrtle leaf. Scale line = 1 cm*

*(John Read)*

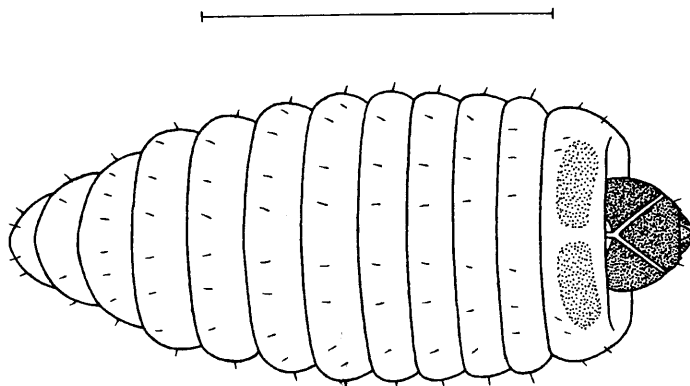


Figure 2. Mature larva. Scale line = 0.5 mm

(John Read)

first instars, but tend to be slightly darker. The body is covered in rows of fine spines or setae and there is a single spine on the lateral edge of each abdominal segment (figure 2). After passing through three separate stages or instars the larvae eventually reach maturity and stop feeding inside the mines. They become inactive and go into a resting stage for up to four months. Towards the end of October and the beginning of November the Bog Myrtle leaves start to wither and fall to the ground where they accumulate around the base of the bushes. It is at this time that the leaves containing the larval mines and mature larvae of *R. pulicarius* also fall to the ground where they pass the entire winter locked inside the mined cavities.

Fallen leaves were collected at regular intervals throughout the winter and early spring and checked for larvae and pupae. Mature larvae were found inside the mines from the beginning of November to the middle of April and the pupae from the middle of April to the end of May. Pupation always takes place within the leaf mine and unlike *Rhynchaenus alni* (Oldham, 1928) the larvae of *R. pulicarius* were not observed to spin a cocoon prior to pupation.

The adult beetles emerge from the leaves by eating out a small round hole in the upper surface of the mine. They then eventually begin to make their way up on to the Bog Myrtle bushes where they start to become active and feed on the young developing leaves. As the adults possess fully developed wings it is possible that they may also fly up onto the bushes after emerging from the ground. Adults were not observed flying in the present study, but on warm sunny days a few adults were seen resting on the leaves with their elytra slightly open and the wing tips extended.

From my observations the whole development of *R. pulicarius* from the egg to the adult beetle takes approximately 10 months and a simplified chart showing the annual life cycle on Bog Myrtle in Cumbria is illustrated (figure 3, overleaf).

Months	J	F	M	A	M	J	J	A	S	O	N	D
Adults						—————	—————	—————				
Eggs							—————	—————				
Larvae	-----	-----	-----	-----	-----		—————	—————	—————	-----	-----	-----
Pupae					—————							

Figure 3. Summarised life cycle chart of *Rhamphus pulicaris* as observed in Cumbria. Dotted line indicates overwintering stage.

With the emergence in the spring of the adult beetles the whole life cycle of *R. pulicarius* commences again and eventually a new generation is produced. I plan to carry out more observations on the biology and ecology of *R. pulicarius* and also study the life cycle on its alternative host trees, Silver Birch and Willow.

(While carrying out the observations on *R. pulicarius* I also noticed the larvae of a small case-bearing moth which also fed on Bog Myrtle leaves, but so far I have been unable to identify this particular species.)

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## Scandinavian Small-reed (*Calamagrostis purpurea*) by Derwent Water: new to Cumberland (vc. 70)

Jeremy Roberts, Eden Croft, 2 Wetheral Pasture, Carlisle CA4 8HU

The Scandinavian Small-reed (*Calamagrostis purpurea* (Trin.) Trin.) has a curious history as a British plant, and our knowledge of it is still advancing. Although it has a combination of characters which render it as distinctive as any of the other four known species in the genus, it was as recently as 1960 that T.G. Tutin (of 'CTW' fame) first drew attention to the distinctive features of a grass known from Esthwaite Fen, previously referred to the Purple Small-reed *Calamagrostis canescens*. Most surprisingly, considering the professional stature of Tutin, this was not followed up at the time, and the true identity of the Esthwaite plant remained mysterious until Mrs O.M. Stewart began morphometric studies of a number of Scottish plants, and later the Lakeland example, aligning them with the northern European and Asian species *Calamagrostis purpurea* (Stewart 1988). (When *C. purpurea* was identified as British, the obvious colloquial name of 'Purple Small-reed' was not available, having been long-established for *C. canescens*.)

My interest in the species dates from 1995 and 1996; large patches of a robust *Calamagrostis* came to light when Roy Atkins and I were searching a section of the Spey marshes near Insh in the Central Highlands; this was confirmed as *C. purpurea*, a new record for vice-county 96, and remarkable in that there were no records of any *Calamagrostis* in the area, let alone the great quantities over several acres which were present. On later visits we found that the deep smoky-purple of the massed heads of the flowering patches could be seen with relative ease from the road!

Nearer to home, and having recently seen the Esthwaite plant anew, my wife and I were walking along the path through the wet woodland called 'The Ings', a National Trust property just south of Keswick on the eastern shore of Derwent Water, on 23rd June 1997. In one of those odd coincidences which enliven the naturalist's life, I said: "This looks just like where the *Calamagrostis* grows at Esthwaite . . . and . . . here it is!" A small patch grew from the nettles adjacent to the footpath, and I could see several larger patches stretching off into the wetter parts of the alder carr towards the lake-shore.

There was an even more surprising coincidence to follow, when it emerged that the Longthwaite botanist Ron Groom had found, just a week later on 1st July, more patches of a puzzling *Calamagrostis* next to the public path through a willow carr just west of Crow Park, only a kilometre distant north-westwards along the lake-shore.

Dr Geoffrey Halliday was able to confirm that no *Calamagrostis* was known from either locality: almost inexplicable, considering that both colonies come to the edge of busy paths close to a town. Yet there is every reason to believe that this is a relict plant

of the carrs which must presumably have extended widely around - and between - many of the Lakes in past millennia.

In spite of the Ings plants showing some *C. canescens* features, Olga Stewart was eventually able to confirm that specimens I sent from here were indeed *C. purpurea*, a new record for vc 70 (Cumberland). The plant from Crow Park still awaits formal identification. Other searches in suitable sites, and further checks on some of the known *C. canescens* stations in the county revealed no more *C. purpurea*. Esthwaite Fen, and the Keswick site remain the only confirmed English sites, and they compliment a small number of Scottish sites (six at the most recent count).

While the British floras refer the British plant to 'subspecies *phragmitoides*', this does rather mask some underlying uncertainties. All British colonies appear to have the leaf-blades carrying sparse hairs on the upper surface, unlike continental material. (Indeed *Flora Europaea* gives the 'hairless upper leaf-blade' as one of the characters of this subspecies.) The Insh plant, too, has a number of characters at variance with subspecies *phragmitoides*.

It may be that further work may elucidate just where the British plant (or plants) sits taxonomically, and might even suggest its origin. *Flora Europaea* states that *C. purpurea* is 'a complex of apomicts which has arisen from the amphimictic species [*C. canescens*] by autopolyploidy or by hybridization with other species, notably [*C. epigejos*]'. It seems likely therefore that the plant has arisen *de novo* on several occasions across the vast stretch of Eurasia, and the several subspecies may represent the descendants of a number of separate autopolyploid or hybridization events. If this is the case, then it would be fascinating to know whether UK plants have a direct link with, or a separate origin from, their relatives abroad.

### Comparative characteristics of British *Calamagrostis*

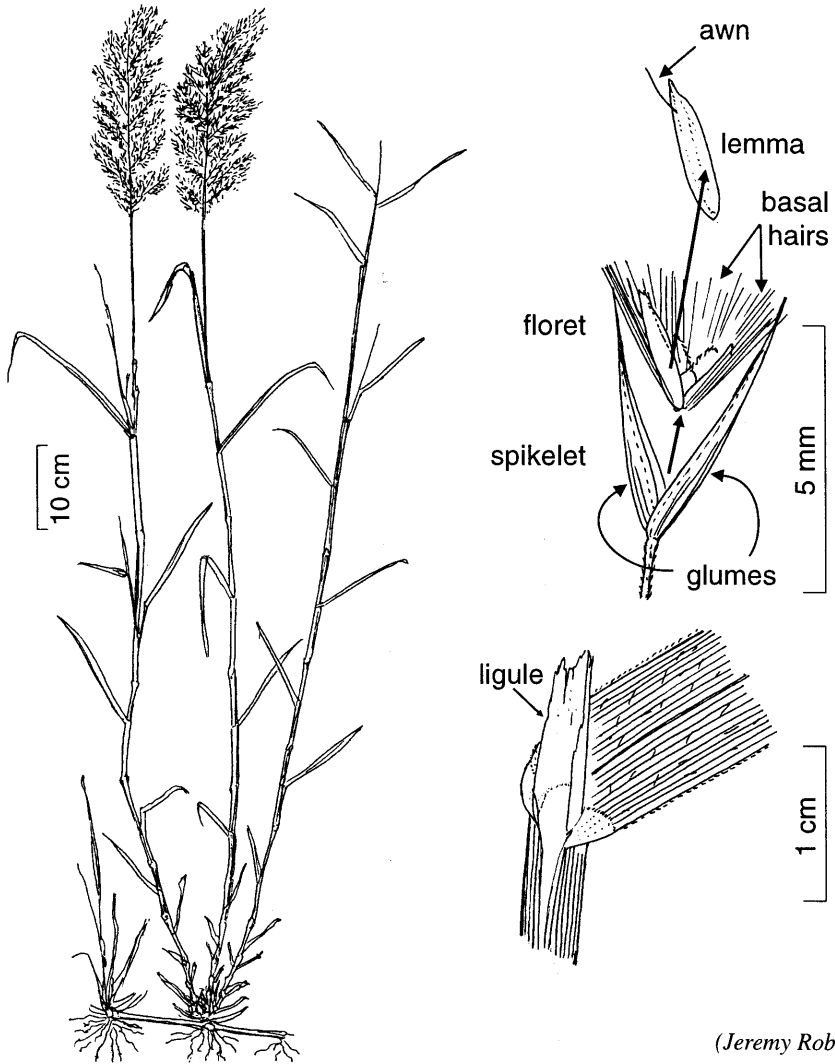
Calamagrostis:	<i>canescens</i>	<i>epigejos</i>	<i>purpurea</i>	<i>stricta</i>	<i>scotica</i>
Glume width (mm)	0.75-0.85	0.75-0.85	0.9-1.1	1.1-1.2	1.1-1.2
Glume length (mm)	ca 4-6	ca 4-6	ca 4-6	ca 3.0-4.5	ca 4-6
Basal hairs	> lemma	> lemma	> lemma	< lemma	< lemma
Nodes	3-5	usually 3	5-8	2-3	2-3
Ligule length (mm)	2-4	4-9	7-14	1-3	2-3
Upper leaf-surface*	hairy	hairless	hairy	shortly hairy	shortly hairy

(where > means 'longer than'; < means 'shorter than')

\*NB: the upper leaf-surfaces in all species are scabrid with very dense short bristles, especially on the tiny ridges.

(After O.M. Stewart in Rich & Rich (1988))





(Jeremy Roberts)

The Lakeland plant can be separated from other Small-reeds by the following characters: it has a very long ligule (mostly 8-11 mm); many nodes (5 to 8 on the culms); hairy leaves; wide glumes; awn arising near the tip of the lemma; and basal hairs longer than lemma. In combination these characters rule out all four other *Calamagrostis* species. (*C. epigejos* is fairly frequent in SW Cumbria, in drier, sandy soil; *C. canescens* has a scattering of sites throughout the county, locally known from the east end of Tindale Tarn, and around Jubilee Pond, Narworth, in dry or damp

places. *C. stricta* is present in two very wet poor-fen sites by lochs near Selkirk, where there is also another plant, at one time identified with *C. scotica*, but now thought to be a hybrid of *C. stricta*. The 'true' *C. scotica* is known from only a single site in Caithness.)

The two new sites are similar to each other, and to the Esthwaite site, being wet carr, that at The Ings being largely under tall Alder (*Alnus glutinosa*), whilst the other two sites are dominated by sallow (*Salix* spp., mainly *S. cinerea*), with more scattered Alder nearer water-courses. Scottish sites are also mainly similar, being in glades in sallow carr and poor fen. Typical close associates in Cumbrian sites are rather few, and include Meadowsweet (*Filipendula ulmaria*), Nettle (*Urtica dioica*), Common Valerian (*Valeriana officinalis*), Hemlock Water-dropwort (*Oenanthe crocata*), Angelica (*Angelica sylvestris*), Marsh Marigold (*Caltha palustris*), and Tufted Hair-grass (*Deschampsia cespitosa*). Nearby are: Sneezewort (*Achillea ptarmica*), Water Forget-me-not (*Myosotis scorpioides*), Great Willowherb (*Epilobium hirsutum*), Yellow Flag-iris (*Iris pseudacorus*), etc. The Insh Marshes site is however much more open, being in open mesotrophic fen with many more species, the greater variety perhaps due to the full sunlight here; the plants also make dense patches over smaller areas.

Being apomictic, the species matures seed without the need for pollination, and indeed the anthers are distinctively free of pollen, and remain indehiscent. Propagation is in any case probably mainly by vegetative spread, the plant generating vigorous rhizomes about 4 to 10 cm below the peat surface. The strongest patches are clearly where shade is less dense, as in gaps in the carr canopy, and the widely-spreading rhizomes may enable the plant to locate, and then prosper in, temporary openings caused by tree-fall. It seems however to be a poor competitor, especially against Reed Canary-grass (*Phalaris*) and Common Reed (*Phragmites*) and this perhaps explains why it often grows in the thinner vegetation under trees, and not in the more permanent open marsh habitats dominated by these two species. Although most stems are 1.4 m to 1.6 m tall, the leaves are fewer and much narrower than these two, and thus much less in useful photosynthetic area, which perhaps contributes to its competitive inadequacies. Conversely, the Insh Marshes plants have restricted underground lateral extension, and make dense and strongly delimited patches in a marsh habitat where *Calamagrostis purpurea*, overtopping all other species, locally dominates, and where edaphic conditions appear to mediate against either of the two aggressive grasses referred to.

I acknowledge the help of Ron E. Groom in correcting an earlier draft of this paper and providing a species list for the Crow Park site.

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## **The Carlisle Naturalist**

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Meetings start from Carlisle College, Victoria Place, Carlisle. (Leaders may cancel meetings at this rendezvous if they consider circumstances unsuitable.)

Members' own transport; places available for those without. Bring packed lunches for all meetings beginning before midday.

**26th April** (Sunday) THIRLMERE Leader: Geoff Horne.

Depart 9.30 am. Meet Legburthwaite (NY318189) 10.30 am.

**6th June** (Saturday) GAITBARROWS NNR Leader: Rob Petley-Jones.

Depart 9.00 am. Meet Gaitbarrows (SD477776) 10.30 am.

**13th June** (Saturday) COLVEND, KIRKCUDBRIGHT Leader: David Clarke.

Depart 9.30 am. Meet Colvend Village Hall (NX867545) 10.45 am.

**27th June** (Saturday) CLAIFE HEIGHTS, WINDERMERE Leader: David Clarke.

Depart 9.00 am. Contact leader for further details.

**4th July** (Saturday) RIBBLESDALE Leader: Jeremy Roberts.

Depart 9.30 am. Contact Secretary for further details.

**14th August** (Friday evening) MOTH TRAPPING details to be arranged.

Depart 8.30 pm.

**26th September** (Saturday) Workshop and Field Trip: FUNGI Leader Geoff Naylor.

Meet at Tullie House at 10.00 am. Please book in advance with the Museum.

Winter meetings commence on 14th October.