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Lakeland Naturalist



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Lakeland Naturalist publishes material on all aspects of the natural history of the Lake District, the wider county of Cumbria and its immediate environs

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Contact us: info@carlisenats.uk
Postal: c/o Tullie House Museum, Castle St, Carlisle CA3 8TP
Editor: David Clarke: davidclarke6970@gmail.com; 01228-560117
Editorial Panel: David Clarke, Stephen Hewitt, Jeremy Roberts
Layout & DTP: Jeremy Roberts; cover: David Clarke

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Notes for authors:

General articles, results of personal research, news items, records and items of relevance to Cumbrian natural history and naturalists, present and past, are welcomed. Material accepted for publication must not be submitted in a similar form to any other journal or magazine.

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Opinions expressed in Lakeland Naturalist are not necessarily shared by the Council of the Carlisle Natural History Society or its Editorial Panel.

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Next issues: deadlines for final copy

1st September 2021 & 1st March 2022

Cover:

Leucistic Barnacle Goose at Cardurnock, 25 December 2020 — Frank Golding

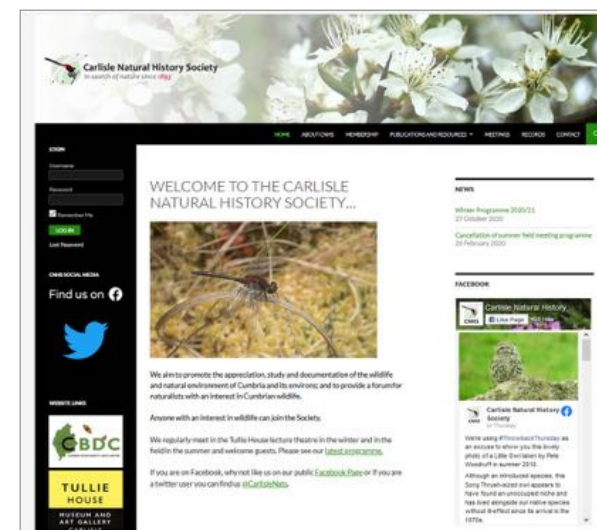
At the time of publication, the UK is beginning to ease out of the coronavirus epidemic.

The Society hopes to begin a limited field meetings programme during the summer, and to arrange a winter programme of indoor meetings.

Inevitably, this may have to involve short-notice decisions, and always in accordance with prevailing Government guidelines. Details will be posted on our website and mailed to members

Over winter 2020/21 we held a programme of nine online meetings, kindly arranged by Donna Salter and hosted by Stephen Trotter through Cumbria Wildlife Trust. Given the haste with which this had to be arranged and the necessity to adapt to hitherto unfamiliar technology, this worked very well and was well 'attended'. The events were recorded at the time and are available to members via the CNHS website login at the LHS of the front page.

Please note that our website address is now: carlisenats.uk



Wildlife Reports September 2020 – February 2021

The following is based on records submitted by CNHS members or accepted as correct from non-members. All records are forwarded to CBDC at Tullie House. Compiled by Frank Mawby and Bob Jones (bird records) and Guy Broome (non-bird records).

Records asterisked have associated images in this report.

Weather The first two weeks of September were unsettled, changeable and often rainy; the third and most of the fourth week were more settled and warm with the exception of a couple of wet days; the last few days produced two frosty mornings before turning changeable again (rain 67.5 mm). October was mostly very wet and changeable but generally mild with 49 mm of rain on 3rd; the last week and a half was very wet (rain 150.2 mm). November continued much the same with a few days of dry sunny weather in the first week. A single frost was recorded on 28th (rain 114.6 mm). There was little change over the first three weeks of December, but it turned cooler with a few frosts early on and then settling into a colder spell on 24th, broken by severe gales and rain on 26th (rain 97 mm). January turned much colder with frosts and mostly sunny days to the 9th with snow on 7th. From 13th to 20th it was very changeable with heavy rain on 13th and 19th with snow on the higher ground. From the 21st the last ten days were mostly frosty with sunny spells broken by a short, wet spell on 17th (rain 130.1 mm). February began with heavy rain and snow during the first week with the east of the county blanketed by snow, whilst the lowlands remained clear. The second week was very cold with persistent frost but sunny days. An abrupt change on 15th brought mild weather, generally overcast and breezy with rain at times, becoming more settled with sunny spells during the last week with temperatures well above average at times (rain 75 mm). Rainfall data is from my garden rain gauge (FJM).

With covid 19 still dominating and restricting our activities, the Society benefits from a membership living in all the habitat and geographical diversity northern Cumbria offers. Hence the volume and diversity of records remains virtually unchanged from a 'normal' year. The bird highlights included Long-billed Dowitcher, Pectoral Sandpiper, Firecrest, Cetti's Warbler and Long-tailed Duck. The arctic blast in January and February gave a return to an 'old fashioned' winter with considerable amounts of snow in the east of the county. The Solway Basin remained mostly snow-free but frozen – the unusual sight of ice-flows being once again seen on the estuary. Stonechats seem to have suffered heavy losses during the cold spell. This species always suffers in prolonged spells of frost.

Birds

Whooper Swan A single bird was seen at Jockey Shield on 26 September (JM) but the main arrival dates were from 11 October when JC reported 37 at Blackdyke. On 27 October, FJM investigated and counted 318, and another two flocks of 188 and 81 by the R. Wampool east of Kirkbride, a total of 587. However, there were reports of even

larger numbers at Parkhead during October. **Pink-footed Goose** Significant numbers were reported by several observers on 6 September, about a week earlier than usual. An estimated 28,000 were counted on morning flight on 24 January, of which at least 24,000 came off Moricambe Bay and most of the others off the Rockcliffe roost (FJM, CM, MA, RD). A Fox* was amongst the flock at Old Sandsfield on 24 January (NF). **Greylag Goose** JM estimated c. 1000 on Castle Carrock reservoir on 17 October. These are generally assumed to be British-bred birds. **European White-fronted Goose** AH saw four with Greylags at Catterlen on 21 December and NF two at Brunstock with Pinkfeet on 7 February. **Brent Goose** JC saw four on the foreshore at Blue Dial, Allonby on 28 December. **Barnacle Goose** About 2000 were on Rockcliffe Marsh on 26 September (NF) and an estimated 4000 by 7 October (RHJ). The flock on the Moricambe Bay marshes during the winter seems to have been in the region of 6000. **Wigeon** Higher numbers than of recent years, with over 1700 present in Moricambe Bay on 18 October (FJM). **Pintail** Numbers vary from year to year but this autumn an estimated 1050 were in Moricambe Bay on the WeBS count on 18 October (FJM), and 1330 on 4 November (RA) feeding on the rising tide west of Anthorn. **Garganey** A single bird at RSPB North Plain was a rare visitor on 16 September (DB). **Long-tailed Duck** DJ reported one at Longtown on 4 November and seven on 17 November. **Goldeneye** Four on the R Eden on 18 October WeBS count (PH). A single on Longtown Ponds on 4 November (DJ) and a male at Watchtree 18 February (FJM). **Smew** One on Longtown Ponds on 17 January (DJ).

Grey Partridge A covey of ten near High Hesket on 18 September (AE). RD reported a covey of 18 at Wreay on 29 September, which was down to ten on 8 January. **Red-throated Diver** FJM saw a juvenile in the Wampool channel west of Anthorn on 20 September and RH had another off Bowness-on-Solway 27 October. **Grey Heron** A bird on a nest at the Carlisle Cemetery heronry on 19 February was notable (RH). **Little Egret** Now regularly recorded on the saltmarshes and more recently inland at Dalston, where LC noted three on 4 January. PK noted one at Thursby on 31 January, DJ one at Longtown on 12 February and JM another at Aglionby Grange on 25 February. Perhaps the cold spell moved them off the marshes or they moved south: JC saw 11 flying past Allonby on 25 January.

Osprey One over Campfield Marsh on 16 October (FJR). **Red Kite** One at Talkin Fell on 19 September (JM) and another over Longtown on 23 October (DJ). **Marsh Harrier** One on Wedholme Flow on 22 November (FJM); this species was reported a few times from mid-September (reports from all sources). **Hen Harrier** A ringtail at North Plain on 8 October (FJM, DB) and a male flew close by RH at Campfield



Pectoral Sandpiper

Anthorn,
13 October 2020

Nick Franklin

Firecrest

Crosscanonby,
22 February 2021

Nick Franklin



Cetti's Warbler

Watchtree NR,
11 October 2020

Frank Mawby

Marsh on 19 December. There were regular sightings of at least two birds through the winter. **Goshawk** One flew by JM at Geltsdale on 14 October. **Merlin** There were frequent sightings this winter; the first was from Walton Moss, a female on 17 October (RHJ); there were frequent sightings of a male or a female during December to February. **Hobby** NF reported one at Whitrigg on 8 September and RHJ another at Wetheral on 14 September.

Golden Plover 400 were on the sands at Anthorn on 25 September (NF), MA and AA had one of the highest WeBS count totals for some years of over 6000 on 13 December. **Little Stint** One by Bowness railings on 19 September (NF), thereafter seen regularly through September. NF also saw one at Port Carlisle on 4 January. **Pectoral Sandpiper*** A rare North American vagrant, first seen by NF on 6 October at Anthorn and was present and seen by many observers at Anthorn through October. **Curlew Sandpiper** A regular on autumn passage, NF saw four juveniles at Bowness railings on 4 September and seven, all juveniles, on 6 September. **Woodcock** JM had three at Geltsdale on 14 October. DC flushed singles at Fishgarth Wood, 21 January and 28 February. **Jack Snipe** One at Geltsdale on 14 October (JM). During the cold spell in January one popped up from a roadside ditch in front of FJM's car on 15 January. **Common Snipe** PH had 40 on his River Eden WeBS count on 18 October; CA had 30 at Cliburn Moss NNR on 25 November and FJM at least 80 on Thornhill Meadows on 21 February. **Long-billed Dowitcher** Was a long-stayer at Anthorn from 2 September (NF) who noted its last appearance there on 6 January. **Iceland Gull** First seen at Carr Beds, Rockcliffe on 11 December (NF); DJ saw one on the R. Esk at Longtown on 27 February. **Mediterranean Gull** A regular visitor at Allonby. First seen on 17 September and another at the same location on 8 February worming on mole-hills (JC).

Long-eared Owl A remarkable observation of three roosting in bushes at Longtown Ponds on 10 February by DJ; two were still there on 22 February. **Short-eared Owl** One at Aughtree on 13 November (AE). **Nightjar** One at Jockey Shield on 3 September was very surprising (JM). **Swift** A late record on 8 September seen at High Heskett by AE. **Green Woodpecker** Recorded from High Stand (JM) on 25 October, Kershopefoot Bridge by GB on 23 September, and Swinside, Haweswater on 26 February (AH). Droppings of this species, containing ant remains, were found near Glenridding, 22 February by SH.

Firecrest* Seen at Crosscanonby water treatment works on 17 February (RH). **Willow Tit** Observations of three colour-ringed birds at Glasson and one at Bowness Gravel pits (FJM & LS). **Skylark** Passage of *c.* 300 at Grune on 14 October (JC), who

also noted cold weather movement of *c.* 100 at Allonby on 8 January. First singing males at Watchtree on 16 February (FJM). **Swallow** Last report was of one at Grune Point on 14 October (JC) at least until DB saw one at RSPB Hodbarrow on 7 December. **House Martin** RD reported two from a late brood at a local farm by Talkin Tarn on 25 October.

Chiffchaff This species now wintering regularly in the UK. A possible overwintering bird at Finglandrigg Wood NNR on 4 November (CA) and another was in Carlisle (NF) who also reported a possible Siberian race bird at Longtown Sewage works on 30 November, where CA had a probable *collybita* subspecies on 24 December; another sighting here was on 18 January. The latest sighting was one in the Denton Holme garden of MI on 19 February. **Blackcap** PH recorded one at Brampton on 12 September and DJ another at Longtown Ponds on 9 October. Are these late breeding birds or overwintering birds arriving? **Common Whitethroat** A late bird was at Wilkins Pool, Longtown on 1 September (RH). **Siberian Lesser Whitethroat** A presumed example of this race was photographed at Linstock on 5 February by NF. **Cetti's Warbler*** Two were ringed at Watchtree Nature Reserve by JC on October 11, one of which was recaptured in early January (FJM).

Starling A November murmuration at Watchtree was short-lived, with many moving to Thurstonfield Lough for a while. On 9 February RS reported a large number roosting near Southwaite Services on the M6. **Blackbird** Came into gardens in good numbers during the cold weather during January and February (FJM). **Fieldfare** On 14 October JC estimated 2700 passing over Grune in NE direction. **Redwing** AM reported three on Penrith Beacon on 24 September and JC had *c.* 300 at Grune on 14 October. JM had *c.* 1460 to a roost at Jockey Shield on 21 October. **Mistle Thrush** Five at Wetheral on 15 September (RHJ) and 47 at Longtown on 21 September (DJ). **Stonechat** JC reported that at least eight were absent from regular territories during the February cold spell. **Wheatear** One at Grune on 21 September (NF) and another was at Longtown on 23 September (DJ). **Spotted Flycatcher** Late records were of one at Longtown Ponds on 17 and 20 October (DJ).

Meadow Pipit JC noted hundreds moving south along the beach at Allonby on 17 September. **Rock Pipit** Four at Maryport harbour on 22 November (JC). **Brambling** Very few records this winter and low numbers; NF reported two flying over at Anthorn on 7 October and DJ saw one at Longtown on 25 January. **Greenfinch** JC reported 30 at Allonby on 22 January and RH watched *c.* 150 coming to roost at Garlands in Carlisle on 20 January – perhaps a sign that this species is recovering slowly from the *Trichomoniasis* disease which has devastated numbers since the early 2000s. **Siskin**

A flock of *c.* 40 reported at Longtown on 10 December (DJ) and *c.* 40 feeding in alders along Aikshaw Lonnin, Glasson on 31 January (FJM). **Twite** 25 were at Anthorn on 12 October (RH) and few at Port Carlisle on 16 October (FJR). A flock of *c.* 300 was on Calvo Marsh on 15 November and *c.* 150 on 13 December WeBS counts (FJM). **Linnet** A large flock of at least 400 feeding on a wildbird food crop at Pow Hill near Kirkbride on 4 December (FJM). **Crossbill** CA saw seven at Cliburn Moss on 12 October and two at Thornhill Moss NNR on 15 October; seven were reported to FJM at Watchtree on 27 January. **Snow Bunting** CH saw 4 on Stybarrow Dodd on 14 December. There were two on Grune on 3 January (CA) and a single was reported to AA at Anthorn on 18 January.

Mammals

A **Water Shrew** was found dead at Watchtree on 11 November (FM), and two more were dead in mouse-traps at Dalston on 4 February (DH). Two **Otters***, a mother and cub, were seen at Rockcliffe on 28 January (NF); two other individuals were regular visitors throughout the six months to the trail camera on the Gelt until the cub was found dead on the roadside nearby on 20 February (GB). Several **Polecat-ferrets** were recorded as roadkill in the Eden Valley (JM), and at two Trailcamera sites (GB); another was trapped at Cumwhitton on 19 October (per DC). A **Stoat*** in ermine was photographed by AM at Tindale Tarn on 28 February; another was seen at Flatt Farm, Castle Carrock on 21 February (RbS).

Fish

There appeared to be a good run of **Atlantic Salmon** with several spawning fish and kelts reported, eg. a male kelt of at least 6 kg being eaten by an Otter on the Esk at Longtown, 17 September (DJ).

Amphibia

A **Palmate Newt** was found on the Glasson Moss boardwalk 18 January (RG). The first record of frog-spawn was at Penrith on 19 February (SH); a count 50 frogs was recorded at Dalston, 23 February (DH). A **Smooth Newt** was noted at Sowerby Row, 23 February (GW).

Butterflies & Moths

Late season records were: **Peacock** at Rogersceugh, 7 November (FM); **Comma** at Cumwhitton, 6 October (DC); **Red Admiral** at Troutbeck 2 December (MO); **Small Copper** at Cumrew 4 October (GB). A **Convolvulus Hawkmoth** was found on a factory wall at Allonby on 7 September (LS). Another sporadic southern migrant



Top: Fox with Pink-footed Geese. Old Sandsfield, 24 Jan '21. Nick Franklin
Centre: Stoat 'in ermine'. Tindale Tarn, 28 Feb '21. Adam Moan
Bottom: Otter and cub. Rockcliffe, 28 Jan '21. Nick Franklin

moth, *The Vestal**, was recorded from Glasson Moss on 16 September (GB), followed by several records from south Cumbria (RF). *The Sprawler*, a declining UK autumn moth had a good resurgent year, with records from Skelton, 7 September (GB) and Witherslack, 6 November (RF). A second-instar *Drinker Moth* larva was found actively feeding at Geltsdale 4 January (AM). The earliest 2021 butterfly records were singles of *Small Tortoiseshell* and *Peacock* at Cumwhitton (DC) and a *Red Admiral*, Skinburness (VR), all on 27 February (DC). The Red Admiral is likely to have overwintered rather than being a new migrant – which is interesting as the species is only recently capable of surviving UK winters and yet has survived recent hard weather. Late-winter moth species included *Pale Brindled Beauty* at Hallbankgate, 17 February (AM) and *Spring Usher* at Cumrew, 22 February (GB).

Other arthropods

'*Snow Fleas*'* (*Boreus hyemalis*) were found on snow at Crosby Ravensworth Fell, 22 January and Ullswater, 2 February (SH). *Ivy Bee* was noted at Skinburness 22 September and 5 October (VR). The species was also found inland at Wetheral (BJ) – see Note on p. 10. For 2021, the earliest bumblebee records were *Tree Bumblebee* (*Bombus hypnorum*) on 22 February at Thursby (JO) and Cumwhitton, with that species and *Buff-tailed Bumblebee* (*B. terrestris*) at multiple sites on 27 February. A Drone Fly (*Eristalis tenax*) was also on the wing on that day at Cumwhitton (DC). Stem galls on Stone Bramble at Witherslack Woods on 17 October were presumed to be caused by the gall wasp *Diastrophus rubi* * (KM). A *Raft Spider** (*Dolomedes fimbriatus*) – a Nationally Scarce species – was in a moth trap at Roudsea Wood on 4 October (GB).

Recorders

AA: Anne Abbs, RA: Roy Armstrong, DB: Dave Blackledge, GB: Guy Broome, JC: John Callion, DC: David Clarke, LC: Lindsay Cowan, RD: Richard Dixon, AE: Anita Evans, RF: Roger Fellows, NF: Nick Franklin, RG: Russell Gomm, SH: Stephen Hewitt, DH: David Hickson, CH: Chris Hind, RH: Robin Hodgson, AH: Andrew Holliman, PH: Peter Howard, MI: Malcolm Ivinson, DJ: David Johnston, RHJ: Bob Jones, PK: Paul Kerrison, CM: Chris Mawby, FJM: Frank Mawby, JM: John Miles, KM: Kerry Milligan, AM: Adam Moan, JO: Jane Orgee, MR: Mo Richards, FJR: Jeremy Roberts, VR: Vivian Russell, LS: Lucy Shadlow, RbS: Rob Shaw, RS: Richard Speirs, LS: Liz Still, GW: Gill Wilson.



Raft Spider
(*Dolomedes fimbriatus*)

Roudsea Wood
4 October 2020

Guy Broome

The Vestal moth
(*Rhodometra sacraria*)

Glasson Moss
16 September 2020

Guy Broome



'Snow Flea'
(*Boreus hyemalis*)

Crosby Ravensworth Fell
22 January 2021

Stephen Hewitt

Gall of gall-wasp
Diastrophus rubi
on Stone Bramble
Witherslack Woods
17 October 2020

Kerry Milligan



Notes & Records

The Ivy Bee (*Colletes hederæ*) at Wetheral



Having been following the Bees, Wasps & Ants Recording Scheme (BWARS) Facebook page this summer and noting increasing numbers of images of *Colletes hederæ* from parts of England to the south of Cumbria, I decided, speculatively, to keep an eye on ivy near my home, particularly a south-facing bank about ten metres long on a track along the south side of the railway at Wetheral (NY4654).

On 15 September I briefly saw a bee showing prominent pale abdominal bands, certainly suggesting a *Colletes*, but wasn't able to get adequate photographs. I visited several more times but saw only hoverflies and wasps. The ivy was yet to come into full flower.

On 26 September Vivian Russell reported a *Colletes hederæ* at Skinburness – a first for the north of the county (she had recorded it at Grange-over-Sands in 2018, then new to Cumbria). This made me decide to check whether the ivy was further into flower. I saw, and was able to photograph, a *Colletes* (left) showing very broad abdominal bands. I submitted these images to BWARS, who confirmed that in their view the insect was indeed *C. hederæ* and I put it on *iRecord* at their request. Having had close views of various *Colletes* species on many days in my garden this summer, my impression was that the bee in this case was significantly larger and more robust.

The next day I happened to meet Nick Franklin at the site. He expressed some scepticism about the record in view of its isolation (this bee has normally advanced northwards coastally), with the added problem of identifying the species without examining a specimen. However, eventually we both photographed a promis-



ing individual (*right*), which, once its image was enlarged, did show the key identification features – orange-buff hairs on thorax, broad abdominal bands and, most importantly, hair tufts on tergite 1 of similar colour to those of the thorax (arrowed). These features, coupled with the late-ness of the date and the plants the bee visited, were enough to convince Nick that it was *C. hederæ*.

I later checked flowering ivy in other places in Wetheral but saw no other likely candidates, though it should be said that some of the best stands of ivy are in private gardens or whose warmer south sides are not accessible.

Bob Jones, 130 Greenacres, Wetheral CA4 8LU

***Pachyrhinus lethierryi* (Desbrochers, 1875) (Coleoptera, Curculionidae) new to Cumbria from Hensingham**

On 7 June 2020 I noticed a beetle which was resting in a downward position on the inside wall in my kitchen at Hensingham (NX986168). On closer inspection, I could see that it was a green weevil and from the shape of the body it had all the appearance of a small species of *Phyllobius* or *Polydrusus*. The weevil was eventually identified as a male *Pachyrhinus lethierryi*, using the keys and illustrations provided by Plant *et al.* (2006) and the online identification guide by Gurney. *P. lethierryi* was discovered for the first time in Britain in 2003 when several specimens were collected from Leyland Cypress (*Cupressus × leylandii*) at Bishops Stortford, Hertfordshire, and was officially added to the British list in 2006.

The weevil is associated with various species of mature coniferous trees and in particular cypress species and their hybrids. On the continent it has been recorded from species of *Thuja* and *Juniperus* (Rheinheimer & Hassler, 2010). Since *P. lethierryi* was first recorded in 2003, it has spread rapidly in Britain, and according to the NBN Gateway Atlas it has now been recorded from a number of localities in England, mainly from the Midlands, and from coastal areas in the south-east and south-west. Elsewhere, it has been recorded from North Wales (one record), and there are two unconfirmed records from the east coast of Scotland, north of Edinburgh. This discovery of *P. lethierryi* from West Cumbria constitutes a new record for the county and *v.c.* 70.

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*John Read, 43 Holly Terrace, Hensingham, Whitehaven CA28 8RF
jread@uwclub.net*

The terrestrial landhopper *Arcitalitrus dorrieni* (Hunt, 1925) (Amphipoda: Talitridae) from West Cumbria, new to v.c. 70

On 2nd October 2020 I discovered one adult specimen of the land plant-hopper *Arcitalitrus dorrieni* while searching for beetles in a sample of moss collected from a north-facing vegetated bank in woodland near the top of Snebra Gill, Hensingham, West Cumbria, NX982168. The specimen was examined under the microscope and was eventually identified by using the key, illustrations and detailed description provided by Gregory (2016). *A. dorrieni* is a terrestrial amphipod and related to the common sand-hoppers which are often seen in large numbers around the coastline of

Britain. It was first discovered and originally described from Tresco Abbey Gardens on the Isles of Scilly in 1924 (Hunt, 1925).

Since the discovery of the *A. dorrieni* in Britain, research work by Peart & Lowry (2006) has shown that it is native to the forests of New South Wales,



Arcitalitrus dorrieni. Daniel Danny Kiung

eastern Australia, from where other species of *Arcitalitrus* have been discovered and described. According to the NBN distribution atlas *A. dorrieni* has been recorded from south-west England, mainly in Cornwall and Devon, and from various localities in South Wales. There are scattered records in the north as far as the Hebrides in Scotland, and in Northern Ireland the majority of records are from the north-east. This record appears to be the first for v.c. 70. It has previously been recorded from Cumbria in v.c. 69 Westmorland, with records from Stockghyll Force, Ambleside, NY380201, and High Hag Wood, Windermere, SD409201. The latter details were kindly provided by Cumbria Biodiversity Data Centre.

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*John Read, 43 Holly Terrace, Hensingham, Whitehaven CA28 8RF
jread@uwclub.net*

The plant bug *Macrotylus solitarius*, and its food plant, Hedge Woundwort

In July 2020, while doing one of my frequent checks for invertebrates in our semi-wild garden area (SD210870), I noticed an almost indiscernible greenish, hairy, mirid bug on a leaf. From my photos I later identified it as *Macrotylus (Alloeonycha) solitarius* (Meyer-Dür, 1843), and this has been confirmed by Tristan Bantock.

According to the British Bugs web site (ref. 1) this is found locally on Hedge Woundwort (*Stachys sylvatica*) across much of England and Wales, particularly where it grows at woodland edges. However, this does not explain the known UK distribution, with the vast majority of the relatively few records (118 in all)



concentrated along the central spine of England from the south Pennines and then across the width of the Midlands (ref. 2). The food plant is common and widespread across England, but the hybrid with Marsh Woundwort (*Stachys palustris*), which is called Hybrid Woundwort (*Stachys* × *ambigua*), is common but not so widespread, being mainly concentrated in the

west and north. It is curious to note the correlation, that the bug does not seem to have a presence where the hybrid has been recorded, and this does appear, at least superficially, to be true for the whole of England.

From information supplied by Cumbria Biodiversity Data Centre, there are three previous records in Cumbria, two in 1993 at Sellafield, and one at Weddicar Hall (NY013170), 16 July 2016, by Graham Bell (of two adults). Both of these sites, and the one in our garden, are in locations where there are no hybrid woundworts recorded within a few kilometres. I believe this is worthy of further investigation, though to do it properly would require many resources and a proper investigation of the bug's ecology. Possibly, it may be unable to complete its life cycle on hybrids.

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1. https://www.britishbugs.org.uk/heteroptera/Miridae/Macrotylus_solitarius.html
2. <https://species.nbnatlas.org/species/NHMSYS0020309413>

Nigel Gilligan, 5 Foxfield Road, Broughton in Furness LA20 6EZ

Southern Migrant Hawker (*Aeshna affinis*) almost reaches Cumbria

A chance review of his recent photographs by Lancashire butterfly enthusiast Mike Gregory has led to the discovery of the image shown here – a male Southern Migrant Hawker, taken at Middleton Nature Reserve, Heysham on 24 August 2019. This European dragonfly is gradually becoming established in the UK, and now breeds in the south-east. This is the second Lancashire record and the species has been seen at similar distances north on the east coast. Given such occurrences, it should be increasingly kept in mind in mid/late summer, especially in south Cumbria, and at

adjacent sites such Leighton Moss and the site of this record. It most resembles Migrant Hawker (*Aeshna mixta*), including its size, though males have a blue and black abdomen with a very strong pattern and no yellow spots. The markings on the prothorax also differ. They are pale greenish dorsally, with a thorn-like pale blue one centro-basally. Females are harder to distinguish, with detail of the markings at the base of the abdomen and sides of the thorax being critical. The species appears to favour shallow waters prone to seasonal drying. Photographic evidence would be essential to enable confirmation of any observations.

David Clarke, Burnfoot, Cumwhitton, Brampton CA8 9EX



Mike Gregory

A Cryptogam Flora (lichens, bryophytes, ferns) of the Coniston Limestone (now Dent Group) in the English Lake District

Allan Pentecost
Division of Life Sciences, King's College London
allan.pentecost@kcl.ac.uk

Introduction

The Coniston Limestone (now called the Dent Group) crops out along a narrow strip of land running from the south-western coast of Cumbria to the eastern fells in the neighbourhood of Shap. The outcrops have a varied lithology, consisting for the most part of a lime-mud mixed with varying proportions of clay, silt and occasional layers of rhyolite lava. The sediments formed in a shallow sea near the margin of the Borrowdale Volcanic Province. The rocks are of Upper Ordovician age. The stratigraphy and lithology have been described by Shackleton (1975), Ingham *et al.* (1978) and McNamara (1979) and summarised by Bassett *et al.* (1992). While the Coniston Limestone consists largely of calcareous sediment, the amount of carbonate varies widely and falls close to zero in some areas. Consequently, the flora associated with these rocks, while tending to be base-demanding, includes many calcifuge species, leading to an exceptionally rich flora. At outcrop, the limestones are most often found finely interbedded with harder mudstones and silts resulting in a surface showing strong differential weathering, with a characteristic indented and layered structure (opposite). This weathering is almost certainly subaerial but is not always present. In the west near Millom, the limestone is more massive and less obviously layered. Despite the high proportion of carbonate, the rock is often extremely hard showing little tendency to split despite much evidence of cleavage. In parts of its western outcrop it is dolomitized and then erodes less readily than the associated pelites. It is often crossed by veins of calcite and quartz. The outcrop as mapped by the Geological Survey drift edition covers an area of about 4.4 km², but only a proportion of this is exposed for study, and of that, probably less than half has sufficient carbonate to be called a limestone. The mean annual temperature is estimated to be 7–8°C with total annual precipitation ranging from 1500 mm to 3000 mm for most of the range.

The main outcrop is about 45 km in length (Fig. 1, p. 18) but there are many breaks in exposure caused by burial under drift and a number of displacements resulting from N–S trending faults. Altitude ranges from around 45 m to 600 m reaching a maximum



Plate 1. Outcrop of the Coniston Limestone Formation below High Pike Haw (SD264949) showing deep weathering of the limestone layers and near-vertical cleavage, which also influences plant distribution. The bright green-yellow lichen is *Rhizocarpon geographicum* with some pale patches of *Pertusaria* species. The moss in the crevice at lower right is *Polytrichastrum formosum*. (See p. 21.)

on Harrop Pike, but here, and on Great Yarlside nearby, the outcrops consist almost entirely of the acidic Yarlside rhyolite with associated silts. There is a general increase in height proceeding from west to east. South-facing outcrops are common and tend to be less steep than other aspects. Several watercourses flow over the formation but seepages are infrequent, although the formation descends to Windermere and occurs in the lake littoral. Rocks of the same age occur in a large inlier below the North Pennines and at Cautley Spout on the Howgill Fells. Their lithology differs from the main outcrop and they are not considered here.

Earlier floras have paid scant attention to this feature, despite the fact that it can often be picked out in the fells by its bright green vegetation. Wilson (1938) believed the rocks exerted little effect over the local flora and Halliday (1997) came to the same conclusion. Apart from the occurrence of the (non-native) fern *Matteuccia struthiopteris* from the quarry at Thieves Hole, Skelghyll, there appears to be no direct reference to vascular plants recorded from these rocks. The cryptogams have received a little more attention though no systematic work has been done. Wilson appended a small list of bryophytes from a site 'on the east side of the Troutbeck Valley', probably

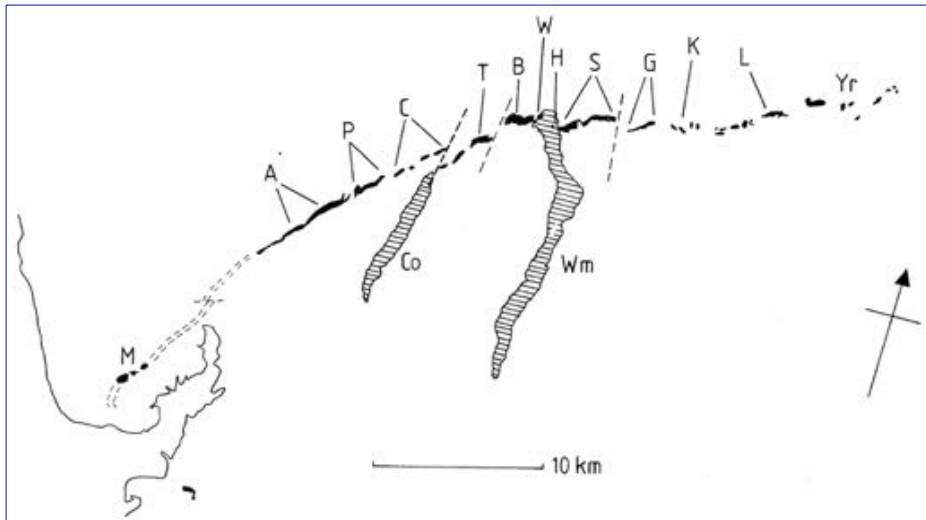


Figure 1.
Outcrops of the Coniston Limestone Formation in Cumbria showing locations of the sampling areas (see text). Breaks are caused by accumulation of drift. Broken lines indicate faults. Co Coniston Water, Wm Windermere, Yr Yarlside Rhyolite.

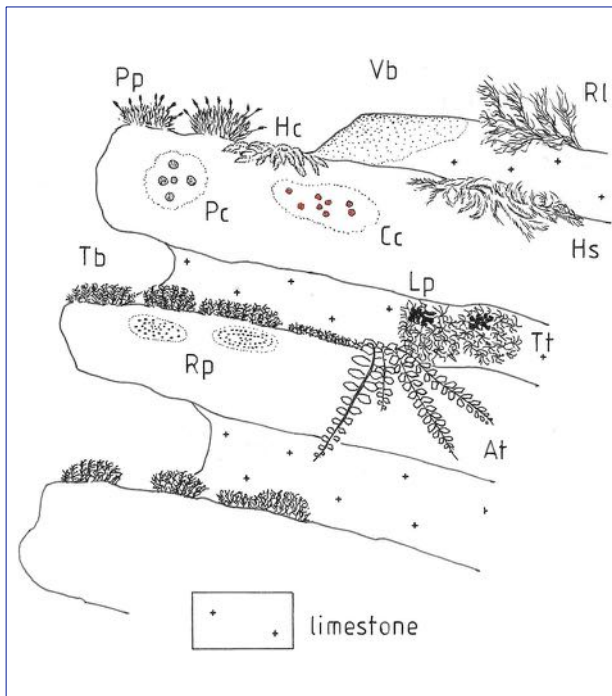


Figure 2.
Diagram showing a typical outcrop with interbedded limestone and siltstone. The limestone is undercut by weathering and the resulting recesses are often too dry to support plants except at the base where water collects and bryophytes become conspicuous.

At *Asplenium trichomanes*
Cc *Caloplaca crenularia*
Hc *Hypnum cupressiforme*
Hs *Homalothecium sericeum*
Lp *Leptogium pulvinatum*
Pc *Porpidia cinereoatra*
Pp *Ptychomitrium polyphyllum*
RI *Racomitrium lanuginosum*
Rp *Rhizocarpon petraeum*
Tb *Tortella bambergeri*
Tt *Tortella tortuosa*
Vb *Verrucaria baldensis*

the outcrops near the Garburn Road above Applethwaite Common (NY4203) and Martindale (1886–90) recorded *Peltigera leucophlebia* and *Thermutis velutina* near Kentmere Hall, almost certainly from the Coniston Limestone.

Sites were visited between 2008 and 2020, often on several occasions. Sampling was entirely qualitative although notes were kept on the relative frequency of the species. Small samples of critical material were removed for microscopic examination/chemical tests and some material passed to experts for confirmed identification. Nomenclature follows Blockeel & Long (1998) for bryophytes, Smith *et al.* (2009) for lichens, Stace (1991) for pteridophytes.

The Coniston Limestone was divided into twelve sections to facilitate recording, as shown on Figure 1. Individual sites within the section are listed below, with their National Grid Reference and altitude. They are referred to below when of interest. Since most outcrops have a varied lithology, recording from the individual facies of the series was impracticable. An attempt was made to cover the entire length of the outcrop but many sites had to be ignored and the following list should be regarded as preliminary.

Sections (see Fig. 1 for locations)

- A **Appletreeworth:** SD244926, 200 m.
- B **Brathay:** Holmstead Farm SD164815, 90 m.
- C **Coniston Old Man:** Upper car park SD286972, 270 m; footpath boulders SD287973, 220 m; Limestone Haws SD281968, 300 m; Timley Knott SD284970, 280 m; Ashgill Beck east side SD269956, 310; Flask Brow SD272958, 320 m; Willy Scrow SD284975 180 m.
- G **Garburn Pass:** NY423035 to NY431042, 290–440 m.
- H **Holme Crag:** Windermere NY378025, 40 m.
- K **Kentmere Hall:** Kentmere NY449043, 190–220 m; field boulders NY451040, 180 m.
- L **Longsleddale:** Stockdale NY492054, 220 m.
- M **Millom:** Low House fields SD164815(-816), 40 m; Waterblean Quarry SD174824, 30 m.
- P **Pike Haws:** Coniston. High Pike Haw SD264949, 350 m; Low Pike Haw SD261945 300m; Ease Gill, east side SD269955, 310 m.
- S **Skelghyll:** Ambleside. Skelghyll Farm NY391030–392030, 230–250 m; Dovenest NY383025, 50 m; Skelghyll upper woods NY386030, 200 m.
- T **Tarn Haws:** SD329996, 200 m.
- W **Windermere:** Pwll and Sandy Wyke NY365023, 40 m.

Results and discussion

The cryptogams contained a mix of calcifuge and calcicole species, reflecting the diverse lithology of the formation. The species lists are shown in the Appendices. The species are discussed with reference to three ecological groups: taxa usually confined to pure limestones, taxa characteristic of mildly base-rich rocks and taxa associated with base-poor rocks. For the lichens, a total of 92 taxa can be assigned to the first group, 40 to the second and 89 to the third. For the bryophytes the totals are 37, 24 and 35 respectively, although here the distinction between limestone species and other groups is more blurred. Of the lichens, by far the largest proportion (90%) were chlorolichens and of these, crustose and placodioid species predominated (81%). The remaining species included the macrolichens, with 15 fruticose and 19 foliose taxa. Macrolichens were much less in evidence in terms of abundance, reflecting the significant site exposure and mainly oligotrophic nature of the substratum. The remaining lichens include a significant proportion of cyanolichens (36 taxa, 16% of the total), plus five tripartite species (those containing a cyanobacterium and a green alga) and one basidiolichen.

The first group, containing species characteristic of 'pure' limestones, was found across the whole outcrop. Common crustose lichens in the more exposed outcrops were *Caloplaca flavovirescens*, *Catillaria chalybeia*, *Protoblastenia rupestris*, *Verrucaria fuscella* and *V. nigrescens*. Crusts found in more sheltered sites often included *Gyalecta jenensis*, *Lepraria nivalis*, *Placynthium nigrum* and *Verrucaria baldensis*. This last species, although widespread on the Coniston Limestone proper was rarely abundant and was the only widely distributed endolithic species. Endolithic lichens have their cortical hyphae and algal layer buried in the rock to a depth of several millimetres. There are several common species on the Cumbrian Carboniferous limestones and their scarcity on the Coniston Limestone is probably due to the low calcium carbonate content, inhibiting the etching ability of the hyphae and thus their colonisation. They tended to be more evident in the Millom area where the limestone is of a higher purity. Common foliose/squamulose lichens were *Agonimia tristicula*, *Collema cristatum*, *C. fuscovirens* and *Leptogium pulvinatum*. These taxa preferred sites which remained wet for prolonged periods such as temporary seeps and crevices. *Leptogium pulvinatum*, and a few other morphologically similar cyanolichens such as *L. gelatinosum*, *L. intermedium* and *L. schraderei*, were usually associated with cushion mosses such as *Tortella tortuosa* (Fig. 2). A number of other limestone lichens, although present, were much less well represented here than on the Carboniferous limestones. These include *Aspicilia*

calcareo, *A. contorta*, *Caloplaca dichroa*, *C. flavescens* and *Lecanora albescens*, common taxa associated to some degree with bird excreta; *Acrocordia conoidea*, a pyrenocarpous lichen of shaded rock; *Petractis clausa*, characteristic of damp horizontal limestone slabs; and *Solenopsora candicans*, a species of exposed but sloping slabs. A few species common and widespread on the Cumbrian Carboniferous limestones appeared to be entirely absent, namely *Clauzadea immersa*, *Rhizocarpon umbilicatum* and *Toninia sedifolia*. Other notable Coniston limestone species include *Dermatocarpon miniatum*, one of the few umbilicate lichens characteristic of damp shaded runnels, along with two species characteristic of exposed soil-filled crevices, *Romjularia lurida* and *Toninia aromatica*. A third species often associated with these on the Carboniferous limestone, *Placidium squamulosum*, was not recorded. Several rare or uncommon limestone lichens were also found. Notable among them were the pyrenocarps *Polyblastia verrucosa* and *Verrucaria pinguicula* and the cyanolichens *Porocyphus coccodes* and *Psorotichia schaeferi*. *Diploschistes gypsaceus*, a striking and rare shade species, was found at one sheltered site on Coniston Old Man. The tripartite lichen *Peltigera leucophlebia* was rediscovered in Kentmere, where it had been first found by Martindale (*op. cit.*). Around a dozen large and healthy thalli were found there and a few further thalli were found among rocks at the Garburn site not far to the west. This is an uncommon species in Cumbria, usually associated with the Carboniferous limestones but it also occurs in the fells where some base is present.

Among the bryophytes, the commonest limestone species of the more exposed sites were *Homalothecium sericeum*, *Tortella bambergeri*, *T. tortuosa* and *Hypnum cupressiforme* var. *lacunosum* – and the latter is probably more common than the records suggest. *Tortella bambergeri* is a characteristic species of the limestone but is similar to *T. nitida*, which was also recorded. Specimens were found where it was not possible to distinguish between these two taxa. While *T. tortuosa* is a common species on Carboniferous limestones, the other two appear to be rare and small forms of this species can also be confused with the other two. All of these mosses were conspicuous on the ledges below the weathered limestone (Plate 1) and often grew in enlarged cleavage channels (Fig. 2). In more sheltered sites other bryophytes often became abundant. These included mosses *Anomodon viticulosus*, *Ctenidium molluscum*, *Fissidens dubius*, *F. taxifolius*, *Neckera crispa*, and *Thamnobryum alopecuroides*, with the liverworts *Metzgeria furcata*, *Porrella arboris-vitae* and *P. platyphylla*. Of interest were *Encalypta streptocarpa*, *Gymnostomum aeruginosum*, *Plagiobryum zieri*, *Syntrichia intermedia* and liverworts *Cololejeunea calcarea* and *Preissia quadrata*. Ferns were not conspicuous on this formation and were usually

confined to sheltered cliffs and crevices. The most widespread calcicole was *Asplenium trichomanes* ssp. *quadrivalens*, which could usually be located in sheltered crevices. This was followed by *Cystopteris fragilis* but the plants were rarely seen well developed. Perhaps surprisingly, the calcicole *Asplenium adiantum-nigrum* was rare. *Asplenium viride* evidently occurs, as it was shown in the correct tetrads in Halliday (*op. cit.*) but was not seen in this survey.

The second ecological group associated with mildly base-rich rocks had many interesting taxa. Common lichen species in this group can be divided into three broad categories, those associated with drier and often more exposed sites, those of more sheltered and damper areas and those within runnels, streams or in the littoral zone of Windermere. These last are often grouped together as amphibious taxa. The first group containing the xerophytes includes several common forms, namely *Caloplaca crenularia*, *C. flavovirescens* and *Ochrolechia parella*. The last is particularly conspicuous, forming large pale patches on the exposed rocks. In more sheltered sites were *Collema flaccidum*, *Haematomma ochroleucum*, *Lecanora gangalaeoides*, *Lecidella scabra*, *Rhizocarpon obscuratum* f. *cinereum* and *R. petraeum*. Several rare species belong here, including the chlorolichen *Lecania sylvestris* and the leafy pyrenocarps *Dermatocarpon intestiniforme* and *Endocarpon adscendens*. These last two were found in the upper littoral of Windermere and are known from a few other littoral sites in the county. The amphibious lichens were of much interest. In the littoral of Windermere, where the Coniston formation crops out on both sites of the lake, were several rare cyanolichens. On the eastern side, *Collema dichotomum*, *Porocyphus kenmorensis* and cf. *Anema decipiens* occurred. The *Collema*, a red-data species and the *Porocyphus* were recently found in the Windermere littoral on other formations to the north but both are rare throughout the country. A lichen closely resembling *Anema decipiens*, a rare continental species, was noted at the water-line on Holme Crag island. It was associated with the *Porocyphus* but the material was too fragmentary to confirm the identification. *Pyrenopsis subaerolata* is a rare species of base-rich seepages and was found at two places, being locally abundant at Garburn Pass. Here the lichen was easily identified by its irregular jet-black thalli dotted with deep red semi-immersed apothecia. Another runnel species, *Thermutis velutina*, occurred locally at Skelghyll. This lichen was first discovered in Cumbria by Martindale at Kentmere, almost certainly on the Coniston outcrops but this is the first modern sighting. *Protopannaria pezizoides* is not a runnel species but occurs on sheltered rock with constant high humidity. It is rare in England and was found at two locations on the limestone below Coniston Old Man. A single thallus was seen on a

boulder near the main footpath to the summit, but a second site was later discovered in a disused slate quarry at Flask Brow. Here the limestone crops out near the quarry floor and revealed at least a dozen well fertile thalli. Three nationally important foliose species occur in this group and all are rare in the county. These are *Lobaria virens*, found on rock with *Nephroma* near Coniston at Willy Scrow and *Sticta canariensis*, which was found on rock close to Pwll Wyke and was also associated with the *Lobaria* above. Only the blue-green form containing the cyanobacterium *Nostoc* was encountered in this survey.

Most of the bryophytes found on the limestone proper also occurred on the base-enriched rocks but the diversity here increased with frequent *Pterogonium gracile*, *Ptychomitrium polyphyllum*, *Thuidium tamariscinum* and *Frullania fragilifolia*. A number of interesting species were also recorded such as *Isothecium alopecuroides* and *Frullania microphylla*. Wetter facies had locally *Bryum pseudotriquetrum*, *Cratoneuron filicinum*, *Palustriella commutata*, *Philonotis calcarea* with liverworts *Jungermannia atrovirens* and *Pellia endiviifolia*. A significant number of bryophytes regularly seen on the local Carboniferous limestones appeared to be absent. These included the mosses *Didymodon recurvirostrum*, *D. tophaceus*, *Eucladium verticillatum*, *Fissidens adiathoides*, *F. cristatus*, *Rhynchostegiella tenella* and *Tortula ruralis* and the leafy liverworts *Marchesinia mackayi* and *Apometzgeria pubescens*. The strongly calcicolous mosses *Didymodon tophaceus* and *Eucladium verticillatum* were not seen and their absence must reflect the impurity and resistance of most of these limestones to weathering.

The third ecological group contains the calcifuge species. It contained few surprises, although a good range of common Cumbrian taxa occurred. Particularly common on exposed rocks were the lichens *Cladonia subcervicornis*, *Lecanora intricata*, *L. polytropa*, *Melanelixia fuliginosa*, *Parmelia saxatilis*, *Pertusaria corallina* and *Tephromela atra*. More sheltered formations had *Diploschistes scruposus*, *Pertusaria dealbescens*, *P. lactea*, *Opegrapha gyrocarpa* and *Porpidia cinereoatra*. Three nationally scarce species were seen, the cyanolichen *Euopsis* (sterile), and chlorolichens *Lecidea fuliginosa* and *Toninia thiopsora*. Three tripartite lichens were found on base-poor rock but only one of these was at all common on the formation – *Stereocaulon vesuvianum*. This lichen is widespread in the Cumbrian fells and grows preferentially on iron-rich substrata. In Cumbria however, cephalodium production is usually suppressed. A single crustose representative, *Amygdalaria consentiens*, was found in one spot near Coniston. The placodioid *Placopsis lambii* occurred on damp outcrops at Coniston. Like *Stereocaulon*, this

species is often found without cephalodia, as was the case here.

Common bryophytes on the base-depleted rocks were *Campylopus atrovirens*, *Dicranella heteromalla*, *Hypnum cupressiforme* var. *cupressiforme*, *Isothecium myosuroides*, *Mnium hornum*. *Polytrichum juniperinum* and *Racomitrium lanuginosum* with liverworts *Frullania dilatata*, *F. tamarisci* and *Metzgeria furcata*. *Isothecium* along with the above liverworts are best regarded as base-tolerant as they tend to occur on circumneutral rather than acidic substrata. *Racomitrium lanuginosum*, a calcifuge moss, formed thick springy tufts that may grow directly on the limestone and is presumably subject to a degree of isolation from base owing to its growth form. Among the more interesting calcifuge mosses was *Diphyscium foliosum*, a small species with distinctive sessile capsules. Ferns colonising the more acidic substrata included frequent *Dryopteris filix-mas* and perhaps other species of the genus while *Cryptogramma crispa* and *Blechnum spicant* were much less common.

In addition to the above, a few observations were made of flowering plants and freshwater algae. There was no systematic investigation, but chance observations suggest that more a more detailed investigation would be rewarding. Particularly widespread and common calcicoles included *Campanula rotundifolia*, *Geranium robertianum*, *Oxalis acetosella*, *Sedum anglicum* and *Thymus polytrichus*. Others included *Ceratocarpus claviculata*, *Geranium lucidum*, *Hypericum hirsutum* and *Thalictrum minus*. Despite the suggestion that the formation had little effect on the vascular plant flora, seepages below the outcrops in the High Pike area had frequent *Parnassia palustris* indicating local base-enrichment. The most interesting of the freshwater algae were both Rhodophytes: *Chrootheca richterianum* from Thieves Hole, Skelghyll and *Hildenbrandtia rivularis* from Kentmere. The green alga *Hormidiopsis crenulata*, an indicator of air pollution (oxidized nitrogen) was widespread on base-poor outcrops of the formation. The cyanobacteria *Gloeocapsa compacta*, *Scytonema myochrous*, *Stigonema informe* and *S. minutum* were often conspicuous on the more basic outcrops, with brown-red strata of *Gloeocapsa sanguinea* agg. common on the more acidic ones.

From the above, it should be evident that the Coniston Limestone has an exceptionally rich cryptogam flora, owing to its varied lithology and complex surfaces, resulting from differential weathering. Particularly interesting were comparisons with the flora of local 'pure' Carboniferous limestones. A number of species occurring on the latter were absent or rare on the Coniston outcrops. Nonetheless, the Coniston Limestone is notable for its rare or uncommon lichens, especially amongst the cyanolichens. Further surveys will doubtless uncover

additional interesting finds. Eight of the lichen species asterisked in the Appendices are new vice-county records. All are for v.c. 69 (Westmorland) except *Lecania sylvicola* which is in v.c. 70 (Cumberland).

Acknowledgements

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Appendix (1/4). Coniston limestone cryptogam flora:

A Appletreeworth; B Brathay; C Coniston; G Garburn; H Holme Crag, Windermere; K Kentmere; L Longsleddale; M Millom; P Pike Haw; S Skelghyll & Dovenest; T Tam Hows; W Windermere, Pwll & Sandy Wyke. Asterisks indicate new vice-county records.

Lichens			
<i>Acarospora nitrophila</i> *	P	<i>Catillaria lenticularis</i>	C, H, M, S
<i>Acarospora veronensis</i>	G, M	<i>Cladonia cervicornis</i>	G
<i>Acrocordia conoidea</i>	M	<i>Cladonia diversa sensu lato</i>	C, T
<i>Acrocordia salweyi</i>	M	<i>Cladonia fimbriata</i>	K
<i>Agonimia tristicula</i>	B, C, H, M, P, S, T	<i>Cladonia floerkeana</i>	C
<i>Amandinea punctata</i>	C	<i>Cladonia furcata</i>	G, T
<i>Amygdalaria consentiens</i>	C	<i>Cladonia pocillum</i>	B, C
<i>Anaptychia runcinata</i>	M	<i>Cladonia portentosa</i>	P, T
<i>cf Anema decipiens</i>	H	<i>Cladonia pyxidata</i>	C, T
<i>Arthroraphis citrinella</i>	C, G	<i>Cladonia rangiformis</i>	C, S, T
<i>Aspicilia caesiocinerea</i>	B, H, K, M, S	<i>Cladonia squamosa</i>	
<i>Aspicilia calcarea</i>	H, M, S	var. <i>subsquamosa</i>	C
<i>Aspicilia contorta</i>		<i>Cladonia subcervicornis</i>	C, G, P, S, T
subsp. <i>contorta</i>	M	<i>Cladonia subulata</i>	T
<i>Aspicilia cf. grisea</i>	C	<i>Cladonia uncialis</i>	T
<i>Bacidia vindifarinosa</i>	S	<i>Clauzadea monticola</i>	C, G, K
<i>Baeomyces rufus</i>	C, P, T	<i>Collema auriforme</i>	H, M
<i>Belonia nidarosiensis</i>	C, P, T	<i>Collema crispum</i>	M
<i>Bilimbia sabuletorum</i>	C, M, T	<i>Collema cristatum</i>	B, C, G, H, S, W
<i>Botryolepraria lesdainii</i>	K, M	<i>Collema dichotomum</i>	H
<i>Buellia aethalea</i>	H, S	<i>Collema flaccidum</i>	B, C, S
<i>Buellia stellulata</i>	H	<i>Collema fuscovirens</i>	B, G, K, M, P, T
<i>Caloplaca chrysodeta</i>	A, C	<i>Collema glebulentum</i>	C
<i>Caloplaca cirrochroa</i>	M	<i>Collema subflaccidum</i>	C, S
<i>Caloplaca citrina</i>	C, M, T	<i>Collema tenax sensu lato</i>	P
<i>Caloplaca crenularia</i>	B, C, H, M, S	<i>Dermatocarpon intestiniforme</i>	H
<i>Caloplaca dichroa</i>	M	<i>Dermatocarpon minutum</i>	B, H, M
<i>Caloplaca flavescens</i>	C, M	<i>Dermatocarpon luridum</i>	W
<i>Caloplaca flavocitrina</i>	H	<i>Dibaeis roseus</i>	C, G, P, T
<i>Caloplaca flavovirescens</i>	H, G, K, L, M, S, T	<i>Dimereilla lutea</i>	C
<i>Caloplaca lactea</i>	M	<i>Diploicia canescens</i>	M
<i>Candelariella vitellina</i>	C, H, K, M, P, S	<i>Diploschistes gypsaceus</i>	C
<i>Catillaria atomarioides</i>	C, T	<i>Diploschistes scruposus</i>	C, P, T
<i>Catillaria chalybeia</i>	C, W	<i>Diplotomma alboatrum</i>	M
<i>Catillaria chalybeia</i>		<i>Dirina massiliensis f. sorediata</i>	C
var. <i>chloropoliza</i> *	T	<i>Endocarpon adscendens</i>	H
		<i>Ephebe lanata</i>	C
		<i>Euopsis sp.</i>	H

Appendix (2/4)

<i>Fuscidea cyathoides</i>	C, G, P, T	<i>Lobaria virens</i>	C
<i>Fuscidea lygaea</i>	G, P, T	<i>Melanelia fuliginosa</i>	B, C, M, S, T
<i>Gyalecta jonesis</i>	C, G, H, K, P, S, T	<i>Melanelia glabrata</i>	A
<i>Haematomma ochroleucum</i>		<i>Micarea leprosula</i>	C, T
var. <i>porphyrium</i>	C, M, S	<i>Micarea lignaria</i>	T
<i>Haematomma ochroleucum</i>		<i>Mycobilimbia pilularis</i>	C
var. <i>ochroleucum</i>	M	<i>Nephroma laevigatum</i>	C
<i>Hymenelia prevostii</i>	H, T	<i>Ochrolechia androgyna</i>	T
<i>Hyperphyscia adglutinata</i>	M	<i>Ochrolechia parella</i>	A, B, C, G, H, M, P, S, T
<i>Hypotrachyna revoluta</i>	M, T	<i>Ochrolechia tartarea</i>	P
<i>Ionaspis lacustris</i>	A, C, G, P	<i>Opegrapha gyrocarpa</i>	A, C, G
<i>Ionaspis suavis</i>	K	<i>Opegrapha rupestris</i>	H, M
<i>Lasalia pustulata</i>	H	<i>Opegrapha zonata</i>	A, C, T
<i>Lecania erysibe</i> var. <i>soralifera</i>	M	<i>Parmelia omphalodes</i>	P
<i>Lecania cf. hutchinsiae</i>	C	<i>Parmelia saxatilis</i>	B, C, G, M, P, S, T
<i>Lecania sylvicola</i> *	M	<i>Parmelia sulcata</i>	M
<i>Lecanora albescens</i>	H, M	<i>Peltigera didactyla</i>	B, H, M
<i>Lecanora campestris</i>	H, M	<i>Peltigera horizontalis</i>	B, C, H, K
<i>Lecanora crenulata</i>	L (wall), T	<i>Peltigera hymenina</i>	B, C, G, H, K, L, M, T
<i>Lecanora dispersa</i>	C, H, M	<i>Peltigera leucophlebia</i>	G, K
<i>Lecanora gangaleoides</i>	A, C, H, M	<i>Peltigera membranacea</i>	B, C, H, L, T
<i>Lecanora cf. hageni</i>	M	<i>Peltigera praetextata</i>	C
<i>Lecanora intricata</i>	C, G, M	<i>Peltigera rufescens</i>	C
<i>Lecanora muralis</i>	B, H, M	<i>Pertusaria albescens</i>	
<i>Lecanora orosthea</i>	C, M	var. <i>corallina</i>	C, M
<i>Lecanora polytropa</i>	G, H, M	<i>Pertusaria amara f. pulvinata</i>	B
<i>Lecanora rupicola</i>	M	<i>Pertusaria aspergilla</i>	C, G, P, T
<i>Lecanora sulphurea</i>	M	<i>Pertusaria corallina</i>	B, C, G, M, S, T
<i>Lecidea confluens</i>	M, S	<i>Pertusaria lactea</i>	B, C, S, T
<i>Lecidea fuliginosa</i>	C	<i>Pertusaria lactescens</i>	C
<i>Lecidea lactea</i>	C, S	<i>Pertusaria pertusa</i>	C, H
<i>Lecidea cf. paupercula</i>	C	<i>Pertusaria pseudocorallina</i>	C, M, T
<i>Lecidea cf. sanguinolatra</i>	C	<i>Petractis clausa</i>	K
<i>Lecidella scabra</i>	C, H, M, S, T	<i>Phaeophyscia orbicularis</i>	M
<i>Lecidella stigmataea</i>	C	<i>Phlyctis argena</i>	T
<i>Lepraria lobiflans</i>	C	<i>Physcia adscendens</i>	C, M
<i>Lepraria nivalis</i>	A, C	<i>Physcia caesia</i>	H
<i>Leptogium cyanescens</i>	B	<i>Physcia tribacia</i>	M
<i>Leptogium gelatinosum</i>	B, H	<i>Piscopsis lambii</i>	C
<i>Leptogium intermedium</i>	G, S	<i>Placynthium nigrum</i>	B, C, G, H, K, M, P, S, T
<i>Leptogium lichenoides</i>	C	<i>Placynthium subradiatum</i>	C
<i>Leptogium plicatile</i>	H	<i>Polyblastia alba</i>	B
<i>Leptogium pulvinatum</i>	B, C, G, H, P, T	<i>Polyblastia cruenta</i>	C, G
<i>Leptogium schraderi</i>	B	<i>Polyblastia dermatodes</i>	H, T
<i>Leptogium teretifuscum</i>	B, C	<i>Polyblastia verrucosa</i> *	G
<i>Lichenomphalina umbellifera</i>	S	<i>Polysporina simplex</i>	T

Leucistic Barnacle Geese

Frank Mawby

Wayside, Kirkbride, Wigton, Cumbria CA8 8DF

As our cover image shows excellently, white-plumaged Barnacle Geese are an occasional feature amongst the Solway flocks of this species. Unlike true albinos, these birds are ‘leucistic’ – lacking some or much of the black feather pigment but retaining normal eye, bill and leg colour. Owen & Shimmings (1992) give a useful account of this phenomenon and state that leucism is controlled by a single, recessive allele – genetically quite a simple trait.

A total of 15 (including 11 in the last 21 years) have been reported in the population breeding in Svalbard and wintering in the Solway Firth. Leucistic birds do occur in the other two populations (Greenland and Russian/Baltic) but are not as ‘snowy white’ as the Svalbard birds (P. Shimmings, pers. comm.)

The first sightings of leucistic Barnacle Geese on the Solway are discussed by Blezard (1943). This tells us that there was a ‘white Barnacle’ in the winters of 1923/4, and 1924/5. One was also seen in early 1935 and one shot in 1939 was acquired for Tullie House Museum, Carlisle, by Ernest Blezard, curator and expert taxidermist. This prompted a short note to *British Birds* at the time (Blezard, 1939). His account mentions that the 1939 bird was one of four ‘obtained’ since 1925. Such birds had clearly become a desirable target for wildfowlers of the time, as he made clear in his retrospective of the characterful Solway wildfowler, Jim Storey (Blezard, 1946).

Since at least 2000, it has been documented that every year between two and four ‘white’, *i.e.* leucistic, Barnacle Geese have been present on the Solway. Up to four different leucistic birds were recorded in winter 2011–2012 (Griffin, 2012), including a family group of three which was thought possibly the same group as in the previous winter. These birds were seen in the Bowness to Grune area. In a subsequent report, the same author reported ‘a minimum of eight leucistic birds on 12 December 2018 ... including three in the Caerlaverock area, two at Rockcliffe, two in the Newton Marsh area and one at Mersehead. Two leucistics were often closely associated and thought to be siblings’. On the south Solway, four were in the Moricambe Bay flock in 2019/2020 but so far only two in 2020/2021. All these records can be viewed against the changing fortunes of the Svalbard Barnacle Goose, which at some 40,000 birds is now at its highest population ever – a huge recovery from a low of around 300 in the 1950s, through which the leucistic form persisted.

Owen & Shimmings (*op. cit.*) state that the median lifespan of leucistic birds is 2–3 years, compared to 8–10 years for normal-plumaged birds. This is because they are easy targets for hunters, human and otherwise. (After many years of legal protection, shooting should not be an issue today.) There is no evidence that there is any difference in pairing or breeding performance between white and normal birds. One male, which is still alive aged 18 years, has produced 13 young; this performance is matched for less than 2% of normal geese. It is suggested that the Svalbard population of Barnacle Geese became established relatively recently, from a few founders from the Russian (Siberian) population. If one or two of these carried the allele controlling leucism, this would explain its much higher prevalence in this population than in the other discrete groups of Barnacle Geese in Greenland and Siberia.

Possibilities of confusion with other ‘white geese’ have always to be considered, especially the occasional presence of a Ross’s Goose, which is similar in size to Barnacles, but with pink bill and legs. The Snow Goose is larger, again with a pink bill and legs. Both have black primaries. These and leucistic Barnacles all have a dark eye, which immediately eliminates albinos of any species.

Acknowledgements

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Philopatry in male and female Stonechats

John Callion* & Stephen Westerberg§

* Bank Cottage, Allonby, Maryport CA15 6QH

§ Stagsike Cottages, Hallbankgate, Brampton CA8 2PW

Introduction

It was once thought that breeding close to a natal area is typical of many passerines, even though this can lead to inbreeding and reductions in productivity (Campbell & Lack, 1985). However, recent studies reviewed by Weatherhead & Forbes (1994) appear to show that inbreeding may be unimportant to small passerines and that natal philopatry is typically low and that its extent can be far more flexible than hitherto believed.

In some species, sexual differences in natal dispersal have evolved. Such differences in philopatric loyalties may give the best opportunity for some relatively short-lived species to remain productive in favourable habitats. Dispersal is most common amongst females, occurring especially where males are monogamous, defend a territory and attract a mate (Campbell & Lack, *op. cit.*; Greenwood, 1980).

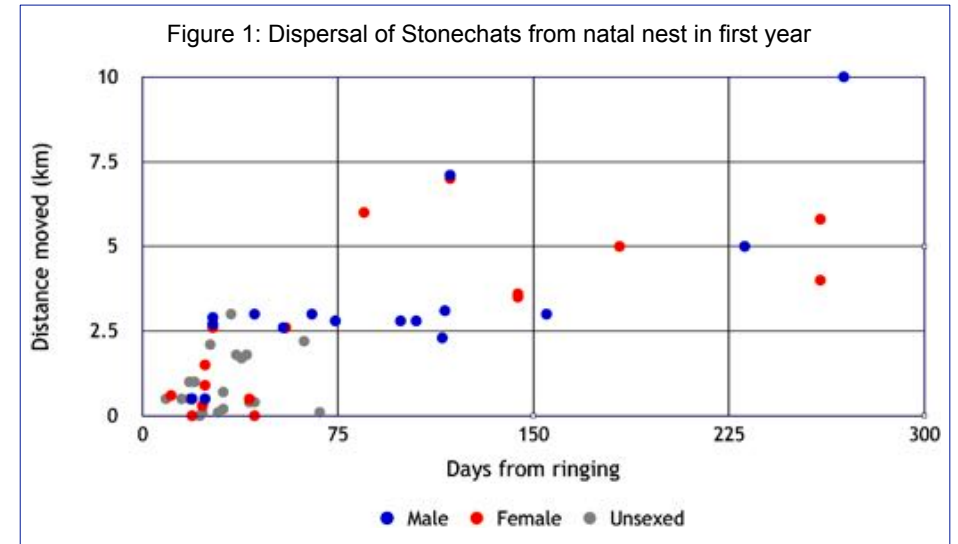
Natal philopatry appears to be more strongly influenced by ecological factors such as a guaranteed food supply and a secure nesting territory and is more likely in resident species than migrants (Callion, pers. obs.). As adults, Stonechats appear to be site-faithful although, as they are relatively short-lived, supporting evidence for this is hard to obtain. At Geltsdale, there are three records of males that did not spend the winter there but returned to the same area to breed in the following year.

In this study, Stonechat nestlings were uniquely colour-ringed (Plate 1) and then re-sighted, both after fledging and in subsequent breeding seasons. The results suggest a marked difference in loyalty to natal sites between the sexes.



Plate 1. Immature male, colour-ringed. RSPB Geltsdale Reserve

Adam Moan



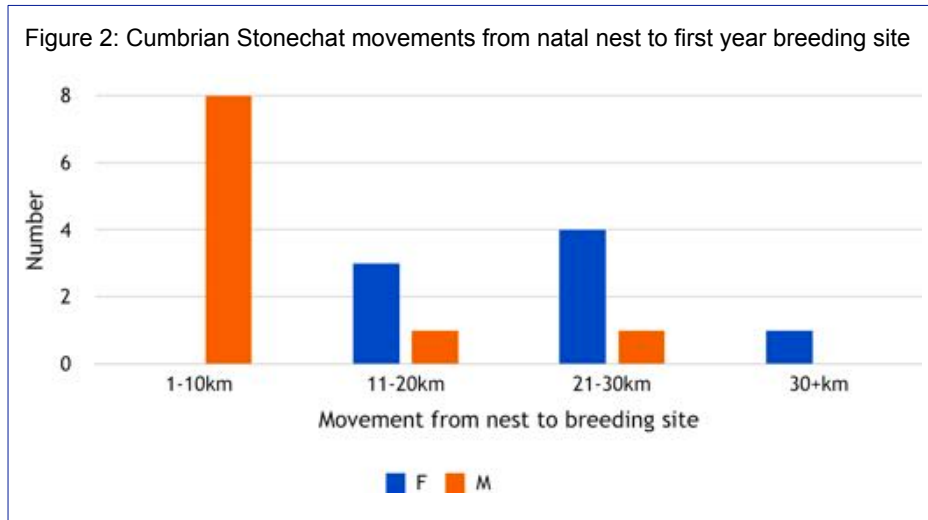
Results

The first re-sightings were made after the nestlings had fledged, generally within a week of them being ringed. This study shows that juveniles can remain in the vicinity of the nest for up to 60 days this is also noted in other studies for unrelated species such as Reed Warbler (D. Leech, pers. comm.) and related species such as Whinchat, studied at RSPB Geltsdale. As the evidence for this Stonechat dispersal is based on a small sample size, further study is required to confirm these findings.

As Stonechats cannot be sexed as juveniles, the sex of the young birds in Figure 1 (above) has been amended from later sightings once individuals have undergone post-juvenile moult.

There is evidence (Callion, 2015) that after fledging and becoming independent, some juvenile Stonechats move many kilometres and gather in loose but connected 'flocks' to undertake their post-juvenile moult. These flocks have not been seen to contain siblings. It is suggested that this activity may serve at least two functions: increased anti-predator warning at a time of vulnerability due to moulting and an opportunity to meet unrelated birds.

After the post-juvenile moult there is an increase in the distances over which the birds disperse (Figure 2, overleaf). However, due to constraints on survey effort, this data only relates to birds that stay within Cumbria: an unknown proportion of the Stonechats in Cumbria will migrate to western Mediterranean countries for the winter,



as revealed by other birds by Callion (*op. cit.*). There have been two recoveries in Spain, seven in France and more at staging points on the south coast of England at migration times.

After moult, it has been observed that many birds form pairs and then move to establish winter territories, and then relocate again, generally with different partners, to breed in the following spring.

These winter territories are mainly outside established nesting territories, which are occupied throughout the year, particularly on the coast. In some years when Stonechats have been abundant this behaviour has been noted inland in the uplands at RSPB Geltsdale.

We have 18 records of Stonechats ringed as nestlings and then re-sighted the following springs. The value of having individually colour ringed birds reveals, as in the case of the two same sex sets of siblings, that chicks from the same brood appear to follow the same philopatric rule! Table 1, opposite, lists where the birds in this study have been ringed and subsequently seen.

Of the 18 re-sightings reported here, twelve are coast–coast, five inland fell–inland fell, and one inland fell to coastal moss. These data show that for Stonechats, females have a greater natal dispersal than males (Table 1). The longest movement was made by an upland female; all the other longer movements have been along the coast, so the upland influence would seem to be insignificant. The table includes two pairs of siblings, one of the pairs, both males, having moved to the same area but seen in different years.

Original ringing	Place ringed	Subsequent breeding obs.	Place	Sex	Dist. (km)
07/05/1989	Drigg	10/05/1990	St Bees	F	15
18/06/1989	Parton	23/04/1990	Maryport	F	20
27/04/2014	Sale Fell	26/06/2020	Ennerdale	F	20
23/06/1990	Braystones	28/07/1992	Harrington	F	21
28/04/1991	Drigg	02/07/1992	Parton	F	23
07/05/1989	Drigg	28/07/1991	Harrington	F	25
20/05/1990	St Bees	17/04/1991	Maryport	F	27
19/07/2012	Geltsdale	01/07/2013	Glasson Moss	F	36
15/07/2015	Mawbray	15/07/2016	Mawbray	M	1
03/05/1991	Lowca	22/05/1992	St Bees Head	M	7
27/07/2015	Lonscale Fell	06/06/2016	Catbells	M	7
25/04/2019	Catbells	30/04/2020	Dock Tarn	M	7
03/06/1989	Sellafied	10/05/1991	St Bees	M	8
26/07/2015	Blitterlees	23/06/2016	Allonby	M	9
28/04/1989	Nethertown	28/04/1990	Drigg	M	10
28/04/1989	Nethertown	10/05/1991	Drigg	M	10
03/08/1990	Mosedale	28/04/1992	Sale Fell	M	15
07/05/2015	Mawbray	26/06/2020	Lowca	M	25

Table 1. Subsequent nesting of Stonechats ringed as nestlings, ranked by sex and distance of subsequent breeding sites. (Coloured cells indicate same-nest siblings)

If we look at nesting habitat, between Ravenglass and Silloth virtually all of the coastal strip is suitable, forming a continuous corridor in which Stonechats can breed, winter and travel with areas of low Gorse (*Ulex europaeus*), Marram (*Ammophila arenaria*) and other rough grass types, as well as some extensive patches of heather (*Calluna vulgaris*). It also provides for relatively safe freedom of movement. The altitude of all nests here are less than 20 metres a.s.l.

The four on the western fells are from nests between 300–400 m a.s.l. In the fells, heather and bracken (*Pteridium aquilinum*) are the predominant nest site choices. Movement between fells would require either over-flying valleys or traversing along the fell slopes.

At Geltsdale, where the population has generally been on the increase (though with some significant reductions in cold winters), only a small proportion of the Stonechats appears to overwinter. The nest of the Geltsdale bird in Table 1 was at 250 m asl. For

this bird to travel to Glasson Moss, it would have needed to cross more than 30 km of apparently unsuitable habitat.

Conclusions

Re-sightings of 18 individually colour-ringed nestling Stonechats in the seasons following fledging suggests that natal philopatry has a stronger ecological meaning to males, with most breeding within 10 km of where they were hatched. By contrast, most females were found to be breeding between 20 km and 30 km. Some of these individuals will have wintered locally and others migrated and spent the winter up to 2000 km away (Callion, 2015). Dispersal is costly to the individual: risks include movement itself, predation, failure to find new feeding areas and hostile behaviour from resident Stonechats (Li & Kokko, 2019).

As Stonechat females do not defend a territory, they are likely to have a lower risk of hostile challenges than males – giving them an advantage if dispersing. The advantages to females of dispersing are avoidance of the adverse effects of inbreeding and of having a greater choice of male territories in which to breed (Tyler *et al.*, 1990). Not dispersing has the advantage of being familiar with the distribution of resources (Hinde, 1956) – which is of benefit to males defending a territory.

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Transcripts of the Annual Reports of Carlisle Museum's Natural History Record Bureau, 1902–1912

Robin M. Sellers* & Stephen Hewitt §

* Crag House, Ellerslie Park, Gosforth, Cumbria CA20 1BL

§ 28 Castle Drive, Penrith, Cumbria CA11 7ED

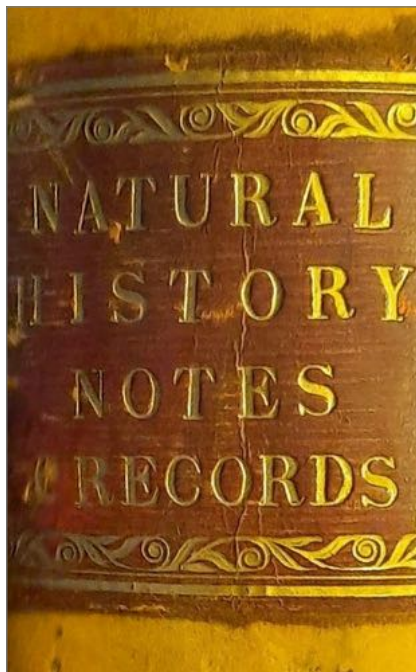
In 1902 Carlisle Museum (as Tullie House Museum was then known) set up a 'Natural History Record Bureau', often cited as the first local Biological Records Centre in Britain. Its stated aim was to encourage the collection of information about wildlife within a fifty-miles radius of Carlisle (Hope, 1910), though this soon became 'Lakeland' as defined in Macpherson's *A Vertebrate Fauna of Lakeland* (1892), that is, Cumberland, Westmorland and the detached portion of Lancashire on the north side of Morecambe Bay, for all practical purposes the modern county of Cumbria.

The information obtained was entered longhand in a large leather-bound ledger, referred to as the 'Record Book', now in Carlisle Library, though its cover title was actually 'Natural History Notes & Records' (overleaf). Sightings were entered in chronological order, followed by details of what had been seen, where sightings had been made and the date, together with any other relevant information and the observer's name. These were used to prepare an annual report – in effect an early example of a county natural history report. The first such report was duly published in the issue of the *Carlisle Journal* (the city's twice weekly newspaper) for 26th February 1904. It covered the period from the inception of the Bureau in June 1902 to the end of 1903. Others followed at yearly intervals.

In 1908 the contents of the 1905 report were republished in the *Zoologist*, by far the most important journal serving amateur naturalists in Britain in the nineteenth century, in much the same form as it had appeared in the *Carlisle Journal*. This had been done without the knowledge or permission of the compilers of the original report (L. E. Hope and D. L. Thorpe), and a note duly appeared in the *Zoologist* in which Hope & Thorpe expressed their dissatisfaction with this turn of events. Presumably as a result of this incident the Annual Report began to be published in the *Zoologist*; the 1909 Report appeared in both the *Carlisle Journal* and the *Zoologist*, but thereafter they appeared only in the *Zoologist*. Publication ceased with the appearance of the 1912 Report.

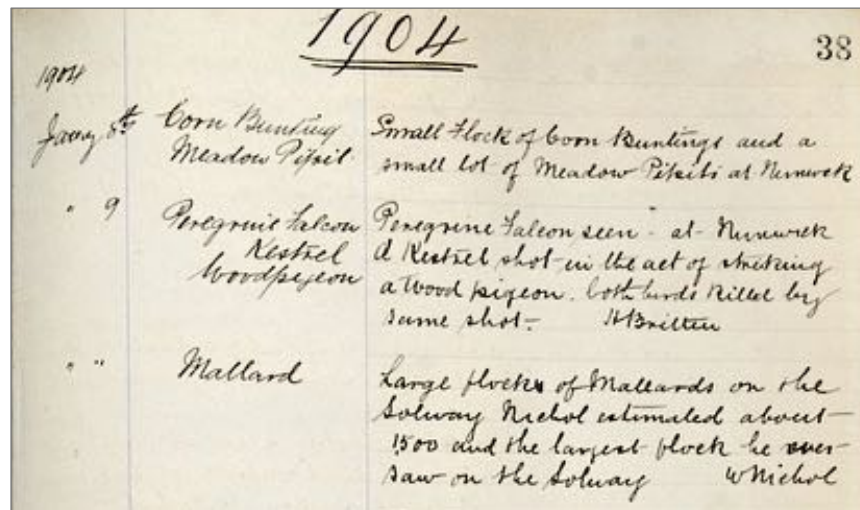
Copies of the reports published in the *Carlisle Journal* are available on microfilm, but their quality is poor, and much the same is true of the on-line versions of the

Zoologist. In view of these difficulties, we have prepared a transcription of the reports which is available as a downloadable pdf file (details below). In addition to the reports themselves, the transcript also contains details of some newspaper cuttings pasted at intervals in the 'Record Book'. The material has been prepared to be straightforward to read on screen and can readily be used to search for specific terms such as species names.



There is strong emphasis in the reports on birds, which provide around 90% of the records received by the Record Bureau. The remainder were mainly mammals but include a number of fish. Some of the more interesting records went on to be published elsewhere, notably in journals such as the *Naturalist* or *British Birds*. Others were incorporated into the Dunlop's (1923) update to Macpherson's *A Vertebrate Fauna of Lakeland*, though often the Annual Reports provide more detail than appears in Dunlop's update. Of particular interest are those species which were relatively common a century or more ago but have since declined in number. There are, for instance, a good number of references to Corncrakes *Crex crex* and several to Corn Buntings *Emberiza calandra* in these reports, both species which no longer occur in the county. Several firsts for Lakeland are also mentioned. They include the following; a bird (Stone Curlew *Burhinus oedicanus*), a mammal (Noctule *Nyctalus noctula*), an amphibian (Palmate Newt *Lissotriton helveticus*) and two fish (Gilthead *Crenilabrus melops* and Scale-rayed Wrasse *Acantholabrus palloni*) in Cumberland, and a bird (Golden Oriole *Oriolus oriolus*) in Westmorland.

Quite why the Annual Reports ceased with the publication of that for 1912 is not entirely clear but we suspect that the growing importance of the Carlisle Natural History Society rendered the need for the Record Bureau as a vehicle for collecting and collating records redundant. Whatever the explanation, it appears to have been well ahead of its time and for a decade or so fulfilled an important role in the development of natural history record keeping in Lakeland.



The first entries for 1904 in the 'Record Book': the 'recorders' here were well-known local naturalists. H. [Harry] Britten (1870–1954) was then head keeper at the Nunwick Hall Estate, Great Salkeld and later to become a noted museum entomologist at Manchester; W. [William] Nichol (1854–1934) was a well-known Solway wildfowler.

Transcripts of the ten annual reports of the Natural History Record Bureau and related information are available in Sellers & Hewitt (2020a), copies of which can be downloaded from the Cumbria Biodiversity Data Centre's website. In addition, paper copies have been lodged with Tullie House Museum and Carlisle Library. A more detailed account of the Natural History Record Bureau and related activities at Carlisle Museum is available in Sellers & Hewitt (2020b), paper copies of which have been lodged with Tullie House Museum and Carlisle Library; electronic copies (as pdf) are available on request from the authors.

Acknowledgements

We are indebted to Stephen White and colleagues at Carlisle Library for allowing access to the 'Record Book' and their help in locating the material published in the *Carlisle Journal*.

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