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Pine Marten

(Ann Robinson)

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*The Carlisle Naturalist*

## Diary Dates

Please note that there is an additional workshop scheduled for Saturday 8th April – looking at mammal tracks and signs, led by John Webster and Stephen Hewitt. It is free to members and just £1.50 to non-members. Places are limited so book now.

The details of the intertidal field trip led by Betty Green have now been finalised. We will leave Carlisle at 12.00 midday on 15th April arriving at Drigg beach at 1.30 where we will look around the dunes until 3.00 when Betty will meet us to go down the beach for low tide. We will leave Drigg between 5.00 and 6.00 p.m.

## National Moth Night

Last summer saw the first ever National Moth Night, which attracted a great deal of interest and is to be repeated again this year. The event will take place on the night of Saturday 23 September. It is hoped that as many people as possible will run moth traps on the night and send their records to Brian Goody, 298 Ipswich Road, Colchester, Essex CO4 4ET. Further details are available from Stephen Hewitt.

## Cumbria Biodiversity Action Plan

I have just received a consultation copy of the Cumbria Biodiversity Action Plan. This document contains plans for the conservation of 21 species and 18 habitats considered of conservation concern in Cumbria. There is a full-length version and a summary version and copies should be available in local libraries. Comments are requested by 15th May. Contact Stephen Hewitt if you would like to see the Museum's copy.

## Frogs and ponds survey

Many thanks to everyone who has returned their survey forms. I will collate the information and summarise it in the next issue.

## Discounted publications to Society members

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

*Cumbrian Wildlife in the 20th Century* (1996) £5.00 (2nd hand price £6.50)  
*Lakeland Ornithology* (1954) £5.00 (2nd hand price £15 - 20)  
*Lakeland Molluscs* (1967) £3.00 (2nd hand price £10 - 20)

Also:

*Lakeland Birdlife 1920 – 1970*, R.H. Brown (1974) £5.00 2nd (hand price c.£10.00)

## Field meetings

**5th February 2000: Solway Coast and Loch Ken**

**Leaders John Hamer &  
Brian Spencer**

As we left Carlisle under dark cloud and a forecast of rain we were cheered by the news that Geoff Horne had, at last, returned home from his long stay at the Freeman Hospital.

Passing Mossband we noted the usual flock of Whooper Swans and continued to the beech copse on the outskirts of Annan. We have previously found Pinkfoot there but none were seen this time. There was a good view of a female Sparrowhawk cruising past. At Newbie there were large numbers of Oystercatchers, Redshanks and also Lapwing and Curlew. There were no Godwits but we saw Wigeon, Pintail, Goldeneye and Red-throated Divers.

As we crossed Pow Water, just past Cummertrees, we found an enormous flock of Barnacle Geese packed into a smallish field. We were able to approach to within only a few metres, behind a hedge, before they were startled and took to the air. The sound of some thousands of birds rising together was unbelievable. Subsequently we saw a fair-sized flock of Pink-footed and, nearby, a good number of Whooper Swans.

By Ruthwell a brilliant flash of red turned out to be three Bullfinches.

At Caerlaverock, Teal were on the small reedy pool by the road and, nearby, a large female Peregrine falcon was seen on the ground amongst a large patch of feathers. She was just completing her meal and was barely able to take off and fly to a nearby tree from which she seemed to be casting rueful glances at some scraps still to be consumed!

Between Glencaple and Dumfries large numbers of Barnacle Geese were evident on the far side of the river Nith along with a good number of Whoopers.

*'Ring-tail' harrier*

*(Ann Robinson)*



Auchenreoch Loch was our next stop. There were Goosander, Pochard and Tufted Duck and the excitement of a Kingfisher. We were saddened by visible evidence that this beautiful loch is being used for dumping of rubbish. The banks are becoming unpleasantly littered and it can only be a question of time before the natural history interest starts to suffer.

We paid our usual respects to the river Dee at Threave Castle but there was little to see. We wonder whether the new approach to the hide has caused a problem since the hide can no longer be approached without being seen from the river.

Leaving the A75 at Bridge of Dee and nearing the river Barry Marris spotted a 'ring-tail' harrier very low over the reeds. We were able to watch this rather pale-coloured bird as it flew slowly in a large semi-circle until it disappeared.

By this time the light was beginning to fade. There were Shoveler on Loch Ken and then we saw the Greenland White-fronted Geese, but at a great distance.

Finally we watched the Starling roost in Gretna. This does not compare in size with the magnificent roost remembered from the wood near Kinmount House. It seems that local efforts to diminish the effect of roosts on urban environments by the use of bird scarers have been partly successful and that this has resulted in fragmenting the huge roost into smaller ones. There is evidence of two other roosts nearby within about five miles north of Gretna.

*Brian Spencer*

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## Notes and Records

### A new Cumbria site for the White-faced Darter dragonfly (*Leucorrhinia dubia* (Vander Linden))

An entirely 'new' colony of the nationally scarce White-faced Darter (*Leucorrhinia dubia*) was discovered in 1999 in Cumbria. The main site is a small tarn in mixed woodland. There is fringing *Sphagnum* at one end, and it was here in early July 1999 that HM saw 5 males and a mating pair. She then watched the female ovipositing, guarded by a hovering male. She also noted one male at an adjacent tarn in open moorland. More significantly, at the first site she found 7 exuviae (cast larval skins), thus proving the species had bred and been there for at least two years.

As there have been other recording visits to this site since 1983, it is possible that this 'population' really is quite new, and it seems likely also to be quite small, though the prospect of other adjacent sites cannot now be discounted. The whole area will be examined with this in mind during the 2000 season. Until more detail is known, and the site-owners informed, the precise locations will be withheld. The area is in 10km square NY30 – for which the species has never otherwise been recorded. There are only two other known Cumbria sites, the nearest to the above being several kilometres distant. The species is the subject of a Local Biodiversity Action Plan in the county, and the newly discovered sites will now have to be included in this.

It is pleasing to note that HM gained her first experience of *Leucorrhinia* and its larval stages at a joint meeting of the British Dragonfly Society and Carlisle Natural History Society only a couple of weeks before making her discovery. Rarely does training produce such instant and valuable results!

Heather Marshall, Hillcrest, Lyth, Kendal, Cumbria  
& David Clarke, Burnfoot, Cumwhitton, Carlisle

### Garden bird mortalities

For over 30 years, the phenomenon of garden bird mortalities has been recognised in the United Kingdom. The agent primarily responsible for the disease is salmonella, although more recently, in Scotland, *E. coli* infections have also been implicated. Typically, finches and other species using bird feeders become lethargic, lose condition, have diarrhoea and die within one to two days. In most cases there is a noticeable decrease in the population of birds at the feeders.

The problem arises because some birds at feeders are 'carriers' of the salmonella infection and through their infected faeces they contaminate bird tables, nut feeders, bird baths and drinkers. Other birds then become infected and, before they die, they excrete large numbers of the organism in their faecal material, thus proliferating the

infection. The problem is one of increased contamination caused by the concentration of infected birds around feeders and drinkers. Control of the infection therefore must focus on keeping the feeding material clean and preventing build-up of contamination either by moving feeders elsewhere or by stopping feeding for a period.

An additional problem is that the salmonella infection is potentially infectious to mammals including humans. So whether or not you have a problem in your garden, try to keep feeders and drinkers as clean as possible and wash your hands (soap is sufficient) after handling these items. The disease in humans is usually described as being flu-like with diarrhoea, and obviously medical advice should be sought.

Garden bird mortalities have occurred in the Carlisle area. In some cases only Greenfinches have been affected (they have been noted as the most susceptible species elsewhere in England) with quite heavy mortalities and apparently the sick birds have been easy to approach. It appears that the type of salmonella involved is different from the one which has been causing problems historically. This new type has been reported before in the United Kingdom but it is too early to say if there is any real significance from this finding. The RSPB may be able to offer further advice on the problem.

Finally the susceptibility of Greenfinches may possibly be an example of what is known as 'host adaptation'. This is a poorly understood theory which suggests that some bugs, presumably through adaptation, become much more successful in their ability to infect one particular host: ie they adapt themselves to that host.

Paul Duff, Ivy House, Temple Sowerby, Penrith

### *Dicranomyia* (= *Limonia*) *magnicauda* (Lundstroem) – a crane fly new to England

On 27th July 1999 I took a male specimen of *Dicranomyia magnicauda* from an area of quaking bog at the south-west corner of Sunbiggin Tarn (NY676076). This crane fly is regarded as nationally Vulnerable (RDB2) with only three other sites known in Britain. It was first discovered in Britain in 1976 when Alan Stubbs found it at Whitlaw Moss NNR, Roxburghshire; Lochmaben, Dumfriesshire; and Llyn Hafodol, Anglesey. The habitat at each site is quaking bog, with areas of bare peat in which the larvae of this little-known fly are thought likely to develop (Falk 1991).

My thanks to Alan Stubbs, organiser of the national Crane fly Recording Scheme, for confirming the recent status of this fly.

### Reference

Falk, S., 1991, *A review of the scarce and threatened flies of Great Britain (Part 1)*, Research and survey in nature conservation No. 39, Peterborough: Nature Conservancy Council.

John Parker, 11 Queen Street, Penrith

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Book Review

***A Checklist of the Butterflies and Larger Moths of Cumbria.* Edited by Bill Kydd and Stephen Hewitt**

The records of butterflies and ‘macro’ moths used in the compilation of this booklet were taken from the Cumbria Biological Records Database at Tullie House Museum, following the previous publication of seven provisional distribution atlases of animal groups from mammals to ladybirds.

The introduction includes a resumé of the historical events and sources of information used before the computerising of records began in 1991. The checklist, of 587 species recorded for Cumbria, is arranged according to Bradley & Fletcher (1998) and the species’ numbers also correspond to that publication. Both the scientific and English names used in the list are those given by the RECORDER biological records database. Only those species either currently or historically occurring in Cumbria are included. The last year in which they were recorded is listed separately in the three Cumbrian vice-counties and the checklist is complete to 1997. Other information includes national and local rarity statuses for each species, and whether identification requires examination of the genitalia.

The booklet ends with two indexes of both scientific and common names of all the lepidoptera in the checklist.

This publication is invaluable to the lepidopterist in Cumbria, whether beginner or ‘progresser’, as after he has identified a moth he then wishes to know when, if at all, it was last recorded in the vice-county of capture. The moth-man’s ‘bible’ *Moths of the British Isles* (Skinner 1984) only gives general information as regards its distribution, and *The Moths and Butterflies of Great Britain* (Heath and Emmet 1976-1996) although containing detailed distribution maps of all ‘Macro’ Species in its current publications has yet to publish volume 8 which will contain that large and important family the Geometridae. This booklet fills the current gap!

I personally find this publication very ‘user friendly’; it is easily cross-referenced to other publications by using the Bradley and Fletcher numbers and by having both scientific and English indexes it is also easy to cross reference within the booklet. I fully concur with the observation in the introduction that this checklist will “assist local moth recorders in assessing their own records and captures”; it should also stimulate other ‘general’ naturalists to take up ‘mothing’ particularly with lights. The editors are to be congratulated on the production of this invaluable addition to the literature on the Lepidoptera of Cumbria.

*Richard Little, Haresfield, Cumwhinton, Carlisle*

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**The Pine Marten (*Martes martes*) in Cumbria in the late twentieth century**

*Johnny D.S. Birks and John E. Messenger*

*Correspondence to:*

*The Vincent Wildlife Trust, 119 Church Street, Great Malvern, Worcs WR14 2AJ*

**Introduction**

The question of whether the Pine Marten still survives in Cumbria (or, indeed, anywhere else south of the Scottish border) has generated much debate in recent years. Surveys in the 1980s and 1990s drew conflicting conclusions: evidence of the animals was so hard to find in the field that some declared the species effectively extinct; others were more cautious, suggesting that small populations were hanging on at levels so low that they were impossible to monitor by quick and simple means. Throughout the 1990s, British naturalists’ meetings, conferences and literature have been enlivened by argument about the status of the species outside its Scottish Highlands stronghold. Such uncertainty has not helped land managers and nature conservation policy makers, who have, understandably, found it difficult to decide which measures, if any, are appropriate for conserving the species.

It was not always like this, of course. John Webster’s analysis of place names and hunting and estate records (Webster, in press) reveals how common Pine Martens were in central Lakeland until late in the 1800s, despite the limited woodland cover available to them. Macpherson (1892) noted that the Pine Marten was known as the “Crag Mart” by Lakeland dalesmen because it was typically found on the open fell. Writing in the 1960s, the late H.G. Hurrell reminds us that Pine Martens do not need forests in order to thrive. He describes British Marten country as “typically mountainous, often bare and rocky, but with a certain amount of indigenous woodland in the valleys” (Hurrell, 1968). Observers of Martens have commented upon a troubled relationship with the Fox in Lakeland, where the phrase “When Foxes are rank Marts are scarce” was coined (Macpherson, 1892). Webster (in press) argues that crags can substitute for trees in open, upland landscapes, enabling Pine Martens to avoid predation by Foxes well away from forest cover. He suggests that the open fells need not be viewed as sub-optimal habitat for Martens.

Heavy persecution in the late nineteenth century reduced the populations of several predators in Britain, including Pine Martens (Tapper, 1992). By the early 1900s Cumbria was regarded as the species main stronghold in Britain outside the Scottish Highlands (Langley & Yalden, 1977). A few Cumbrian specimens from the early 20th century are held at the Tullie House Museum, the last originating from Honister Pass

on 2nd March 1914. Since then, evidence of Martens in Cumbria has apparently dwindled, leading to the current concerns about its conservation status. Increasing persecution by man, and subsequent pressure from a growing Fox population, have been suggested as the likely reasons for the Marten's decline in Cumbria (Webster, in press).

### Recent evidence

A small handful of dedicated naturalists have followed the Pine Marten's tantalising trail in Cumbria and adjacent counties in the twentieth century. Colin Simms, living near Alston, has devoted more time than any other to this challenging task. He releases little information about the Martens he reportedly sees on a regular basis, occasionally publishing snippets of poetry and prose that describe encounters in the Lakeland fells and Cumbrian Pennines (eg. Simms, 1973, 1998a, 1998b).

Concern for the future of Martens in England and Wales led to a series of structured surveys for field signs that covered parts of Cumbria. In the period 1980-1982 Velandar (1983) searched 11 10km squares for marten droppings (called scats) but failed to find any. However, she presumed this was due to signs being difficult to find where Martens are scarce, because interviews with local naturalists and foresters convinced her that a population still survived in the Lake District. This was backed up by an independent questionnaire survey conducted by the Forestry Commission in 1983 (Tee, Rowe & Pepper, 1985), which indicated that Martens were still present in Lakeland and elsewhere in the north-west of England.

A further survey was carried out in England and Wales over the period 1987-1988 by Rob Strachan for the Joint Nature Conservation Committee (JNCC) (Strachan, Jefferies & Chanin, 1996). This included 29 10km squares in Cumbria, ten of which revealed positive field evidence in the form of footprints or scats (eight in Lakeland and two along the border with north Northumberland). The authors of the JNCC report regarded these Cumbrian Martens as part of two wider populations, respectively Cumbria/Lancashire and Northumberland/eastern Cumbria/Durham. Based upon the number and distribution of field signs and the pattern of Marten records uncovered over the years, the JNCC report drew different conclusions about the status of these populations: the Cumbria/Lancashire one was felt possibly to be declining; while the one including east Cumbria was felt possibly to be spreading.

In 1993, a brief field survey of northern England, carried out by a team focusing on the proposed reintroduction of Pine Martens (Bright & Harris, 1994), included only heavily forested sites. Only two Marten scats were found in Cumbria (at Thirlmere and Threlkeld), and on this basis the species was described as on the verge of extinction, with the authors suggesting that no viable population remained in the county (or anywhere else in England). This gloomy picture contrasts with the findings of the

JNCC survey carried out just five years earlier, and raises questions about the wisdom of drawing such startling conclusions from such a very limited survey. Indeed the survey's exclusive focus upon forest habitat seems particularly bizarre, given the long history of Pine Martens living on open fells in northern England (Webster, in press). More general doubts have also been expressed about the reliability of surveys based on Marten scats, especially where the animals are scarce (Balharry *et al.*, 1996; Messenger *et al.*, 1997).

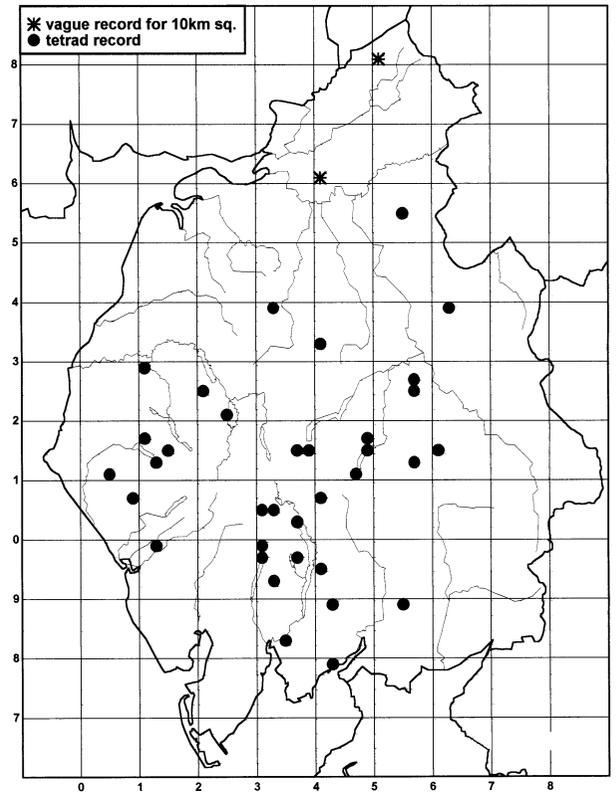
Fortunately, however, evidence of Pine Martens in Cumbria has continued to trickle forth through the 1990s, suggesting that talk of extinction is premature.

### Sightings of Pine Martens

Accepting that field signs may be very hard to find where Martens are scarce, The Vincent Wildlife Trust (VWT) has tried a range of other approaches to monitoring the species in England and Wales. Recording and evaluating reports of sightings has been the most productive method, though the pitfalls inherent in this less than certain source of data have to be acknowledged (Messenger *et al.*, 1997). With the help of many organisations, notably Museums, Natural History Societies, Wildlife Trusts and National Parks, a wide-scale appeal for reports of Martens was maintained through the late 1990s.

Fifty-one reported sightings of Pine Martens have been received by the VWT from Cumbria in the 1990s, of which 41 are regarded as high confidence reports following detailed interviews with the observers. These 41 reports are not randomly scattered over the county. They tend to be clustered in particular areas: for example, Ennerdale generated sightings by three different people during summer 1999, including one report

Map 1: Records of Pine Martens in Cumbria received by VWT 1990—1999



of a mother with young; other clusters of sightings have recently come from forested areas near Penrith (including a 1999 sighting during a Carlisle Natural History Society Fungus Foray), and between Coniston and Milnthorpe. Several unconfirmed sightings and scats have been reported from a remote bothy in the north-east of the county near Spadeadam Forest. Slightly more reports have come from Westmorland (26), and many are associated with higher, more rugged ground. Several sightings were reported by reliable people who are familiar with Pine Martens, and nine sightings involved animals seen in trees or observed running up trees. In northern England only Northumberland has generated more high confidence Marten reports than Cumbria during the 1990s.

### Gamekeeper opinion

In 1999 an independent source of opinion on Pine Martens was sampled through a questionnaire of gamekeepers by the VWT in collaboration with the National Gamekeepers Organisation (NGO). Over 700 NGO members volunteered opinions about whether, and if so where, Pine Martens still occurred in the wild in England and Wales. Cumbria was named by more gamekeepers than any other county as an area where Martens were still present in the late 1990s. 15% of Cumbrian gamekeepers reported having had experience of Martens.

### Conclusions

The Pine Marten is clearly rare in Cumbria, but there is too much evidence of its continued occurrence in the late 1990s to regard it as extinct in the county. Its rarity and apparent preference for rugged, upland landscapes makes it difficult to find field signs. Given these circumstances, limited surveys that focus briefly on searching forest tracks for scats must be an unreliable means of determining the species status.

A high priority, in nature conservation terms, is to gain an understanding of why Pine Martens are not showing clear signs of recovery in Cumbria now that the species is fully protected. Until the limiting factors have been identified and addressed, it is difficult to decide what conservation measures are appropriate locally in the short term. Taking a longer view, one can look more optimistically to the north of the county, where a Pine Marten population reintroduced to Galloway Forest in the early 1980s (Shaw & Livingstone, 1992) is likely to expand eastwards to Cumbria. Further east, Northumberland still generates more convincing evidence of Martens than any other county in England and Wales. Thus, it is not unreasonable to anticipate a slow, natural strengthening of the Pine Martens foothold along the Scottish border during the 21st century.

### Acknowledgements

We thank Stephen Hewitt of Tullie House Museum for preparing the distribution map

using RECORDER and DMAP software and for his helpful comments on this paper.

*The Vincent Wildlife Trust is keen to receive recent reports of Pine Martens from England and Wales. Please contact the Trust at 119 Church Street, Great Malvern, Worcs WR14 2AJ (01684 572787).*

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## River shingle invertebrates survey, 1999

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### Introduction

The importance of riverine sand and shingle banks for invertebrate conservation has only recently been widely appreciated. A significant number of invertebrates specialise in living in exposed river sediment (ERS) habitats and many of these species are nationally rare or scarce. Recent studies on the invertebrates of ERS have been carried out in Wales, Scotland, Leicestershire and north-east England. Cumbrian ERS have received little attention in recent years. However a recent national study of ERS, involving some collation of historical data, revealed that Cumbrian rivers were once among the best in the country for their ERS beetle assemblages (Lott, D., pers. comm.) The aim of the present survey was to collate historical records of ERS species for Cumbrian rivers and, if possible, relocate historically important sites in the field today and assess their present invertebrate interest.

ERS species are particularly found amongst certain families of Coleoptera (beetle) and Diptera (fly) together with a few species of Hemiptera - Heteroptera (true bugs) and Araneae (spiders). Species associated with ERS habitats have been listed by Eyre & Lott (1997) and further information on flies associated with ERS has been given by Godfrey (1999). Species of high or total ERS fidelity were identified from these publications and flagged on the RECORDER database at Tullie House Museum.

### Historical Data

The collections at Tullie House Museum and historical entomological publications, particularly early volumes of the *Transactions of Carlisle Natural History Society*, were trawled for reference to ERS species recorded in Cumbria.

The earliest Cumbrian records related to the mid-19th century when Thomas Bold of Newcastle and T. C. Heysham of Carlisle were separately collecting and recording beetles. Bold's records relate to the River Irthing and often give no further detail of the locality, although a few specify the Lanercost area. Heysham's records refer to the Carlisle area, including the River Caldew at Cummersdale.

In the late 19th and early 20th centuries, entomologists of the Carlisle Natural History Society collected and published information on ERS beetles in north east Cumbria, particularly for the rivers Eden, Irthing and Caldew. The entomologists concerned were F.H. Day of Carlisle, G.B. Routledge of Heads Nook and H. Britten of Great Salkeld. Some 126 historical records of 51 different ERS species in Cumbria have been collated.

Most of the published information relates to Coleoptera but some Dipteran records have also been abstracted from the collections. Table 1 shows the number of species of different status categories recorded at each site before 1960. The River Eden at Great Salkeld was clearly a very good site although its relative importance may be exaggerated due to the fact that Harry Britten lived in the village and so will have studied the area in great detail. It was here that Britten first discovered the tiny rove beetle *Thinobius newberyi*, a very rare species which lives deep in the shingle and is still only known from a handful of shingle sites in Scotland and Wales. Day later reported it to be relatively common here but it has not been recorded in Cumbria since 1911. The lower reaches of the River Caldew were also valuable for ERS invertebrates with species such as the 5-spot Ladybird (*Coccinella 5-punctata*) being recorded there by F.H. Day in 1922. The other historically important area was the River Irthing, between Lanercost and the Gelt, where first Bold and later Day and Routledge found many interesting species. During the 1950s W.F. Davidson of Penrith recorded some interesting ERS invertebrates on the Eden at Langwathby.

There has been very little published on ERS invertebrates in Cumbria in recent years although some records have been abstracted from the Invertebrate Site Register for Cumbria (Key & Parsons, 1989) and Jonty Denton has published some records from the River Lowther (Denton, 1999).

### The 1999 Survey

Using the collated historical data, the areas of historical interest were visited in search of potentially valuable areas of ERS. Sand and shingle banks were noted at Great

Table 1: no. of species of different status categories recorded at each site prior to 1960

Site name	Species statuses									
	Unknown	Common	Local	Notable/ Nb	Notable/ Na	pRDB2	RDB2	pRDBK	RDBI	Total
Baron Wood	.	.	4	4	1	.	.	.	.	<b>9</b>
Caldew Valley	.	1	3	3	.	.	.	.	.	<b>7</b>
Cummersdale	.	.	3	1	.	.	.	.	.	<b>4</b>
Great Salkeld	2	7	6	9	3	1	1	1	1	<b>31</b>
Lanercost	.	.	1	.	.	.	.	.	.	<b>1</b>
Langwathby	.	.	.	2	.	.	.	.	.	<b>2</b>
Petteril Valley	.	2	5	2	.	.	.	.	.	<b>9</b>
River Caldew	.	.	1	.	.	.	.	.	.	<b>1</b>
River Irthing	3	7	8	11	1	.	.	1	.	<b>31</b>
<b>Total</b>	<b>3</b>	<b>9</b>	<b>10</b>	<b>21</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>51</b>

Salkeld on the Eden, Cummersdale on the Caldew and at Burtholme and Kellwood on the Irthing. A small area of shingle was identified at Langwathby Bridge and another more extensive area upstream near Watersmeet. These sites formed the focus of survey work during 1999 with additional areas of ERS being visited on an *ad hoc* basis by individual members of the group.

### The Sites

#### Great Salkeld Shingle Bank (GS) NY559366 Alt. 80m.

This is an area of eroded river bank, exposing previously deposited coarse shingle backed by eroded sandy clifflets along the river bank. It is thinly vegetated with Nettles and other herbs as well as a couple of willows and some drift wood.

#### Cummersdale Shingle Banks (Cu) NY391521 Alt. 25m.

This is the largest single area of ERS involved in the study in 1999. The **west bank (CW)** of the river above the old weir consists of a bank of mixed grades of sediment, from sand to coarse shingle. Below the weir is a large area of vegetated shingle with accumulations of flood debris.

On the **east bank (CE)** of the river there are smaller areas of unvegetated shingle where there is some shingle extraction occurring and a larger area of herb rich grassland growing on old ERS.

#### Burtholme/Easby Sand & Shingle Banks (B/E) NY539633 Alt. 35m.

The **Burtholme Shingle Bank (Bu)** at NY541633 is on the north bank of the River Irthing. It consists of fine and coarse shingle with some areas of, mostly vegetated, sand. Areas of the shingle are also vegetated and there appears to be some shingle extraction occurring.

The **Easby Bank (Ea)** at NY539633 is a larger area of vegetated sand and shingle deposits with areas of bare substrate interspersed. The vegetation structure is varied with areas of fine herb-rich grassland as well as stands of willow with some Gorse and Broom. Stands of Alder occur at the margins of the site.

#### Kellwood Shingle Banks (KS) NY524633 Alt. 35m.

The River Irthing above and below the confluence with the King Water contains the most diverse range of riparian habitats involved in the survey in 1999. The area around the confluence is a mosaic of sand and shingle bars - some vegetated, others bare. Extensive tracts of wet Alder woodland fringe the site. Down stream **Castlesteads Shingle Bank (Ca)** at NY521630 is an area of shingle, with smaller patches of sand, which is partially scrubbed over with willow. Upstream from Kellwood the river is bounded by wet Alder woodland and the banks rise up to form a shallow gorge. At one point in particular there is an area of extensive earth slips of the east bank, creating an area of fallen trees, open clay mud-slips and flooded

hollows. A partially vegetated shingle bank in this vicinity, **Kellwood Upper Shingle Bank (Ku)** (NY532633), was visited on one occasion.

#### Watersmeet Shingle Bank (Wm) NY582313 Alt. 95m.

An old deposit of graded shingle overlain with sand and grassland has been partially washed out by the river, leaving areas of bare and vegetated shingle with sandy clifflets and a backwater of slow moving water.

#### Nunnery Walks River Bank (Nu) NY5342 Alt. 65m.

Hardly ERS in the normal sense but the nationally scarce stiletto-fly *Psilocephalea rustica* was found here in 1995 (Hewitt 1995) and a single visit was made to this site. The River Eden at this point flows through a wooded sandstone gorge and the banks of the river consist of fine sand and silt deposits.

#### Langwathby Bridge Shingle Bank (Ly) NY565335 Alt. 85m.

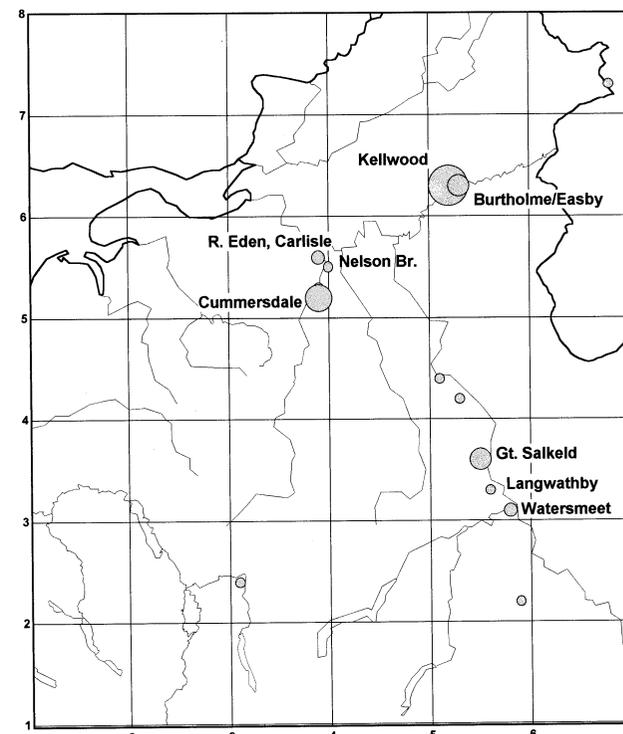
A small area of unvegetated shingle with some bare sand adjacent. Both areas suffer considerable trampling from fishermen and walkers.

#### Nelson Bridge Shingle Bank (NB) NY400554 Alt. 15m.

An area of partially vegetated shingle on the River Caldew either side of Nelson Bridge in Carlisle.

### Results

A total of 360 species have so far been identified during the survey. Of these 41 nationally rare and scarce species have been identified and 63 species which are considered specialists of exposed river sediment. (28 species in the latter category are



Map 1. Rare & Scarce invertebrates at ERS sites on the Eden catchment in 1999

also nationally rare or scarce.) Map 1 above shows the sites mapped with symbol size varying according to the number of Nationally Rare and Scarce species recorded. Table 2 overleaf shows the rare and scarce species and shingle specialists recorded at each site.

**Accounts of Rare and Notable species**

Species accounts are based on information given on the RECORDER software package, with some editing based on local experience. Species with high or total fidelity to exposed river sediments are given in bold. Species which we believe to be first records for Cumbria are preceded by an asterisk (\*).

The National Status of each species is given – the definitions are:

- RDB1            Endangered
- RDB2            Vulnerable
- RDB3            Rare
- RDBK            Thought to be Nationally Rare – exact status unknown
- pRDB#            provisionally a Red Data Book species of the specified category
- Notable/Na      Nationally Scarce (occurring in 15-29 10km squares in Britain)
- Notable/Nb      Nationally Scarce (occurring in 30-99 10km squares in Britain)

**Hemiptera – Heteroptera (True Bugs)**

***Saldula fucicola***                      **Saldidae**                      **Notable/Nb**

A rare shorebug, recorded from only a few localities in Scotland and northern England. Restricted to fine gravel, sand and silt along river margins.

Previously reported from the R. Irthing.

**Coleoptera (Beetles)**

*Trechus rubens*                      Carabidae                      Notable/Nb

5-6.5mm long reddish-brown subterranean ground beetle. Among leaves, under stones, often near water. Widespread but local.

***Bembidion litorale***                      **Carabidae**                      **Notable/Nb**

A northern and western species living on sparsely vegetated fine sands on river banks, extremely local.

Previously reported from Baron Wood.

***Bembidion fluviatile***                      **Carabidae**                      **Notable/Nb**

A ground beetle living on fine sands and mud by northern and western rivers. Always very local.

Previously recorded from Langwathby.

***Bembidion monticola***                      **Carabidae**                      **Notable/Nb**

Black ground beetle found at the sides of running water in shaded conditions. Scotland,

**Table 2. Rare and notable and shingle invertebrates recorded during the 1999 survey.**

Shingle specialists are *italicised*. For explanation of site codes, see text.

Species	Status	GS	Ly	Nu	B/E	Bu	Ea	Wm	KU	KS	Ca	Cu	CW	CE	NB	Tot
<b>Heteroptera (True bugs)</b>																
<i>Heterogaster urticae</i>	Nr												*			2
<i>Cryptostemma alienum</i>	Local	*				*			*					*		5
<i>Saldula scotica</i>	Common	*			*			*	*	*	*		*		*	11
<i>Saldula c-album</i>	Common		*	*					*				*		*	8
<i>Saldula fucicola</i>	Notable/Nb	*	*	*	*		*	*	*				*	*		12
<i>Hydrometra stagnorum</i>	Common	*	*	*						*			*		*	8
<b>Coleoptera (Beetles)</b>																
<i>Elaphrus riparius</i>	Common									*	*					2
<i>Clivina collaris</i>	Local					*	*		*				*			4
<i>Trechus rubens</i>	Notable/Nb												*			1
<i>Bembidion litorale</i>	Notable/Nb			*						*						2
<i>Bembidion punctulatum</i>	Local							*		*			*	*	*	8
<i>Bembidion stomoides</i>	Notable/Nb												*			1
<i>Bembidion atrocoeruleum</i>	Local	*			*	*		*	*	*			*			9
<i>Bembidion tibiale</i>	Common	*			*	*				*			*			7
<i>Bembidion andreae</i>	Local									*			*			2
<i>Bembidion decorum</i>	Common					*			*				*			3
<i>Bembidion fluviatile</i>	Notable/Nb	*														1
<i>Bembidion monticola</i>	Notable/Nb									*						1
<i>Bembidion tetracolum</i>	Common	*		*		*	*			*			*	*		9
<i>Agonum albipes</i>	Common	*		*		*				*			*			6
<i>Amara fulva</i>	Notable/Nb									*			*			2
<i>Georissus crenulatus</i>	Na			*						*						2
<i>Helophorus arvernicus</i>	Notable/Nb	*	*	*												3
<i>Hydraena rufipes</i>	Notable/Nb															1
<i>Stenus fossulatus</i>	RDB1									*						1
<i>Stenus guttula</i>	Local	*		*						*						3
<i>Stenus latifrons</i>	Nr	*														1
<i>Stenus oscillator</i>	Notable/Nb	*														1
<i>Stenus tarsalis</i>	Nr	*		*												3
<i>Lathrobium angusticolle</i>	Notable/Nb					*										1
<i>Lathrobium ripicola</i>	Notable/Nb	*														1
<i>Neobisnius prolixus</i>	pRDBK												*			1
<i>Philonthus rubripennis</i>	Local		*										*			2
<i>Gabrieus bishopi</i>	Notable/Nb									*						1
<i>Hydromecta thinobioides</i>	Notable/Nb	*														1
<i>Aloconota cambrica</i>	Unknown	*	*			*		*	*	*	*		*			9
<i>Aloconota insecta</i>	Common												*			1
<i>Aloconota sulcifrons</i>	Unknown			*												1
<i>Atheta obfuscata</i>	Notable/Nb					*										1
<i>Limnius volckmari</i>	Common															1
<i>Fleutiauxellus maritimus</i>	Na									*			*			2
<i>Negastrius sabulicola</i>	pRDB2									*						1
<i>Zoroachros minimus</i>	Local		*		*	*		*	*	*			*		*	10
<i>Tropiphorus terricola</i>	Notable/Nb	*														1

**Tot** = total number of sites at which each species was found - including minor sites not referred to in this report.

Species	Status	GS	Ly	Nu	B/E	Bu	Ea	Wm	KU	KS	Ca	Cu	CW	CE	NB	Tot
<b>Diptera (Flies)</b>																
<i>Nephrotoma analis</i>	Nr									*						1
<i>Nephrotoma dorsalis</i>	Notable/Nb									*						1
<i>Nephrotoma guestfalica</i>	Local	*						*		*						3
<i>Nephrotoma lunulicornis</i>	Notable/Nb									*						1
<i>Nephrotoma submaculosa</i>	Local	*										*				3
<i>Tipula (Yamatipula) couckeii</i>	Nr				*							*				3
<i>Antocha vitripennis</i>	Local									*			*			2
<i>Limnophila (Eloeophila) apicata</i>	Notable/Nb									*						1
<i>Hexatoma fuscipennis</i>	Nr									*						1
<i>Arctoconopa melampodia</i>	pRDB2									*						1
<i>Molophilus ochrescens</i>	Nr									*						1
<i>Atherix ibis</i>	Local	*	*													2
<i>Tabanus cordiger</i>	Notable/Nb												*			1
<i>Dioctria cothurnata</i>	pRDB3							*								1
<i>Thereva lunulata</i>	RDB3					*	*			*		*	*			5
<i>Tachydromia acklandi</i>	pRDB3	*						*		*	*	*	*			6
<i>Tachydromia costalis</i>	pRDB3								*							1
<i>Tachydromia halidayi</i>	Notable/Nb							*				*	*		*	5
<i>Platypalpus interstinctus</i>	Nr									*						1
<i>Platypalpus melanoholicus</i>	pRDB3											*				1
<i>Platypalpus pictitarsis</i>	Nr									*						1
<i>Bicellaria subpilosa</i>	Nr															1
<i>Rhamphomyia umbripennis</i>	Local									*						1
<i>Hilara albiventris</i>	Notable/Nb							*								1
<i>Hilara beckeri</i>	Nr	*														1
<i>Hilara biseta</i>	Notable/Nb									*						1
<i>Hilara cingulata</i>	Local							*								1
<i>Hilara cornicula</i>	Nr									*						1
<i>Hilara monedula</i>	Nr	*														1
<i>Hilara obscura</i>	Local	*						*		*						3
<i>Wiedemannia bistigma</i>	Nr															1
<i>Dolichopus longicornis</i>	Local												*	*		3
<i>Hypophyllus crinipes</i>	Local									*						1
<i>Tachytrechus notatus</i>	Nr			*												1
<i>Rhaphium commune</i>	Nr									*						1
<i>Rhaphium gravipes</i>	Notable/Nb									*	*					3
<i>Rhaphium penicillatum</i>	pRDB3			*						*						3
<i>Rhaphium rivale</i>	Notable/Nb			*							*					2
<i>Lonchoptera nigrociliata</i>	Notable/Nb															1
<i>Parasyrphus nigrirarsis</i>	RDB1		*							*			*			5
<i>Xanthogramma pedissequum</i>	Nr						*								*	2
<i>Xylota florum</i>	Notable/Nb							*	*							2
<b>Hymenoptera (Bees &amp; Wasps)</b>																
<i>Crossocerus walkeri</i>	Notable/Nb				*											1
<b>Araneae (Spiders)</b>																
<i>Arctosa cinerea</i>	Nr	*									*		*		*	5
<b>Total species per site</b>		26	9	14	7	12	5	14	9	45	7	6	30	5	8	

northern England and Wales. Local, but abundant where found.

Previously recorded from R. Irthing, Petteril Valley, Baron Wood and Great Salkeld.

***Amara fulva* Carabidae Notable/Nb**

Restricted to dry, open, sandy places. Phytophagous, feeding mainly on seeds, the adults live under stones or leaf rosettes, or burrow in sandy soil. Widespread but very local and declining.

Previously recorded from Great Salkeld, Caldew Valley, Petteril Valley.

***Georissus crenulatus* Hydrophilidae Notable/Na**

Small water beetle found in trickles and flushes in muddy conditions. Widespread but very local.

***Helophorus arvernicus* Hydrophilidae Notable/Nb**

Small water beetle of slow flowing rivers where it can be found in wet silt at the margins. Locally distributed, mainly in the west and the Scottish borders.

***Hydraena rufipes* Hydraenidae Notable/Nb**

A small black water beetle, most often recorded from amongst moss and on stones in swift-flowing rivers; also known from fen conditions in the north.

Previously recorded from Great Salkeld.

**\* *Stenus fossulatus* Staphylinidae RDB1**

Small rove beetle found clay land slips by fast streams. Very rare, only recorded in county Durham before this discovery.

***Stenus oscillator* Staphylinidae Notable/Nb**

Rare small rove beetle of marshy places. Found only in a few, very scattered, localities.

***Lathrobium angusticolle* Staphylinidae Notable/Nb**

8mm long red and black rove beetle. Specific ecology uncertain, other members of the genus live in grass tussocks and in dead vegetation. Has been recorded from river gravels in mid Wales. Widespread but very local.

Previously recorded from R. Irthing.

***Lathrobium ripicola* Staphylinidae Notable/Nb**

Black and red rove beetle living under stones, in moss, grass tussocks etc. Local mainly southern.

**\* *Neobisnius prolixus* Staphylinidae pRDBK**

Recorded from river shingle, on damp sand and mud beside ponds or streams, and under stones. This species has a scattered distribution from Middlesex to the Solway. Few recent records.

***Gabrius bishopi* Staphylinidae Notable/Nb**

A small black rove beetle, up to 4.5mm. long, of obscure ecology. Widely distributed but local.

***Hydrosmeeta thinobioides* Staphylinidae Notable/Nb**

A small black rove beetle found amongst river shingle. Widely distributed but local. Previously recorded from Great Salkeld and R. Irthing.

***Atheta obfuscata* Staphylinidae Notable/Nb**

Ecology and distribution unknown.

***Fleutiauxellus maritimus* Elateridae Notable/Na**

Small black click beetle living among shingle on rivers. A very local northern and western species.

Previously recorded from Great Salkeld.

***Negastrius sabulicola* Elateridae pRDB2**

Small click beetle living among shingle on northern and western rivers. Very local.

Previously recorded from Great Salkeld.

***Tropiphorus terricola* Curculionidae Notable/Nb**

A brown weevil. Polyphagous but most often associated with Dog's Mercury in woodland. Also recorded from flushed wetlands and dry grassland on chalk.

Widespread but local.

**Diptera (Flies)**

**\* *Nephrotoma dorsalis* Tipulidae Notable/Nb**

A crane fly found on sandy, wooded river banks. Biology unknown. Widespread but very local with most records from the Scottish Highlands.

**\* *Nephrotoma lunulicornis* Tipulidae Notable/Nb**

A crane fly of sandy river banks in western and northern districts. Very few known sites and apparently highly localised in distribution.

**\* *Limnophila apicata* Tipulidae Notable/Nb**

A crane fly of shaded stream sides. Larvae probably develop in stream sediments. Widespread but extremely local with a southern and western bias.

**\* *Arctocnopa melampodia* Tipulidae pRDB2**

A crane fly usually found on sandy river banks. Recorded from Dorset, Herefordshire, Cheshire, Lancashire and Elgin.

***Tabanus cordiger* Tabanidae Notable/Nb**

A large horse fly found throughout Britain. Very scarce and local.

Previously recorded from Great Salkeld; Carlisle and Roe Beck.

***Dioctria cothurnata* Asilidae pRDB3**

A robber fly recently discovered in Cumbria. Known from southern England and formerly occurring on Speyside in Scotland.

**\* *Spiriverpa lunulata* Therevidae RDB3**

Rare stiletto fly found on gravelly stream banks in northern and western Britain.

**\* *Tachydromia acklandi* Empididae pRDB3**

Small fly which runs over the surface of mud and shingle at the side of upland rivers. Recorded from only a few sites in Scotland and one in Wales. Considered to be "very rare, more realistically should be considered RDB2".

**\* *Tachydromia costalis* Empididae pRDB3**

Ecology and distribution unknown.

**\* *Tachydromia halidayi* Empididae Notable/Nb**

Ecology and distribution unknown.

**\* *Platypalpus melancholicus* Empididae pRDB3**

Ecology and distribution unknown.

***Hilara albiventris* Empididae Notable/Nb**

Small empidid likely to be found flying over water. Recorded from Monnow Valley (Hereford) and Brecknock (Wales).

**\* *Hilara biseta* Empididae Notable/Nb**

Ecology and distribution unknown.

**\* *Rhaphium gravipes* Dolichopodidae Notable/Nb**

A fly of northern riverbanks, mostly in Scotland.

**\* *Rhaphium penicillatum* Dolichopodidae pRDB3**

Ecology and distribution unknown.

**\* *Rhaphium rivale* Dolichopodidae Notable/Nb**

Medium sized metallic fly of northern riverbanks, known mainly from Scotland where it may be abundant.

***Lonchoptera nigrociliata* Lonchopteridae Notable/Nb**

Small fly found beside streams in woods. Has been recorded mainly from north-west England, the Welsh border counties and South Wales. Very local, but can be abundant where it occurs.

***Parasyrphus nigratarsis* Syrphidae RDB1**

A hoverfly which is very unusual because its larvae are specialist predators of leaf beetle larvae. Apparently exceedingly rare. Only recently discovered in Cumbria by W. Fakes (1996), results of this survey suggest the species may be widespread in the county

***Xylota florum* Syrphidae Notable/Nb**

Hoverfly associated with dead wood in moist woodlands. Southern species ranging north to the Scottish border.

Previously recorded from Edmund Castle and Fishgarth Wood.

**Hymenoptera (Bees, Wasps and Ants)**

**\* *Crossocerus walkeri* Sphecidae Notable/Nb**

Rare solitary wasp nesting in dead wood, predatory on mayflies, especially Baetidae. Widespread but rare.

## Araneae (Spiders)

*Arctosa cinerea*

Lycosidae

Notable/Nb

A northern wolf spider found amongst stones beside lakes and rivers where it builds a silken tube beneath a stone. Very local in Scotland, northern England and North Wales.

### Conclusion

The results of the survey in 1999 show that the River Eden and its tributaries retain much of their historical interest for ERS invertebrates.

However, there are several ERS species that have been recorded in the past or which might be expected on Cumbrian rivers but have not yet been encountered during the present survey. Further work is planned to hunt for these species in 2000 and to broaden the study to cover some of the west Cumbrian rivers.

### Acknowledgements

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## Birds of Kershope Forest

Mike Tulloch, 13 Riverbank Court, Carlisle

Kershope Forest lies entirely in Carlisle District in the extreme north of Cumbria. Its northernmost point forms the apex of a triangle with Borders Regional Council of Scotland to the west, and Northumberland to the east. I worked here for Cumbria County Council in 1978, when the checking and assessment of bridges in this area first got underway.

Now the Cumbria Bird Club survey of breeding birds covers much of the same ground - and upland bridges are a good bet for breeding Dipper and Grey Wagtail. The present survey work was limited to six tetrads (2km × 2km), plus supplementary records for nine others.

The attraction of Kershope lies in its diversity. Whereas Spadeadam Forest is a rolling expanse of uniform - and usually young - spruce trees with Lodgepole Pine in the wetter areas, Kershope displays an interesting progression from clearfell to mature spruce, and much of it has a changeable aspect from one age group to another.

However 1999 saw the continuation of massive clearfell in this and the other border forests. The logging did not appear to significantly affect the smaller bird species, but may have displaced some of the larger predators, such as the Hen Harrier. This species is being protected at present in the Tarras valley only five miles to the north, and two sightings were probably of these birds. When the logging stops, it seems reasonable to expect the Hen Harrier to return as a regular breeder – since it is too much to expect the Langholm Hen Harrier study to go on for ever.

Goshawks are probably the most interesting predator here, but they are difficult to see and I suspect that they skulk! There are numerous stands of older trees, probably up to sixty years, and the best way to see a Goshawk is to get a panoramic view of some of these stands and be prepared to wait around in winter or spring on a clear, calm day. As these stands or copses, some as much as 25 hectares in size, are being progressively cut down it seems to me that year 2000 will see the end of most of this particular habitat.

If you want to see a Goshawk, get out before it's too late! There's always the Bakethin watch point ten miles away at adjoining Kielder, which was apparently set up with viewing displaying predators in mind.

There is a perceived down-side to successful Goshawk populations. One house owner whose garden abuts the forest frequently gets visits causing mayhem among the smaller passerines. Goshawks may impact other predators and a member of the Forest Enterprise staff suggested that this as a reason for the absence of Short-eared Owls,

which have not bred in Kershope for five years. The nocturnal Barn Owl however is common here and bred in at least five of the above tetrads in 1999.

The Forest Ranger had noted most raptors usually at around 4 am, but once managed to see a Sparrowhawk attack a juvenile Barn Owl at 8pm in summer. My own sightings (usually between 10 am and 8pm) were inevitably of Kestrels and Buzzards, since both these species seem to tolerate forest logging operations, but I got four post-breeding Merlin records in September, and two of Goshawk.

Ravens are also interesting and have bred in tree-sites as they sometimes do in the nearby Tarras. There are plenty of these sites but not so much sheep carrion: at Spadeadam the reverse is partly true and there are no Ravens, except that there are historic sites which may get re-colonised if the land use changes significantly.

The mature conifers previously described often have a useful number of trees which have been blown over in winter gales. The trees guarantee Buzzards, Crossbills, and plenty of Siskins. The windthrows and edge effects produce regular Greater Spotted Woodpecker, and there is scope for the likes of the Green Woodpecker, which breeds in southern Kershope near to Catlowdy. Redstart and Tree Pipit occur on the edges of these copses, and often there are areas where both Tree and Meadow Pipit sing together. Pied Flycatchers are absent from the forest, but perhaps nestboxes would help. There are also areas with Chiffchaff.

Parts of the forest will be exceptional when the massive clearfell is colonised by weeds or replanted, hopefully with deciduous trees. Already Curlews are trying to colonise some clearfell in defiance of the numerous crows, and the uneven-aged tracts are awash with Wrens, Willow Warblers, pipits, and a sprinkling of Whinchats. Stonechats breed but, like all inland Stonechats, they are difficult to find.

Some of the suitable open areas will be used by the elusive Nightjar: it has happened before and much of Kershope is riddled with gravel tracks, much more so than Spadeadam. At present the border forest complex has clearfell areas which must total about 50 square miles and there are at least 3 displaying birds found per annum. Many of these open spaces have the classic woodland edge near to these tracks: the pine edge effects look similar to those of Nightjar sites in Galloway and in Blean Wood, Kent.

Game birds are scarce, being limited to the Common Pheasant, the occasional pair of Grey Partridges, and one pair of Red-legged Partridges near Penton. Black Grouse have all but disappeared.

Unfortunately there is the 'green desert', which exists around the forest edge here as much as in the more obvious farming areas in Cumbria. Here there is often a mosaic of light green pastures dotted with dark green rush clumps and numerous grazing sheep. Birds are limited to crows, gulls and pigeons and most of the small passerines are Chaffinches and Starlings. There are some areas with Skylarks but these do not match the numbers to be found on the grass moors near to Wileysike, Spadeadam.

## **Status of the Red Wood Ant (*Formica rufa* L.) in Cumbria**

(Conclusions of the Wood Ant Survey 1996-1999)

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### **Background to the Survey**

A paper on *The Wood Ants of the English Lake District* was published in the *North Western Naturalist*, March 1955 by J.E. Satchell and C.A. Collingwood, reporting the results of surveys in 1954 of the wood ants *Formica rufa* L. and *F. lugubris* Zetterstedt, which construct conspicuous mound nests, usually in woodland. *F. rufa* was reported in abundance in the South Lake District near Arnside and Grange-over-Sands, sparsely around Windermere (lake, not town) and at three isolated sites further north. *F. lugubris* was found to be present in the woodlands of the Duddon Valley from Duddon Bridge up to Seathwaite, and in Borrowdale around Ashness Bridge and up the Lodore Beck. The distribution of *F. lugubris* has not changed. It is still common in the woodlands of the Duddon Valley (Karen Sampson, *English Nature*, pers. comm., and N.A.R. 1998). In Borrowdale its nests can readily be seen beside the Ashness Bridge car park and along the roadside through Lodore Woods, and have also been reported further up the valley at Gowther Crag (Stephen Hewitt, pers. comm.). *F. rufa*, in contrast, has disappeared from almost all its former locations in the South Lake District along the north side of Morecambe Bay, though it remains numerous on Arnside Knott in the Cumbria part of the Arnside-Silverdale Area of Outstanding Natural Beauty (AONB). It was to investigate the current distribution of *F. rufa* in Cumbria, and the possible reasons for its decline, that this study was begun in 1996 and completed with support from English Nature's Species Recovery Programme in 1999. This account draws heavily on the 1955 paper for historical details.

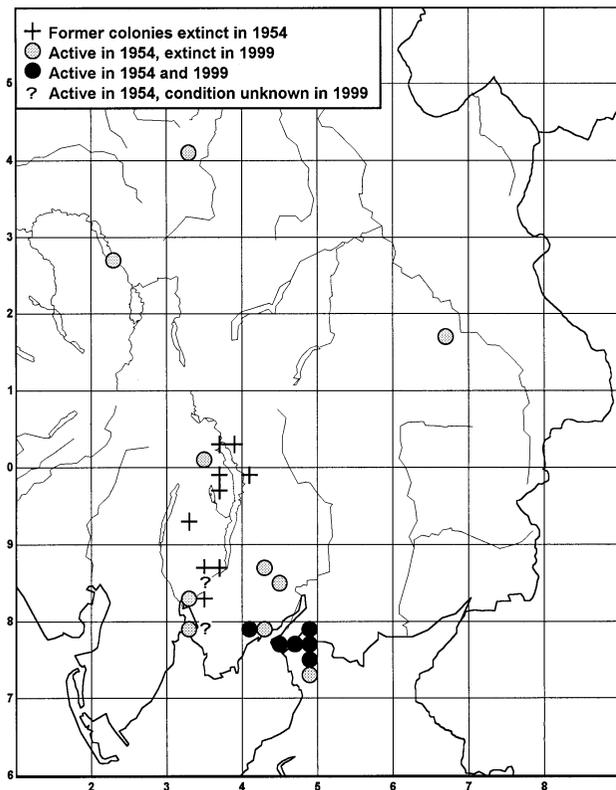
### **Distribution of *Formica rufa* in 1954**

Satchell and Collingwood described *F. rufa* as being found in abundance on Carboniferous Limestone near Arnside and Grange-over-Sands, and sparsely on the Silurian slates and flags around Windermere. There were, in addition, three isolated sites representing the most northerly outposts of the species: Hoff Lunn near Appleby, Parson's Park, Caldbeck, each with a few colonies only, and Dodd Wood on the Bassenthwaite slopes of Skiddaw. They distinguished between sites on the Carboniferous Limestone along the southern edge of the Lake District and around Arnside (now known as the Morecambe Bay Limestone Natural Area) and those on the Silurian slates and flags and other formations further north (Lake District Fells and Dales Natural Area). They concluded that, in the latter, wood ants were already in decline because, although there were still 7 active sites on these rocks, there were also

9 sites where colonies had become extinct during previous decades. The locations of both categories of these sites are shown by tetrads in Map 1 (not all the sites appear because in some cases more than one occur in a single tetrad).

Of the 22 sites where *F. rufa* was found, 15 were in the Arnside - Grange area, extending from Old Park Wood in the west, through the Grange area, to Whitbarrow in the east; and from Arnside south to Cringlebarrow. The 1955 paper discussed physical factors possibly influencing distribution. It was concluded that the rather open limestone woodlands of the South Lake District, free draining and with a high proportion of bare, well insulated rock, provided more suitable conditions for *F. rufa* than woods on other formations in the area. It was also noted that this area, besides its limestone geology, differed climatically from the Windermere area. The 49° F (9.4° C) isotherm (average mean of the daily mean temperatures 1901-30) corresponded roughly with the northern limit of the area in which *F. rufa* was abundant, and the average annual rainfall of Arnside was about 22 inches (56 cm) less than that of Windermere.

Map 1. *Formica rufa*: distribution by tetrads



**Distribution in 1999**

By the end of the survey it was concluded that all the colonies on the northern acid rocks had expired, and that only one weak nest survived on limestone (at Brown Robin) on the north side of the Bay. There was, however, no indication of decline in the Arnside-Silverdale AONB.

In the early 1970s people began to notice that wood ants had disappeared from most of the sites on limestone in the south Lake District where they had previously been numerous, though now, so long after the event, it is not easy to establish the

facts. During this period Peter Howard (pers. comm.), then at Merlewood Research Station, noticed grassed-over mounds in Eggerslack Wood, which probably were defunct *F. rufa* nests (though on this site two nests did survive until 1998). It seems that in the same period the ants had disappeared from their stronghold in Old Park Wood, Holker, where 30 nests had been counted in 1954, and from Witherslack Woods where there had been numerous nests on the woodland edge along the foot of the scree below Whitbarrow, and local people had noticed their absence in the early 1970s (Cedric Collingwood, pers. comm.). In Limegarth Wood on Meathop Fell, where there had been numerous nests in 1954, Cedric Collingwood noticed a decline in 1967-69. From these observations, and the general recollections of local people canvassed by Cedric Collingwood, it appears that a drastic decline of *F. rufa* on south Lake District limestone sites took place in the last few years of the 1960s, to the extent of extinction on some of the sites by the early 1970s.

The only limestone sites on the north side of the Bay where wood ants are known to have survived are: Meathop (Limegarth) Wood where several nests were still present in 1988 (Michael Sykes, ex-ITE, pers. comm.), Eggerslack Wood with 2 nests until 1998 and Brown Robin (Blawith Fell) with 3 nests in 1996, but only 1 by the end of 1999. Checks by Cedric Collingwood in 1991-93 at Old Park Wood and Witherslack found no wood ants. However there is no indication of decline in the wood ant population on Arnside Knott, only 2 km in latitude further south, and wood ants were abundant on Gait Barrows, in Lancashire, when the NNR was established in 1975.

Little information is available about the fate of the outlying northern colonies during this period. The Hoff Lunn nest was last recorded in 1967, when a note initialled P.S. in the *Field Naturalist*, Vol. 11 No. 4, 1967, reported that: "a very small nest was found in birch scrub this summer some 80 yards from the original site". In 1991-93 Cedric Collingwood found that they were no longer present at Dodd Wood, Skiddaw, or at Parson's Park, Caldbeck.

No attempt was made during the survey to trace the nests known in 1954 at Ellerside Breast, Burn Barrow Wood or Haverthwaite Heights because there was no precise location information and too large an area to search. There had only been a few nests, even in 1954. Renny Park Coppice was visited in 1999 but no nests were seen in this acid oak woodland, which contained much Rhododendron and clearly had been managed as a pheasantry in the past. The Dodd Wood and Caldbeck sites had been reported as defunct by Cedric Collingwood by 1993. Stephen Hewitt was unable to find the Hoff Lunn nest in 1999, but there was no information about its former location on this large site. In 1998 I learned that there had been a single nest at Roudsea Wood (SD3282), situated in a conifer plantation on Silurian rock. This nest had been known to Cedric Collingwood, though not at the time of the original survey, but is presumed to have been present at that time. It was known to the NNR staff into the 1990s, but was found to be defunct in 1999.

The decline of wood ant populations on the north side of Morecambe Bay actually continued during the recent survey period. A request for current records of *F. rufa* was published in the *Carlisle Naturalist* in March 1996 (Vol. 4, No. 1). The only information which was received was that they were still present at Brown Robin (SD4178), the Cumbria Wildlife Trust's Reserve on Blawith Fell near Grange-over-Sands. In 1996 three nests were found in a coppice enclosure: one very large, clearly long-established, and 2 smaller colonies. Two long-established nests were also found in nearby Eggerslack Wood (SD 4078). In March 1997 they were beginning to be active, but May was a very wet month and in the autumn they were all found to have accumulated very little thatch, suggesting they had not had a good season. In 1998 it was found that both nests in Eggerslack Wood had expired, as had also the largest one in Brown Robin. A check of nests on Arnside Knott and Gait Barrows found no corresponding decline in these sites further south. By October 1999 the larger of the two survivors in Brown Robin was also defunct, having disappeared, like all the surrounding area, under dense growth of bramble. The remaining colony had moved from its mound to a more favourable site, but looked very weak and unlikely to survive.

#### **Status of remaining colonies**

In the Cumbria part of the Arnside-Silverdale AONB it was confirmed that wood ants are numerous at Arnside, where they extend from near the shoreline at Arnside Point (SD4377) and Grubbins Wood CWT Reserve (SD4977), to the summit of the Knott at an altitude of about 150 m (SD4577). Middlebarrow Wood, which is in Cumbria, appears in the 1955 lists, but not the adjacent Eaves Wood, which is in Lancashire, where nests are widely present. As north-facing Middlebarrow is an unlikely habitat, and the Eaves Wood population was well known to Cedric Collingwood, it is concluded that the site named as Middlebarrow was in fact Eaves Wood SSSI (SD4677). Nests are present in Underlaid Wood SSSI, where they can be seen beside the path from Hazelslack to Fairy Steps and also by a path at the north end, indicating the presence of a large population. In addition, a few nests were found in Marble Quarry and Hale Fell SSSI (SD4978) south of Slackhead, and more in Major Woods (SD4978). These last 2 locations had not been detected in 1954, but, to judge from the size of the nests, they had been long established. In the Lancashire part of the AONB they are abundant at Gait Barrows NNR (SD4877), where the locations of over 100 nests have been mapped, and are present in Eaves Wood and at the south end of Cringlebarrow (SD4974), but they are no longer present in Grisedale Wood or Trough Plantation.

Attempts were made during 1999 to count the nests on all the extant sites, in order to put minimum sizes on the populations, but this proved impractical for large sites, for which estimates had to be based on partial counts. The results for Cumbria sites were as follows:

#### **a) Major Populations**

Arnside Knott SSSI - encompasses the hill of the Knott and Heathwaite (National Trust) and the private woodlands of Copriding and Arnside Park. The 1955 report named and mapped only Arnside Park, which is now dense woodland, but the population is much more extensive. As 30 nests can easily be counted in an hour on the west side of the Knott, and there are 20 along the cliff-top path on the south of Arnside Point, and they are also present on Heathwaite and other places around the foot of the Knott, an estimate of c. 100 nests seems reasonable.

Underlaid Wood SSSI - 30 nests were counted in the part south of the footpath to Fairy Steps. As this is about one third of the SSSI, and similar habitat with nests extends to the north end, an estimate of c. 90 nests can be made. The north end is now the northern limit of range of *F. rufa* in England as it is about 9 km north in latitude of the only remaining colony in Yorkshire, at Dallowgill (SE1871).

#### **b) Medium populations**

Major Woods - 20 nests counted, probably more.

#### **c) Minor populations**

Marble Quarry and Hale Fell SSSI - only 7 nests found, though more have been reported (Martin Colledge FC, pers. comm.), but the site only seems to support a small population.

Grubbins Wood CWT Reserve - 13 active nests found.

Brown Robin CWT Reserve - one weak nest, not likely to survive.

I am grateful to Stephen Hewitt, Tullie House Museum, Carlisle, for preparing the Distribution Map, using DMAP software.

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## The Carlisle Naturalist

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### 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, RTF or Word format and accompanied by a paper copy. Only species and genera should be underlined or italicised. 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.

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### Summer Field Meetings 2000

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.

**8th April** (Saturday) MAMMAL TRACKS & SIGNS WORKSHOP John Webster & Stephen Hewitt. Meet Tullie House Museum 10.00 am. Book in advance with the Museum.

**15th April** (Saturday) DRIGG COAST – Intertidal Wildlife Leader: Betty Green Depart 12.00 noon. Meet Drigg road end (SD048985) at 1.30 pm.

**20th May** (Saturday) WHITECLOSERIGG FARM TRAIL Leader: Ann Robinson Depart 1.30 pm. Meet Whiteclose (NY467709) 2.00 pm.

**10th June** (Saturday) ESKMEALS NATURE RESERVE Leader: Tony Warburton (Honorary Manager). Depart 9.00 am. Meet Eskmeals Viaduct SD087942 at 10.30 am.

**24th June** (Saturday) WASDALE/ESKDALE AREA. Leader: David Clarke Depart 9.00 am. Meet on roadside at Greendale, Wasdale (NY146056) 10.30 am.

**8th July** (Saturday) THORNHILL MEADOWS Leader: Frank Mawby Depart 1.00 pm. Meet layby Wheyrigg (NY191491) 1.30 pm.

**28th July** (Friday evening) MOTH TRAPPING – venue to be decided, details from the leader Leaders: Mike Clementson/Richard Little.

Depart 8.30 pm. Contact number (01768) 898376

**5th August** (Saturday) KNOCK ORE GILL Leader: Jeremy Roberts

Depart 9.30 am. Meet Silverband road, at NNR sign (NY686288) 10.30 am.

**23rd September** (Saturday) FUNGUS FORAY - MARDALE HEAD Leader: Geoff Naylor. Depart 9.30 am. Meet at head of Haweswater Reservoir (NY469107) 10.30 am.

**7th October** (Saturday) FUNGUS FORAY – ARMATHWAITE & COOMBS WOOD Leader Geoff Naylor. Depart 10.00am. Meet Armathwaite Bridge (NY507460) 10.30 am.